



2020 319 Application Form

PART A—GENERAL INFORMATION

Project Name Bitterroot Revegetation

Sponsor Name Bitter Root Water Forum (BRWF)

Registered with the Secretary of State? Y Registered with SAM? Y

Duns # 148485423 Does your organization have liability insurance? Y

Primary Contact Andrea Price Signatory Heather Barber

Title Restoration Coordinator Title Executive Director

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Phone Number (406)375-2272 Phone Number (406)375-2272

Email Address andrea@brwaterforum.org Email Address heather@brwaterforum.org

Signature Andrea Price Digitally signed by Andrea Price Date: 2019.10.31 15:25:18 -06'00' Signature Heather Barber Digitally signed by Heather Barber Date: 2019.11.01 09:28:36 -06'00'

Technical and Administrative Qualifications

BRWF staff have successfully managed eight DEQ contracts, consistently receiving good feedback from Contract Managers about our project management abilities, including timely billing and reporting. Monitoring will be completed by trained BRWF volunteers, with supervision and oversight from BRWF staff with experience in project stewardship and monitoring. Education and Outreach will be completed by BRWF staff with over ten years of combined experience in community outreach. BRWF staff have experience designing riparian revegetation and fencing projects, and when site conditions require, designs are contracted out to Geum Environmental Consulting, who have extensive experience in restoration designs in the Bitterroot watershed and regionally. Partners at the Land Trust have experience in contract management, technical writing, GIS mapping, and project stewardship.

Past and Current Projects

Project Name	Grant or Contract Amount	Funding Entity (entity name/program, contact person, phone, email)	Completion Date
The Stevensville Projects	\$131,500	DEQ/319 Program, Hannah Riedl, 406-444-0549, hannah.riedl@mt.gov	Ongoing
Riparian Fencing, Revegetation + Grazing Management = Temperature and Sediment Reduction[...]	\$9,000	Montana Fish, Wildlife & Parks/Future Fisheries Improvement Program, Michelle McGree, 406-444-2432	October 2017
South Valley Floodplain Creation	\$315,000	Bitterroot National Forest/Stewardship Agreement, Cole Mayn, 406-363-7155, colemayn@fs.fed.us	Ongoing

FUNDING REQUEST

319 Funds Requested (<i>including administrative fee</i>)	\$160,389	Administrative Fee (<i>not to exceed 10% of total 319 funding request</i>)	\$14,580
State Cash Match	\$5,000	Total Non-Federal Match	\$107,400
Local Cash Match	\$10,000		
In-Kind Match	\$92,400		
Federal Funds	\$51,250		
Other Funds (<i>not 319, not match, not federal</i>)	\$37,100		
Total Project Cost	\$200,874		\$356,139

PART B—PROJECT INFORMATION

Part B must be filled out separately (*including providing separate attachments*) for each project included in your application. Use the following examples to help determine when to lump and when to split projects. If additional clarification is needed, contact Mark Ockey, at 406-444-5351 or mockey@mt.gov.

Splitting Examples (fill out multiple Part B's)

- Stream restoration work occurring on two separate streams, on parcels owned by two separate individuals
- Two projects with significantly different sets of project partners
- Two projects that address substantially different pollution sources (e.g., one project that moves a corral off of a stream, and another to remove mine tailings, with both projects being on the same 800-acre recreational property)

Lumping Examples

- Contiguous stream restoration work spanning multiple land parcels
- 3 projects that address similar sources of pollution on a single land parcel (e.g., moving a coral off a stream, implementing a grazing management plan, and relocating a manure storage facility out of the floodplain, all on the same ranch)
- A mini-grant program designed to address numerous failing septic systems scattered throughout a watershed

Project (sub-project) Name Bitterroot River Revegetation at Skalkaho Bend Park

Total Project Cost Include costs already incurred, as well as anticipated costs, from all sources, for all aspects of the project.

\$200,874

Latitude 46.233256 Longitude -114.163131

Latitude _____ Longitude _____

Latitude _____ Longitude _____

Map

12 Digit HUC #(s) 170502051003

Waterbody Name from 2018 List of Impaired Waters Bitterroot River [Skalkaho Creek to Eightmile Creek]

Probable Causes of Impairment to be Addressed Temperature, Flow Regime Modification

Waterbody Name from 2018 List of Impaired Waters _____

Probable Causes of Impairment to be Addressed _____

Project Summary - Briefly describe the **nature and extent** of the problem, the **root causes** of the problem, and your **proposed solution**.

BRWF will construct approximately 2,700 linear feet of wetland swale, vegetated with native plants, in Hamilton's Skalkaho Bend Park (Park)*. This is a continuation of the work begun under DEQ 319 Contract 219016. This project will address temperature impairments in the Bitterroot River. Major sources of this impairment are agricultural and urban land uses that reduce riparian vegetation and shade to the stream, including at the Park; prior land use on-site removed native vegetation and turned the riparian area into a hay field. Hay production was eventually abandoned and the area became a high-density weed field. Current lack of shade contributes to high temperatures which negatively impact fish; as a result, this segment of the stream does not meet its beneficial use for aquatic life. In turn, this proves detrimental to the local economy, as angler days are limited when Hoot Owl Fishing Restrictions are enacted to protect the fishery; in multiple recent summers, restrictions limited angler days for one to two weeks during prime tourism season. The temperature impairment in the Bitterroot River is predicted to worsen in coming years due to climate change; anything we can do now to address stream temperatures is absolutely critical. The vegetated wetland swale will lower stream temperatures in several ways. First, trees will be planted that will provide shade to the stream as the stream migrates toward the swale in coming years. Second, water storage provided by infiltration of the diverted irrigation ditch water through the swale and reconnected floodplain will contribute late season cooling flows to the River. Lack of riparian vegetation also contributes to increased sediment loads in streams. This project is therefore predicted to reduce unnaturally high rates of erosion on site via riparian revegetation that reduces bank erosion rates. While the Bitterroot River is not listed for sediment impairments at this time, lack of stream-side vegetation, in particular, may contribute to its listing in the future. Thus, it is important to consider likely causes of future impairments and take preventative measures to ensure naturally-functioning streams for years to come. Vegetation at the Park is primarily dry-site pasture grasses and weedy species such as common tansy and Canada thistle. These provide poor habitat for riparian wildlife, resulting in a disruption to the Bitterroot River ecosystem in this area. Revegetation with native riparian plants will provide habitat for avian and terrestrial wildlife as well as enhance aquatic habitat; overhanging woody vegetation and root matrices (when the riverbank reaches the treatment area) will provide positive habitat elements for fish. Though the City of Hamilton is adjacent to the Bitterroot River, BRWF often struggles to connect community members with the water quality issues facing the stream and, in turn, the community. To date, BRWF has typically focused on-the-ground restoration efforts in the headwaters and remote locations out of the public eye, making it difficult for people to connect with these projects. The high-visibility location of this project in the City of Hamilton and its designation as a well-used public park provide invaluable opportunity to connect with and educate community members. This project will demonstrate restoration in-action and educate citizens about channel migration, NPS pollution, and solutions via signage and field trips. *The Land Trust has developed an agreement with the adjacent C&C ditch to allocate at least 3 cfs for irrigating the swale. A diversion and small water conveyance ditch will be constructed to connect the irrigation water to the swale ensuring water access to facilitate project success and longevity.

Continuation of previous or ongoing activity? If "Yes", please explain the relationship.

Yes, this project was awarded \$51,250 in funding from DEQ 319 in 2019. Work on the project began in August 2019, when Geum Environmental Consulting was subcontracted to provide a channel migration analysis, list of stream bank treatment alternatives, concept design, and wetland delineation. Exploration by Geum revealed that the current stream bank vegetation has allowed the River to downcut at the site, so traditional revegetation efforts would likely be unsuccessful. Consequently, the swale design was chosen to provide water access to plantings, allowing a healthier riparian area to develop, and to discourage continued bank erosion using vegetation. Alternatives included allowing the streambank to continue to erode eastward into the park (unacceptable for landowners and stakeholders) and riprapping the bank (unacceptably detrimental to stream and riparian health). The cost to execute the swale design exceeds [Phase 1] 319 grant budget; thus, additional funding is being sought.

Watershed Restoration Plan (WRP) and authoring entity

Bitterroot - Bitter Root Water Forum

Letter of support from WRP authoring entity? If "No", please explain.

N

The applicant is the WRP authoring entity.

How will this project implement recommendations in the WRP?

The 2019 Bitterroot WRP (pending approval by DEQ) lists the Mainstem of the Bitterroot River as a priority stream and indicates that bank stabilization efforts, often with rip rap, have "greatly alter[ed] its natural profile and function. The Middle Mainstem is also the most severely dewatered section of the Bitterroot...[and] is still home to native populations of Cutthroat and small numbers of Bull Trout." The WRP states that restoration activities on the Bitterroot River will focus on riparian revegetation and public outreach and educational opportunities. Specific management measures recommended include education and outreach via signage and tours; revegetation in riparian areas; and implementing measures that encourage natural flood control, erosion control, and groundwater recharge such as riparian revegetation and vegetation-based bank stabilization. Also, methods that prevent further impairments from developing on priority streams (such as sediment and nutrients in the case of the Middle Bitterroot River) should be considered. Thus, this project aligns closely with the goals and recommendations of the WRP.

Nonpoint Source Goals

Causes of impairments in this section of the Bitterroot River are temperature and flow regime modification. TMDL recommendations to address high temperatures include increasing irrigation efficiency, reducing delivery of warm irrigation water to the stream, and increasing effective shade. This vegetation aspect of this project will increase shade to the river. Further, irrigation ditch water will be diverted into the swale before infiltrating into the river. Currently, this water continues to travel down the valley in the ditch before being returned directly to the Bitterroot River downstream in a warm and nutrient-rich state. By diverting this water to the vegetated swale, it will provide cool late season flows to the River via the infiltration. Further, the irrigation water will be returned to the river sooner, combating flow regime modifications as also listed in the TMDL documentation. Preventing the development of nutrient- and sediment-related impairments in the Middle Bitterroot River are also key goals of this project.

Partners and Roles

Landowner(s)

Name

Bitter Root Land Trust, current landowner.
City of Hamilton, future landowner.

Letter of Support Attached?

Y

Y

N

Other Partners

Name

Role

Letter of Support Attached?

Bitterroot Audubon Society	The Bitterroot Audubon Society will offer support in the creation of educational signage at the Park. Society members have promised to volunteer to aid in the construction of the vegetated swale.

Y

N

N

N

N

N

Planning and Coordination

Planning and coordination includes permitting, design development, landowner agreements, volunteer labor recruitment, partnering and collaboration, alignment with watershed planning efforts, procurement and oversight of contractors, etc.

Planning Activities Already Completed	Documentation Attached?
Subcontract with Geum Environmental Consulting for Design	<input type="checkbox"/> Y
Geum's Channel Migration Analysis	<input type="checkbox"/> Y
	<input type="checkbox"/> N
Geum's Project Design Memo including maps, cost estimates, and descriptions of activities	<input type="checkbox"/> Y
	<input type="checkbox"/> N
	<input type="checkbox"/> N

Task Description

BRWF worked with BRLT, the City, and Geum Environmental Consulting to design a plan to restore and revegetate the riparian area at the Park. The design includes the construction of 2700 linear feet of swale to facilitate plant growth on the terraced streambank, riparian planting in the swale, plant protection through fencing around the swale, and weed management. Further, Geum provided a channel migration analysis (attached) that predicted continued eastward erosion and identified areas of high risk for sediment delivery to the stream. Care was taken to develop a design that provides optimal restoration benefit while respecting the interests of all stakeholders, including the City and BRLT. While Geum's design memo (attached) details a much more extensive project than outlined in this application, BRWF evaluated practical constraints, including budget and stakeholder needs, and determined constructing the channel swale alone to be the most effective way to approach project implementation. Water provision to the swale will be important to help the plants establish healthy root systems. BRLT has developed an agreement with the adjacent C&C ditch to allocate at least 3 cfs for irrigating the swale. A diversion and water conveyance ditch will be constructed to connect the irrigation water to the swale. Planning and coordination began in August 2019 with funds from DEQ 319 Contract 219016 and in-kind match. From November 2019 until implementation in Fall 2020, planning and coordination for construction will continue with these funds. This includes procuring materials and plants, volunteer coordination, and locating contractors for fencing and excavation. BRWF will also secure additional match dollars needed for implementation.

Deliverables

Wetland delineation (to be provided by Geum)
 Contract with excavator
 Contract with fencer
 Landowner agreement with City of Hamilton
 Signed agreement with C&C ditch detailing irrigation water provision to swale

Funding

319 Funds	<input type="text" value="0"/>
Non-Federal Match	<input type="text" value="0"/>
Federal Funds	<input type="text" value="\$21,000"/>
Other Funds	<input type="text" value="\$2,500"/>
Total Cost	<input type="text" value="\$23,500"/>
Is Match Secured	<input type="checkbox"/> Y

Timeline Fall 2019-Fall 2020

Match Source Other: BRLT, City, BRWF; Federal: DEQ 219016

Project Implementation

Task Description

Implementation is planned for Fall 2020. A map and description of the treatments are provided in the attachments. 2700 linear feet of riparian area in the park will be revegetated. The entire streamside area in the park is characterized as upland, with ground surface several feet above base flow. As such, it would be impossible to grow native riparian vegetation without facilitating access to groundwater for the plants and allowing them to establish a healthy root matrix at baseflow level. Thus, a trench approximately 2700 feet long, 20 feet wide, and two feet deep will be dug. This trench will be aggressively planted with native plants, including willow cuttings and nursery plants, to become a vegetated swale. Full enclosure fencing will be installed around the swale to protect the plantings from browse. Additional water will be routed from a nearby irrigation ditch to assist the plants in getting established; thus, small water conveyance ditches and diversions will also be constructed. DEQ 319 contract 219016 provided \$19,500 ("Federal Funds") which will be used towards this task. A total of \$15,000 cash match will be secured for project implementation from Audubon Society, Bitterroot Trout Unlimited, FWP Future Fisheries, et al and \$30,800 will be provided from volunteers, material, and equipment ("Non-Federal Match"). An additional \$19,000 in-kind match was outlined in DEQ 219016 ("Other Funds").

Deliverables

Construction documentation describing completed activities
 Agreements with subcontractors, including for fencing and excavating
 Before and after site photos

Funding

319 Funds	\$60,659
Non-Federal Match	\$45,800
Federal Funds	\$19,500
Other Funds	\$19,000
Total Cost	\$144,959.00
Is Match Secured	N

Timeline Fall 2020

Match Source BRLT, Audubon, City, FWP, Volunteers, TU et al

Appropriate Next Step

This project's benefits towards removing pollutants from Montana's 2018 Impaired Waters list are multi-fold. First, the vegetated swale will provide shade and water storage for the temperature-impaired Bitterroot River. Because the river bend is predicted to continue to migrate east into the park and towards the swale, shade provision will increase over time as the river nears the swale. Aquatic life as a beneficial use is also impaired in this section of the Bitterroot River. When the channel nears the swale, vegetation may overhang the channel or fall into the channel, forming woody debris structures and pools. This reach currently lacks these habitat features, so a benefit to aquatic life will be provided. Additionally, this reach suffers from flow regime modification. Water is diverted for irrigation upstream of the Park. The ditch water that will be used to irrigate the swale currently flows through the ditch and returns to the river downstream in a warm and nutrient-rich state. These cfs would now be able to infiltrate through the swale and will return to the river earlier in a cooler, cleaner state, making a positive impact on the river's flow regime and temperature. Further, the removal of NPS pollutants in Montana's waters cannot be successful without an educated, informed, and impassioned public. This can be difficult to achieve with so many sites in need of restoration located in remote, low-visibility areas. However, this project's location in a well-used public park makes it easy to demonstrate riparian restoration in action and educate about the importance of healthy riparian areas, working to reduce NPS pollution, and the 319 program. Moreover, the vegetated swale has the added benefit of protecting this community asset from high rates of erosion, as the river is predicted to migrate such that more and more park space will be lost each year. To protect the park from eroding and protect infrastructure to the east (behind) the park, aggressive bank stabilization methods such as rip rap have been considered. However, not only would installing riprap at the Park be more expensive than the vegetated swale, it damages fish habitat, an existing concern on this stretch of the Bitterroot. Rip-rap is also not fully reliable and requires maintenance; as it was previously placed immediately downstream at River Park, where it collapsed into the river and failed to stabilize the bank. Multiple other locations where riprap has failed on the Bitterroot can be found downstream of Woodside Crossing. Because the root matrix of the swale will reduce erosion and stabilize the bank in a natural way, this project mitigates against the use of riprap on this section of the Bitterroot River.

