



Aquatic Resources Report

Northwest Billings Connector and Marathon Trail Project

Yellowstone County, Montana

September 9, 2021

Prepared for:



Prepared by:



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1.0 Introduction

This report describes the results of an aquatic resources delineation completed by HDR Engineering within the project area for the proposed Northwest Billings Connector and Marathon Trail Project. The report was prepared and reviewed by HDR environmental scientists and is intended to provide documentation of existing stream and wetland conditions in the project area to support applicable federal, state, and local agency permitting for the project. The wetland and stream delineation was conducted by:

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This report is intended to update a wetland and waters of the U.S. inventory of the same project area conducted in 2010 (see Section 2.2).

1.1 Project Background and Location

In 2020, the City of Billings (City) was awarded \$11.6 million in funding from the Federal Better Utilizing Investments to Leverage Development, or BUILD, Transportation Discretionary Grant program to fund transportation improvements in the northwest Billings area. The overall scope of the project includes design and construction of five miles of new collector roadway and eight miles of trails. The proposed project includes two main project elements as described in the 2020 grant application and as shown and described below. Figure 1 depicts the two project elements—the Inner Belt Loop and the Skyline Trail—and is followed by a detailed description of each element.

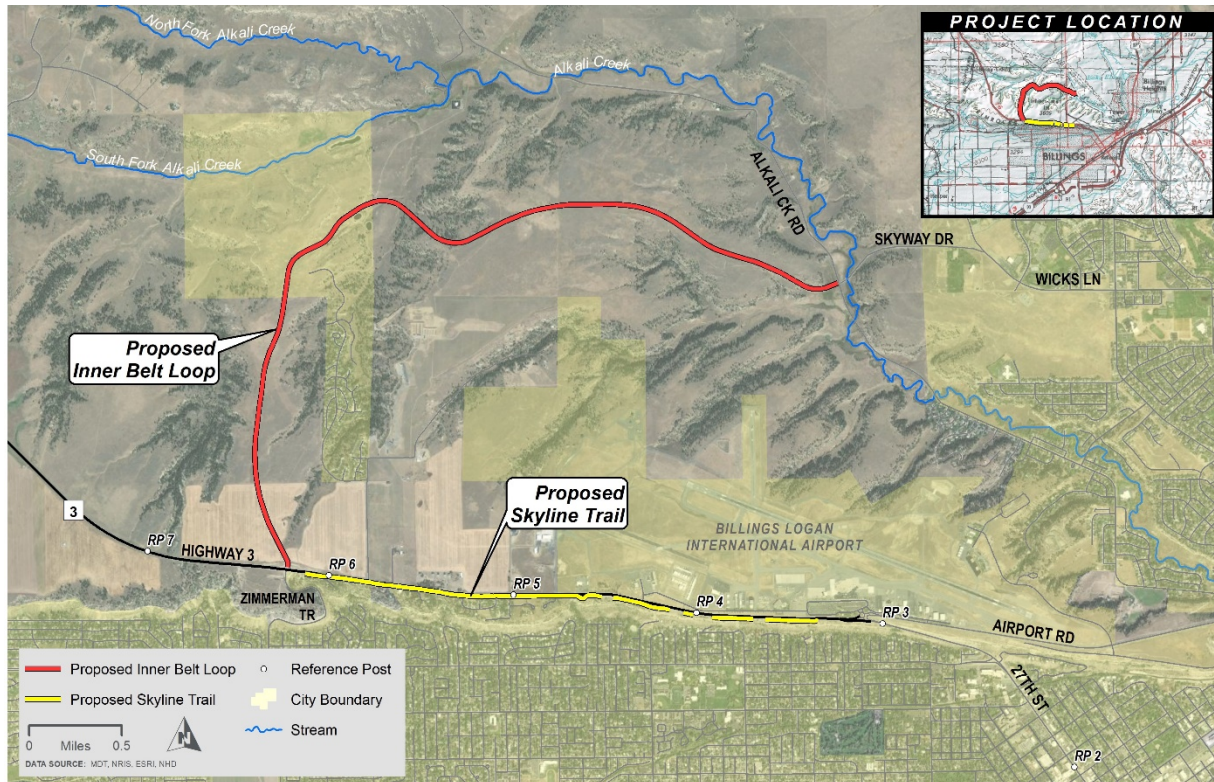


Figure 1. Northwest Billings Connector and Marathon Trail Project Elements

1. The Inner Belt Loop: This is a five-mile stretch of two-lane rural section roadway connecting Montana Highway 3 (MT-3)/Zimmerman Trail Road to Akali Creek Road/Skyway Drive accompanied by a separated multi-use trail. It will create a new connection between the Heights and West End. This proposed road has also been referred to as the Northwest Billings Connector.
2. The Skyline Trail: This is an approximately three-mile long 10-ft-wide multi-use trail that will extend from the intersection of MT-3/Zimmerman Trail through Airport Road along the south side of MT-3.

The purpose of the proposed Northwest Billings Connector and Marathon Trail Project is to construct a new arterial roadway to provide an alternative transportation route between Billings' Heights area and West End area to alleviate widespread congestion near downtown resulting from a constrained arterial roadway and limited transportation options. In addition, the proposed project will enhance safety and travel time, provide economic development opportunities, and improve access to recreational opportunities.

The proposed project is located on the northern edge of Billings, Montana, and is partially located within the City of Billings limits. The project area is located to the north of Montana MT-3 and to the west of Akali Creek Road and is located within portions of Section 18 of Township 1 North, Range 26 East and Sections 13, 14, 15, 22, and 27 of Township 1 North, Range 25 East.

2.0 Methods

Potential aquatic resources in the project area were identified through a two-step process. HDR staff first conducted an off-site review by examining available existing documents, including soil surveys, wetland and stream inventories, aerial photographs, and other reports for information on wetlands and streams in the project vicinity. After this review, a thorough on-site field investigation of the aquatic resource survey area (described in Section 2.1, below) was completed. Specifics of these methodologies are described below.

2.1 Aquatic Resource Survey Area

The aquatic resource survey area included the areas of planned construction disturbance associated with the proposed Inner Belt Loop road and separated multi-use path and the proposed Skyline Trail. The survey area generally encompasses the proposed right-of-way width of 90 feet centered along the Inner Belt Loop alignment centerline (i.e., 45 feet on each side) and a width of approximately 30 feet centered along the Skyline Trail alignment centerline (i.e., 15 feet on each side). The survey area of the Inner Belt Loop alignment is the same alignment that was originally surveyed in 2010.

