US 93 PETERSON MITIGATION SITE

Project Overview

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

Watershed: Watershed #3 – Lower Clark Fork

Monitoring Year: 2021

Years Monitored: 13th year of monitoring

Corps Permit Number: NWO-2005-90-185

Monitoring Conducted By: Confluence Consulting Inc

Dates Monitoring Was Conducted: July 12, 2021

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 has 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/other/webdata/external/planning/wetlands/2017_REPORTS/2017-FINAL-US-93.PDF).

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

Dates of Any Recent Corrective or Maintenance Activities (since previous report):

Activity: Weed Spray. **Date:** June 28-July 1, 2021

Specific recommendations for any additional corrective actions: Weed management will continue in 2022.

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

Wetland Credit Acres Generated to Date: USACE – 3.13, CSKT – 1.37

Previous Monitoring Reports:

https://www.mdt.mt.gov/publications/brochures/wetland_mitigation.shtml

Requirements (from approved mitigation plan, banking instrument, or Department of Army (DA) 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, 2) excavation of an oxbow basin along the outer fringe of existing wetland boundaries and 3) planting of shrubs and herbaceous plugs within the oxbow basin, wetland fringe, and earthen embankments associated with log crib structures. Target wetland types are scrub/shrub and emergent vegetation classes including communities of thin-leaf alder (*Alnus incana)*, red osier dogwood (*Cornus alba),* Nebraska sedge (*Carex nebrascensis)*, and Baltic rush (*Juncus balticus*). Revegetation was completed in 2006, and recent adaptive management associated with crib repairs made in May, 2020.

Summary Data

Wetland Delineation – During the July 12th site visit, the US Drought monitor report classified the site as abnormally dry. The report updated the site's classification to moderate drought conditions beginning July 13th, 2021 (Fuchs and Rignati, 2022). Total wetland acreage delineated in 2021 was 3.60 acres, a decrease of 0.34 acres from 2020, 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 is no longer present in 2021 (Table 1; Figure A-3, Appendix A). The 2021 wetland acreage is a 0.40 acres increase from 2017 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 2021 at the US 93 Peterson Site

Habitat Type	2016	2017	2020	2021
Wetland Area (acres)	3.20	3.20	3.94	3.60

Vegetation – A total of 94 plant species have been identified at the site in the 13 years of monitoring, with eleven new species reported in 2021 (Appendix B; Table B-1).

Two upland community types and three wetland community types were identified and mapped at the site in 2021 (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 2021 as wetland community 13 (*Carex nebrascensis/Nasturtium officinale*). Wetland type 2 *(Phalaris arundinacea/Carex spp.)* has been updated from *Phalaris arundinacea* to include *Carex spp.* and reflect the diversifying community. *Alnus incana* continues to mature within wetland community 2 and wetland community 8 (*Typha latifolia/Phalaris arundinacea*). Woody vegetation is diversifying within wetland community 8 with *Cornus alba* and *Salix exigua* observed for the first time in 2021. 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 2021 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 2021 (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 community Type 8 – *Typha latifolia*/*Phalaris arundinacea*; 86.8 percent of the transect crossed wetland habitat, a 1.4% increase from 2020. The number of hydrophytic species increased from 12 to 13, and the total number of species increased from 14 to 17. Total vegetative cover remained

unchanged at 95 percent. The dominant wetland type at the site is classified as PEM, although woody species including gray alder provide approximately 10% cover across the entire wetland.

