FUTURE FISHERIES IMPROVEMENT PROGRAM GRANT APPLICATION

All sections must be addressed, or the application will be considered invalid

I. APPLICANT INFORMATION

A. Applicant Name: Beaverhead Conservation District

Mailing Address: 420 Barrett Street

City: Dillon State: MT Zip: 59725

Telephone: 406-683-3802 E-mail: beaverheadcd@gmail.com

B. Contact Person (if different than applicant): Zach Owen

Address: 420 Barrett Street

City: Dillon State: MT Zip: 59725

Telephone: 406-683-3802 E-mail: beaverheadwatershed@gmail.com

C. Landowner and/or Lessee Name (if different than applicant): Montana Fish, Wildlife & Parks

Mailing Address: PO Box 200701

City: Helena State: MT Zip: 59620

Telephone: 406-834-3413 E-mail: bannackstatepark@mt.gov

II. PROJECT INFORMATION

A. Project Name: Grasshopper Creek Mine Tailings Stream Bank Stabilization

River, stream, or lake: Grasshopper Creek

Location: Township: 8 South Range: 11 West Section: 8

Latitude: 45.1560 Longitude: -112.9814 *Within project (decimal degrees)*

County: Beaverhead

B. Purpose of Project:

To preserve and improve the Grasshopper Creek and Beaverhead River fishery by reducing the input of mine tailings-contaminated sediment and preventing a major sediment event containing massive amounts of mine tailings.

The Beaverhead River is listed by DEQ as impaired for sedimentation/siltation, aggravated by a low flow impairment. Grasshopper Creek is a major source of that sediment. By reducing the likelihood of a major sediment event including mine-waste contaminated soil, we'll protect the Grasshopper and Beaverhead River fishery.

C. Brief Project Description (attach additional information to end of application):

This project will protect the Brown and Brook Trout fisheries in Grasshopper Creek and the Beaverhead River from contaminated soil caused by historic mining, and reduce the sediment load into the creek. The project proposes to repair and improve eroding stream banks caused by the channelization of Grasshopper Creek from historic placer mining. In addition to placer mining, mill tailings high in metals were deposited adjacent to Grasshopper Creek from the historic Gold Leaf Mill. Recent erosion is creating an issue which, if not mitigated, could breach the tailings dam and carry hazardous tailings downstream impacting Grasshopper Creek and the Beaverhead River. With proper stream bank stabilization, the risk of the tailings impacting the fishery are minimized and the nearby National Historic Landmark can avoid adverse effects.

The proposed action is an improvement upon a1977 project. The rip-rapped berm has been breached in multiple places, allowing contaminated sediment into Grasshopper Creek, and the upslope run-on diversion ditch needs maintenance. Most concerning is the potential for catastrophic failure of the berm and tailings. The tailings consist of loose, unconsolidated soil and metals, stacked 3-10 feet deep on top of gravel placer mine tailings. The Grasshopper Creek watershed is known for intense rain events, followed by flooding and massive sediment transport. Such an event occurred in 2013, sending a peak flow of 1,450 cfs down a normally dry gulch (Hangman's Gulch) and flooding Bannack State Park. A similar event in the drainage above the tailings pond could cause a catastrophic failure of the pond, which holds 89,000 cubic yards of contaminated soil.

Grasshopper Creek was identified as a major contributer to the Beaverhead River's impairment listing for sediment, and is prioritized for improvement in the 2018 Beaverhead Watershed Restoration Plan. The Beaverhead River was listed by DEQ in 2016 for: 'sedimentation/siltation, temperature, low-flow alterations, alteration in streamside vegetative covers, habitat alterations'. Sedimentation/siltation, aggravated by low-flow, is what we'll directly address with this project, in addition to preserving wild trout habitat by preventing massive sediment events containing mine tailings in the event of a major tailings pond breach.

Armoring
While we don't prefer hard armoring as a tool, in this case it's the best option, for several reasons. The project site is part of Bannack State Park, and is a historical site, specifically historic mining. While tailings removal and complete site restoration was considered as an alternative, we heard from Bannack Park management that they were unlikely to support this. The design consists of armoring the side of the Creek containing contaminated tailings, while encouraging the Creek to cut into the opposite bank by removing placer mine tailings and rip rap from that side of the creek, which is free of contaminated tailings. Grasshopper Creek will have a chance to create a slightly larger inset floodplain by eroding that side. There are also concerns from the engineer, based on previous experience, that disturbing the site will create larger problems: "excavating the tailings could expose the toxic metals that are encapsulated under the tailings including zinc, arsenic, and mercury." "Elemental mercury may be nearly impossible to recover if it is below the water table, so it will be necessary to dewater and treat the contaminated water. Based on the engineer's experience removing tailings from other streams and tailings impoundments, the removal option is very risky, expensive, and is likely to overrun initial cost estimates due to the uncertainties." Excerpts from engineer assessments included in attachments. If his experience is correct, the current tailings structure is likely very stable, sealed, and only poses a danger if breached by erosion.

D. What was the cause of habitat degradation and how will the project correct the cause?

Historic mining. The mine tailings were deposit adjacent to Grasshopper Creek. In 1977, a project was completed to stabilize the mine tailings. The project was successful but insufficient, is now aging and failing, allowing tailings into Grasshopper Creek and is at risk for catastrophic failure should a major runoff event occur.

This project will armor the entire 1,300 ft of embankment along the mine tailings with adequately sized riprap, and create run-on control features to effectively capture upslope runoff and prevent it from running across the mine tailings and carrying them into Grasshopper Creek.