2.2 Off-site Review

An initial offsite evaluation for the presence of wetlands and streams within the project area was performed using the following sources:

- Natural Resource Conservation Service (NRCS) (2021) Custom Soil Resource Report for Yellowstone County Area, Montana
- Montana Natural Heritage Program (MTNHP) (2018) Wetlands and Riparian Framework Database, which includes National Wetland Inventory Data
- U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) (2019) Montana Hydrography Framework
- Hyalite Environmental, LLP Wetland Delineation/Waters of the U.S. Report for Inner Belt Loop, Billings, MT. Prepared for Sanderson Stewart, May 2010.

These documents provide background information on the soils, hydrology, and potential wetlands and streams in the project area. The wetland delineation report prepared in May 2010 previously surveyed the Inner Belt Loop alignment and this alignment was again surveyed by HDR in May 2021. The City of Billings decided to update the wetland delineation report because (1) the May 2010 survey did not include the proposed Skyline Trail and (2) per U.S. Army Corps of Engineers (USACE) Regulatory Guidance Letter No. 05-02 (June 14, 2005) wetland delineations are generally considered invalid after five years.

2.3 On-site Field Investigation

The field investigation was conducted on May 25 and 27, 2021, and consisted of a detailed inventory of potential wetlands and streams in the aquatic resource survey area.

Wetlands Delineation Methodology

HDR staff investigated the aquatic resource survey area for wetlands using the Routine Determination, Onsite Inspection Necessary method as described in the *Corps of Engineers*

Wetland Delineation Manual (Environmental Laboratory 1987), and updated by the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (USACE 2010). A routine on-site inspection approach was used for this study since wetlands in the project area, if present, do not warrant a comprehensive approach, and since man-induced changes in the project area are assumed to now be "normal circumstances" for the project area (Environmental Laboratory 1987).

The USACE defines areas as wetlands based on the following:

Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (33 Code of Federal Regulations [CFR] 328 3.b)

Wetland delineations are based on the presence of the following three parameters:

- The area must exhibit indicators of wetland hydrology.
- The area must have a predominance of hydrophytic vegetation.
- The area must have a presence of hydric soils.

Atypical areas or problem areas may be missing one or more of the three parameters and still can be classified as wetlands.

USACE Wetland Determination Data Forms were collected for all sampled areas according to USACE procedures and are included as Appendix A. Data plots were established in potential wetland areas and representative vegetation communities. At each plot location, a soil pit was dug for observation of soil and hydrology characteristics. Hydric soil and wetland hydrology characteristics were identified using methods described in the 1987 Manual and Great Plains Region Regional Supplement. The vegetation was analyzed for plant species dominance in a 5-foot radius from the sample pit for the herbaceous layer, in a 15-foot radius for shrub layer, and in a 30-foot radius for overstory trees. The wetland indicator status of plants was identified using the National Wetland Plant List 2016 (Lichvar 2016).

Wetland boundaries and data plot locations in the aquatic resource survey area were marked in the field using an Arrow 100 GPS/GNSS receiver, which is capable of sub-meter accuracy, coupled with an Apple iPad tablet running ArcGIS Collector displaying base mapping and imagery files. The resulting data were incorporated into project base maps. Using a geographic information system (GIS), an accurate delineation map was created from the GPS data and field drawings, providing a permanent record of the onsite wetland and stream delineation boundaries for the project.

Stream Delineation Methodology

The presence or absence of streams in the project area was evaluated using the methodology outlined in the USACE Regulatory Guidance Letter 05-05 Ordinary High Water Mark Identification (USACE 2005). For purposes of the Clean Water Act, OHWM is defined as, "that line on the shore established by the fluctuation of water and indicated by physical characteristics

such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas” (USACE 2005). HDR staff looked for physical indicators including, but not limited to, a defined bed and bank, scour, destruction of terrestrial vegetation, presence of litter and debris, vegetation matted down, bent or absent, and scour.

Montana Wetland Assessment Method

The MDT Montana Wetland Assessment Method (MWAM; MDT 2008) was used to determine the functional value and overall category rating for project area wetlands. 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. 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). Refer to Appendix A for the completed MWAM form.

3.0 Site Description

3.1 General Site Conditions

The project area is predominantly comprised of agricultural and grazing lands in the area of the proposed Inner Belt Loop alignment. The proposed Inner Belt Loop alignment is located near the Rehberg Ranch, an existing residential development. The Billings Logan International Airport is located just to the south of the corridor along MT-3. At the eastern end of the corridor, there is substantial existing and planned residential development. The proposed Skyline Trail is located immediately adjacent to MT-3 and within existing right-of-way owned by the Montana Department of Transportation. Residential uses exist along MT-3 as well.

Vegetation

The open rangeland associated with the majority of the project area includes a variety of upland species. Grasses observed included Kentucky bluegrass (*Poa pratensis*), smooth brome (*Bromus inermis*), cheatgrass (*Bromus tectorum*), prairie cordgrass (*Spartina pectinate*), and crested wheatgrass (*Agropyron cristatum*). Other herbaceous and shrub species observed included tufted milkvetch (*Astragalus spatulatus*), white prairie aster (*Symphyotrichum falcatum*), common dandelion (*Taraxacum officinale*), prickly pear (*Opuntia polyacantha*), snowberry (*Symphoricarpos occidentalis*), prairie rose (*Rosa arkansana*), fringed Sage (*Artemisia frigida*), and buffaloberry (*Shepherdia canadensis*).

Two wetlands were identified at the far east end of the proposed Inner Belt Loop alignment where it intersects Alkali Creek Road. Wetland vegetation species observed included Bebb's sedge (*Carex bebbii*) and softstem bulrush (*Schoenoplectus tabernaemontani*). More information is provided in Section 4.1.

The Montana Natural Heritage Program Landcover mapper identifies the following land cover types within the project area vicinity: Cultivated Crops, Big Sagebrush Steppe, Great Plains Mixedgrass Prairie, and Great Plains Ponderosa Pine Woodland and Savanna (MTNHP 2021a).

3.2 Precipitation History Prior to Field Delineations

Precipitation history for the project area vicinity was taken from the USDA Agricultural Applied Climate Information System (AgACIS) for the WETS Station: BILLINGS INTERNATIONAL AIRPORT, MT. This weather station is located immediately to the east and south of the project area and provides an accurate assessment of precipitation conditions within the project area vicinity. Annual precipitation leading up to the May 25th and 27th field investigations was slightly below normal: 2021 accumulation totaled 4.41 inches versus the normal average of 5.56 inches (USDA 2021a). No precipitation was recorded on either May 25th or 27th, 2021. The 2021 precipitation accumulation for the project area vicinity is shown in Figure 2.

