Biological Resource Report / Preliminary Biological Assessment

Missouri River - Fort Benton

STPB STWD(749)

UPN 9319001

Chouteau County, Montana

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FINAL REPORT

Prepared for: MONTANA MDT DEPARTMENT OF TRANSPORTATION

Prepared by:

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1 Introduction

1.1 Project Description and Location

The Montana Department of Transportation (MDT), in partnership with the Federal Highway Administration (FHWA), is proposing to rehabilitate or replace MDT Structure 06193 (NBI structure P00080002+04331) that carries Montana State Highway 80 (MT-80) over the Missouri River (referred to herein as the MT-80 bridge). The existing structure is in need of repair and detailed evaluation is necessary to determine the feasibility and cost-effectiveness of rehabilitation versus full replacement.

The existing structure was built in 1962 and is composed of a fracture critical, riveted steel two-girder system. The deck is in poor condition with many patches, spalls, and exposed rebar throughout the length of the bridge. There are minor areas of cracking and efflorescence on the underside of the deck as well. The overall deck geometry is limited with no shoulder width provided, and the bridge rails do not meet current Manual for Assessing Safety Hardware (MASH) requirements. This bridge is utilized as part of an oversized load corridor but was only designed for an HS-15 truck[1].

The first phase of the project will involve a Bridge Alternatives Review, which will develop preliminary plans and costs for several rehabilitation options as well as for up to two bridge replacement options. This evaluation will allow the project team to determine whether the existing structure should be rehabilitated or replaced. Once a final decision is made on the scope of the project, the project will be taken through the Scope of Work milestone.

The project is partially located in the town of Fort Benton and within Choteau County. The project is located in Sections 23 and 26 of Township 24 North, Range 8 East, Montana Principal Meridian. The bridge is located at approximately reference post (RP) 2.37 on MT-80. The project area is shown in Figure 1-1 and encompasses 200-feet on both sides of MT-80 (400-foot width total) extending from approximately 150 feet west of the intersection of MT-80 (13th Street) and Front Street to approximately 150 feet east of the junction of MT-80 and Secondary Highway 238 (S-238).

[1] An H-15 loading is represented by a two-axle single unit truck weighing 30,000 pounds (15 tons) with 6,000 pounds on its steering axle and 24,000 pounds on its drive axle. By comparison, an HS-20 loading is represented by a three-axle semitrailer combination weighing 72,000 pounds with 8,000 pounds on its steering axle and 32,000 pounds on its drive axle and 32,000 pounds on the semitrailer axle.

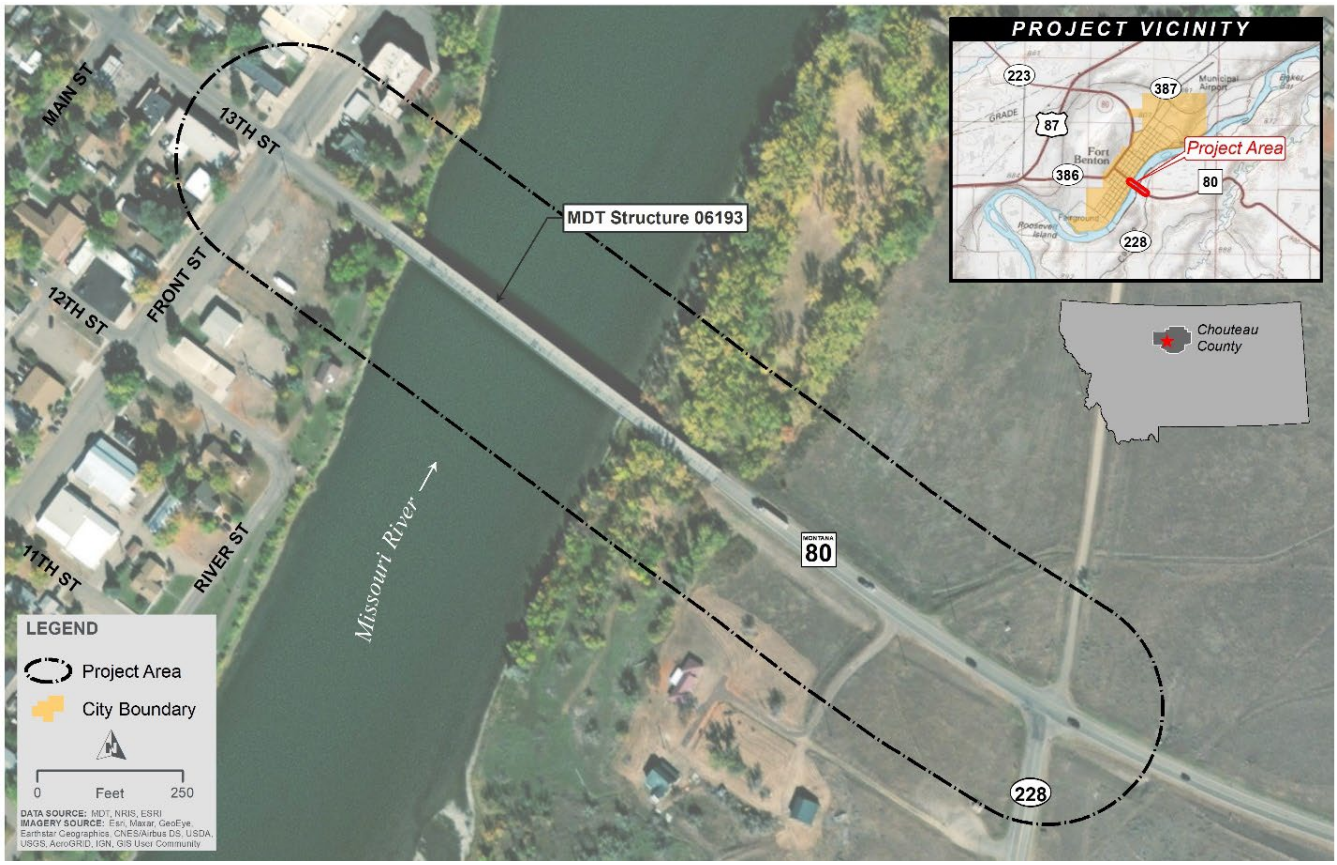

Figure 1-1. Project Area

1.2 Ecological Setting and General Area Description

1.2.1 Ecoregion

The project area is located within the Northwestern Glaciated Plains level 3 ecoregion and the North Central Brown Glaciated Plains level 4 ecoregion (Woods et al. 2002, USEPA 2012). The North Central Brown Glaciated Plains ecoregion physiography is paraphrased by the following excerpt:

> *"The treeless North Central Brown Glaciated Plains ecoregion is an important grain producing area. Land use contrasts with the rangeland of Ecoregions (42j) and (42r). Its very broad, largely undissected till plains and nearly level, poorly-drained, proglacial lake plains are chinook-affected. The potential natural vegetation is grama - needlegrass - wheatgrass and is distinct from the foothills prairie community found in the adjacent but more sloping Ecoregion 16a. Soils are brown and were derived from glacial drift, glaciolacustrine, and alluvial deposits. Oil wells are common locally. Ecoregion 42o continues into Canada."*

Climate in the Fort Benton area is characterized by precipitation that averages 13.2 inches per year, with the wettest months occurring in May and June (US Climate Data 2022). Annual snowfall average is 40 inches per year. Wintertime average low temperatures typically fall well below freezing, and summertime average temperatures peak in the mid 80's. The Missouri River is the dominant hydrologic feature within the project vicinity. The project area is within the Rowe Coulee-Missouri River fifth-level Hydrologic Unit watershed (Hydrologic Unit Code [HUC] 1003010216).

1.2.2 Landcover

The Montana Natural Heritage Program Land Cover database (MTNHP 2022a) was reviewed within the Natural Heritage Map Viewer web application to provide general landcover types located near the project area. Land cover types near the proposed project are a mix human-made and natural systems. The project area vicinity is dominated by Cultivated Crops. Natural systems include Great Plains Mixedgrass Prairie and Great Plains Badlands. The town of Fort Benton is a mix of Developed land cover types. The Missouri River system includes Open Water and Great Plains Floodplain land cover types.

1.2.3 Land Use and Land Ownership

Land use in the vicinity of the bridge transitions from commercial and residential on the west side (within the city limits of Fort Benton) to rural residential and agriculture on the east side of the Missouri River. With the exception of roadway rights-of-way, land ownership within the project area is entirely privately owned. A pedestrian trail passes under the bridge at the west abutment. The trail, referred to as the Steamboat Levee Walk, is part of an historic interpretive trail with historic landmarks described along its length through downtown.

2 Terrestrial Resources

2.1 General Habitat and Vegetation Communities

2.1.1 Methods

Information reported within this section was obtained from a combination of literature and database searches and on-site field investigation. Existing documentation reviewed for this section includes the following:

- Montana Natural Heritage Program (MTNHP) Montana Land Cover Database (MTNHP 2022a)
- MTNHP Montana Field Guides (MTNHP 2022b)

HDR environmental staff conducted a field investigation on September 15, 2022. General vegetative cover in the project area was documented during the site visits. The surveyed terrestrial portion of the project area is shown in Figure 1-1 and includes the highway right-of-way (ROW) paralleling MT-80. Refer to Appendix A for representative site photos.

2.1.2 Species Presence and Distribution

In general, three distinct areas exist within the project area and include the area on the west side of the Missouri River within Fort Benton city limits, the forested riparian fringe on the east side of the river, and the roadside environment segment extending southeast from the east bridge abutment to the junction with S-228. On the west side of the river, the project area is more urban and includes parkland and a shared-use path (levee trail) that travels along the west bank of the Missouri River underneath the MT-80 bridge.

A narrow riparian fringe (averaging approximately 10 feet wide) exists between the levee trail and the Missouri River on a steep embankment that includes mature trees and shrubs comprised mostly of black cottonwood (*Populus balsamifera*) and green alder (*Alnus viridis*). Riparian grasses include smooth brome (*Bromus inermis*), reed canarygrass (*Phalaris arundinacea*) along the river's edge, as well as interspersed other weeds and forbs. The vegetation immediately adjacent to the trail is mowed.

On the east side of the river MT-80 spans over a forested riparian area dominated by a black cottonwood overstory. The understory is comprised of grasses, forbs, and interspersed weeds. Plant species include smooth brome, clasping-leaf dogbane (*Apocynum cannabinum*), Canada goldenrod (*Solidago canadensis*), leafy spurge (*Euphorbia virgata*), western virgin's-bower (*Clematis ligusticifolia*), and showy milkweed (*Asclepias speciosa*). The riparian fringe adjacent to the river is dominated by reed canarygrass, common beaked sedge (*Carex utriculata*), field horsetail (*Equisetum arvense*), and Drummond's willow (*Salix drummondiana*).

On the east side of the Missouri River, paralleling MT-80, roadside grasses consist primarily of crested wheatgrass (*Agropyron cristatum*), thickspike wheatgrass (*Elymus lanceolatus*), and smooth brome. Common weeds observed include Canada thistle (*Cirsium arvense*) and common kochia (*Kochia scoparia*). Other forbs observed include curlycup gumweed (*Grindelia squarrosa*) and showy milkweed, and intermittent shrubs include big sagebrush (*Artemisia tridentata*) and common Juniper (*Juniperus communis*).

2.1.3 Potential Impacts

The scope of the proposed project has not been fully identified and, as such, potential impacts to vegetation are undetermined. Potential impacts to vegetation would vary depending on the alternative selected. Bridge rehabilitation would likely have negligible impacts to vegetation as the majority of the work would occur from the existing paved roadway and bridge deck. A bridge replacement would likely involve more substantial ground disturbance and staging area requirements, thus having a larger impact on vegetation than bridge rehabilitation. Moreover, a bridge replacement on a slightly new alignment would have greater vegetation impacts.

2.1.4 Avoidance and Minimization Recommendations

Regardless of whether the project includes bridge rehabilitation or replacement, the following conservation measures are proposed to minimize project impacts on terrestrial resources:

- Tree and large shrub removal should be minimized to the greatest extent practicable.
- Clearing and grubbing should be confined to the construction limits to the extent practicable.
- Temporarily impacted riparian habitat should be replanted with appropriate vegetation following construction as soon as practicable after disturbance.

2.2 Noxious Weeds/Regulated Plants

Executive Order (E.O.) 13112 (established February 3, 1999) was established to prevent the introduction of invasive species and to control and minimize the economic, ecological, and human

health impacts caused by invasive species. As a partially federally funded action, the proposed project is subject to the provisions of EO 13112.

2.2.1 Methods

Information reported within this section was obtained from a combination of literature and database searches and on-site field investigation. The following documents and databases pertaining to noxious weeds were reviewed:

- Montana Department of Agriculture (2019) Noxious Weed List

HDR staff qualitatively documented noxious weed occurrence within the project area during the September 15, 2022, site visit.

2.2.2 Species Presence and Distribution

Minor distributions of weeds were observed intermittently throughout the project area. Table 2-1 lists noxious weeds observed within the project area and identifies the priority status according to the Montana Department of Agriculture.

Table 2-1. Noxious Weeds Observed in the Project Area and County and State Priority Status

Noxious Weed Common Name (scientific name)	Montana Priority Status
Canada Thistle (*Cirsium arvense*)	2B
Common Tansy (*Tanacetum vulgare*)	2B
Leafy spurge (*Euphorbia esula*)	2B
Spotted Knapweed (*Centaurea stoebe* (syn. *maculosa*))	2B
Sources: Montana Dept. of Agriculture, 2019	

According to the Montana Department of Agriculture Montana Noxious Weed List (2019), the observed weeds are all classified as Priority 2B. Priority 2B species are weeds that, from a statewide management perspective, are abundant in Montana and widespread in many counties. Management criteria will require eradication or containment where less abundant. Management shall be prioritized by local weed districts. The weeds observed throughout the project area were dispersed in small groupings; no large infestations of noxious weeds were observed.