E. Length of stream or size of lake that will be treated (project extent): 1,300 feet
Length/size of impact, if larger than project extent (e.g., stream miles opened): 20 miles

F. Project Budget Summary:

Grant Request (Dollars):	**$** 5,000.00
Matching Dollars:	**$** 419,180.00
Matching In-Kind Services:*	**$**

**salaries of government employees are not considered matching contributions*

Other Contributions (not part of this app)	**$** 5,000.00
Total Project Cost:	**$** 429,180.00

G. Attach itemized (line item) budget – *see budget template*

H. Attach project location map(s) that include:

- [x] Extent of the project, including context (relation to major landmark or town)
- [x] Indication of public and private property
- [ ] Riparian buffer locations and widths (if applicable) and grazing locations

I. Attach project plans:

- [x] Detailed sketches or plan views with the location and proposed restoration
- [x] Pre-project photographs (GPS location strongly recommended)
- [ ] If water leasing or water salvage is involved, attach a supplemental questionnaire (https://myfwp.mt.gov/getRepositoryFile?objectID=36110)

J. Attach letters or statements of support (e.g., landowner consent, community or public support, and fish biologist support). List any other project partners:

DEQ

III. MAINTENANCE AND MONITORING (attach additional information to end of application):

A. A 20-year maintenance commitment is required*. Please confirm that you will ensure this protection and describe your approach. Attach any relevant maintenance plans. Yes [x] No [ ]
**If it is a water leasing project, describe the length of the agreement.*

The previous project, which included undersized riprap, lasted nearly 40 years. We'll use appropriately sized riprap, which will easily outlast the previous project. In addition, we're creating infrastructure to capture upslope runoff and divert it away from the tailings. These diversions may require occasional cleaning. Beaverhead Conservation District will work with Bannack State Park to clean and maintain them.

B. Will grazing be part of or adjacent to the project? If so, describe or attach land management plans, including short term and long term grazing regimes. If the landowner is not the applicant, please describe their involvement in the project. *If you want assistance with grazing plan development, note your need.*

No official plans at this time. If grazing is incorporated in post-project management, we'll consult with NRCS on an appropriate plan.

C. Will the project be monitored to determine if goals were met? If so, what are the short-term and long-term plans to assess benefits and lessons learned? Were pre-project data collected? Will monitoring information be shared with FWP?

FWP currently monitors the Beaverhead River and Poindexter Slough, downstream of the confluence of Grasshopper Creek, annually, and will continue monitoring. This monitoring has shown historically low fish abundance, likely due to low flow and sediment input. Much of this sediment comes from Grasshopper Creek. The primary purpose of this project is to prevent a catastrophic tailings pond failure, resulting in a large, tailings-contaminated sediment event. Success will mostly be measured by the avoidance of that type event. Still, annual FWP monitoring will track fish abundance.

The Beaverhead Watershed Committee, in partnership with FWP and UM Western, has conducted an aquatic insect monitoring program the last two years, and will continue this program. We're assessing the current state of trout habitat by conducting pebble counts and insect presence and biomass surveys. We especially want to capture the effects of large sediment events and the impact of 'flushing flows' released from Clark Canyon Reservoir to clear this sediment from gravels, when negotiated with irrigators.

IV. PROJECT BENEFITS (attach additional information to end of application):

A. What species of fish will benefit from this project?

Brown Trout and Brook Trout.

B. How will the project protect or enhance wild fish habitat?

The project will begin to reduce the amount of sediment in Grasshopper Creek, which is eventually deposited in the Beaveread River. Grasshopper Creek was identified as a major contributer to the 2016 Beaverhead sediment impairment listing by DEQ, and was listed in the 2018 Beaverhead Watershed Restoration plan as a priority for sediment reduction.

Massive runoff events send excess sediment into the river, covering gravels needed for fish spawning. By repairing stream banks near the tailings pond, we'll decrease the sediment and mine waste entering Grasshopper Creek, and ultimately the Beaverhead River. The Beaverhead River is listed for low flow, temperature, and sedimentation/siltation below the confluence with Grasshopper Creek. Reducing sediment input and preventing large sediment events also maintains trout habitat in Poindexter Slough, another Beaverhead Watershed Committee project which greatly improved the trout fishery, and had extremely diverse funding and support, including Future Fisheries. Abundances in Poindexter Slough have been between 700 and 1000 fish per mile with historically high proportions of fish over 18" since restoration occurred.

In addition, by re-armoring the banks, fixing the failing mine tailings berm, we'll help prevent a massive failure of the berm, preventing large amounts of contaminated soil from entering Grasshopper Creek and the Beaverhead River.

C. What is the expected improvement to fish populations, both short term and long term? How might the project translate to angler success?

Both short and long term improvements relate directly to excess sediment events. This project reduces both the total amount of sediment in Grasshopper Creek and the Beaverhead River, and helps prevent a massive sediment event containing toxic mine waste. Angler success increases when we avoid trout die-offs due to sediment events, and also when there's less turbid water.

Grasshopper Creek supports approximately 300 angler-days/year, while the Beaverhead River has supported over 40,000 angler-days/year. "Sediment Input" is listed in a FWP management plan as the primary limiting factor for the quality of fish habitat in the Beaverhead River. Also from the management plan: 'These sediment events can result in extensive deposition of fine sediment over several miles of the Beaverhead River and cause an immediate and severe decline in the fish population; reductions of about 800 fish per mile and up to 50% of trout greater than 18" have been statistically linked to acute sediment events.'
Our goal is to reduce these events.