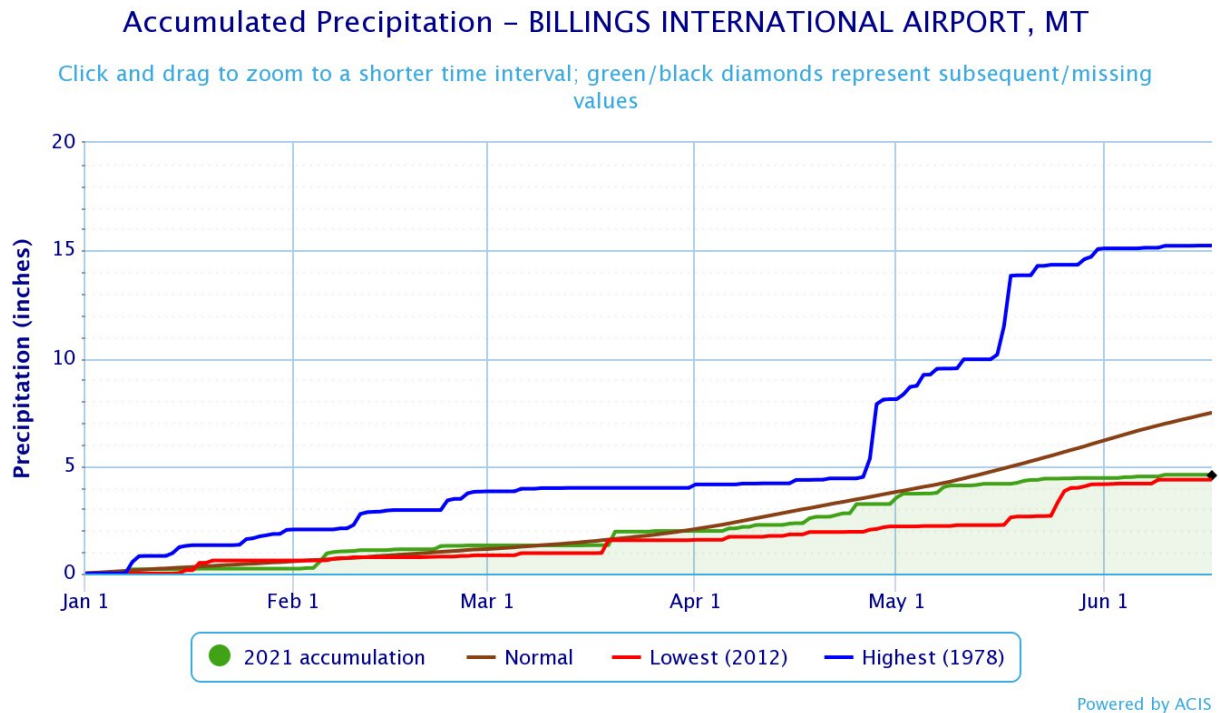


Figure 2. Accumulated Precipitation (2021) for the Project Area

3.3 Soils

A custom soils report was created using the USDA NRCS Web Soil Survey for the area intersecting the aquatic resource survey area. There are thirteen distinct soil types found within in the aquatic resource survey area. A summary of the soil map units by name, acreages within the survey area, and percent of the total survey area are listed in Table 1. None of the soils within the survey area have a hydric soil rating.

Table 1. Mapped Soil Types in the Project Area

Map Unit Symbol	Map Unit Name	Acres in the Project area	Percent (%) of Total Project area
80D	Blacksheep sandy loam, 4 to 15 percent slopes	2.1	3.3%
83E	Blacksheep-Twilight complex, 4 to 25 percent slopes	15.8	24.8%
282D	Cabbart-Blacksheep complex, 4 to 15 percent slopes	3.2	4.9%

Map Unit Symbol	Map Unit Name	Acres in the Project area	Percent (%) of Total Project area
285F	Blacksheep, dry-Cabbart, dry-Rock outcrop, complex, 8 to 60 percent slopes	3.8	5.9%
Lm	Lavina loam, 2 to 4 percent slopes	8.2	12.8%
Ls	Lohmiller soils, seeped, 0 to 2 percent slopes	0.6	0.9%
Ms	McRae-Bainville loams, 7 to 15 percent slopes	4.0	6.3%
Rk	Rock land	1.7	2.7%
Rn	Ryegate fine sandy loam, 2 to 4 percent slopes	0.3	0.4%
Wo	Worland fine sandy loam, 2 to 7 percent slopes	2.6	4.1%
Ws	Wormser clay loam, 1 to 4 percent slopes	9.7	15.2%
Wv	Wormser-Lavina clay loams, 2 to 4 percent slopes	5.4	8.4%
Ww	Wormser-Worland sandy loams, 4 to 7 percent slopes	6.6	10.3%

Source: USDA 2021

4.0 Results

4.1 Wetlands

HDR staff identified two distinct wetlands adjacent to and partially intersecting the aquatic resource survey area. The wetlands are located on the north and south side of an existing road embankment that extends to the west from Alkali Creek Road. Skyway Drive, immediately to the east of the proposed intersection of Inner Belt Loop and Alkali Creek Road, was constructed in 2013-2014 and at that time excess material from the project was placed to the west of Alkali Creek Road in the location of the proposed Inner Belt Loop alignment. An overview of the project area, aquatic resources survey area, and wetland locations are shown in Figure 3. Figure 4 shows the wetlands in greater detail as well as the soil sample plot locations. Table 2 provides information on the identified wetlands, which are further described in the section below.

Notably, only a small portion of Wetland 1 is located within the aquatic resources survey area; however, both wetlands were delineated in their entirety to accurately show the full extents of these wetlands on the plans and to account for potential design changes that could affect the proposed alignment at this location.

No wetlands were identified in any other locations. Several ephemeral drainages were investigated both on the east and west side of the access road near the Rehberg Ranch lagoons. Similarly, no wetlands were identified along MT-3 in the location of the proposed Skyline Trail. Representative photos are provided in Appendix B.

