



BIG HOLE
WATERSHED COMMITTEE
Conservation Through Consensus.

**ELKHORN CREEK: RESTORATION
PLANNING IN A DEGRADED
HEADWATER STREAM**
USBR WaterSMART Phase I Grant Application

Big Hole Watershed Committee

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Table of Contents

1. Technical Proposal and Evaluation Criteria.....	1
1a. Executive Summary.....	1
1b. Project Location.....	2
1c. Water Resource Issues in Elkhorn Creek.....	2
1d. Technical Project Description	7
1e. Evaluation Criteria	10
2. Project Budget	18
2a. Budget Proposal	18
2b. Budget Narrative	19
2c. Funding Plan and Letters of Commitment.....	22
3. Environmental and Cultural Resources Compliance.....	22
4. Required Permits & Approvals.....	25
5. Letters of Project Support.....	25
6. Official Resolution.....	25

1. Technical Proposal and Evaluation Criteria

Proposal Date

January 19, 2021

Organization

Big Hole Watershed Committee, 501 c(3) non-profit
Divide, Beaverhead County, Montana

1a. Executive Summary

The Elkhorn Creek: Restoration Planning in a Degraded Headwater Stream Project will support the Big Hole Watershed Committee's (BHWC) capacity to pro-actively address multiple water resource issues stemming from historic mining activities in our headwater streams in southwestern Montana. A century of underground hard rock mining and milling at the abandoned Elkhorn Mine & Mill site have resulted in stream habitat degradation, water quality impairments, and hazards to public health and safety. This project will design watershed management activities that will restore water quality, aquatic habitat, and public drinking water supplies. We will utilize our organization's extensive experience of collaboratively restoring multiple beneficial uses to headwater streams degraded by historic mining and resource extraction. A 2020 study commissioned by the BHWC found significant Total Maximum Daily Load (TMDL) exceedances for trace metals and metalloids in Elkhorn Creek. This study identified discrete and diffuse sources of acid mine drainage (AMD) and residual contamination in surface water, groundwater, and floodplain sediments. The BHWC will build on previous investigations and coordinate with diverse stakeholders to advance remediation and restoration planning in the Elkhorn Creek watershed. With this project, we will continue that work by retaining technical services to assess, design, plan, and engineer tractable solutions for persistent water resource issues in Elkhorn Creek.

The BHWC aims to completely remediate and restore the Elkhorn site to safe and ecologically functional conditions by removing surface water and groundwater contamination sources, reducing risk to the health and safety of tourists, recreationists, and sportsmen, enhancing water quality, improving aquatic habitat, and preserving cultural resources. To achieve these desired conditions, the BHWC have prioritized several distinct restoration actions that include 1) cultural resource inventories, 2) trace metal and polychlorinated biphenyls (PCB) contamination characterization and removal, 3) hillslope runoff management and AMD mitigation, 4) flow control structure improvements, and 5) aquatic habitat enhancement features.

The first steps toward achieving the desired conditions – and the scope of work proposed in this WaterSMART Phase I funding request – focuses on:

1. Stakeholder coordination with local, state, federal, academic, public and private representatives
2. Cultural resource assessments, inventories, and consultations with Montana State Historic Preservation Office (SHPO)
3. Surface water, groundwater, and soil contamination characterization studies
4. Preliminary engineering designs for water resource restoration via removal of contamination

These actions were prioritized based on extensive stakeholder input, recognition of the site currently being listed on the National Register of Historic Places, and the immediate risks that ongoing contamination poses to human health and aquatic ecosystems. This project will take place from the Spring of 2021 through the Spring of 2023.

Federal Lands/Facilities

The lands encompassing Elkhorn Creek and the Elkhorn Mine & Mill are entirely within the boundaries of the Beaverhead-Deerlodge National Forest. As the land management agency and primary project partner, the U.S. Forest Service (USFS) will provide input into all aspects of the project and assist with identification and compliance with USFS or other Federal requirements or standards which pertain to the work in this proposal. As this proposal is specifically for restoration planning and design, all field work will take place on public lands and design work will occur on lands or in facilities of our stakeholders.

1b. Project Location

The Elkhorn Mine & Mill is adjacent to Elkhorn Creek near Coolidge ghost town in the Pioneer Mountain Range within Beaverhead County, Montana (Figure 1). The project site lies within the NE ¼ of Section 4 within Township 4 North, Range 12, encompassing reaches upstream and downstream of the Elkhorn Mine & Mill (45.49°, -113.04°). Elkhorn Creek resides within hydrologic unit code (HUC) 10020004, flowing into Jacobson Creek before entering the Wise River near Mono Creek Campground (USGS, 2020). The Wise River feeds into the Big Hole River at the town of Wise River, Montana, approximately 21 miles north of the site and approximately 43 miles southwest of Butte, Montana.

1c. Water Resource Issues in Elkhorn Creek

Elkhorn Creek is a high-elevation (> 7,000 ft), second-order stream draining 9.9 mi² of the rugged East Pioneer Mountain Range in southwest Montana (Sando et al., 2016). This stream offers crucial cold-water habitat for threatened Arctic grayling and Westslope cutthroat trout populations. Its waters help irrigate the prime agricultural lands of the Wise, Big Hole, and Beaverhead river valleys. Although it naturally flows down the eastern side of the Continental Divide, Elkhorn Creek helps supply public drinking water to the 34,000 residents of Butte, MT – a mining city perched at the top of the Columbia River watershed. While the Elkhorn Creek drainage is 76% forested and appears pristine, the lower portion of the watershed is plagued by

historic mining activities associated with the Elkhorn Mine & Mill. The Elkhorn Mine & Mill, situated alongside Elkhorn Creek, has a documented history of acting as both a point and non-point source of acid mine drainage (AMD) to the watershed. As a result, Elkhorn Creek is currently listed as impaired for arsenic, cadmium, copper, lead, sedimentation-siltation, and zinc by the MT Dept. of Environmental Quality (DEQ) (BHWC, 2012).

The Elkhorn Mine, discovered in 1872, included over 24,000 feet of underground workings by its initial closure in the 1930s. During operation, the nine vein systems produced 1,013 ounces of gold, 180,843 ounces of silver, 4,100 pounds of zinc, 370,799 pounds of copper, and 851,725 pounds of lead. By the mid-1990s, the Montana Bureau of Mines & Geology (MBMG) began site investigations that would inform preliminary remediation efforts. Under the jurisdiction of the BDNF, the Elkhorn Mine & Mill underwent reclamation and remediation to reduce human health and environmental hazards at the site (Table 1). Phase I (circa 1998) of the reclamation efforts focused on stabilization of the waste rock dump and removal of mill tailings from the historic stream channel/floodplain adjacent to the old mill site to a capped repository located approximately 3 miles away. Phase II (2001) removed additional tailings in the floodplain and reconstructed 3,320 feet of Elkhorn Creek to a low gradient, meandering channel. Phase III (2005) removed some, but not all, mill tailings and contaminated building materials associated with abandoned structures. Removal of all mill tailings was not performed during previous remediation efforts because the privately-owned mill building was undergoing salvage operations for its massive wood timbers. This Phase was complicated by the fact that the Elkhorn Mill building was deemed a culturally significant feature requiring significant measures to preserve as much of the integrity of the site as possible. Furthermore, the massive amount of wood debris generated from numerous timber salvage operations at the site created a major safety issue for removal operations. Phase IV (2005) addressed safety concerns associated with the 1000-level adit by stabilizing the adit portal (underground entrance) to reduce public endangerment.

Table 1. Previous USFS CERCLA Removal Actions

Phase	Year	Actions Completed	Actions Remaining (2021-2025)
I	1998	<ul style="list-style-type: none"> Remove floodplain tailings piles Construct and cap repository Stabilize, regrade, & cover waste rock pile 	<ul style="list-style-type: none"> Remove residual tailings Manage and/or full or partial removal of waste rock pile Characterize groundwater contamination
II	1999-2001	<ul style="list-style-type: none"> Remove additional floodplain tailings Construct 3,320' of stream channel Construct water diversion structure 	<ul style="list-style-type: none"> Enhance stream habitat quality Improve water diversion structure to restore natural flow regime in reconstructed channel

		<ul style="list-style-type: none"> • Repair waste rock pile diversion ditch 	<ul style="list-style-type: none"> • Increase efficacy/capacity of waste rock pile diversion ditch
III	2005	<ul style="list-style-type: none"> • Remove additional mill tailings • Remove mill wood & debris 	<ul style="list-style-type: none"> • Characterize and remove residual soil contamination • Expand off-site repository • Stabilize, restore and revegetate mine and mill areas
IV	2005	<ul style="list-style-type: none"> • 1000-level adit safety assessment and investigation • Stabilize adit portal and install lockable gate 	<ul style="list-style-type: none"> • Manage and treat/mitigate acid mine drainage • Treat and/or mitigate contaminated groundwater • Stabilize, restore and revegetate mine and mill areas

As of 2020, the remaining structures in the mill area have deteriorated to a point where they may no longer meet requirements for cultural resource integrity, or the criteria for historical significance. In addition, the area and floodplain surrounding the mill is unvegetated, contaminated with trace metals and possibly PCBs, poses a public safety risk, and contributes substantial pollutant loads to Elkhorn Creek. Moreover, the soil-capped waste rock pile and AMD from the 1000-level adit continue to degrade surface and groundwater resources in the watershed.