Sustainability

The restoration activities will be set back from the eroding bank such that the channel is not predicted to migrate into the swale for at least 10 years, leaving time for vegetation and healthy roots to establish and contributing to the its longevity. Fencing will provide browse protection at least until the vegetation is well-established, likely 10 years, protecting this investment for years to come. Groundwater infiltration and shade from vegetation associated with the swale should provide cooler stream waters long into the future. The preventative aspect of NPS benefits of this project should also not be overlooked. While this section of the Bitterroot is not currently listed as impaired for sediment or alterations in streamside vegetative cover, land use trends and population growth in the area may lead it to become so. By revegetating 2,700 feet of streamside area and thereby discouraging unnatural rates of erosion, this project mitigates against that risk.

Natural Processes

The vegetated swale is designed to be long-lived with little maintenance required. Excavation will be done to allow for plants to be placed close to the water table, so their roots can soon reach a self-sustaining level. The ditch will contribute additional water for irrigation, a setup requiring minimal maintenance, so that the longevity of the restoration treatment is not subject to human error in long-term watering. As mentioned previously, protection of the park from erosion is an important concern for the City and the community. This project mitigates the need for rock armoring and publicly demonstrates the utility of bank stabilization based on the roots of native vegetation. Vegetated swales like the one proposed in this project have a precedent of slowing rapidly eroding banks in a highly effective, low-cost, and ecologically friendly way manner; one such example is at the Jocko River north of Arlee, Montana, completed in 2007. The educational opportunities, including signage and tours, this project provides, will contribute social awareness to improving water quality.

Project Effectiveness Evaluation

Task Description

Project will be monitored for weed growth, fence integrity, and plant mortality for a minimum of three years following implementation. In particular, photopoint monitoring and plant counts will be used as quantifiable and qualifiable measures of project success. Evaluations of project tours will measure the success of NPS pollution educational activities. An operations and maintenance plan will be developed. This plan will include: (1) the reasonable, expected life span for both the operation and maintenance obligations for projects implemented based on recommendations from the desgin. The lifespan will be determined by mutual agreement and definition between BRWF and DEQ, and shall be based on similar projects and programs; (2) A description of how the fencing and plantings will be operated and maintained to ensure that they reamin functional for the duration of their intended lifespan; (3) A procedure for obtaining access to the project site for operation, maintenance, and monitoring by BRWF and DEQ. Note that funding for this has been provided by DEQ 319 Contract 219016 and match, so none further is requested.

Deliverables

Photo points established Plant count reports Operation and Maintenance plan, developed with input from DEQ project manager Access and maintenance agreement with the Land Trust and City of Hamilton Pre- and post-tour surveys	Funding	
	319 Funds	0
	Non-Federal Match	0
	Federal Funds	\$750
	Other Funds	\$2600
	Total Cost	\$3,350
	Is Match Secured	N

Timeline Fall 2020-completion of contract Match Source BRWF,City,BRLT,Volunteers (Other); 219016(Fed)

The Bigger Picture

Other Natural Resources

This project involves the creation of about 1.25 acres of riparian wetland via the construction of the vegetated swale. Aquatic life is listed by DEQ as impaired in this reach. This is a concern because Westslope Cutthroat (a species of special concern) and small numbers of Bull Trout (a threatened species) call this channel section home and use it for overwintering habitat. Habitat degradation has been a serious problem for these species, so improving habitat for these fish through restoring native riparian vegetation is an important contribution to the ecosystem.

Climate Resiliency

With high stream temperatures predicted to be exacerbated by climate change, taking action now to improve resilience to this problem is of paramount concern. Further, the wetland swale will act as floodplain in an area which currently has no functioning floodplain. Floodplain areas are integral in extreme weather, due to their abilities to store floodwater during storm events and provide late season streamflows during drought conditions.

Public Visibility

This project will certainly be one of DEQ 319's highest visibility projects to date. Located at a popular public park right in the town of Hamilton, this project will facilitate unprecedented abilities among BRWF and partner organizations to display restoration in action. BRWF understands the importance of this key opportunity and plans to make full and proactive use of it. From the moment the park is officially transferred to the City of Hamilton, interpretive signage will be in place, and community forums focusing on the restoration activities at the park will be held. BRWF also hopes to facilitate the community becoming active and enthusiastic participants in the project through volunteer opportunities. The park's aesthetic value will be bolstered by native vegetation.

Point Source / Nonpoint Source Relationships

The project site is approximately two river miles upstream from the Hamilton wastewater treatment plant outfall. Because this project is intended to reduce sediment and temperature loads and attenuate nutrient loads, water will be cleaner upstream of the wastewater treatment plant; this could help reduce effluent treatment costs.

Source Water Protection

Many homes in the Bitterroot Valley rely on groundwater as their source of drinking and domestic water; the vegetated swale will improve groundwater retention, protecting source water during periods of drought.

Healthy Watersheds

While, as a whole, this section of the Bitterroot River currently contains a reasonable sediment load and streamside vegetative cover, land use trends and rising population in the area indicate that this may not always be the case. On a smaller scale, streamside vegetative cover and sediment loads in river around Skalkaho Bend park are likely not normal. Thus, treating an impaired part, even when the whole is considered healthy with regards to these metrics, is an important preventative measure to ensure the long-term health of the Bitterroot Mainstem.

PART C—EDUCATION AND OUTREACH

Task Description

The project at Skalkaho Bend Park affords unprecedented opportunities for Education and Outreach. To take advantage of this, BRWF will place interpretive signage about NPS pollution and our restoration activities before, during, and after implementation to educate citizens who visit the park on their own. For both projects, to educate adults, we will update our e-news and social media, send newsletters twice per year, give community presentations, hold project tours, and invite participants to volunteer days where they can experience NPS pollution solutions in action. We will use our Earth Stewardship lessons and field trips to discuss NPS pollution with children.

Deliverables

3 e-news reports on NPS issues and solutions, including calls to action
 2 newsletters addressing NPS issues and solutions, including calls to action
 3 volunteer days to engage citizens in active restoration through planting, seeding, and plant protection
 1 presentation to educate citizens about NPS issues and provide a call to action
 1 project tour to demonstrate NPS pollution solutions
 2 temporary signs about the project to be in place from opening of park through project implementation
 1 permanent sign about the project to be placed following implementation
 1 Earth Stewardship Program lesson plan on NPS pollution

Funding

319 Funds	\$3000
Non-Federal Match	\$6000
Federal Funds	\$5,500
Other Funds	\$13,000
Total Cost	\$27,500
Is Match Secured	N

Timeline Duration of Contract

Match Source BRWF, BRLT, Participants (Other); 219016 (Federal)

PART D—PROJECT ADMINISTRATION

Task Description

BRWF will collect and present deliverables, invoices, and create reports per DEQ guidelines and the expectations outlined in this application.

Deliverables

Status reports, billing, and associated deliverables
 Annual reports, billing, and associated deliverables
 Final report, billing, and associated deliverables

Funding

319 Funds	\$14,580
Non-Federal Match	\$500
Federal Funds	\$4,500
Other Funds	0
Total Cost	\$19,580
Is Match Secured	N

Timeline Duration of Contract

Match Source Federal funds from 219016; BRWF

Project (sub-project) Name Revegetate the Valley

Total Project Cost Include costs already incurred, as well as anticipated costs, from all sources, for all aspects of the project.

\$155,265

Latitude N/A Longitude N/A

Latitude _____ Longitude _____

Latitude _____ Longitude _____

Map 

12 Digit HUC #(s) 17010205

Waterbody Name from 2018 List of Impaired Waters East Fork, West Fork, Bitterroot Mainstem, Cameron, Rye, Skalkaho.

Probable Causes of Impairment to be Addressed Sediment; temperature; nutrients; alterations in vegetative cover

Waterbody Name from 2018 List of Impaired Waters Sleeping Child, Willow, North Burnt Fork, Threemile, Miller.

Probable Causes of Impairment to be Addressed Sediment; temperature; nutrients; alterations in vegetative cover

Project Summary - Briefly describe the **nature and extent** of the problem, the **root causes** of the problem, and your **proposed solution**.

Streams throughout the Bitterroot watershed are listed on the 303(d) list of impaired waters for problems with temperature, sediment, nutrients, and alterations in streamside or littoral vegetative cover. Of these impaired streams, the Water Forum has selected 11 (listed in the 2019 Bitterroot WRP; pending approval) as priority subbasins. The priority subbasins represent the locations where we feel we can best concentrate our efforts to make the greatest impact on our watershed.

The Water Forum has been successfully completing riparian revegetation and fencing projects with private landowners for nearly 10 years and has successfully executed 6 such projects. This includes projects on Miller Creek and two separate locations on the East Fork Bitterroot River funded by DEQ 319, as well as projects on Rye Creek, Doran Creek, and Cameron Creek funded by other sources. We focus on these restoration activities in particular because of their known benefits on temperature, sediment, nutrients, and alterations in streamside or littoral vegetative cover--the most common causes of stream impairments in the Bitterroot Valley. Land use is a large contributor to these problems; many streamside properties, either presently or in the past, have allowed cattle grazing on river banks or cleared riparian vegetation for agricultural or residential purposes.

There is potential, both in terms of landowner interest and ecological need, for more revegetation and fencing projects. However, the timeline for when grants are due and when implementation funds are available can be challenging for everyone involved. Turnaround time between when a landowner is interested in exploring a restoration project and when the 319 funds are available to implement the project can be up to two years, which can dampen enthusiasm for collaboration. Alternatively, relationships that are building towards project development may be too tenuous to push for a grant deadline that is a few weeks away, when just another month or two may be enough to get someone fully invested in pursuing a project.

Because of this, we are requesting a "Revegetate the Valley" project grant: a pot of funds that will allow the Water Forum to continue completing revegetation and fencing projects by securing funds now to complete projects on a schedule that works better for landowners. There are benefits to this beyond the flexible schedule as well, like creating efficiencies that would reduce the time spent on grant administration, applications, and reporting. This will also allow for the Water Forum to be more nimble in our approach to project development, using successful relationship building and project successes to create more projects with neighbors in priority tributaries. Also, projects may become more appealing to landowners by working directly with the Water Forum, instead of having to work through a grantor in Helena.

Continuation of previous or ongoing activity? If "Yes", please explain the relationship.

BRWF is in the process of developing relationships with landowners across the Bitterroot watershed. Some of these relationships have extended as far as providing restoration treatment designs to landowners for their consideration, such as with the owners of the Fort Owen Ranch, funded by DEQ 319 contract 219020. The Revegetate the Valley project will lean heavily upon the Bitterroot WRP as a guide for implementation sideboards. Projects will be chosen within the WRP's priority subbasins, which were selected to geographically focus restoration efforts and have been the site of BRWF's past projects. BRWF has explored four properties with landowners who are interested in engaging in riparian restoration, including the Ellison Property on North Burnt Fork, a potential partnership with Trout Unlimited, and two properties on Threemile Creek. This is evidence for more than sufficient landowner interest to move the project forward if funded, as the needs for these 4 projects exceed the amount requested.

Watershed Restoration Plan (WRP) and authoring entity **BITTERROOT: BITTER ROOT WATER FORUM**

Upper Gallatin River - Gallatin River Task Force

Letter of support from WRP authoring entity? If "No", please explain.

N

Applicant is the WRP authoring entity.

How will this project implement recommendations in the WRP?

Selection of project locations will be governed by the list of priority subbasins laid out in the WRP. The WRP observes that sediment and temperature are the two most common pollutants experienced by impaired streams in the Bitterroot, and are often caused by agricultural or grazing practices; riparian revegetation and fencing are proven methods to reduce these pollutants. Further, "revegetat[ing] riparian areas", and "implement[ing] measures that encourage natural flood control, erosion control, and groundwater recharge such as riparian revegetation and vegetation-based bank stabilization" are recommended management measures in each of the 11 priority streams that will be considered for participation in this project.

These streams are as follows: East Fork Bitterroot River, West Fork Bitterroot River, Mainstem Bitterroot River, Rye Creek, Cameron Creek, Sleeping Child Creek, Skalkaho Creek, Willow Creek, North Burnt Fork Creek, Threemile Creek, and Miller Creek.

Nonpoint Source Goals

Sediment, temperature, alterations in streamside vegetative cover, and nutrients are common problems among the 11 priority streams as well as on many other streams in the Bitterroot. Riparian restoration via revegetation and fencing are proven remedies to these problems. Temperature can be reduced by increased vegetative shade to the stream and encouraging recharge to the river by way of groundwater infiltration. Lack of streamside vegetation and bank wear caused by riparian grazing contribute to high sediment loads in streams. Preventing excessive streamside grazing and unnatural bank erosion by restoring natural vegetation has the potential to reduce sediment loads significantly. For example, an analysis by DEQ in 2019 indicated one BRWF planting and fencing project reduced loads on sediment-impaired Miller Creek by 19 tons per year. Further, these projects have the potential to reduce sediment and nutrient loads in streams by (1) promoting groundwater infiltration through planting, which filters stream recharge (2) reducing opportunities for cattle and/or horses to excrete waste adjacent to or in streams through fencing and (3) reducing the volume of sediment particles in the stream, to which nutrients often adsorb. Finally, a major goal of Revegetate the Valley is to restore native streamside vegetative cover to areas where it has been lost.

Partners and Roles

Landowner(s)

Name

Fort Owen Ranch, potential project
Oxbow Cattle Company, past project
Snook-McAlpine Property, past project

Letter of Support Attached?

 Y

 Y

 Y

Other Partners

Name

Role

Letter of Support Attached?

Jason Lindstrom	Fisheries Biologist, Montana Fish, Wildlife & Parks
Frank Pelfrey	Volunteer

 Y

 N YES

 N

 N

 N

 N

Planning and Coordination

Planning and coordination includes permitting, design development, landowner agreements, volunteer labor recruitment, partnering and collaboration, alignment with watershed planning efforts, procurement and oversight of contractors, etc.

Planning Activities Already Completed	Documentation Attached?
Design for North Burnt Fork Creek at Fort Owen Ranch by Geum Environmental Consulting	<input type="checkbox"/> N <input checked="" type="checkbox"/> YES
Sourcing projects and building relationships with several other landowners and potential partners	<input type="checkbox"/> N
Flowchart illustrating the methodology and requirements for a site to become a Revegetate the Valley project	<input type="checkbox"/> N <input checked="" type="checkbox"/> YES
	<input type="checkbox"/> N
	<input type="checkbox"/> N
	<input type="checkbox"/> N

Task Description

To focus the scope of this project, potential project opportunities will undergo a rigorous screening and prioritization process to ensure that they are an appropriate fit for the Revegetate the Valley grant as outlined here. Landowner buy-in, and commitment to in-kind or cash contributions and ongoing maintenance will be heavily weighted. Sites will only be considered when landowners are interested in engaging in restoration and for whom BRWF considers riparian revegetation an appropriate treatment. While revegetation will be the primary goal of all projects eligible for Revegetate the Valley Funds, some additional types of treatments may be necessary for some sites to allow revegetation to occur naturally. These include but are not limited to cattle fencing and water gap construction, installation of browse protectors, weed suppression, and small-scale earthmoving to reach the water table and facilitate plant growth. Any project which requires a method in addition the simple placement of plants and/or browse protection fencing will be discussed on a case by case basis with the contract manager at DEQ before being implemented to ensure adherence to grant protocol. Sites located on priority streams will primarily be considered and given top priority for this grant. However, should a highly compelling project located on a 303(d) listed stream that is not a priority stream arise, BRWF reserves the right to discuss this opportunity with the DEQ contract manager. BRWF has successfully completed many projects similar to those described in this grant. As such, BRWF expects to have the capacity to design most projects in-house. However, input from consultants will be sought if necessary for a particular site.

Deliverables

Design documentation for each project
 Landowner agreement for each project
 Subcontracting agreements and associated deliverables for any design work not completed in-house
 Copies of any required permits

Funding

319 Funds	<input type="text" value="\$15,000"/>
Non-Federal Match	<input type="text" value="\$4,500"/>
Federal Funds	<input type="text" value="0"/>
Other Funds	<input type="text" value="0"/>
Total Cost	<input type="text" value="\$19,500"/>
Is Match Secured	<input type="checkbox"/> N

Timeline Ongoing Match Source Landowner time

Project Implementation

Task Description

Riparian revegetation will be achieved at the selected sites in accordance with the design. Treatments will likely include native seed broadcast, native nursery plant installation, placement of willow cuttings, and browse protection, either around installed plants or to promote natural recruitment. In sites where livestock are allowed access to the stream, cattle fencing in conjunction with methods to allow cattle continued access to drinking water, such as cattle gaps, will be added.

