

## Section I: General Information

Project Title Ramshorn Creek Floodplain Restoration and Demonstration

### Project Sponsor Information

Sponsor Name Ruby Valley Conservation District

Registered with the Secretary of State? Yes

Registered with SAM? Yes

County Madison

Website www.rvcd.org

Tax Identification # 81-0414745

DUNS # 62-361-0149

Primary Contact David Stout

Signatory Gary Giem

Title Big Sky Watershed Corps Member

Title RVCD Board Chairman

Address 402 S. Main St

Address 402 S. Main St

City Sheridan State Montana Zip Code 59749

City Sheridan State Montana Zip Code 59749

Phone Number (406) 842-5741 x105

Phone Number (406) 596-0920

Fax Number \_\_\_\_\_

Fax Number \_\_\_\_\_

E-mail Address ruby.bswc@gmail.com

E-mail Address giem@3rivers.net

Signature \_\_\_\_\_

Signature \_\_\_\_\_

### Project Location

12 Digit HUC #(s) 100200030504

(1) Waterbody Name from 2014 List of Impaired Waters Ramshorn Creek

(1) Probable cause(s) of impairment to be addressed (ex. metals) Sediment

(2) Waterbody Name from 2014 List of Impaired Waters \_\_\_\_\_

(2) Probable cause(s) of impairment to be addressed (ex. metals) \_\_\_\_\_

(3) Waterbody Name from 2014 List of Impaired Waters \_\_\_\_\_

(3) Probable cause(s) of impairment to be addressed (ex. metals) \_\_\_\_\_

Activity 1 Name Floodplain Rebuild

Latitude (1) 45.415464

Longitude (1) 112.118381

Activity 2 Name Induced Meandering Structure Installation

Latitude (2) 45.414231

Longitude (2) 112.120403

Activity 3 Name \_\_\_\_\_

Latitude (3) \_\_\_\_\_

Longitude (3) \_\_\_\_\_

### Nonpoint Source (NPS) Information

Which WRP does the project implement? Ruby River Watershed

What is the WRP status? DEQ-Accepted

Does the project address impairments identified in a TMDL? Yes

Waterbody Type River/Stream

Functional Category Erosion Control Projects

1st Pollution Category Hydromodification (Channel Erosion/Incision)

Percent of Total (%) 40

2nd Pollution Category Hydromodification (Removal of Riparian Vegetation)

Percent of Total (%) 30

3rd Pollution Category Hydromodification (Streambank or Shoreline Modification/Destabilization)

Percent of Total (%) 30

4th Pollution Category \_\_\_\_\_

Percent of Total (%) \_\_\_\_\_

### Project Funding

319 Funds Requested	<input type="text" value="\$115,200.00"/>	Does the project sponsor have any open 319 contracts?	<input type="text" value="Yes"/>
Matching Funds		Project Title	<input type="text" value="Miller Ranch Ruby River Channel Restoration"/>
State Cash Match	<input type="text"/>	DEQ Contract Number	<input type="text" value="212058"/>
Local Cash Match	<input type="text" value="\$17,877.00"/>	319 Award	<input type="text" value="\$104,500.00"/>
In-Kind Match	<input type="text" value="\$45,277.00"/>	Projected Closing Date	<input type="text" value="October 31, 2015"/>
Total Match	<input type="text" value="\$63,154.00"/>	Project Title	<input type="text"/>
Other Federal Funds	<input type="text" value="\$5,078.00"/>	DEQ Contract Number	<input type="text"/>
Total Project Budget	<input type="text" value="\$183,432.00"/>	319 Award	<input type="text"/>
Administrative Fee	<input type="text" value="\$10,000.00"/>	Projected Closing Date	<input type="text"/>

### Section II: Project Description

#### Goal and Objectives: Describe the overall goal and specific objectives for this project.

This project will restore streambank and floodplain for placer mining affected channel on Ramshorn Creek to reduce sediment loading. The proposed work will demonstrate restoration methods on similarly impaired streams throughout the Ruby River watershed. The proposed project will use both an engineered floodplain rebuild as well as passive restoration techniques, and, through monitoring, compare the results of these methods. The goal of this comparison is to determine the costs and benefits of these methods in placer mining affected systems. Additionally, the site will serve as a location for education and outreach efforts oriented towards landowners and stream managers in the Ruby Valley, particularly those on tributary streams. The project will implement the TMDL for Ramshorn Cr.

#### Methods: Describe the approach selected to address/correct the problem(s), e.g. types of BMPs to be installed, and other important activities.

- 1) Reconstruct floodplain bench at elevation of presently forming point bar. Revegetate bank toe with bio-engineered soil lift containing cottonwood and willow species to create riparian buffer. Slope upland deposits to meet grade of newly constructed bench. Relocate excavated placer material to upland site.
- 2) Install "induced meandering" structures downstream of floodplain rebuild to direct stream energy towards placer material and accelerate floodplain formation processes. Structures will consist of locally available materials (e.g. harvested juniper, willow, and woody debris) assembled in the stream channel with the correct dimensions and geometry to induce the desired fluvial processes within an acceptable degree of predictability.

#### Summary: Provide a brief summary of the project.

The Ruby Watershed Council (RWC) completed its WRP in July 2015 and is applying for 319 funds to implement restoration activities on Ramshorn Creek beginning in 2016. This project will serve as a demonstration for similar projects which will implement TMDL allocations throughout the Southern Tobacco Root Mountains in the Ruby River watershed. Many of these drainages have been altered dramatically by historical placer mining and are in need of restorative actions to improve water quality.

Aerial imagery of Ramshorn Creek from 1995 to 2014 shows a rapid loss of floodplain forest and buffer surrounding the stream. Riparian species including cottonwoods, willows, and sedges are establishing themselves elsewhere in the floodplain but are absent on the placer deposits. Soils in the placer deposits are perched above the water table and are unsuitable for riparian species.

This project will intercept highly erosive placer mining deposits through which the stream channel is actively evolving. Elsewhere, the project will assist in accelerating the fluvial processes by which a stream increases its length through erosion and creates floodplain through deposition. These techniques will improve stream function, increase the number of sites for fine sediment deposition, and increase the area of floodplain. Additionally, the project will also reestablish floodplain and riparian buffer between the stream and upland sediment sources across some 2000 lineal feet of stream. Upon completion of project work, monitoring and outreach efforts will focus on measuring non-point source pollution from sediments, comparing the outcomes of the aforementioned methods, and sharing the results with local landowners as well as state and federal agencies.

