Montana Department of Transportation Wetland Mitigation Monitoring Report

US 93 PETERSON MITIGATION SITE

Project Overview

MDT Project # NH-5-2(122)31 UPN# 1744

Watershed: Watershed #3 – Lower Clark Fork

Monitoring Year: 2022

Years Monitored: 14th year of monitoring (2nd year after adaptive management actions in 2020)

Corps Permit Number: NWO-2005-90-185

Monitoring Conducted By: Confluence Consulting Inc

Dates Monitoring Was Conducted: July 6-7, 2022

Purpose of the Approved Project:

US 93 Peterson is one of five sites developed in cooperation with the permitting and natural resources staff from the Confederated Salish and Kootenai Tribes (CSKT) of the Flathead Nation to mitigate for wetland impacts associated with eight segments of the US 93 Evaro-to-Polson highway reconstruction project by the Montana Department of Transportation (MDT). This report assesses the final of the five wetland mitigation sites, US 93 Peterson, that due to adaptive management actions in 2020 had not met required mitigation goals and objectives as determined by the US Army Corps of Engineers (USACE) and the CSKT Shoreline Protection Program. The 2004 wetland mitigation plan provided wetland mitigation concepts, identified wetland community types targeted for establishment, and calculated the wetland mitigation credits expected to be obtained from each onsite mitigation area. At the US 93 Peterson site, MDT was to establish mitigation for wetland impacts regulated by the USACE and the CSKT. This site was to provide 1.31 acres of CSKT mitigation credit and 2.39 acres of Corps mitigation credit (See Table 1-2 in 2017 Monitoring Report https://www.mdt.mt.gov/publications/brochures//wetland-mitigation.aspx).

Site Location:

Latitude: 47.361717 **Longitude:** -114.099755

County: Lake County **Nearest Town:** St. Ignatius, MT

Map Included: Figure #1 on page 7.

Mitigation Site Construction Started: 2004 **Construction Ended:** 2007

Specific recommendations for any additional corrective actions: Repairs to the failing downstream outfall structure. Weed management will continue in 2023.

Anticipated Wetland Credit Acres: USACE – 2.39, CSKT – 1.31

Wetland Credit Acres Generated to Date: USACE – 3.00, CSKT – 1.33

Previous Monitoring Reports:

https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Requirements (from approved mitigation plan, banking instrument, or US Army Corps of Engineers permit conditions)

Monitoring Period: 5 years from construction completion or until concurrence by the USACE.

Performance Standards*: 1) Construction of impoundments using 12 log crib structures and earthen berms, and 2) planting of shrubs and herbaceous plugs within the wetland fringe and earthen embankments associated with log crib structures. The target wetland type in the riparian area is palustrine scrub-shrub that supports a Bebb's willow community type with inclusions of palustrine emergent habitat. Grazing is excluded from the mitigation site to preserve the riparian and wetland

areas. Revegetation was completed in 2006, and recent adaptive management associated with crib repairs made in May 2020.

*Performance criteria were reviewed in 2022, and where necessary, corrected and/or removed to accurately reflect the original performance criteria agreed to in the mitigation plan and any amendments to the mitigation plan.

Summary Data

Wetland Delineation –Total wetland acreage delineated in 2022 was 3.47 acres, a decrease of 0.17 acres from 2021, and included palustrine emergent (PEM) wetlands and a developing palustrine scrub-shrub (PSS) component. The increase in wetland acreage reported in 2020 was supported by irrigation overflow that was no longer present in 2021 or 2022. The decrease observed in 2022 was around the slope wetland in the north portion of the mitigation site (Table 1; Figure A-3, Appendix A). The 2022 wetland acreage is a 0.27 acres increase from 2017, likely as a result of repairs made on two crib structures in May 2020, which improved hydrologic function by increasing water and sediment retention.

Table 1. Delineated Wetland Acreage from 2016 through 2017 and 2020-2022 at the US 93 Peterson Site

Habitat Type (acres)	2016	2017	2020	2021	2022
(PEM) Wetland	3.20	3.20	3.94	3.60	3.47

Vegetation – A total of 95 plant species have been identified at the site in the 14 years of monitoring (Appendix B; Table B-1).

Two upland community types and three wetland community types were identified and mapped at the site in 2022 (Figure A-3, Appendix A). Wetland Type 11 (*Dipsacus fullonum/Carex nebrascensis*) was replaced with Wetland Type 12 (*Carex nebrascensis/Poa pratensis*) in 2020, both of which are no longer present at the site and mapped in 2022 as Wetland Type 13 (*Carex nebrascensis/Nasturtium officinale*). Wetland Type 2 *(Phalaris arundinacea/Carex spp.)* was previously updated from *Phalaris arundinacea* to include *Carex spp.,* and to reflect the diversifying wetland community. *Alnus incana* individuals are present within Wetland Type2 and Wetland Type 8 (*Typha latifolia/Phalaris arundinacea*), although the individuals appear stunted with decreasing foliage observed during the monitoring event. Woody vegetation is diversifying within Wetland Type 8 with *Cornus alba* and *Salix exigua* observed for the first time in 2021, and *Salix exigua* volunteers establishing within the wetland. Species composition for each community type is provided in detail in the Wetland Mitigation Site Monitoring form (Appendix B). The vegetation community types identified within the site in 2022 include the following:

- Wetland Type 2 – *Phalaris arundinacea/Carex spp.*
- Wetland Type 8 – *Typha latifolia/Phalaris arundinacea*
- Wetland Type 13 – *Carex nebrascensis/Nasturtium officinale*
- Upland Type 7 – *Elymus repens/Poa pratensis*
- Upland Type 10 – *Elymus repens/Sisymbrium altissimum*

Vegetation cover was measured along two transects (T-1 and T-2) in 2022 (Figure A-2, Appendix A). Photographs of the transect end points are provided in Appendix C. Table 2 summarizes the data for T-1. T-1 is 144 feet long and intersected upland community Type 7 – *Elymus repens/Poa pratensis* and Wetland Type 8 – *Typha latifolia*/*Phalaris arundinacea*; 83.3 percent of the transect crossed wetland habitat, a 3.5% decrease from 2022. The number of hydrophytic species increased from 13 to 14, and the total number of species increased from 17 to 23. Total vegetative cover remained unchanged at 95 percent. The dominant wetland community at the site is classified as Palustrine Emergent (PEM), although woody species including gray alder provide approximately 10% canopy cover across the entire wetland.

Table 2. Data Summary for T-1 From 2016 – 2017 and 2020 - 2022 at the US 93 N Peterson Site

Monitoring Year	2016	2017	2020	2021	2022
Transect Length (feet)	144	144	144	144	144
Vegetation Community Transitions along Transect	2	2	2	2	2
Vegetation Communities along Transect	2	2	2	2	2
Hydrophytic Vegetation Communities along Transect	1	1	1	1	1
Total Vegetative Species	15	14	14	17	23
Total Hydrophytic Species	12	7	12	13	14
Total Upland Species	3	7	2	4	9
Estimated % Total Vegetative Cover	96	95	95	95	95
Estimated % Unvegetated	4	5	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	73.6	85.4	85.4	86.8	83.3
% Transect Length Comprising Upland Vegetation Communities	26.4	14.6	14.6	13.2	16.7
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

Data collected on T-2 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 3. T-2 is 325 feet long and intersects Upland Type 7 – *Elymus repens/Poa pratensis* and Wetland Type 8 – *Typha latifolia*/*Phalaris arundinacea;* 78.5 percent of the transect crossed wetland habitat in 2022, which is an increase of 6.5% from 2021. Additionally, the number of hydrophytic species increased from 12 to 18, and the total number of species observed along the transect increased from 17 to 28. Total vegetative cover remained unchanged at 95 percent.

Table 3. Data Summary for T-2 From 2016 - 2017 and 2020 - 2022 at the US 93 N Peterson Site

Monitoring Year	2016	2017	2020	2021	2022
Transect Length (feet)	325	325	325	325	325
Vegetation Community Transitions along Transect	3	3	3	3	3
Vegetation Communities along Transect	2	2	2	2	2
Hydrophytic Vegetation Communities along Transect	1	1	1	1	1
Total Vegetative Species	18	17	17	17	28
Total Hydrophytic Species	14	6	12	12	18
Total Upland Species	4	11	5	5	10
Estimated % Total Vegetative Cover	93	95	95	95	95
Estimated % Unvegetated	7	5	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	67.7	72.0	72.0	72	78.5
% Transect Length Comprising Upland Vegetation Communities	32.3	28.0	28.0	28	21.5
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0

Twenty-seven infestations of state-listed Priority 2A and 2B noxious weeds were mapped across the US 93 Peterson site in 2022 (Figure A-3, Appendix A). Ox-eye daisy (*Leucanthemum vulgare*) and yellow flag iris (*Iris pseudacorus*) were observed in low cover classes, while Canada thistle (*Cirsium arvense)* ranged

from trace to high. Whitetop (*Lepidium draba)* infestations ranged from trace to high, with dense infestations occurring in the upland of the southwest quadrant of the mitigation site. Ventenata (*Ventenata dubia*) was first observed in the north central portion of the site in 2020 as a low infestation. In 2022, the number of infestations have increased and spread across the site, ranging from low to moderate.

Hydrology – The main source of hydrology at the Peterson site is an unnamed perennial tributary of Post Creek. The mitigation site is located within a ¼-mile-long wetland corridor aligned east to west that follows the topographic gradient toward Post Creek. The project area is exposed to seasonal flooding during spring runoff, seasonal high groundwater, and sustained flows during summer from irrigation returns. Additionally, small seeps occur north and south of the tributary at the toe of slope. Immediately east of US 93 and the Peterson site is a small reservoir located on private land. The landowner manipulates the channel flows from this reservoir that supply hydrology to the mitigation site. In May 2020, log crib structures (i.e., log dams 1, 1A, 2, and 6) and earthen berms were installed, repaired, and replaced to improve water impoundment and increase wetland establishment across the site. During the 2022 monitoring event, 1-2 inches of water were observed flowing over the upstream and middle crib structures, indicating that they are functioning as intended. However, water was flowing through and not over the downstream outfall structure, indicating failure. This structure requires repairs to function as intended.