2.2.3 Avoidance and Minimization Recommendations

The following conservation measures are proposed to prevent and to minimize spread of noxious weeds.

- In accordance with 7-22-2152 MCA, MDT should re-establish a permanent desirable vegetation community along areas disturbed by construction.

2.3 General Wildlife Species

2.3.1 Methods

Information reported within this section was obtained from a combination of literature and database searches and on-site field investigation. The MTNHP Generalized Observations database was used to identify mammals, birds, amphibians, reptiles, and invertebrates that have potential to occur in the project area vicinity based on recorded past observations.

2.3.2 Mammals

Species observed/documented, general abundance, distribution, and habitat requirements

Mammal species with potential to occur in the project area vicinity as documented by MTNHP Generalized Observations database include desert cottontail (*Sylvilagus audubonii*), mountain cottontail (*Sylvilagus nuttallii*), mule deer (*Odocoileus hemionus*), silver-haired bat (*Lasionycteris noctivagans*), and snowshoe hare (*Lepus americanus*). Other wildlife likely to be present based on habitat include red fox (*Vulpes vulpes*), raccoon (*Procyon lotor*), and porcupine (*Erethizon dorsatum*).

On-site wildlife observations occurred primarily on the east side of the Missouri River. During the site investigation a single beaver (*Castor canadensis*) was observed on the east riverbank (see Photo 7, Appendix A) and older sign of beaver activity was observed near the wooded east bridge abutment area (see Photo 5, Appendix A). Additional indirect wildlife observations on the east side of the river include animal tracks in the dirt beneath the bridge (likely deer and beaver; see Photo 6, Appendix A) and faint game trails through the grasses.

There are likely many additional mammal species that utilize the Missouri River corridor and may pass through the project area and underneath the existing structure. As noted above, wildlife use in the project area is more prevalent on the east bank within the forested riparian zone. Wildlife movement is unobstructed along the east bank due to ample horizontal and vertical clearance under the existing bridge as well as the lack of fences. On the west bank, the embankment is steep and armored with riprap and, although the levee trail passes underneath the west bridge abutment providing potential undercrossing opportunities for wildlife, due to the urban nature within city limits and less riparian habitat available, wildlife use is expected to be less prevalent on this side of the river.

Potential Impacts

Impacts on mammal populations as a result of the proposed project are anticipated to be minor, discountable, and without long-term effects to local populations. Potential impacts to wildlife would vary depending on the alternative selected. Habitat disturbance from the project will largely depend on the alternative selected and will vary between very little disturbance for a bridge rehabilitation to moderate disturbance associated with a bridge replacement project. Suitable habitat for mammals on the west bank is limited in the project area and a proposed project would not be expected to adversely affect habitat quality or quantity. Higher quality habitat on the east bank could be impacted depending on the scope and scale of a future project.

Construction of the project could result in direct mortality of individual animals, again depending on the scope and scale of the project. Impact is likely to be greater for species with limited mobility such as rodents; animals with greater mobility would be able to move to suitable adjacent habitat to avoid construction disturbance. An increase in noise levels during construction may temporarily disrupt mammals in the vicinity of the proposed project. Noise effects would be temporary and localized and would occur only during daylight working hours.

Avoidance and Minimization Recommendations

Some general conservation measures should be considered as the project development process moves forward and include:

- Ground disturbance and equipment access outside of the existing ROW should be limited to the greatest extent possible to avoid and minimize impacts to general wildlife species and their habitat.
- Construction of new fencing where currently none exists should be avoided, or minimized to the greatest extent practicable, to avoid creating new hazards and barriers for wildlife movements, particularly on the east bank. Where fence is determined necessary, it should be a wildlife friendly design (see Section 2.4 for more information on wildlife accommodations).

2.3.3 Birds

Species observed/documented, general abundance, distribution, and habitat requirements

Bird abundance and diversity is high in the project area vicinity. In the immediate vicinity of the project area, the MTNHP documents dozens of bird species. An exhaustive list of possible species occurring within the project area is not presented here. However, species most frequently observed in the project area vicinity include American Goldfinch (*Spinus tristis*), American Robin (*Turdus migratorius*), American White Pelican (*Pelecanus erythrorhynchos*), Eurasian Collared-Dove (*Streptopelia decaocto*), European Starling (*Sturnus vulgaris*), House Sparrow (*Passer domesticus*), House Wren (*Troglodytes aedon*), Northern Flicker (*Colaptes auratus*), Western Wood-Pewee (*Contopus sordidulus*), and Yellow Warbler (*Setophaga petechia*).

Several bird species were observed during the site investigation that include American robin (*Turdus migratorius*), Canada goose (*Branta canadensis*), and black-capped chickadee (*Poecile atricapillus*). Although not observed occupying the nests, cliff swallow (*Petrochelidon pyrrhonota*) nests were observed on the MT-80 bridge.

Potential Impacts

The proposed project is not anticipated to result in long-term negative impacts on any bird populations. Potential impacts on vegetation that may provide nesting, perching, and foraging habitat will vary depending on the alternative selected. A bridge rehabilitation project would likely have no effect on suitable bird habitat, whereas a bridge replacement project would be expected to involve removal of some existing mature trees and shrubs, particularly on the east side of the river, depending on the alignment.

Standard specifications will be included as conservation measures to minimize impact on migratory birds (see following section) by ensuring that tree and shrub removal and bridge structural work occurs outside of the nesting period or at a time when nests are not present. Construction-related noise may temporarily disrupt birds in the vicinity of the project during construction activities. Noise effects would be temporary and localized and would occur only during daylight working hours.

Avoidance and Minimization Recommendations

Regardless of whether the project includes bridge rehabilitation or replacement, the following conservation measures are proposed to minimize project impacts on bird species and habitat.

- Standard Specification Section 208.03.4(A), Migratory Bird Treaty Act, will be included in the final construction bid documents to avoid and minimize potential impacts on migratory birds.
    - Standard Specification 208.03.4(A)(1), Vegetation Removal, includes the following construction requirements:
        - Perform any required cutting of trees or shrubs between August 16 and April 15;
        - Remove only those trees and shrubs in direct conflict with the permanent construction limits; and
        - Where possible, do not remove, but trim trees and shrubs as necessary for equipment access and construction activities.
    - Standard Specification 208.03.4(A)(2), Structures, requires one or a combination of the following measures for structure removal or work that may directly impact active nests:
        - It is permissible to remove non-active nests (without birds or eggs), partially completed nests or new nests as they are built (prior to occupation).
        - Conduct work that may impact active nests outside of the nesting season, typically between the dates of August 16 and April 15, and when no active nests are present, or
        - Install nesting deterrents meeting the requirements below prior to the nesting season as follows:
            - Cover or enclose all potential nesting surfaces on the structure tightly with mesh netting or other suitable material to prevent birds from establishing new nests. Use netting or other material with no opening or mesh size greater than ½-inch. Maintain the material/enclosure until the structure is removed or work is completed, or
            - Thoroughly apply a non-toxic, non-lethal, bird roosting or landing repellent gel or liquid (do not use smell or taste deterrents) on all potential nesting surfaces on the structure in accordance with the manufacturer’s instructions. Reapply the repellant as needed to maintain adequate coverage to prevent new nests from being established, or

- Prepare a description of alternate methods of effectively keeping birds from establishing nests during the nesting season and submit them along with proposed installation dates and methods to the Project Manager for review.

2.3.4 Reptiles and Amphibians

Species observed/documented, general abundance, distribution, and habitat requirements

Reptiles documented to occur in the project vicinity by MTNHP include the Common Gartersnake (*Thamnophis sirtalis*), gophersnake (*Pituophis catenifer*), Greater Short-horned Lizard (*Phrynosoma hernandesi*), Plains Gartersnake (*Thamnophis radix*), Prairie Rattlesnake (*Crotalus viridis*), terrestrial gartersnake (*Thamnophis elegans*), and prairie rattlesnake (*Crotalus viridis*) (MTNHP 2022c).

Amphibian observations as documented by the MTNHP include Boreal Chorus Frog (*Pseudacris maculata*), Plains Spadefoot (*Spea bombifrons*), Western Tiger Salamander (*Ambystoma mavortium*), and Woodhouse's Toad (*Anaxyrus woodhousii*). No reptiles or amphibians were observed during the September 15, 2022, field visit.

Potential Impacts

The Missouri River and its riverbanks provide the only quality and available suitable reptile and amphibian habitat within the immediate project area. The proposed project is not anticipated to result in substantial impacts on amphibians and reptiles. Potential impacts to reptiles and/or amphibians would vary depending on the alternative selected and would be commensurate with the size of disturbance. Impact on reptiles and amphibians during construction, especially burrowing species, may occur during ground disturbing activities and result in direct mortality of individuals. This impact would be considered discountable and have no effect on reptile or amphibian populations.

Avoidance and Minimization Recommendations

No additional avoidance and minimization measures are recommended at this time.

2.4 Wildlife Accommodation Needs and Opportunities

The MDT animal carcass GIS database (MDT 2020) was reviewed to identify potential trends in wildlife/vehicle collisions (WVCs) based on records of animal carcasses removed from the highway by MDT maintenance crews. The area of interest includes the project limits and extends approximately one-quarter mile in each direction along MT-80 encompassing RP 2.1 to RP 2.9. Within the past 10-year period, only one record exists from 2011 where a mule deer was removed at RP 2.9. Considering the limited number of current records, a presentation of all available records spanning 21 years is provided for discussion purposes. Figure 2-1 shows the spatial data attributes and is sorted in ascending order by reference post. The database includes 15 individual records dating back to 1999. Of these 15 records, mule deer account for 12 of the records, or 80 percent, and when including white-tailed deer, deer in general account for all but one record.

MDT_ANIMAL_CARCASSES

OBJECTID *	CLCTN_DATE	ANIMAL_TYP	ANIMAL_SEX	CORRIDOR	REF_MARKER	X_COORD	Y_COORD	COMMENTS
114413	10/18/2010	6. MULE DEER	2. Female	C000080S	2.1	512278.26	397045.66	<Null>
14691	12/1/2002	6. MULE DEER	3. Yearling	C000080S	2.2	512406.4	396950.53	<Null>
47839	12/4/2006	6. MULE DEER	2. Female	C000080S	2.3	512534.85	396854.8	<Null>
56822	11/10/2003	6. MULE DEER	2. Female	C000080S	2.3	512534.85	396854.8	<Null>
58904	7/9/2001	13. DEER UNKNOWN	3. Yearling	C000080S	2.4	512662.9	396758.97	<Null>
65959	5/5/2009	6. MULE DEER	2. Female	C000080S	2.4	512662.9	396758.97	<Null>
4585	11/9/1999	6. MULE DEER	2. Female	C000080S	2.6	512933.45	396574.11	<Null>
44354	9/18/2007	6. MULE DEER	2. Female	C000080S	2.6	512933.45	396574.11	<Null>
46424	9/18/2007	6. MULE DEER	2. Female	C000080S	2.6	512933.45	396574.11	<Null>
80378	8/12/2009	11. OTHER (WILD)	4. Unknown	C000080S	2.6	512933.45	396574.11	<Null>
115337	5/15/2009	5. WHITETAIL DEER	2. Female	C000080S	2.8	513240.238	396487.8812	<Null>
115338	5/24/2010	6. MULE DEER	4. Unknown	C000080S	2.8	513240.238	396487.8812	<Null>
129526	3/2/2015	6. MULE DEER	2. Female	C000080	2.8	513240.238	396487.8812	<Null>
68560	12/31/2009	6. MULE DEER	2. Female	C000080S	2.9	513400.0388	396485.1739	<Null>
80877	4/6/2011	6. MULE DEER	3. Yearling	C000080S	2.9	513400.0388	396485.1739	<Null>

Figure 2-1. MDT Carcass Database Attributes for RP 2.1 to RP 2.9

A majority of the records (60 percent) occur on the east side of the Missouri River. Four records have been recorded at RP 2.6, three at RP 2.8, and two at RP 2.9. This trend may be a combination of more suitable deer habitat present on the east side of river and/or perhaps the higher vehicular travel speeds experienced on MT-80 as the highway goes from an urban setting in downtown Fort Benton to a rural setting and posted speed limits increase.

In addition to the MDT carcass database, crash records provided by MDT were reviewed for the segment of MT-80 from RP 1.9 to RP 2.6. None of the crash records identify wildlife collision as the cause. Strictly speaking of the crash analysis, WVCs do not appear to be a safety concern for the project area.

The overall number of incidents presented in Figure 2-1 represent a relatively low number and span 21 years of available records. Despite the apparent cluster of WVCs between RP 2.6 – RP 2.9, the incidents span 16 years and, when averaged out, equate to approximately one WVC every 1.8 years. Based on this information, there are no significant trends to consider, and the issue does not rise to a level of concern that may warrant proposing substantial wildlife accommodations.

As previously noted in Section 2.3.2, no adverse impacts on wildlife populations are anticipated as a result of implementation of either a bridge rehabilitation or replacement alternative. Regardless of the chosen alternative, the project will not result in a complete barrier to wildlife movement. Wildlife currently has the ability to pass under the MT-80 bridge at both bridge ends and this condition would be perpetuated regardless of the alternative chosen. A new bridge, if proposed, would provide a similar span and opening for wildlife. A new bridge would be sited as close as possible to the existing alignment; however, to prevent conflicts with existing foundations the new abutments would be located approximately 10 feet in the landward direction beyond the existing abutments, thus resulting in a larger opening than the existing condition.

Traffic is project to increase from current levels of 1,570 average annual daily traffic (AADT) to an estimated AADT of 1,990 by year 2046. It is possible that as traffic volumes increase, so does the potential for WVCs. In the near-term, however, the level of WVCs in the project area is expected to remain relatively constant with annual fluctuations resulting from variable wildlife population levels and other natural and anthropogenic causes.

