



## **Cost-Share Proposal Form for NorthWestern Energy (NWE) Project 2188 TAC Funds**

Project 2188 (Madison-Missouri River) License Protection, Mitigation and Enhancement (PM&E) projects are required to offset impacts to river resources from the continued operation of one or more of NWE's nine hydro developments (Hebgen, Madison, Hauser, Holter, Black Eagle, Rainbow, Cochrane, Ryan and Morony Dams). PM&E projects need to be prioritized toward in-river or on-the-ground measures that directly benefit fisheries and/or wildlife populations and their habitats:

**Priority 1:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats within the main stem Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir)

**Priority 2:** 2188 License projects which meet License Article requirements and PM&E for fisheries or wildlife populations or their habitats in primary tributaries or on adjacent lands and, in doing so, provide PM&E for Madison River (Hebgen Reservoir to Three Forks) or Missouri River (Hauser Reservoir to Fort Peck Reservoir) resources.

**Priority 3:** 2188 License PM&E projects which meet License Article requirements by providing scientific or other tangible PM&E benefits to Madison-Missouri River fisheries or wildlife populations or their habitats. These projects must be located in the greater Missouri River drainage upstream from Fort Peck Reservoir, but not necessarily located on the main stem Madison River or Missouri River or their adjacent lands or primary tributaries.

### **All TAC project proposals must include the following information:**

Project Title: MCD Moore Creek Restoration Project Implementation – Phase 1

Date: November 1, 2023

Explain how this Project addresses a specific Project 2188 License Article(s):

This proposal will provide 40% non-federal match funding for DEQ 319 Nonpoint Source Pollution Funding Program. The combination of these funding sources will fund active restoration implementation along a 0.6 mile straightened and incised reach of Moore Creek to 1 mile of sinuous stream channel with diverse habitat features and a diverse habitat. NorthWestern Energy (NWE) is successfully enhancing Project 2188 wildlife habitats through funding aimed to protect, restore, and enhance riparian, wetland, and upland habitats on private lands. This final design and permitting phase will lead to the implementation of on-the-ground restoration projects to help offset impacts to river resources associated with Project 2188 (Madison-Missouri River). The project meets the purpose and intent of License Article 423, which requires development of a vegetation and wildlife monitoring and enhancement plan intended to enhance native plants and wildlife populations on Project 2188 wildlife habitats adjacent to the Madison River. Specifically, NWE is successfully enhancing Project 2188 wildlife habitats through funding aimed to protect, restore, and enhance riparian, wetland, and upland habitats on private lands.

Provide justification for Priority 1, 2 or 3 (above) that you selected:

This project meets Priority 2 2188 License requirements as listed above. Moore Creek is a primary tributary to Ennis Lake that is an instream reservoir of the mainstem Madison River.

Project Sponsor (submitted by): Madison Conservation District

Location of Proposed Project:

The location of the proposed project is located within the property boundaries of 2 private property owners along Moore Creek. These property owners consist of the Goggins family, a multi-generational family owned and operated ranch, and Eric Sheckleton, owner of Starry Night Lodging, north of Ennis, MT. The project scope involves restoring a 0.6 mile straightened stretch of Moore Creek on the northern boundary of the Goggins property to a 1 mile sinuous stream through an emergent wetland on, both, the Goggins and Sheckleton properties. The specific location point listed below is the center point of the project's 1 mile extent.

Geocode (in decimal degrees ex 46.89743) Lat; 45.36708 Long: -111.72300

Total Project Cost: \$77,456

TAC Funds (Cost-Share) Requested for Project:

I. Introduction; brief statement of project to be completed with pertinent background information.

Moore Creek is a tributary to Ennis Lake and is an important ecological resource to the greater Madison River Valley. The project will restore a 0.6 mile straightened and incised reach of Moore Creek to 1 mile of sinuous stream channel with diverse habitat features and a connected floodplain. This project is a "turn key" thanks to design funding provided by NorthWestern Energy, and is considered a demonstration project that will help jump-start future restoration actions on Moore Creek and other tributaries to the Madison River. The project was designed from geomorphic, aquatic habitat, and vegetation "reference reaches" investigated in lower Moore Creek on the Valley Garden Ranch. The design is based in natural channel design philosophy and integrates strategies and techniques that emulate desired conditions, relying entirely on native-based materials. Vegetated wood matrix structures consisting of native alluvium, small diameter woody material, and dense willow cuttings will provide bank stability, complex pool habitat, and increase shade to the channel. Approximately 12 acres of previously drained emergent and scrub-shrub wetland habitats will be restored by reconnecting Moore Creek to its historic floodplain surface. The plan will reduce sediment loading to Moore Creek by 137 tons per year through mitigation of chronic bank and terrace erosion. A floodplain seedling plan and grazing management plan will encourage growth of native riparian vegetation and ensure long term restoration success.