Table 2. Data Summary for T-1 From 2016 - 2017 and 2021 at the US 93 Peterson Site

Monitoring Year	**2016**	**2017**	**2020**	**2021**
Transect Length (feet)	144	144	144	144
Vegetation Community Transitions along Transect	2	2	2	2
Vegetation Communities along Transect	2	2	2	2
Hydrophytic Vegetation Communities along Transect	1	1	1	1
Total Vegetative Species	15	14	14	17
Total Hydrophytic Species	12	7	12	13
Total Upland Species	3	7	2	4
Estimated % Total Vegetative Cover	96	95	95	95
Estimated % Unvegetated	4	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	73.6	85.4	85.4	86.8
% Transect Length Comprising Upland Vegetation Communities	26.4	14.6	14.6	13.2
% Transect Length Comprising Unvegetated Open Water	0	0	0	0
% Transect Length Comprising Mudflat	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 community Type 7 – *Elymus repens/Poa pratensis* and wetland community Type 8 – *Typha latifolia*/*Phalaris arundinacea;* 72 percent of the transect crossed wetland habitat in 2021, which is a consistent with results from 2020. The number of hydrophytic species remained unchanged from 2020 at 12, and the total number of species observed remained at 17. Total vegetative cover remained unchanged at 95 percent.

Table 3. Data Summary for T-2 From 2016 - 2017 and 2021 at the US 93 Peterson Site

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

Two areas containing state-listed Priority 2A and 2B noxious weeds were mapped at the US 93 Peterson site in 2021 (Figure A-3, Appendix A). Canada thistle (*Cirsium arvense),* and whitetop (*Lepidium draba)* ranged from trace to moderate occurrences, while oxeye daisy *(Leucanthemum vulgare),* houndstongue (*Cynoglossum officinale),* yellow flag iris (*Iris pseudacorus)* and ventenata (*Ventenata dubia)* occurred as trace and low cover classes.

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 creation across the site. During the 2021 monitoring event, all crib structures were functioning as intended and required no further repairs. Hydrology supplied by irrigation overflow in the southwest corner of the site in 2020 was absent in 2021.

Soils – Paired soil test plots were excavated at 2 locations (Figure A-2, Appendix A). One wetland test pit (DP01w) was located on the hillside along the eastern boundary of the mitigation site, south of the crib repair work. Another wetland test pit (DP02w) was located inside the excavated depressions in areas recently rehydrated by crib repair work. The paired upland soil plots (DP01u, DP02u) were located upslope from wetland sample points. Soil textures within wetland test pits ranged from loam to clay. Hydric soil indicators, including redox dark surface (F6), have developed around the crib repair work since the 2020 monitoring event when none were reported. No hydric soil indicators were observed in the upland test pits.

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 2021 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.shtml.

Functional Assessment – The 2021 results of the functional assessments utilizing the 2008 version of the Montana Wetland Assessment (MWAM) is summarized in Table 4. In previous monitoring years, 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. 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 28.26 Functional Units. Due to observations of minnows in the channel, fish habitat, which was previously rated as N/A, was evaluated in 2021. Expected wetland mitigation credits are shown in Table 5.

Table 4. Montana Wetland Assessment Method Summary for the US 93 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)
Listed/Proposed T&E Species Habitat	Low (0.3)	High (0.8)	High (0.8)	High (0.8)
MTNHP Species Habitat	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)
General Fish/Aquatic Habitat	Low (0.1)	NA	NA	Low (0.3)
Flood Attenuation	Low (0.2)	High (0.8)	High (0.8)	Mod (0.6)
Short and Long Term Surface Water Storage	Mod (0.4)	High (0.8)	High (0.8)	High (0.8)
Sediment/Nutrient/Toxicant Removal	High (0.9)	High (1.0)	High (1.0)	High (1)
Sediment/Shoreline Stabilization	High (0.7)	High (1.0)	High (1.0)	High (1)
Production Export/Food Chain Support	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)
Uniqueness	Low (0.2)	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)
Actual Points / Possible Points	**5.3/12**	**8.6/11**	**8.6/11**	**7.85/11**
% of Possible Score Achieved	**44%**	**78%**	**78%**	**71%**
Overall Category	**III**	**II**	**II**	**II**
Total Acreage of Assessed Wetlands and Open Water within Easement (ac)	**1.26**	**3.20**	**3.94**	**3.60**
Total Functional Units (acreage x actual points) **(fu)**	**6.68**	**27.52**	**33.88**	**28.26**
Net Acreage Gain (ac)	NA	1.94	2.68	**2.34**
Net Functional Unit Gain	NA	20.84	27.2	**21.58**