**Statement of Project Need and Intent**

Historical placer mining on tributaries to the Ruby River in the southern Tobacco Root mountains has left many tributary floodplains in a highly degraded state. This problem contributes to loss of stream and floodplain function, declining native plant communities, and a reduction in fish and wildlife habitat. Moreover, the same impacts have led to several of these streams, including Ramshorn Creek, to be listed as impaired for mining-related sediment inputs which further degrade stream function and impact water quality. Ramshorn Creek has been listed as a 303(d) impaired stream in MT DEQ's list of impaired streams and has a TMDL for sediment inputs that was authored in 2006. This project would implement that TMDL and begin reducing non-point sediment sources on Ramshorn Creek to acceptable levels as a part of the Ruby River Watershed Restoration Plan. The project would serve as a demonstration for similar efforts on mining-related streams throughout the Ruby River watershed.

**Describe the pre-project planning that has already occurred.**

IN 2006 MT DEQ found Ramshorn Creek to be contributing a high proportion of fine sediments to the Lower Ruby River watershed. As a result the Ruby Watershed Council (RWC) and Ruby Valley Conservation District (RVCD) gave high priority to Ramshorn Creek in the development of RWC's watershed restoration plan. Beginning in May 2015 RVCD in partnership with MT FWP, NRCS, BLM, USFS, and The Nature Conservancy began planning efforts for TMDL and similar restoration project implementation on Ramshorn Creek. A NRCS riparian assessment was conducted to identify stream function impairments, natural resource needs, and possible solutions to the problems identified. As a part of the same effort stream reaches were mapped and the riparian plant communities were inventoried for the stream by reach. A geomorphological assessment determined stream and floodplain impairments and potential, identified projects to restore or enhance function, developed a list of projects and alternatives to increase the stream's sediment transport function, and generated a report of the scientific team's findings. This project was developed from one of the projects identified in that report because of landowner willingness and potential to demonstrate stream, floodplain, and riparian plant community restoration. A 40% design was generated based on the potential project identified by the geomorphological team. A preliminary cost estimate and DEQ 319 pre-proposal were created based on these designs. Preliminary monitoring in the project area has occurred as of July 2015.

**Collaborative Effort: Describe the collaborative effort you have engaged in to ensure support from all appropriate partners.**

The development of this project is the result of collaborative partnership between RVCD and a technical advisory committee including NRCS, BLM, USFS, and MT FWP staff. Objectives, tasks, and a scope of work were developed in consultation with these technical partners as well as The Nature Conservancy. TNC has provided funding and technical assistance in developing this project as part of its wider drought resilience goals in southwest Montana. Preliminary assessments and monitoring required the coordination of RVCD, NRCS, BLM, USFS, MT FWP, and TNC staff. Additionally, these technical partners reviewed and contributed to the final geomorphological assessment report from which the project was developed. The addition of passive "induced meandering" structures to the project scope arose from field visitations and consultation with MT DEQ and EPA staff, as well as consultation with NRCS and MT FWP staff. These activities and their results were coordinated at all times with multiple landowners throughout the sub-watershed, particularly the project site landowners. The project site landowners have been highly cooperative and have contributed significant time in assisting RVCD staff with identifying potential project work on Ramshorn Creek.

**Partners and Roles: Identify the project partners and their roles.**

Partner	Role
Ruby Valley Conservation District/ Ruby Watershed Council	Lead partner. Responsible for grant administration and project coordination.
MT Fish Wildlife & Parks, U.S. Bureau of Land Management, U.S. Forest Service, U. S. Natural Resource Conservation Service.	Technical advisors. Responsible for monitoring and technical assistance. Providing financial assistance and staff time to assist project monitoring.
The Nature Conservancy	Technical advisor. Responsible for technical and planning assistance.
Tom Bartoletti.	Project site landowner. Providing project match through maintenance agreements and donated labor.

### Technical and Administrative Qualifications

RVCD staff have experience managing grants associated with the DEQ 319 grant program. Administrative staff are well experienced at bookkeeping, reporting, and invoicing for grants of this type. RVCD recently closed a 319 contract supporting restoration work on the Ruby River. The RVCD staff responsible for grant coordination has experience in planning and implementing ecological restoration, working with contractors and subcontractors, was responsible for developing the Ruby Watershed Restoration Plan, has developed approved monitoring SAPs, and is proficient in technical writing and grant management.

### Past and Current Projects

Funding Organization	Award Amount	Project Description	Project Status	Contact Information
MT DEQ	\$104,500.00	Miller Ranch Ruby River Channel Restoration	Completed	Robert Ray Watershed Protection Section Supervisor Montana DEQ PO Box 200901 Helena, MT 59620-0901 rray@mt.gov
MT DNRC-RDGP	300,000	Alder Gulch Phase 1 Improvements	Under Contract	Alicia Stickney Reclamation and Development Program Montana DNRC PO Box 201601 Helena, MT 59620-1601 astickney@mt.gov
MT DNRC-RDGP	\$300,000.00	Upper Missouri Channel Mapping	Under Contract	Alicia Stickney Reclamation and Development Program Montana DNRC PO Box 201601 Helena, MT 59620-1601 astickney@mt.gov
U.S. BLM	\$20000.00	Monitoring Assistance	Under Contract	Katie Benzel U.S. Bureau of Land Management 1005 Selway Drive, Dillon, MT 59725-8449 kbenzel@blm.gov
MT DNRC-CARDD	\$10000.00	Conservation District Development Grant	Approved - Not Under Contract	Montana DNRC Conservation Districts Bureau PO Box 201601 Helena, MT 59620-1601

### Section III: Scope of Work

Task 1 Title Final Design and Permitting

#### Description

This project is currently at a 40% engineered design for the proposed floodplain rebuild work (Task 2). Additional design work will be needed to determine the correct placement and construction of the in-stream induced meandering structures (Task 3). 319 funds will cover costs to complete project designs and secure project permitting. RWC will employ a contractor to bring designs to a final and approved state. Funding will also cover the costs of pre-project sampling to determine the presence, if any, of heavy metals or toxic materials embedded in the waste placer material that may be remobilized by project work. RVCD staff will work with the contractor and MT FWP to secure all permitting required for the project.

#### Deliverables

1. Final design plans for DEQ review and approval.
2. Soil sampling results for placer materials delivered to DEQ staff.
3. Project permits delivered to DEQ staff.