The slope/swale wetland along the north boundary of the mitigation site shrunk in 2022. This was observed in the field as a transition from a hydrophytic to a facultative vegetation community and an absence of wetland hydrology in those areas after several consecutive drier than normal years.

Soils – The assessment area is primarily mapped as Colake silt loam and Ronan silty clay loam by the National Resource Conservation Service (NRCS). Paired soil test plots, one upland plot paired with one wetland plot, were excavated at 5 locations (Figure A-2, Appendix A). Wetland sample plots demonstrated the hydric soil indicator redox dark surface, except DP04-wet, which was a problematic wetland soil. This sample pit was located at the same elevation as the adjacent cattail marsh, indicating that saturation at this location may not fluctuate enough to introduce aerobic conditions for the development of redoximorphic features, such as concentrations or depletions. However, the lower horizons are becoming depleted, and the soil meets the NRCS (2018) definition of a hydric soil as having formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register 1994). Soil textures ranged from sandy loam to clay, and a restrictive hardpan layer was encountered around 11-12 in both upland and wetland plots across the site. No hydric soil indicators were observed in the upland soil plots.

Photographs – Photographs were taken at photo points 1–8 (PP1 to PP8), transect endpoints, and data points. These and additional site photos of the repaired cribs and outflow structures are provided in Appendix C, with comparisons between 2022 and the first year of monitoring. MDT added photo point 8 in 2020 to monitor the newly installed Log Crib 1A. Please refer to past monitoring reports for all previous annual photographs at this weblink:
https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Functional Assessment – The 2022 results of the functional assessment utilizing the 2008 version of the Montana Wetland Assessment (MWAM) are summarized in Table 4. Prior to 2021, the 1999 version of the MWAM form was used, and changes in points scored between past years and 2021 may be related to substantial updates between the versions, and not necessarily indicative of a reduced function. Comparisons between 2021 and 2022 are more representative of functionality. Completed MWAM forms for the US 93 Peterson site are provided in Appendix B. Overall, the site rates as a Category II wetland and has generated 27.24 Functional Units. Due to observations of minnows in the

channel, fish habitat, which was previously rated as N/A, was evaluated in 2021, and 2022. Expected wetland mitigation credits are shown in Table 5.

Table 4. Montana Wetland Assessment Method Summary for the US 93 N Peterson Site.

Function and Value Parameters from the MDT Montana Wetland Assessment Method (2008)	2004 (Baseline) (AA-1)*	2017 (AA-1)*	2020 (AA-1)*	2021 (AA-1)	2022 (AA-1)
Listed/Proposed T&E Species Habitat	Low (0.3)	High (0.8)	High (0.8)	High (0.8)	High (0.8)
MTNHP Species Habitat	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)
General Wildlife Habitat	Low (0.5)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
General Fish/Aquatic Habitat	Low (0.1)	NA	NA	Low (0.3)	Low (0.3)
Flood Attenuation	Low (0.2)	High (0.8)	High (0.8)	Mod (0.6)	Mod (0.6)
Short and Long Term Surface Water Storage	Mod (0.4)	High (0.8)	High (0.8)	High (0.8)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (0.9)	High (1.0)	High (1.0)	High (1)	High (1)
Sediment/Shoreline Stabilization	High (0.7)	High (1.0)	High (1.0)	High (1)	High (1)
Production Export/Food Chain Support	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)
Groundwater Discharge/Recharge	High (1.0)	High (1.0)	High (1.0)	High (1)	High (1)
Uniqueness	Low (0.2)	Mod (0.4)	Mod (0.4)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential (Bonus Points)	Low (0.1)	High (1.0)	High (1.0)	High (0.15)	High (0.15)
Actual Points / Possible Points	**5.3/12**	**8.6/11**	**8.6/11**	**7.85/11**	**7.85/11**
% of Possible Score Achieved	**44%**	**78%**	**78%**	**71%**	**71%**
Overall Category	**III**	**II**	**II**	**II**	**II**
Total Acreage of Assessed Wetlands within Easement (ac)	**1.26**	**3.20**	**3.94**	**3.60**	**3.47**
Total Functional Units (acreage x actual points) **(fu)**	**6.68**	**27.52**	**33.88**	**28.26**	**27.24**

*1999 MWAM form. 2008 MWAM first utilized at US 93 N Peterson in 2021.

Wildlife – Four bird species were identified at the site in 2022, including Sora (*Porzana carolina),* Red-winged Blackbird (*Agelaius phoeniceus*), Eastern Kingbird (*Tyrannus tyrannus*), and a Great Horned Owl *(Bubo virginianus*). In addition to the four bird species, frogs, minnows, voles, common gartersnake, and white-tailed deer were observed at the site. Additional evidence of wildlife use includes observations of tracks, scat, bedding, and bird nests. Woody vegetation provides usable habitat for wildlife and birds.

Credit Summary – Wetland acreage totaled 3.47 acres and has generated 27.24 Functional Units in 2022, which is a slight decrease from acreages and Functional Units reported in 2021. Based upon the 3.47 acres of delineated wetlands, using the USACE credit ratios for creation and rehabilitation/secondary restoration, the site is currently receiving 3.00 USACE credit acres and 1.33 CSKT credit acres. Table 5 summarizes the estimated wetland credits based on USACE-approved credit ratios and the wetland delineation completed in July 2022. Credit acres calculated in 2022 exceed anticipated credit acres for both the USACE and CSKT.

Table 5. Expected USACE and CSKT Mitigation Credits for US 93 Peterson Site for 2022.

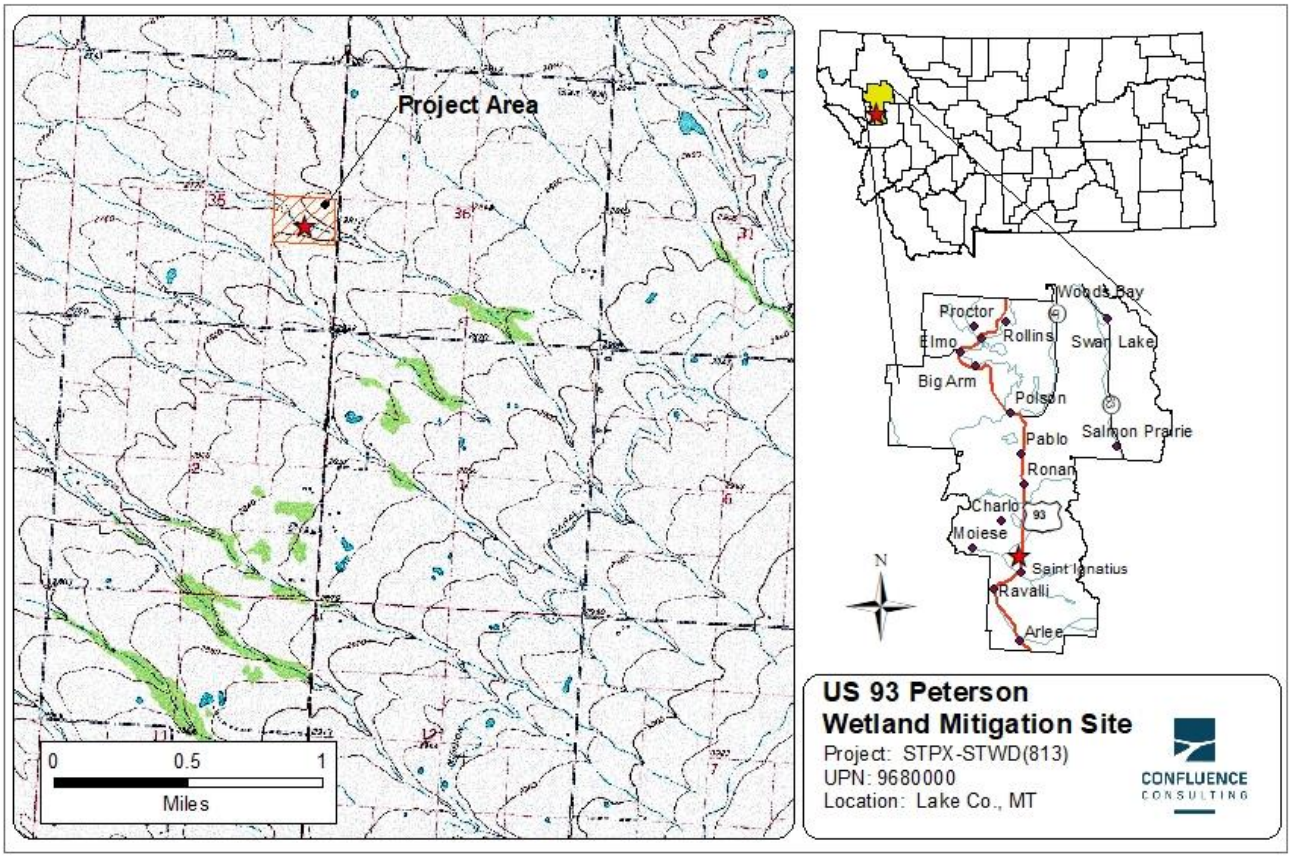
Compensatory Mitigation Type	2022 Delineated Acres	Mitigation Ratio		2022 Mitigation Credit Acres		MWAM Actual Points	2022 Functional Units Generated
		USACE	CSKT	USACE	CSKT		
Creation	2.22	1:1	3.36:1	2.22	0.66	7.85	17.43
Rehabilitation/Secondary Restoration	1.25	1.61:1*	1.86:1	0.78	0.67	7.85	6.12
(Mitigation Credit Acres X Actual Points)**							23.55

*Corrected enhancement ratio implemented in 2014.