General Recommendations

Impacts on wildlife movement should be avoided or minimized to the extent possible regardless of the alternative chosen. Should any existing ROW fencing be replaced by the project, or any new fencing proposed, it is recommended that wildlife-friendly ROW fence be used to help facilitate wildlife movements in the project area. The use of wildlife-friendly fence must be agreed upon by the adjacent landowner. In addition, should a new bridge be recommended by this study, it is recommended that similar or increased horizontal and vertical clearances be provided on the east side of the Missouri River along the riparian/floodplain corridor to allow for wildlife passage through the project site.

A Wildlife Accommodation Recommendation Memo (WARM) is currently not included in the scope of services for this project and a WARM is not necessary based on the assessment presented here. If a design project is forwarded from this study, and if new information emerges as the project progresses that identifies wildlife concerns, the requirement to include Activity 109 can be determined at a later date in coordination with MDT.

3 Aquatic Resources

3.1 Waterways

3.1.1 Methods

Information reported within this section was obtained from a combination of literature and database searches and on-site field investigation. Existing documentation reviewed for this section includes the following:

- U.S. Geological Survey, National Hydrography Dataset (USGS 2022)

Waterways were delineated in accordance with the USACE *Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification* (USACE 2005). Following USACE guidance, the OHWM was based on observation of physical characteristics on the streambanks within the project area to ascertain the lateral limits of USACE jurisdiction. The physical characteristics used in identifying the OHWM included identifiers such as presence of litter and debris, wracking, scour, changes in character of soil, changes in plant community, among others. An on-site field investigation was completed on September 15, 2022.

3.1.2 Site Description/Stream Morphology

Missouri River

The Missouri River is the only surface water resource potentially affected by the proposed project. It is the longest river in the United States, flowing more than 2,500 miles from its source on the eastern slope of the Rockies near Three Forks to its confluence with the Mississippi River at St. Louis, Missouri.

At the MT-80 bridge site the river is a single channel and is approximately 460 feet wide. Some channel complexity in the form of side channels and islands exists approximately 0.5 mile upstream

and 0.65 mile downstream. The project area is within the Town of Fort Benton-Missouri River 12-digit hydrologic unit 100301021602 (HUC 12; subwatershed).

During the September 2022 field visit, an intermittent stream channel was observed and mapped within the project area boundary. This feature originates to the south of the project and appears to capture drainage from a narrow canyon that parallels S-228. The channel resembles a vegetated swale and lacks a defined bed or bank and is vegetated across the bottom of the channel. The channel ranges between two and four feet wide and approximately 85 feet of the downstream end of the channel passes through the project area. It enters the project area in a perpendicular fashion flowing northward then turns and enters the Missouri River approximately 130 feet to the south of the MT-80 bridge. There was no water within the drainage during the September 15, 2022, site visit. Photos of the intermittent channel are shown in Photos 10 and 11 in Appendix A. There are no irrigation ditches within the project limits.

3.1.3 Total Maximum Daily Load Listing 303(d)

The project area stretch of the Missouri River (the Montana Department of Environmental Quality (DEQ) assessment unit includes the Missouri River from Morony Dam to the Marias River) is on the state's 303(d) list of impaired waterbodies and is identified as not fully supporting the beneficial uses of aquatic life, drinking water, or primary contact recreation (DEQ 2022).

3.1.4 Potential Impacts

The scope of the proposed project has not been fully identified and, as such, potential impacts to surface waters are undetermined and cannot be quantified. In general, a bridge rehabilitation would have fewer potential impacts to the Missouri River and overall water quality than a bridge replacement. Rehabilitation would likely entail replacing the bridge deck and potentially other structural elements but would not likely require direct disturbance of vegetation and riverbank or placement of fill within the Missouri River. Under the scope of a bridge replacement, ground disturbance to the bed and banks of the river would be necessary to construct new abutments and in-water piers and demolish the old bridge. Pier construction would mobilize sediments in the river and increase turbidity. It is likely that the bridge abutment work could be setback enough as to not require in-water work.

Neither project scenario would be anticipated to result in stream mitigation in accordance with the Montana Stream Mitigation Procedure. However, this determination is subject to change depending on the ultimate scope of the project.

3.1.5 Avoidance and Minimization Recommendations

Avoidance and minimization recommendations will be determined at a later phase of project development once the scope of the project has been identified. In general, water quality impacts would be avoided and minimized through contractor implementation of Section 208 (Water Pollution Control and Aquatic Resource Preservation) of the *MDT Standard Specifications for Road and Bridge Construction*, which specifies the processes with which the contractor must comply to prevent or minimize pollution and control impacts on aquatic resources. Depending on the scope of the project and level of environmental permitting, further avoidance and minimization measures may include compliance with the various state and federal water quality regulations, including any permit special conditions.

Water quality impacts would be substantially avoided and minimized through use of standard best management practices (BMPs) that include erosion and sediment control(s) to minimize temporary impacts on adjacent properties and abate pollution of surface and ground water resources. The contractor would be responsible for conducting routine site monitoring to ensure all pollution control measures are installed, maintained, and functioning correctly.

3.1.6 Permitting Required

The scope of the proposed project has not been fully identified and, as such, potential water quality permitting requirements cannot be determined. In general, a bridge replacement project would result in an increased level of environmental permitting as compared to a bridge rehabilitation project.

Section 404 of the CWA requires approval prior to discharging dredged or fill material into waters of the United States, including wetlands. Any project that results in impacts to the Missouri River (or adjacent wetlands) would require a Section 404 permit authorization from the USACE.

As the project progresses, potential impacts to waters of the U.S., including wetlands, will be quantified to ascertain the appropriate level of permitting requirements under the CWA. The proposed project may trigger requirements for 401 Certification under the authority of DEQ.

The Missouri River is federally designated as a navigable water of the United States and is regulated under Section 10 of the River and Harbors Appropriation Act of 1899. A project that constructs any structure in or over a navigable river requires a Section 10 permit from the USACE. Structures or work outside the limits defined for navigable waters of the United States require a Section 10 permit if the structure or work affects the course, location, or condition of the water body.

Several state permits may be required depending on the ultimate scope of the project. Any project requiring alteration to the bed or banks of the Missouri River will require Montana Stream Protection Act, SPA124 Notification from the Montana Fish, Wildlife and Parks (FWP). A 318 Authorization would be required by the construction contractor if the project has potential to cause short term or temporary violations of state surface water quality standards for turbidity. Additionally, the contractor would be required to obtain coverage under the Montana Pollutant Discharge Elimination System (MPDES) program if construction activity will disturb one or more acres, including clearing, grading, and excavating activities.

3.1.7 Stream Mitigation Requirements

The potential for stream mitigation requirements are also currently unknown. Appropriate stream mitigation, if required, will be determined in accordance with the Montana Stream Mitigation Procedure (MTSMP) (USACE 2013) and through coordination with the USACE and MDT once a preferred alternative is identified and once stream impacts are further quantified during final design. All mitigation proposals will be included in the Aquatic Resource Findings Report (AFR) at a later phase of the project.

3.2 General Aquatic Species

3.2.1 Methods

Information reported within this section was obtained the FWP Montana Fisheries Information System, or MFISH, web application to identify fish species present within the project area stretch of the Missouri River. FWP identifies a current fish survey location immediately downstream of the project area. Survey data for this location was reviewed. Based on the available data, it appears that fish surveys have occurred at or near this location annually from 2010 to 2018.

3.2.2 Species documented, general abundance, distribution, and habitat requirements

Based on the available data, it appears that fish surveys have occurred at or near this location annually from 2010 to 2018. The most recent survey data from 2018 identified 20 different fish species that include: brown trout (*Salmo trutta*), channel catfish (*Ictalurus punctatus*), common carp (*Cyprinus carpio*), emerald shiner (*Notropis atherinoides*), freshwater drum (*Aplodinotus grunniens*), goldeye (*Hiodon alosoides*), longnose dace (*Rhinichthys cataractae*), longnose sucker (*Catostomus catostomus*), sculpin (*Cottus* spp.), mountain whitefish (*Prosopium williamsoni*), northern pike (*Esox lucius*), river carpsucker (*Carpiodes carpio*), sauger (*Sander canadensis*), shorthead redhorse (*Moxostoma macrolepidotum*), shovelnose sturgeon (*Scaphirhynchus platorynchus*), smallmouth bass (*Micropterus dolomieu*), smallmouth buffalo (*Ictiobus bubalus*), spottail shiner (*Notropis hudsonius*), walleye (*Sander vitreus*), and white sucker (*Catostomus commersonii*) (FWP 2022). While this list is not intended to be comprehensive, it does provide an accurate account of typical fish species inhabiting the project area stretch of the Missouri River.

3.2.3 Potential Impacts

The scope of the proposed project has not been fully identified and, as such, potential impacts on aquatic species cannot be determined. The level of impact would be commensurate to the amount and duration of in-water disturbance. A bridge rehabilitation project would likely not involve any in-water work and would therefore have no impact on aquatic species. A bridge replacement project, on the other hand, would be expected to include disturbance to the bed and/or banks of the Missouri River and impacts to aquatic species through temporary increases in turbidity and suspended sediments could occur under this scenario.

3.2.4 Avoidance and Minimization Recommendations

Avoidance and minimization recommendations will be determined at a later phase of project development once the scope of the project has been identified. The aforementioned conservation measures to protect water quality would directly benefit aquatic species during construction.

3.3 Wetlands

3.3.1 Methods

Information reported within this section was obtained from a combination of literature and database searches and on-site field investigation. Existing documentation reviewed for this section includes the following:

- California Soil Resource Lab, UC Davis, SoilWeb interactive map application (2022)
- Montana Natural Heritage Program (MTNHP) (2020) Wetlands and Riparian Framework Database, which includes National Wetland Inventory Data.

HDR staff conducted a wetland field investigation in the project area on September 15, 2022, using methods described in the *Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987), as updated by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (USACE 2010). To be considered a wetland, an area must have hydrophytic vegetation (vegetation adapted to wetland conditions), hydric soils, and wetland hydrology. Data were collected on these three parameters in probable wetland locations within the project area, which extends 200 feet on either side of MT-80 from Front Street to S-238.

3.3.2 Description of Delineated Wetlands

Two distinct wetlands were identified and delineated within the project area limits. The wetlands are located on the east side of the Missouri River. Figure 3-1 shows the results from the on-site field investigation. The west bank was investigated for probable wetlands; however, the riverbank is steep (> 2:1 slopes) throughout the project area, armored by riprap in locations, and not conducive for wetland habitat. Wetland habitat was not observed, and no soil sample plots were established or determined as necessary. Table 3-1 provides a summary of each wetland, including information on location, hydrogeomorphic (HGM) class, Cowardin class, wetland area within the project area, hydrology, and a brief narrative description. The MDT Montana Wetland Assessment Method (MWAM) (MDT 2008) was used to determine the functional values and overall category rating for the wetlands within the project area (see Table 3-2). The MWAM assesses individual wetlands and assigns ratings (low, moderate, high, or exceptional) and scores (0.1 to 1.0) to each of the 12 functions and values as identified in Table 3-2. Functional points are totaled and calculated as a percentage of total possible points for each wetland. Each wetland is then ranked according to the percentage and other criteria as either a Category I (highest quality), Category II, Category III, or Category IV (lowest quality).

More information on project area wetlands can be found in the report appendices: representative site photos are provided in Appendix A; USACE Wetland Determination Forms and MWAM forms are provided in Appendix B.