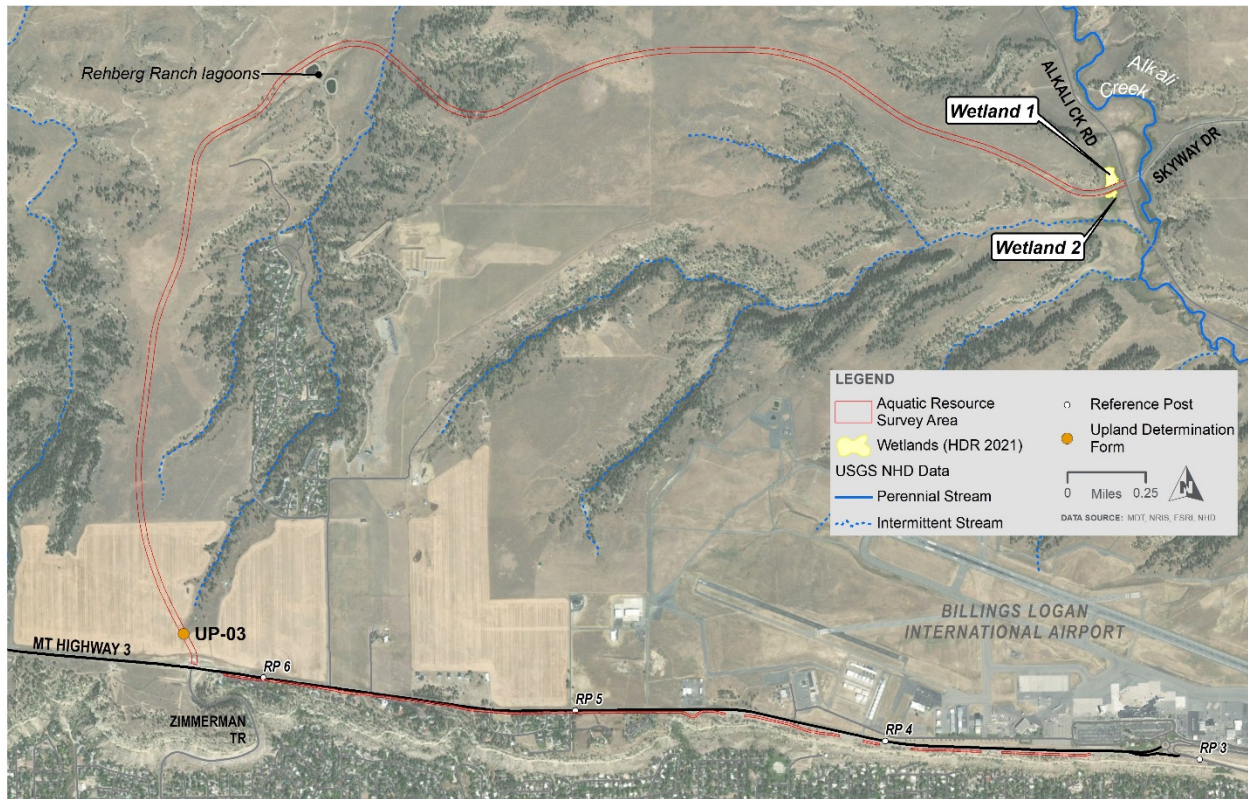


Figure 3. Aquatic Resource Survey Area and Wetlands

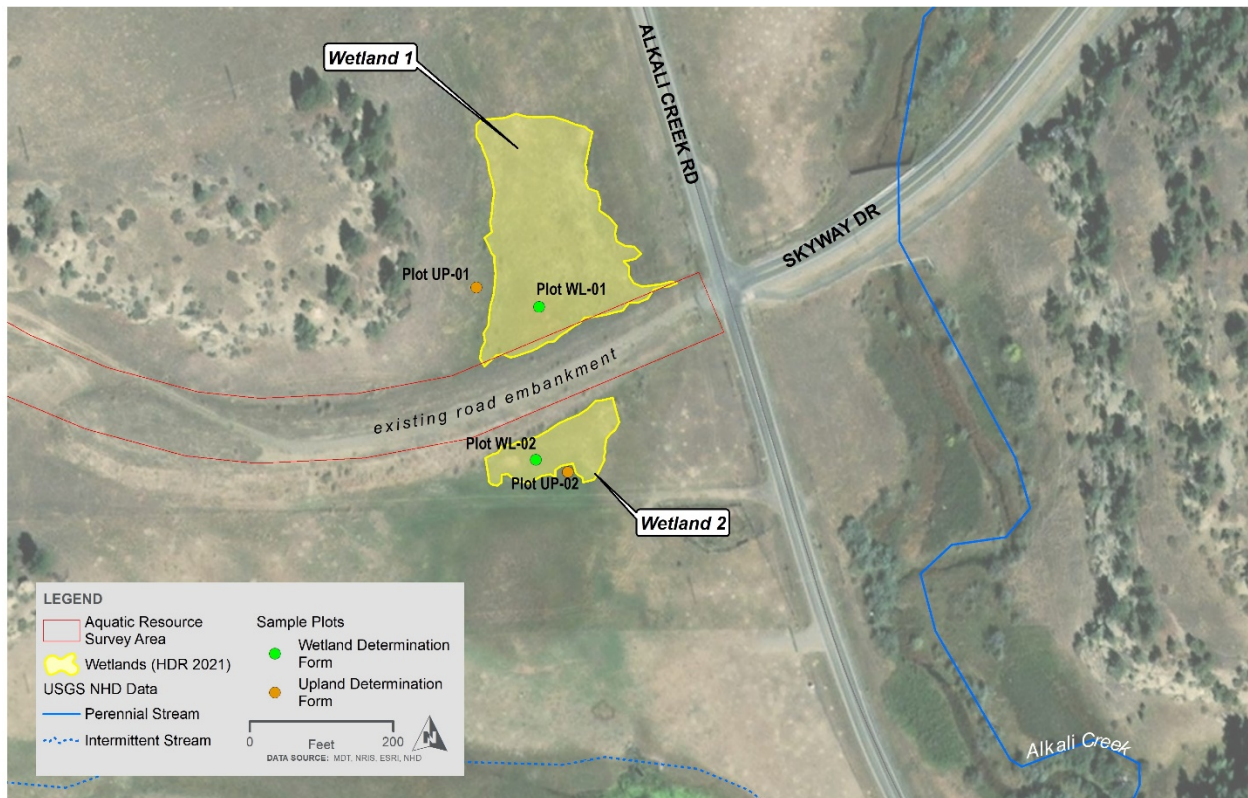


Figure 4. Wetlands 1 and 2

Table 2. Summary of Delineated Wetlands

Wetland Name	Wetland Size (acres)	Hydrogeomorphic (HGM) Classification ^a	Cowardin Classification ^b	MDT Wetland Category
Wetland 1 (WL-1)	1.19	Depressional	PEM1C	III
Wetland 2 (WL-2)	0.26	Depressional	PEM1C	III
Notes: ^a MDT 2008; ^b Cowardin et al. 1979 PEM1C = Seasonally flooded persistent emergent wetland				

Wetland 1

Palustrine emergent persistent
1.19 acre (52,208 s.f.) total

Wetland 1 is a 1.19-acre persistent emergent wetland located immediately west of Alkali Creek Road and north of the existing roadway embankment. It is within a depressional geomorphic setting and is seasonally or ephemerally inundated. Only a very small portion of the southern edge of this wetland is located within the survey area.