Previous USFS reclamation and remediation work was completed by 2005. Funding from litigation settlements with responsible parties has been depleted, and the site continues to degrade Elkhorn Creek. Water quality pollutants in exceedance of aquatic life and human health standards (DEQ, 2019) have been documented by MBMG (Marvin et al., 1998), researchers from Montana Tech (Gammons, 2009), and the BHCW (Watershed Consulting, 2020; *Error! Reference source not found.*). Data from the Elkhorn Mine & Mill Investigations completed in 2020 attest to the critical need for removal of contamination sources and improved management of hillslope runoff to restore surface and groundwater resources. For example, this study found copper, lead, and zinc exceeded TMDL standards in Elkhorn Creek by up to 2.15, 0.06, and 0.51 lbs/day, respectively (*Table 2*).

Trace metal contamination results in a complete lack of fish presence in Elkhorn Creek near Elkhorn Mine and acts as a chemical barrier to upstream fish habitat while posing human health risks to downstream users. The investigations identified and prioritized several remediation and restoration alternatives that may provide immediate improvements to water quality, aquatic habitat, and public drinking water supplies. The proposed project seeks to leverage the WaterSMART program to develop the highest-priority restoration actions centered around reducing and removing sources of surface and groundwater contamination in Elkhorn Creek.

These efforts will manifest as cultural resource assessments, surface water, groundwater and soil characterization studies, and preliminary engineering designs for restoration planning.

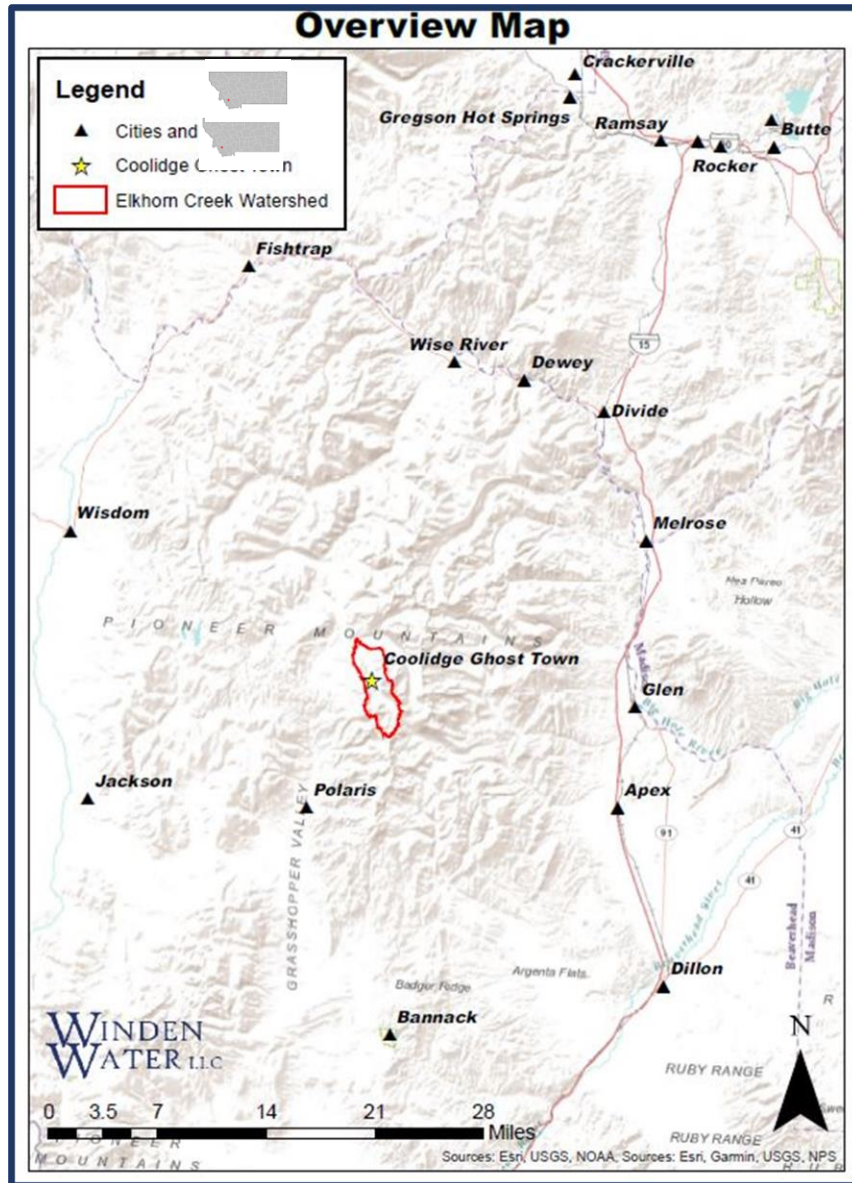


Figure 1. The Elkhorn Creek watershed (red) and Coolidge Ghost Town (yellow star) near the Elkhorn Mine and Mill in southwest Montana relative to major cities and towns.

Table 2. Trace metal and metalloid measured loads, TMDL Allowance, and TMDL Exceedance for Elkhorn Creek at high and low flow conditions. Exceedance is calculated as Measured Load – Allowance Load (DEQ 2009). Bold values represent those that are in exceedance of TMDL restrictions.

Flow Conditions	As	Cu	Pb	Zn
<i>Measured Load (lb/day)</i>				
High Flow	0.050	2.843	0.100	7.357
Low Flow	0.004	0.221	0.002	1.527
<i>TMDL Allowance (lb/day)</i>				
High Flow	3.551	0.695	0.038	10.350
Low Flow	0.350	0.068	0.004	1.020
<i>TMDL Exceedance (lb/day)</i>				
High Flow	-3.501	2.148	0.062	-2.993
Low Flow	-0.346	0.153	-0.002	0.507

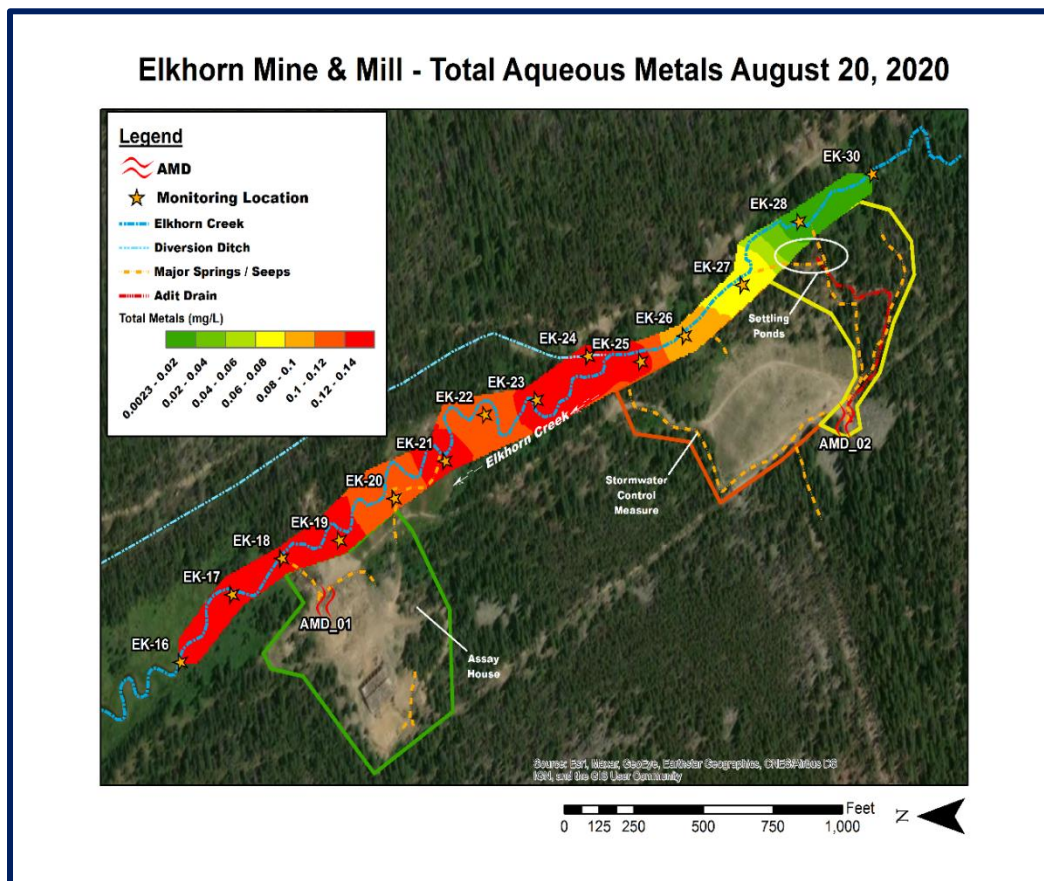


Figure 2. Trace metal concentration heat map (color gradient) of Elkhorn Creek showing the Elkhorn Mine (yellow), Mill (green), waste rock pile (orange), and major springs/seeps (dashed orange) taken from the Site Characterization Technical Memo (Watershed Consulting, 2020). Total aqueous metals (sum of total recoverable As, Cu, Pb, Mn, Ag and Zn) increased rapidly from background concentrations approaching analytical detection limits to levels exceeding aquatic life and human health standards.