D. Will the project increase public fishing opportunity for wild fish and, if so, how? Is public fishing allowed onsite? If not, describe how the public would access the project benefits.

Fishing is allowed onsite. This project doesn't directly impact opportunity for public fishing, except in preventing a major blowout of contaminated soil, thereby preserving public fishing access. Generally the benefits are felt downstream by increasing the quality of fish habitat, angler experience (less turbid water), and preventing a major disturbance to habitat quality through mine waste contamination and siltation of gravel habit.

This proposed project includes an interpretive site describing the history of the area, the contamination, and the reclamation efforts. Bannack State Park is ½ a mile upstream from the site, and already has plans to build a trail on the hillside above the site, with access from the trail to the site. State Preservation Office, Park Managers, and Conservation Districts are working together to optimize public access and benefit.

E. Aside from angling, what local or large-scale public benefits will be realized from this project?

The public will benefit by preserving the National Historic Landmark at Bannack State Park and by continuing to maintain high quality fisheries in Grasshopper Creek. The direct benefit to Montanans is clean water, improved aquatic and riparian habitat, and cultural resources. Currently, contaminated soil is slowly leaching and eroding into Grasshopper Creek during runoff events. The project will increase the experience of visitors to Bannack State Park, preserving the mine infrastructure while showing, in a way neutral to resource extraction, what's required to repair mineral extraction activities. The indirect effects are improved water quality in the larger watershed, including the rest of downstream Grasshopper Creek and the Beaverhead River. The water quality affects the aquatic insect health, and both water quality and insect health determine fish health. The health of fish is important both for recreating Montanans, and the fishing industry and economy which rely on a healthy fish population. The ranching industry, which is the backbone of the local economy, also relies on clean water for irrigation and cattle watering.

F. Will the project interfere with water or property rights of adjacent landowners? (explain):

No. The re-armoring of the Creek will have no impact on water or property rights.

G. Will the project result in the development of commercial recreational use on the site (including paid access)? Explain:

No. The project site is part of Bannack State Park and will continue to be managed as-is.

H. Is this project associated with the reclamation of past mining activity?

Yes. We are re-armoring mine tailings.

Each approved project applicant must enter into a written agreement with Montana Fish, Wildlife & Parks specifying terms and duration of the project. The applicant must obtain all applicable permits prior to project construction. A competitive bid process must be followed when using State funds.

V. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature: Byron Martinell Digitally signed by Byron Martinell Date: 2023.05.15 09:45:55 -06'00' Date: 5/15/2023

Submittal: **Applications must be signed and received on or before November 15 and May 15 to be considered for the subsequent funding period**. Late or incomplete applications will be rejected.

Mail to:	FWP Future Fisheries Fish Habitat Bureau PO Box 200701 Helena, MT 59620-0701	Email:	Future Fisheries Coordinator FWPFFIP@mt.gov (electronic submissions must be signed) For files over 10MB, use https://transfer.mt.gov and send to mmcgree@mt.gov

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Both tables must be completed or the application will be returned

PROJECT COSTS					CONTRIBUTIONS			
WORK ITEMS (Itemize by Category)	**NUMBER OF UNITS**	**UNIT DESCRIPTION***	**COST/UNIT**	**TOTAL COST**	**FUTURE FISHERIES REQUEST**	**MATCH (Cash or Services)****	**OTHER (Not part of this application)**	**TOTAL**
Personnel***								
Survey				$ 10,000.00		10,000.00		$ 10,000.00
Design				$ 21,000.00	5,000.00	11,000.00	5,000.00	$ 21,000.00
Engineering				$ -				$ -
Permitting				$ -				$ -
Oversight				$ 44,300.00		44,300.00		$ 44,300.00
Maintenance				$ -				$ -
			Sub-Total	$ 75,300.00	$ 5,000.00	$ 65,300.00	$ 5,000.00	$ 75,300.00
Travel								
Mileage				$ 580.00		580.00		$ 580.00
Per diem				$ 2,400.00		2,400.00		$ 2,400.00
			Sub-Total	$ 2,980.00	$ -	$ 2,980.00	$ -	$ 2,980.00
Construction Materials****								
RipRap				$ 184,000.00		184,000.00		$ 184,000.00
Geofabric				$ 7,000.00		7,000.00		$ 7,000.00
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -
			Sub-Total	$ 191,000.00	$ -	$ 191,000.00	$ -	$ 191,000.00
Equipment, Labor, and Mobilization								
Mobilize				$ 9,400.00		9,400.00		$ 9,400.00
Site Prep				$ 5,000.00		5,000.00		$ 5,000.00
Rebuild Run-On				$ 7,500.00		7,500.00		$ 7,500.00
RipRap Install				$ 80,000.00		80,000.00		$ 80,000.00
Temp Diversion				$ 10,000.00		10,000.00		$ 10,000.00
g				$ 5,000.00		5,000.00		$ 5,000.00
Contigency				$ 33,000.00		33,000.00		$ 33,000.00
Interpretive Sign				$ 10,000.00		10,000.00		$ 10,000.00
				$ -				$ -
				$ -				$ -
				$ -				$ -
				$ -				$ -

			Sub-Total	$ 159,900.00	$ -	$ 159,900.00	$ -	$ 159,900.00
			TOTALS	$ 429,180.00	$ 5,000.00	$ 419,180.00	$ 5,000.00	$ 429,180.00

OTHER REQUIREMENTS:

All of the columns in the budget table and the matching contribution table MUST be completed appropriately or the application will be invalid. Please see the example budget sheet for additional clarification.