II. Objectives; explicit statement(s) of what is intended to be accomplished.

- a) Increase riparian vegetation and natural vegetation recruitment through streambank stabilization, riparian willow plantings, seeding plan, increased floodplain connectivity, and grazing management plan.
- b) Reduce sedimentation through construction of vegetated wood matrix structures and willow plantings that stabilize banks.
- c) Reduce temperature by increasing stream vegetation cover and shade through willow plantings and increasing hypoxic flow exchange through construction of channel bed geomorphic features (e.g., riffle, pool).
- d) Reduce *E. coli*, Total Nitrogen, and Total Phosphorous through creation of riparian wetlands and implementation of grazing management plan.
- e) Improve fisheries and wildlife habitat through improving streamside habitat with native woody and grass riparian plantings, as well as restoring trout spawning gravels and improving instream water quality impairments such as sedimentation and temperature.

III. Methods; description of how Project objectives will be accomplished.

The project reach comprises of a 0.6 mile section of Moore Creek that is straightened, incised, and devoid of woody riparian vegetation. The restoration plan involves the construction of 1 mile of stream and floodplain features with a focus on restoring eroding streambanks, re-establishing channel cross-sections dimensions, plan form and longitudinal profile dimensions, and increasing floodplain connectivity. The following restoration treatments will be implemented:

1. Shape the constructed channel to the appropriate dimensions of a sinuous E4 stream type incorporating riffle, run, pool, and glide habitat features, based on reference reach data collected on streams of similar valley and channel morphology.

2. Convert existing upland plant communities to wetlands in the upstream subreach (Reach 1) by constructing an inset floodplain and restoring floodplain connectivity. Establish a minimum meander belt width of 100-ft.
3. Raise the channel profile in the downstream subreach (Reach 2) to maximize floodplain connection
4. Fill the existing channel in Reach 1 to floodplain elevation to restore wetland hydrology.
5. Increase aquatic habitat complexity by increasing the quality and frequency of pools.
6. Incorporate vegetated wood matrix and brush structures for bank stabilization and pool habitat development.
7. Incorporate 14,550 willow cuttings into bank structures to provide bank stabilization and stream vegetation cover and shade.
8. Incorporate 13,125 willow cuttings into floodplain willow trenches to diversify the floodplain and encourage growth of native riparian vegetation.
9. Implement a grazing management plan including fencing exclosures, water gaps, and stream crossings to protect sensitive riparian areas and vegetation.

IV. Schedule; when the Project work will begin and end.

January, 2024-September 2024: Permitting, Planning, Landowner Agreements, and Procurement  
 October, 2024-January 2025: Active Restoration Implementation

V. Personnel; who will do the work? Identify Project leader or principal investigator.

- Madison Conservation District-Project administration, permitting, planning, landowner agreements, and procurement
- River Design Group-Assist MCD with permitting, planning, landowner agreements, and procurement
- Qualified and experienced contractor-active restoration implementation and construction

VI. Project budget must include amounts for the following:

- Direct Labor
  - Project Implementation Total: \$67,454
    - Equipment Mobilization, Clearing and Grubbing, Construct and Decommission Clearwater Diversion, Access and Staging: \$6,800
    - Salvage, Preserve and Transplant Existing Vegetation: \$200
    - Excavate, Haul and Place Channel and Floodplain Subgrade Excavation in Repository (Reach 1 and Reach 2): \$11,239
    - Furnish Streambed and Streambank Alluvium, Wood, and Streambank and Floodplain Willow Cuttings: \$8,349
    - Install Sod Bank Structures – Type 1 Riffles (7,581 feet): \$18,194
    - Install Sod Bank Structures – Type 2 Runs, Pools, Glides (2,910 feet): \$11,640
    - Install Floodplain Willow Trenches (2,625 feet): \$1,575
    - Provide and Broadcast Seed Floodplain and Upland Seed: \$456
    - Construction Staking and Management: \$7,000
    - As-Built and 5-Year Monitoring Reports: \$2,000
- Travel and Living
- Materials
- Other Direct Expenses
  - Project Planning & Coordination Total: \$2,500
    - Consultation with ACOE, MCD, MDEQ, and Floodplain Admin.: \$500
    - Prepare and secure Joint Application: \$500
    - Project Partner Coordination: \$1,000
    - Secure Draft and Final Landowner Agreements: \$500
  - Project Effectiveness Monitoring Total: \$2,000
    - Bank Erosion Hazards Index Assessment (Year 5): \$1,000

- Fixed Photo Points and Orthomosaic (As-Built & Year 5) – Percent Cover of Streambank Woody Vegetation, Bank Mitigation, Pool Frequency and Riffle-Pool Habitat Distribution: \$1,000
  - Other Expenses: \$5,502
- Direct Overhead\*
- All cost-share sources and amounts, including estimation of “in-kind” contributions
  - Project Administration (MCD In-Kind): \$3,500
  - MCD and Madison River Foundation (MRF) Hardened Water Gap/Crossing Construction Funds Total: \$10,000
    - MCD: \$5,000
    - MRF: \$5,000

**\*NorthWestern Energy TAC funds will not be used for agency overhead on projects that do not fund personnel. Applications for materials and equipment should not contain overhead.**

VII. Deliverables; describe work product (reports, habitat restoration, etc.) which will result from this Project. How will “success” for this project be monitored or demonstrated?