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

Wildlife – Four bird species were identified at the site in 2021, including Turkey Vulture (*Cathartes aura),* Red-winged Blackbird (*Agelaius phoeniceus*), Northern Harrier (*Circus hudsonius*), and an owl pellet. In addition to the four bird species, one crayfish *(Faxonius virilis)* and 5 minnows were observed in the channel, while tracks and scat at the site indicate the presence of deer (*Odocoileus sp*.) (Appendix B, Site Monitoring Form). Woody vegetation provides usable habitat for wildlife and birds. Active nesting sites were observed by MDT staff in 2021.

Credit Summary – Including both creation and rehabilitation/secondary restoration credit acres, the site is currently receiving 3.13 USACE credit acres and 1.37 CSKT credit acres. Table 5 summarizes the estimated wetland credits based on USACE-approved credit ratios and the wetland delineation completed in July 2021. Credit acres calculated in 2021 exceed anticipated credit acres for both the USACE and CSKT. Wetland acreage totaled 3.60 acres in 2021, a decrease of 0.34 acres since 2020, but 0.4 acres more than previously reported in 2017 prior to adaptive management repairs to failed crib structures.

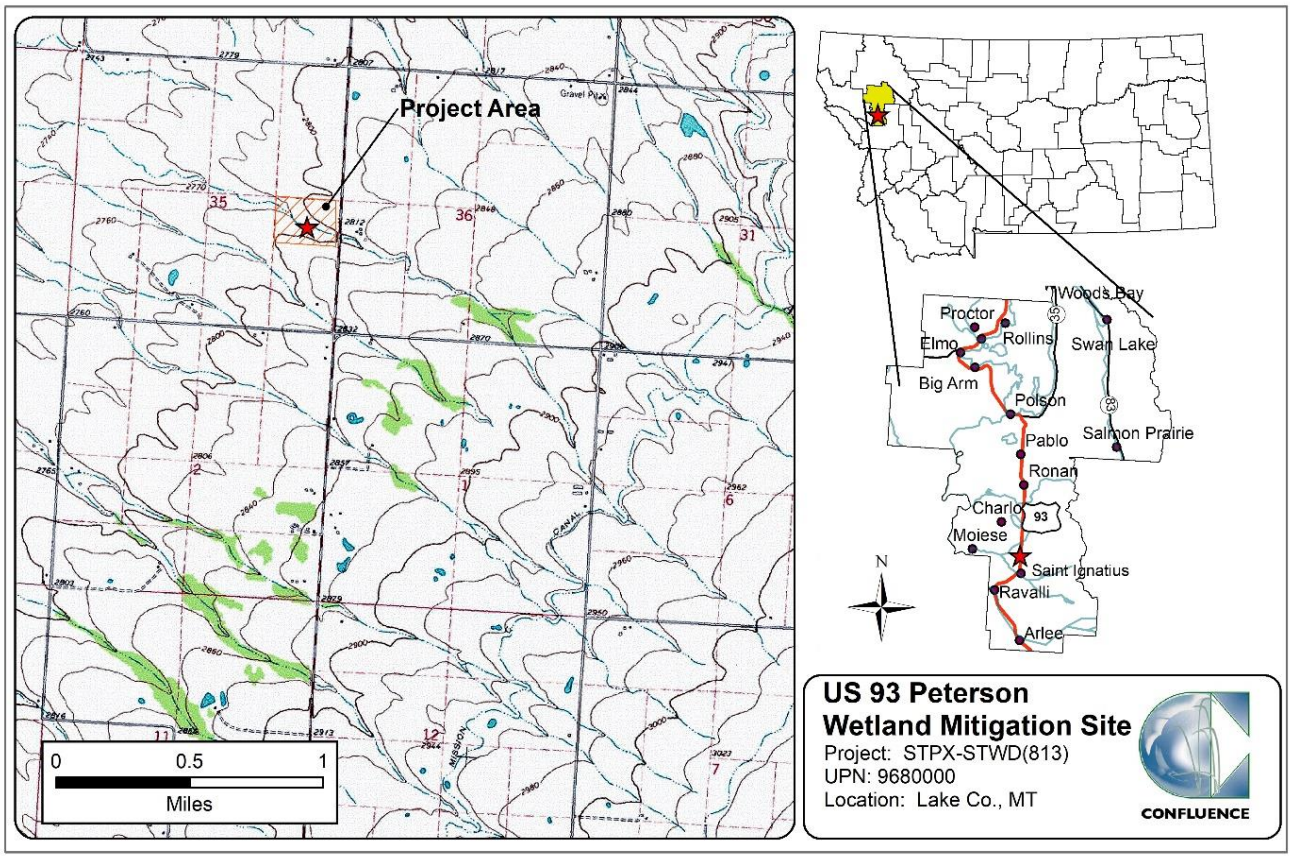
Table 5. Expected Wetland Mitigation Credits for US 93 Peterson Site from 2017 and 2020-2021