*Units = feet, hours, inches, etc. Do not use lump sum unless there is no other way to describe the costs.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used). Do not use government salaries as match. Describe here or in text.

***The Review Panel suggests that design and oversight costs associated with a proposed project not exceed 15% of the total project budget. If design and oversight costs are in excess of 15%, applications may require a justification or minimum of two competitive bids for the cost of undertaking the project. For projects that include a maintenance request, it must not exceed 10% of the total project cost.

****The Review Panel recommends a maximum fencing cost of $1.50 per foot. Additional costs may be the responsibility of the applicant and/or partners.

Additional details:

APPLICATION MATCHING CONTRIBUTIONS

(do not include requested funds or contributions not associated with the application)

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
DNRC RDG	$ -	$ 419,180.00	$ 419,180.00	Y
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ -	$ 419,180.00	$ 419,180.00	

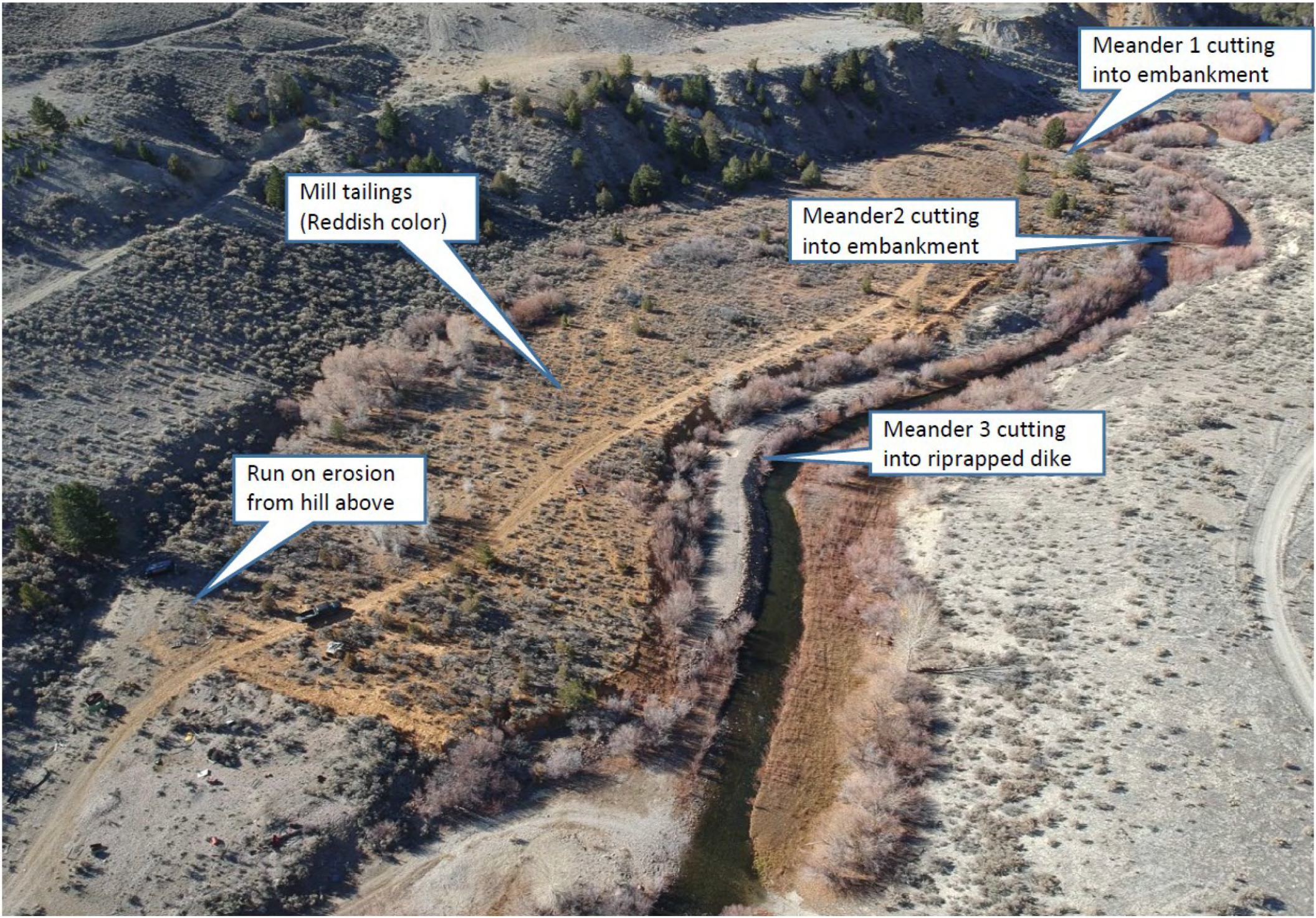
OTHER CONTRIBUTIONS

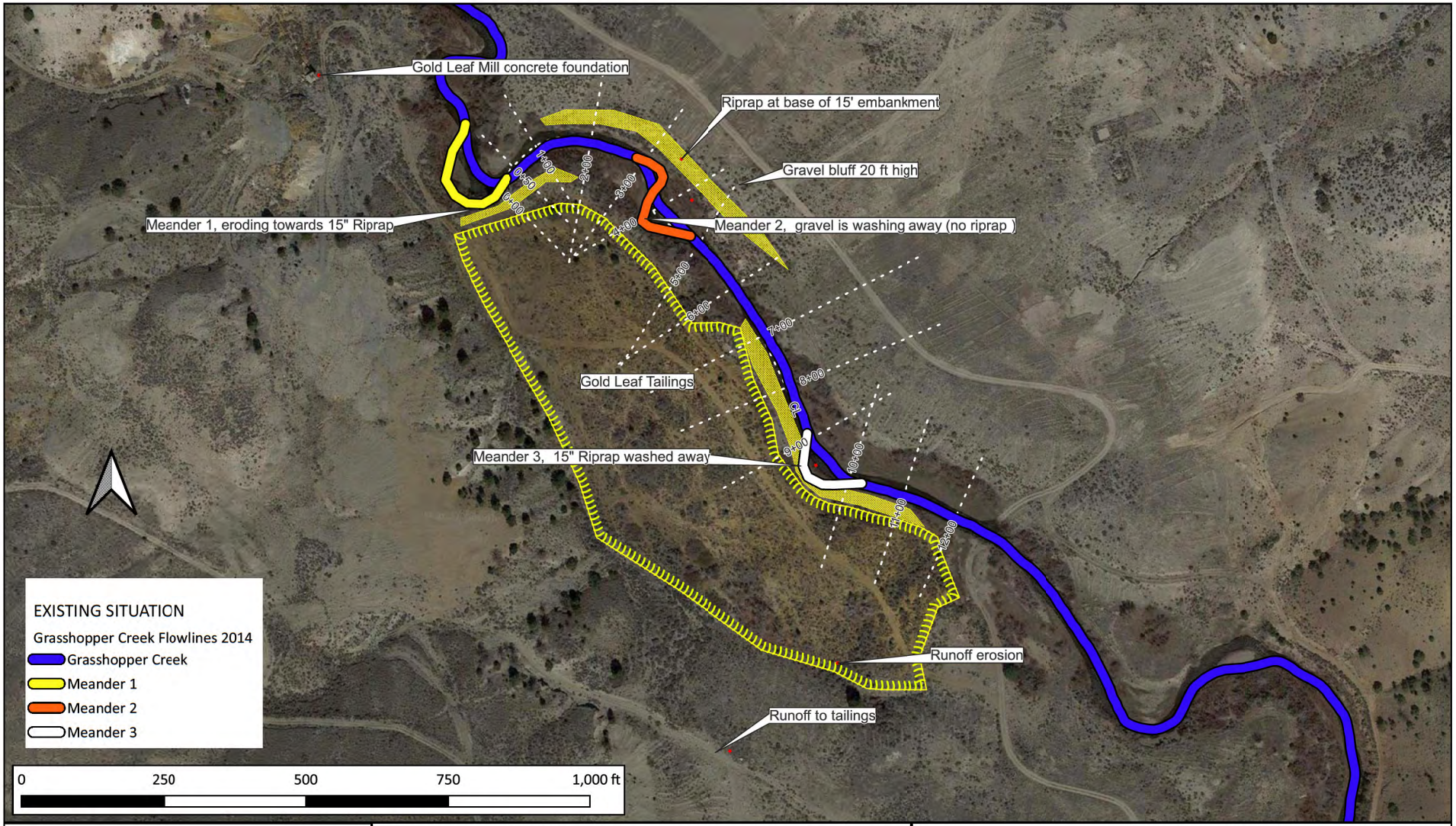
(contributions not associated with the application)

CONTRIBUTOR	IN-KIND	CASH	TOTAL	Secured? (Y/N)
DEQ	$ 5,000.00	$ -	$ 5,000.00	N
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
	$ -	$ -	$ -	
TOTALS	$ 5,000.00	$ -	$ 5,000.00	