1d. Technical Project Description

Applicant Category

The BHWC seeks WaterSMART Phase I funding as an Existing Watershed Group. Established in 1995, BHWC is a local, grassroots watershed group and central hub of diverse viewpoints on resource and community conservation concerns. We are a consensus-based nonprofit organization dedicated to conservation of the Big Hole River and its watershed. Our work is comprehensive, spanning rivers, floodplains, uplands, communities, wildlife, water, and fisheries. We provide education, facilitate conversations and planning for issues in our area, and put meaningful restoration work on the ground. Our organization has always made decisions by consensus.

The BHWC is currently composed of a 22-member Governing Board that represents diverse interests including: ranching, utilities, local government, sportsmen, conservationists, tourism, and outfitters. Representatives from local, state, and federal agencies participate as technical advisers. We are a multi-stakeholder entity that works closely with other conservation organizations as well as local, state, and federal agencies on watershed restoration and management plans. We are committed to:

- Involving all interests that are willing to seek practical solutions that benefit all interests;
- Promoting a common understanding among individuals and groups with diverse viewpoints;
- Fostering the ability of local individuals and groups to create effective solutions to local problems; and
- Seeking long-term solutions based on sound information.

In the past 5 years, BHWC has increased its staffing capacity and expertise and is now a trusted partner in co-designing and overseeing large scale restoration projects on the landscape. From 2018-2020, BHWC secured and deployed \$1.3 million in restoration grant funds in the watershed. Over 90% of these investments have been dedicated to the Middle and Upper sections of the Big Hole River, but we continually seek projects addressing headwater concerns. In 2018, we hired a program manager to address what we have seen as a growing need to solve pressing water resource issues in the headwaters, beginning with abandoned mine lands remediation and restoration.

Water quality, particularly the capacity for fluvial systems to provide functional habitat, safe drinking water, reliable irrigation, and other ecological services, is increasingly a focal point of our restoration work. We have found that this focus resonates with our local outfitters, fishing guides, irrigation and drinking water users, recreationists, public land managers, and the regional concern for mine-related pollution in our watersheds. Therefore, the BHWC commissioned recent studies to better characterize ongoing mine-related water resource issues in Elkhorn Creek. In 2020, we founded and coordinated a collaborative team of diverse stakeholders including the U.S. Forest Service (USFS; landowner), the MT Department of Fish Wildlife & Parks (FWP), the MT Department of Environmental Quality (DEQ), the Beaverhead

Conservation District (BCD), Montana Technological University researchers, members of the public, and other interest groups. Moving forward, we seek to build upon these studies and act on newly gained insight to design tractable solutions to the most critical water resource issues facing Elkhorn Creek.

Eligibility of Applicant

The Big Hole Watershed Committee is a grassroots, non-regulatory entity that has had water resource issues at the core of its work since its inception in 1995. We work with a diverse board of stakeholders by consensus. (See Appendix for eligibility documentation).

Past Working Relationships with the Bureau of Reclamation

- 2020-2022: BoR WaterSMART Phase I: Planning and Stakeholder Engagement for Water Quantity in the Lower Big Hole Project (\$100,000)-used to address water scarcity issues in the lower section on the Big Hole watershed.
- 2019-2021: BoR WaterSMART Phase II: Funding for implementation of stream channel restoration project on French Creek in the middle section of our watershed (\$86,000).
- 2017-2018: Sub-award from the Montana DNRC as part of BOR Drought Contingency Planning Grant (\$20,000) – used to support and operate the Big Hole River Drought Management Plan, build capacity of our drought coordinator, and participate in Upper Missouri Headwaters Basin drought planning.
- 2008 BOR Emergency Drought Relief Act

Goals

The goals of the proposed Watershed Management Project Design Activities are:

- Reduce the degradation of surface water, groundwater, and public lands
- Improve water quality in the Elkhorn Creek and Wise River watersheds
- Enhance and restore aquatic habitat degraded by historic mining operations
- Preserve and protect historic cultural resources
- Organize a technical working group comprised of diverse project stakeholders

Approach

Our project will address Task C: Watershed Management Project Design. The BHWC currently has an open CWMP Phase I grant contract (Planning and Stakeholder Engagement for Water Quantity in the Lower Big Hole Project). These two projects are distinctly different, in scope and approach.

Our approach for The Elkhorn Creek: Restoration Planning in a Degraded Headwater Stream Project is guided by the overarching objective of delivering construction-ready projects that will improve water quality, enhance aquatic habitat, and protect public drinking water supplies in Elkhorn Creek. The following four objectives and associated tasks outline the approach for achieving our goals:

Objective I: Stakeholder Coordination

To guarantee the success of this project, we will:

- Develop and coordinate a technical working group representing all Elkhorn Creek stakeholders
- Work with USFS and other agency personnel to identify project priorities, resources of concern, and regulatory requirements
- Hold multi-stakeholder coordination meetings in offices and in the field
- Host regularly scheduled virtual meetings for continuous coordination
- Manage contracts associated with technical consultants and contractors

Objective II: Cultural Resources

Cultural resource coordination will be on-going during the development of sampling plans and preliminary restoration designs to ensure the protection of historic assets. To preserve the integrity of the Elkhorn Mine & Mill's cultural resources, we will contract a consultant to:

- Review existing cultural reports to identify structures and features of historic significance that must be preserved, protected, and avoided during investigation and restoration planning.
- Provide consultations and field verification of the sampling and analysis plans to meet the 'no adverse effects' requirements for cultural resources.
- Submit findings of 'no adverse effects' to MT State Historical Preservation Office and obtain approval to proceed with field investigations.
- Oversee exploratory pit sampling efforts to ensure no adverse effects and to mitigate any accidental discoveries made during field investigations.

Objective III: Site Characterization

To fill remaining data gaps regarding residual surface water, groundwater, and soil contamination and public safety issues, we will contract a hydrogeological researcher and an environmental consultant to:

- Assess surface water and groundwater interactions to develop a hydrologic budget and identify zones of groundwater discharge and recharge within Elkhorn Creek.
- Conduct surface water and groundwater sampling of Elkhorn Creek and adjacent floodplain to assess the extent and degree of contamination and explore geochemical interactions influencing water quality and aquatic life toxicity.
- Perform strategic exploratory pit sampling to characterize contaminated soils, sediments, and materials in the vicinity of Elkhorn Creek and Elkhorn Mine & Mill. Analyze samples for trace metals and PCBs.
- Map the concentration and extent of existing contamination in the vicinity of Elkhorn Creek and Elkhorn Mine & Mill.
- Estimate volumetric quantities of contaminated groundwater, soils and sediments that require restoration actions.

Objective IV: 80% Preliminary Design and Cost Estimates

To address various water resource issues in Elkhorn Creek, we will contract an engineering firm to:

- Collaborate on development and interpretation of site characterization studies.
- Develop conceptual, 50% and 80% preliminary design plans and approaches for:
 - Water resource restoration
 - Contaminated groundwater treatment and/or mitigation
 - Contaminated soils excavation and removal
 - Expansion and stabilization of existing off-site repository
- Develop preliminary cost estimates for remedial actions.

The above goals and objectives are designed to build on recent investigations and progress the project toward final remediation and restoration implementation. Together, the objectives work to fill data gaps, estimate treatment quantities, protect cultural resources, and engineer tractable solutions for persistent water quality and habitat issues.