Targeted Mitigation Type	Credit Ratio		2017 Wetland (acre)	2017 Credit (acre)		2020 Wetland (acre)	2020 Credit (acre)		2021 Wetland (acre)	2021 Credit (acre)	
	USACE	CSKT		USACE	CSKT		USACE	CSKT		USACE	CSKT
Creation	1:1	3.36:1	1.95	1.95	0.58	2.69	2.69	0.80	2.35	2.35	0.70
Rehabilitation/secondary restoration	1.61:1 *(2014)	1.86:1	1.25	0.78	0.67	1.25	0.78	0.67	1.25	0.78	0.67
Total	**--**	**--**	**3.20**	**2.73**	**1.25**	**3.94**	**3.47**	**1.47**	**3.60**	**3.13**	**1.37**

*Corrected enhancement ratio.

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 Monitoring Report
https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2020-REPORTS/2020-FINAL-US93North-Peterson.PDF

Conclusions

Based on the results of the thirteenth year of monitoring, the mitigation site has developed into a diverse wetland ecosystem consisting of emergent and developing scrub/shrub habitats. The site is meeting all its performance standards in 2021, including the construction of 12 log crib structures and earthen berms, excavation of an oxbow basin along the outer fringe of pre-existing wetland boundaries, and the planting of shrubs and herbaceous plugs within the oxbow basin, wetland fringe, and log crib structures. Decreases in wetland acreage from the previous year are a result of reduced hydrologic sources, specifically from irrigation overflow that is no longer present. The increase in wetland acreage from 2017 is a result of the repairs made on failed crib structures to improve water storage and enhance hydrologic function in lower areas of the site. (Figure A-4, Appendix A).