Deliverables

Before and after photos of sites
Written descriptions of implemented projects in accordance with design documentation

Funding

319 Funds	\$62,650
Non-Federal Match	\$45,100
Federal Funds	0
Other Funds	0
Total Cost	\$107,750
Is Match Secured	N

Timeline Ongoing

Match Source Landowner time, equipment, labor, TU, Fut. Fisheries

Appropriate Next Step

Revegetate the Valley is specifically intended to increase capacity to improve water quality and generate landowner interest, two major goals of the 319 program's Focus Watershed approach. BRWF has completed successful riparian revegetation projects over the past decade, making strides in temperature and sediment load reductions in particular and restoring natural stream function one site at a time. BRWF has identified many further sites that could benefit from similar projects, as well as garnered active landowner interest for potential projects. This project represents the most effective next step to build off the effective work we have been establishing for many years and meet DEQ's goals of facilitating effective watershed groups and high levels of landowner interest.

Further, this project is informed by DEQ's recent work towards quantifying riparian vegetation cover in the Bitterroot. For example, their June 2019 report "Riparian Evaluation and Wetland Priorities Results" found lacking riparian cover in many of our priority streams, including Miller and Willow Creeks, which both have less than 25% high riparian cover.

Sustainability

Plantings will likely require three years of maintenance and watering, but once they are established, they require minimal maintenance and are largely self-sustaining. Protection of riparian areas with fencing, as well as establishment of a baseline amount of riparian vegetation, will assist in the recruitment of additional vegetation. For as long as a healthier, more vegetated riparian area exists, it will help reduce sediment, nutrient, and temperature loads to the stream.

Natural Processes

The primary focus of this project is promoting revegetation with native plants. This will also provide natural habitat for native avian and terrestrial animal communities. Once native vegetation is established after several years, vegetation is a self-sustaining method of restoring natural stream function and requires minimal maintenance. Landowner agreements will detail that the project activities must be maintained for a minimum of 10 years.

Project Effectiveness Evaluation

Task Description

Plants will be maintained through watering and inspection using local volunteers to assist with multiple watering days throughout the summer season. Volunteers are trained and available to complete additional maintenance activities such as minor fence repairs and weed removal as necessary. Project impacts will be evaluated through sediment, temperature, and nutrient load reduction estimates. The success of plantings will be evaluated through photo point monitoring and vegetation mortality monitoring. This data will additionally contribute to DEQ's efforts to track and quantify riparian vegetative covers.

Deliverables

Annual summary of operation and maintenance actions for each site
 Sediment, nutrient, and temperature load reduction estimates for each site
 Photo points established at each site
 Vegetation mortality monitoring reports for each site

Funding

319 Funds	\$4,500
Non-Federal Match	\$5,500
Federal Funds	0
Other Funds	0
Total Cost	\$10,000
Is Match Secured	N

Timeline First implementation-end of contract Match Source BRWF and volunteers

The Bigger Picture

Other Natural Resources

BRWF chose priority streams in part based on the habitat they provide to Threatened Bull Trout and Species of Concern Westslope Cutthroat Trout. These fish suffer from habitat degradation and competition with non-native species who are better suited to warmer waters. Increasing the quantity of cool, clear streams that provide healthy habitat features, such as woody debris in streams, is of paramount importance for these species. Restoring native riparian vegetation is also beneficial for terrestrial and avian wildlife species.

Climate Resiliency

Climate change is predicted to exacerbate already-elevated stream temperatures and have detrimental effects on native vegetation and wildlife. This project represents a proactive approach to developing resiliency to climate change by lowering stream temperatures and providing additional healthy vegetation and habitat. Further, climate change is expected to cause extreme weather to occur more frequently and severely. Healthy riparian areas and floodplains are helpful in extreme weather conditions, as they store water for slow release during storms as well as drought conditions.

Public Visibility

The intention of this project is to work with private landowners to restore streams on their property. We strive to develop positive relationships with the landowners we work with and execute projects in a way that meets their needs. We believe that pleased landowners tell their neighbors about their positive experiences and share their excitement for undertaking riparian restoration projects. While these are often not high visibility sites, BRWF will mitigate this by working with landowners to host project tours on site and putting extra effort into outreach and educational opportunities such as newsletters and social media posts.

Point Source / Nonpoint Source Relationships

Revegetate the Valley will occur primarily on tributaries to the Bitterroot River. Because this project is intended to reduce sediment, temperature, and nutrient loads, water entering the Bitterroot River will be of higher quality. This can reduce effluent treatment costs for wastewater treatment plants on the Bitterroot, such as the Hamilton Wastewater Treatment Plant.

Source Water Protection

Nutrients can be a cause of impaired drinking water sources, such as on Threemile Creek. By reducing nutrient loads to streams, this grant will improve the quality of water on nutrient-impaired streams and prevent other streams from developing inabilities to provide safe drinking water.

Healthy Watersheds

While Revegetate the Valley focuses on streams already listed on the 303(d) list, it has important implications as a preventative measure due to the myriad ways riparian vegetation can reduce and prevent NPS pollution. As discussed previously, revegetation has implications for sediment, nutrient, temperature, and alterations in streamside vegetative covers. Fortunately, no stream in the Bitterroot is currently listed for all four of these problems, so there is still ample opportunity to prevent further issues from developing. In addition, Revegetate the Valley projects will occur on tributaries to the Bitterroot Mainstem, which presently suffers from high temperatures but still qualifies as healthy in the other three respects. As an important fishery and economic mainstay for the Bitterroot Valley, maintaining the health of the Bitterroot River is imperative. By maintaining and/or improving the health of tributaries, we will contribute to the health of the Bitterroot River and community as a whole.

ATTACHMENT D – GOVERNOR’S EXECUTIVE ORDER NO. 15-2018

STATE OF MONTANA
OFFICE OF THE GOVERNOR
EXECUTIVE ORDER No. 15-2018

**EXECUTIVE ORDER REQUIRING DISCLOSURE OF DARK MONEY SPENDING
FOR ENTITIES DOING BUSINESS WITH THE STATE OF MONTANA**

WHEREAS, in 2010, the U.S. Supreme Court’s *Citizens United* decision allowed unlimited direct spending by corporations in elections;

WHEREAS, two years later, the Supreme Court invalidated Montana’s own Corrupt Practices Act, which had banned direct corporate spending in elections;

WHEREAS, following *Citizens United*, there was an explosion in corporate spending in elections, much of which was funneled through so-called “dark money” organizations that conceal the source of funds used to influence an election;

WHEREAS, at the same time, the Supreme Court has endorsed the salving power of transparency in elections, holding that public disclosure can increase public confidence in government decision-making and prevent corruption from taking hold;

WHEREAS, since *Citizens United*, states—including Montana through its Disclose Act—have created innovative disclosure programs to shine light on dark money in elections;

WHEREAS, the Supreme Court in *Citizens United* observed that “[w]ith the advent of the Internet, prompt disclosure of expenditures can provide shareholders and citizens with the information needed to hold corporations and elected officials accountable for their positions and supporters. Shareholders can determine whether their corporation’s political speech advances the corporation’s interest in making profits, and citizens can see whether elected officials are “in the pocket” of so-called moneyed interests.” 558 U.S. 310, 370-71 (2010) (citing *McConnell v. FEC*, 540 U.S. 93, 259 (2003) (opinion of Scalia, J.); *FEC v. Mass. Citizens for Life, Inc.*, 479 U.S. 238, 261 (1986));

WHEREAS, the Supreme Court also praised the role of commercial relationships in promoting disclosure, noting that shareholder objections “can be more effective today because modern technology makes disclosures rapid and informative,” and that “[t]he First Amendment protects political speech; and disclosure permits citizens and shareholders to react to the speech of corporate entities in a proper way. This transparency enables the electorate to make informed decisions and give proper weight to different speakers and messages.” *Id.*;

WHEREAS, disclosure promotes First Amendment values by keeping the public informed and enabling the public to make informed assessments of their government, and at the same time disclosure fights corruption in government;

WHEREAS, Montanans also enjoy a constitutional right to know, which entitles Montanans to examine both the decisions of government and the forces brought to bear on those decisions;

WHEREAS, while the Montana legislature has a set of lobbying rules, there are fewer pay-to-play restrictions for entities seeking to do business with state government;

WHEREAS, disclosure rules for state procurement are essential to secure Montanans’ right to know surrounding these important government functions;

WHEREAS, disclosure rules for state procurement prevent corruption, promote confidence in government, and inform the public of the operations of government;

WHEREAS, the public has an interest in comprehensive, aggregate information about government contractors’ participation in elections;

WHEREAS, federal courts have routinely upheld anti-corruption measures, including contribution prohibitions and disclosure requirements, for entities doing business in front of the government;

WHEREAS, both before and after *Citizens United*, the Supreme Court has endorsed the importance of strong disclosure rules and questioned whether “uninhibited, robust, and wide-open” speech can occur when organizations hide themselves from the scrutiny of the voting public—rather, the Court has stated that disclosure favors the “First Amendment interests of individual citizens seeking to make informed choices in the political marketplace.” *McConnell*, 540 U.S. at 197;

WHEREAS, it is the responsibility of government to ensure the integrity of its institutions;

WHEREAS, the public must have confidence that decisions made by government are not subject to undue political influence;

WHEREAS, the government of Montana purchases millions of dollars in services each year with public dollars; and

WHEREAS, as Governor, I have a responsibility to oversee executive branch procurement, I have an obligation to the public to ensure procurement decisions are freely and fairly made without any undue influence, and I have a duty to supervise the official conduct of all executive and ministerial officers.

NOW, THEREFORE, I, STEVE BULLOCK, Governor of the State of Montana, pursuant to the authority vested in me under the Constitution and the laws of the State of Montana, including Title 2, Chapter 15 and Title 18, Chapter 4, do hereby order and direct the implementation of disclosure rules for executive branch contracting as follows:

I. POLICY

It is the policy of the executive branch that entities seeking to do business with the State of Montana must disclose contributions or expenditures they have made in elections, as detailed in this Executive Order.

II. DEFINITIONS

As used in this Executive Order, the following definitions apply:

- I. “electioneering communication” means a paid communication that is publicly distributed by radio, television, cable, satellite, internet website, mobile device, newspaper, periodical, billboard, mail, or any other distribution of printed or electronic materials, that is made within 60 days of the initiation of voting in an election in Montana, that can be received by more than 100 recipients in the district in Montana voting on the candidate or ballot issue, and that:
 - a. refers to one or more clearly identified candidates in that election in Montana;
 - b. depicts the name, image, likeness, or voice of one or more clearly identified candidates in that election in Montana; or
 - c. refers to a political party, ballot issue, or other question submitted to the voters in that election in Montana.

The term does not mean:

- a. a bona fide news story, commentary, blog, or editorial distributed through the facilities of any broadcasting station, newspaper, magazine, internet website, or other periodical publication of general circulation unless the facilities are owned or controlled by a candidate or political committee;
 - b. a communication by any membership organization or corporation to its members, stockholders, or employees;
 - c. a commercial communication that depicts a candidate’s name, image, likeness, or voice only in the candidate’s capacity as owner, operator, or employee of a business that existed prior to the candidacy; or
 - d. a communication that constitutes a candidate debate or forum or that solely promotes a candidate debate or forum and is made by or on behalf of the person sponsoring the debate or forum.
2. “covered expenditure” means:
 - a. A contribution, expenditure, or transfer made by the contracting entity, any of its parent entities, or any affiliates or subsidiaries within the entity’s control, that:
 - i. is to or on behalf of a candidate for office, a political party, or a party committee in Montana; or
 - ii. is to another entity, regardless of the entity’s tax status, that pays for an electioneering communication, or that makes contributions, transfers, or expenditures to another entity, regardless of its tax status, that pays for electioneering communications; and
 - b. The term does not include an expenditure made by the contracting entity, any of its parent entities, or any affiliates or subsidiaries within the entity’s control made in the ordinary course of business conducted by the entity making the

expenditure; or investments; or expenditures or contributions where the entity making the expenditure or contribution and the recipient agree that it will not be used to contribute to candidates, parties, or electioneering communications.

3. “executive branch” refers to the departments and agencies subject to the Governor’s executive authority as described in Article VI, Section 4 of the Montana Constitution and § 2-15-103, MCA.

III. DISCLOSURE REQUIREMENT

1. When soliciting for state procurement contracts, every contracting department and agency shall require all entities submitting offers for state government contracts with a total contract value of over \$25,000 for services or \$50,000 for goods to disclose “covered expenditures” that the contracting entity has made within two years prior to submission of their bid or offer. Certification that disclosure of this information has been made in a manner consistent with Department of Administration policies shall be required as a condition of submitting a bid or offer.
2. The disclosure of “covered expenditures” shall only be required whenever the aggregate amount of “covered expenditures” made within a 24-month period by the bidding or applying entity, any parent entities, or any affiliates or subsidiaries within the entity’s control exceeds \$2,500.
3. The final form of the disclosure required by this Executive Order shall be defined by the Department of Administration, but must include at a minimum:
 - a. the full name and address of the person or entity to whom each expenditure is made;
 - b. the date and amount of each expenditure;
 - c. the purpose and description of each expenditure;
 - d. in the case of an expenditure made for a direct campaign expenditure for express advocacy, if known at the time that the expenditure is reported, the name of each candidate, including the office held and office sought as applicable, whose election or defeat the expenditure advocates, or each ballot measure the passage or defeat of which the expenditure advocates; and
 - e. in the case of an expenditure made to an entity that purchases electioneering communications, if known at the time that the expenditure is reported, the name of each candidate, including the office held and office sought as applicable, to whom the communication refers or each ballot measure to which the communication refers.
4. Any disclosure under this Executive Order must be made to the Department of Administration, or to the contracting department or agency, at the time of the contract bid or offer. If the disclosure is made to a department or agency other than the Department of Administration, the recipient department or agency must forward the disclosure to the Department of Administration. The Department of Administration will compile this

information and make it available in a searchable database on a public website, such as transparency.mt.gov.

5. For contracts that are 24 months or longer, the Department of Administration or the contracting department or agency will require an updated disclosure form from successful contracting entities every 12 months.
6. No contracting department or agency may discriminate between bidding or applying entities because of the content of an entity’s expenditures or contributions disclosed under this Executive Order; however, departments or agencies may not award a contract with a total contract value of more than \$25,000 for services or \$50,000 for goods to any entity that does not complete the required certification under this Executive Order.
7. By September 1, 2018, the Department of Administration shall prepare such policies and issue such orders as are deemed necessary and appropriate to carry out this Executive Order. Such policies and orders must minimize the costs of compliance for contractors and shall not interfere with the ability of contractors, or their officers, or employees to engage in political activities to the extent otherwise permitted by law.
8. Each contracting department or agency shall cooperate with the Department of Administration in implementing this Executive Order and provide such information and assistance as the Department of Administration may require in the performance of its functions under this Executive Order.

Severability: if any provision, clause, or implementing policy (“provisions”) of this Executive Order or application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the Executive Order which can be given effect without the invalid provision or application, and to this end the provisions of this Executive Order are declared to be severable.

This Order is effective immediately and its disclosure provisions shall apply to contracts resulting from solicitations and applications received on or after October 1, 2018.



GIVEN under my hand and the GREAT SEAL of the State of Montana this 8th day of June, 2018.

[Signature]
STEVE BULLOCK, Governor

ATTEST:

[Signature] by *[Signature]*, deputy
COREY STAPLETON, Secretary of State

ATTACHMENT E – DECLARATION FORM

Declaration Form Dark Money Spending Disclosure Requirements

Contracting Entity shall comply with the State of Montana Executive Order No. 15-2018 requiring the disclosure of dark money spending.

Definitions. As used in this declaration form, the following definitions apply:

Electioneering Communication: A paid communication that is publicly distributed by radio, television, cable, satellite, internet website, mobile device, newspaper, periodical, billboard, mail, or any other distribution of printed or electronic materials, that is made within 60 days of the initiation of voting in an election in Montana, that can be received by more than 100 recipients in the district in Montana voting on the candidate or ballot issue, and that:

- a. refers to one or more clearly identified candidates in that election in Montana;
- b. depicts the name, image, likeness, or voice of one or more clearly identified candidates in that election in Montana; or
- c. refers to a political party, ballot issue, or other question submitted to the voters in that election in Montana.

The term does not mean:

- a. a bona fide news story, commentary, blog, or editorial distributed through the facilities of any broadcasting station, newspaper, magazine, internet website, or other periodical publication of general circulation unless the facilities are owned or controlled by a candidate or political committee;
- b. a communication by any membership organization or corporation to its members, stockholders, or employees;
- c. a commercial communication that depicts a candidate's name, image, likeness, or voice only in the candidate's capacity as owner, operator, or employee of a business that existed prior to the candidacy; or
- d. a communication that constitutes a candidate debate or forum or that solely promotes a candidate debate or forum and is made by or on behalf of the person sponsoring the debate or forum.