#### Task 1 Funding

319 Funds	<input type="text" value="\$15,000.00"/>
Non-Federal Match	<input type="text" value="\$4,455.00"/>
Other Federal Funds	<input type="text"/>
Total Cost	<input type="text" value="\$19,455.00"/>
Is Match Secured?	<input type="text" value="Yes"/>

Timeline Summer 2016

Match Source RVCD staff time, MT FWP time

Task 2 Title Floodplain Excavation and Rebuild

#### Description

The project will excavate unconsolidated placer material, rebuild floodplain bench along the stream, reslope placer materials to reduce gradient, relocate lower section of stream channel to improve alignment, and vegetate disturbed area. Excavated bank toe will be secured with bio-engineered treatment using a soil-lift of coir fabric and willow cuttings. The resloped material will be amended and seeded with a native plant mixture. Additional erosion control fabric will be installed to secure the disturbed areas as needed. Woody riparian species will be planted throughout the disturbed area. The excavated materials will be taken to a site or sites on the landowner's property where they will be amended and seeded with a native plant mixture. Riparian fencing will be installed in the disturbed area to prevent livestock grazing on the stream banks until riparian vegetation is well established. The landowner will provide maintenance, noxious weed control, and juniper removal services to further enhance the riparian area.

The proposed work will improve approximately 1 acre (0.94 acres) of riparian area and floodplain, restore approximately 750 lineal feet of erosive bankline, intercept 6200 cubic yards of erosive placer material, create 0.29 acres of connected floodplain, and re-establish 1400 riparian shrubs in the floodplain and riparian area. The proposed work will intercept non-point erosion, create floodplain area where stream energy can dissipate and fine sediments may settle, and allow groundwater recharge and riparian species recruitment throughout the floodplain.

#### Deliverables

1. Draft and final design plans for DEQ review and approval.
2. Pre- and post- construction photos.
3. Receipts of expenditures and invoices for contracted services.
4. Final project report to be included in final grant report.
5. Draft and final version of landowner agreement.
6. Recorded in-kind hours provided by landowner and additional volunteers.

#### Task 2 Funding

319 Funds	<input type="text" value="\$75,300.00"/>
Non-Federal Match	<input type="text" value="\$25,950.00"/>
Other Federal Funds	<input type="text"/>
Total Cost	<input type="text" value="\$101,250.00"/>
Is Match Secured?	<input type="text" value="No"/>

Timeline Fall and Winter 2016

Match Source Donated materials, Volunteer Time

### Task 3 Title Install Induced Meandering Structures

#### Description

10 induced meandering structures will be installed over a length of 2500 lineal feet on Ramshorn Creek below the floodplain rebuild outlined in Task 1. These structures will be built in the stream with the purpose of directing stream energy toward outside banks. The structures will serve two functions. The first of these being to accelerate the rate at which the stream works through the placer deposits and forms a new floodplain area. The second is to dissipate energy and allow the aggradation of sediments and bed forming materials behind the structures and in the form of new point bars.

The intended effect of these structures will be to increase stream sinuosity, develop floodplain, and maintain grade. The structures will increase stream function and floodplain connectivity along approximately 2500 lineal feet of stream corridor. These increases will provide sites for sediment settling and reduce sediment related non-point source pollution throughout the project area.

#### Deliverables

1. Draft and final design plans for DEQ review and approval.
2. Pre- and post- construction photos.
3. Receipts of expenditures and invoices for contracted services.
4. Volunteer work day agendas and schedules.
5. Final project report to be included in final grant report.
6. Draft and final version of landowner agreement.
7. Recorded in-kind hours provided by landowner and additional volunteers.

#### Task 3 Funding

319 Funds	<input type="text" value="\$0.00"/>
Non-Federal Match	<input type="text" value="\$11,735.00"/>
Other Federal Funds	<input type="text"/>
Total Cost	<input type="text" value="\$11,735.00"/>
Is Match Secured?	<input type="text" value="Yes"/>

Timeline Fall and Winter 2016

Match Source RVCD time, local volunteers

### Task 4 Title Project Monitoring

#### Description

Sediment load reductions will be estimated based on modeling and the volume of erosive material removed from the stream's trajectory. It is not expected that measurable water quality improvements will occur within the timeframe of this project. Baseline data (substrate surveys, fish population data, macroinvertebrate survey data) has been collected as of July 2015. Additional monitoring using these parameters will occur at 4 sites on Ramshorn Creek at a 5-year interval.

A Sampling Analysis Plan and QAPP will be developed by RVCD in 2016. Pre- and post-project monitoring will occur as outlined in the SAP. Photo point monitoring and vegetation surveys will be used to monitor channel evolution and establishment of woody riparian species. This project specific monitoring will be achieved through volunteer recruitment.

Funding will support monitoring coordination tasks including SAP and QAPP development, volunteer training and coordination, and data collection. Monitoring will be used to estimate the area of improved stream bank and riparian area created by the different methodologies represented in Tasks 2 and 3.

#### Deliverables

1. Draft and final SAP and QAPP for DEQ review and approval.
2. Photo and vegetation survey data reported to DEQ contract staff.
3. Volunteer work day agendas and schedules.
4. Volunteer recruitment numbers and surveys reported to DEQ contract staff.
5. Estimated load reductions for project work associated with Tasks 2 & 3.

#### Task 4 Funding

319 Funds	<input type="text" value="\$3,100.00"/>
Non-Federal Match	<input type="text" value="\$3,355.00"/>
Other Federal Funds	<input type="text" value="\$5,078.00"/>
Total Cost	<input type="text" value="\$11,533.00"/>
Is Match Secured?	<input type="text" value="Yes"/>

Timeline Summer 2016-Fall 2017

Match Source MT FWP, BLM, USFS, and RVCD staff time, volunteer time

## Task 5 Title Education and Outreach

### Description

RVCD will use this site a demonstration project to educate the local community - landowners and managers on similar tributary streams - about the importance of watershed restoration for improving water quality and reducing non-point source pollution, as well as improving aquatic and terrestrial ecosystems. Similarly, the site will function as a demonstration of the costs and benefits of differing methodologies with similar water quality goals. RVCD intends to use this site to demonstrate the results of these methods to other watershed groups, land management agencies, state agencies, and private landowners. Funding will support hosting public tours and landowner workshops to promote BMPs associated with the project.

### Deliverables

1. Schedules and agendas for all tours and workshops given.
2. Attendance sign-in sheet numbers.
3. Attendant survey results to track tour and workshop effectiveness.
4. Media releases through local news outlets.

### Task 5 Funding

319 Funds	<input type="text" value="\$1,800.00"/>
Non-Federal Match	<input type="text" value="\$6,660.00"/>
Other Federal Funds	<input type="text"/>
Total Cost	<input type="text" value="\$8,460.00"/>
Is Match Secured?	<input type="text" value="Yes"/>

Timeline Summer 2016-Fall 2017

Match Source RVCD event funds and staff time

## Task 6 Title Project Coordination

### Description

Funds will cover task-specific management duties for RVCD/RWC. These duties include but are not limited to procuring contractors, managing sub-contracts, and coordinating with project partners and volunteers.