Wetland 1 is comprised of a palustrine, emergent vegetation community. A set of paired plots were established to delineate this wetland, sample plot WL-01 within Wetland 1 and sample plot UP-01 taken in the upland area immediately west of the wetland. The dominant species in this wetland is Bebb's sedge in the herb stratum. No other vegetation strata are present. Predominance of this species meets the hydrophytic vegetation criteria. Wetland 1 had primary indicators for wetland hydrology that included saturation and presence of reduced iron. Wetland hydrology includes surface/sheet flow from adjacent land, seasonal ponding, and potentially seasonally high water table influence from the adjacent Alkali Creek. No culvert or other hydraulic connection was observed connecting Wetland 1 to Wetland 2 to the south. The water table was not observed but saturation was present at depth of 6 inches during the field investigation. The soil profile observed in the wetland met the hydric soil criteria for loamy mucky mineral (F1).

Dominant upland vegetation species observed at the paired upland plot included Kentucky bluegrass and tufted milkvetch. Soils lacked hydric soil indicators and no wetland hydrology indicators were identified.

Wetland 2

Palustrine emergent persistent
0.26 acre (11,483 s.f.) total

Wetland 2 is a 0.26-acre persistent emergent wetland located immediately west of Alkali Creek Road and south of the roadway embankment for the proposed Inner Belt Loop road. It is within a depressional geomorphic setting and is seasonally or ephemerally inundated. This wetland is not located within the survey area.

Wetland 2 is comprised of a palustrine, emergent vegetation community. A set of paired plots were established to delineate this wetland, sample plot WL-02 within Wetland 2 and sample plot UP-02 taken in the upland area immediately to the south of the wetland. The dominant species in this wetland include Bebb's sedge and softstem bulrush in the herb stratum. No other vegetation strata are present. Predominance of these species meets the hydrophytic vegetation criteria. Wetland 2 had primary indicators for wetland hydrology that included saturation and presence of reduced iron. Wetland hydrology includes surface/sheet flow from adjacent land, seasonal ponding, and potentially seasonally high water table influence from the adjacent Alkali Creek. Wetland 2 is not connected to Wetland 1 to the north but has a downstream connection to a wetland and drainage channel that flows southward into Alkali Creek. The water table was not observed but saturation was present at depth of 6 inches during the field investigation. The soil profile observed in the wetland met the hydric soil criteria for redox dark surface (F6).

Dominant upland vegetation species observed at the paired upland plot included Kentucky bluegrass and smooth brome. Soils lacked hydric soil indicators and no wetland hydrology indicators were identified.

A single upland verification plot and data form (UP-03; see Figure 3) was completed at a location approximately 550 feet north of the MT-3/Zimmerman Trail roundabout. The site is within an ephemeral drainage crossed by the project. Dominant vegetation observed included Kentucky bluegrass and white prairie aster. Wetland vegetation was not observed, and the site met none of the three parameters to be considered a wetland.

4.2 Ephemeral Drainage

As shown in Figure 3, the proposed Inner Belt Loop alignment crosses an ephemeral drainage just east of the Rehberg Ranch lagoons that is identified by the USGS National Hydrography Dataset as an intermittent stream. This area was investigated for wetland habitat and indicators of an ordinary high water mark (OHWM) during the May 2021 investigations. Vegetation consisted entirely of upland species as previously identified in Section 3.1: crested wheatgrass, cheatgrass, Kentucky bluegrass, prairie cordgrass, dandelion, snowberry, fringed sage, and buffaloberry. No water was observed within the drainages. No indicators of OHWM were observed and this drainage lacked any discernable bed or bank features to meet the criteria of a stream. Photographs of the area are provided in Appendix B.

5.0 Jurisdictional Status and Conclusions

HDR environmental staff identified two distinct wetlands in the vicinity of the proposed Inner Belt Loop alignment where it joins the existing Alkali Creek Road. No streams were identified. The ephemeral drainages crossed by the proposed project lacked bed and bank features and do not appear to meet the definition of waters of the U.S.

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. On June 22, 2020, the Navigable Waters Protection Rule (NWPR) became effective and replaced the rule published on October 22, 2019. In June of 2021, it was announced the EPA and USACE were going to rewrite the

definition of waters of the U.S., although it is thought that this process could take up to two years. Recently, in a ruling issued on August 30, 2021, the U.S. District Court for the District of Arizona ordered the NWPR be remanded and vacated. The EPA and USACE announced on September 3, 2021, that they would halt implementation of current definition of “waters of the U.S. and revert back to the pre-2015 definition, also known as the 2008 Rapanos Guidance jointly issued by the EPA and USACE. A Section 404 permit is anticipated as necessary for the project.

Wetland 1 lacks direct adjacency to a tributary (i.e., Alkali Creek); however, Wetlands 1 and 2 appear to have once been connected and a direct hydraulic connection existed to Alkali Creek prior to construction of the road embankment as shown in Figure 4. Because of its adjacency to Alkali Creek, Wetland 1 is conservatively assumed to be considered jurisdictional. Wetland 2 appears to have a downstream connection to a tributary of Alkali Creek and would therefore meet the criteria of an adjacent wetland and be considered jurisdictional.

The potential for unavoidable loss of wetland resulting from the proposed project has been estimated to total 0.09-acre, which would occur to the southern edge of Wetland 1 where minor widening of the existing roadway embankment and drainage improvements are planned. The City of Billings intends to apply for a Section 404 permit and the proposed project’s impacts are well within the threshold to meet the criteria for authorization using a Section 404 Nationwide Permit. In accordance with Executive Order 11990, compensatory mitigation for unavoidable losses of wetlands is required, which will be accomplished by purchasing available mitigation credits from the Upper Yellowstone Mitigation Bank. It is important to note that the USACE is responsible for making all final jurisdictional determinations.

This report describes the wetland and stream delineation process as well as the extent and types of WOUS identified within the project area that may be subject to the jurisdiction of the USACE under authority of Section 404 of the CWA. Final boundary determinations and jurisdictional status of the features identified in this report fall under the authority of the USACE. The results of this delineation will be incorporated into the design documents of the proposed project.