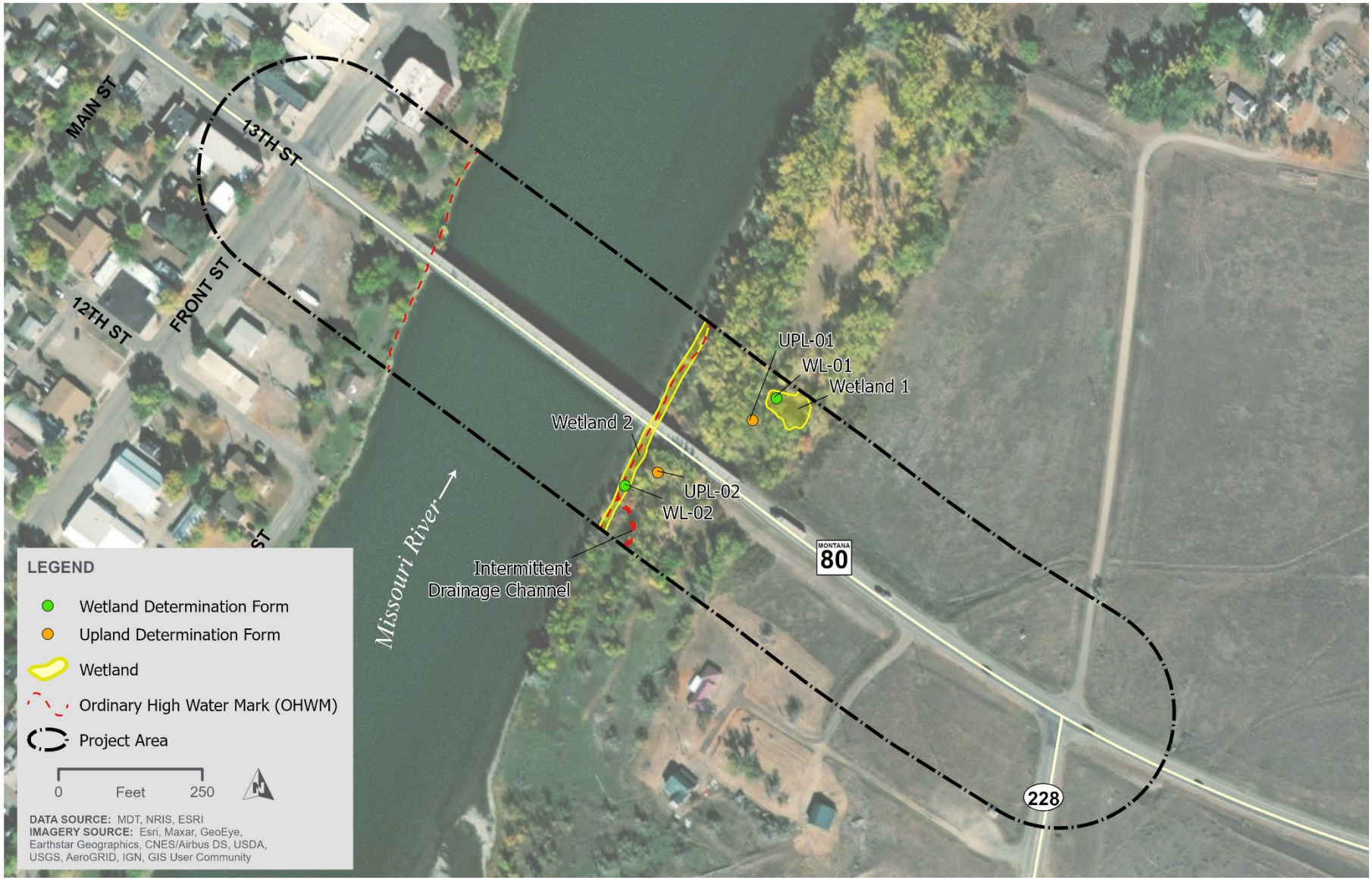

Figure 3-1. Wetland and Stream Delineation Results

Table 3-1. Project Area Wetland Characteristics

Wetland Number	Reference Post (approx.)	HGM[1]	Cowardin Classification[2]	MDT Wetland Category[3]	Wetland Area with Project Area (acres)	Primary Source and Destination of Wetland Hydrology	Narrative Description
Wetland 1	2.45	Depressional	PFO/PEM	III	0.08	**Source:** Surface flow, runoff from MT-80 and adjacent uplands, potential seasonal high groundwater. **Destination:** Wetland 1 is small depressional wetland with no outlet. No observed connection to other wetlands or WOUS. Discharge directly to Missouri River unlikely.	Wetland 1 is located within a small depression within a forested riparian area adjacent to the Missouri River. Soils meet hydric soil indicators F3 (Depleted Matrix) and F8 (Redox Depressions). Secondary hydrologic indicators were met. **Dominant Vegetation:** Common Beaked Sedge, Black Cottonwood, Reed Canarygrass
Wetland 2	2.45	Riverine	PEM	II	0.13	**Source:** Missouri River. Seasonal inundation suspected due to higher flows. The river is dam-controlled but some seasonal water level variation occurs. **Destination:** Direct surface connection to Missouri River.	Wetland 2 is an emergent wetland fringing the Missouri River and exists along the right bank (east bank) through the project area. The riverward edge of Wetland 2 extends below the ordinary high water mark. Soils of Wetland 2 meet hydric soil indicator F3 (Depleted Matrix). Secondary hydrologic indicators were met. **Dominant Vegetation**: Drummond's Willow, Reed Canarygrass, Common Beaked Sedge
TOTAL					**0.21**		

[1] MDT 2008
[2] Cowardin et al., 1979
[3] Refer to Appendix B for MDT Montana Wetland Assessment Method Forms

Table 3-2. Summary of Wetland Function and Value Ratings and Functional Points for Project Area Wetlands.

Function and Value Variables[1]	WL-1	WL-2
A. Listed/Proposed T&E Species Habitat	Low (0)	Low (0.1)
B. MT Natural Heritage Program Species Habitat	Low (0.1)	Mod (0.5)
C. General Wildlife Habitat	Mod (0.5)	Mod (0.7)
D. General Fish Habitat	NA	NA
E. Flood Attenuation	NA	Low (0.1)
F. Short and Long Term Surface Water Storage	Low (0.3)	Low (0.3)
G. Sediment/ Nutrient/Toxicant Removal	High (0.8)	Low (0.2)
H. Sediment/Shoreline Stabilization	NA	High (0.9)
I. Production Export/Food Chain Support	Low (0.4)	High (0.5)
J. Groundwater Discharge/Recharge	NA	NA
K. Uniqueness	Low (0.2)	Low (0.3)
L. Recreation/Education Potential (bonus points)	NA	NA
ACTUAL POINTS/POSSIBLE POINTS	2.3/7	3.6/9
PERCENT OF POSSIBLE SCORE ACHIEVED	33%	40%
OVERALL CATEGORY RATING (FUNCTIONAL RATING)	**IV**	**III**
[1] Refer to Appendix B for MDT Montana Wetland Assessment Method Forms.		

3.3.3 Potential Impacts

The scope of the proposed project has not been fully identified and, as such, potential impacts on wetlands cannot be determined. The extent of impact on wetlands and water bodies will be identified once a preferred alternative is selected and design progresses and construction limits are known. The project team will avoid and minimize impact on wetlands and water bodies in the project area to the greatest extent practicable. Once the preferred alternative has been selected and construction limits established, wetland impacts would be quantified and described in greater detail in the AFR Report and Section 404 permit application.

3.3.4 Avoidance and Minimization Recommendations

The project team will avoid and minimize impacts on wetlands and water bodies in the project area to the greatest extent practicable. Once the preferred alternative has been selected and construction limits established, wetland impacts would be quantified and described in greater detail in the AFR Report and Section 404 permit application.

3.3.5 Required Permitting

Section 404 of the Clean Water Act (CWA) requires approval prior to discharging dredged or fill material into waters of the United States, including wetlands. A Section 404 permit may be necessary if a preferred alternative is selected that impacts project area wetlands or requires in-water work within the OHWM of the Missouri River. The required permitting will be determined at a later phase in project development. More information on permitting requirements is presented above in Section 3.1.6.

3.3.6 Proposed Compensatory Wetland Mitigation Strategy

Wetland mitigation, if required, will be developed in consultation with the USACE. Appropriate wetland mitigation would be determined at a later date during the Section 404 permitting process.

4 Species of Concern and Special Status Species

Montana species of concern (SOC) include native plants or animals that are considered to be “at risk” due to declining population trends, threats to their habitats, and/or restricted distribution. Designation of a species as a Montana SOC is not a statutory or regulatory classification. Instead, these designations provide a basis for resource managers and decision-makers to proactively direct limited resources to priority data collection needs and address conservation needs.

4.1 Methods

An Environmental Summary Report was provided by the MTNHP on June 2, 2022, for the project area vicinity that included a conservatively wide query area approximately 10 square miles surrounding the project area. The report includes database information on sensitive animal species that have documented occurrences in the vicinity of the project area. The results are listed in Table 4-1, followed by a brief description on each species and potential impacts to these SOC as a result of the proposed project.

Species occurrence data is supplied to MTNHP by a variety of different wildlife and plant professionals, private, and/or government entities. Descriptions of SOC provided below are briefly summarized from information obtained from the MTNHP Environmental Summary Report (MTNHP 2022a) and the Montana Field Guides (MTNHP 2022b).

Table 4-1. Montana Natural Heritage Program Species of Concern with Documented Occurrences in the Project Area Vicinity

Species	State Rank[a]	General Habitat Requirements
Birds		
Bald Eagle (*Haliaeetus leucocephalus*)	S4	Riparian forest
Great Blue Heron (*Ardea herodias*)	S3	Riparian forest
Greater Sage-Grouse (*Centrocercus urophasianus*)	S2	Sagebrush
Mammals		
Black-tailed Prairie Dog (*Cynomys ludovicianus*)	S3	Grasslands
Grizzly Bear[b] (*Ursus arctos*)	S2S3	Conifer forest
Reptiles		
Spiny Softshell (*Apalone spinifera*)	S3	Prairie rivers and larger streams
Greater Short-horned Lizard (*Phrynosoma hernandesi*)	S3	Sandy / gravelly soils
Fish		
Blue Sucker (*Cycleptus elongatus*)	S2S3	Large prairie rivers
Pallid Sturgeon[b] (*Scaphirhynchus albus*)	S1	Large prairie rivers
Sauger (*Sander canadensis*)	S2	Large prairie rivers
Sturgeon Chub (*Macrhybopsis gelida*)	S2S3	Large prairie rivers
Other		
Bat Roost	NA	Documented presence of adults or juveniles of any bat species at non-cave natural roost sites (e.g. rock outcrops, trees), below ground human created roost sites (e.g. mines), and above ground human created roost sites (e.g., bridges, buildings).

Source: MTNHP 2022a
[a] See Species Status Codes at <https://mtnhp.org/help/docs/Status_Codes.pdf> for status definitions.
[b] Threatened and Endangered Species addressed in Section 5

4.2 Terrestrial Species

4.2.1 Species observed/documented, general abundance, distribution, and habitat requirements

Terrestrial SOC with potential for occurrence in the project area are listed in Table 4-1 above and include several bird, mammal, reptile, and amphibian species. Additional information on the terrestrial SOC is provided in the sections below primarily referencing the Montana Field Guide (MTNHP 2022b).

Birds

Bald Eagle

The bald eagle is primarily a species of riparian and lacustrine habitats (forested areas along rivers and lakes), especially during the breeding season. Important year-round habitat in Montana includes

wetlands, major water bodies, spring spawning streams, ungulate winter ranges and open water areas (MTNHP 2022b). Wintering habitat may include upland sites. Nesting sites are generally located within larger forested areas near large lakes and rivers where nests are usually built in the tallest, oldest, large diameter trees. The MTNHP identifies bald eagle nests in the vicinity of the project area (MTNHP 2022a; see Figure 4-1). Two nests are documented greater than one mile downstream of the MT-80 bridge.

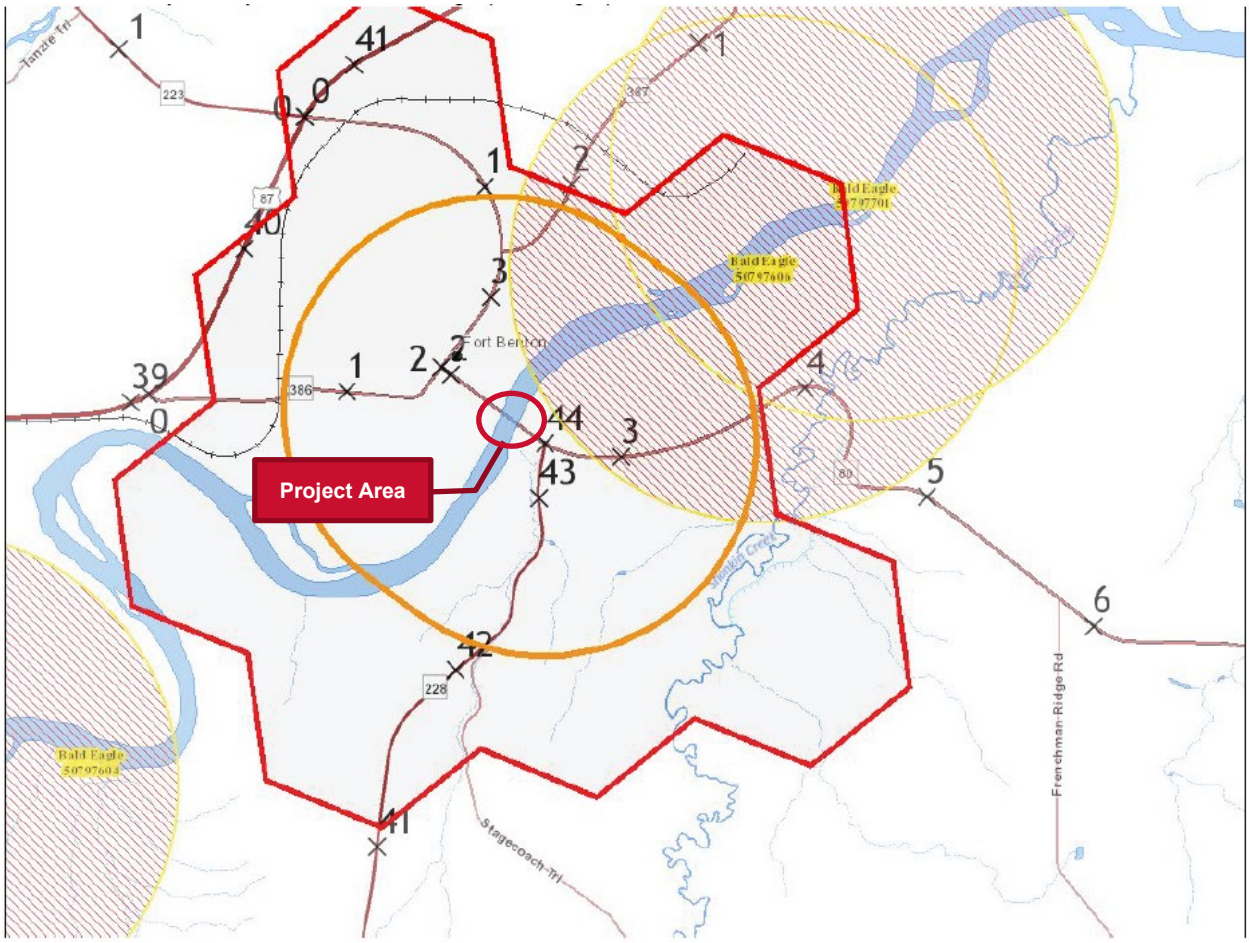

Figure 4-1. Bald Eagle Nests in the Project Area Vicinity

Great Blue Heron

Great blue herons are equally at home in urban wetlands as they are in wilderness settings. Most Montana nesting colonies are found in cottonwoods along major rivers and lakes, with a smaller number occurring in riparian ponderosa pines and on islands in prairie wetlands (MTNHP 2022b). Great blue herons tend to nest in the largest trees available. A review of the MTNHP database indicates that no direct or indirect evidence of breeding or great blue heron nests are located in the immediate project area (MTNHP 2022c). The immediate project area does contain suitable habitat for great blue heron.