### Deliverables

1. Meeting agendas and summaries of coordination events, activities, and site visits.

### Task 6 Funding

319 Funds	<input type="text" value="\$10,000.00"/>
Non-Federal Match	<input type="text" value="\$5,500.00"/>
Other Federal Funds	<input type="text"/>
Total Cost	<input type="text" value="\$15,500.00"/>
Is Match Secured?	<input type="text" value="Yes"/>

Timeline Summer 2016-Fall 2017

Match Source RVCD supervisor and staff time

Description

The RVCD restoration coordinator and RVCD administrator will be responsible for contract administration. The coordinator will document hours, track allowable costs, and provide necessary contract-related deliverables to MT DEQ. The administrator will work with the coordinator and MT DEQ contract staff to provided detailed invoices and other financial deliverables to MT DEQ.

Deliverables

1. Quarterly reports, annual reports, and final report.
2. Billing statements.

Task 7 Funding

319 Funds	\$10,000.00
Non-Federal Match	\$5,500.00
Other Federal Funds	
Total Cost	\$15,500.00
Is Match Secured?	Yes

Timeline

Summer 2016-Fall 2017

Match Source

RVCD supervisor and staff time

Description

Deliverables



Task 8 Funding

319 Funds	
Non-Federal Match	
Other Federal Funds	
Total Cost	
Is Match Secured?	

Timeline

Match Source

## Section IV: Supporting Documents

### Detailed Project Budget

Task Number and Specific Action	319 Funds	State Cash Match	Local Cash Match	In-Kind Match	Federal Funds	Total Costs
Task 1.1 - Final Design and Permitting	\$15,000			\$4,455		\$19,455
Task 2.1 - Floodplain Excavation and Construction	\$42,800					\$42,800
Task 2.2 - Screen and Install Toe Rock	\$2,500		\$2,500			\$5,000
Task 2.3 - Erosion Control Materials	\$4,000			\$3,650		\$7,650
Task 2.4 - Revegetation Materials			\$3,000			\$3,000
Task 2.5 - Topsoil Amendments	\$10,000					\$10,000
Task 2.6 - Placer Spoil Relocation and Revegetation	\$15,000		\$7,040			\$22,040
Task 2.7 - Plantings Maintenance			\$837			\$837
Task 2.8 - Riparian Fencing	\$1,000			\$1,275		\$2,275
Task 2.9 - Noxious Weed Management				\$3,824		\$3,824
Task 2.10 - Riparian Juniper Removal				\$3,824		\$3,824
Task 3.1 - Construction Supervision				\$1,271		\$1,271
Task 3.2 - Material Collection				\$1,744		\$1,744
Task 3.3 - Induced Meandering Structure Install				\$8,720		\$8,720
Task 4.1 - Develop SAP & QAPP	\$1,200				\$1,200	\$2,400
Task 4.2 - Volunteer Coordination & Data Collection	\$1,500			\$3,355	\$3,878	\$8,733
Task 4.3 - Data Input & Recording	\$400					\$400
Task 5.1 - Education & Outreach Events	\$1,800		\$4,500	\$2,160		\$8,460
Task 6.1 - Project Coordination	\$10,000			\$5,500		\$15,500
Task 7.1 - Grant Administration	\$10,000			\$5,500		\$15,500
<b><u>TOTAL</u></b>	\$115,200		\$17,877	\$45,277	\$5,078	\$183,433

**Project Milestone Table:** Complete the following Project Milestone Table by entering task numbers and titles in the left hand column, then check the box(es) for the appropriate quarter(s) and years(s) in which you will be working on the task.

Milestone	Spring 2016	Summer 2016	Fall 2016	Winter 2016	Spring 2017	Summer 2017	Fall 2017	Winter 2017	Spring 2018	Summer 2018	Fall 2018
Task 1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 3	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 5	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 6	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Task 7	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Submit **project map(s)** and **letters of support (at least 3)** along with the Final Project Proposal form. If your organization is not the author of the WRP you hope to implement, you must request a letter of support from the original authoring entity. If the authoring entity refuses to provide a letter of support, use the additional space at the end of the application to describe their response. If design drawings are available, provide those as well. For on-the-ground work, include copies of applicable permits if available.

- ☒ Project Map
- ☒ Letters of Support
- ☒ Design Drawings
- ☐ Applicable Permits
- ☒ Draft of amended WRP (if applicable)
- ☒ Photos
- ☐ Landowner Agreements

**Use the space provided for any additional information that may not have been captured elsewhere in this Final Project Proposal**


There has been some concern about the implementation of project work as proposed in this grant given the highly erosive nature of the the placer deposits surrounding the work area. At the time of preliminary design, RVCD and the contractor responsible for the designs were aware of the need for caution when working in a highly erosive area. The work area was in part chosen because the stream has downcut through these deposits and has now reached bedrock. This means that there is no longer an active headcut in the area and channel grade can be maintained throughout the work area. The current designs to allow sufficient floodplain access and energy dissipation so as to diminish the likelihood of channel avulsion or relocation during a high flow event. The preliminary designs are provided to DEQ for review as a part of this application. The final engineered design will be similarly conceived so as to minimize the risk of project failure. These designs will also be made available to DEQ for review and approval.