1e. Evaluation Criteria

A. Watershed Group Diversity and Geographic Scope

A1. Watershed Group Diversity: BHWC is represented by a 22-member board of directors. Since its inception the composition of our board has been committed to a broad-based representation of all relevant stakeholders in the Big Hole watershed. We have active working relationships with many of the relevant landowners, state and federal agencies, academic researchers, conservation groups, tour guides, grazing associations, irrigation districts, guides/outfitters, and recreation groups in the upper watershed. Funding for our first goal will support canvassing and recruitment of underrepresented stakeholders through direct engagement. In addition, USBR support for ongoing coordination with all interested stakeholders will allow us to develop the most inclusive and effective restoration plans possible, including prioritization of tractable water quality improvement, contamination reduction, and habitat enhancement projects.

A2. Geographic Scope: The BHWC operates throughout the entire Big Hole watershed and has a long history of broad project support from the tributaries to the downstream terminus (Figure 3). This USBR project will focus on Elkhorn Creek, a headwater tributary of the Wise River, where we have historically had less engagement with stakeholders and water resource issues. We are currently working with several relevant landowners and users of the upper reaches of the river and will actively seek out new public and private partners. By hosting regularly scheduled virtual meetings with open public invitation, we will increase our visibility in this part of the watershed and bring key stakeholders to the table who have not been as active historically. USBR support will provide for diverse

perspectives, facilitate creative solutions, and boost public engagement in watershed and water resource issues.

We have existing relationships with all state and federal agency partners as well as Beaverhead county. These partners will help with our outreach efforts. Delivery of successful restoration implementation projects based on the designs developed through the support of this USBR project will build recognition and trust for our group with upper Wise River stakeholders.

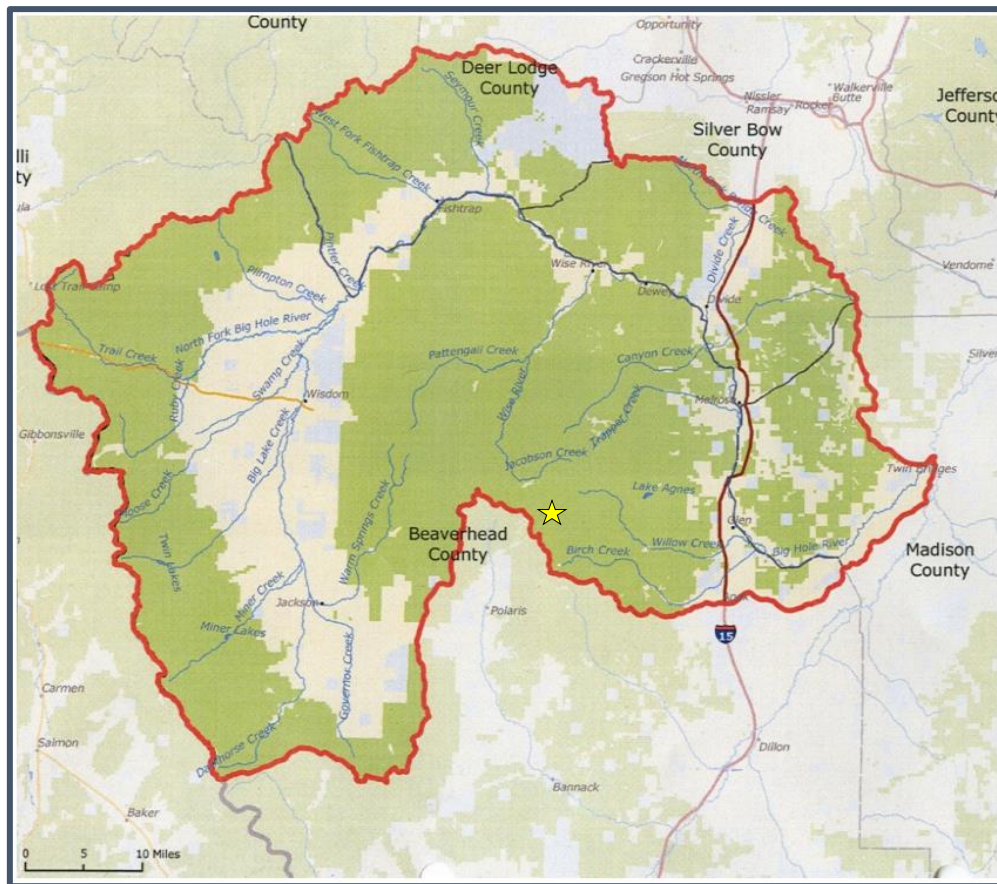


Figure 3. The Elkhorn Mine & Mill (yellow star) located in the Big Hole River watershed (red), flowing through Beaverhead and Madison counties, MT.

B. Addressing Critical Watershed Needs

B1. Critical Watershed Needs or Issues: Through recent investigations, the BHWC has already identified the highest priority critical issue for which preliminary restoration designs will be developed.

1. While early remediation efforts (ca. 2001) removed the majority of mine and mill tailings from the site, residual tailings and contaminated soils, sediments, and acid mine drainage persist in the vicinity of the Elkhorn Mill and continue to

degrade Elkhorn Creek and its floodplain. The ongoing contamination is a serious public health and safety concern, as the site is listed on the National Register of Historic Places and attracts large numbers of tourists each summer. Moreover, the legacy contamination continues to degrade water quality during surface runoff and overbank flooding events. Indeed, much of the Elkhorn Mill and nearby floodplain is barren and/or scarred with 'slickens' – i.e. heavily contaminated deposits too toxic for vegetation to establish. This project proposes to characterize the extent of residual contamination and develop restoration plans for excavation and removal of contaminated solid materials. Eventually, all contaminated materials will be hauled to the existing off-site repository established in 1998, located on an upland terrace of USFS administered land approximately 3 miles down valley.

The following critical issues will still need to be addressed to complete BHWC's vision of full restoration of Elkhorn Creek:

2. Hillslope runoff from snowmelt and precipitation events flow directly through the Elkhorn Mine, Elkhorn Mill, and a large waste rock pile on its way to Elkhorn Creek, contaminating surface and groundwater resources with trace metals and metalloids. The contamination results in TMDL exceedances and concentrations above aquatic life and human health standards. Contaminated hillslope runoff entering Elkhorn Creek degrades water quality, aquatic habitat, and public drinking water supplies. In follow-up studies, this project proposes to analyze hillslope hydrology and design stormwater control measures (SCMs) to convey runoff away from contaminated areas, thereby protecting surface and groundwater resources and improving water quality in Elkhorn Creek. This restoration action requires understanding the local infiltration-groundwater-surface water dynamics, which will be accomplished through this proposed Phase I planning project. Hillslope runoff solutions can only be developed after contamination removal designs have been finalized.
3. Continuous AMD from the Elkhorn Mine 1000-level adit poses a grave threat to water quality and public health and safety. Currently, discharge of AMD flows unchecked and enters Elkhorn Creek through many diffuse surface and groundwater flowpaths. Ultimately, the BHWC plans to design flow-through treatment cells to capture, convey, and treat contaminated discharge. Treatment designs would aim to maximize hydrologic residence time, promote contact with sorptive surfaces, reduce groundwater contamination, and provide year-round performance with realistic management strategies. This issue poses less of an immediate risk to the environment and public health and safety than existing residual contamination, and thus has a lower priority ranking.
4. A pair of dysfunctional flow control structures regulate streamflow into either Elkhorn Creek or a historic diversion ditch. Recent observations have found the

flow control structures do not meet low-flow requirements for the historic diversion ditch and result in sedimentation issues in the portion of Elkhorn Creek that was reconstructed in 1999. Moreover, one or both flow control structures may act as fish barriers due to their vertical height and/or water velocities. In the future, we plan to assess hydraulic and hydrologic dynamics at the diversion and design flow and/or grade control structures that meet cultural, ecological, and sediment transport requirements. As a result, we will preserve the integrity of the diversion ditch as historically significant, promote habitat connectivity, and improve water quality in Elkhorn Creek. This issue poses little immediate risk to the environment and public health and safety, and thus has a lower priority ranking.

5. A 3,320-foot section of Elkhorn Creek was reconstructed in 2001 following removal of mine tailings from the former channel and floodplain. While channel restoration incorporated natural channel design principles, it did not account for sediment transport, geomorphic evolution, or habitat complexity. As a result, the stream is impaired due to sedimentation-siltation, the channel is locked in place due to the use of bank armoring, and fish habitat is poor due to minimal shade, cover, and complexity. To remedy these issues, we propose to design low-tech woody habitat features to promote development of scour pools, riffle-pool sequences, juvenile fish habitat, and geomorphic complexity in the stream channel, banks, and floodplain. These efforts will provide aquatic habitat functional lift in a reach of Elkhorn Creek devoid of fish. This issue poses little immediate risk to the environment and public health and safety, and thus has a lower priority ranking.