In this definition, the phrase "made within 60 days of the initiation of voting in an election" means:

- a. in the case of mail ballot elections, the initiation of voting occurs when official ballot packets are mailed to qualified electors pursuant to 13-19-206, MCA; or

- b. in other elections the initiation of voting occurs when absentee ballot packets are mailed to or otherwise delivered to qualified electors pursuant to 13-13-214, MCA.

Contracting Entity: A bidder, offeror, or contractor.

Covered Expenditure means:

- a. A contribution, expenditure, or transfer made by the Contracting Entity, any of its parent entities, or any affiliates or subsidiaries within the entity's control, that:
 - i. is to or on behalf of a candidate for office, a political party, or a party committee in Montana; or
 - ii. is to another entity, regardless of the entity's tax status, that pays for an Electioneering Communication, or that makes contributions, transfers, or expenditures to another entity, regardless of its tax status, that pays for Electioneering Communication; and
- b. The term excludes an expenditure made by the Contracting Entity, any of its parent entities, or any affiliates or subsidiaries within the entity's control made in the ordinary course of business conducted by the entity making the expenditure; investments; or expenditures or contributions where the entity making the expenditure or contribution and the recipient agree that it will not be used to contribute to candidates, parties, or Electioneering Communication.

Solicitation Requirements. The Contracting Entity shall disclose Covered Expenditures that the Contracting Entity has made within two years prior to submission of its bid or offer.

The disclosure of Covered Expenditures is only required by the bidder/offeror whenever the aggregate amount of Covered Expenditures made within a 24-month period by the bidder/offeror, any parent entities, or any affiliates or subsidiaries within the bidder/offeror's control exceeds \$2,500.

If the bidder/offeror meets the disclosure requirements, the bidder/offeror shall submit this signed declaration form indicating "Yes" AND the required disclosure form with its bid/proposal.

If the bidder/offeror does NOT meet the disclosure requirements, the bidder/offeror shall submit this signed declaration form with its bid/proposal indicating "No".

Annual Contract Requirements. The Contracting Entity agrees that if awarded a contract and the contract term exceeds, or has the potential to exceed 24

months, it must annually review and complete a new declaration form and disclosure form, if necessary.

Yes- I have read, understand, and meet the disclosure requirements for the 24 months immediately preceding the submission of this form. I will complete the necessary disclosure form and submit it with this form.

Company Name (Clearly Printed):

Authorized Signature:

Date: _____

No- I have read, understand, and do NOT meet the disclosure requirements. I certify that the Contracting Entity has not made Covered Expenditures in excess of \$2,500 in the 24 months immediately preceding the submission of this form.

Company Name (Clearly Printed):

Bitter Root Water Forum

Authorized Signature:

Andrea Price

Date: 1 November 2019

ATTACHMENT F – DISCLOSURE TEMPLATE

The Disclosure template only exists as a Microsoft Excel spreadsheet, compatible with a database operated by the Montana Department of Administration. To obtain a copy of the template, please visit the NPS Program website at <http://deg.mt.gov/Water/SurfaceWater/NonpointSources>. You may also contact Dean Yashan (406-444-5317, dyashan@mt.gov) for assistance.

Letters of Support

Montana Department of Environmental Quality
Attn: Dean Yashan
Watershed Protection Bureau
PO Box 200901
Helena, MT 59620

October 30, 2019

Letter of Support for the Bitter Root Water Forum's 2019 319 Nonpoint Source
Project Funding Proposal: Revegetate the Valley

Dear Mr Yashan,

As the owners of Oxbow Cattle Company and the landowners with the good fortune to work with the Bitter Root Water Forum on a fencing and revegetation project along Miller Creek, we are writing in support of BRWF's application to "Revegetate the Valley" and do more on the ground restoration work with other landowners in the Bitterroot.

Our number one priority at Oxbow Cattle Company is to take care of the land. Since we began leasing this portion of Miller Creek in 2014, we have wanted to improve Miller Creek, but it was not our decision to do so as we did not own it. In March of 2017, that all changed when we had the opportunity to purchase this land that has almost two miles of Miller Creek running through it, until it flows into the Bitterroot. All of our dreams on how to restore this used and abused section of Miller Creek became possible. We just so happened to be lucky enough that our goals and the DEQ timeline happened to coincide in 2018, otherwise we'd still be behind in our efforts.

We understand the importance of intact healthy riparian areas and the amount of life they support. The partnership with the Bitter Root Water Forum and this grant allowed us to begin repairing this riparian area in shorter order as opposed to gradually achieving this over many years. This partnership allowed the creek to start its healing process in 2018 along the majority of it rather than a tiny section in 2018 and then another tiny section in 2019, etc. It will allow the stream to have a chance to be healed in our lifetime rather than possibly taking numerous lifetimes.

We don't want others to lose the opportunity to begin riparian restoration on their properties because the DEQ funding cycle doesn't match up with their timeline. We know there are plenty of other farmers and ranchers in the Bitterroot Valley who would benefit from riparian restoration projects, and trusting BRWF to find them on a timeline that works for landowners will be of great benefit to our watershed, which in turn will benefit everyone! Thank you for your consideration.

Sincerely,

Bart Morris
Oxbow Cattle Company

Montana Department of Environmental Quality
Attn: Dean Yashan
Watershed Protection Bureau
PO Box 200901
Helena, MT 59620

Letter of Support for the Bitter Root Water Forum's 2019 319 Nonpoint Source
Project Funding Proposal: Revegetate the Valley

Dear Mr Yashan,

As a former Forest Service hydrologist and Bitter Root Water Forum (BRWF) board member, I have seen and worked on many sediment-producing sites, with diverse causes and a range of water-quality effects. Our native soils tend to be easily eroded if vegetation is removed or sparse, and unstable stream banks related to agricultural use are common. The pertinent Total Maximum Daily Load (TMDL) assessments for the Bitter Root watershed point out many stream and river reaches that are currently not supporting their designated beneficial uses due to excess sediment loads. Many reaches are also experiencing temperature and nutrient effects from human activities as well.

The BRWF is making substantial progress in reducing these non-point source pollutants with riparian fencing, streambank revegetation and bio-engineering treatments. These treatments tend to be relatively easy to design and implement, and are generally (thankfully) non-controversial. However, the amount of administrative, design and implementation time needed to tackle these sites one at a time leads to inefficiencies and higher costs per unit of treatment. Additionally, the turnaround time between when a landowner is interested in exploring a river restoration project and when the funds are available so that the project can actually be built can be up to two years. Trying to match landowner interest and funding availability up can be challenging for everyone involved.

With the recent proposal of using the Bitter Root River watershed as a “pilot project” with a more accessible “stream” of funding, there is an opportunity to create a more efficient pipeline for these types of projects. By funding a programmatic approach to developing and implementing projects in priority watersheds, the rate of progress and associated TMDL implementation can be increased along with the associated benefits to both the community and stream ecosystems. I fully support the BRWF “Revegetate the Valley” proposal for the reasons above. It is a relatively simple way to gain flexibility and efficiency in addressing some common water quality problems in our watershed.

Sincerely,
Ed Snook
Hydrologist, Bitterroot National Forest (Retired)
Landowner, past BRWF bank stabilization project
BRWF board member

Montana Department of Environmental Quality

Attn: Dean Yashan

Watershed Protection Bureau

PO Box 200901

Helena, MT 59620

Letter of Support for the Bitter Root Water Forum's 2019 319 Nonpoint Source

Project Funding Proposal: Revegetate the Valley

Dear Mr. Yashan,

I am writing to express my support for the Bitter Root Water Forum's (BRWF) Revegetate the Valley grant proposal. I have been a dedicated volunteer for with the BRWF for several years, and during this time, I have helped with monitoring and maintenance of several riparian fencing and revegetation projects. I am a member of a team of reliable and committed volunteers who regularly donate our time to ensure the success of BRWF's restoration projects. We do this, not only because we understand the importance of restoring streamside vegetation here in the Bitterroot Valley, but there is a shared value amongst volunteers that the fragile beauty of our landscape and waterways must be continually nurtured and protected.

In returning to restoration sites for monitoring and maintenance year after year, I have personally seen the changes that these projects bring about. It is very rewarding to see the positive impact we can have on our streams, and the help we can provide to these landowners who strive to be responsible stewards of their land.

My experiences working with several successful fencing and revegetation projects at locations that extend from the Miller Creek property near Missoula to several sites especially along the East Fork of the Bitterroot River, without question gives me confidence that BRWF can get the job done. Looking forward, I know there are many more opportunities for similar projects up and down the Bitterroot Valley, and that these activities would bring about great benefits to our watershed and all associated riparian areas. I, along with my fellow volunteers, look forward to continuing to participate in these very important projects!

Sincerely,

Frank Pelfrey



October 25, 2019

Montana Department of Environmental Quality
Attn: Dean Yashan
Watershed Protection Bureau
PO Box 200901
Helena, MT 59620

RE: Letter of Support for the Bitter Root Water Forum's 2019 319 Nonpoint Source Project Funding Proposal: Revegetate the Valley

Dear Mr. Yashan,

I am writing to express my support for the Bitter Root Water Forum's Revegetate the Valley project. As Fish, Wildlife & Park's fisheries biologist for the Bitterroot Valley, I appreciate the importance of healthy, functioning riparian areas. Revegetation and fencing projects like the ones this grant will provide funding for are important restoration tools that can be used to improve degraded riparian habitats. These projects have the potential to improve temperature, sediment, and nutrient impairments (as described in DEQ's TMDL documents) among the Bitterroot's priority subwatersheds. Further, they can provide significant benefits to fish and wildlife species that rely heavily on streams and riparian areas for their survival.

I have personally collaborated with the Water Forum on a restoration project on the Threemile Wildlife Management Area, also funded by a DEQ 319 grant. Based on this experience, I can speak to their ability to develop and execute projects responsibly and effectively. This lends confidence that they will source and carry out projects under the proposed grant in a manner that aligns closely with DEQ goals.

Sincerely,

Jason Lindstrom

Jason Lindstrom – Fisheries Biologist
Montana Fish, Wildlife & Parks
1801 N. First St.
Hamilton, MT 59840
Ph# (406) 363-7169

Montana Department of Environmental Quality
Attn: Dean Yashan
Watershed Protection Bureau
PO Box 200901
Helena, MT 59620

Re: Letter of Support for the Bitter Root Water Forum's 319 Nonpoint Source Project Funding Proposal "Revegetate the Valley"

October 29, 2019

Dear Mr Yashan,

I am the ranch manager of Fort Owen Ranch in Stevensville, Montana. During my time working on this land, I have noticed that a stretch of Burnt Fork Creek that passes through the ranch has been eroding heavily, and there is a lack of vegetation on the stream banks. The landowner, Myla Yahraus, and I are committed to making positive changes on this property, and as such, have been interested in exploring stream restoration.

With funding from a previous DEQ 319 grant, the Bitter Root Water Forum studied the stream running through our property and developed recommendations for a restoration approach. However, the timeline hasn't been the easiest to work with. I initially became interested in working with the Water Forum in January of this year, but the funding to study our site wasn't available until September 2019. We may be interested in implementing the recommendations the Water Forum provided for us, but we would like more time to consider, rather than rushing into a commitment before we are ready and the grant deadline approaches.

Because of our past experiences and current situation, I would like to express my support for the Bitter Root Water Forum's "Revegetate the Valley" proposal. I know there are many other ranchers in the Bitterroot Valley who would benefit from riparian restoration projects. It would be very helpful if the Water Forum had the funding and ability to take on projects on a schedule that works for landowners.

Sincerely,



Kent Smartt
Ranch Manager, Fort Owen Ranch

Montana Department of Environmental Quality
Attn: Dean Yashan
Watershed Protection Bureau
PO Box 200901
Helena, MT 59620

Letter of Support for the Bitter Root Water Forum's 2019 319 Nonpoint Source
Project Funding Proposal: Revegetation at Skalkaho Bend Park

Dear Mr Yashan,

The Bitterroot Audubon Society wishes to express its support of the Bitter Root Water Forum's riparian revegetation project at the future Skalkaho Bend Park. This project comprises a significant effort towards our organizational priorities, including offering educational programs and field trips to the public, advocating for the conservation of wildlife and their habitats, and participating in local and national-scale conservation projects.

Members of the Bitterroot Audubon Society, as well as other community members, have enjoyed spotting the 84 species of birds which call Hamilton's River Park home. This park is directly adjacent to the site of this project at Skalkaho Bend Park, but this area currently represents a desert for bird and other wildlife species; the construction of the proposed vegetated swale will enhance connectivity of crucial riparian habitat. Concordantly, this project will yield significant improvements to fish habitat via lowered stream temperatures, prevention of excessive erosion, and woody debris accumulation on-site and downstream, resulting in multifold benefits to avian species.

The Bitterroot Audubon Society has worked with the Bitter Root Water Forum in rebuilding riparian areas and improving wildlife habitat in the past, and these experiences lend confidence that they will complete this project in an effective and tactful manner. We are pleased to our support as a project partner, including contributing volunteers and offering advice in the creation of interpretive signage at the restoration site.

The maintenance of environmental health must ultimately be a social endeavor, and thus we deeply value spaces where people can interact with, appreciate, and learn about nature; the restoration and preservation of this land as a publicly available space is paramount to this goal. In particular, we look forward to utilizing the restored Skalkaho Bend Park as a resource for our education programs, field trips, and citizen science programs. Furthermore, we believe the addition of the proposed vegetated swale will increase the park's aesthetic value significantly.

Thank you for your consideration of the Bitter Root Water Forum's restoration project at Skalkaho Bend Park and of the additional interests of the Bitterroot Audubon Society which this project addresses. We believe the outcomes of this project will prove truly invaluable to our ecosystem and community and an honorable investment of DEQ Funds.

Sincerely,

Becky Peters
President, Bitterroot Audubon Society



Montana Department of Environmental Quality

Attn: Dean Yashan
Watershed Protection Bureau
PO Box 200901
Helena, MT 59620

Letter of Support for the Bitter Root Water Forum's 2019 319 Nonpoint Source
Project Funding Proposal

Dear Mr. Yashan:

After many in depth conversations with the Bitter Root Water Forum, the Bitter Root Land Trust wishes to express its support of the revegetation project for which the Water Forum has submitted a 319 nonpoint source funding proposal.

As current fee title owners of the subject property, we are well aware of the dynamic nature of the stretch of the Bitterroot River that traverses the property as well as the ongoing trend of stream bank erosion in this reach. This 70 acres of future river park, which encompasses more than a mile of river frontage, represents an incredible opportunity to provide the public with fishing and recreational access in close proximity to the major population hub of Hamilton and to provide public educational opportunities related to the river, its movement, and the wildlife habitat it provides. The Bitter Root Land Trust wishes to see this excellent public amenity reach its full potential from a habitat and river health perspective so that it can be enjoyed by future generations of both people and wildlife.

This project is the focus of a unique partnership involving two non-profit organizations— the Bitter Root Land Trust and the Bitter Root Water Forum— and the City of Hamilton. The plan for the property entails a certain transfer to the City of Hamilton, for use as a river park, by the end of 2019. As part of that transfer, the City and Land Trust will execute a Memorandum of Understanding that delineates weed management plans and other obligations, and, should this proposal be successful, will also include a mutually agreeable plan related to implementation and utilization of the requested 319 funds.

We feel that an effort to protect and enhance this stretch of river bank, as outlined in the proposal, will help secure the park's future. We understand that the construction of a vegetated swale in the park is the best way to achieve these goals. For these reasons, the Bitter Root Land Trust supports the Water Forum's proposal and fully endorses the Forum's ability to utilize the requested funds in an effective and beneficial manner.

Respectfully,

BOARD MEMBERS

Jean Steele
President

Peggy Ratcheson
Vice President

Tonia Bloom
Secretary

Andy Massie
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Roger Gantz

Gail Goheen

Kathie Messer

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Pete Seifert

Lynn Thurber

Bret Young

EXECUTIVE DIRECTOR

Gavin Ricklefs

FARM & RANCH ADVISOR

Rob Johnson, Ravalli County
Extension Agent – *Retired*

PO Box 1806
Hamilton, MT 59840

A handwritten signature in black ink, appearing to read "G. Ricklefs". The signature is fluid and cursive, with a horizontal line underlining the first part of the name.

Gavin Ricklefs
Executive Director



City of Hamilton
223 South Second Street
Hamilton, MT 59840

Montana Department of Environmental Quality
Attn: Dean Yashan
Watershed Protection Bureau
PO Box 200901
Helena, MT 59620

Letter of Support for the Bitter Root Water Forum's 2019 319 Nonpoint Source Project Funding Proposal

Dear Mr. Yashan:

I wish to express support of the proposed project submitted by the Bitterroot Water Forum for implementation of the channel swale and revegetation project along a stretch of the Bitterroot River that will soon become a public park.