# Ramshorn Creek Floodplain Restoration and Demonstration


Bartoletti Property Project Area  
Overview

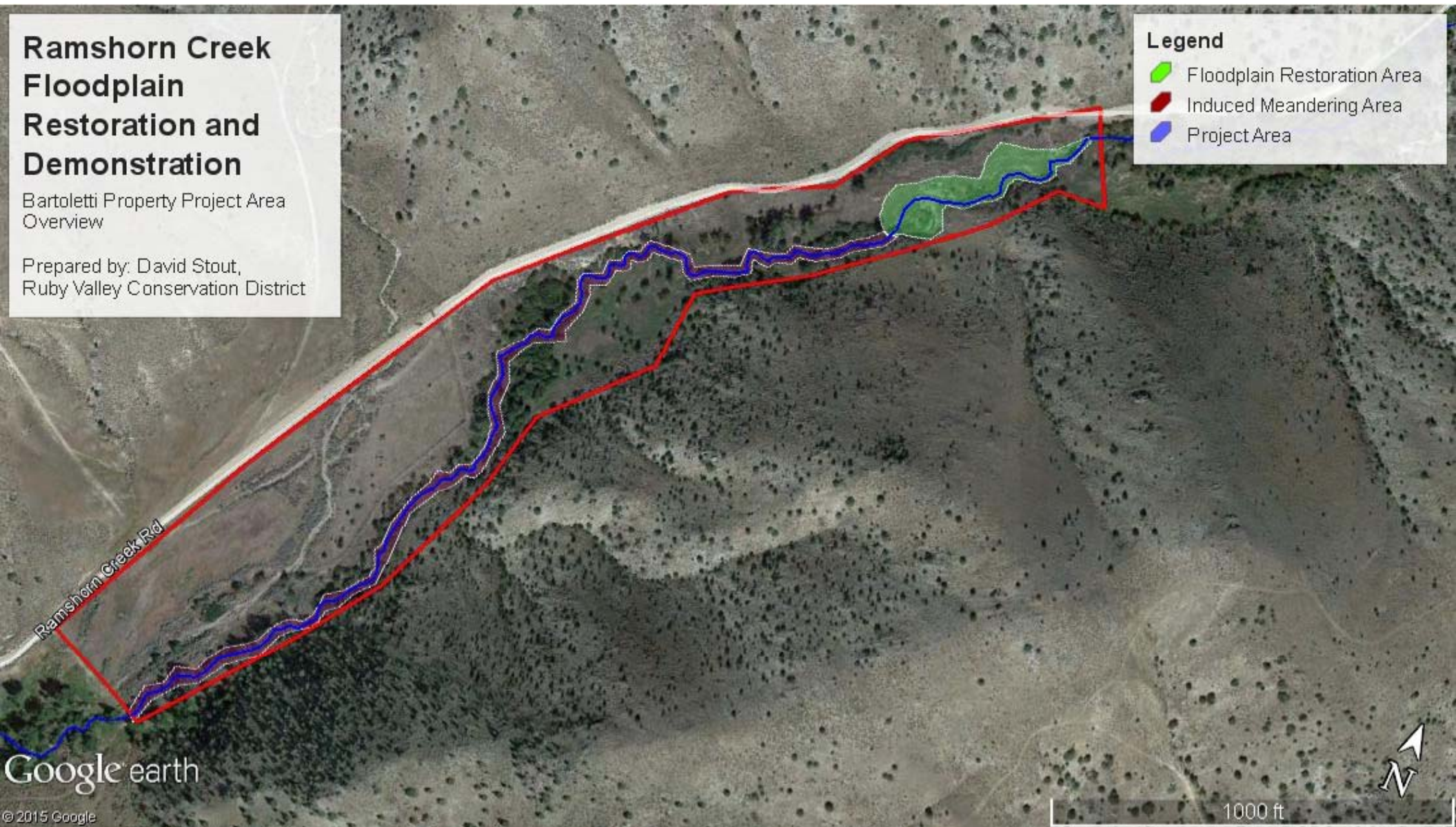
Prepared by: David Stout,  
Ruby Valley Conservation District