**Functional Credits are calculated based on the USACE Mitigation Credit Acres and do not include CSKT Credit Acres.

Maps, Plans, Photos

Figure # 1: Site Location Map



Project Area Maps/Figures: See Appendix A (Figure 2 – Monitoring Activity Locations, Figure 3 – Mapped Site Features and Figure 4 – Wetland Delineation).

Data Forms: See Appendix B (Site Monitoring form, USACE data forms, and MWAM forms).

Tables: See Appendix B (Comprehensive Vegetation Species List, Table B-1).

Photos: See Appendix C.

Plans: See Appendix D of 2020 US 93- Peterson Wetland Monitoring Report found at this website: https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx

Conclusions

Based on the results of the fourteenth year of monitoring, the mitigation site has developed into a diverse wetland ecosystem consisting of emergent habitat and a developing scrub/shrub habitat. The site is meeting the following performance standards in 2022: the construction of 12 log crib structures and earthen berms and the planting of shrubs and herbaceous plugs within the wetland fringe. However, the site has not developed into the target scrub shrub habitat type. Of the three log crib structures installed in May 2020, the middle crib structure at the downstream end is not functioning as intended and requires repair. Decreases in wetland acreage from the previous year were observed around the slope wetlands north and south of the creek and are likely related to decreased hydrology after several consecutive drier than normal years. Despite these decreases, both the USACE and CSKT mitigation credits outlined in the 2008 mitigation plan have been reached and exceeded.

References

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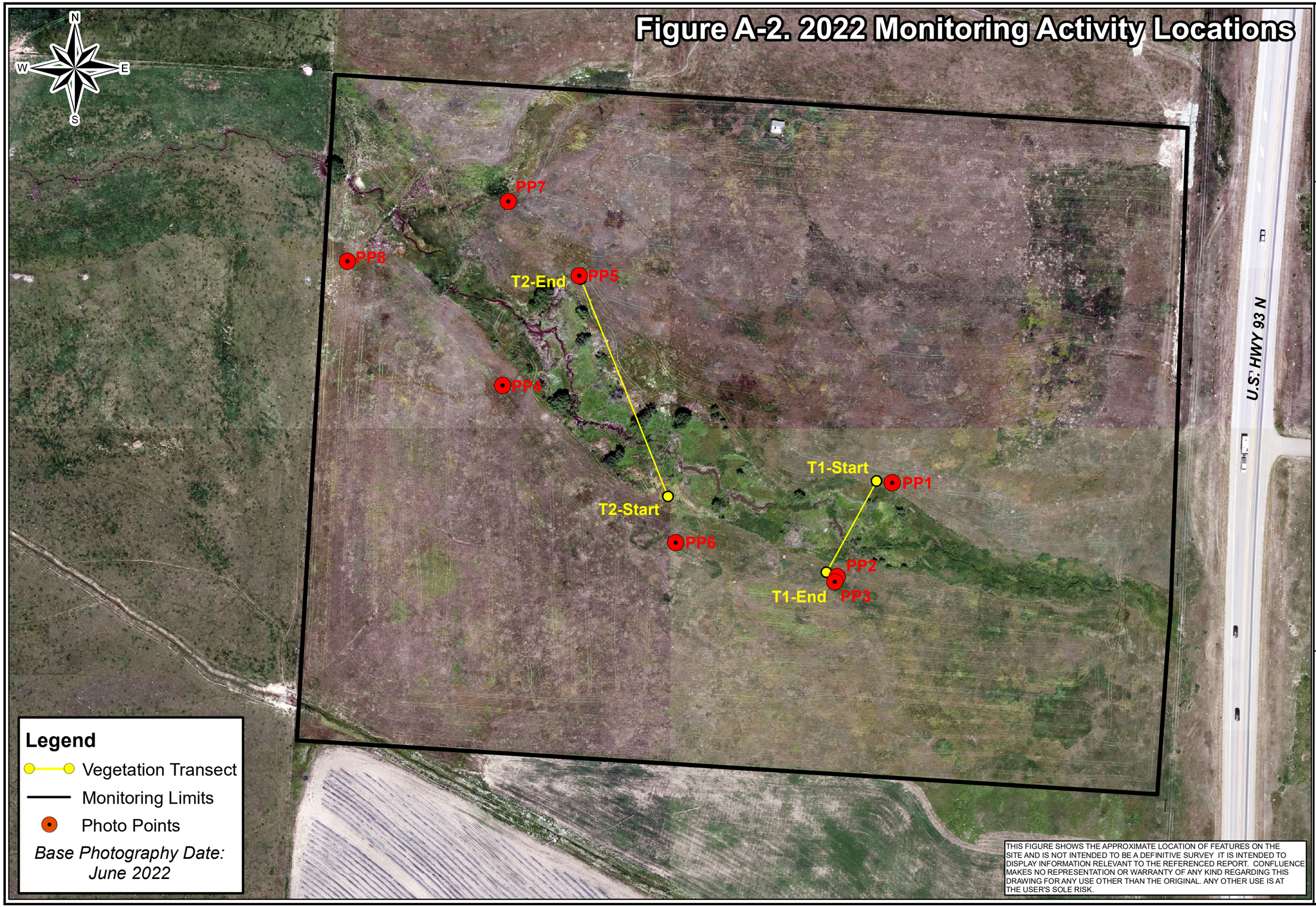
APPENDIX A
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana

Figure A-2. 2022 Monitoring Activity Locations



CONFLUENCE CONSULTING

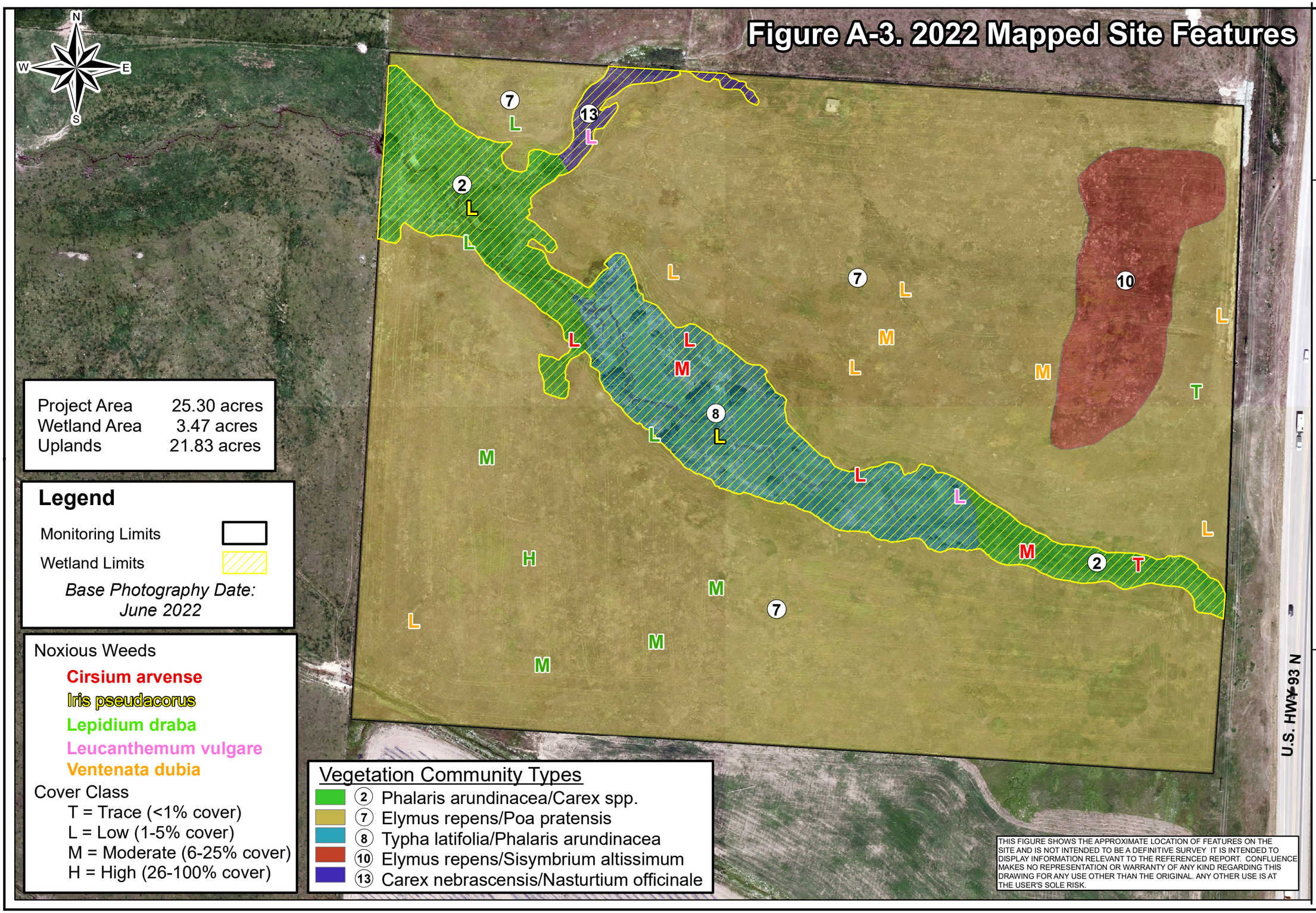
US-93 Peterson Mitigation Site
2022 Monitoring Activity Locations

0 60 120 240 360 480 600 Feet

Project:	STPX-STWD(813)
Location:	Lake Co., Montana
Map Creation Date:	July 2022
Project Manager:	R. McEldowney
Drawn By:	S. Weyant