Greater Sage-Grouse

The Greater Sage-Grouse is North America's largest grouse and is closely associated with sagebrush habitat types. They have adapted to a broad mosaic throughout their range, including relatively tall sagebrush (*Artemisia tridentata, A. tripartita, A. cana*), relatively low sagebrush (*A. arbuscula, A. nova*), forb-rich mosaics with low and tall sagebrush, riparian meadows, steppe, scrub

willow, or sagebrush savanna (with juniper, ponderosa pine, aspen). The Greater Sage-Grouse will use altered habitats, such as alfalfa, wheat, and crested wheatgrass, but the degree of use depends on association with native habitat. Leks are typically located in sites with reduced herbaceous and shrub cover surrounded by potential nesting habitat, often on broad ridgetops, grassy swales, disturbed sites, dry lake beds, or cultivated fields. Leks in Montana are often in clearings surrounded by sagebrush, including natural clearings, old burns, and clearings around abandoned homesteads. In central Montana, males occupy leks from early March to early June with peaks in late April to early May. Females attend leks mid-March to late May with peaks in early to mid-April. Greater Sage-Grouse is considered non-migratory in central Montana, though small movements (generally < 16 km) may occur between breeding/nesting and wintering areas.

The 2015 Montana State Legislature passed the Greater Sage Grouse Stewardship Act and Governor Bullock signed Executive Orders 12-2015 and 21-2015 and the Montana Sage Grouse Conservation Program was formed to work to sustain viable sage grouse populations and conserve habitat (MT Sage Grouse Conservation Program 2021). This state-led program oversees and implements Executive Order 12-2015 and the Greater Sage Grouse Stewardship Act and the Department of Natural Resource and Conversation (DNRC) leads the initiative. Projects are required to undergo a review if they require a state permit and fall within habitat designated for conservation.

Although this species is identified in the MTNHP Environmental Summary Report, the proposed project is not located within designated Greater Sage-Grouse general or core habitat (MSGHCP 2022). Areas of general habitat are designated approximately three miles from the project area to the north and southwest. Moreover, the city limits of Fort Benton are exempted from the conservation program. As such, consultation with the Montana Sage Grouse Habitat Conservation Program (MSGHCP) will not be required for the project.

Mammals

Black-tailed Prairie Dog

The black-tailed prairie dog is the largest of the prairie dog species, weighing approximately 1.5 to 3.3 pounds (700 to 1500 grams) and measuring 11 to 13 inches from nose to tail (MTNHP 2022b). The overall color of the back and upper sides of the body and tail is generally dark cinnamon with buff coloring on the underside. Black-tailed prairie dog colonies are found on flat, open grasslands and shrub/grasslands with low, relatively sparse vegetation. The most frequently occupied habitat in Montana is dominated by western wheatgrass, blue grama and big sagebrush; colonies tended to be associated with areas heavily used by cattle, such as water tanks and long-term supplemental feeding sites.

Suitable prairie dog habitat exists within the project area vicinity on the east side of the MT-80 bridge; however, no site-specific observations are documented by the MTNHP in or near the project area. No prairie dog colonies or burrows were identified during the field survey.

Bat Roost (Non-cave)

The MTNHP Environmental Summary report identifies several non-cave bat roosts in the project area (see Figure 4-1). Specifically, the MT-80 bridge was documented in June 2019 as a roost site (MTNHP 2022a). The species notes for this particular observation note, “Multiple open night roosts, a night roost in a large crevice and one day roost in a large crevice observed.” The habitat notes for this observation note that crevices are present at the bridge abutment.

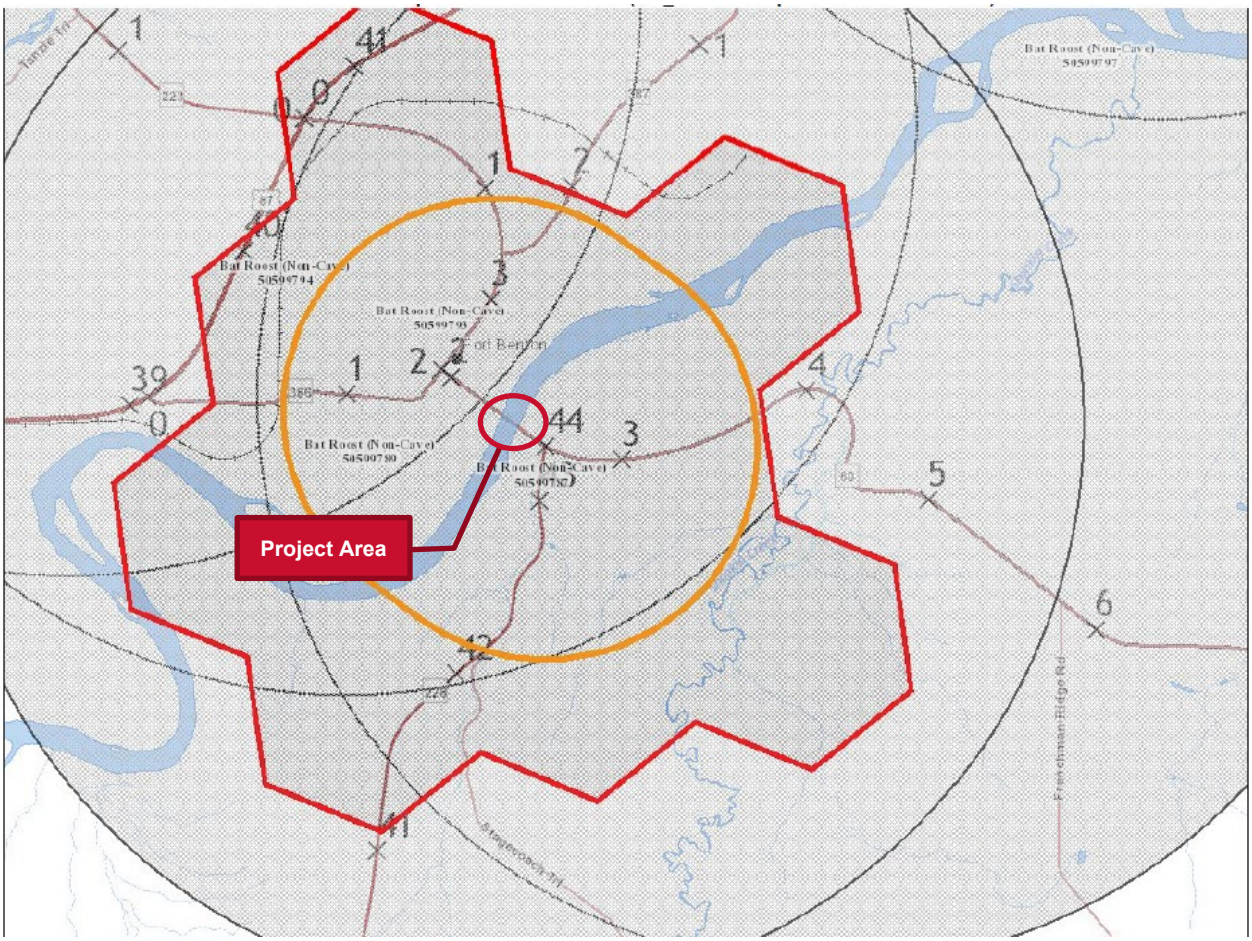

Figure 4-2. Bat Roosts in the Project Area Vicinity

Reptiles

Spiny Softshell

Limited information exists for Montana on the migration and habitat characteristics of the spiny softshell. In general, this species occupies large rivers and tributaries, and more specifically, river impoundments, lakes, ponds along rivers, pools along intermittent streams, bayous, irrigation canals, and oxbows (MTNHP 2022b). It usually is found in areas with open sandy or mud banks, a soft bottom, and submerged brush and other debris. They burrow into the bottoms of permanent water bodies, either shallow or relatively deep (0.5 to 7.0 meters), where they spend winter. Food sources include crayfish, aquatic insects, and fishes, but mollusks, worms, isopods, amphibians, carrion, and vegetation also are eaten. The Missouri River provides suitable habitat for this species. The MTNHP database documents occurrence of this species in the project area vicinity (MTNHP 2022c).

Greater Short-horned Lizard

The greater short-horned lizard is a year-round resident of eastern Montana. Habitat use in Montana is thought to include ridge crests between coulees, and in sparse, short grass and sagebrush with sun-baked soil (MTNHP 2022b). Food preference for this species includes mostly ants and beetles, as well as spiders, snails, sowbugs, and other invertebrates. Adult lizards are diurnal and active during warmer daylight periods of the day.

Suitable habitat for this species is limited to the east side of the Missouri River and marginal habitat exists within the immediate project area. The MTNHP database documents occurrence of this species in the project area vicinity (MTNHP 2022c).

4.2.2 Potential Impacts

The scope of the proposed project has not been fully identified and, as such, potential impacts on terrestrial SOC cannot be determined. As previously noted, potential impacts to terrestrial SOC will be dependent on the scope and scale of a future project and would be commensurate with the area of new disturbance and duration of construction.

No impact on individual bald eagle or nests is anticipated. Temporary construction noise has potential to disrupt bald eagle behavior or reproduction if construction-related activities are within a half-mile distance from bald eagle nest sites, concentrated foraging areas, and communal roost sites. A distance of one-half mile is the recommended distance between potentially disturbing activities and eagle nests (Montanan Bald Eagle Working Group 2010). There are no nests within a one-half mile distance of the project site.

Both a rehabilitation and a replacement project have potential to temporarily impact bat roost sites on the MT-80 structure. Temporary construction disturbance from noise, vibration, light, and odor could discourage bats from using the bridge as a day roost or cause abandonment of the roost site altogether. Potential adverse effects due to disturbance may include roost abandonment, avoidance of foraging areas, dysfunctional allocation of time and energy resources to vigilance behaviors, and degradation of physiological condition and social order (Caltrans 2016). However, some level of tolerance and habituation to noise may occur in the species using the bridge as a roost site.

Impacts to reptile and amphibian SOC during construction, especially burrowing species, may occur during ground disturbing activities depending on the future scope of the project and result in direct mortality of individuals. This impact would be considered discountable and have no effect on reptiles or amphibian SOC populations.

4.2.3 Avoidance and Minimization Recommendations

Appropriate avoidance and minimization measures will be identified at a later phase in project development. MBTA standard specifications described in Section 2.3.3 would indirectly benefit bird SOC. To the extent practicable, impacts on the bat roosts should be minimized through attempting to exclude bats from using the structure during construction. Exclusion methods could include physical exclusion, acoustic exclusion, or a combination of both. Physical exclusion methods include temporarily filling small openings and crevices with expanding foam or other materials or covering sections of the structure with plywood or screens (e.g., netting, plastic). Exclusion of bats from roost sites should be done after August 15 and prior to April 15 to avoid impacts on maternity colonies (Caltrans 2016).

4.3 Aquatic Species

Aquatic SOC with potential for occurrence in the project area vicinity include blue sucker, sauger, and sturgeon chub (see Table 4-1).

4.3.1 Species observed/documented, general abundance, distribution, and habitat requirements

Blue Sucker

Blue sucker appears to inhabit only the larger streams, primarily the Missouri and Yellowstone rivers. It is easily recognized by its elongate shape, long dorsal fin, and slate-blue coloration. The largest weight for this species in Montana is slightly over 10 pounds (MTNHP 2022b). Montana populations appear to be stable and fairly abundant with a healthy size structure. Although the Blue Sucker populations appear to be healthy and stable, special recognition is warranted because this species may be susceptible to population declines due to its unique biological characteristics (longevity, low recruitment, migratory nature and reliance on high flows in tributary streams for spawning).

Sauger

The sauger is native to Montana east of the Continental Divide and inhabits large turbid rivers and muddy shallows of lakes and reservoirs throughout their range (MTNHP 2022b). Historical distribution in Montana has included the Missouri River and its major tributaries downstream of Great Falls. Spawning is often accompanied by a long-distance migration upstream and/or into tributary streams in the spring. Sauger are highly selective for spawning sites and use unique geomorphic features, such as bluff pools and bedrock reefs, and gravelly or rocky substrates in shallow water (Jaeger 2004). Turbidity is an important feature for suitable habitat. Sauger typically spawn from mid-April to May at water temperatures of 50 degrees F (MTNHP 2022b). Sauger spawn from mid-April to May at water temperatures of 50 degrees F., with peaks early in May based on a middle Missouri River study (MTNHP 2022b). Juveniles rear within channels, backwaters, oxbows, and other off-channel habitats during spring and summer before shifting to main channel habitats in autumn (Jaeger 2004). Adult sauger also use off-channel and channel-margin habitats during the spring and early summer periods of high flow and turbidity, and then move to deeper main channel habitats in late summer and autumn as decreasing flows and turbidities cause suitable off-channel habitats to become unavailable. Young sauger eat primarily aquatic insects and crustaceans and adults feed mainly on fish.

The SOC listing as S2 was prompted by statewide declines in distribution as well as dramatic declines in abundances in all extant sauger populations in the late 1980s with only limited recovery observed subsequently (Jaeger 2004). Habitat loss and the presence of migratory barriers are the primary causes of the reduced distribution of sauger in Montana.

Sturgeon Chub

Sturgeon chub is one of several native minnows found in the eastern MT prairie river drainages (Missouri, lower Yellowstone and Powder Rivers) and is an indicator species of the Large Mainstem Warmwater River Fish Assemblage that includes other big river species (MTNHP 2022b). The Sturgeon Chub is currently listed as an "S2S3" species of concern in Montana because they are potentially at risk of extirpation in the state, because of limited and/or declining numbers, range and/or habitat, even though it may be abundant in some areas. Sturgeon Chub are found in turbid water with moderate to strong current over bottoms ranging from rocks and gravel to coarse sand

4.3.2 Potential Impacts

The scope of the proposed project has not been fully identified and, as such, potential impacts on aquatic SOC cannot be determined. The level of impact would be commensurate to the amount and duration of in-water disturbance. A bridge rehabilitation project would likely not involve any in-water

work and would therefore have no impact on aquatic SOC. A bridge replacement project, however, would be expected to include some level of disturbance to the bed and/or banks of the Missouri River and impacts to aquatic species through temporary increases in turbidity and suspended sediments could occur under this scenario.