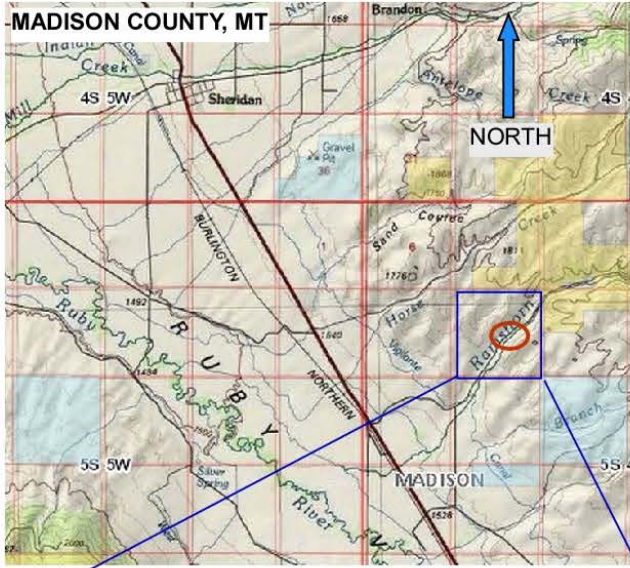
Legend

 Floodplain Restoration Area

 Induced Meandering Area

 Project Area





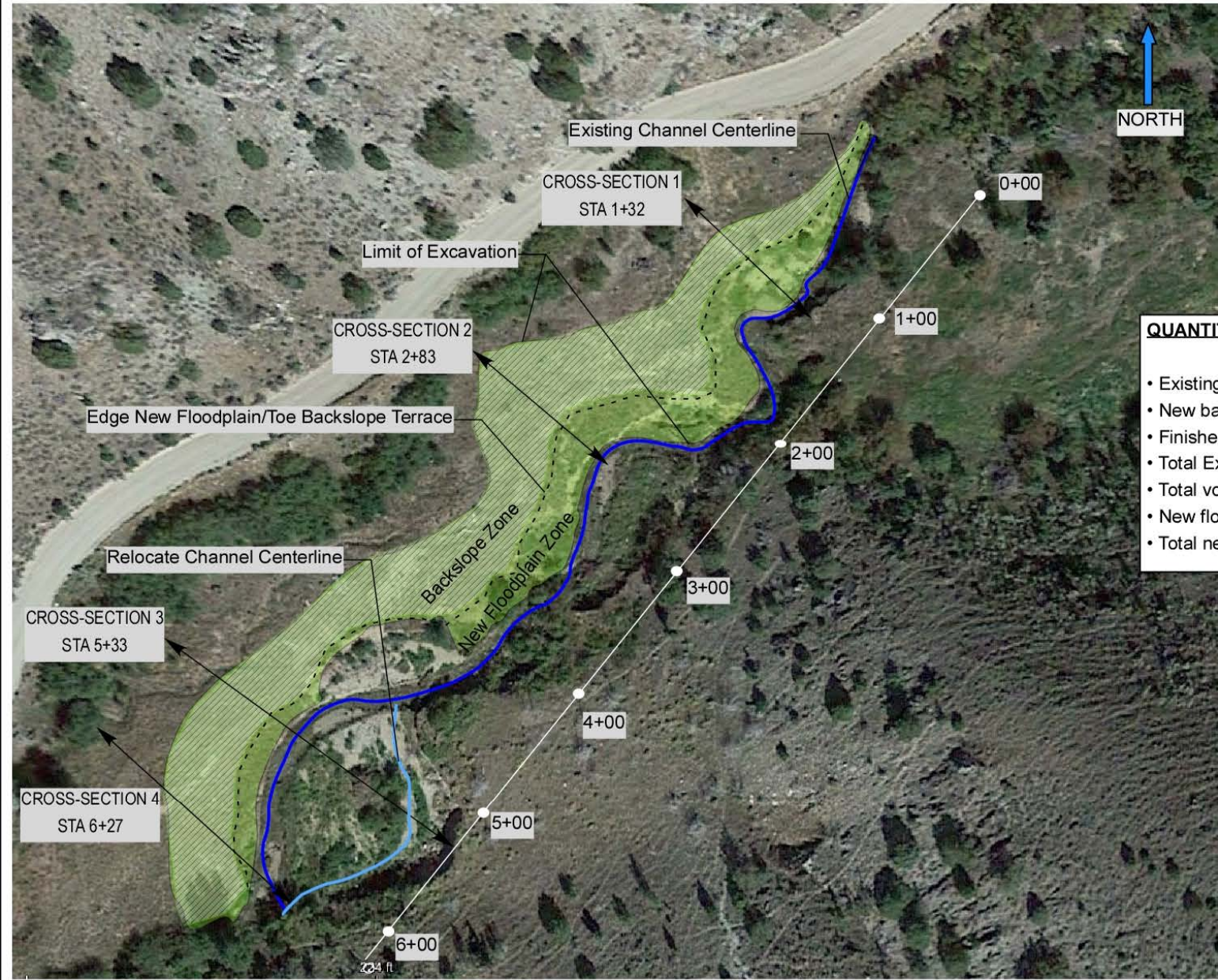
# RAMSHORN CREEK - LOCATION, OVERVIEW AND TYPICAL CONDITIONS

Drafted: 7/29/15 by Briana Schultz, Sundog Ecological

# RAMSHORN CREEK - PRELIMINARY SEDIMENT REDUCTION PLAN

Drafted: 7/29/15 by Briana Schultz, Sundog Ecological

SHEET 2 OF 2



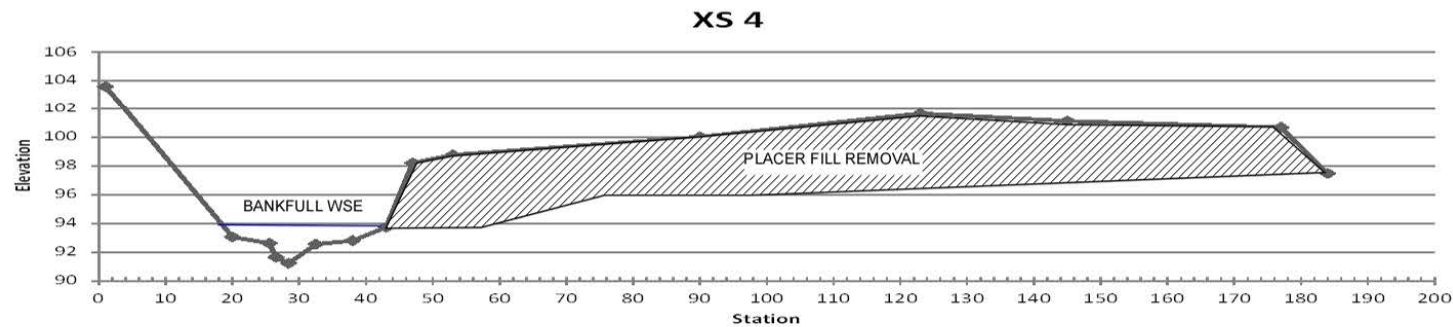
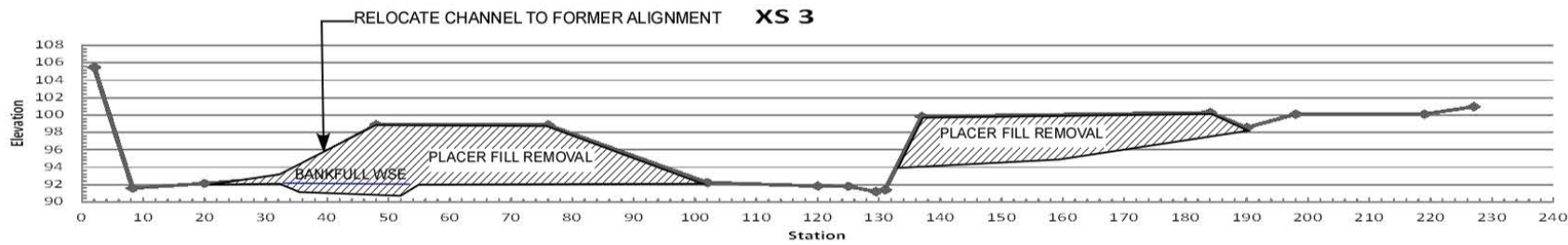
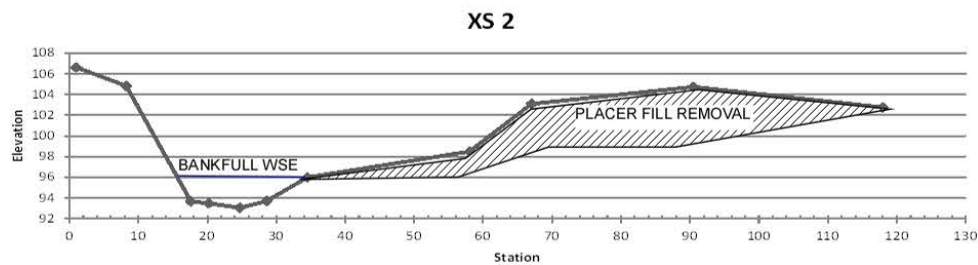
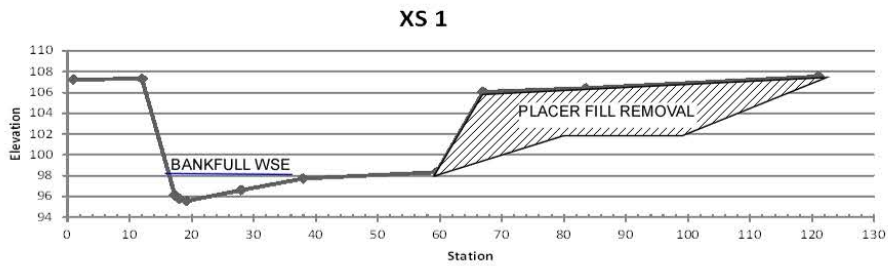
## QUANTITIES AND MEASURES

- Existing channel length = 752 FT
- New bankLine construction = 752 FT
- Finished channel length = 730 ft
- Total Excavated surface area = 0.94 acres
- Total volume fill removed = 6,200 cy
- New floodplain area = 0.29 acres
- Total new floodplain shrub plantings = 1,400