File: X:\Project\MDT Wetland Mitigation 2\Wains\US93 N Peterson\2022\Monitor2022_MDT.mxd

Figure A-3. 2022 Mapped Site Features



Project Area	25.30 acres
Wetland Area	3.47 acres
Uplands	21.83 acres

Legend

Monitoring Limits

Wetland Limits

Base Photography Date: June 2022

Noxious Weeds

- **Cirsium arvense**
- **Iris pseudacorus**
- **Lepidium draba**
- **Leucanthemum vulgare**
- **Ventenata dubia**

Cover Class

- T = Trace (<1% cover)
- L = Low (1-5% cover)
- M = Moderate (6-25% cover)
- H = High (26-100% cover)

Vegetation Community Types

- (2) Phalaris arundinacea/Carex spp.
- (7) Elymus repens/Poa pratensis
- (8) Typha latifolia/Phalaris arundinacea
- (10) Elymus repens/Sisymbrium altissimum
- (13) Carex nebrascensis/Nasturtium officinale

CONFLUENCE CONSULTING

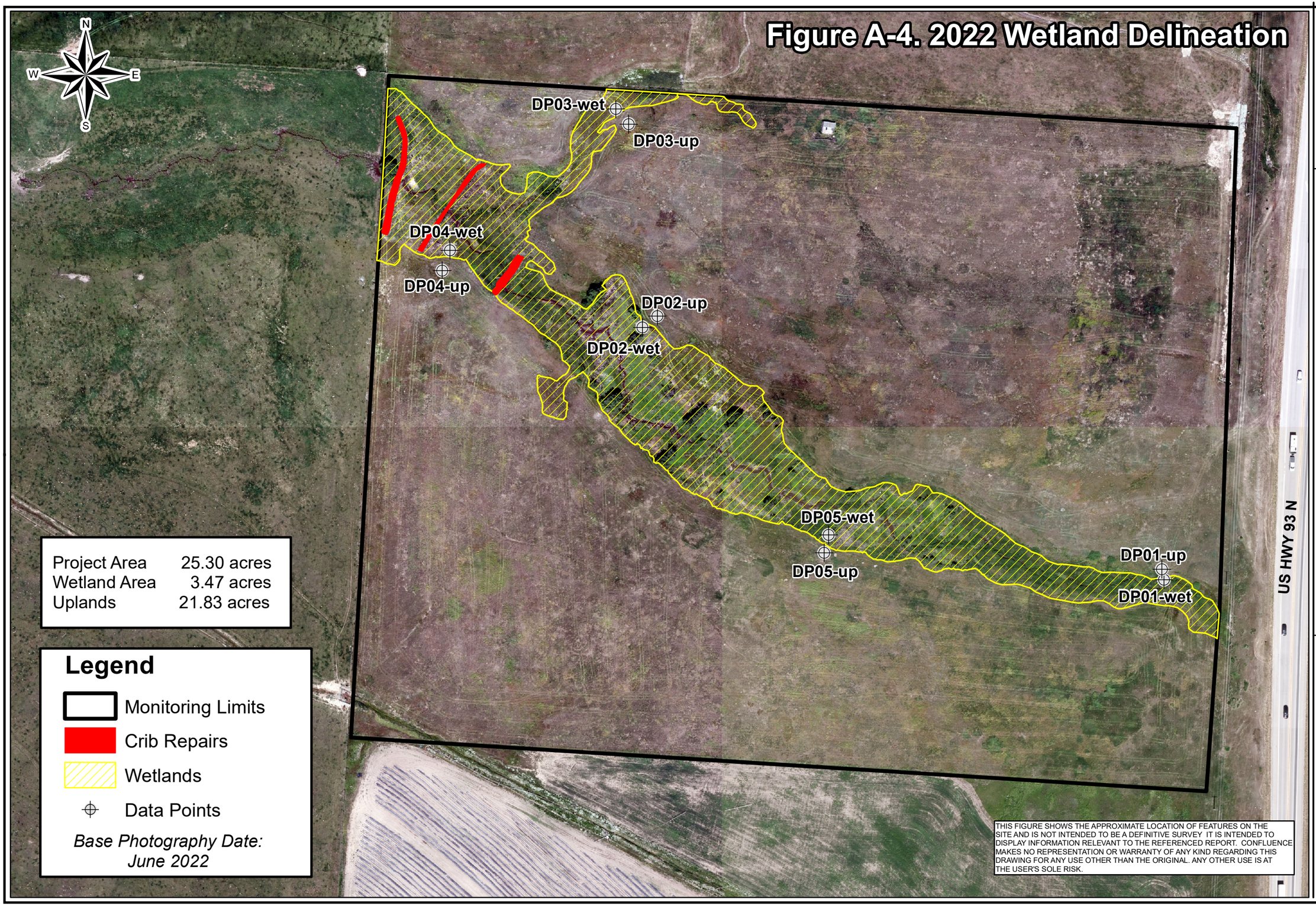
US-93 Peterson Mitigation Site
2022 Mapped Site Features

0 75 150 300 450 600 Feet

Project: STPX-STWD(813)
Location: Lake Co., Montana
Map Creation Date: February 2023
Project Manager: R. McEldowney
Drawn By: S. Weyant

File: X:\Project\MDT Wetland Mitigation 2\Mains\US93 N Peterson\2022\Veg2022_MDT.mxd

Figure A-4. 2022 Wetland Delineation



Project Area	25.30 acres
Wetland Area	3.47 acres
Uplands	21.83 acres

Legend

- Monitoring Limits
- Crib Repairs
- Wetlands
- Data Points

Base Photography Date: June 2022

THIS FIGURE SHOWS THE APPROXIMATE LOCATION OF FEATURES ON THE SITE AND IS NOT INTENDED TO BE A DEFINITIVE SURVEY IT IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

CONFLUENCE CONSULTING

US-93 Peterson Mitigation Site
2022 Wetland Delineation

0 75 150 300 450 600 Feet

Project: STPX-STWD(813)
Location: Lake Co., Montana
Map Creation Date: February 2023
Project Manager: R. McEldowney
Drawn By: S. Weyant

File: X:\Project\MDT Wetland Mitigation 2\Mains\US93 N Peterson\2022\Delineation2022_MDT.mxd

APPENDIX B
MONITORING FORMS

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: US 93 Peterson Assessment Date/Time 7/6/2022

Person(s) conducting the assessment: S Weyant

Weather: Clearly, partly cloudy, 75 degrees Location: St. Ignatius

MDT District: Missoula Milepost: 35.5

Legal Description: T 19N R 20W Section(s) 35

Initial Evaluation Date: 8/15/2008 Monitoring Year: 14 #Visits in Year: 1

Size of Evaluation Area: 25 (acres)

Land use surrounding wetland:

Residential & agriculture.

HYDROLOGY

Surface Water Source: Unnamed tributary to Post Creek; irrigation ditch diversion.

Inundation: ☑ Average Depth: 0.5 **(ft)** Range of Depths: 0-2 **(ft)**

Percent of assessment area under inundation: 25 %

Depth at emergent vegetation-open water boundary: 0 **(ft)**

If assessment area is not inundated then are the soils saturated within 12 inches of surface: Yes

Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc:

Surface soil cracks, soil saturation, sulfidic odor, geomorphic position, FAC-Neutral, innundation.

Groundwater Monitoring Wells

Record depth of water surface below ground surface, in feet.

Additional Activities Checklist:

☑ Map emergent vegetation-open water boundary on aerial photograph.

☑ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining, etc.)

☐ Use GPS to survey groundwater monitoring well locations, if present.

Hydrology Notes:

Inundation behind the crib structures at the downstream end was present during the site visit, however, water was flowing under one of the crib structures, indicating failure of the design and requires repair. The wetland/upland boundary at the site is distinct and contained by landscape position. Slope wetlands have decreased in size after a string of dry years.

VEGETATION COMMUNITIES

Site US 93 Peterson

(Cover Class Codes **0** = < 1%, **1** = 1-5%, **2** = 6-10%, **3** = 11-20%, **4** = 21-50% , **5** = >50%)

Community # 2 **Community Type:** Phalaris arundinacea / Carex spp. **Acres:** 1.53

Species	Cover class	Species	Cover class
Alnus incana	1	Brassica juncea	2
Carex aquatilis	1	Carex nebrascensis	1
Carex pachystachya	1	Carex pellita	2
Carex stipata	2	Cirsium arvense	0
Dipsacus fullonum	2	Eleocharis palustris	1
Epilobium ciliatum	2	Juncus balticus	0
Juncus tenuis	1	Nasturtium officinale	2
Phalaris arundinacea	4	Poa palustris	1
Rosa woodsii	1	Schoenoplectus acutus	1
Scirpus microcarpus	1	Solanum dulcamara	2
Typha latifolia	3		

Comments:

Wetland community type created in 2021 to replace Phalaris arundinacea community. Community observed along channel at the west and east ends of the mitigation site.

Community # 7 **Community Type:** Elymus repens / Poa pratensis **Acres:** 20.49

Species	Cover class	Species	Cover class
Bare Ground	1	Brassica juncea	2
Bromus inermis	2	Bromus tectorum	1
Carex nebrascensis	1	Cirsium arvense	0
Dipsacus fullonum	1	Elymus repens	4
Juncus balticus	0	Lepidium campestre	1
Lepidium draba	1	Lepidium perfoliatum	2
Mentha arvensis	0	Pascopyrum smithii	2
Phalaris arundinacea	0	Poa pratensis	4
Rosa woodsii	0	Sisymbrium altissimum	1
Sonchus arvensis	1	Thlaspi arvense	0
Ventenata dubia	1		

Comments:

Upland community type surrounding the wetland assessment area. Ventenata dubia is proliferating and spreading across the site within this community, particularly in disturbed and drier areas that appear to have been previously sprayed with herbicide.