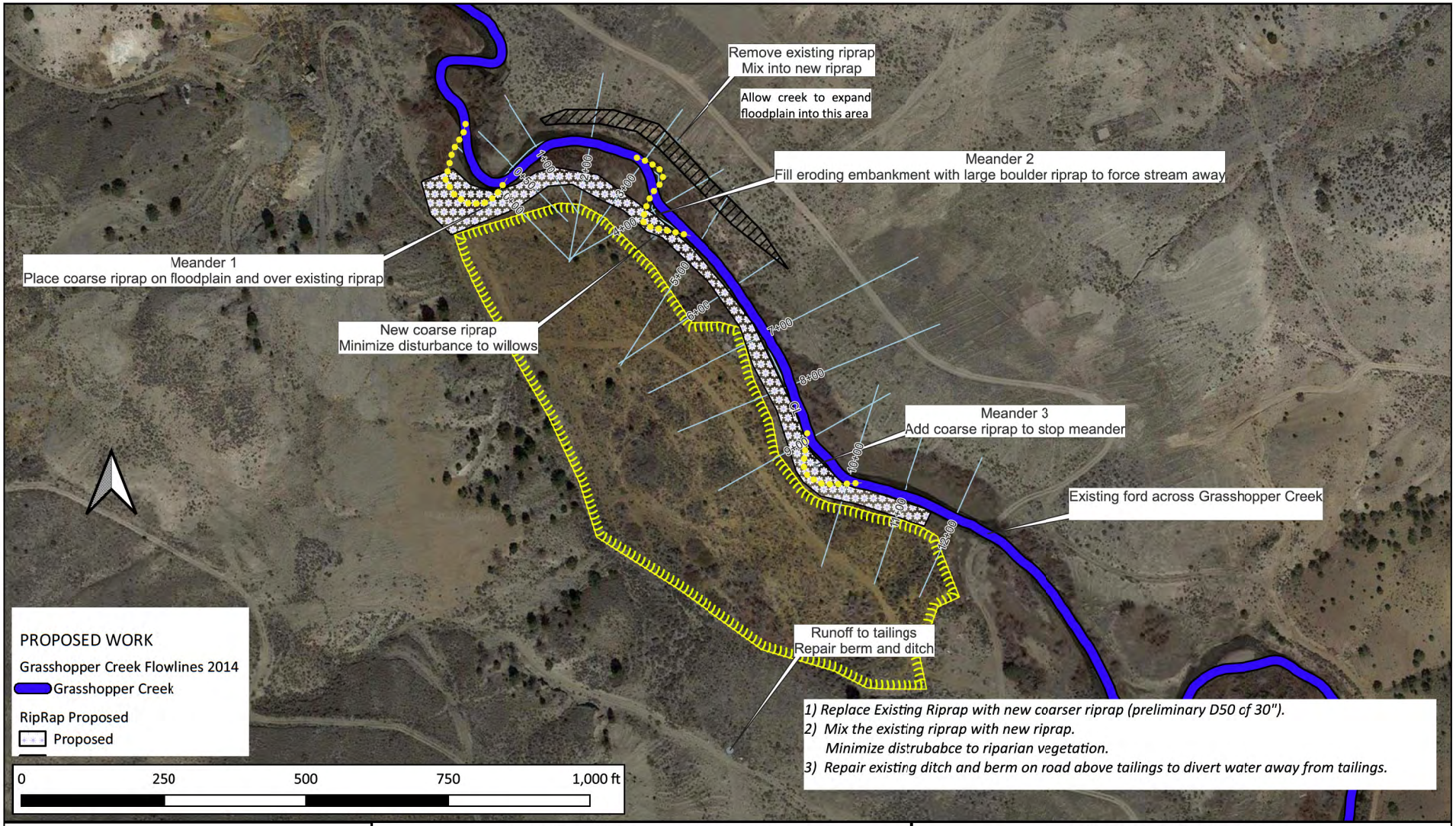
Grasshopper Creek Mine Tailings Stream Bank Stabilization