EXISTING STREAM CENTERLINE: 752 FT

Scale 1 : 842

50 0 50 100 150 200 feet



#### **CONSTRUCTION PLAN:**

1. REMOVE ALL FILL TO TBD (NEARBY) DISPOSAL SITE
2. BUILD RIGHT BANK LINE WITH TBD BIOENGINEERED METHODS
3. TOPSOIL AND SEED ALL DISTURBANCES
4. PLANT NEW FLOODPLAIN WITH RIPARIAN VEGETATION
5. IRRIGATE AS NECESSARY FOR ESTABLISHMENT OF VEGETATION
6. INSTALL BMP EROSION CONTROL AS NECESSARY

United States Department of Agriculture

September 22, 2015

Natural Resources Conservation Service  
209 South Main Street  
PO Box 295  
Sheridan, MT 59749-029

Phone: (406)842-5741  
Fax: (406)842-5914

Robert Thomas Bartoletti  
1133 Ramshorn Creek Road  
Sheridan, MT 59749

Robert Ray, Watershed Protection Section Supervisor  
Water Quality Planning Bureau  
Department of Environmental Quality  
PO Box 200901  
Helena, MT 59620-0901

I am writing to express my support for watershed restoration efforts on Ramshorn Creek and throughout the Ruby River watershed. The effect of past mining are well known and apparent across my property on Ramshorn Creek, as well as the entire length of the stream and many like it throughout the Tobacco Root Mountains. While it is beyond the resources at my or any local group's disposal to completely remediate the entirety of a stream like Ramshorn Creek, it is important to improve and conserve our natural resources for future generations.

This project will benefit shared resources that extend though both public and private land enhancing habitat for life both in Ramshorn Creek and in the stream corridor. Therefore, I give my full support to the Ruby Valley Conservation District and the Ruby Watershed Council to pursue restoration work using my property as a demonstration site. Should this project be funded by Montana DEQ, I will enter into a cooperative agreement to ensure the success of the proposed work.

Sincerely,



Robert Thomas Bartoletti



# United States Department of the Interior



BUREAU OF LAND MANAGEMENT  
Dillon Field Office  
1005 Selway Drive  
Dillon, Montana 59725-8449  
[www.blm.gov/mt](http://www.blm.gov/mt)

September 22, 2015

Robert Ray, Watershed Protection Section Supervisor  
Water Quality Planning Bureau  
Department of Environmental Quality  
PO Box 200901  
Helena, MT 59620-0901

Dear Mr. Ray,

This letter is in support of the funding request submitted by Ruby Valley Conservation District and Watershed Council for the restoration of Ramshorn Creek and California Creek. The Bureau of Land Management (BLM) Dillon Field Office (DFO) manages public land throughout the south Tobacco Root Mountains, including several miles of Ramshorn Creek and California Creek, and therefore is a supportive stakeholder in this project. The BLM DFO's South Tobacco Roots Watershed Environmental Assessment (EA) (MT-050-06-11, 2007) identified historic mining activity as a cause for altering gradients and channels, and downgrading hydrological potential throughout the watershed. The lowered water table as a result of placer mining has made the valley bottoms dryer and more conducive to conifer expansion and riparian deciduous species reduction. Intense historical removal of beavers from the system, roads constructed along streams, and noxious and invasive weed species are also concerns. The scattered ownership pattern in the South Tobacco Roots watershed complicates riparian management since upstream sediment sources may be outside of the BLM's authority to mitigate, therefore making these collaborative projects a great approach to addressing concerns. The DFO will be assessing the South Tobacco Roots watershed again during the summer of 2016, followed by an EA to address concerns and issues. The timing of BLM's watershed assessment and these proposed projects present an opportunity for maximized cooperation. Restoration alternatives determined through these proposed projects will benefit not only public lands, but riparian health throughout the system.

The Bureau of Land Management is strongly supportive of the Ramshorn Creek and California Creek restoration projects and is committed as a partner for the success of these proposed projects.

Sincerely,

Katie Benzel  
Wildlife Biologist



## **Montana Fish, Wildlife & Parks**

**Dillon Field Office Fisheries Management 730 ½ N. Montana Dillon, MT 59725**  
**Phone: (406) 683-9310 Fax: (406) 683-4126 email: [mattjaeger@mt.gov](mailto:mattjaeger@mt.gov)**

15 September 2015

Dear 319 Grant Selection Panel,

This letter is intended to provide support and justification for the project submitted for funding by the Ruby Valley Conservation District and Watershed Council to restore floodplain function to Ramshorn Creek. Like most other TMDL listed streams in the Ruby Valley, Ramshorn Creek has been extensively placer mined. This mining legacy has severed floodplain connectivity, adversely affected riparian health and groundwater storage dynamics, and resulted in TMDL listing for sediment as placer outwash is being progressively reworked. Although Ramshorn Creek has been identified as the Ruby Valley Conservation District's highest priority for immediate action, it shares the same issues with all other southern Tobacco Root tributaries. Because of the region-wide scope of these stressors it is imperative that multiple restoration options are evaluated and compared to determine their cost-benefit tradeoffs and overall effectiveness. The proposed project on Ramshorn Creek will not only address a legitimate and well-documented resource concern there, by implementing and comparing multiple restoration alternatives it will provide us with information needed to assess how to best approach future restoration efforts on Ramshorn Creek and throughout the Ruby Valley. This project is an essential and well thought out first step in undertaking watershed restoration in the Ruby Valley.

Montana Fish, Wildlife & Parks is strongly supportive of the proposed Ramshorn Creek restoration project and is committed as a partner to ensure that realized benefits are maximized on Ramshorn Creek and to watershed restoration elsewhere in the Ruby Valley.

  
Sincerely,  
Matthew Jaeger  
Fisheries Management Biologist

United States Department of Agriculture



Natural Resources Conservation Service  
209 South Main Street  
PO Box 295  
Sheridan, MT 59749-029

Phone: (406)842-5741  
Fax: (406)842-5914

September 10, 2015  
Re: Ramshorn Creek Restoration Project

Robert Ray, Watershed Protection Section Supervisor  
Water Quality Planning Bureau  
Department of Environmental Quality  
PO Box 200901  
Helena, MT 59620-0901

Dear Mr. Ray,

The Natural Resources Conservation Service is in full support of the 319 grant application submitted by the Ruby Watershed Council and the Ruby Valley Conservation District to assist restoration efforts on Ramshorn Creek. By creating a more functional floodplain and channel along a degraded section of Ramshorn Creek, this project will benefit water quality, water storage, and fisheries, all of which are important resource issues for our community.