4.3.3 Avoidance and Minimization Recommendations

Appropriate avoidance and minimization measures will be identified at a later phase in project development. Conservation measures discussed in Section 3.1.5 would be effective in protecting water quality and would directly benefit aquatic SOC during construction. Further coordination with the FWP may be necessary as a preferred alternative is selected and design progresses to determine the appropriateness of potential timing restrictions.

5 Threatened and Endangered Species Preliminary Biological Assessment

Section 7 of the Endangered Species Act (ESA) [16 U.S.C. 1531 *et seq*.] outlines the procedures for Federal interagency cooperation to protect federally listed species and conserve designated critical habitats. Section 7 requires Federal agencies to determine the effects of the proposed action on threatened, endangered, and proposed species and to consult with the USFWS for concurrence on the determination of effect. This section provides the Preliminary Biological Assessment of the proposed action's effect on federally listed species and designated critical habitats.

5.1 Methods

Information reported within this section was obtained from a review of literature and database searches and on-site field investigation. The list of federally listed endangered, threatened, proposed, and candidate species to be considered for this project (see Table 5-1) was generated for the project area based on the USFWS data obtained through the Information for Planning and Consultation (IPaC) web tool. Federally listed species potentially occurring in the project area vicinity are listed in Table 5-1 along with their respective federal status.

Table 5-1. Federally Listed Species Occurring in the Project Area Vicinity

Common Name	Scientific Name	Status[a]
Grizzly Bear	*Ursus arctos horribilis*	LT
Pallid Sturgeon	*Scaphirhynchus albus*	LE
Monarch Butterfly	*Danaus plexippus*	C

Sources: USFWS 2022a
[a] LE = Listed Endangered; LT = Listed Threatened; C = Candidate

5.2 Action Area and Environmental Baseline

The action area for the proposed project is defined as "all areas to be affected directly or indirectly by the proposed action and not merely the immediate area directly adjacent to the action" (50 CFR §402.02). Project components that pose potential effects include construction noise and clearing and grading resulting from construction activities. The potential project effects would vary depending on the ultimate scope of the project. Bridge replacement projects that involve instream work, for example, typically include an aquatic action area extending upstream and downstream of the project. As the project scope is determined, an appropriate action area will be determined, and the biological assessment will be updated accordingly. For purposes of this preliminary biological assessment, the project action area is defined as the area extending 200 feet from both sides of the MT-80 bridge and roadway approaches as shown in Figure 1-1.

Regulations implementing the ESA (50 CFR 402.02) define the environmental baseline as the past and present impacts of all Federal, State or private actions and other human activities in the action area. As described in Section 1, the project is located in Sections 23 and 26 of Township 24 North, Range 8 East.

Environmental baseline conditions for terrestrial and aquatic areas within the project area are described in previous sections above. Section 2.1 describes general habitat and vegetation and Section 3.1 describes project area waterways. Wetlands are described in Section 3.3. Representative project site photographs are provided in Appendix A.

5.3 Preliminary Biological Assessment

5.3.1 Pallid Sturgeon – Endangered

Species status, distribution, habitat requirements, and occurrence in project area

The pallid sturgeon (*Scaphirhynchus albus*) was federally listed as endangered in 1990 (55 FR 36641 36647). The 1990 listing noted that the species is threatened through habitat modification, apparent lack of natural reproduction, commercial harvest, and hybridization in parts of its range. The construction of dams along the Missouri River and tributaries have negatively affected this species. Pallid sturgeon can be found in Montana in large turbid river systems including the Missouri and Yellowstone Rivers. Within the state of Montana, the USFWS document this species range on the Missouri River as extending from the Morony Dam downstream to (and beyond) the North Dakota border. According to the MTNHP Montana Field Guides (MTNHP 2022b), pallid sturgeon occur in the upper Missouri River above Ft. Peck Reservoir but are scarce. According to the MTNHP, the pallid sturgeon has been declining during at least the past 50 years with only about 200

adults remaining in the upper Missouri River and limited natural reproduction. No critical habitat is designated in Montana for this species.

Habitat requirements include large, turbid rivers over sand and gravel bottoms, usually in strong current, as well as impoundments of these rivers. They are documented to use all channel types, but primarily straight reaches with islands. The MTNHP provides little information on pallid sturgeon eating habits noting only that aquatic insects and minnows have been found in their stomachs.

As previously noted, this species is rare in the Upper Missouri River. The MTNHP Generalized Observations database does, however, include two records of pallid sturgeon within Chouteau County in the vicinity of the project area from 2009 and 2010. The 2009 report occurred at the mouth of the Marias River approximately 20 river miles (11.5 air miles) downstream of the project area and the 2010 report occurred approximately 8 river miles (5 air miles) upstream of the project area (MTNHP 2022c). The FWP MFISH Mapper also identifies the project area reach of the Missouri River as containing pallid sturgeon (FWP 2022).

Potential Impact Analysis

The scope of the project has not been determined and, as such, the project's potential effect on pallid sturgeon cannot be fully evaluated. The potential for impact to this species will vary depending on the scope of the project, area of disturbance, and duration of construction. A minor bridge rehabilitation, if identified as the preferred alternative, would likely not include in-water disturbances or substantial grading along the riverbanks. The potential for sediment-related impact on water quality would be minimal under a rehabilitation alternative. However, deck removal and replacement occurring directly over the Missouri River has the potential to result in materials entering the river even with containment best management practices in place.

Conversely, a full bridge replacement, if identified as the preferred alternative, would require in-water work to remove existing pier and construct new bridge piers (likely in a different location) and would likely result in some increased turbidity of the river. A potential short-term increase in turbidity may not negatively affect pallid sturgeon because of their natural preference of turbid waters; however, the construction of a new bridge could introduce effects such as underwater noise, effects to the sediment regime, effects on prey species, introduction of contaminants, and disruption of flow conditions, among others, all of which have potential to affect pallid sturgeon.

Preliminary Determination of Effect

Because the presence of pallid sturgeon within the project area cannot be fully discounted, and due to the potential of project effects regardless of the alternative selected, it is conservatively determined that a proposed bridge project in the vicinity of the existing MT-80 bridge ***may affect*** pallid sturgeon. Based on this determination, a final determination of effect will be made at a later phase in project development in coordination/consultation with the USFWS.

Once a preferred alternative is selected and scope is defined for the project, a more in-depth evaluation will be possible and captured in a Biological Assessment. Additionally, conservation measures will be identifiable once a project scope is determined. Conservation measures discussed in Section 3.1.5 would be effective in protecting water quality and would directly benefit pallid sturgeon during construction.

5.3.2 Grizzly Bear – Threatened

Species status, distribution, habitat requirements, and occurrence in project area

The grizzly bear (*Ursus arctos horribilis*) was listed as threatened under the ESA in 1975 in the conterminous 48 states (40 FR 31734). Habitat loss and human encroachment are the primary reasons for decline in grizzly bear populations (Reel et al. 1989). On June 30, 2017, the Greater Yellowstone Ecosystem (GYE) population of grizzly bears was removed from the federal list of endangered and threatened species. The USFWS June 30, 2017, final rule delisting the Greater Yellowstone Ecosystem grizzly bear population was vacated and remanded by the court on September 24, 2018. Therefore, grizzly bears throughout the lower 48 states are listed as threatened except where designated as an experimental population.

Grizzly bears are wide-ranging mammals requiring large areas of undisturbed habitat and prefer habitat that is forested and provides good cover (USFWS 1993). However, grizzlies will occupy a wide range of habitat types and elevations throughout the year and will opportunistically occupy areas that can best meet their food requirements. Home ranges can vary considerably from approximately 11 to 2,000 square kilometers (7 to 1,245 sq. mi.) and are dependent upon food distribution (Reel et al. 1989).

The MTNHP identifies grizzly bear within the query area results for the SOC report generated for the project (MTNHP 2022a). Despite this, the MTNHP Generalized Observations database do not have record of grizzly bear occurrence in the project vicinity (MTNHP 2022c). The Species Occurrence polygon in the Environmental Summary Report represents areas delineated by the USFWS that encompass both home ranges and potential transitory movements based on verified sightings. The USFWS “May Be Present” Map and GIS database (USFWS 2022b) was reviewed to further evaluate the potential for grizzly bears to occur in or near the project area. The project area is located approximately 100 miles east of the Northern Continental Divide Ecosystem (NCDE) boundary but within the easternmost area of estimated current grizzly bear distribution for the NCDE Recovery Zone. The 2020 NCDE Annual Report shows grizzly bear incidents from 2020 (Costello and Roberts 2021; see Figure 5-1). In recent years, grizzly bears on the eastern side of the Rocky Mountain Front have increased in numbers and expanded eastward into prairie areas where they haven’t existed for decades (Bolton 2020). An internet search revealed several instances dating back to 2009-2010 when grizzly bears were being observed along the Missouri River in areas near Fort Benton, Loma, and Floweree for the first time in many decades (Outdoor News 2009, Puckett 2010). Although the easternmost incidents shown in Figure 5-1 are not within the project area vicinity, the data supports the general trend of grizzly bear eastern expansion and the potential for additional grizzly bear sightings is possible in the vicinity of the town of Fort Benton.

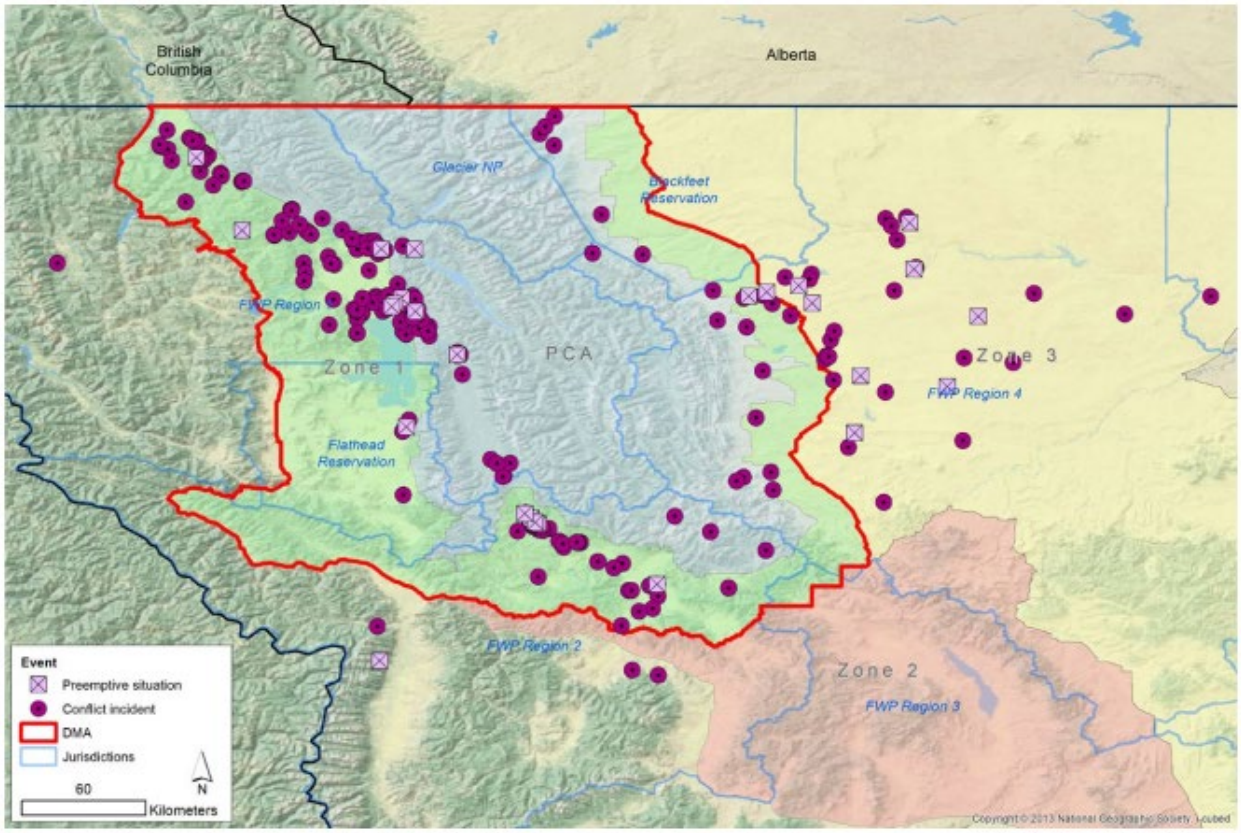

Figure 5-1. Agency Responses to Grizzly Bear Incidents in the NCDE in 2020 (Source Costello and Roberts, 2021).

Potential Impact Analysis

The scope of the project has not been determined and, as such, the project's potential effect on grizzly bear cannot be fully evaluated. The potential for impact to this species will vary depending on the scope of the project, area of disturbance, and duration of construction. The action area generally lacks suitable grizzly bear habitat (urban environment) and is geographically situated outside of the NCDE. A minor bridge rehabilitation, if identified as the preferred alternative, would likely not result in the alteration, degradation, or removal of suitable grizzly habitat. Conversely, a full bridge replacement, if identified as the preferred alternative, may need to be built on a new alignment and require removal of riparian vegetation that may be used by grizzly bear.

Regardless of the selected preferred alternative, the project will create noise, but not to a level that could be harmful to grizzly bears. Because work would likely occur during daylight hours only, in the event a grizzly bear encounters project construction, it would be able to move through and around the project area undisturbed during twilight and dark hours when bears are more likely to be travelling between habitats. Bears that may encounter the project during daylight construction times could be discouraged from or avoid the action area altogether. These affects are considered insignificant and discountable.