This area includes over a mile of river frontage, which will provide fishing and recreational access to the residents of the City of Hamilton and Ravalli County. This property preserves space for the river to move and riparian habitat to thrive. The Bitterroot River has steadily eroded the bank along this stretch of property due to the lack of riparian vegetation and is predicted to continue to erode. The creation of a vegetated swale along this reach will improve riparian habitat and river health and provide an invaluable opportunity to educate our community on the importance of these values.

As the future owner of this property and a key steward of the valuable natural resources in our community, the City of Hamilton has a keen interest in preserving the long term health of this property and the Bitterroot River. The City of Hamilton has a great working relationship with the Bitter Root Land Trust and Bitter Root Water Forum, and have completed several successful projects in the past with both entities. The Bitter Root Land Trust is the current title holder to the property and plans to transfer the property to the City by the end of 2019. As part of that transfer, the City and Land Trust are in the process of preparing a Memorandum of Understanding (MOU) that delineates responsibilities for weed management and other obligations, such as those already set forth in the 2011 Master Plan for the current River Park. Should this proposal be successful, this MOU will also include a mutually agreeable plan related to implementation and utilization of the requested 319 funds.

As Mayor of the City, I support the Water Forum's proposal for 319 funding as an important step in protecting the future health of the Bitterroot River, this land as a public park, and our public resources. I am confident in the Bitter Root Water Forum's ability to work cooperatively with the City and Bitter Root Land Trust to implement the project as proposed, and am excited about this opportunity to protect this property for public use.

Sincerely,



Dominic Farrenkopf
Mayor

Maps, Designs, Other Attachments

SKALKAHO BEND PARK RESTORATION COMPONENTS

-  WETLAND SWALE
-  CULVERT
-  WATER CONVEYANCE DITCH
-  WOODY DEBRIS PLUG
- MIGRATION PROJECTIONS**
-  10 YR PROJECTED BANKLINE
-  25 YR PROJECTED BANKLINE



3 FORT OWENS PROPERTY: NORTH BURNT FORK CREEK

OBSERVATIONS

On the Fort Owens property, the majority of North Burnt Fork Creek has been fenced to exclude livestock except for the final approximate 460 feet before the creek enters the Lee Metcalf National Wildlife Refuge managed by the United States Fish and Wildlife Service (USFWS). This last 460 feet of the creek has scattered mature black hawthorn growing nearby but lacks younger age classes of woody riparian vegetation. The channel is somewhat entrenched and over-widened, disconnecting the channel from the floodplain and limiting the hydrology needed to support native riparian species such as willows and cottonwoods. Channel banks are steep and portions are sloughing into the creek. On the left bank, higher surfaces of the historic floodplain mainly support drier species such as snowberry. In slightly lower areas bare ground is present. These areas of mixed bare ground and herbaceous cover may be compacted by livestock and saturated in the spring long enough that herbaceous vegetation is suppressed. There is some willow expansion occurring from mature willow stands on the USFWS property and a few willows are establishing on sloughed, lower, portions of the bank. On the right bank, woody vegetation is primarily black hawthorn.

The land on both sides of the North Burnt Fork Creek is managed for livestock grazing and livestock access the channel on shallow sloping banks just downstream of the fenced area where they cross to access approximately one acre of Fort Owner property on the opposite side of the creek.

MANAGEMENT AND RESTORATION ACTIONS

To support the BRWF mission of improving riparian habitat along the North Burnt Fork River, management and restoration actions for this area could include extending the livestock fencing and riparian management corridor along the final 460 feet of the channel. Fencing would only be needed on the left bank based on the ranch manager indicating that livestock do not need access to the property across the creek.

To reconnect the channel to the floodplain along the entrenched portion of the creek, a treatment mimicking beaver activity could be implemented. Channel spanning wood would be anchored into the floodplain on either side of the creek and smaller brush woven within the larger wood. This treatment would slow flows behind the woody structure and raise water surface elevations, mimicking a beaver dam. Over time, other debris would become entrained in the wood and brush. Finer sediments would deposit in the slower flowing waters behind the large wood, potentially raising the bed elevation over the long term. The higher water surface elevation would raise the water table in the surrounding floodplain, allow seasonal out of bank flows and sediment deposition which would support natural recruitment of riparian plants from seed, and create more appropriate hydrology to sustain native woody vegetation.

Alternatively, shallow depressions could be excavated on the floodplain providing a surface that is closer to the existing water table. These swales would be planted with containerized plants grown in a nursery and would likely need to be irrigated for the first few years until the roots extend deep enough to intercept the water table.

NEXT STEPS

Geum would review historic imagery to determine a potential riparian management zone and where to locate fencing. Geum would also review LiDAR collected for Ravalli County in 2010 to determine an appropriate location for channel spanning wood and/or swales. To implement either of these restoration treatments a draft conceptual design would be developed to support conversations with the

landowner and adjusted to fit land management needs. Both the channel spanning wood and swale excavation would require a wetland delineation and preparation of permit documents.

4 FORT OWENS PROPERTY: BITTERROOT RIVER

OBSERVATIONS

The Fort Owens property along the right bank of the Bitterroot River, downstream of the Stevensville Fishing Access, has been eroding approximately 3 feet per year over the past 10 to 15 years. An attempt to slow this erosion in the past included placement of concrete slabs that have since fallen into the river. The floodplain surface on Fort Owens property is lower than the opposite (left) bank which is occupied by houses in the town of Stevensville. The floodplain surface on the Fort Owens property is characterized by an open forest of mature cottonwoods. A few seedlings are growing in lower swale features where finer sediments have been deposited during high flow events. This floodplain is managed for grazing. New cottonwood or woody growth is suppressed by trampling and browse. Most recently, management actions included clearing brush to improve vehicle access into the area and reduce risk to livestock.

MANAGEMENT AND RESTORATION ACTIONS

To address the eroding bank, management and restoration actions discussed in the field included revegetation actions rather than bank stabilization. Revegetation actions include identifying establishing cottonwood and willows and protecting them from livestock and wildlife browse in order to establish younger woody plants. Three types of fencing could be used to allow woody recruits to establish including: individual wire browse protectors installed around single woody recruits; small 6-foot tall wire enclosures around clusters of woody recruits; and a temporary livestock fence such as an electric fence to exclude livestock from the area for a period of 2 or 3 years in order to reduce soil compaction and prevent damage to wire browse protectors and enclosures. Small 6-foot wire enclosures must be narrow enough to prevent deer from jumping inside the fencing. Containerized nursery plants could also be installed throughout the floodplain and protected from browse. Survival of nursery plants is highest if installed in lower areas and plants are deep watered periodically throughout the growing season.

Geum recommends caution with respect to installing bank armor along the Bitterroot River. The Bitterroot River is a highly dynamic river and armoring is expensive and frequently ineffective due to flanking and undermining. The section of concern on the Fort Owens property is straight and up against a high terrace with a road and houses on the left bank. The right bank and floodplain are the only relief for the river during high flow events and the majority of the flow energy is directed to the right bank reducing the likelihood that hard armor would be successful. This area is also adjacent to a persistent midchannel bar. This midchannel bar introduces complex hydrodynamics and uncertainties related to bank armor.

NEXT STEPS

Possible next steps for this portion of the Fort Owens property include reviewing 2010 LiDAR and providing a relative elevation analysis to demonstrate the natural processes likely to occur on this floodplain and to identify lower surfaces where revegetation efforts would be most successful and effective. Further analysis may also reveal other potential restoration opportunities not recognized on the ground.



Figure 2. Fort Owen Property

Is the landowner interested in restoration?

YES

NO

Not a fit for RtV. Increase outreach and education.

In BRWF's professional opinion, are riparian revegetation and/or fencing appropriate restoration measures for this site?

YES

NO

Not a fit for RtV. Explore other restoration measures for another project.

Is the budget for this project appropriate considering the funds available, and are minimum 40% match opportunities available?

YES

NO

Not a fit for RtV. Stay in contact to pursue other funding opportunities.

Is the landowner someone BRWF has previously discussed pursuing a project with, but funds were not available at that time (and by definition is located in a priority watershed)

YES

#1 Priority

NO

Is the landowner located in a priority watershed as listed in the Bitterroot WRP 2019?

YES

#2 Priority

NO

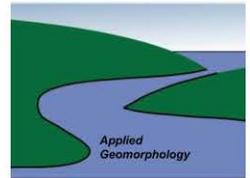
Is the landowner on a body of water listed on the 303(d) list of impaired waters?

YES

May or may not be a fit for RtV. All efforts will be made to select projects in priority watersheds, however, highly compelling projects may arise on other streams. If this occurs, the opportunity will be discussed with the DEQ contract manager as a #3 priority.

NO

Not a fit for RtV. Stay in contact to pursue other funding opportunities.



TECHNICAL MEMORANDUM

To: Marisa Sowles, Geum Environmental
From: Karin Boyd, Applied Geomorphology
Date: July 29, 2019
Regarding: Skalkaho Bend, Bitterroot River at Hamilton MT

1.0 Introduction

This memorandum describes my observations of the Bitterroot River geomorphology at Skalkaho Park near Hamilton MT. The intent is to consider the likelihood of substantial channel migration at Skalkaho Bend that will create problems in the future, and to also consider management approaches at the site.

The park is located at a major expansion area of the Bitterroot River braid belt (Gaeuman, 1997). Upstream, the river corridor between Darby and Hamilton is narrow and shows low migration rates. This area marks a rapid expansion in the corridor width and migration rates increase appreciably. The site is located in an area of persistent split flow, and recent migration of the easternmost channel in this area has extended beyond the historic braid belt. Figure 1 shows that there are several flow splits upstream of the eroding bank of interest, and that the complex flow paths have persisted since at least the 1950s.

Some observations regarding the flow paths include:

- The upstream-most flow split (#1) activates at high water and follows lowermost Skalkaho Creek, which will persist as a flow path to the eroding bank;
- The middle (#2) flow split has persisted and feeds a prominent high flow channel that routes water to the eroding bank;
- The lower (#3) flow split appears to be progressively shifting such that more water is going into the westernmost channel and thereby relieving pressure at the site.

In general, it appears that the overall trends indicate that near-term flow shifts may very well include increasing flow volumes in the west channel and reduced flows at the site. However, flows from Skalkaho Creek and high flow routing will continue to deliver water to the project site.

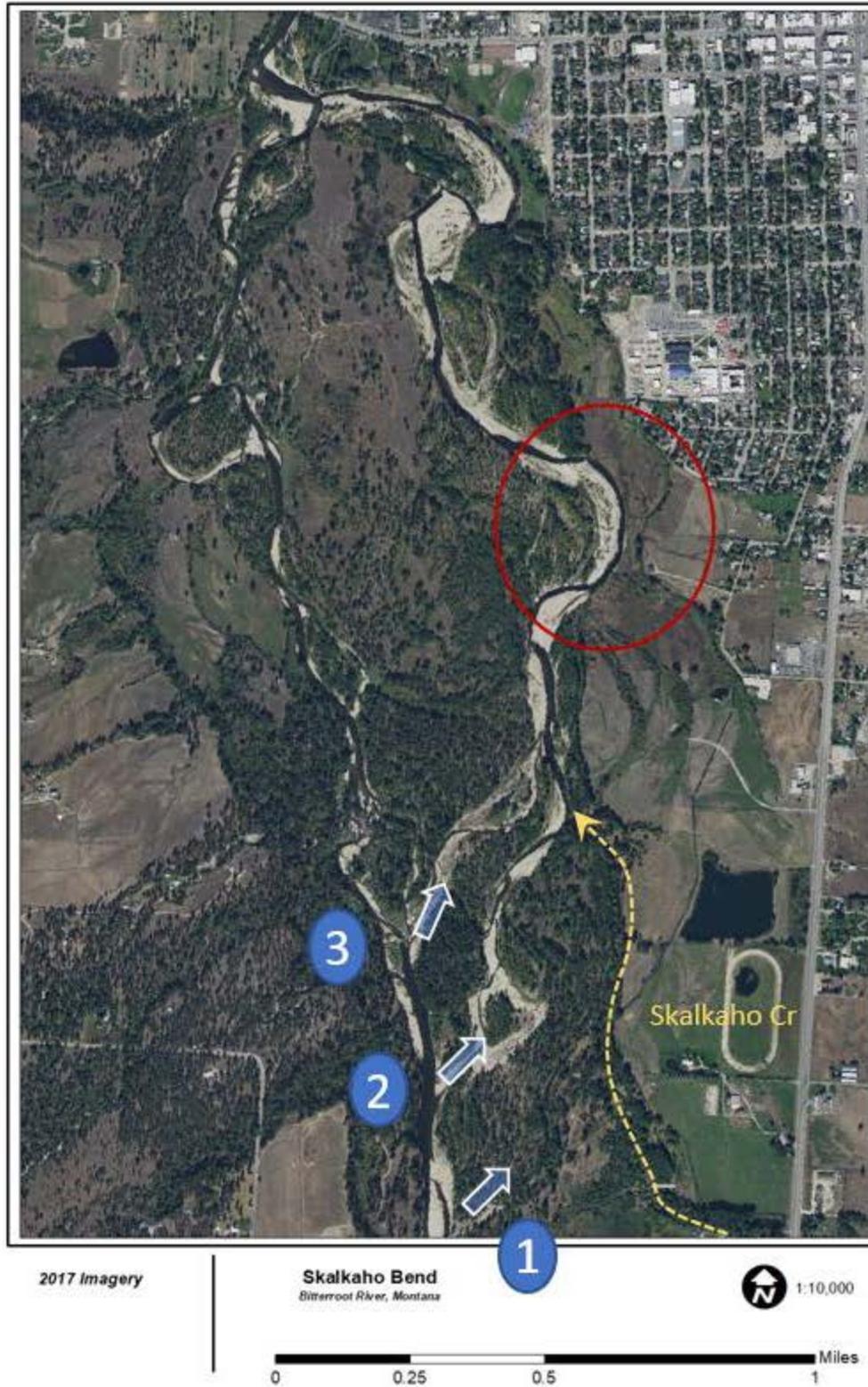


Figure 1. Channel migration patterns on Bitterroot River in project area—bank of concern is marked by red circle.

With regard to the erosion site itself (Figure 2), some observations include:

- There is a fully developed chute channel through the meander core that will likely cause the bend to eventually cut off and reroute through the chute.
- The radius of curvature to width ratio of the eroding bend is about 3, which indicates that a cutoff is *not* imminent, and erosion will probably continue in the near-term.
- The downstream portion of the eroding bank consists of a non-cohesive gravel toe that is overlain by fine grained floodplain deposits, whereas the apex of the bend has more cohesive swale/wetland deposits (Figure 3). In general, the bank is quite erodible with topple failing upper banks that collapse with toe erosion. The photo in Figure 3 was taken during a field inventory of the river in 2002.
- Like most bendways, the erosion is fastest on the downstream portion of the bend. Since 1995, the upper limb of the meander has migrated about 110 feet, whereas the downstream limb has shifted about 180 feet (Figure 4).
- Continued migration of the bend may result in its interception with a prominent ditch that follows the edge of town and Rocky Mountain Laboratories; based on historic rates this will happen in about 20 years (Figure 4). This projection is based on *average* migration rates; it is important to note that this timeframe has experienced nothing over a 10-year flood (Table 1).

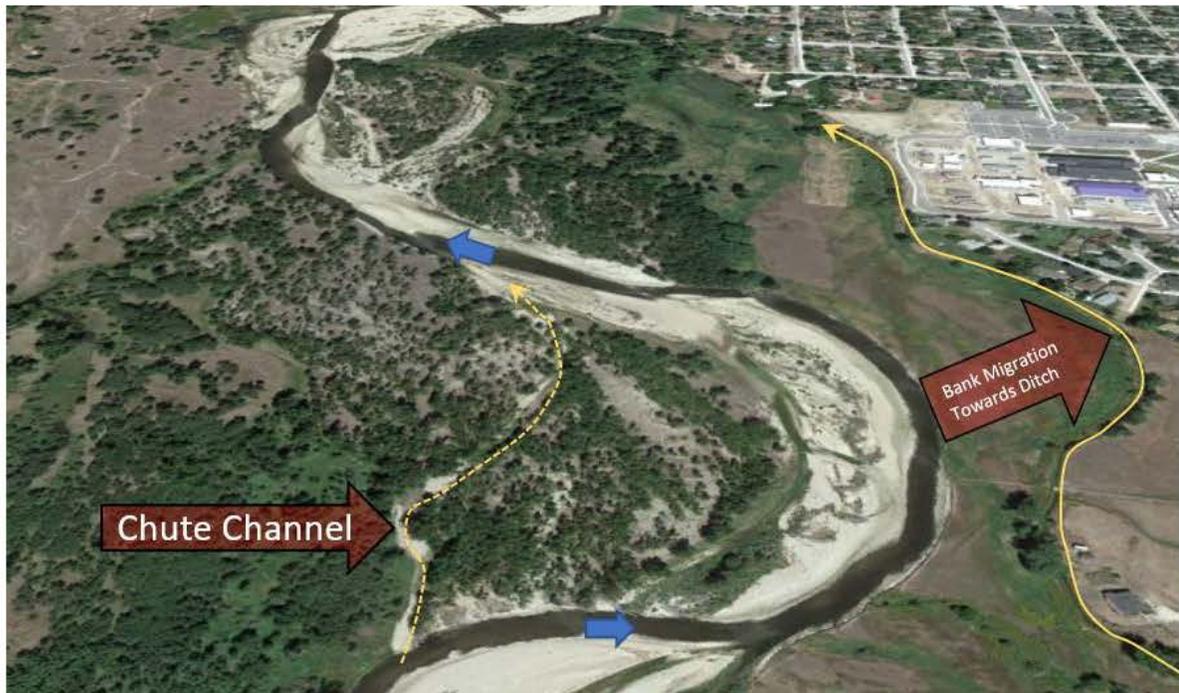


Figure 2. Oblique image from Google Earth looking downstream showing Skalkaho Bend and ditch to right.