B2. Developing Strategies to Address Critical Watershed Needs or Issues: Task C – Watershed Management Project Design: We will develop a preliminary solution to address the highest priority critical issue (ongoing surface and groundwater contamination) that will provide greater benefits to water quality, aquatic habitat, and public drinking water supplies. The first step, stakeholder coordination, will be initiated early and supported continuously through the project to include all interested parties in the decision-making process for site investigations and restoration planning efforts. Shortly after stakeholder coordination begins, a cultural resource consultant will facilitate site investigation design to ensure a finding of ‘no adverse effects’ to historically significant structures and features. Once cultural resources are field verified and concurrence has been given from SHPO, hydrogeological and environmental consultants will commence sampling efforts to assess groundwater, surface water, soil, and sediment contamination. These invaluable data will be used to characterize and map contaminated resources, estimate volumetric quantities, and inform restoration design. A professional engineer will be hired to coordinate with the site characterization team and develop conceptual to 80% preliminary designs and costs estimates for restoration actions, thought to

center around contamination removal and repository expansion. These efforts will be necessary for eventual project implementation and will provide the BHWC with the data, information, and direction to initiate lower-priority restoration actions. We will consult with USBR cultural and water resource staff throughout the design process as data and designs become available.

Implementation and Results

C1. Project Implementation:

Our organization has had substantial success operating large grant programs over the past 5 years. An estimated project schedule is provided below.

Table 3. Proposed project schedule.

Project Objectives	Summer 2021	Fall 2021	Winter 2022	Spring 2022	Summer 2022	Fall 2022	Winter-Spring 2023	Summer-Fall 2023
Stakeholder Coordination								
<i>Public & Technical Working Group Meetings</i>								
Cultural Resources								
<i>Assessment & Consultation</i>								
Site Characterization & Restoration Planning								
<i>Sampling & Analysis</i>								
<i>Mapping</i>								
<i>Volume Estimation</i>								
<i>Conceptual Restoration Design</i>								
<i>Restoration Cost Estimates</i>								
<i>80% Restoration Design</i>								
Implementation (WaterSMART Phase II future application)								
<i>Restoration Construction</i>								

C2. Building on Relevant Federal, State or Regional Planning Efforts:

This site is a top priority for abandoned mine lands restoration at both state and federal agencies. Planning and design funding under this project will support BHWC to align its water resource restoration planning to USFS management plans, the US Environmental Protection Agency (EPA) Section 319 Nonpoint Source Management Program, the State Water Plan, DEQ water quality priorities, and provide for expanded stakeholder engagement. Our outreach efforts will allow us to better align our work with agency priorities for water

resource issues in the Big Hole watershed, including the DEQ, Natural Resource Damage Program (NRDP), Natural Resource Conservation Service (NRCS), and the Bureau of Land Management (BLM). We have found over the years that these alignments often yield multiple resource benefits and costs savings in implementing projects and we will develop this project with that in mind.

C. Department of Interior & Bureau of Reclamation Priorities

1. *Creating a conservation stewardship legacy second only to Teddy Roosevelt:*

a. *Utilize science to identify best practices to manage land and water resources and adapt to changes in the environment;*

- We utilize and employ the most current scientific approaches to develop our water resource restoration projects. For this project, we have already employed robust and precise analytical methods for investigating water resource issues, geophysical investigation alternatives, aerial LiDAR surveys, historical mine survey map georeferencing, and electro-shock fish population studies. These approaches allow us to truly understand our site, establish background and baseline data, easily incorporate new information, and develop high-quality restoration designs. The background data we have already collected provides a unique opportunity to monitor and adaptively manage this project with regards to changing climate and water resource use patterns, but we require additional information to proceed with restoration planning. We employ best management practices to insure reliable scientific data collection, management, analysis, and interpretation, bringing in interdisciplinary experts to assist with technical planning components.

b. *Examine land use planning processes and land use designations that govern public use and access;*

- Designated on the National Register of Historic Places and located adjacent to the Pioneer Mountains Scenic Byway, the Elkhorn Mine & Mill draws large crowds in summer months due to its remote beauty and historical awe. As a result, public agencies have a vested interest in ensuring safe access and sustainable land use to ensure the overall stability of the site. In addition, the USFS is interested in further improving the Elkhorn area to enhance access, trails, camping, safety, and interpretive exhibits. Before these public resources can be improved, the site must be remediated and restored.

c. *Revise and streamline the environmental and regulatory review process while maintaining environmental standards.*

- N/A

d. *Review DOI water storage, transportation, and distribution systems to identify opportunities to resolve conflicts and expand capacity;*

- N/A

e. *Foster relationships with conservation organizations advocating for balanced stewardship and use of public lands;*

- Our partnerships with the USFS and MT FWP will be further developed through the relationship-building required to coordinate this project. Both agencies are charged with conserving, managing, and restoring the natural resources of our public lands.
- f. Identify and implement initiatives to expand access to DOI lands for hunting and fishing;*
- While not within the DOI, through the course of our work the Elkhorn drainage will become safer and more accessible for hunting and fishing on USFS lands.
- *Shift the balance towards providing greater public access to public lands over restrictions to access.*
 - The improvement of public safety and habitat conditions resulting from this project will benefit wildlife viewing, historical site access, and angling opportunities in the Elkhorn watershed.
- 2. Utilizing our natural resources:*
- a. Ensure American Energy is available to meet our security and economic needs;*
- N/A
- b. Ensure access to mineral resources, especially the critical and rare earth minerals needed for scientific, technological, or military applications;*
- N/A
- c. Refocus timber programs to embrace the entire ‘healthy forests’ lifecycle;*
- N/A
- d. Manage competition for grazing resources.*
- N/A
- 3. Restoring trust with local communities:*
- a. Be a better neighbor with those closest to our resources by improving dialogue and relationships with persons and entities bordering our lands;*
- Restoration planning is only successful when productive dialogue can be catalyzed among stakeholders. The BHWCC will facilitate conversations with stakeholders and encourage improved dialogue on important issues in the greater watershed.
- b. Expand the lines of communication with Governors, state natural resource offices, Fish and Wildlife offices, water authorities, county commissioners, Tribes, and local communities.*
- This project has already established communication with relevant state natural resource agencies, federal land managers, and county conservation districts. WaterSMART support will allow us to expand outreach efforts to increase our engagement with state resource authorities and county partners.
- 4. Striking a regulatory balance*
- a. Reduce the administrative and regulatory burden imposed on U.S. industry and the public;*

- Previous Forest Service removal actions from 1998-2005 were completed under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Activities to be completed under this WaterSMART grant will meet any Applicable or Relevant and Appropriate Requirements (ARARs) identified by the Forest Service; however, CERCLA status and existing documentation completed for the previous projects will greatly reduce the regulatory burden of implementing this project.
- b. *Ensure that Endangered Species Act decisions are based on strong science and thorough analysis.*
 - N/A

5. *Modernizing our infrastructure*

- a. *Support the White House Public/Private Partnership Initiative to modernize U.S. infrastructure;*
 - N/A
- b. *Remove impediments to infrastructure development and facilitate private sector efforts to construct infrastructure projects serving American needs;*
 - N/A
- c. *Prioritize DOI infrastructure needs to highlight:*
 1. *Construction of infrastructure;*
 - N/A
 2. *Cyclical maintenance;*
 - N/A
 3. *Deferred maintenance.*
 - N/A

2. Project Budget

2a. Budget Proposal

Table 4. Total Project Costs & Funding Sources

SOURCE	AMOUNT
Costs to be reimbursed with the requested Federal funding	\$99,967.56
Costs to be paid by the applicant	\$5,000
Value of third-party in-kind contributions	\$10,000.00
TOTAL PROJECT COST	\$114,967.56

Table 5. Itemized Proposed Project Budget

WORK ITEMS	ESTIMATED QUANTITY	UNIT DESCRIPTION	COST PER UNIT	TOTAL COST
OBJECTIVE I: STAKEHOLDER COORDINATION				
Salaries and Wages: BHWC Personnel				
Hours: Project Administration	46	\$/Hour	\$30.00	\$1,380.00
Hours: Project Coordination	104	\$/Hour	\$23.00	\$2,392.00
<i>Objective Subtotal</i>				\$3,772.00
OBJECTIVE II: CULTURAL RESOURCES				
Salaries and Wages: BHWC Personnel				
Hours: Project Coordination	20	\$/Hour	\$23.00	\$460.00
<i>Subtotal</i>				\$460.00
Contractual: Contractor A				
Labor: Cultural Consultation	100	\$/Hour	\$67.00	\$6,700.00
<i>Subtotal</i>				\$6,700.00
<i>Objective Subtotal</i>				\$7,160.00
OBJECTIVE III: SITE CHARACTERIZATION				
Salaries and Wages: BHWC Personnel				
Hours: Project Coordination	40	\$/Hour	\$23.00	\$920.00
<i>Subtotal</i>				\$920.00
Contractual: Contractor B				
Labor: Hydrogeology Technician	200	\$/Hour	\$15.00	\$3,000.00
Travel	890	\$/Mile	\$0.56	\$498.40
Sampling Supplies; Soil & Water Metal Analyses	1	Lump Sum	\$6,500.00	\$6,500.00
<i>Subtotal</i>				\$9,998.40
Contractual: Contractor C				
Labor: Characterization & Analysis	116	\$/hr	\$80.00	\$9,280.00