Bridge rehabilitation would likely result in a wider structure and potentially wider roadway approaches, which, in turn, could encourage higher driving speeds and increase the potential for vehicular collisions with bears. Completion of the project is not expected to encourage increased human development in the project area. Standard Specification 208.03.4(E) Bear Habitat will be

included in the final construction documents to avoid and minimize potential conflict with bears that may encounter the construction area.

Conservation Measures

The presence of workers and associated bear attractants, such as food, petroleum products, etc., could increase the potential for bear-human conflict to occur. To minimize and avoid impacts to grizzly bear, the following Work in Bear Habitat special provision will be incorporated into the construction design and special provisions:

- Promptly clean up any project related spills, litter, garbage, debris, etc.
- Camping allowed in designated camping areas only (for construction workers).
- Store all food, food related items, petroleum products, antifreeze, garbage, and personal hygiene items inside a closed, hard-sided vehicle or commercially manufactured bear resistant container.
- Remove garbage from the project site daily and dispose of it in accordance with all applicable regulations.
- Notify the Project Manager of any animal carcasses found in the area.
- Notify the Project Manager of any bears observed in the vicinity of the project.

Determination of Effect

Because of the eastern expansion of grizzly bears and historical sightings near the project area, grizzly bear occurrence in the project area during construction cannot be fully discounted, and the possibility exists that a grizzly bear could pass through the project area during construction. Based on the above information and conservation measures, it has preliminarily been determined that the proposed project ***may affect*** grizzly bear. A final determination of effect will be made at a later phase in project development in coordination/consultation with the USFWS.

5.3.3 Monarch Butterfly - Candidate

On December 17, 2020, the USFWS found that listing the monarch butterfly as either Threatened or Endangered was “warranted but precluded by higher priority actions,” resulting in a candidate species status (85 FR 81813-81822). Monarch butterfly is documented in Montana with statewide distribution (MTNHP 2021b). Habitat preferences include open places, native prairie, foothills, open valley bottoms, open weedy fields, roadsides, pastures, marshes, suburban areas, and rarely above tree line in alpine terrain during migration (MTNHP 2022b).

While the species may occur in Chouteau County, no observations are documented in the project area or elsewhere in the county by the MTNHP (MTNHP 2022c). Suitable habitat is present within the project area, however, and the primary larval host plant for the species, showy milkweed (*Asclepias speciosa*), was identified within the project area during the field investigation. Removal of vegetation (including clearing and grubbing) outside of the growing season will reduce the likelihood of the presence of milkweed during the growing season and minimize the potential for monarch feeding or egg laying within the project boundaries. As such, the proposed project is ***not likely to jeopardize the continued existence*** of the monarch butterfly.

5.4 Potential Cumulative Effects Analysis

Cumulative effects include the effects of future state, tribal, local, or private actions that are reasonably certain to occur in the action area considered in this preliminary biological assessment (USFWS 1998). Future federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to Section 7 of the ESA (USFWS 1998). A cumulative impacts analysis examines the additive effect of the proposed action's residual impact (i.e., impacts remaining after applying avoidance and minimization measures) in relation to the residual impacts generated by past, present, and reasonably foreseeable actions within the cumulative analysis area.

The MDT Tentative Construction Projects 2022-2026 web application was reviewed on July 28, 2022, to identify any MDT-sponsored projects occurring in the vicinity of the proposed project. Two highway resurfacing projects are identified as upcoming projects. The Carter – North & South is located on US-87 approximately 10 miles west of the project with construction to occur in 2023. The NW of Geraldine – NW project is located on MT-80 approximately 10 mile southeast of the project with construction to occur in 2023. No additional projects were identified in the vicinity of the proposed project.

The above-listed projects, because they would be receiving some federal funding, would require separate consultation pursuant to Section 7 of the ESA. No additional future federal, state, local, or private actions of regional significance that are reasonably certain to occur have been identified within the vicinity of the proposed project. No long-term cumulative impacts are anticipated from the proposed project in conjunction with the above-listed projects.

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APPENDIX A: Representative Site Photos

REPRESENTATIVE SITE PHOTOS

Photo 1: Junction of MT-80 and S-228, looking northwest towards MT-80 bridge.

Photo 2: Field adjacent to MT-80, east side ot MT-80, looking northwest.

Photo 3: East bridge approach, looking west.

Photo 4: Forested riparian zone, east side of Missouri River, looking southwest at MT-80 bridge.

Photo 5: Old beaver sign near the east bridge abutment.

Photo 6: Animal tracks in dirt underneath the east bridge abutment.

Photo 7: Surprise encounter with beaver, riverbank right within the project area.

Photo 8: Maintained trail on east bank, looking southwest at MT-80 bridge.

Photo 9: East bank MT-80 bridge, looking upstream.

Photo 10: Unnamed intermittent drainage channel where it joins the Missouri River.

Photo 11: Unnamed intermittent drainage channel where it joins the Missouri River.

Photo 12: West side of Missouri River in Fort Benton, parkland at the west abutment area.

Photo 13: Levee trail system passing under west bridge abutment

Photo 14: Levee trail system on northwest side of bridge, looking northeast.

WETLAND DELINEATION PHOTOS

Photo 15: Data plot WL-01, Wetland 1.

Photo 16: Overview of data plot WL-01, Wetland 1.

Photo 17: Upland data plot UPL-01 paired plot to WL-01.

Photo 18: Overview of data plot UPL-01

Photo 19: Data plot WL-02 in Wetland 2.

Photo 20: Overview of WL-02 and Wetland 2.

Photo 21: Upland data plot UPL-02, paired plot to WL-02

Photo 22: Overview of data plot UPL-02

Photo 23: Overview of Wetland 2, looking upstream

Photo 24: Overview of Wetland 2, looking downstream

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APPENDIX B: USACE Wetland Determination Data Forms and Montana Wetland Assessment Method (MWAM) Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Missouri River - Fort Benton | City/County: Chouteau | Sampling Date: 9-15-22
Applicant/Owner: MDT | State: MT | Sampling Point: WL-01
Investigator(s): Jon Schick - HDR | Section, Township, Range: Sec. 23, T24N, R8E
Landform (hillside, terrace, etc.): Depression | Local relief (concave, convex, none): Concave | Slope (%): 2
Subregion (LRR): LRR G, MLRA 58A | Lat: 47.814800 | Long: -110.665723 | Datum: WGS84
Soil Map Unit Name: Havre-Glendive complex, 0 to 2 percent slopes, occasionally flooded | NWI classification: PFO/PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Sample plot WL-01 is located within a small depression within a forested riparian area adjacent to the Missouri River. WL-01 is located within Wetland 1.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	30	Yes	FACW
2.			
3.			
4.			
	30	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Apocynum cannabinum*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	35	Yes	FACW
2. *Carex utriculata*	40	Yes	OBL
3. *Cirsium arvense*	2	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	77	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 23

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	65	x 2 =	130
FAC species	10	x 3 =	30
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	117 (A)		208 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
Large amount of cottonwood leaf litter on ground.

SOIL

Sampling Point: WL-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/1	90	10YR 5/6	10	C	M	Loamy/Clayey	Prominent redox concentrations
8-20	10YR 5/1	80	10YR 5/8	20	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- X Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:
Soils meet hydric soil indicators F3 and F8. Soils become clay-like at 8in and deeper.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
The depression likely gets high water table in spring and run-off. Secondary indicators met.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Missouri River - Fort Benton | City/County: Chouteau | Sampling Date: 9-15-22
Applicant/Owner: MDT | State: MT | Sampling Point: UPL-01
Investigator(s): Jon Schick - HDR | Section, Township, Range: Sec. 23, T24N, R8E
Landform (hillside, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 1-2
Subregion (LRR): LRR G, MLRA 58A | Lat: 47.814693 | Long: -110.665892 | Datum: WGS84
Soil Map Unit Name: Havre-Glendive complex, 0 to 2 percent slopes, occasionally flooded | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
UPL-01 is the paired upland plot to WL-01. Sample plot located in forested area adjacent to river. Plot is approx. 15' higher in elevation than WL-01.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	60	Yes	FACW
2.			
3.			
4.			
	60 =Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	50	Yes	UPL
2. *Solidago canadensis*	30	Yes	FACU
3. *Euphorbia esula*	2	No	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	82 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 18

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	52	x 5 =	260
Column Totals:	142 (A)		500 (B)

Prevalence Index = B/A = 3.52

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:
Large amount of cottonwood leaf litter on ground.

SOIL

Sampling Point: UPL-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Loamy/Clayey	
6-16	10YR 3/2	100					Loamy/Clayey	Layer is silty fines

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) **(LRR F)**
___ 1 cm Muck (A9) **(LRR F, G, H)**
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR I, J)**
___ Coast Prairie Redox (A16) **(LRR F, G, H**
___ Dark Surface (S7) **(LRR G)**
___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____
Depth (inches): _____

Hydric Soil Present? **Yes** ____ **No** X

Remarks:
No hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1)
___ Sediment Deposits (B2)
___ Drift Deposits (B3)
___ Algal Mat or Crust (B4)
___ Iron Deposits (B5)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Aquatic Invertebrates (B13)
___ Hydrogen Sulfide Odor (C1)
___ Dry-Season Water Table (C2)
___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
___ Presence of Reduced Iron (C4)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

___ Surface Soil Cracks (B6)
___ Sparsely Vegetated Concave Surface (B8)
___ Drainage Patterns (B10)
___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Geomorphic Position (D2)
___ FAC-Neutral Test (D5)
___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ____ No X Depth (inches): _____
Water Table Present? Yes ____ No X Depth (inches): _____
Saturation Present? Yes ____ No X Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No primary or secondary hydrology indicators.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Missouri River - Fort Benton | City/County: Chouteau | Sampling Date: 9-15-22
Applicant/Owner: MDT | State: MT | Sampling Point: WL-02
Investigator(s): Jon Schick - HDR | Section, Township, Range: Sec. 23, T24N, R8E
Landform (hillside, terrace, etc.): Terrace - River Fringe | Local relief (concave, convex, none): Convex | Slope (%): 4
Subregion (LRR): LRR G, MLRA 58A | Lat: 47.814373 | Long: -110.666788 | Datum: WGS84
Soil Map Unit Name: Havre-Glendive complex, 0 to 2 percent slopes, occasionally flooded | NWI classification: PEM
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes X No ____
Hydric Soil Present? Yes X No ____
Wetland Hydrology Present? Yes X No ____

Is the Sampled Area within a Wetland? **Yes** X **No** ____

Remarks:
Sample plot WL-02 is located on a narrow bench adjacent to the Missouri River and approx. 5' above the river surface. The terrace transitions to higher upland moving landward, which is approx. 5' higher in elevation than the wetland bench. WL-02 is located within Wetland 2.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix drummondiana*	10	Yes	FACW
2. *Apocynum cannabinum*	5	Yes	FAC
3.			
4.			
5.			
	15 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	60	Yes	FACW
2. *Carex utriculata*	20	Yes	OBL
3. *Equisetum fluviatile*	10	No	FACU
4. *Agrostis stolonifera*	5	No	FACW
5. *Euphorbia esula*	2	No	UPL
6.			
7.			
8.			
9.			
10.			
	97 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	=Total Cover		

% Bare Ground in Herb Stratum 3

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	75	x 2 =	150
FAC species	5	x 3 =	15
FACU species	10	x 4 =	40
UPL species	2	x 5 =	10
Column Totals:	112 (A)		235 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
X 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No** ____

Remarks:
Large amount of cottonwood leaf litter on ground.

SOIL

Sampling Point: WL-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	85	10YR 5/6	15	C	M	Loamy/Clayey	Prominent redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:
Soils meet hydric soil indicator F3.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
Secondary indicators met.

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Great Plains Region
See ERDC/EL TR-10-1; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp: 11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: Missouri River - Fort Benton | City/County: Chouteau | Sampling Date: 9-15-22
Applicant/Owner: MDT | State: MT | Sampling Point: UPL-02
Investigator(s): Jon Schick - HDR | Section, Township, Range: Sec. 23, T24N, R8E
Landform (hillside, terrace, etc.): Terrace | Local relief (concave, convex, none): Concave | Slope (%): 1
Subregion (LRR): LRR G, MLRA 58A | Lat: 47.814437 | Long: -110.666558 | Datum: WGS84
Soil Map Unit Name: Havre-Glendive complex, 0 to 2 percent slopes, occasionally flooded | NWI classification: NA
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks.)
Are Vegetation____, Soil____, or Hydrology____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____
Are Vegetation____, Soil____, or Hydrology____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No X
Hydric Soil Present? Yes ____ No X
Wetland Hydrology Present? Yes ____ No X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
Sample plot UPL-02 is the paired upland plot to WL-02. Sample plot located on riverbank at a higher elevation than Wetland 2.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Populus balsamifera*	25	Yes	FACW
2.			
3.			
4.			
	25	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Bromus inermis*	65	Yes	UPL
2. *Solidago canadensis*	15	No	FACU
3. *Euphorbia esula*	5	No	UPL
4. *Phalaris arundinacea*	5	No	FACW
5. *Anethum graveolens*	1	No	UPL
6.			
7.			
8.			
9.			
10.			
	91	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 8

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	71	x 5 =	355
Column Totals:	116 (A)		475 (B)

Prevalence Index = B/A = 4.09

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** X

Remarks:

SOIL

Sampling Point: UPL-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/1	100					Loamy/Clayey	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:
No hydric soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No primary or secondary hydrology indicators.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Missouri River - Fort Benton **2. MDT Project #:** STPB STWD(749) **Control #:** 9319001

3. Evaluation Date: 09/15/2022 **4. Evaluator(s):** Jon Schick - HDR **5. Wetlands/Site #(s):** Wetland 1

6. Wetland Location(s): i. Legal: T24N,R8E,23 **Latitude/Longitude:**

ii. Approx. Stationing or Mileposts: RP 2.45

iii. Watershed: #7 - Missouri-Sun-Smith

Watershed Name, County: Missouri-Sun-Smith, Chouteau

7. a. Evaluating Agency: MDT

b. Purpose of Evaluation:

1. X Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. ___ Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 0.080 acres (measured)

9. Assessment area (AA): 0.080 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	EM	NA	SI	70.00
D	FO	NA	SI	30.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

ABUNDANT

12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	**moderate disturbance**	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Wetland 1 is located on private property adjacent to the MT-80 Bridge. The area appears to be moderately disturbed due to heavy human presence, the presence of the highway, and predominant land uses.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Some noxious weeds observed, but mostly individual plants and not large infestations.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Agricultural and Transportation

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	**Initial Rating**	**Is current management preventing (passive) existence of additional vegetated classes?**		**Modified Rating**
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	**M**	NA	NA	NA
1 class, but not a monoculture	M	<-- NO	YES -->	L
1 class, monoculture (1 species comprises >= 90% of total cover)	L	NA	NA	NA

Comments: Wetland 1 is composed of emergent vegetation, but is located within a forested riparian zone dominated by Populus balsamifera in the overstory (approx. 30 areal coverage).

