DEQ
Montana Department of Environmental Quality

319 Nonpoint Source Preliminary Project Proposal

FY2016 Project Proposals are due Monday, July 27, 2015

Section I: General Information

Project Title: Mandeville Creek Restoration & Education

Project Sponsor Information

Name: Bozeman High School Parent Advisory Council
Tax Identification Number: 84-1432468

Address: 205 N 11th Avenue
Website: http://www.bhscreek.org/

City: Bozeman
State: Montana
Zip Code: 59715
County: Gallatin

Primary Contact

Primary Contact: Robin Hompesch
Title: Biology Teacher, Bozeman High School
Phone Number: 406-580-4789
Fax Number:
E-mail Address: bhscreek@gmail.com
Signature: Robin Hompesch

Signatory

Signatory: Robin Hompesch
Title: Biology Teacher, Bozeman High School
Phone Number: 406-580-4789
Fax Number:
E-mail Address: bhscreek@gmail.com
Signature: Robin Hompesch

Project Funding

319 Funds Requested: $136,000.00

Does the project sponsor have any open 319 contracts? No

Matching Funds

State Cash Match:
Local Cash Match: $82,000.00
In-Kind Match: $14,000.00

Total Match: $96,000.00
Other Federal Funds:
Total Project Budget: $232,000.00
Administrative Fee: $13,000.00

Project Title:
DEQ Contract Number:
319 Award:
Projected Closing Date:

Project Title:
DEQ Contract Number:
319 Award:
Projected Closing Date:

Project Location

Which WRP does this project implement? Lower Gallatin

What is the status of the WRP? DEQ Accepted

Does the project address impairments in a TMDL? Yes

12 Digit HUC #(s) 100200081301

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

(1) Probable Cause(s) of Impairment to be addressed (ex. metals)
Nitrogen (Total) and Phosphorous (Total)

(2) Waterbody Name from 2014 List of Impaired Waters

(2) Probable Cause(s) of Impairment to be addressed (ex. metals)

Activity 1 Name: Mandeville Creek Restoration & Education

Latitude (1): 45.681
Longitude (1): -111.053

Activity 2 Name:

Latitude (2):
Longitude (2):

Section II: Project Description

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

The goal of this project is to improve hydrologic function and water quality on Mandeville Creek at Bozeman High School while providing hands-on learning opportunities for K-12 students and the greater Bozeman community. Specific objectives include reducing nutrient levels in Mandeville Creek, improving aquatic and wildlife habitat, enhancing native plant diversity, and engaging students and community members through classroom education and volunteer events.

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

Approximately 334 feet of channel will be lengthened by 100 feet to restore sinuosity, stream gradient, pool and riffle habitat, and bed load transport capability. The reconstructed base flow channel will meander within a 40-foot wide floodway, improving floodplain accessibility and flood attenuation capacity. Both sides of the new channel will be planted with a 4-foot width of transplanted wetland sod to reduce nitrogen, phosphorus, and sediment levels via physical removal and plant uptake. The reconstructed reach and an additional 844 feet of straight channel will be revegetated with native trees and shrubs, providing shade and protection for aquatic and wildlife species while enhancing plant and structural diversity. As match, the City of Bozeman will install a vortex separator to accelerate separation of suspended stormwater pollutants.

Summary: Provide a brief summary of the project.

This project was identified as a high priority in the Lower Gallatin Watershed Restoration Plan for its strong community support and ability to improve water quality on Mandeville Creek while educating students and the community. This proposal is for the final phase of the project. Two upstream stretches of Mandeville Creek were restored and revegetated in 2014 and 2015 (in process). The final phase will restore approximately 1100 feet of a sinuous base-flow channel, incorporating pool and riffle habitat, a broad floodway, wetland fringe, and woody overstory while removing pollutant discharges from parking lots, fertilizer applications, and stormwater outlets. The final phase will use a design/build approach to recreate a meandering channel, an overflow oxbow backwater pool, and a riparian corridor vegetated with native grass, grass-like, and woody species. The design will improve the capacity of the stream to reduce and capture sediment, process suspended nutrients, and store and filter flood and stormwater.

This phase will continue to provide opportunities for education and engagement on water quality and quantity issues to Bozeman High School students, local K-8 schools, and the greater Bozeman community.

Monitoring: Describe the monitoring you will conduct to measure project effectiveness.