Sampling Supplies; Soil PCB Analysis	1	Lump Sum	\$650.00	\$650.00
<i>Subtotal</i>				\$9,930.00
<i>Objective Subtotal</i>				\$20,848.40
Hours: Project Coordination	40	\$/Hour	\$23.00	\$920.00
<i>Subtotal</i>				\$920.00
Labor: Planning & Design	124	\$/Hour	\$80.00	\$9,920.00
<i>Subtotal</i>				\$9,920.00
Labor: 80% Design Plans & Construction Estimate	300	\$/Hour	\$150.00	\$45,000.00
<i>Subtotal</i>				\$45,000.00
<i>Objective Subtotal</i>				\$55,840.00
BHWC Fringe Benefits	1	Fringe Rate	16%	\$971.52
All Goals Subtotal				\$88,591.92
Indirect Costs: 10%				\$8,859.19
Mileage	3000	\$0.56/Mile	\$0.58	\$1,740.00
Travel-Nightly Lodging Costs	10	\$80/Night	\$80.00	\$800.00
<i>Subtotal</i>				\$2,540.00

2b. Budget Narrative

Salaries and Wages

BHWC Project Manager Pedro Marques will be the team lead for implementation of this project, relying heavily on support from Project Coordinator Ben LaPorte. We provide estimated hours for our team to dedicate to each of the project objectives. BHWC staff hours will be allocated to all aspects of the project not covered by the services contracted for the execution of this project. BHWC will hold all contracts with our funders and contract all outside services according to State and Federal procurement policies. BHWC staff time for each objective will be directed towards:

- **Stakeholder Coordination**
 - Meet with agency personnel, landowners, water users, recreationists, etc.
 - Produce informational materials relating to Elkhorn Creek water resource issues
 - Host regularly scheduled in-field and virtual stakeholder meetings

- Generate and submit all project reports outlined in ***F.3. Reporting-Requirements and Distribution*** of the funding opportunity announcement
- **Cultural Resources**
 - Summarize findings of existing cultural resource inventories
 - Contract cultural resource consultant to perform assessments and cultural resource consultation with Montana SHPO
 - Coordinate with USFS Archaeologist & MT SHPO throughout the process
- **Site Characterization**
 - Contract Hydrogeologic Researcher and Environmental Consultant to develop sampling and analysis plans and execute plans for contamination characterization
 - Assist with sampling design and characterization study
 - Coordinate field work and sample collection
 - Collaborate with environmental consultant to develop contaminant remediation plan
- **Preliminary Design and Costs Estimates**
 - Contract Environmental Consultant and Engineering Consultant to develop preliminary designs for tailings excavation and removal
 - Contract Engineering Consultant to develop costs estimates for tailings removal and repository plan
 - Coordinate and collaborate on development of restoration designs
 - Collaborate with contractors to develop special provisions and specifications to accommodate cultural resources and USFS FP-14 requirements

Fringe Benefits

Our organization's standard fringe rate is 16% for all staff costs.

Travel

Our staff will be required to drive from Missoula and Philipsburg, MT to our project site numerous times to meet with project partners and contractors, and to conduct routine monitoring efforts or project walk-throughs. Staff will be required to stay overnight on numerous occasions. Local hotel costs have been estimated for these stays. Updated federal mileage reimbursement rates have been included in project costs and an estimated number of miles to drive to and from project sites.

Equipment

The BHC does not anticipate purchasing any equipment for this project.

Materials and Supplies

While the BHC does not anticipate purchasing any office supplies for this project, Contractual cost estimates in the proposed budget includes funding to cover field sampling supplies,

materials, and analysis costs. These funds will be available to Contractor B & C for development and implementation of surface water, groundwater, and soil investigations. Cost estimates were generated using average rates from previous studies in the area and local lab services at standard rates.

Contractual

Under *Objective II: Cultural Resources*, we will require the services of a professional archaeological and cultural expert (Contractor A) to inventory, assess, and mitigate for cultural resources that may need to be temporarily or permanently modified during implementation of site characterization actions. We have used average costs in our area for an independent contractor to perform these services and provide us with high quality reports and permit applications for all cultural resource requirements. This contractor must coordinate with BHWC, USFS, SHPO, the National Register of Historic Places, and USBR staff to ensure cultural resources are properly addressed. Deliverables will include historical research, site assessments, reports, maps, and documents to support subsequent implementation.

Under *Objective III: Site Characterization*, we will require a detailed assessment of surface water, groundwater, soils, and sediments to fully characterize and plan for the restoration of Elkhorn Mine & Mill and Elkhorn Creek. This will involve contracting a certified laboratory and hydrogeology research assistant from Montana Tech (Contractor B) to perform field sampling and laboratory analysis of water, soil and sediments for trace metals, metalloids, and PCB contamination. In addition, BHWC will require an environmental consultant (contractor C) to analyze and interpret laboratory results to characterize contamination and help develop remediation and restoration designs. The environmental consultant will coordinate directly with the cultural resource consultant and hydrogeology laboratory to develop a sampling and analysis plan (SAP) and quality assurance project plan (QAPP) that addresses the unique resources, conditions and intricacies of Elkhorn Mine & Mill and Elkhorn Creek. This work will help us characterize residual contamination, prioritize 'hot-spot' areas, and develop appropriate remediation and restoration actions. This objective fills the remaining data gap, progresses restoration planning efforts, and supports a local public institution and a graduate research program while offering significant cost-savings compared to private-industry contracting.

Under *Objective IV: Preliminary Design and Costs Estimates*, BHWC will require an environmental consultant (Contractor C) and engineering consultant (Contractor D) for alternative analyses and restoration design for contamination removal. The engineering consultant would collaborate directly with the cultural resource consultant and environmental consultant to develop and provide 80% restoration plans and construction estimates.

We will follow State of Montana and Federal procurement guidelines to solicit contractors for all contracted expenses related to this project.

Environmental and Regulatory Compliance Costs

Regulatory compliance costs for this project are included in *Objective II: Cultural Resources*. The costs outlined under that objective are assumed to cover all labor and expenses associated with cultural assessments, reports, and consultations.

Indirect Costs

BHWC will use the *de minimus* indirect rate of 10% for our administrative/management role in this project. These costs will cover operation and maintenance costs, our legal and accounting fees that cover payroll.

2c. Funding Plan and Letters of Commitment

The BHWC's 20-year track record of collaborative work for the benefit of our water resources has attracted the support of our agency partners and has the support of our board of directors. USBR funding for the four objectives of this work will provide necessary data and analyses to develop tractable and resilient solutions for water quality, aquatic habitat, and public health and safety issues. In addition, support will allow us to expand our stakeholder engagement efforts to broaden our network of partners for this project but also for unrelated projects within the Big Hole watershed.

Funding under this project is critical to BHWC establishing a pathway to continue doing our water resource management work. We are actively coordinating with entities such as the, DEQ, USFS, Montana Department of Natural Resources and Conservation (DNRC), NRDP, and Beaverhead County to identify implementation funding sources for the Elkhorn Mine & Mill that we hope to match with USBR WaterSMART Phase II funding.

In-kind Contributions

BHWC will provide in-kind contributions of our time from some of our standard outreach activities, such as monthly public meetings and the use of our electronic newsletter and social media to raise awareness to the issues we are pursuing. These in-kind contributions are estimated in the project table above. In addition, we anticipate substantial time being invested by our stakeholders in meeting with us to accomplish our project goals, particularly the USFS. These third-party in-kind contributions are assumed to include personnel and travel expenses up to \$15,000. As the land management agency, the USFS has a vested interest in this project and will provide extensive input, review, and collaboration, as will Montana FWP with fish monitoring.

3. Environmental and Cultural Resources Compliance

- *Will the proposed project impact the surrounding environment (e.g., soil [dust], air, water [quality and quantity], animal habitat)? Please briefly describe all earth-disturbing work and any work that will affect the air, water, or animal habitat in the project area.*

Please also explain the impacts of such work on the surrounding environment and any steps that could be taken to minimize the impacts.

The proposed site characterization and associated sampling will have minimal effect on the waters and soils in the project site. Soil and sediment samples will be taken with a hand shovel, hand auger, and/or small (mini) excavator as approved by the Forest Service archeologist. Soils will be disturbed only temporarily, and each sampling site will be restored and graded to mirror previous ground conditions. Water samples will be taken as grab samples or via shallow wells and piezometers installed by hand. The Class III cultural resource report and consultation with SHPO will ensure no culturally sensitive artifact is disturbed.