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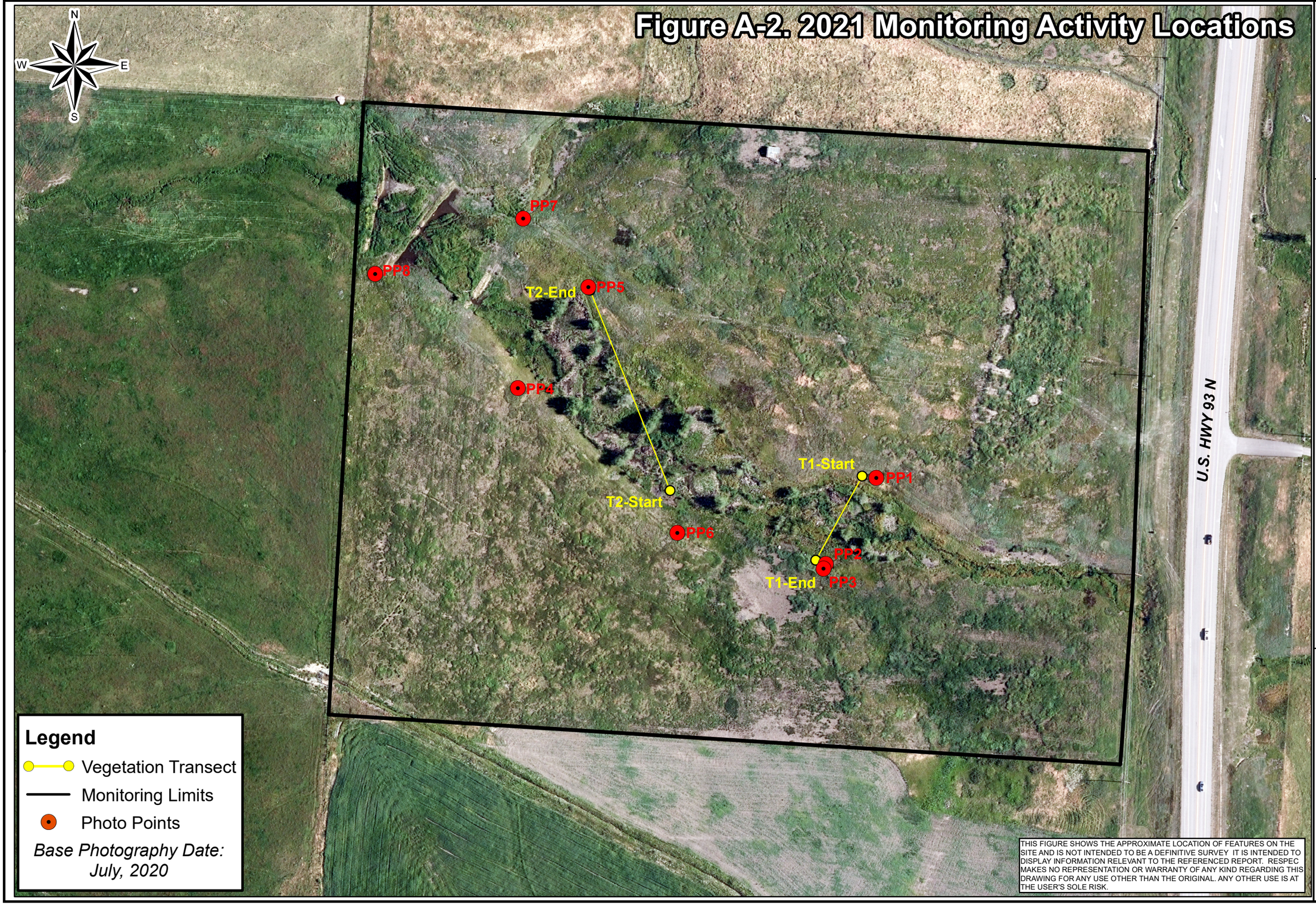
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APPENDIX A
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
US 93 Peterson
Lake County, Montana

Figure A-2. 2021 Monitoring Activity Locations



Legend

- Vegetation Transect
- Monitoring Limits
- Photo Points

Base Photography Date: July, 2020

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. RESPEC 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.