Surface water monitoring on Mandeville Creek at BHS will by performed by Gallatin Stream Teams, a volunteer citizen science monitoring program. Real-time monitoring and modeling methods from the MDEQ Load Reduction Estimation Guide (July 2014) will be used to estimate nitrogen and phosphorus reductions post-restoration. Vegetation transects will be used to determine species diversity and plant dominance. The survival of individual woody species will be monitored annually. Ecological progress will be measured by evaluating aquatic habitat use by native fish and pollution-intolerant macroinvertebrates.

Education and Outreach: Briefly describe the education and outreach component of this project and the target audience.

Bozeman High School students will continue to participate in an inquiry-based science curriculum including water chemistry monitoring and macroinvertebrate sampling on Mandeville Creek. These lessons will be adapted by BHS teachers for Freshman physical science, Sophomore biology, Junior chemistry, and Senior physics classes. BHS clubs and sports teams will assist with long-term maintenance including weed control and trash clean-ups. Community members will have the opportunity to get involved in the project through volunteer events to plant riparian vegetation in restored areas.

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

Partner	Role
Greater Gallatin Watershed Council	Grant administration, volunteer support, and Gallatin Stream Team monitoring
City of Bozeman	Installation of vortex separator for stormwater
Gallatin Local Water Quality District	Technical assistance for Gallatin Stream Teams
Genesis Engineering	Project design engineering
Montana State University	Assistance with design planning
Trout Unlimited	Assistance with water rights and permitting

Section III: Scope of Work

Task 1 Title: Stream Restoration

319 Funds	$100,000.00
Non-Federal Match	$82,000.00
Other Federal Funds	
Total Cost	$182,000.00

Timeline: July 2016 - December 2017

Description: Implementation of restoration on approximately 1100 linear feet of Mandeville Creek including channel reconstruction and revegetation. Cash match will come from other non-federal grant funding sources and installation of a stormwater vortex separator by the City of Bozeman.

Task 2 Title: Project Monitoring

319 Funds	$10,000.00
Non-Federal Match	$7,000.00
Other Federal Funds	
Total Cost	$17,000.00

Timeline: July 2016 - December 2018

Description: Surface water monitoring of Mandeville Creek will be performed by Gallatin Stream Teams for two years. 319 funding will provide lab analysis costs; GGWC coordination; and GLWQD technical assistance, including the development of a Sampling and Analysis Plan. Volunteer time will count as in-kind match. A consultant will be hired to perform vegetation monitoring of herbaceous species using vegetation transects and annual mortality counts of woody species, as well as nutrient load reduction modeling.

Task 3 Title: Education and Outreach

319 Funds	
Non-Federal Match	$7,000.00
Other Federal Funds	
Total Cost	$7,000.00

Timeline: July 2016 - December 2018

Description: 14 BHS science teachers will plan and deliver lessons focused on Mandeville Creek to science classes at all grade levels. Two or three volunteer events will be held with approximately 30 volunteers working for three hours at each event. All E&O activities will count as in-kind match.

Task 4 Title: Project Coordination

319 Funds	$13,000.00
Non-Federal Match	
Other Federal Funds	
Total Cost	$13,000.00

Timeline: July 2016 - December 2018

Description: Funds will cover task-specific management duties, including but not limited to procuring contractors, managing sub-contracts, and coordinating with project partners and volunteers.

Task 5 Title: Grant Administration

319 Funds	$13,000.00
Non-Federal Match	
Other Federal Funds	
Total Cost	$13,000.00

Timeline: July 2016 - December 2018

Description: Oversight of successful project completion including generating quarterly and annual grant reports and invoices, tracking allowable costs, and providing necessary contract-related deliverables to Montana Department of Environmental Quality. Grant administration will be performed by the Greater Gallatin Watershed Council.

Task 6 Title _____

319 Funds

Non-Federal Match

Other Federal Funds

Total Cost

Timeline _____

Description

Task 7 Title _____

319 Funds

Non-Federal Match

Other Federal Funds

Total Cost

Timeline _____

Description

Task 8 Title _____

319 Funds

Non-Federal Match

Other Federal Funds

Total Cost

Timeline _____

Description

Task 9 Title _____

319 Funds

Non-Federal Match

Other Federal Funds

Total Cost

Timeline _____

Description

Comments: Use the space provided for any additional information that may not have been captured elsewhere in this proposal form.

The entire restoration of Mandeville Creek on the Bozeman High School campus will cost over $350,000. This project would not be possible without the support of BHS teachers, students, and parents, as well as the greater community. Over 70 organizations, businesses, and individuals have provided financial contributions, in-kind donations, and volunteer workers. This includes several local consultants and engineers who have donated technical expertise to develop the design plans for the stream restoration and revegetation.

View a full list of project partners at http://bhscreek.org/contributors/