6.0 References

- Cowardin, L.M., V. Carter, F.C. Golet, E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-79/31. U.S. Fish and Wildlife Service: Washington, D.C.
- Environmental Laboratory. 1987. *Corps of Engineers Wetland Delineation Manual*. Technical Report Y-87-1. Department of the Army, Waterways Experiment Station. Vicksburg, Mississippi.
- Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. The National Wetland Plant List: 2016 wetland ratings. *Phytoneuron* 2016-30: 1-17. Published April 28, 2016.
- MDT (Montana Department of Transportation). 2008. Montana Wetland Assessment Methodology. Prepared by PBS&J for MDT. March 2008.
- MTNHP (Montana Natural Heritage Program). 2018. Montana Wetlands and Riparian Framework. Downloaded October 2018.
- MTNHP. 2021a. Montana Landcover Framework. Accessed June 11, 2021.
- Munsell Color. 2009. *Munsell® Soil Color Charts*. Revised Edition. Munsell® Color, X-rite, Grand Rapids, MI.
- USACE (U.S. Army Corps of Engineers). 2005. Regulatory Guidance Letter: Ordinary High Water Mark Identification. RGL No. 05-05. <http://www.nap.usace.army.mil/cenap-op/regulatory/rgls/rgl05-05.pdf>. December 7, 2005.
- USACE (U.S. Army Corps of Engineers). 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0). ERDC/EL TR-10-01. March 2010.
- USDA NRCS. 2020a. USDA Field Office Climate Data for WETS Station: BILLINGS INTERNATIONAL AP, MT. Accessed at <http://agacis.rcc-acis.org/>. Accessed on June 10, 2021.
- USDA NRCS. 2020b. Custom Soil Resource Report for Yellowstone County. Available at <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Downloaded on June 16, 2021.
- USGS. 2019. Montana Hydrography Framework (National Hydrography Dataset). Downloaded October 2019.

Appendix A – USACE Wetland Determination Data Forms and Montana Wetland Assessment Method (MWAM) Form

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Inner Belt Loop City/County: Billings/Yellowstone Sampling Date: 5/25/2021
 Applicant/Owner: City of Billings State: MT Sampling Point: WL-01
 Investigator(s): Stephanie Griffin Section, Township, Range: S18,T01N, R26E
 Landform (hillside, terrace, etc.): Roadside Swale Local relief (concave, convex, none): Flat Slope (%): 1
 Subregion (LRR): LRR G Lat: 45.82828 Long: -108.538671 Datum: NAD83
 Soil Map Unit Name: Lohmiller Soils (Ls) 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 No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes x No
 Are Vegetation No, Soil No, or Hydrology No 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 <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: Wetland 1 is located on the north side of a road embankment, immediately west of Alkali Creek Rd. The site meets all three parameters for a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		=Total Cover			Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: <u> </u> OBL species <u>80</u> x 1 = <u>80</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>160</u> (B) Prevalence Index = B/A = <u>1.60</u>
Sapling/Shrub Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
		=Total Cover			
Herb Stratum	(Plot size: <u>5X5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u>X</u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Poa pratensis</u>		<u>20</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Carex bebbii</u>		<u>80</u>	<u>Yes</u>	<u>OBL</u>	
3. <u> </u>					
4. <u> </u>					
5. <u> </u>					
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
10. <u> </u>					
		<u>100</u> =Total Cover			
Woody Vine Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>
1. <u> </u>					
2. <u> </u>					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: Meets prevalence index for hydrophytic vegetation.					

SOIL

Sampling Point: WL-01

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)		
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)		
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)		
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)		
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)		
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)		
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)		
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)		
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		
<input type="checkbox"/> Water-Stained Leaves (B9)			
Secondary Indicators (minimum of two required)			
<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)			
(where tilled)			
<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>
Water Table Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Depth (inches): <input type="text"/>
Saturation Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): <input type="text" value="6"/>
(includes capillary fringe)			
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
NA			
Remarks:			
Meets primary hydrology indicators.			

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Inner Belt Loop City/County: Billings/Yellowstone Sampling Date: 5/25/2021
 Applicant/Owner: City of Billings State: MT Sampling Point: UP-01
 Investigator(s): Stephanie Griffin Section, Township, Range: S18,T01N, R26E

Landform (hillside, terrace, etc.): Base of Hillside Local relief (concave, convex, none): Gentle Slope Slope (%): 3

Subregion (LRR): LRR G Lat: 45.828358 Long: -108.539013 Datum: NAD83

Soil Map Unit Name: Blacksheep, dry-Cabbart, dry-Rock outcrop (285F) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes x No
 Are Vegetation No, Soil No, or Hydrology No 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: UP-01 is the paired upland plot to WL-01.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
		=Total Cover		
Sapling/Shrub Stratum	(Plot size: <u> </u>)			
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
		=Total Cover		
Herb Stratum	(Plot size: <u>5X5</u>)			
1. <u>Poa pratensis</u>		75	Yes	FACU
2. <u>Astragalus spatulatus</u>		23	Yes	UPL
3. <u>Cirsium canescens</u>		2	No	UPL
4. <u> </u>				
5. <u> </u>				
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
		100	=Total Cover	
Woody Vine Stratum	(Plot size: <u> </u>)			
1. <u> </u>				
2. <u> </u>				
		=Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:
 Total % Cover of: Multiply by:
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 0 x 3 = 0
 FACU species 75 x 4 = 300
 UPL species 25 x 5 = 125
 Column Totals: 100 (A) 425 (B)
 Prevalence Index = B/A = 4.25

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)
¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No X

Remarks:
Upland Species Present

SOIL

Sampling Point: UP-01

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	
Field Observations:			
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
Saturation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	<input type="text"/>
(includes capillary fringe)		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
NA			
Remarks:			
No Indicators Present			

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Inner Belt Loop City/County: Billings/Yellowstone Sampling Date: 5/25/2021
 Applicant/Owner: City of Billings State: MT Sampling Point: WL-02
 Investigator(s): Stephanie Griffin Section, Township, Range: S18,T01N, R26E
 Landform (hillside, terrace, etc.): Roadside Swale Local relief (concave, convex, none): Flat Slope (%): 1
 Subregion (LRR): LRR G Lat: 45.827697 Long: -108.538699 Datum: NAD83
 Soil Map Unit Name: Lohmiller Soils (Ls) 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 No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes x No
 Are Vegetation No, Soil No, or Hydrology No 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 <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Hydric Soil Present? Yes <u>X</u> No <u> </u>	
Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	
Remarks: Sample plot WL-02 is located within Wetland 2, which is located immediately south and adjacent to an existing roadway embankment. The site meets all 3 parameters for a wetland.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
		=Total Cover		
Sapling/Shrub Stratum	(Plot size: <u> </u>)			
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
5. <u> </u>				
		=Total Cover		
Herb Stratum	(Plot size: <u>5X5</u>)			
1. <u>Poa pratensis</u>		20	Yes	FACU
2. <u>Carex bebbii</u>		60	Yes	OBL
3. <u>Schoenoplectus tabernaemontani</u>		20	Yes	OBL
4. <u> </u>				
5. <u> </u>				
6. <u> </u>				
7. <u> </u>				
8. <u> </u>				
9. <u> </u>				
10. <u> </u>				
		100	=Total Cover	
Woody Vine Stratum	(Plot size: <u> </u>)			
1. <u> </u>				
2. <u> </u>				
		=Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>80</u>	x 1 = <u>80</u>
FACW species <u>0</u>	x 2 = <u>0</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>20</u>	x 4 = <u>80</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>100</u> (A)	<u>160</u> (B)
Prevalence Index = B/A = <u>1.60</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

X 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks:
Meets Dominance Test and Prevalence Test for hydrophytic vegetation.