Figure 3. Eroding bank at Skalkaho Bend as photographed in 2002.

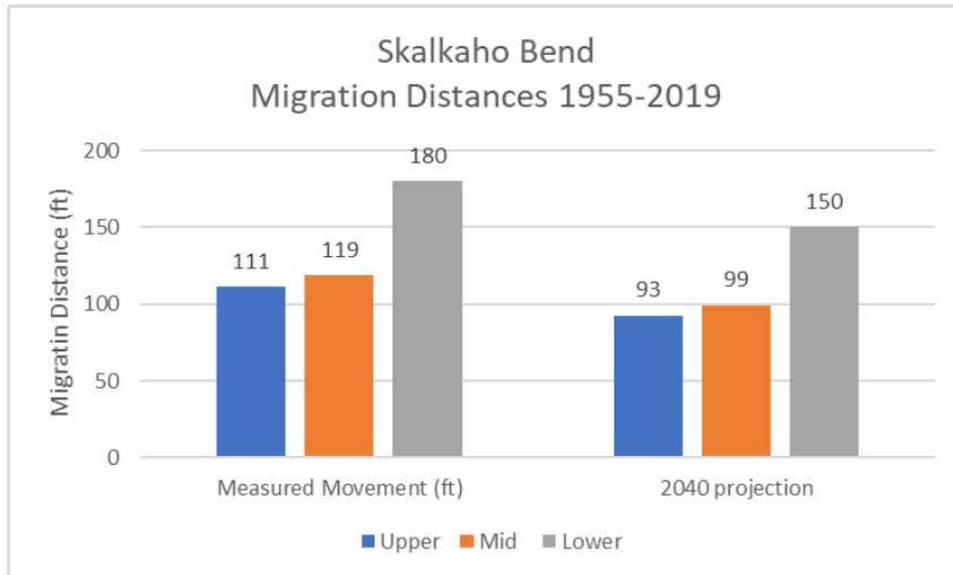


Figure 4. Migration distances on eroding bend (left) and projected movement through 2040 (right).

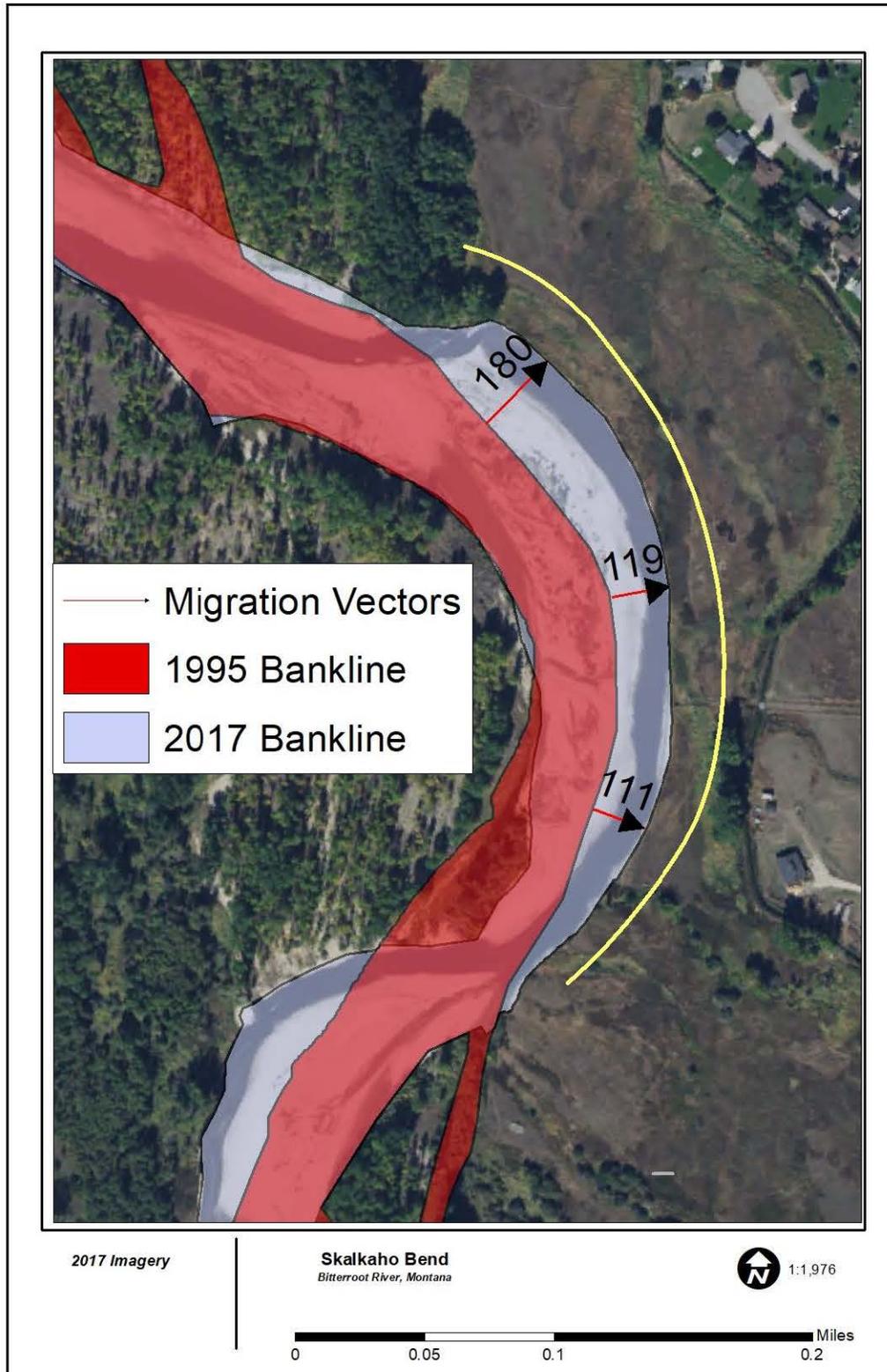


Figure 5. Measured 1995-2017 migration distances along bend showing estimated 2040 bank location (yellow) based on average annual erosion rates.

Table 1. 1995-2017 Flow history and estimated flood frequencies at site.

Year	Peak Flow (cfs)	Date	Gage Height (ft)	Frequency
1995	5,160	Jun. 04, 1995	6.4	
1996	9,320	Jun. 09, 1996	8.26	5-Year
1997	10,100	17-May-97	8.43	10-year
1998	3,650	27-May-98	5.14	
1999	6,660	26-May-99	6.89	
2000	3,310	23-May-00	4.86	
2001	3,670	16-May-01	5.03	
2002	6,140	31-May-02	6.57	
2003	10,300	31-May-03	8.45	10-year
2004	2,950	Jun. 06, 2004	4.51	
2005	3,600	19-May-05	5	
2006	7,970	20-May-06	7.48	
2007	4,410	Nov. 08, 2006	5.6	
2008	9,220	20-May-08	8.05	5-Year
2009	9,510	20-May-09	8.18	5-Year
2010	6,570	Jun. 05, 2010	6.78	
2011	8,620	Jun. 08, 2011	7.65	5-Year
2012	7,780	Apr. 27, 2012	7.27	
2013	6,050	14-May-13	6.7	
2014	8,230	24-May-14	7.84	
2015	4,180	17-May-15	5.32	
2016	4,190	9-May-16	5.5	
2017	6,720	Jun. 13, 2017	6.8	

Figure 6 shows a view downstream of the upper part of the bend in 2002; at this point the river was about 200 feet from the edge of the cottonwoods and the ditch; it is currently about 130 feet away.



Figure 6. View downstream from 2002 showing cottonwood grove along ditch line.

2.0 Implications of Geomorphic Conditions for Developing a Management Strategy

This site does not show any clear need for short-term erosion control. As the site continues to evolve, there are some factors that will lean towards no need for treatment, and others that will make erosion control necessary and appropriate. Table 2 lists some aspects of the site that would tend to support No Action at this time. It also identifies some conditions that would minimize the geomorphic impacts of any erosion control.

Table 2. Positive aspects of site conditions.

Pros	Explanation
Migration rates are relatively slow and the ditch is set back from the river.	There is still a substantial buffer between the river and ditch.
The ditch could provide a water source for vegetative treatments	If floodplain work were undertaken to improve its resilience, there may be irrigation potential from the ditch.
The river corridor is over a half-mile wide	The eroding bank is on the edge of the active stream corridor and there is a high likelihood that flow shifts will remove pressure from the eroding bank in coming years. Also, if bank armor is ever built here, the site is on the edge of the wide historic channel migration zone such that impacts to ecological function will be much lower than mid-corridor work.
The reach is highly dynamic	The river is constantly shifting in this reach such that bank treatments may be abandoned—as a result the need should be demonstrably clear to maximize cost/benefit of any project.
The eroding bank is sub-parallel to the stream corridor	As the site is at a low angle to the river corridor axis, any treatment on site will minimally intrude into the Historic Migration Zone
The floodplain in this area has vigorous riparian growth rates	Historic air photos show excellent riparian expansion on low floodplain surfaces since the 1950s, which supports riparian revegetation efforts as a part of or in lieu of rock treatments.
Recent flow shifting patterns suggest that the west channel may continue to enlarge	The west channel has enlarged in recent decades and that trend may continue, reducing erosive pressure on site.
Stable large wood accumulations limit flows to the east channel	LWD jams at the northernmost flow split appear persistent and contribute to flow deflections to the west, away from the site.
The eroding bank has a prominent debris jam on its lower end	This debris jam effectively pins the lower end of the eroding meander, providing a good tie in point for any treatment. The jam also reduces any avulsion potential into cottonwoods due north of the meander.

Although there are clearly some aspects of the site that would allow managers to “rest easy”, there are other factors that complicate matters and could cause problems in the future (Table 3).

Table 3. Negative aspects of site conditions.

Cons	Explanation
The shape of the bend makes it prone to continued movement	The Radius of Curvature to Width Ratio (R_c/W) is about 3 for the meander bend, which places it in a phase of relatively active development. But the development of a chute channel across the meander may precipitate a cutoff in coming years.

The 1995-2-019 flood history is subdued	There have been no floods on the river that have exceeded a 10-year event since 1995. A major flood could drive rapid erosion and shifts in flow patterns.
The bank has poor erosion resistance	The bank consists of an unconsolidated gravel toe with some fine-grained channel remnants exposed. There is no woody vegetation to resist erosion.
Other channel changes in the area could exacerbate erosion rates	The cottonwood grove downstream of the migrating meander is dissected by capillary/overflow channels that could become activated and shift erosion rates and patterns locally.
Long Treatment (impacts)	Any bank treatment on site would be quite long (>1,000 feet) which would create high localized velocities and potentially accelerate erosion downstream.
Long Treatment (construction and mitigation costs)	Bank protection and mitigation would be very expensive
Tributary inputs	Although flows may shift to the west, Skalkaho Creek will continue to feed the east channel, making the site vulnerable to flooding on that tributary.

3.0 Recommendations

Although my review has been limited to air photo review and some long-term familiarity, I would suggest that this site does not require imminent, aggressive bank armor but would benefit from perhaps softer vegetative measures and careful monitoring. To that end, I would recommend you consider the following:

1. Identify the maximum tolerance for bank movement—create a floodplain management boundary east of the eroding bank. Use this as a monitoring parameter that would trigger a large erosion control project.
2. Implement short-term treatments if there is interest. These may include:
 - a. Relocating the ditch further east
 - b. Excavating low swales in the floodplain and plant them aggressively with cottonwoods and willows. The lower portion of the bend (~800 feet) would be the most critical area to grade/plant.
 - c. Only build a rock treatment if it's an imminent concern. If this approach is taken, include a coarse immobile rock toe, floodplain bench, and dense plantings.

MEMORANDUM



TO: Heather Barber, Bitter Root Water Forum and
Andrea Price, Bitter Root Water Forum

FROM: Marisa Sowles, Water Resource Specialist and
Tom Parker, Principal Ecologist

DATE: October 9, 2019

RE: Skalkaho Bend Park Restoration Approach

This memo outlines a conceptual restoration approach for Skalkaho Bend Park along the Bitterroot River in Hamilton, Montana. The purpose of this memo is to provide information to support grant applications for the work. Restoration concepts are preliminary and were developed using results of a channel migration analysis, analysis of LIDAR data, and field-collected elevation survey and wetland delineation data.

Background and Goals

Skalkaho Bend Park (Park) is located along approximately 0.5 miles of the Bitterroot River in Hamilton, Montana (Figure 1). An outer bend along this section of the river is eroding east into the Park and toward the C&C irrigation ditch. This bank erosion is of particular concern to the continuity of the park as there is a risk the park will be divided in half in the next 25 years and that the irrigation ditch will be compromised. Direct stakeholders interested in restoring the Park include: the Bitterroot Land Trust who raised funds and purchased the property to support their mission of establishing wildlife corridors and open space; the City of Hamilton who now owns and will maintain the park in the future; and the Bitter Root Water Forum who identified the park as an opportunity to improve riparian habitat along the Bitterroot River and improve water quality of an irrigation ditch return channel that discharges directly into the Bitterroot River.

The Park is located on a high terrace, 4.5 to 5 feet above the baseflow elevation of the river. Existing vegetation is mostly pasture grasses with a lack of trees and shrubs except in isolated narrow bands along ditches. The high elevation of this terrace and lack of hydrologic connectivity to the Bitterroot River minimize natural disturbances such as flooding that would provide suitable substrate and hydrology to recruit native woody vegetation. This lack of connectivity and resulting lack of woody vegetation makes the bank more susceptible to erosion.

The goals of restoration at Skalkaho Bend Park include:

- Reduce Bitterroot River water temperatures by providing, cool, late season flows to the Bitterroot River via infiltration of irrigation ditch water.
- Provide instream flows to the Bitterroot River higher in the watershed.
- Improve water quality of irrigation ditch water released into the Bitterroot River.
- Reduce long-term sediment delivery to the Bitterroot River by reducing bank erosion rates.

- Reduce long-term water temperature in the Bitterroot River by increasing riparian woody vegetation cover.
- Enhance long-term aquatic habitat by providing overhanging woody vegetation and wood recruitment as well as habitat within the root matrix of vegetative restoration treatments when the bank reaches the restoration treatments.
- Enhance avian and terrestrial wildlife habitat.
- Increase overall ecological function of the riparian and floodplain corridor.

Site Description

Channel Migration Analysis

A channel migration analysis was completed by Karin Boyd of Applied Geomorphology during summer 2019 (Attachment 1) in order to understand larger scale patterns and processes influencing channel movement and bank erosion at Skalkaho Bend Park. The extent of the analysis is shown in Figure 1 and extends approximately 1.5 river miles upstream of the Park and 1.7 river miles downstream of the Park to the West Main Street bridge. This extent captures a dynamic, multi-thread reach of the Bitterroot River. Historical imagery analyzed in the channel migration analysis shows that this reach has been persistently dynamic while upstream and downstream reaches have remained as a single thread channel. This pattern of straight sections of river transitioning to multi-thread channels is supported by work completed by a 1997 Master's thesis, *Historical channel changes and processes of the central Bitterroot River Ravalli County Montana* (Gaeuman 1997). In his thesis Gaeuman recognizes "short, relatively isolated zones of anastomosis" along the river and describes each of these areas in detail including the reach along Skalkaho Bend Park. In these multi-thread reaches the Bitterroot River has historically shifted back and forth between channel branches. In the 1950s, the west branch of the Bitterroot River across the valley from Skalkaho Bend Park was the primary channel carrying the majority of flow. By the 1990s, dominant flows had shifted to the east channel branch adjacent to Skalkaho Bend Park.