Community # 8 **Community Type:** Typha latifolia / Phalaris arundinacea **Acres:** 1.75

Species	Cover class	Species	Cover class
Alnus incana	2	Brassica juncea	3
Carex aquatilis	1	Carex nebrascensis	2
Carex stipata	0	Carex utriculata	2
Cirsium arvense	0	Cirsium vulgare	0
Cornus alba	1	Dipsacus fullonum	2
Elymus repens	0	Epilobium ciliatum	3
Geum macrophyllum	1	Glyceria grandis	0
Hesperis matronalis	0	Lemna minor	1
Leucanthemum vulgare	0	Mentha arvensis	1
Myosotis laxa	2	Nasturtium microphyllum	2
Nasturtium officinale	3	Nepeta cataria	1
Open Water	0	Persicaria amphibia	1
Phalaris arundinacea	4	Poa palustris	1
Poa pratensis	1	Rosa woodsii	1
Salix exigua	1	Sisymbrium altissimum	0
Solanum dulcamara	2	Sonchus arvensis	0
Thlaspi arvense	0	Typha latifolia	4
Veronica americana	0		

Comments:

Wetland community type along stream channel in the central portion of the mitigation site.

Community # 10 **Community Type:** Elymus repens / Sisymbrium altissimum **Acres:** 1.36

Species	Cover class	Species	Cover class
Brassica juncea	1	Bromus inermis	1
Cirsium vulgare	0	Elymus repens	5
Lepidium perfoliatum	2	Sisymbrium altissimum	4
Thlaspi arvense	0		

Comments:

Upland community type in northeast quandrant of site.

Community # 13 **Community Type:** Carex nebrascensis / Nasturtium officinale **Acres:** 0.18

Species	Cover class	Species	Cover class
Brassica juncea	3	Carex nebrascensis	5
Carex stipata	1	Elymus repens	0
Glyceria grandis	1	Leucanthemum vulgare	0
Nasturtium officinale	3	Pascopyrum smithii	0
Phalaris arundinacea	1	Poa pratensis	1
Sisymbrium altissimum	0	Thlaspi arvense	1
Typha latifolia	1		

Comments:

Community type 13 was created in 2021 to replace community type 12 (Carex nebrascensis/Poa pratensis). Observed in slope wetland north of the channel.

Total Vegetation Community Acreage **25.30**

VEGETATION TRANSECTS

Site: US 93 Peterson Date: 7/6/2022

Transect Number: 1 **Compass Direction from Start:** 210

Interval Data:

Ending Station 13 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Bare Ground	2	Brassica juncea	0
Dipsacus fullonum	0	Elymus repens	3
Pascopyrum smithii	2	Poa pratensis	3
Ventenata dubia	1		

Ending Station 133 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	0	Brassica juncea	2
Carex nebrascensis	1	Carex stipata	1
Carex utriculata	1	Dipsacus fullonum	2
Epilobium ciliatum	3	Hesperis matronalis	1
Myosotis laxa	2	Nasturtium microphyllum	4
Open Water	1	Phalaris arundinacea	2
Poa pratensis	0	Rosa woodsii	0
Sisymbrium altissimum	1	Solanum dulcamara	0
Typha latifolia	2	Veronica americana	3

Ending Station 144 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Brassica juncea	1	Elymus repens	2
Poa pratensis	5	Sisymbrium altissimum	1
Thlaspi arvense	1		

Transect Notes:

Wetland interval has increased 14 feet in length since 2017.

Transect Number: 2 **Compass Direction from Start:** 340

Interval Data:

Ending Station 255 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	1	Brassica juncea	2
Carex nebrascensis	1	Cirsium arvense	0
Dipsacus fullonum	2	Elymus repens	0
Epilobium ciliatum	2	Geum macrophyllum	1
Glyceria grandis	1	Leucanthemum vulgare	0
Mentha arvensis	0	Myosotis laxa	2
Nasturtium officinale	3	Nepeta cataria	1
Persicaria amphibia	1	Phalaris arundinacea	0
Poa palustris	0	Rosa woodsii	0
Solanum dulcamara	3	Sonchus arvensis	1
Thlaspi arvense	0	Typha latifolia	3
Veronica americana	1		

Ending Station 325 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Bromus tectorum	1	Carex nebrascensis	0
Pascopyrum smithii	2	Poa pratensis	5
Sisymbrium altissimum	0	Thlaspi arvense	1
Ventenata dubia	1		

Transect Notes:

Depth of inundation along the transect ranged from 0-5".

PLANTED WOODY VEGETATION SURVIVAL

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Planting Type	#Planted	#Alive	Notes
Alnus incana	1163		
Betula occidentalis	817		
Cornus alba	408		
Crataegus douglasii			
Ribes hudsonianum	245		
Rosa woodsii	450		
Salix exigua	408		

Comments

No planted woody vegetation survival was assessed during 2020-2022 monitoring events. Woody plants were evaluated based on ocular observation. Alnus incana has the highest woody plant density and appears stunted with thin foliage above and some basal regrowth. Rosa woodsii and Cornus alba are present along the wetland/upland boundary, and Salix exigua is present within community type 8 with volunteers observed in this area. Overall, woody vegetation is diversifying, and provides important wildlife habitat and structural diversity at the site.

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WILDLIFE

Birds

Were man-made nesting structures installed? No

If yes, type of structure: _____

How many? _____

Are the nesting structures being used? No

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat
Eastern Kingbird	1	L	
Great Horned Owl	1	FO, L	
Red-winged Blackbird	25	L, FO, F	
Sora	2	L	

Bird Comments

Observed owl pellets, feathers, and birds nests in shrubs.

BEHAVIOR CODES

BP = One of a breeding pair **BD** = Breeding display **F** = Foraging **FO** = Flyover **L** = Loafing **N** = Nesting

HABITAT CODES

AB = Aquatic bed **SS** = Scrub/Shrub **FO** = Forested **UP** = Upland buffer **I** = Island

WM = Wet meadow **MA** = Marsh **US** = Unconsolidated shore **MF** = Mud Flat **OW** = Open Water

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Frog sp.	2	No	No	No	
Garter Snake	1	No	No	No	
Minnow sp.	1	No	No	No	
Vole	2	No	No	Yes	
White-tailed Deer	2	Yes	Yes	Yes	

Wildlife Comments:

Sightings, tracks, and scat indicate wildlife presence. Minnows observed in channel in 2021 and 2022.

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PHOTOGRAPHS

Take photographs of the following permanent reference points listed in the check list below. Record the direction of the photograph using a compass. When at the site for the first time, establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3 feet above ground. Survey the location with a resource grade GPS and mark the location on the aerial photograph.

Photograph Checklist:

☑ One photograph for each of the four cardinal directions surrounding the wetland.

☐ At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.

☐ At least one photograph showing the buffer surrounding the wetland.

☑ One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
DP01u	47.361253	-114.097568		Upland data point
DP01w	47.361213	-114.097554		Wetland data point
DP02u	47.362106	-114.100487		Upland data point
DP02w	47.362059	-114.100568		Wetland data point
DP03u	47.362832	-114.100712		Upland data point
DP03w	47.362887	-114.100789		Wetland data point
DP04u	47.362231	-114.101711		Upland data point
DP04w	47.36231	-114.101674		Wetland data point
DP05u	47.361239	-114.099472		Upland data point
DP05w	47.361309	-114.099452		Wetland data point
PP1	47.361538	-114.098828	175	Photo point 1: Photo 1.
PP2-1	47.361169	-114.099105	35	Photo point 2: Photo 1.
PP2-2	47.361169	-114.099105	110	Photo point 2: Photo 2.
PP3	47.36115	-114.099117	45	Photo point 3.
PP4	47.361821	-114.101036	30	Photo point 4.
PP5	47.362254	-114.100645	175	Photo point 5.
PP6	47.361263	-114.100017	315	Photo point 6.
PP7-1	47.362521	-114.101066	5	Photo point 7: Photo 1.
PP7-2	47.362521	-114.101066	267	Photo point 7: Photo 2.
PP8	47.362257	-114.101944	34	Photo point 8.
T1-End	47.361169	-114.099105	45	Photo point 2. T-1 End.
T1-Start	47.361538	-114.098828	215	Photo point 1. T-1 Start.
T2-End	47.362242	-114.100633	315	Photo point 5. T-2 End.
T2-Start	47.361435	-114.100076	135	Transect 2 start.

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ADDITIONAL ITEMS CHECKLIST

Hydrology

☑ Map emergent vegetation/open water boundary on aerial photos.
☑ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).

Photos

☑ One photo from the wetland toward each of the four cardinal directions
☐ One photo showing upland use surrounding the wetland.
☐ One photo showing the buffer around the wetland
☑ One photo from each end of each vegetation transect, toward the transect

Vegetation

☑ Map vegetation community boundaries

☑ Complete Vegetation Transects

Soils

☑ Assess soils

Wetland Delineations

☑ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)
☑ Delineate wetland – upland boundary onto aerial photograph.

Wetland Delineation Comments

Wetland acreage decreased 0.13-acre in the slope wetland at the north boundary of the site.

Functional Assessments

☑ Complete and attach full MDT Montana Wetland Assessment Method field forms.

Functional Assessment Comments:

The assessment area is rated as a category 2 wetland.

Maintenance

Were man-made nesting structure installed at this site? No

If yes, do they need to be repaired?

If yes, describe the problems below and indicate if any actions were taken to remedy the problems

Were man-made structures built or installed to impound water or control water flow

into or out of the wetland? Yes

If yes, are the structures in need of repair? Yes

If yes, describe the problems below.