SOIL

Sampling Point: WL-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-7	2.5Y 3/2	95	10YR 4/6	5	RM	PL	Loamy/Clayey	Roots
7-11	2.5Y 3/2	100					Loamy/Clayey	Fine Roots
11-17	2.5y 3/1	100					Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): <u> </u>	Hydric Soil Present? Yes <u>X</u> No <u> </u>
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Remarks:
Soil meets hydric indicators for F6.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>6</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:
NA

Remarks:
Meets primary hydrology indicators

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Inner Belt Loop City/County: Billings/Yellowstone Sampling Date: 5/25/2021
 Applicant/Owner: City of Billings State: MT Sampling Point: UP-02
 Investigator(s): Stephanie Griffin Section, Township, Range: S18,T01N, R26E
 Landform (hillside, terrace, etc.): Roadside Swale Local relief (concave, convex, none): Flat Slope (%): 1
 Subregion (LRR): LRR G Lat: 45.827648 Long: -108.538526 Datum: NAD83
 Soil Map Unit Name: Lohmiller Soils (Ls) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)
 Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes x No
 Are Vegetation No, Soil No, or Hydrology No 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 <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: Sample plot UP-02 is the paired upland plot to WL-02.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
				=Total Cover
Sapling/Shrub Stratum (Plot size: <u>5x5</u>)				
1. <u>Ribes aureum</u>	<u>1</u>	<u>No</u>	<u>FACU</u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
				1 =Total Cover
Herb Stratum (Plot size: <u>5X5</u>)				
1. <u>Poa pratensis</u>	<u>4</u>	<u>No</u>	<u>FACU</u>	
2. <u>Bromus inermis</u>	<u>90</u>	<u>Yes</u>	<u>UPL</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
9. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
10. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
				94 =Total Cover
Woody Vine Stratum (Plot size: <u> </u>)				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
				=Total Cover
% Bare Ground in Herb Stratum <u>5</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>90</u> x 5 = <u>450</u> Column Totals: <u>95</u> (A) <u>470</u> (B) Prevalence Index = B/A = <u>4.95</u>				
Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>				
Remarks: Upland species present.				

SOIL

Sampling Point: UP-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 3/3	100					Loamy/Clayey	Roots
6-10	2.5Y 4/3	100					Loamy/Clayey	Fine Roots
10-16	2.5Y 4/3	95	10YR 3/6	5	C	M	Loamy/Clayey	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): <u> </u>	Hydric Soil Present? Yes <u> </u> No <u> X </u>
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Remarks:
No indicators present.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations: Surface Water Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u> X </u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u> X </u>
---	---

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

Remarks:
No Indicators Present

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Inner Belt Loop City/County: Billings/Yellowstone Sampling Date: 5/27/2021
 Applicant/Owner: City of Billings State: MT Sampling Point: UP-03
 Investigator(s): Stephanie Griffin Section, Township, Range: S27,T01N, R25E

Landform (hillside, terrace, etc.): Swale Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR): LRR G Lat: 45.807 Long: -108.600 Datum: NAD83

Soil Map Unit Name: Blacksheep-Twilight Complex 4-25% Slopes (83E) NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes x No (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes x No

Are Vegetation No, Soil No, or Hydrology No 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 <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: Natural Drainage Through the Wheat Field Sample plot UP-03 is located approximately 550 ft north of the MT-3/Zimmerman Trail roundabout. This is a verification plot to demonstrate absence of wetland features within and near the ephemeral drainages crossed by the project.	

VEGETATION – Use scientific names of plants.

Tree Stratum	(Plot size: <u> </u>)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		=Total Cover			
Sapling/Shrub Stratum	(Plot size: <u> </u>)				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>85</u> x 4 = <u>340</u> UPL species <u>15</u> x 5 = <u>75</u> Column Totals: <u>100</u> (A) <u>415</u> (B) Prevalence Index = B/A = <u>4.15</u>
1. <u> </u>					
2. <u> </u>					
3. <u> </u>					
4. <u> </u>					
		=Total Cover			
Herb Stratum	(Plot size: <u>5X5</u>)				Hydrophytic Vegetation Indicators: <u> </u> 1 - Rapid Test for Hydrophytic Vegetation <u> </u> 2 - Dominance Test is >50% <u> </u> 3 - Prevalence Index is ≤3.0 ¹ <u> </u> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Poa pratensis</u>		<u>60</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Astragalus spatulatus</u>		<u>10</u>	<u>No</u>	<u>UPL</u>	
3. <u>Symphytotrichum falcatum</u>		<u>20</u>	<u>Yes</u>	<u>FACU</u>	
4. <u>Taraxacum officinale</u>		<u>5</u>	<u>No</u>	<u>FACU</u>	
5. <u>Bromus inermis</u>		<u>5</u>	<u>No</u>	<u>UPL</u>	
6. <u> </u>					
7. <u> </u>					
8. <u> </u>					
9. <u> </u>					
		<u>100</u>	=Total Cover		
Woody Vine Stratum	(Plot size: <u> </u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
1. <u> </u>					
2. <u> </u>					
		=Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					
Remarks: Upland Species Present					

SOIL

Sampling Point: UP-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR 4/3	100					Loamy/Clayey	Uniform/Shallow Roots

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H) <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (F21) <input type="checkbox"/> Very Shallow Dark Surface (F22) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
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Restrictive Layer (if observed): Type: <u>NA</u> Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
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Remarks:
No Indicators Present

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Drift Deposits (B3) (where not tilled) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Water-Stained Leaves (B9)				<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> x Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
---	---

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

Remarks:
No Primary Indicators Present

MDT Montana Wetland Assessment Form (revised March 2008)