The channel migration analysis showed that between 1995 and 2017 river bank erosion ranged between 111 and 180 ft at Skalkaho Bend Park. Based on this, and the fact that the channel in this vicinity has a stable radius of curvature and will not likely avulse or change its location soon, a likely scenario is that the bank will continue to erode eastward at average rates between 5 to 8 ft per year. Figure 3 shows projected bank locations after 10 years, and after 25 years based on this analysis assuming these rates continue. It is important to note that migration rates were developed using data from 1995 to 2017 and that during this time period the Bitterroot River experienced only two 10-year flow events. A higher magnitude or longer duration flow event could result in greater rates of lateral movement. This supports the need for active restoration efforts that will slow erosional processes over the long-term and reduce sediment inputs. The complete channel migration analysis is provided in Attachment 1.



Figure 1. Overview of Skalkaho Bend Park and Channel Migration Analysis.

Skalkaho Bend Park Existing Conditions

The project area in Skalkaho Bend Park is located on a high terrace characterized primarily by dry site pasture grasses and some forbs including weedy species such as common tansy and Canada thistle. There are a few areas with wetter species such as reed canarygrass, rushes and sedges, although few wetlands are present due to the relatively high elevation of the terrace compared to Bitterroot River hydrology. Near the upstream end of the project area, an unnamed tributary fed by overflow C&C ditch irrigation waters flows directly into the Bitterroot River. This unnamed tributary is lined with a narrow band of intermittent riparian shrubs including willows and dogwood with an understory of sedges. The C&C ditch carries water to Heironymus pond at the north end of Hamilton which then releases water to the Corvallis Canal.

Geum Environmental Consulting, Inc. (Geum) completed a wetland delineation on September 13, 2019 and, using a laser level, surveyed several locations on the terrace and along the river for reference land and water surface elevations on September 16, 2019. During these field efforts, Geum also collected soils data including texture by depth. Only a few wetlands were documented in the project area. One wetland area is located along and below the C&C ditch and is supported by ditch seepage, a second wetland area buffers the unnamed tributary that receives water from the C&C ditch and a third wetland area is a swale feature, likely a relict tributary channel to the Bitterroot River. A final wetland delineation report will be completed in early 2020. Survey data indicate a 4.2 foot drop in the water surface elevation of the Bitterroot River between the upstream end of the project area and the downstream end. The terrace surface elevation was approximately 4.5 to 5 feet above the water surface elevation indicating a lack of hydrologic connectivity between the river and floodplain terrace. Soils observed in the wetland delineation were primarily dark, silty and sandy loams with some loamy sands to a depth of 16 inches. The nearly vertical eroding bank along the river illustrates the soil profile (Figure 2). This bank profile shows a loamy soil between approximately 0 and 18 inches, followed by a sandy layer between 18 to 25 inches and cobble below 25 inches. This profile follows a similar profile of a hole dug further inland on the floodplain terrace although cobble was encountered deeper at approximately 32 inches. Observed soils are typical of a floodplain soils in western Montana and the dark color suggest high organic matter content that will provide nutrients to support the establishment and growth of native species included in the restoration approach. The organic matter soils will also retain moisture that will help support native species. To test water retention, Geum excavated a hole on the floodplain terrace and measured the rate at which the water seeped into the ground with a timer and measuring tape. Two different depths were tested, the first within loamy soils and the second within sandy soils. The fastest infiltration rate recorded was approximately 9 minutes per inch demonstrating that soils would have a sufficient water retention time for plant growth as well as enough time to treat irrigated ditch waters rather than infiltrating too quickly into the groundwater.



Figure 2. Vertical bank along the Bitterroot River showing the soil profile.

Restoration Design Approach

The proposed restoration design approach is to use available ditch water to establish narrow bands of wetlands set back from the river bank and to establish deep-rooted native riparian shrubs in these areas. These densely vegetated wetlands will function as a natural line of defense, reducing long-term erosion rates into the Park and toward the C&C irrigation ditch, while also treating warm and nutrient-rich irrigation waters and providing cool, late season flows to the Bitterroot River higher in the watershed. Project partners agree that a softer, vegetation-based approach is appropriate for this site given their desire to support natural river function and avoid bank armoring that could have negative downstream effects. Bank armoring was briefly considered, but rejected due to its high cost, high uncertainty regarding its sustainability on Bitterroot River banks in general, potential negative downstream effects, and most prominently a desire to restore the terrace using natural processes that will benefit water temperatures, water quality, and aquatic and terrestrial wildlife. Given this choice, the restoration approach includes accepting that natural rates of bank erosion will occur in the short-term, while over the long-term bank erosion rates will slow once the river reaches the densely rooted riparian wetland bands that will be created by this project.

Restoration Approach Components

To achieve the desired goals for restoration at Skalkaho Bend Park, the restoration approach includes the following components:

Wetland swale: Excavate a linear swale with gentle side slopes of approximately 7H:1V feet. The wetland swale width and depth would vary based on topography and valley slope. To irrigate the wetland swale, water would be diverted from the unnamed tributary at the upstream end of the project

area and again from the C&C ditch further downstream via a water conveyance ditch (described below). A culvert would be installed to transport flow under an access path in the center of the project area. The wetland swale would be densely planted with native riparian trees and shrubs such as willows, alder and dogwood, including nursery-grown plants and dormant willow cuttings. Woody debris would be incorporated throughout the wetland swale to improve infiltration, moisture retention, and resistance to erosion. Woody debris plugs will also be incorporated into this feature (described below). The purpose of this treatment is to establish a continuous, dense matrix of deeply rooted, native, woody vegetation behind the existing bank line that will provide long-term resistance to channel migration as well as shade the Bitterroot River and cool water temperatures in the future. Additionally, diverting nutrient-rich, warm, irrigation waters through the wetland swale will allow these waters to infiltrate through the wetland swale, cleansing and cooling these waters before they return to the Bitterroot River as groundwater. These waters would also provide late season flows to the Bitterroot River. Because the wetland swale would be supported by water from the ditch that is protected by a water right held by the City of Hamilton, this feature would persist regardless of long-term channel shifts in the Bitterroot River.

Woody debris plug: Place large woody debris at regular intervals to create a discontinuous feature and provide future complex bank habitat when the Bitterroot River eventually migrates to the wetland swale location. It is important to note that the risk of surface flows from the river reaching the wetland swale is extremely low due to the height of the terrace and the fact that Skalkaho Bend Park is outside the mapped floodplain. However, in the case of an extremely high flow event, the woody debris plugs would reduce the likelihood of the Bitterroot River capturing the wetland swale.

Water conveyance ditch: Excavate a small conveyance ditch to transport water from the unnamed tributary and C&C ditch to the wetland swale.

Diversion points: Install headgates to divert a controlled volume of water into the wetland swale from two locations; one from the unnamed tributary at the upstream end of the project area and one from the C&C ditch further downstream. The purpose of the diversions is to provide a continuous water source during the growing season that will create wetland hydrology in the wetland swale and support woody vegetation growth, in particular deep rooting.

Construct wetlands: Excavate isolated depressions on the floodplain terrace to create groundwater-supported wetlands. Side slopes would be approximately 10H:1V feet extending down to the baseflow water surface elevation. The size of the depressions will vary based on the required depth. The depressions would be revegetated using nursery-grown native seedlings, seed, cuttings and/or transplants. The purpose of this treatment is to create patches of riparian wetlands that will provide a dense matrix of roots that will provide additional long-term resistance to channel migration. Further, these wetlands will provide water storage to supplement cool, late season Bitterroot River flows.

Deep planting: Plant specially grown, 6-foot tall willows into approximately 4-foot deep holes. Holes would be prepared using an auger so roots are in contact with the baseflow water surface elevation. The purpose of this treatment is to establish additional small areas of woody riparian vegetation on a terrace feature with minimal ground disturbance. These planting areas would contribute to channel migration resistance, shading, cooling water temperatures and late season water storage, supplementing the wetland swales and constructed wetlands in locations where excavation is not desired.

Tree & shrub planting: Plant native trees & shrubs in areas with adequate hydrology including the wetland swale and constructed wetlands.

Direct willow, cottonwood, alder and dogwood seeding: Collect and hand broadcast local seed on exposed soil surfaces positioned at an elevation with adequate hydrology and during the appropriate seasonal timeframe for each species.

Fencing: Protect all installed plants and cuttings from deer and beaver browse as well as from damage by recreational users. Fencing would include 8-foot wire fence, 6-foot wire fence, and/or individual browse protectors.

Material placement locations: It may be possible to place excess material from excavating the wetland swale and other features in existing, high, non-wetland areas. These areas would be seeded with a native seed mix.

Irrigation: Several treatments list above will require irrigation for 2 or 3 growing seasons in order to establish a root depth that reaches base flow hydrology.

Figure 3 shows the approximate locations of the restoration components described above. Figure 4 shows a typical cross section of the wetland swale and a typical cross section of a woody debris plug.

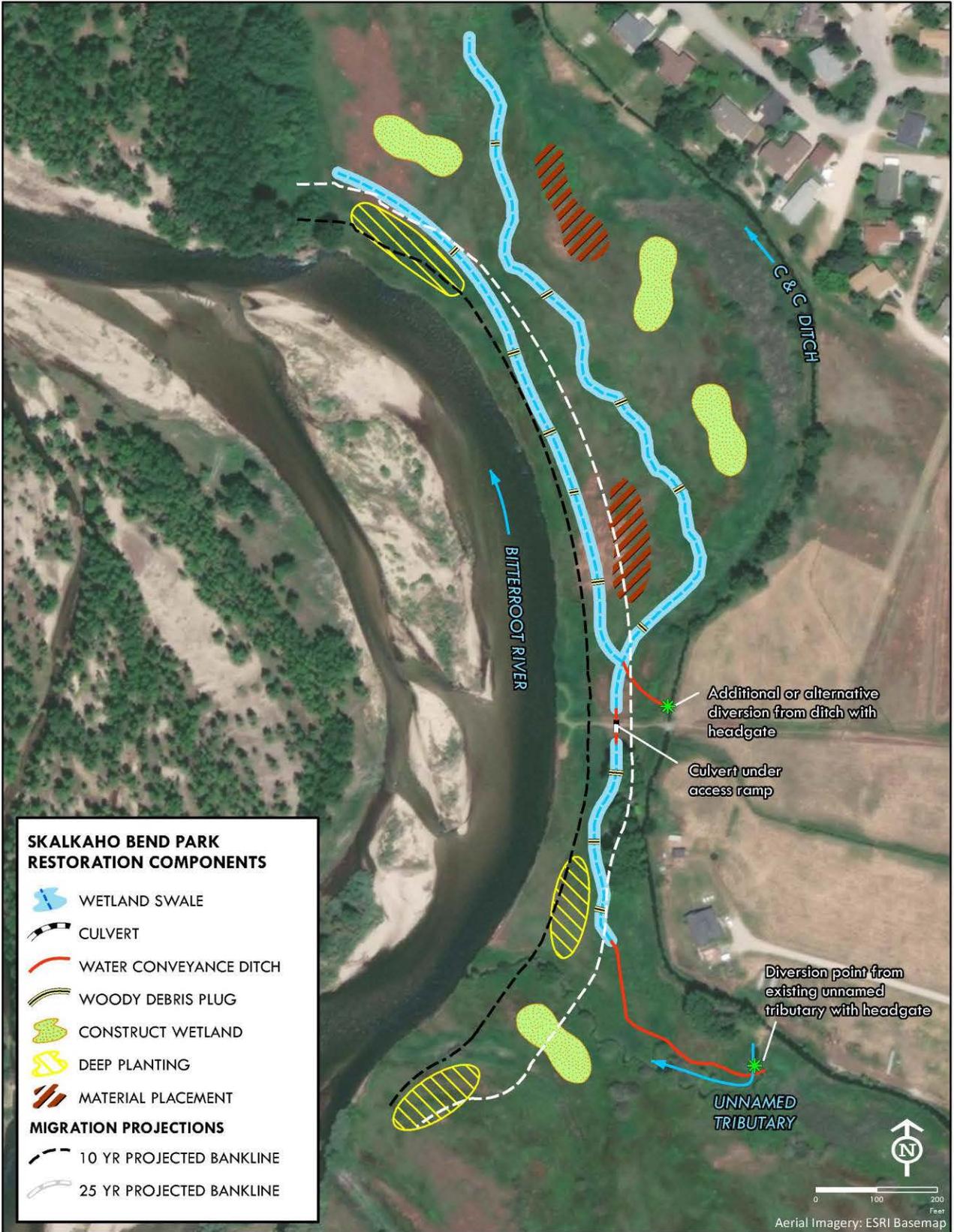


Figure 3. Skalkaho Bend Park Restoration Components.

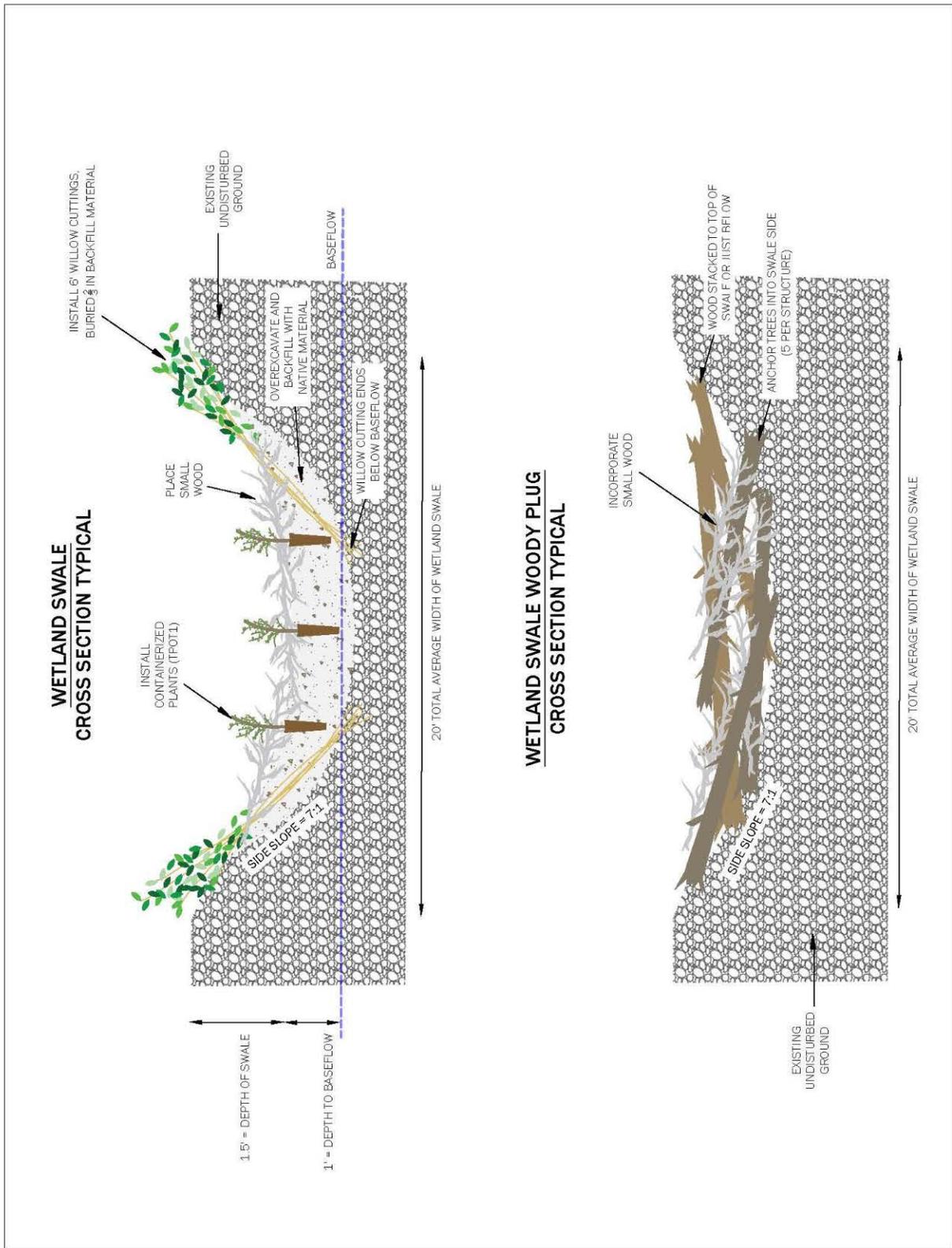


Figure 4. Wetland Swale and Wetland Swale Woody Plug Cross Section Typical Drawings.