The second wire from the top of fence at the entry gate has been cut and needs repair. Water is flowing around and not over the downstream outfall structure of the middle crib structure, indicating it has failed and requires repair.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP01-up

Investigator(s): S Weyant | Section, Township, Range: S 36 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Hillside | Local relief (concave, convex, none): flat | Slope (%): 0

Subregion (LRR): LRR E | Lat: 47.361253 | Long: -114.097568 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silt loam, 0-1% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Sample point located on hillside approximately 1.5' higher than DP01-wet.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: | Domiant Species? | Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Juncus balticus	1	☐	FACW
Lactuca serriola	1	☐	FACU
Lepidium perfoliatum	1	☐	FACU
Pascopyrum smithii	87	☑	FACU
Poa pratensis	3	☐	FAC
Ventenata dubia	2	☐	UPL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 5

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	1	X 2	2
FAC species	3	X 3	9
FACU species	89	X 4	356
UPL species	2	X 5	10
Column Totals	95 (A)		377 (B)

Prevalence Index = B/A = 3.96842

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:
Upland sample plot dominated by FACU vegetation.

SOIL

Sampling Point: DP01-up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-07	7.5YR 3/1	100					Loam	**Fine roots**
07-14	10YR 5/2	90	10YR 4/1	10	D	M	Clay	**Cemented**
14+							Hardpan	**Refusal**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators observed. Concentrations appear relict and occur in an extremely compacted/hardpan layer. Refusal by hardpan layer encountered at 14".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP01-wet

Investigator(s): S Weyant | Section, Township, Range: S 36 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Streambank | Local relief (concave, convex, none): concave | Slope (%): 10

Subregion (LRR): LRR E | Lat: 47.361213 | Long: -114.097554 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silt loam, 0-1% slopes | NWI classification: PEM1C

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
PEM, riverine wetland. Sample point at east end of wetland fringe along channel, approximately 6" above the water surface.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Brassica juncea	7	☐	UPL
Carex aquatilis	3	☐	OBL
Carex stipata	8	☐	OBL
Cirsium arvense	2	☐	FAC
Epilobium ciliatum	1	☐	FACW
Geum macrophyllum	3	☐	FAC
Glyceria grandis	2	☐	OBL
Juncus tenuis	20	☑	FAC
Mentha arvensis	3	☐	FACW
Phalaris arundinacea	24	☑	FACW
Poa pratensis	5	☐	FAC
Solanum dulcamara	1	☐	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 21

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	13	X 1	13
FACW species	28	X 2	56
FAC species	31	X 3	93
FACU species	0	X 4	0
UPL species	8	X 5	40
Column Totals	80 (A)		202 (B)

Prevalence Index = B/A = 2.525

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Evidence of hydrophytic vegetation includes a positive dominance test and prevalence index less than 3.0.

SOIL

Sampling Point: DP01-wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-03	10YR 2/2	100					Sandy Loam	**Fine roots**
03-08	10YR 2/1	97	7.5YR 4/6	3	C	M, PL	Clay Loam	
08+							Hardpan	**Cobbles. Refusal**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Prominent redoximorphic concentrations common within the matrix and along pore linings. Rock refusal by cobble bottom encountered at 8".

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 6

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Evidence of wetland hydrology includes saturation within 6 inches of the soil surface, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP02-up

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): convex | Slope (%): 25

Subregion (LRR): LRR E | Lat: 47.362106 | Long: -114.100487 | Datum: NAD 83

Soil Map Unit Name: 143: Ronan silty clay loam, 4-8% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Upland sample point on hillside approximately .75' higher than DP02-wet.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: | Dominant Species? | Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Pascopyrum smithii	15	☐	FACU
Poa pratensis	80	☑	FAC
Thlaspi arvense	1	☐	UPL
Ventenata dubia	4	☐	UPL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	0	X 1	0
FACW species	0	X 2	0
FAC species	80	X 3	240
FACU species	15	X 4	60
UPL species	5	X 5	25
Column Totals	100 (A)		325 (B)

Prevalence Index = B/A = 3.25

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Typical upland vegetation community encountered in non-wetland areas across the site. Although the plot is dominated by a FAC-rated species, the plot exhibits no other wetland characteristics.

SOIL

Sampling Point: DP02-up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-03	7.5YR 4/3	100					Clay	**Fine roots**
03-11	7.5YR 4/3	100					Clay	**Gravels**
11+								**Refusal**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators observed. Soil is extremely compact. Refusal by hardpan layer at 11" prohibited a deeper sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP02-wet

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 47.362059 | Long: -114.100568 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silt loam, 0-1% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
PEM, riverine wetland. Sample point in central portion of mitigation site along north boundary of the wetland.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Brassica juncea	10	☐	UPL
Carex nebrascensis	35	☑	OBL
Dipsacus fullonum	3	☐	FAC
Epilobium ciliatum	1	☐	FACW
Geum macrophyllum	15	☑	FAC
Nasturtium officinale	5	☐	OBL
Thlaspi arvense	1	☐	UPL
Typha latifolia	5	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 25

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	45	X 1	45
FACW species	1	X 2	2
FAC species	18	X 3	54
FACU species	0	X 4	0
UPL species	11	X 5	55
Column Totals	75 (A)		156 (B)

Prevalence Index = B/A = 2.08

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Some vegetation appears herbicide damaged. Evidence of hydrophytic vegetation includes a positive dominance test and a prevalence index less than 3.0.

SOIL

Sampling Point: DP02-wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	90	7.5YR 4/4	10	C	M	Clay Loam	
11-14+	7.5YR 5/3	100					Clay Loam	**Cemented/hardpan**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Distinct redoximorphic concentrations common within the matrix.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP03-up

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): convex | Slope (%): 25

Subregion (LRR): LRR E | Lat: 47.362832 | Long: -114.100712 | Datum: NAD 83

Soil Map Unit Name: 143: Ronan silty clay loam, 4-8% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Sample point hill approximately 1' higher than DP03-wet.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Dominant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Galium aparine	1	☐	FACU
Lepidium perfoliatum	35	☑	FACU
Pascopyrum smithii	4	☐	FACU
Poa pratensis	60	☑	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	60 X 3	180
FACU species	40 X 4	160
UPL species	0 X 5	0
Column Totals	100 (A)	340 (B)

Prevalence Index = B/A = 3.4

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:
Typical upland vegetation community encountered in non-wetland areas across the site. Upland sample plot does not meet the parameters for a hydrophytic vegetation community.

SOIL

Sampling Point: DP03-up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-02	10YR 2/2	100					Loam	**Fine roots**
02-16	10YR 2/2	100					Loam	**Gravels**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP03-wet

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Swale | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 47.362887 | Long: -114.100789 | Datum: NAD 83

Soil Map Unit Name: 143: Ronan silty clay loam, 4-8% slopes | NWI classification: PEM1C

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
PEM, slope wetland. Sample point located in low swale.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Brassica juncea	20	☑	UPL
Carex nebrascensis	60	☑	OBL
Nasturtium officinale	3	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 17

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 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	63	X 1	63
FACW species	0	X 2	0
FAC species	0	X 3	0
FACU species	0	X 4	0
UPL species	20	X 5	100
Column Totals	83 (A)		163 (B)

Prevalence Index = B/A = 1.96386

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Evidence of hydrophytic vegetation includes a prevalence index less than 3.0.

SOIL

Sampling Point: DP03-wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-06	10YR 3/1	95	10YR 4/3	5	C	M	Clay Loam	
06-16	10YR 3/1	93	7.5YR 4/6	7	C	M, PL	Clay Loam	**Gravels**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Distinct redoximorphic concentrations common within the matrix. Soil more compacted below 6". Gravels at 16" prevent further excavation of the sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive FAC-Neutral test. Soil moist from 0-06", and drier below where compaction was observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP04-up

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): convex | Slope (%): 20

Subregion (LRR): LRR E | Lat: 47.362231 | Long: -114.101711 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silt loam, 0-1% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☐	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Sample point on toeslope approximatley 1.5' higher than DP04-wet.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: | Domiant Species? | Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Brassica juncea	1	☐	UPL
Carex pellita	3	☐	OBL
Elymus repens	10	☐	FAC
Galium aparine	1	☐	FACU
Lepidium perfoliatum	1	☐	FACU
Plantago lanceolata	1	☐	FACU
Poa pratensis	53	☑	FAC
Thlaspi arvense	5	☐	UPL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 25

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	3 X 1	3
FACW species	0 X 2	0
FAC species	63 X 3	189
FACU species	3 X 4	12
UPL species	6 X 5	30
Column Totals	75 (A)	234 (B)

Prevalence Index = B/A = 3.12

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Although the plot is dominated by a FAC-rated species and therefore passes the dominance test for hydrophytic vegetation, the plot exhibits no other wetland characteristics.

SOIL

Sampling Point: DP04-up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 2/2	100					Loam	**Fine roots 0-4"**
10-16+	10YR 3/1	100					Loam	**Hard, compacted**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP04-wet

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 47.36231 | Long: -114.101674 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silt loam, 0-1% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
PEM, riverine wetland. Sample point located in wetland adjacent to active channel.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: | Domiant Species? | Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Carex pellita	5	☐	OBL
Carex stipata	35	☑	OBL
Cirsium arvense	3	☐	FAC
Epilobium ciliatum	10	☐	FACW
Myosotis laxa	2	☐	OBL
Nasturtium officinale	8	☐	OBL
Phalaris arundinacea	25	☑	FACW
Typha latifolia	1	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	51	X 1	51
FACW species	35	X 2	70
FAC species	3	X 3	9
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	89	(A)	130 (B)

Prevalence Index = B/A = 1.46067

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Evidence of hydrophytic vegetation includes a positive dominance test and a prevalence index less than 3.0.