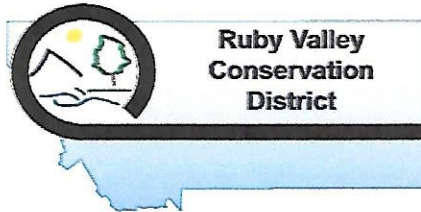
Ramshorn Creek has been identified as a priority stream in our Watershed Restoration Plan and the best place to begin implementing the restoration activities outlined in that document. Furthermore, this project will function as an important demonstration site for the community and provide a model for future restoration projects on adjacent Ruby River tributaries. The NRCS has been involved in watershed planning efforts and the development of this project for several years. We will continue to commit technical resources towards the larger Ramshorn Creek effort to encourage its success.

We are confident this project will contribute to improved water quality in the Ruby River watershed and falls within the goals and objectives of the Watershed Council and the Conservation District. Therefore, we sincerely hope that you will be able to support this project with 319 grant funding of the requested amount. Thank you for your time and assistance in this effort.

Regards,

A handwritten signature in black ink, appearing to read "Dan Durham", is written over a horizontal line.

Dan Durham  
District Conservationist



P. O. BOX 295  
402 SO. MAIN ST.  
SHERIDAN, MT 59749  
(406) 842-5741

**\*\*\* PROTECT THE LAND AND PRESERVE OUR HERITAGE \*\*\***

September 25, 2015

Robert Ray  
Montana Department of Environmental Quality  
Watershed Protection Section, Water Quality Planning Bureau  
PO Box 200901  
Helena, MT 59620-0901

RE: Ramshorn Creek Floodplain Restoration and Demonstration

Dear Mr. Ray,

I am writing on behalf of the Ruby Valley Conservation District (RVCD) to voice our support for the following proposal. This proposal was developed over the course of 2015 in conjunction with our Watershed Restoration Plan and drought resilience planning efforts. Our aim in submitting the attached documents is to implement the TMDL for Ramshorn Creek which appears on Montana DEQ's 2014 List of Impaired Waters. Ramshorn Creek has been found to be a major contributor of sediment to the Ruby River Watershed. RVCD is committed to collaborative efforts involving both public and private stakeholders aimed at reducing non-point source pollution. For these reasons, RVCD has prioritized project work to reduce sediment loading on Ramshorn Creek.

This proposal reflects the work of the conservation district, the Ruby Watershed Council, our technical advisory team including staff members of the U.S. Natural Resource Conservation Service, U.S. Bureau of Land Management, U.S. Forest Service, and Montana Fish Wildlife and Parks. The Nature Conservancy provided technical assistance and funding to identify and develop projects on Ramshorn Creek, and continues to be a key partner by providing assistance with the development of this project and others which would promote drought resilience in Southwest Montana. Additionally, the conservation district acknowledges the time and efforts of the owner of the proposed project site, Robert T. Bartoletti. Mr. Bartoletti continues to contribute his assistance in developing project work on the property and remains a cooperative and enthusiastic partner.

Thank you for your consideration of this proposal for implementing project work on Ramshorn Creek. RVCD believes that this project will achieve meaningful sediment reduction goals as outlined in our watershed restoration plan in addition to contributing to increased knowledge about sediment reduction and floodplain restoration methodologies.

Very truly yours,

Gary Giem  
Chairman

September 25, 2015

Robert Ray  
Watershed Protection Section Supervisor  
Water Quality Planning Bureau  
Department of Environmental Quality  
P.O. Box 200901  
Helena, MT 59620-0901

**Re: Letter of Support for 319 Grant Final Proposal - Ramshorn Creek Placer Tailing Removal and Floodplain Restoration (Ruby Valley Conservation District)**

Dear Mr. Ray,

Water is our most precious resource in southwest Montana; it drives agriculture, real estate, and biologic productivity. When rivers function, they support diverse fish and wildlife communities; provide reliable water supplies for communities; and accommodate natural processes like flooding to reduce risk to infrastructure. Land use by multiple generations has left many rivers impaired and disconnected from floodplains, and changing snowmelt and precipitation patterns now pose an even greater challenge to maintaining water for natural and human uses into the future. With already over-allocated water becoming scarcer, improving hydrologic resilience through drought planning and on-the-ground projects is the best long-term investment for both the natural and human communities that depend on rivers in places like the upper Missouri.

The proposed project on Ramshorn creek aligns well with the Nature Conservancy's (TNC) larger strategic goals for drought resilience in the Missouri Headwaters region. Restoration work will contribute valuable riparian and in-stream habitat to the Ruby Watershed and will serve as a useful demonstration site for TNC to share with other partners and landowners in the watershed.

Thank you for considering this 319 grant application proposal for \$119,760.00 for the Ruby Valley Conservation District and please feel free to contact me if you have any further questions regarding the value of this project.

Sincerely,

*Sierra Harris*

Sierra Harris  
Freshwater Conservation Program Manager



United States  
Department of  
Agriculture

Forest  
Service

Madison Ranger District  
Beaverhead-Deerlodge  
National Forest

5 Forest Service Road  
Ennis, MT 59729  
406 682-4253

File Code: 2670

Date: September 25, 2015

Robert Ray, Watershed Protection Section Supervisor  
Water Quality Planning Bureau  
Department of Environmental Quality  
PO Box 200901  
Helena, MT 59620-0901

Dear 319 Grant Selection Panel,

This letter is to inform you of the Madison Ranger District's support of the Ruby Valley Conservation District and Watershed Council's restoration proposal for Ramshorn Creek.

Ramshorn Creek was listed in MT DEQ's 2006 TMDL and Water Quality Restoration Plan as impaired for sediment. A recently completed geomorphic assessment of the Ramshorn Creek drainage identified alternatives to restore floodplain connectivity, reduce sedimentation and streambank erosion, and increase water storage capacity. The proposed project further develops these alternatives and holds high potential to decrease sediment loading and ultimately restore function to the stream and its floodplain. This proposal also provides opportunity to compare cost and effectiveness of multiple restoration techniques for future restoration efforts in Ramshorn Creek and other Ruby River drainages.

The Madison Ranger District is a committed partner to this effort and strongly supports this funding proposal as a necessary and well-designed first step towards restoration of extensively mined headwater tributaries in the Ruby River Valley.

Thank you for the opportunity to provide support for this critically important proposal. If you have any questions, feel free to contact myself at 406-682-4253.

Sincerely,

A handwritten signature in blue ink that reads "Dale Olson".

DALE OLSON  
District Ranger