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions): No usable habitat

Primary or critical habitat (list species) **Secondary habitat (list species)** **Incidental habitat (list species)**

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	.1L	**0L**

Sources for documented use (e.g. observations, records, etc): Wetland 1 is very small in size and has no usable habitat suspected for T&E species.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species) **Secondary habitat (list species)** **Incidental habitat (list species)**

Black-tailed Prairie Dog(S) - S2S3
Great Blue Heron(S) - S2S3

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
***S1 Species:** Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
***S2 and S3 Species:** Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	**.1L**	0L

Sources for documented use (e.g. observations, records, etc): SOC data obtained from MTNHP. Due to the small size of wetland and AA (<0.1-ac), minimal SOC habitat is suspected. Habitat type is incidental and species occurrence is suspected based on available information from the MTNHP and on-site investigations.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):
- ___ observations of abundant wildlife #s or high species diversity (during any period)
- ___ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ presence of extremely limiting habitat features not available in the surrounding area
- ___ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- ___ little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- X observations of scattered wildlife groups or individuals or relatively few species during peak periods
- X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other interms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in >=10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	**M**	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	**.5M**	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: Some signs of wildlife noted during field observations. Beaver directly observed.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **X NA** and proceed to 14E.)

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ *If yes, reduce score in i above by 0.1.*

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ___ *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia.***

iii. Final Score and Rating: NA **Comments:** No fish habitat within the AA.

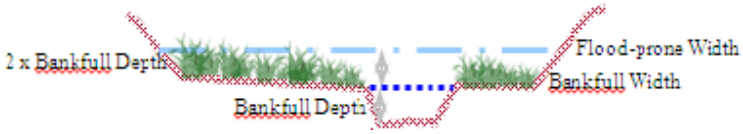
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **X NA** and proceed to 14F.)

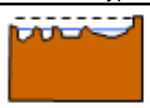
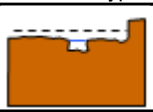
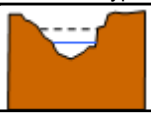
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** Missouri River is dam controlled. Flooding from in-channel or overbank flow not suspected.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark ___ **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			<=1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **>= 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	**.3L**	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Wetland 1 experiences somewhat regular seasonal ponding/inundation.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	**.8H**	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Wetland 1 receives run-off from surrounding areas. MT-80 is nearby and is a source of potential toxicants. No direct evidence of ponding.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark **X** **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: NA

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	**M**	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	**.3L**	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? **X** *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: **0.40M** **Comments:** Upland buffer present adjacent to AA.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

_____ The AA is a slope wetland
_____ Springs or seeps are known or observed
_____ Vegetation growing during dormant season/drought
_____ Wetland occurs at the toe of a natural slope
_____ AA permanently flooded during drought periods
_____ Wetland contains an outlet, but no inlet
_____ Shallow water table and the site is saturated to the surface
_____ Other:

ii. Recharge Indicators

_____ Permeable substrate present without underlying impeding layer
_____ Wetland contains inlet but no outlet
_____ Stream is a known 'losing' stream; discharge volume decreases
_____ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	**N/A**			

Comments: Water table was not present during soil sampling at 20 inches of depth.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	**.2L**
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: Uniqueness is low.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; ___Non-consumptive rec.; ___Other :

iii. Rating:

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: No educational/recreational value in AA.

General Site Notes
Wetland 1 is small depressional wetland with no outlet. No observed connection to other wetlands or WOUS. Direct surface connection to Missouri River unlikely. Hydrology comes from surface flow, runoff from MT-80 and adjacent uplands, and potential seasonal high groundwater. Dominant Vegetation includes Common Beaked Sedge, Black Cottonwood, Reed Canarygrass

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetland 1

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.00	1	0.00	
B. MT Natural Heritage Program Species Habitat	L	0.10	1	0.01	
C. General Wildlife Habitat	M	0.50	1	0.04	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	L	0.30	1	0.02	*
G. Sediment/Nutrient/Toxicant Removal	H	0.80	1	0.06	*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	M	0.40	1	0.03	*
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.20	1	0.02	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		2.30	7.00	0.18	
Percent of Possible Score			33%		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)
____ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
____ Score of 1 functional point for Uniqueness; **or**
____ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; **or**
____ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)
____ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
____ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
____ Score of .9 or 1 functional point for General Fish Habitat; **or**
____ "High" to “Exceptional” ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
____ Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
X "Low" rating for Uniqueness; **and**
X Vegetated wetland component 1 acre (do not include upland vegetated buffer); **and**
X Percent of possible score 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: IV

Summary Comments: Wetland 1 is a Category IV wetland. It's four primary functions include wildlife habitat; surface water storage; sediment, nutrient, toxicant removal; and production export.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Missouri River - Fort Benton **2. MDT Project #:** STPB STWD(749) **Control #:** 9319001

3. Evaluation Date: 09/15/2022 **4. Evaluator(s):** Jon Schick - HDR **5. Wetlands/Site #(s):** Wetland 2

6. Wetland Location(s): i. Legal: T24N,R8E,23 **Latitude/Longitude:**

ii. Approx. Stationing or Mileposts: RP 2.45

iii. Watershed: #7 - Missouri-Sun-Smith

Watershed Name, County: Missouri-Sun-Smith, Chouteau

7. a. Evaluating Agency: MDT

b. Purpose of Evaluation:

1. X Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. ___ Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 0.130 acres (measured)

9. Assessment area (AA): 2.000 acres (estimated)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	NA	SI	100.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

COMMON

12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) list)

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	**moderate disturbance**	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Wetland 2 Assessment Area extends up and downstream of the project area approximately .5 mile. The Assessment Area is contiguous to the Missouri River but does not include the Missouri River. It does include connected adjacent wetland habitat up and downstream of the delineated Wetland 2. Estimated AA is approximately 2 acres. Hydrological alteration due to dam-controlled river flows.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Minimal noxious weeds observed in AA.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Wetland 2 is an emergent fringe wetland on the Missouri River. Adjacent land uses include rural residential, agricultural, and transportatoin.

13. Structural Diversity: (based on number of "Cowardin" ***vegetated*** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	**Initial Rating**	**Is current management preventing (passive) existence of additional vegetated classes?**		**Modified Rating**
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	**M**	<-- NO	YES -->	L
1 class, monoculture (1 species comprises >= 90% of total cover)	L	NA	NA	NA

Comments: Wetland 2 is an emergent wetland.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
		Pallid Sturgeon(S) Grizzly Bear(S)

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	**.1L**	0L

Sources for documented use (e.g. observations, records, etc): No usable habitat suspected. Incidental habitat type and suspected species occurrence per USFWS and MTNHP. Missouri River is not included in the Wetland 2 AA; however, but Wetland 2 is immediately adjacent to the Missouri River and the fringe wetland extends up/downstream of the project area. Pallid Sturgeon have potential to inhabit Missouri River near Fort Benton, although they are very rare. Grizzly Bear are also very rare in the project area but have potential to move through the project area and this species has been observed in areas along the Missouri River in the project vicinity.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
	Great Blue Heron(S) - S2S3 Spiny Softshell(S) - S2S3	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
***S1 Species:** Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
***S2 and S3 Species:** Functional Points and Rating*	.9H	.7M	.6M	**.5M**	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc): SOCs based on Environmental Summary Report (MTNHP 2022) for project area. No direct observation of these species was made during the field investigation.

14C. General Wildlife Habitat Rating:

i. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):
- ___ observations of abundant wildlife #s or high species diversity (during any period)
- ___ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ presence of extremely limiting habitat features not available in the surrounding area
- ___ interviews with local biologists with knowledge of the AA

Minimal (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- ___ little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- X observations of scattered wildlife groups or individuals or relatively few species during peak periods
- X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

ii. Wildlife habitat features (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other interms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in >=10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	**H**	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	**.7M**	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: Habitat value is high along Missouri River.

14D. General Fish Habitat Rating: (Assess this function if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [i.e., fish use is precluded by perched culvert or other barrier, etc.]. If the AA is not used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then mark **X NA** and proceed to 14E.)

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ *If yes, reduce score in i above by 0.1.*

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ___ *If yes, add 0.1 to the adjusted score in **i** or **iia.***

iii. Final Score and Rating: NA **Comments:** Wetland 2 is a fringe wetland that is seasonally inundated, but does not provide usable fish habitat.

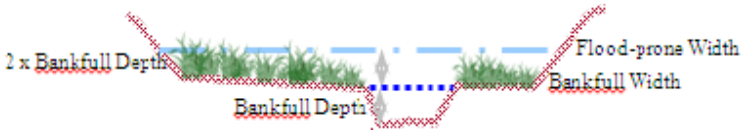
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark ___ **NA** and proceed to 14F.)

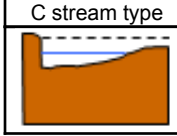
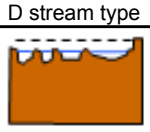
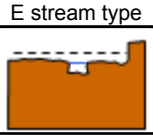
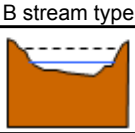
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	**.1L**

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

485 feet /	475 =	**1.02**
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



Slightly Entrenched ER = >2.2			**Moderately Entrenched ER = 1.41 – 2.2**	**Entrenched ER = 1.0 – 1.4**		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type
						

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** The AA does not provide much flood attenuation. Flood flows are dam-controlled. Flood-prone area and bankfull widths are very similar due to minimal seasonal water level fluctuations.

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, mark ___ **NA** and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding	>5 acre feet			1.1 to 5 acre feet			<=1 acre foot		
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond **>= 5 out of 10 years**	1H	.9H	.8H	.8H	.6M	.5M	.4M	**.3L**	.2L
Wetlands in AA flood or pond **< 5 out of 10 years**	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Seasonal inundation suspected within AA.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, mark ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	**.2L**	.1L

Comments: Missouri River is a 303(d) impaired waterbody.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, mark ___ **NA** and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	1H	**.9H**	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: Wetland 2 covers the right bank of the river through the project area (AA).

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	**M**	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	**.5M**	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? ___ *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: 0.50M **Comments:** Upland buffer existing on the landward side of AA, but not on the river side.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

_____ The AA is a slope wetland
_____ Springs or seeps are known or observed
_____ Vegetation growing during dormant season/drought
_____ Wetland occurs at the toe of a natural slope
_____ AA permanently flooded during drought periods
_____ Wetland contains an outlet, but no inlet
_____ Shallow water table and the site is saturated to the surface
_____ Other:

ii. Recharge Indicators

_____ Permeable substrate present without underlying impeding layer
_____ Wetland contains inlet but no outlet
_____ Stream is a known 'losing' stream; discharge volume decreases
_____ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	**N/A**			

Comments: No water table present during soil sampling at 16 inches depth. Insufficient information to determine groundwater discharge/recharge potential.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	**.3L**	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: Uniqueness is low as a riparian fringing wetland.

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; ___Non-consumptive rec.; ___Other :

iii. Rating:

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments: Wetland 2 is adjacent to private property and is a relatively abundant wetland type. No valuable recreational or educational opportunity suspected.

General Site Notes
Wetland 2 is an emergent wetland fringing the Missouri River and exists along the right bank (east bank) through the project area. The wetland extends up/downstream of the project area. The riverward edge of Wetland 2 extends below the ordinary high water mark. The hydrologic source for Wetland 2 is the Missouri River in the forms of seasonal inundation during higher flows. The river is dam-controlled but some seasonal water level variation occurs. Dominant vegetation includes Drummond's Willow, Reed Canarygrass, and Common Beaked Sedge.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetland 2

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.10	1	0.20	
B. MT Natural Heritage Program Species Habitat	M	0.50	1	1.00	
C. General Wildlife Habitat	M	0.70	1	1.40	*
D. General Fish Habitat	NA				
E. Flood Attenuation	L	0.10	1	0.20	
F. Short and Long Term Surface Water Storage	L	0.30	1	0.60	
G. Sediment/Nutrient/Toxicant Removal	L	0.20	1	0.40	*
H. Sediment/Shoreline Stabilization	H	0.90	1	1.80	*
I. Production Export/Food Chain Support	M	0.50	1	1.00	*
J. Groundwater Discharge/Recharge	NA				
K. Uniqueness	L	0.30	1	0.60	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		3.60	9.00	7.20	
Percent of Possible Score			40%		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)
____ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
____ Score of 1 functional point for Uniqueness; **or**
____ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; **or**
____ Percent of possible score > 80% (round to nearest whole #).

Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)
____ Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
____ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
____ Score of .9 or 1 functional point for General Fish Habitat; **or**
____ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
____ Score of .9 functional point for Uniqueness; **or**
____ Percent of possible score > 65% (round to nearest whole #).

Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)
X "Low" rating for Uniqueness; **and**
X Vegetated wetland component 1 acre (do not include upland vegetated buffer); **and**
____ Percent of possible score 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: III

Summary Comments: Wetland 2 is a Category III wetland. Its four primary functions include: wildlife habitat; sediment/nutrient/toxicant removal; shoreline stabilization; and production export.