SOIL

Sampling Point: DP04-wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-06	10YR 2/1	100					Silt Loam	
06-15	10YR 3/1	100					Silt Loam	**Gravels**
15-20	10YR 4/1	100					Silt Loam	**Gravels**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☑ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Although no hydric soil indicators were observed, wetland hydrology was present, all dominant plant species were hydrophytic, and the wetland boundary had an abrupt edge (1987 COE Wetland Delineation Manual). Based on proximity to active channel and location at same elevation as adjacent cattail marsh, saturation may not fluctuate enough to introduce oxygen for the development of redoximorphic features. Lower layers are becoming depleted.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): 17

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 6

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Evidence of wetland hydrology includes saturation within 6" of the soil surface, geomorphic position, and a positive FAC-Neutral test. Sample pit is at the same elevation as the adjacent cattail marsh with standing surface water.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP05-up

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Toeslope | Local relief (concave, convex, none): flat | Slope (%): 5

Subregion (LRR): LRR E | Lat: 47.361239 | Long: -114.099472 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silt loam, 0-1% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☑, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐ No ☑	
Wetland Hydrology Present?	Yes ☐ No ☑	

Remarks:
Upland sample point at toe of slope in south central portion of mitigation site.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: | Domiant Species? | Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Elymus repens	10	☑	FAC
Galium aparine	20	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 70

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	% (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	10 X 3	30
FACU species	20 X 4	80
UPL species	0 X 5	0
Column Totals	30 (A)	110 (B)

Prevalence Index = B/A = 3.66667

Hydrophytic Vegetation Indicators

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:
Vegetation appears herbicide damaged which contributes low cover. Species observed are representative of the non-wetland plant community in this area.

SOIL

Sampling Point: DP05-up

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	100					Loam	**Few cobbles**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☐ No ☑

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 7/6/2022

Applicant/Owner: MDT | State: Montana | Sampling Point: DP05-wet

Investigator(s): S Weyant | Section, Township, Range: S 35 T 19 N R 20 W

Landform (hillslope, terrace, etc.): Valley bottom | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): LRR E | Lat: 47.361309 | Long: -114.099452 | Datum: NAD 83

Soil Map Unit Name: 22: Colake silt loam, 0-1% slopes | NWI classification: Not Mapped.

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☑ 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 ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks:
PEM, riverine wetland. Sample point located in central portion of mitigation site along south boundary of the wetland.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius) — Absolute % Cover: | Domiant Species? | Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Carex aquatilis	84	☑	OBL
Epilobium ciliatum	3	☐	FACW
Geum macrophyllum	1	☐	FAC
Iris pseudacorus	3	☐	OBL
Myosotis laxa	2	☐	OBL
Nasturtium officinale	5	☐	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 2

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 % (A/B)

Prevalence Index worksheet

Total % Cover of:			Multiply by:
OBL species	94	X 1	94
FACW species	3	X 2	6
FAC species	1	X 3	3
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	98 (A)		103 (B)

Prevalence Index = B/A = 1.05102

Hydrophytic Vegetation Indicators

- ☑ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is <= 3.0
- ☐ 4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
- ☐ 5 - Wetland Non-Vascular Plants
- ☐ Problematic Hydrophytic Vegetation (Explain)

Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:
Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than 3.0.

SOIL

Sampling Point: DP05-wet

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 2/2	98	7.5YR 4/6	2	C	PL	Loam	
12+							Hardpan	**Hardpan. Refusal**

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks:

Prominent redoximorphic concentrations common along pore linings. Refusal by hardpan at 12" prohibited further excavation of the sample pit.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one 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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Evidence of wetland hydrology includes geomorphic position and a positive FAC-Neutral test.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name US 93 Peterson **2. MDT project#** NH-5-2(122)31 **Control#** 9680000

3. Evaluation Date 7/12/2021 **4. Evaluators** S Weyant **5. Wetland/Site# (s)** AA-1

6. Wetland Location(s): T 19 N **R** 20 W **Sec1** 35 **T** **R** **Sec2**

Approx Stationing or Mileposts RP 35.5 US 93 North

Watershed 4 - Flathead **Watershed/County** Lake County

7. Evaluating Agency CCI - MDT

8. Wetland size acres 3.47

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 3.47

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Emergent Wetland	Impounded	Permanent/Perennial	83
Riverine	Scrub-Shrub Wetland	Impounded	Permanent/Perennial	10
Slope	Emergent Wetland	Impounded	Seasonal/Intermittent	7

11. Estimated Relative Abundance 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)

AA includes an unnamed perennial stream channel and adjacent fringe wetlands and slope wetland. Wetlands within the AA were constructed in 2006 and managed in a natural state. Adjacent area is subject to grazing.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Cirsium arvense, Cynoglossum officinale, Iris pseudocorus, and Leucanthemum vulgare. Lepidium draba and Ventenata dubia are prominent in the areas surrounding the AA.

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

Rangeland to the north, south and west; US 93 corridor to the east. Woody vegetation is dispersed across the wetland, therefore a scrub shrub wetland class is included to capture its observed importance to wildlife (especially Neotropical migrant birds) on the site.

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: Emergent and scrub-shrub vegetation types.

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 (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	◉ D ○ S	Grizzly bear (LT)
Incidental habitat (list species)	○ D ○ S	
No usable habitat	☐ S	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] 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	.8H	.7M	.3L	.1L	0L

Sources for documented use: CSKT Wildlife staff observation in 2017/2018. MTNHP Environmental Summary Report - Species Occurrence Data. IPaC report.

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 (check one based on definitions contained in instructions):

Primary or critical habitat (list species)	○ D ○ S	
Secondary habitat (list Species)	○ D ○ S	
Incidental habitat (list species)	○ D ◉ S	Great Blue Heron (S3)
No usable habitat	☐ S	

ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] 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: MTNHP Environmental Summary Report - Species Occurrence Data

14C. General Wildlife Habitat Rating:

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

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, check 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)	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 [check] 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 General wildlife is rated high based on low disturbance to the area and moderate habitat use.

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 check ☐ **NA** here and proceed to 14E.) Warm Water

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check 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?* **Y** ◉ **N** ◯ *If yes, reduce score in* ***i*** *above by 0.1:* **Modified Rating** .3L

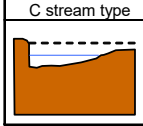
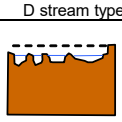
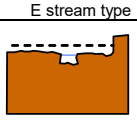
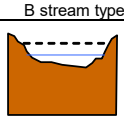
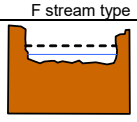
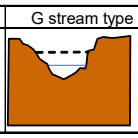
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .3L

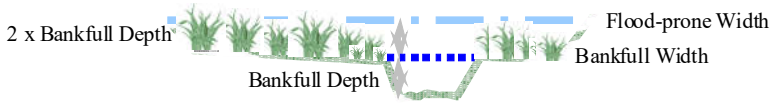
iii. Final Score and Rating: .3 L **Comments:** General fish habitat rated NA due to impassable barriers (log cribs) that prevented fish from using AA in previous years. Rating adjusting in 2021 due to observation of minnows in channel in 2021 and 2022.

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, click ☐ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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

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
						



Floodprone width / **Bankfull width** = **Entrenchment ratio**

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 (check)? **Y** ◯ **N** ◉

Comments: Log crib structures were installed as beaver dam analogues to spread flow out and create wetland habitat. The dense cattail marsh works to slow flood waters and functions similarly to woody vegetation, so score was

---

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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] 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: Log crib structures impound and store water.

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, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: The AA routinely floods and is dominated by emergent vegetation, and has a restricted outlet created by log crib structures.

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, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: Dominant wetland cover provided by Typha latifolia and Phalaris arundinacea.

14I. Production Export/Food Chain Support:

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

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 [check] 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	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.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? **Y** ◉ **N** ○ *If yes, add 0.1 to the score in **ii** above and adjust rating accordingly:* **Modified Rating** .8H

Comments: Vegetated component of AA is 3.47 acres. Emergent wetland with scrub-shrub component developing, AA contains surface water outlet. Permanent/perennial water present.

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

i. Discharge Indicators

- [x] The AA is a slope wetland
- [ ] Springs or seeps are known or observed
- [ ] Vegetation growing during dormant season/drought
- [x] Wetland occurs at the toe of a natural slope
- [x] 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 [check] 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		NA		

Comments: Majority of site hydrology is supplied from surface water and water retention by cribs, but seeps occur north and south of the creek.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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	.7H	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: Common wetland types.

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: (check) **Y** (●) **N** (○) (if 'Yes' continue with the evaluation; if 'No' then click ☐ **NA** here 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 [check] 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:

Site has the potential for educational use.

General Site Notes

Wetland acreage at the site decreased 0.13-acre from 2022.