- *Are you aware of any species listed or proposed to be listed as a Federal threatened or endangered species, or designated critical habitat in the project area? If so, would they be affected by any activities associated with the proposed project?*

Yes. The Westslope cutthroat trout (WCT) is Montana's state fish. *Oncorhynchus clarkii lewisi* were first described by the Lewis and Clark Expedition in 1805 near Great Falls, Montana. Although still widespread, WCT distribution and abundance in Montana has declined significantly in the past 100 years due to a variety of causes including introductions of nonnative fish, habitat degradation, and over-exploitation. Reduced distribution of WCT is particularly evident in the Missouri River drainage where genetically unaltered WCT are estimated to persist in less than 5% of the habitat they once occupied, and most remaining populations are restricted to isolated headwater habitats. Further, many of these remaining populations are at risk of extinction due to small population size and the threats of competition, predation and hybridization with non-native trout species. The declining status of WCT has led to its designation as a Species of Special Concern by the State of Montana, a Sensitive Species by the U.S. Forest Service (USFS), and a Special Status Species by the Bureau of Land Management (BLM). In addition, in 1997 a petition was submitted to the U.S. Fish and Wildlife Service (USFWS) to list WCT as "threatened" under the Endangered Species Act (ESA). USFWS status reviews have found that WCT are "not warranted" for ESA listing (DOI 2003); however, this finding was in litigation until 2008 and additional efforts to list WCT under ESA are possible.

In an effort to advance wide ranging WCT conservation efforts in Montana, a Memorandum of Understanding and Conservation Agreement for Westslope Cutthroat Trout in Montana (MOU) was developed in 1999 by several federal and state resource agencies, including the BLM, Montana Fish, Wildlife & Parks, the USFS, Yellowstone National Park, non-governmental conservation and industry organizations, tribes, resource users, and private landowners (FWP 1999). The MOU outlined goals and objectives for cutthroat conservation in Montana, which if met, would significantly reduce the need for special status designations and listing of WCT under the ESA. The MOU was revised and endorsed by signatories in 2007 (FWP 2007). According to the FWP Statewide Fisheries Management Plan, the restoration goal for WCT east of the Continental Divide (Upper Missouri River Basin upstream from and including the Judith River) is to restore secure conservation populations of WCT to 20% of the historic distribution (FWP 2012).

WCT will not be affected by the activities associated with the proposed project.

- *Are there wetlands or other surface waters inside the project boundaries that potentially fall under CWA jurisdiction as “Waters of the United States”? If so, please describe and estimate any impacts the proposed project may have.*

Yes. Lower Elkhorn Creek falls under the CWAs jurisdictional waterway. However, this Project will have no impacts to that section of the creek. Soil and water samples from the sampling efforts will have no impact on waters of the United States.

- *When was the water delivery system constructed?*

N/A

- *Will the proposed project result in any modification of or effects to, individual features of an irrigation system (e.g., headgates, canals, or flumes)? If so, state when those features were constructed and describe the nature and timing of any extensive alterations or modifications to those features completed previously.*

No

- *Are any buildings, structures, or features in the irrigation district listed or eligible for listing on the National Register of Historic Places? A cultural resources specialist at your local Reclamation office or the State Historic Preservation Office can assist in answering this question.*

Yes, the entire site is listed on the National Register of Historic Places.

- *Are there any known archeological sites in the proposed project area?*

Yes. We will contract an archaeological and cultural resource consultant to facilitate coordination with USFS archaeologist, MT SHPO, and the Advisory Council on Historic Preservation.

- *Will the proposed project have a disproportionately high and adverse effect on low income or minority populations?*

N/A

- *Will the proposed project limit access to, and ceremonial use of, Indian sacred sites or result in other impacts on tribal lands?*

No

- *Will the proposed project contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area?*

No

4. Required Permits & Approvals

All activities occurring in the Elkhorn Creek drainage in relation to the Elkhorn Mine & Mill are governed by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). Activities to be completed under this WaterSMART grant will meet any Applicable or Relevant and Appropriate Requirements (ARARs) identified by the Forest Service. The CERCLA status and existing documentation completed for the previous projects will greatly reduce the regulatory burden of implementing this project. Section 106 cultural resource consultations will be reviewed and approved by the Montana State Historical Preservation Office.

5. Letters of Project Support

- Montana Fish Wildlife and Parks-Jim Olsen
- US Forest Service-Cheri Ford
- Big Hole River Foundation- Brian Wheeler
- Big Hole Lodge- Craig and Wade Fellin
- George Grant Trout Unlimited- Mark Thompson
- Chuck Robbins Trout Unlimited- Board of Directors

6. Official Resolution

The provided Official Resolution indicates support from our diverse 23-member board of directors for pursuing these watershed planning and project design efforts.

Watershed Group Resolution

The Big Hole Watershed Committee Steering Committee provides leadership for the Big Hole Watershed Committee. The Steering Committee approves of the content and the commitments described in the Big Hole Watershed Committee's Bureau of Reclamation WaterSMART (Phase I) application for funding.

Our Executive Director, Pedro Marques, has the legal authority to enter into an agreement with the WaterSMART program on behalf of the Big Hole Watershed Committee.

The Big Hole Watershed Committee has the experience, infrastructure, and capability to manage funds awarded from the WaterSMART program, provide the required matching funds, and implement the project as described in the application.

The Steering Committee agrees that the Big Hole Watershed Committee will work with the Bureau of Reclamation to meet established deadlines for entering into a financial assistance agreement.

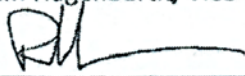
January 7, 2021



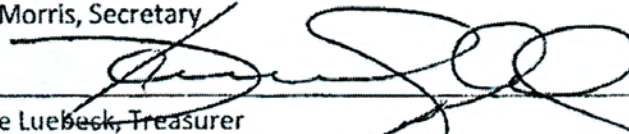
Randy Smith, Chairman



Jim Hagenbarth, Vice Chairman



Roy Morris, Secretary



Steve Luebeck, Treasurer

Representative:


Pedro Marques, Executive Director

File Code: 2160

Date: January 12, 2021

U.S. Bureau of Reclamation
WaterSMART Cooperative Watershed Management Program
Re: Phase I Grants, Opportunity BOR-DO-21-F003

Dear U.S. Bureau of Reclamation Application Review Committee,

It is my pleasure to write this letter in support of the Phase I WaterSMART grant application for the *Elkhorn Creek Restoration Planning in a Degraded Headwater Stream* project submitted by the Big Hole Watershed Committee.

Between 1998 and 2005, the Forest Service conducted a series of projects focused on the removal or capping of legacy mine wastes at the Elkhorn Mine and Mill. While these actions improved conditions, there remains serious threats to public health and natural resources in the form of waste rock, dispersed mill tailings, and discharge of acid mine drainage into Elkhorn Creek, an important trout and arctic grayling fishery. Indeed, the water quality and other environmental problems at the Elkhorn site remain among the most impactful in the entire Big Hole River Basin.

The Forest Service in 2020 began working closely with the Big Hole Watershed Committee and other stakeholders such as Montana Fish, Wildlife, and Parks to begin a comprehensive assessment of current conditions and to initiate a collaborative process for planning the next era of critically important reclamation activities. The WaterSMART grant funds would enable the project team to address remaining data gaps and to undertake the engineering processes necessary to develop viable solutions.

The Forest Service fully supports the effort to obtain funding for further characterization and engineering work. My staff is ready and committed to assist with the execution of the grant work at this priority site.

Sincerely,

CHERI A. FORD
Forest Supervisor

cc: Sonny Thornborrow (sonny.thornborrow@usda.gov)





Butte Area Resource Office
1820 Meadowlark Lane
Butte, MT 59701

US Bureau of Reclamation
WaterSMART Cooperative Watershed Management Program-Phase 1
Funding Opportunity Announcement No. BOR-DO-21-F003

January 7, 2021

To whom it may concern,

The Elkhorn Mine in the upper Wise River has had significant impacts on water quality and aquatic life in Elkhorn Creek and the Wise River downstream. The Wise River is one of the most important tributary streams for delivering cold, clean water to the Big Hole River. The metals originating from the Elkhorn Mine area impact the fishery and have reduced or in some cases eliminated the fishery in Elkhorn Creek and the Wise River downstream. Recent fish surveys demonstrate a marked decline in fish abundance at the mine site relative to upstream and farther downstream. Reclamation activities to date have reduced some of the impacts but water quality exceedances are still present for several metals and it appears these metals are having impacts on aquatic life. The Big Hole Watershed Committee began the process understand the problems and develop a comprehensive reclamation plan. This area, like most mining areas, is complicated. Therefore, before charging in with heavy equipment, it is imperative to understand the sources of contamination and the best possible remedies to restore these areas while documenting and preserving, to the extent practicable, the historic resources of the area. The proposal put forth by the Big Hole Watershed Committee will be the next steps to guide additional remediation activities that will ultimately result in a plan to reduce metals loading to Elkhorn Creek. FWP fully supports this planning effort and has agreed to perform additional and continued fisheries monitoring for the project in Elkhorn Creek. It is my hope that the BOR would fully fund this planning grant request so that the necessary information can be obtained to further address the water quality impacts from the mine.