Location

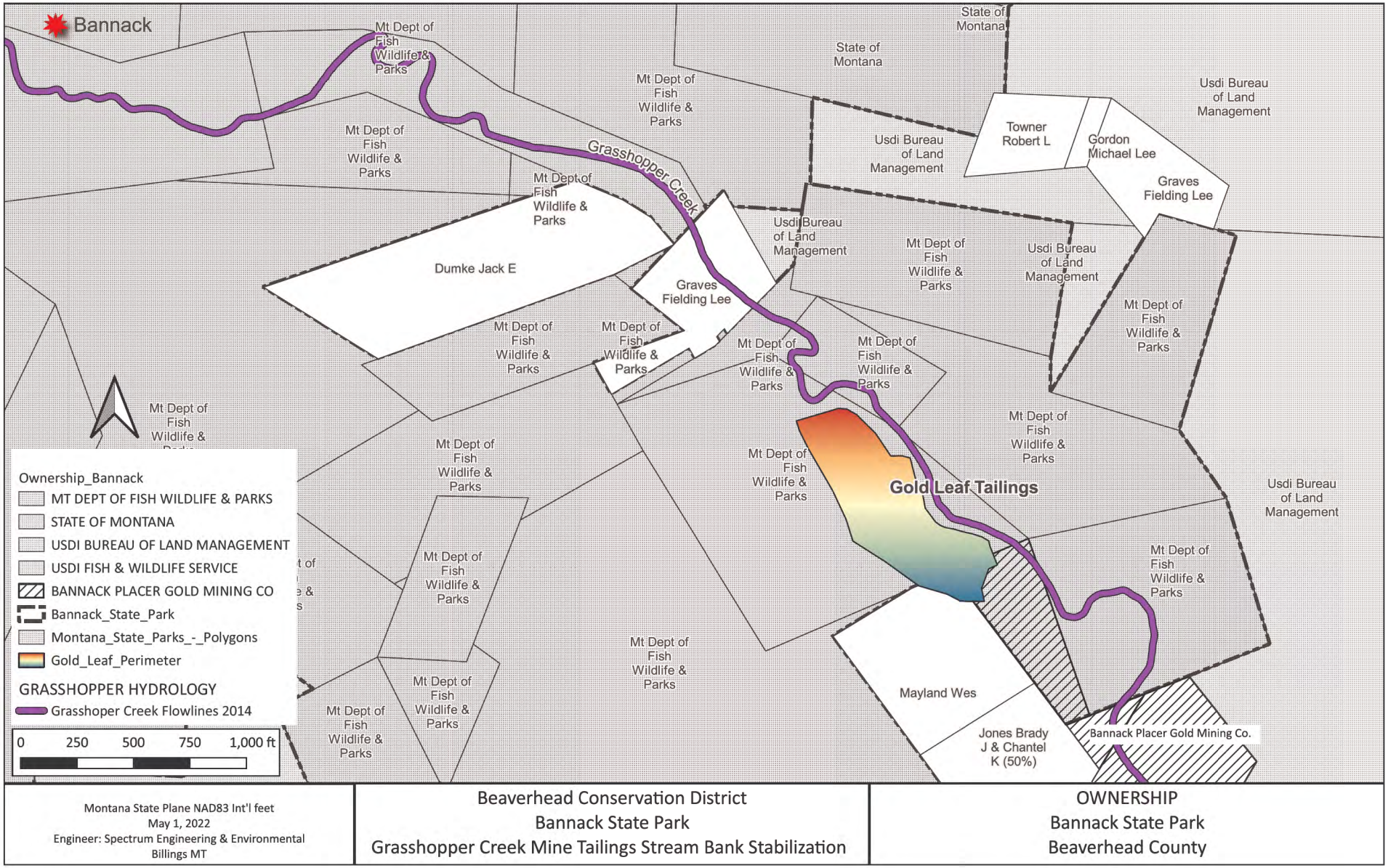

Meander 1 cutting into embankment
Mill tailings (Reddish color)
Meander2 cutting into embankment
Meander 3 cutting into riprapped dike
Run on erosion from hill above



Montana State Plane NAD83 Int'l feet May 1, 2022 Engineer: Spectrum Engineering & Environmental Billings MT	Beaverhead Conservation District Bannack State Park Grasshopper Creek Mine Tailings Stream Bank Stabilization	EXISTING CONDITIONS Bannack State Park Beaverhead County



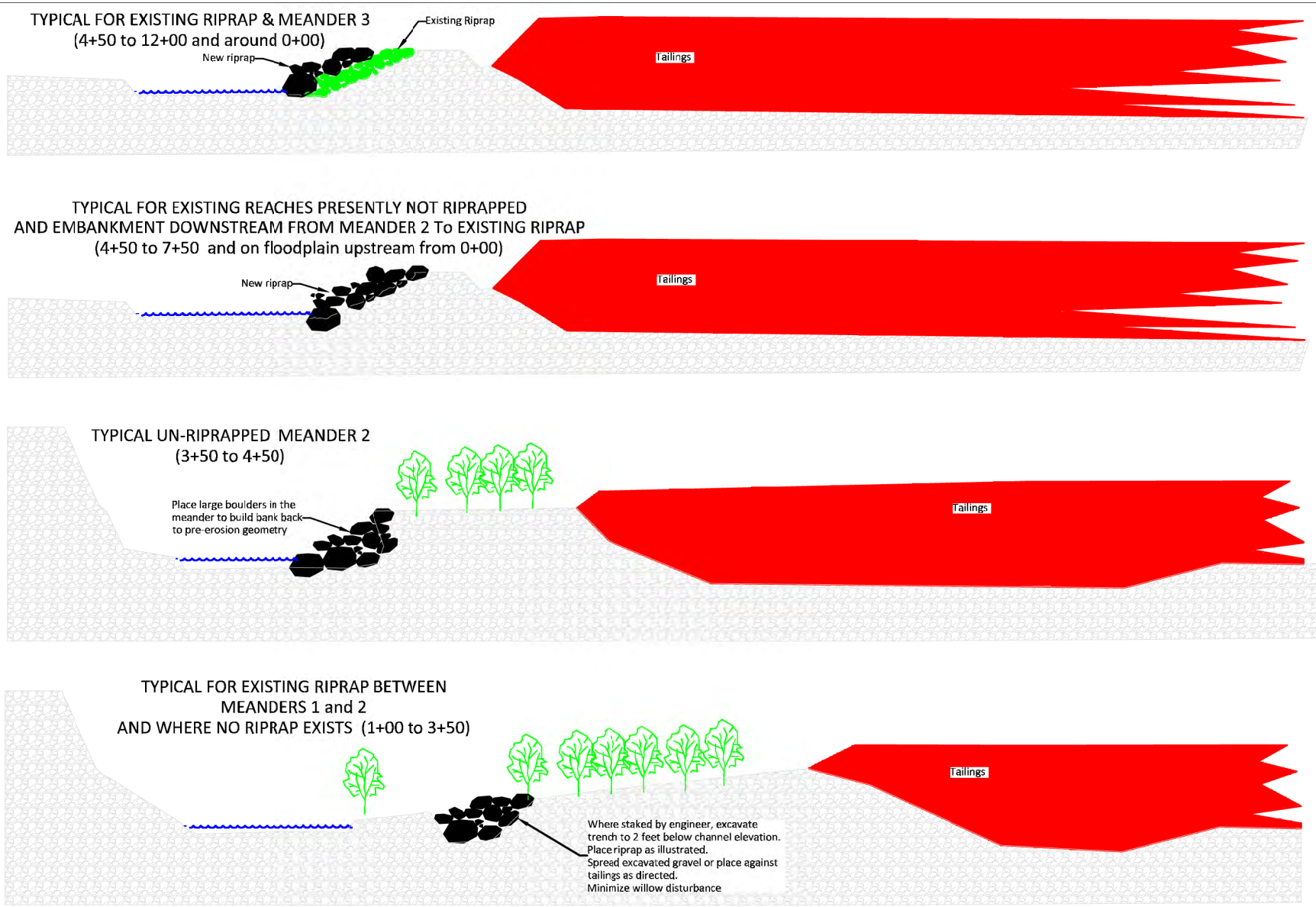
Montana State Plane NAD83 Int'l feet May 1, 2022 Engineer: Spectrum Engineering & Environmental Billings MT	Beaverhead Conservation District Bannack State Park Grasshopper Creek Mine Tailings Stream Bank Stabilization	PROPOSED REMEDIATION Bannack State Park Beaverhead County