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

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	H	.8	1	2.78	☐
B. MT Natural Heritage Program Species Habitat	L	.1	1	0.35	☐
C. General Wildlife Habitat	H	.9	1	3.12	☑
D. General Fish Habitat	L	.3	1	1.04	☐
E. Flood Attenuation	M	.6	1	2.08	☐
F. Short and Long Term Surface Water Storage	H	.8	1	2.78	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	3.47	☑
H. Sediment/Shoreline Stabilization	H	1	1	3.47	☑
I. Production Export/Food Chain Support	H	.8	1	2.78	☐
J. Groundwater Discharge/Recharge	H	1	1	3.47	☑
K. Uniqueness	M	.4	1	1.39	☐
L. Recreation/Education Potential (bonus points)	H	.15	NA	0.52	☐
Totals:		7.85	11	27.24	
Percent of Possible Score			**71.36** %		

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:
(check appropriate category based on the criteria outlined above)

I | II | III | IV

Table B-1. US93 N Peterson Mitigation Site. Comprehensive Vegetation Species List 2008-2022

Scientific Name	Common Name	WMVC Wetland Indicator[a]
Achillea millefolium	Common Yarrow	FACU
Agropyron cristatum	Crested Wheatgrass	UPL
Alnus incana	Speckled Alder	FACW
Amsinckia menziesii	Small-flower Fiddle-neck	UPL
Asparagus officinalis	Asparagus	FACU
Bistorta bistortoides	American Bistort	FACW
Brassica juncea	Chinese Mustard	UPL
Bromus arvensis	Field Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Cardaria draba	Whitetop	UPL
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex nebrascensis	Nebraska Sedge	OBL
Carex pellita	Woolly Sedge	OBL
Carex praegracilis	Clustered Field Sedge	FACW
Carex sp.	Sedge	N/A
Carex stipata	Stalk-Grain Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Carex vesicaria	Lesser Bladder Sedge	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium vulgare	Bull Thistle	FACU
Cornus alba	Red Osier	FACW
Cynoglossum officincale	Gypsy-Flower	FACU
Dactylis glomerata	Orchard Grass	FACU
Descurainia sophia	Herb Sophia	UPL
Dianthus sp.	Pink	N/A
Dipsacus fullonum	Fuller's Teasel	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elodea sp.	Waterweed	N/A
Elymus repens	Creeping Wild Rye	FAC
Epilobium ciliatum	Fringed Willowherb	FACW
Festuca arundinacea	Tall fescue	UPL
Festuca sp.	Fescue	N/A
Gallium aperine	Sticky-Willy	FACU
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria grandis	American Manna Grass	OBL
Helianthus pauciflorus	Stiff Sunflower	UPL
Hordeum jubatum	Fox-Tail Barley	FAC
Impatiens ecalcarata	Spurless Touch-Me-Not	FACW
Iris pseudacorus	Pale-Yellow Iris	OBL

Table B-1. US93 N Peterson Mitigation Site. Comprehensive Vegetation Species List 2008-2022

Scientific Name	Common Name	WMVC Wetland Indicator[a]
Juncus balticus	Baltic Rush	FACW
Juncus ensifolius	Dagger-Leaf Rush	FACW
Juncus sp.	Rush	N/A
Juncus tenuis	Lesser Poverty Rush	FAC
Kochia scoparia	Mexican Kochia	FAC
Lactuca serriola	Prickly Lettuce	FACU
Lemna minor	Common Duckweed	OBL
Lepidium campestre	Field Pepper-grass	UPL
Lepidium perfoliatum	Clasping Pepperwort	FACU
Leucanthemum vulgare	Ox-Eye Daisy	FACU
Malva neglecta	Dwarf Cheeseweed	UPL
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Mentha arvensis	American Wild Mint	FACW
Myosotis laxa	Bay Forget-Me-Not	OBL
Myriophyllum sibiricum	Siberian Water-Milfoil	OBL
Nasturtium microphyllum	One-Row Watercress	OBL
Nasturtium officinale	Watercress	OBL
Nepeta cataria	Catnip	FACU
Oenanthe sp.	Waterdropwort	N/A
Pascopyrum smithii	Western-Wheat Grass	FACU
Persicaria amphibia	Water Smartweed	OBL
Persicaria lapathifolia	Dock-Leaf Smartweed	FACW
Phalaris arundinacea	Reed Canary Grass	FACW
Plantago lanceolata	English Plantain	FACU
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Poa sp.	Bluegrass	N/A
Potentilla recta	Sulphur Cinquefoil	UPL
Potentilla sp.	Cinquefoil	N/A
Prunella vulgaris	Common Selfheal	FACU
Rosa woodsii	Woods' Rose	FACU
Rumex crispus	Curly Dock	FAC
Salix bebbiana	Gray Willow	FACW
Salix drummondiana	Drummond's Willow	FACW
Salix exigua	Narrowleaf Willow	FACW
Salix sp.	Willow	N/A
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL

Table B-1. US93 N Peterson Mitigation Site. Comprehensive Vegetation Species List 2008-2022

Scientific Name	Common Name	WMVC Wetland Indicator[a]
Silene latifolia	Bladder Campion	UPL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Solanum dulcamara	Climbing Nightshade	FAC
Sonchus arvensis	Field Sow-Thistle	FACU
Suaeda calceoliformis	Paiuteweed	FACW
Symphoricarpos albus	Common Snowberry	FACU
Symphoricarpos albus	Common Snowberry	FACU
Thlaspi arvense	Field Pennycress	UPL
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium pratense	Red Clover	FACU
Trifolium sp.	Clover	N/A
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Ventenata dubia	Ventenata	UPL
Verbascum blattaria	White Moth Mullein	UPL
Verbascum thapsus	Great Mullein	FACU
Veronica sp.	Speedwell	N/A

[a] 2020 NWPL (USACE 2020)

APPENDIX C
PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana

US93 Peterson: Photo Point Photographs

Photo Point: 1 **Location:** PP1
Bearing: 135 degrees **Year:** 2017

Photo Point: 1 **Location:** PP1
Bearing: 135 degrees **Year:** 2022

Photo Point: 2 **Location:** PP2 photo 1
Bearing: 35 degrees **Year**: 2017

Photo Point: 2 **Location:** PP2 photo 1
Bearing: 35 degrees **Year:** 2022

Photo Point: 2 **Location:** PP2 photo 2
Bearing: 110 degrees **Year:** 2017

Photo Point: 2 **Location:** PP2 photo 2
Bearing: 110 degrees **Year:** 2022

US93 Peterson: Photo Point Photographs

Photo Point: 4 **Location:** Looking across T-2
Bearing: 30 degrees **Year:** 2017

Photo Point: 4 **Location:** Looking across T-2
Bearing: 30 degrees **Year:** 2022

Photo Point: 5 Location: Wetland boundary
Bearing: 175 degrees **Year**: 2017

Photo Point: 5 **Location**: Wetland boundary
Bearing: 175 degrees **Year**: 2022

Photo Point: 6 **Location:** Transect 2 Start
Bearing: 315 degrees **Year:** 2017

Photo Point: 6 **Location:** Transect 2 Start
Bearing: 315 degrees **Year:** 2022

US93 Peterson: Photo Point Photographs

Photo Point: 7 **Location:** PP7 photo 1
Bearing: 5 degrees **Year:** 2020

Photo Point: 7 **Location:** PP7 photo 1
Bearing: 5 degrees **Year:** 2022

Photo Point: 7 **Location:** PP7 photo 2
Bearing: 267 degrees **Year:** 2020

Photo Point: 7 **Location:** PP7 photo 2
Bearing: 267 degrees **Year:** 2022

Photo Point: 8 **Location:** New crib structure.
Bearing: 34 degrees **Year**: 2020

Photo Point: 8 **Location:** New crib structure.
Bearing: 34 degrees **Year**: 2022

US93 Peterson: Transect Photographs

Photo Point: T-1 Start **Location:** T-1 Start
Bearing: 215 degrees **Year:** 2017

Photo Point: T-1 Start **Location:** T-1 Start
Bearing: 215 degrees **Year:** 2022

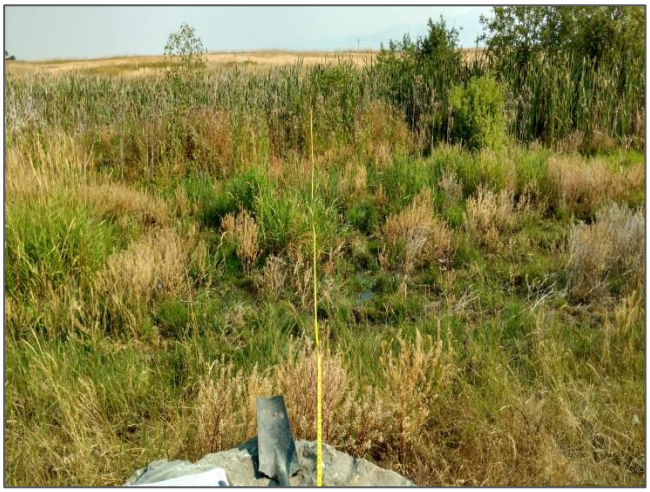


Photo Point 3 (T-1 End) **Location:** T-1 End
Bearing: 45 degrees **Year**: 2017

Photo Point 3 (T-1 End) **Location:** T-1 End
Bearing: 45 degrees **Year:** 2022

Photo Point: T-2 Start **Location**: T-2 Start
Bearing: 135 **Year**: 2020

Photo Point: T-2 Start **Location**: T-2 Start
Bearing: 135 **Year**: 2022

Photo Point: T-2 End **Location:** T-2 End
Bearing: 315 degrees **Year:** 2020

Photo Point: T-2 End **Location:** T-2 End
Bearing: 315 degrees **Year:** 2022

US93 Peterson: Data Point Photographs

Data Point: DP01-wet
Year: 2022

Data Point: DP01-up
Year: 2022

Data Point: DP02-wet
Year: 2022

Data Point: DP02-up
Year: 2022

Data Point: DP03-wet
Year: 2022

Data Point: DP03-up
Year: 2022

Data Point: DP04-wet
Year: 2022

Data Point: DP04-up
Year: 2022

Data Point: DP05-wet
Year: 2022

Data Point: DP05-up
Year: 2022

US93 Peterson: Additional Site Photographs

Additional Photo 1. Looking N/E at recently constructed upstream crib structure (2020).

Additional Photo 1. Looking N/E at recently constructed upstream crib structure (2022).

Additional Photo 2. Looking N/NE at new middle crib structure (2022).

Additional Photo 3. Looking N/NE at middle crib structure outfall (2022).

Additional Photo 4. Looking south at downstream outfall structure (2022).

Additional Photo 5. Looking north from south side of last downstream crib structure (2022).