Construction Planning and Sequencing

A suggested efficient and cost-effective construction sequencing is described below and includes guidelines for procuring materials, pre-construction field work and coordination and construction implementation. Costs (provided in the next section) are based on the assumption that construction will occur in one mobilization and be streamlined. The described sequencing assumes a fall construction season (recommended), but construction could also be completed in the spring starting in March. Due to the use of native vegetation, some treatment components would need to be completed during specific times of the year such as collecting and installing live willow cuttings while plants are dormant (October 15th through April 1st). Fall construction is recommended because in the fall water elevations in the Bitterroot River are typically low whereas spring flows are typically high and can last into the summer. Finding several weeks in the spring when the water is low can be difficult and high waters makes earthwork difficult. Additionally, a spring construction requires willow cuttings to be collected and installed before the willows come out of dormancy and this adds a deadline for construction work whereas, in the fall, willow cuttings can be collected and installed any time after willows go dormant leaving a wider window for construction.

MATERIALS

- Beginning a year and half prior to construction (April) procure nursery plants. Alternatively, if construction will begin sooner, inventory local nurseries for available desirable species and sizes.
- Purchase or source in kind materials so they are available for the construction timeline. A preliminary list of materials is included below.
 - Logs (6"-12"dbh, 20ft long)
 - Branches (3"-6"dbh, 10ft long)
 - Willow Cuttings
 - Containerized Woody Plants (TPOT1)
 - Native Seed
 - Fencing Materials: 8-foot fence (treated, 4" diam, 12' tall, wooden posts; 8' graduated wire fencing; staples; 18" kinked stakes)
 - Fence Gates
 - Fencing Materials: 6-foot fence (8' heavy duty t-posts, 6' galvanized wire fencing)
 - Irrigation Diversion Headgate
 - 24" x 20' Galvanized Culvert
 - Irrigation materials (polyethylene conveyance pipe, polyethylene emitter tubing, couplers, hose, pumps, tripod sprinklers)

PRE-CONSTRUCTION

- A week prior to construction, flag wetland boundaries and stake out the wetland swale alignment, constructed wetlands and other excavated features.
- Recruit/secure volunteers to collect live willow cuttings.
- Identify a location to place excavated material.

CONSTRUCTION

- At the end of September/ beginning of October, begin mobilization of equipment and delivery of materials.
- Construction of treatments would begin after mobilization. The constructed wetlands would be excavated first because they do not require dormant willow cuttings followed by the conveyance ditches to deliver water from diversion points to the wetland swale and finally the construction of the wetland swale.
- Install the headgate along the C&C irrigation ditch and along the unnamed tributary in coordination with construction of the conveyance ditches.
- Install the culvert under the access path in coordination with the construction of the wetland swale.
- In mid-October, when willows are dormant, begin collecting live willow cuttings and delivering cuttings to the site to be incorporated into the wetland swale.
- When willows are available, begin over excavation of the wetland swale below final grade in order to place the willow cuttings low enough to intercept baseflow elevations and then backfilling to final grade.
- Place wood throughout the wetland swale and construct woody debris plugs during willow installation or after willow installation is complete.
- Install containerized plants after wood has been placed (estimated timeframe would be the end of October). Alternatively, planting could occur the following spring (March).
- Install all browse protection after planting is complete.
- Apply seed after planting and browse protection is complete.

Construction Costs

Estimated construction costs are listed in Tables 1 – 4 below. Table 1 shows estimated quantities related to treatments such as earthwork, plants, and browse protection. Table 2 shows estimated costs of constructing restoration treatments. Table 3 lists additional costs of construction, construction documentation and monitoring and maintenance. Table 4 sums all costs for the project.

Table 1. Estimated Treatment Quantities for Skalkaho Bend Park Conceptual Restoration Design

TREATMENT	ESTIMATED QUANTITY
Wetland Swale	2,700 linear feet (3,960 cubic yards)
Water Conveyance Ditch	540 linear feet (640 cubic yards)
Woody debris plug	13
Constructed wetland	32,870 square feet (3,214 cubic yards)
Deep Planting	27,200 square feet (555 plants)
Seeding	1.5 acres
Fencing (8-foot)	5,400 linear feet
Fencing (6-foot)	5,790 linear feet
Direct Seeding (willows, cottonwood, alder & dogwood)	1 acre (no conceptual locations identified)

Table 2. Estimated Costs for Skalkaho Bend Park Conceptual Restoration Design

TREATMENT	UNIT	COST	ESTIMATED QUANTITY	TOTAL COST
Mobilization and Demobilization (10% of total cost)	LS	\$24,00.00	1	\$24,600.00
WETLAND SWALE				
Wetland Swale Excavation and Shaping	CY	\$7.00	3,960	\$27,720.00
Construction of Ditch to Deliver Water to Wetland Swale	LF	\$4.00	540	\$2,160.00
Material Hauling	CY	\$8.00	4,600	\$36,800.00
Acquire Logs (6"-12"dbh, 20ft long)	logs	\$50.00	65	\$3,250.00
Acquire Branches (3"-6"dbh, 10ft long)	branches	\$10.00	500	\$5,000.00
Wood Placement (includes plug construction)	HRS	\$125.00	16	\$2,000.00
Willow Cuttings for Brush Trench along Wetland Swale	EA	\$1.00	16,200	\$16,200.00
Containerized Woody Plants (TPOT1)	EA	\$5.00	900	\$4,500.00
Install Containerized Woody Plants	EA	\$8.00	900	\$7,200.00
Native Seed	LB	\$12.00	30	\$360.00
Apply Seed (hand broadcast, 1 acre)	LS	\$200.00	1	\$200.00
Fencing (full enclosure, 8ft fence)	LF	\$4.00	5,400	\$21,600.00
Fence Gates	EA	\$50.00	6	\$300.00
Install Fencing	LF	\$4.00	5,400	\$21,600.00
Irrigation Diversion Headgate	EA	\$200.00	2	\$400.00
Irrigation Diversion Headgate Installation	HRS	\$125.00	6	\$750.00
24" x 20' Galvanized Culvert	EA	\$470.00	3	\$1,410.00
Install Culverts	HRS	\$125.00	9	\$1,125.00
Wetland Swale Construction : SUB TOTAL				\$152,575.00
Wetland Swale Construction : IN KIND				\$92,125.00

CONSTRUCTED WETLAND				
Wetland Swale Excavation	CY	\$7.00	3,214	\$22,498.28
<i>Material Hauling</i>	<i>CY</i>	<i>\$8.00</i>	<i>3,214</i>	<i>\$25,712.32</i>
Containerized Woody Plants (TPOT1)	EA	\$5.00	603	\$3,013.16
<i>Install Containerized Woody Plants</i>	<i>EA</i>	<i>\$8.00</i>	<i>603</i>	<i>\$4,821.06</i>
Native Seed	LB	\$12.00	8	\$96.00
<i>Apply Seed (hand broadcast, 1 acre)</i>	<i>LS</i>	<i>\$200.00</i>	<i>1</i>	<i>\$200.00</i>
Fencing (clumped planting, 6ft fence)	LF	\$2.00	3,013	\$6,026.32
<i>Install Fencing</i>	<i>LF</i>	<i>\$2.00</i>	<i>3,013</i>	<i>\$6,026.32</i>
Wetland Construction: SUB TOTAL				\$68,393.47
Wetland Construction : IN KIND				\$36,759.70
DEEP PLANTING				
Containerized Woody Plants (Tall TPOT1)	EA	\$6.00	555	\$3,331.72
<i>Install Containerized Woody Plants</i>	<i>EA</i>	<i>\$15.00</i>	<i>555</i>	<i>\$8,329.30</i>
Fencing (clumped planting, 6ft fence)	LF	\$2.00	2,776	\$5,552.87
<i>Install Fencing</i>	<i>LF</i>	<i>\$2.00</i>	<i>2,776</i>	<i>\$5,552.87</i>
Deep Planting : SUB TOTAL				\$22,766.76
Deep Planting : IN KIND				\$13,882.17
OTHER				
<i>Willow, Cottonwood, Alder and Dogwood Seed Collection & Direct Seeding</i>	<i>HRS</i>	<i>\$25.43</i>	<i>40</i>	<i>\$1,017.20</i>
Irrigation Materials	LS	\$1,600.00	1	\$1,600.00
<i>Irrigation Installation</i>	<i>HRS</i>	<i>\$25.43</i>	<i>16</i>	<i>\$406.88</i>
Other: SUB TOTAL				\$3,024.08
Other: IN KIND				\$1,424.08
ESTIMATED CONSTRUCTION COST SUB TOTAL				\$271,359.31
20% Contingency				\$54,271.86
ESTIMATED CONSTRUCTION COST TOTAL				\$325,631.17
IN KIND COSTS				\$144,190.95

*Items in ***BOLD ITALICS*** indicate where the landowner or Bitter Root Water Forum can provide in-kind services as funding match.

Table 3. Additional Project Costs

DESCRIPTION	UNIT	COST	ESTIMATED QUANTITY	TOTAL COST
Construction Oversight (staking, oversight, education & outreach support)	HRS	\$110.00	80	\$8,800.00
Labor Support for Construction	HRS	\$25.43	160	\$4,068.80
Construction Completion Documentation	LS	\$5,000.00	1	\$5,000.00
Monitoring and Maintenance (~5%) (includes irrigating)	LS	\$15,000.00	1	\$15,000.00
ADDITIONAL CONSTRUCTION COSTS : SUBTOTAL				\$32,868.80
ADDITIONAL CONSTRUCTION COSTS : IN KIND				\$24,068.80

*Items in **BOLD ITALICS** indicate where the landowner or Bitter Root Water Forum can provide in-kind services as funding match.

Table 4. Total Costs

TOTAL PROJECT ESTIMATE			\$358,499.97
TOTAL PROJECT ESTIMATE MINUS IN-KIND COSTS			\$168,259.75

Assumptions for Construction Cost Estimate

1. Costs are based on Conceptual Estimates – a 20% contingency was added for uncertainty
2. Mobilization and Demobilization could be significantly less for local contractor

References

Gaeuman, David. 1997. "Historical channel changes and processes of the central Bitterroot River Ravalli County Montana". University of Montana, Graduate Student Theses, Dissertations, & Professional Papers. 7743. <https://scholarworks.umt.edu/etd/7743>

Attachment 1: Channel Migration Analysis

CONTRACT

Geum Environmental Consulting, Inc.
307 State Street
Hamilton, MT 59840
(406) 363-2353

This contract (the "Agreement") for **Skalkaho Bend Park Revegetation and Restoration: Investigation and Design** at Skalkaho Bend Park in Hamilton, Montana is made effective as of August 7, 2019, between Bitter Root Water Forum (hereinafter referred to as BRWF) and Geum Environmental Consulting, Inc. (hereinafter referred to as the "Contractor"). The parties hereto agree as follows:

SECTION 1 Scope of Work

The work included in this contract is provided in Attachment 1, scope of work (SOW). It is understood that the Contractor will work on a time and materials basis to complete design and permit support tasks within the not-to-exceed budget of \$17,500. The contractor will provide all appropriate equipment and materials necessary to complete the SOW.

SECTION 2 Contract Dates

This contract will be effective upon signature with all work to be completed by March 31, 2020.

SECTION 3 Compensation

BRWF agrees to pay Contractor for the performance of the work, as specified in this Agreement, on a time and materials basis according to the attached rate sheet. Total compensation shall not to exceed the amount of \$17,500 without prior approval by BRWF. Tasks and associated compensation may be modified at any time by mutual, written agreement of both BRWF and Contractor. The contract sum shall be payable as monthly invoices for completed work, and paid within 30 days based on DEQ turnaround.

SECTION 4 Terms and Conditions

The Parties agree to the following terms and conditions:

1. The above specified project is to be completed in strict conformance with all specifications and conditions related to this agreement.
2. The project is to be performed in compliance with OSHA regulations and all local, state, and federal laws.
3. The Contractor is an independent contractor in all respects; the Contractor is responsible for his employees, his subcontractors, materials, equipment and all applicable taxes, benefits, and insurances including Workers' Compensation coverage, General Liability and Montana Unemployment coverage. The Contractor must provide copies of insurance certificates and relevant professional licenses prior to starting work.
4. The Contractor is responsible for coordinating his activity with other trades and cleaning up on a daily basis any surplus materials or refuse that was created by his work.

5. To the fullest extent permitted by law, the Contractor shall defend, indemnify and hold harmless BRWF and its agents and employees from all claims for bodily injury and property damage that may arise from the performance of the Contractor's work to the extent of negligence attributed to such acts or omissions by Contractor, Contractor's agents and employees, or anyone employed directly or indirectly by any of them.

6. Any claims or disputes arising between Contractor and BRWF shall be resolved by non-jury trial in the Montana Eleventh Judicial Court or Justice Court of Ravalli County. However, no litigation may be filed until the parties have participated in non-binding mediation in an attempt to resolve any dispute.

7. This agreement constitutes the entire agreement between the parties and supersedes any prior written or oral agreements. It may only be modified by a written agreement signed by the parties.

SECTION 5 Execution

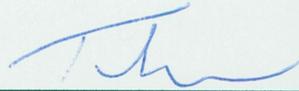
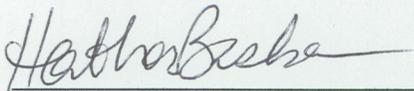
By signing below, the parties agree to the terms of this contract.

Bitter Root Water Forum

Contractor:

BY: Heather Barber

BY: Tom Parker

 9/11/2019

Signature and Date

Signature and Date

Attachment 1

Skalkaho Bend Park Revegetation and Restoration: Investigation and Design

SCOPE OF WORK

Contractor will perform the following tasks:

Task 1: Channel Migration Analysis

Contractor shall inventory and collect historic aerial imagery of the Bitterroot River near Skalkaho Bend Park to assess channel migration patterns and streambank migration rates in order to provide information that will help inform on the ground treatments and design. Components of this assessment include:

- Inventory and gather historic aerial imagery and General Land Office Survey maps within ArcGIS.
- Digitize channel banklines throughout available years of imagery.
- Review existing LiDAR and elevations relative to the water surface.
- Coordinate with Karin Boyd of Applied Geomorphology, Inc. who will provide a geomorphic review of the above data and feedback regarding past channel patterns and projected channel patterns.

Task 2: Streambank Treatment Alternatives

Contractor shall provide a brief memo that summarizes streambank treatments recommended by Geum that could be applied along the Bitterroot River in Skalkaho Bend Park. For each treatment, Contractor will include a description, a concept drawing, criteria for when and where the treatment should be applied at the Skalkaho Bend Park project site, and an estimated cost.

Task 3: Concept Design

Based on conclusions from the Channel Migration Analysis (Task 1), and in coordination with the Bitter Root Water Forum (BRWF) and other stakeholders, Contractor will develop preliminary design concepts for revegetation and riparian restoration of Skalkaho Bend Park. Design concepts will include individual treatment descriptions, drawings, estimated costs and how the treatment will address restoration goals in Skalkaho Park. The concept will also include a plan view layout of treatments within the Park. Information and drawings will be developed to a level of detail sufficient to support grant application and cost estimating and communicating about the project with the public.

Task 4: Wetland Delineation and Permit Level Design

Contractor shall perform a wetland delineation of areas within Skalkaho Bend Park where wetlands would be impacted by restoration work. The scope and extent of this task will be further defined by the spatial extent of selected treatments that will be applied in Skalkaho Bend Park. Contractor shall also provide a permit level design showing locations and quantities of treatments. This design will also support project implementation with Contractor's and/or BRWF guidance in the field.

Task 5: Administration and Task Order Management

The Contractor will prepare and provide the Bitterroot Water Forum with progress reports and detailed invoices according to these tasks. Contractor will communicate regularly with the BRWF regarding task progress, field visits and other coordination needs.

DELIVERABLES

Contractor will complete the following tasks. Schedules for deliverables are somewhat dependent on coordination with other stakeholders and may shift. The preliminary concept design (Task 4 -the final deliverable) is anticipated to be completed by the end of 2019.

Task 1. – Channel Migration Analysis

Contractor shall complete the migration analysis and coordinate a geomorphic review with Karin Boyd and the Bitterroot Water Forum by August 31, 2019. No physical deliverable is currently scheduled for this task.

Task 2. – Streambank Treatment Alternatives

Contractor shall provide a brief memo that summarizes a suite of possible streambank treatments that could be applied along the Bitterroot River by September 30, 2019.

Task 3. – Concept Design

Contractor shall provide a preliminary design for Skalkaho Bend Park revegetation and restoration suitable for grant application and cost estimating purposes by October 15, 2019.

Task 4. – Wetland Delineation and Permit Level Design

Contractor shall perform a wetland delineation during the 2019 growing season. A wetland delineation report and permit level design will be provided by January 31, 2020.

All tasks associated with this Task Order must be completed by **January 31, 2020**.

Contract for this SOW is not to exceed \$17,500