1. **Project Name:** City of Billings - Inner Belt Loop 2. **MDT Project #:** NA **Control #:** NA

3. **Evaluation Date:** 5/25/2021 4. **Evaluator(s):** Stephanie Griffin (HDR) 5. **Wetlands/Site #(s):** WL-01, WL-02

6. **Wetland Location(s):** i. **Legal:** T01N, R26E, S18;

ii. **Approx. Stationing or Mileposts:** Location to the west of Alkali Creek Rd, near Skyway Drive

iii. **Watershed:** 100700041005 **Watershed Name, County:** Alkali Creek, Yellowstone

7. **a. Evaluating Agency:** FHWA

8. **Wetland size:** 0.3 to 1.20 acres (WL-01) (measured)

b. Purpose of Evaluation:

1. ☐ Wetlands potentially affected by MDT project

2. ☐ Mitigation wetlands; pre-construction

3. ☐ Mitigation wetlands; post-construction

4. ☒ Other: Wetland potentially affected by City of Billings project

with FHWA as lead federal agency

9. **Assessment area (AA):** 1.2 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	TE	100

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) lists)

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 ≤30%.	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.): Horses Grazing, Dirt Road, Residential /House above site.

ii. **Prominent noxious, aquatic nuisance, & other exotic vegetation species:** Smooth brome, crested wheatgrass

iii. **Provide brief descriptive summary of AA and surrounding land use/habitat:** Located at the edge of residential/commercial street in town. Grazing pasture surround the AA.

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:

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**)

No usable habitat

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 known observations of records of threatened, endangered plants or animals.

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A 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**) spotted bat, hoary bat, long-eared myotis, greater sage grouse, peregrin falcon, pinyon jay

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
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.): MT Natural Heritage Program SOC

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]):

- ☒ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☒ 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 in terms 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) Class cover distribution (all vegetated classes)	High								Moderate								Low			
	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	Low
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: Open rangeland provides suitable habitat for a range of mammal and bird species.

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	.3L
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 **iaa**.

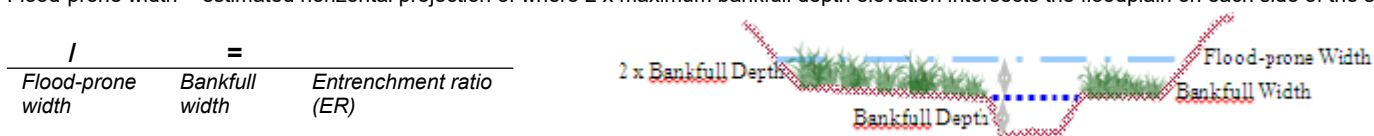
iii. Final Score and Rating: NA **Comments:**

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.



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:**

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 X **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:

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:

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:

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: 0.5M** **Comments:**

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
☐ Seeps are present at the wetland edge
☐ 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)

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

Comments:

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		
	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:

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** (use the matrix below to arrive at [circle] the functional points and 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:

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): WL-01, WL-02

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.0	1.0		
B. MT Natural Heritage Program Species Habitat	L	0.0	1.0		*
C. General Wildlife Habitat	M	0.5	1.0		*
D. General Fish Habitat	NA	--	--		
E. Flood Attenuation	NA	--	--		
F. Short and Long Term Surface Water Storage	L	0.2	1.0		
G. Sediment/Nutrient/Toxicant Removal	H	0.7	1.0		*
H. Sediment/Shoreline Stabilization	NA	--	--		
I. Production Export/Food Chain Support	M	0.3	1.0		*
J. Groundwater Discharge/Recharge	M	0.4	1.0		
K. Uniqueness	L	0.3	1.0		
L. Recreation/Education Potential (bonus points)	NA	--	NA		
Totals:		2.4	8.0		
Percent of Possible Score			30%		

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)

- ☒ "Low" rating for Uniqueness; **and**
- ☐ 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

Appendix B – Site Photographs

(All photos taken on May 25 and 27, 2021.)

WETLAND DELINEATION SITE PHOTOS



Photo 1: Sample plot WL-01 within Wetland 1.



Photo 2: South end of Wetland 1 and plot WL-01, looking west



Photo 3: Sample plot UP-01.



Photo 4: Sample plot UP-01, looking east.



Photo 5: Sample plot WL-02 within Wetland 2.



Photo 6: Wetland 2 and plot WL-02, looking north.



Photo 7: Sample plot UP-02.



Photo 8: Overview of UP-02, looking northwest.



Photo 9: Overview of Wetland 2, looking south.



Photo 10: Overview of Wetland 1, looking north.



Photo 11: Sample plot UP-03, upland site.



Photo 12: Overview of UP-03, looking north.

EPHEMERAL DRAINAGES SITE PHOTOS



Photo 13: Ephemeral drainage located on east side of lagoon access road, not mapped by USGS NHD, looking east.



Photo 14: Ephemeral drainage located on east side of lagoon access road, not mapped by USGS NHD, looking northwest.



Photo 15: Ephemeral drainage located on east side of lagoon access road, mapped by USGS NHD, looking south.



Photo 16: Ephemeral drainage located on east side of lagoon access road, mapped by USGS NHD, looking north.



Photo 17: Ephemeral drainage located west of lagoon access road, not mapped by USGS NHD, looking west.



Photo 18: Ephemeral drainage located west of lagoon access road, not mapped by USGS NHD, looking east.



Photo 19: Ephemeral drainage located west of lagoon access road, not mapped by USGS NHD, looking east.



Photo 20: Ephemeral drainage located west of lagoon access road, not mapped by USGS NHD, looking north.



Photo 21: Ephemeral drainage located west of lagoon access road, not mapped by USGS NHD, looking north.



Photo 22: Ephemeral drainage located west of lagoon access road, not mapped by USGS NHD, looking northeast.

MT-3 AND SKYLINE TRAIL REPRESENTATIVE SITE PHOTOS



Photo 23: MT-3 just east of MT-3/Zimmerman Tr roundabout, near RP 6, looking east.



Photo 24: Proposed Skyline Trail location and driveway access, near Rod and Gun Club Road, looking east.



Photo 25: Proposed Skyline Trail location and driveway access, near Rod and Gun Club Road, looking west.



Photo 26: Proposed Skyline Trail location near Rod and Gun Club Road, looking west.



Photo 27: Proposed Skyline Trail location near Hickok Circle, looking west.



Photo 28: Proposed Skyline Trail location near Masterson Circle, looking west.



Photo 29: Proposed Skyline Trail location at pull off just west of Masterson Circle, looking east.



Photo 30: Proposed Skyline Trail location at pull off just west of Masterson Circle, looking west.