Montana State Plane NAD83 Int'l feet
May 1, 2022
Engineer: Spectrum Engineering & Environmental
Billings MT

Beaverhead Conservation District
Bannack State Park
Grasshopper Creek Mine Tailings Stream Bank Stabilization

OWNERSHIP
Bannack State Park
Beaverhead County



Sketch: Not to scale

Spectrum Engineering & Environmental
Billings, MT

Beaverhead Conservation District
Bannack State Park
Grasshopper Creek Mine Tailings Bank Stabilization

PROPOSED REMEDIATION
RIPRAP PLACEMENT
FOR DIFFERENT REACHES

D:\Projects\Bannack Gold Leaf\GIS data\Riprap Installation 2018.dwg

The Bannack Association
PO BOX 1426
Dillion, MT 59725

May29, 2020

Michelle McGee
Montana FWP
Fish Management Bureau
PO Box 200701
Helena MT 59620

Dear Michelle,

This letter is in support of the Mine Tailing Reclamation Project that the Beaverhead Conservation District has presented.

As a "Friends" group of Bannack State Park, the Bannack Association is acutely aware of the significance of the need to preserve and enhance our natural, historical, and cultural sites.

This project addresses many concerns that currently are unmet. As presented this project is essential on several fronts:

1. It will mitigate the risk of severe water contamination and improve the quality of water in Grasshopper Creek and the Beaverhead River.
2. It will mitigate the damage of historical mineral extraction by repairing breaches in the structure holding the tailings.
3. It will construct armored spillways to channel flows and reduce erosion, de-acidifying and revegetating the soil in the tailing pond.
4. It will stabilize eroding streambanks which also contain mine tailings.

This project will go a long way in alleviating potential threats to an invaluable and irreplaceable part of our natural history. As this project aligns perfectly with our mission to ensure that future generations will have the opportunity to enjoy and appreciate the unique cultural, historical and natural beauty of Montana we heartily endorse this project.

Sincerely,

Otis Anderson

Otis Anderson
President, Bannack Association

Department of Natural Resources
and Conservation
Resource Development Bureau
Attn: Heidi Anderson Folnagy
P.O. Box 201601
Helena, MT 59620-1601

May 15, 2020

RE: Letter of Support for Beaverhead Conservation District, Grasshopper Creek RDG

Dear Ms. Folnagy,

I am writing you on behalf of Montana Trout Unlimited (MTU) in support of Zach Owen and the Beaverhead Watershed Committee (BWC). We fully support Zach in his application of a DNRC Resource Development Grant.

Chartered in 1964, MTU represents nearly 4,500 individual Trout Unlimited members and friends and is the umbrella organization for 13 separate TU chapters around the state. MTU's mission is to conserve, protect and restore coldwater fisheries and their watersheds in Montana.

Please accept this letter of support for funding of BWC's work on Grasshopper Creek. Grasshopper Creek continues to be the primary sediment source to the Beaverhead River, reducing water quality. Mine acid drainage is another significant issue in the drainage. This project will address these two issues of concern and improve overall ecological health. A failure of the tailings pond would be catastrophic, harming the downstream waterway for decades. Time is of the essence to secure the tailings pond. MTU will collaborate and support on the ground work with BWC on these projects in some capacity. We will also advocate for this project at the 2021 legislative session. His scope of work fits perfectly with MTU's mission.

Thank you for the opportunity to comment in support this grant application.

Chris Edgington

Jefferson Watershed Project Manager
Montana Trout Unlimited
chris@montanatu.org
406.451.3035

Clifford Stout
Celine Beaucamp-Stout
123 E. Cornell St.
Dillon, MT 59725

Re: Grasshopper Creek Mine Tailing Reclamation

To Whom It May Concern:

The Lower Grasshopper Creek is a waterway mostly untouched by historic dredging, yet an important amount of sediments run off from it and is evacuated in the Beaverhead River, especially in the slough South of Dillon, MT.

We own 15 acres of land on the Lower Grasshopper Creek, and we support projects that would mitigate the sediments, especially the Grasshopper Creek Mine Tailing Reclamation Project. Our land is downstream of the historic mine, and it would be unfortunate if the tailings were to fail and contaminate the rest of the river.

Please consider the Beaverhead Watershed Committee for their grant application. This group does very important work in our valley, benefiting waterways and its inhabitants, but also all of the community by working for pristine rivers and ecosystems. The economic impact of their work on our community is greatly underrated, and we fully support their endeavors.

Sincerely,

Clifford Stout Celine Beaucamp-Stout

MONTANA STATE PARKS
MONTANA FWP

Bannack State Park

721 Bannack Road
Dillon, MT 59725
Phone: 406-834-3413
Email: dalec@mt.gov

5-26-20

Michelle Mcgree
Montana FWP
Fish Management Bureau
PO Box 200701
Helena MT 59620

Dear Michelle:

Bannack State Park fully endorses the Mine Tailing Reclamation Project that the Beaverhead Conservation District has presented to us. We believe this plan would be essential in mitigating the risk of severe water contamination and improve the general quality of water in Grasshopper Creek and the Beaverhead River and mitigate the damage of historic mineral extraction by repairing breaches in the structure holding the tailings, constructing armored spillways to channel flows and reduce erosion, deacidifying and revegetating the soil in the tailings pond, and stabilizing eroding streambanks which also contain mine tailings.

Regards,

Dale Carlson, Manager
Bannack State Park