The project will be monitored 5 years following construction to ensure fulfillment of restoration objectives. The following metrics will be collected and/or modified based on input from project partners:

Bank Erodibility Hazard Index Assessment

A repeat Bank Erodibility Hazard Index (BEHI) Assessment will be completed. Depending on guidance, the assessment will consist of either measurements of representative BEHI conditions extrapolated to the reach level through visual estimation, or visually estimated based on the following metrics: 1) Bank height ratio; 2) Rooting depth ratio; 3) Percent vegetative cover or bank surface protection; 4) Bank angle; 5) Near-bank stress rating. A pre-restoration BEHI Assessment was completed for the project and is included as drawing 2.1 in the attached Moore Creek Restoration Project Final Design Plan Set.

Fixed Photo Points or UAS Orthomosaic

MCD and NorthWestern Energy established 20 fixed baseline photo monitoring points in 2022. The photo point will be replicated immediately post-construction and in Year 5 post-construction. New photo points will be established post-construction to document the as-built conditions. MCD recommends acquiring a high-resolution UAS Orthomosaic to document post-project conditions. The orthophoto can be replicated at Year 5 to evaluate project performance remotely, including: 1) lateral channel or bank migration analysis to determine if stability and sediment reduction objectives are being met; 2) percent cover of woody vegetation on streambanks; 3) recovery of emergent wetland vegetation within the 100-ft. meander belt width and floodplain; and 4) pool frequency and percent riffle and pool aquatic habitat features.

VIII. Cultural Resources. Cultural Resource Management (CRM) requirements for any activity related to this Project must be completed and documented to NWE as a condition of any TAC grant. TAC funds may not be used for any land-disturbing activity, or the modification, renovation, or removal of any buildings or structures until the CRM consultation process has been completed. Agency applicants must submit a copy of the proposed project to a designated Cultural Resource Specialist for their agency. Private parties or non-governmental organizations are encouraged to submit a copy of their proposed project to a CRM consultant they may have employed. Private parties and non-governmental organizations may also contact the NWE representative for further information or assistance. Applications submitted without this section completed, will be held by the TAC, without any action, until the information has been submitted.

Summarize here how you will complete requirements for Cultural Resource Management:

In fall, 2023 a Cultural Resource Specialist was contracted by the TAC to complete the CRM requirements for this project. Results of the cultural resource survey for the extent of the proposed project were submitted to the TAC directly from the contracted Cultural Resource Specialist.

- IX. Water Rights. For projects that involve development, restoration or enhancement of wetlands, please describe how the project will comply with the Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on 9 March 2016.

Summarize here how you will comply with Montana water rights laws, policies and guidelines:

Appropriate analysis will be performed to demonstrate that the project complies with the intent of Montana DNRC's "Guidance for Landowners and Practitioners Engaged in Stream and Wetland Restoration Activities", issued by the Water Resources Division on March 9, 2016. DNRC guidelines state that "any wetland project (restoration) whose final design approximates the natural characteristics of adjacent natural wetlands or approximates something smaller in magnitude does not require a water right". The guidelines also state that restored wetlands should have characteristics similar to other natural wetlands in the area and should function entirely in the absence of artificial controls and diversions of water that intentionally appropriate water for wetland use.

This Phase 1 project intends to restore wetland habitat by enhancing existing wetlands through grading and revegetation. The restored wetlands will have identical hydrologic and vegetative characteristics to existing wetlands in the immediate area. Riverine wetland habitat will be converted to shallow open water and emergent wetlands by restoring sinuosity of the 0.6 mile reach of straightened and incised stream channel through a newly established channel through the approximate 12 acre emergent and scrub-shrub wetland. Wetlands will be located within the floodplain and will be very similar in size and habitat characteristics to pre-settlement open water wetlands in the area. The small open water wetlands will not involve the construction of any berms, dams, or dikes; will not involve any diversion of water; will partially offset the loss of riverine wetland habitat; and will not increase water consumption.

All TAC Project proposals should be 7 pages or less and emailed (as a WORD file) to each of:

- [Andrew.Welch@NorthWestern.com](mailto:Andrew.Welch@NorthWestern.com)
- [Jon.Hanson@Northwestern.com](mailto:Jon.Hanson@Northwestern.com)
- [Grant.Grisak@Northwestern.com](mailto:Grant.Grisak@Northwestern.com)

Further questions about TAC proposals or Project 2188 license requirements or related issues may be addressed to:

**Andy Welch**

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