Sincerely,

Jim Olsen
Fisheries Biologist

1-13-21

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Edmund Weakland
Mail Code: 84-27132
P.O Box 25007
Denver, CO 80225

RE: Big Hole Watershed Committee- Funding Opportunity Announcement No. BOR-DO-21-F003

Dear Mr. Weakland,

I'm writing in support of the Big Hole Watershed Committee Elkhorn Mine and Mill Restoration Grant application. I've lived on the banks of the Wise River and downstream of the Elkhorn Mine for over 36 years. I've also owned and operated Big Hole Lodge for as many years and continue to do so now with the help of my son who is slowly taking over the business. We are a relatively small operation compared to some of the other fly-fishing lodges in Southwest Montana but what we lack in size we make up for in service and the beauty of the Pioneer Mountains directly out our front door and the immediate proximity to the pristine Wise River that our clients treasure on their day of arrival and after dinner, both unguided experiences as opposed to a float trip on the Big Hole River.

I can remember some of my most memorable days of trout fishing that I've ever had fly fishing the Wise River. Back when Jacobson Meadows still held some sizeable cutthroats, I used to relish crawling up to within 15' of the bank and making a cast. Sometimes I couldn't even see the fly, usually a hopper imitation, but the sound of an explosive rise would signal the strike. What other small tributary around the state can offer you the chance to catch a cutthroat/rainbow/brook/brown trout along with an Arctic grayling? I can think of one, Deep Creek, that flows into the upper Big Hole River, but that's about it.

This truly is a special place and we need to restore and protect the water quality of Elkhorn Creek and the Wise River for everyone and for generations to come. From personal experience over the years, I have noticed the demise of fish populations in these streams. Last summer I walked the bank of the same Jacobson Meadows that I caught 12-16" cutthroat twenty years ago and except for the odd 6" brook trout, I never saw a fish. Montana is blessed with great beauty, majestic mountain ranges and iconic trout streams but as we know, there are places that were impacted from a history of hard rock mining. I'm proud of the way our state has remediated so many of these places but now is the time to clean up the Elkhorn Mine pollution that is killing our wild fish and impacting our watershed.

Respectfully Yours,

Craig & Wade Fellin
Big Hole Lodge, Wise River, MT



George Grant TU
PO Box 563
Butte, MT 59703

Cold Clean Fishable Water

January 11, 2021

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Edmund Weakland
Mail Code: 84-27132
P.O Box 25007
Denver, CO 80225

RE: Big Hole Watershed Committee- Funding Opportunity Announcement No. BOR-DO-21-F003

Dear Mr. Weakland,

The George Grant Chapter of Trout Unlimited (GGTU) is submitting this letter to express support for the WaterSMART Cooperative Watershed Management Program proposal being submitted by the Big Hole Watershed Committee (BHWC). We have a long-standing partnership with the BHWC and have supported their projects that improve water quality and native fisheries for many years.

Despite the cleanup efforts by the Forest Service in the late 1990's and early 2000's, there is still a significant amount of acid mine drainage discharging from the main adit, which flows into Elkhorn Creek. Additionally, there are seeps from the tailings material that appear to be introducing metals into Elkhorn Creek. The metals originating from the Elkhorn Mine area impact the native Westslope cutthroat trout (WCT) fishery and have reduced or in some cases eliminated the fishery in Elkhorn Creek and the Wise River downstream. WCT distribution and abundance in Montana has declined significantly in the past 100 years. Many of the current remaining populations are at risk of extinction due to small population size and the threats of competition, predation, hybridization with non-native trout species and habitat degradation. We see the environmental problems at the Elkhorn Mine, and the subsequent water quality issues to Elkhorn Creek to be among the most serious in the Big Hole River basin and we see the proposed investigations as well warranted, especially for the sake of this important trout fishery.

GGTU fully supports the effort to obtain funding for further investigations necessary to develop viable solutions to the water quality issues at the Elkhorn Mine and Mill.

Sincerely,

Mark Thompson,
President, George Grant Chapter of Trout Unlimited



Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Edmund Weakland
Mail Code: 84-27132
P.O Box 25007
Denver, CO 80225

RE: Big Hole Watershed Committee- Funding Opportunity Announcement No. BOR-DO-21-F003

Dear Mr. Weakland,

On behalf of the Big Hole River Foundation (BHRF), please accept this letter of support for the Big Hole Watershed Committee (BHWC) and their Elkhorn Creek: Restoration Planning in a Degraded Headwater Stream Project.

The Big Hole River watershed, surrounding mountains and, Pioneer Scenic Mountain Byway are huge economic drivers for this entire region. The health of this watershed is fundamental to the recreation and agricultural industries for a 2,800 square mile swath of southwest Montana. Unfortunately, legacy mine pollution is both an aesthetic eyesore to this otherwise pristine landscape and a toxic stain on the ecological integrity of these habitats.

I fully endorse this effort to mitigate the negative impacts wrought from a century of hard rock mining at the abandoned Elkhorn Mine & Mill site. Such impacts include stream habitat degradation, water quality impairments, and hazards to public health and safety. The proposed effort to reduce the degradation of surface water, groundwater, and public lands, improve water quality in the Elkhorn Creek and Wise River watersheds, and enhance and restore aquatic habitat degraded by historic mining operations, while preserving and protecting historic cultural resources perfectly align with the mission of BHRF:

To protect, conserve, and enhance the free-flowing Big Hole River and its unique culture, fisheries, and wildlife.

BHWC is uniquely qualified to undertake such a project, to the benefit of all stakeholders. Their 20-year track record of collaborative work for the benefit of these water resources and recognition for past restoration work is proof positive.

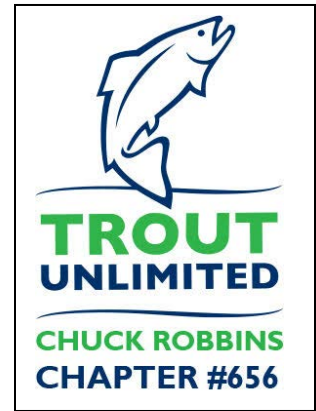
Sincerely,

Brian Wheeler
Executive Director
Big Hole River Foundation

Last. Best River.

406-560-7089 | www.BHRF.org | PO Box 176, Divide, Montana 59727

Bureau of Reclamation
Financial Assistance Support Section
Attn: Mr. Edmund Weakland
Mail Code: 84-27132
P.O Box 25007
Denver, CO 80225



RE: Big Hole Watershed Committee-

Funding Opportunity Announcement No. BOR-DO-21-F003

Dear Mr. Weakland,

Please accept this letter of support on behalf of the Board of Directors of the Chuck Robbins Chapter of Trout Unlimited, based in Dillon, MT.

The abandoned Elkhorn Mine & Mill site has left serious negative impacts in an otherwise pristine watershed, home to native species such as the westslope cutthroat trout and the arctic grayling. These species have already seen a drastic decline in populations and viable habitats. Once distributed throughout the upper Missouri River basin (above Great Falls), today's remnant population of grayling exists in a mere 5% of its historic range. That refuge is the Big Hole River watershed, of which Elkhorn Creek is a part.

Stream habitat degradation, water quality impairments, and hazards to public health and safety are all issues to be addressed at this headwater stream to the Wise River, which is in turn the largest tributary to the Big Hole River.

This area experiences significant summer traffic, including to the ghost town of Coolidge where the leaking toxic water from the Elkhorn mine and tailings is a sad and enduring reminder of the past. While remediation efforts have taken place in the past, they have come up short and the Big Hole Watershed Committee's (BHWC) "Elkhorn Creek: Restoration Planning in a Degraded Headwater Stream Project" is absolutely worthy of funding to address this long-standing issue.

Representing an organization which advocates for native species and seeks to conserve, protect and restore North America's coldwater fisheries and their watersheds, we fully endorse funding this project and support BHWC's effort to identify viable, long-term solutions to the water quality issues at Elkhorn Mine.

Sincerely,

Board of Directors
Chuck Robbins Chapter 656 of Trout Unlimited
PO Box 984
Dillon, MT 59725