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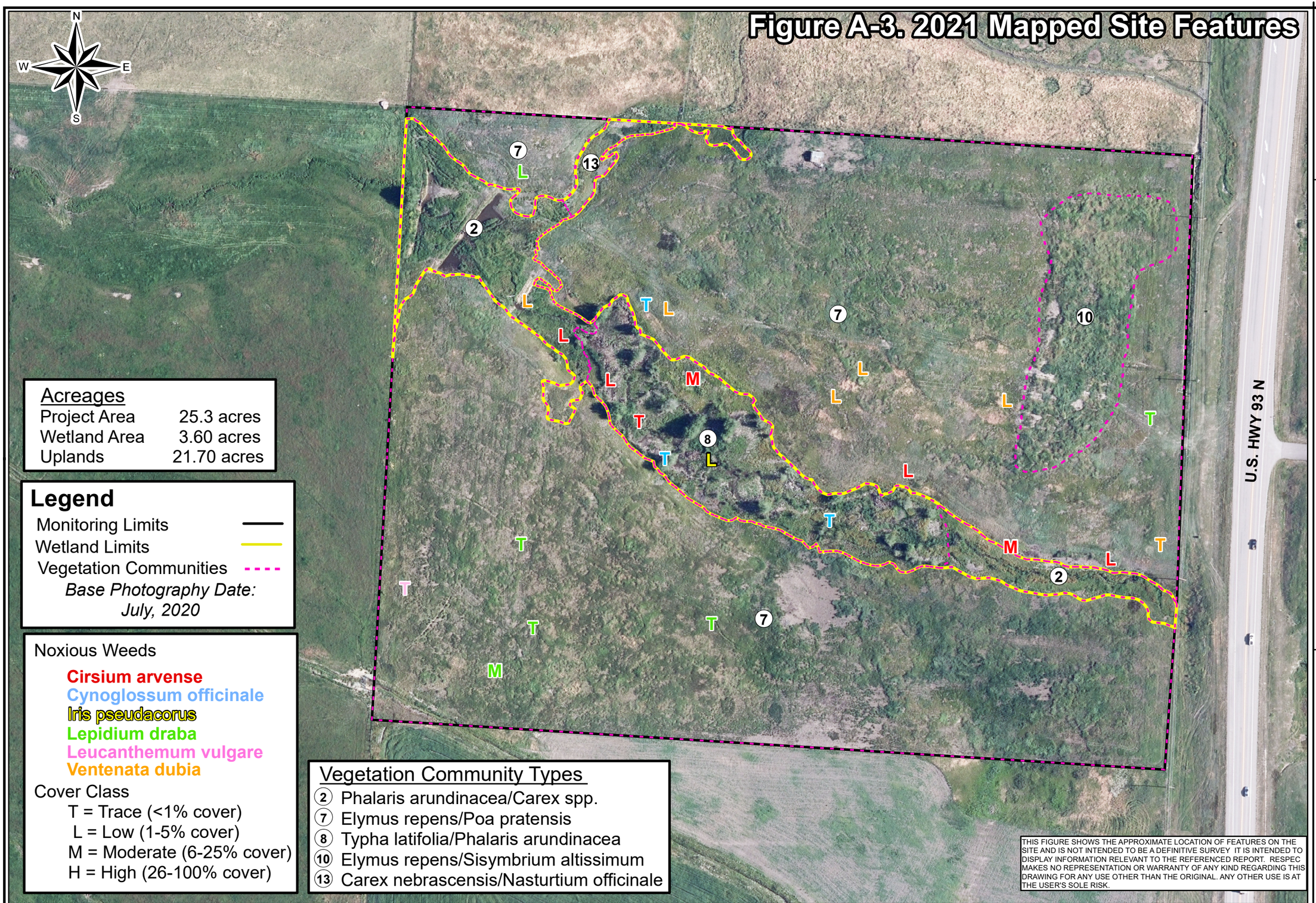
US-93 Peterson Mitigation Site
2021 Monitoring Activity Locations

0 60 120 240 360 480 600 Feet

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

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Figure A-3. 2021 Mapped Site Features



Acreages	
Project Area	25.3 acres
Wetland Area	3.60 acres
Uplands	21.70 acres

Legend

- Monitoring Limits
- Wetland Limits
- Vegetation Communities

Base Photography Date: July, 2020

Noxious Weeds

- Cirsium arvense
- Cynoglossum officinale
- 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

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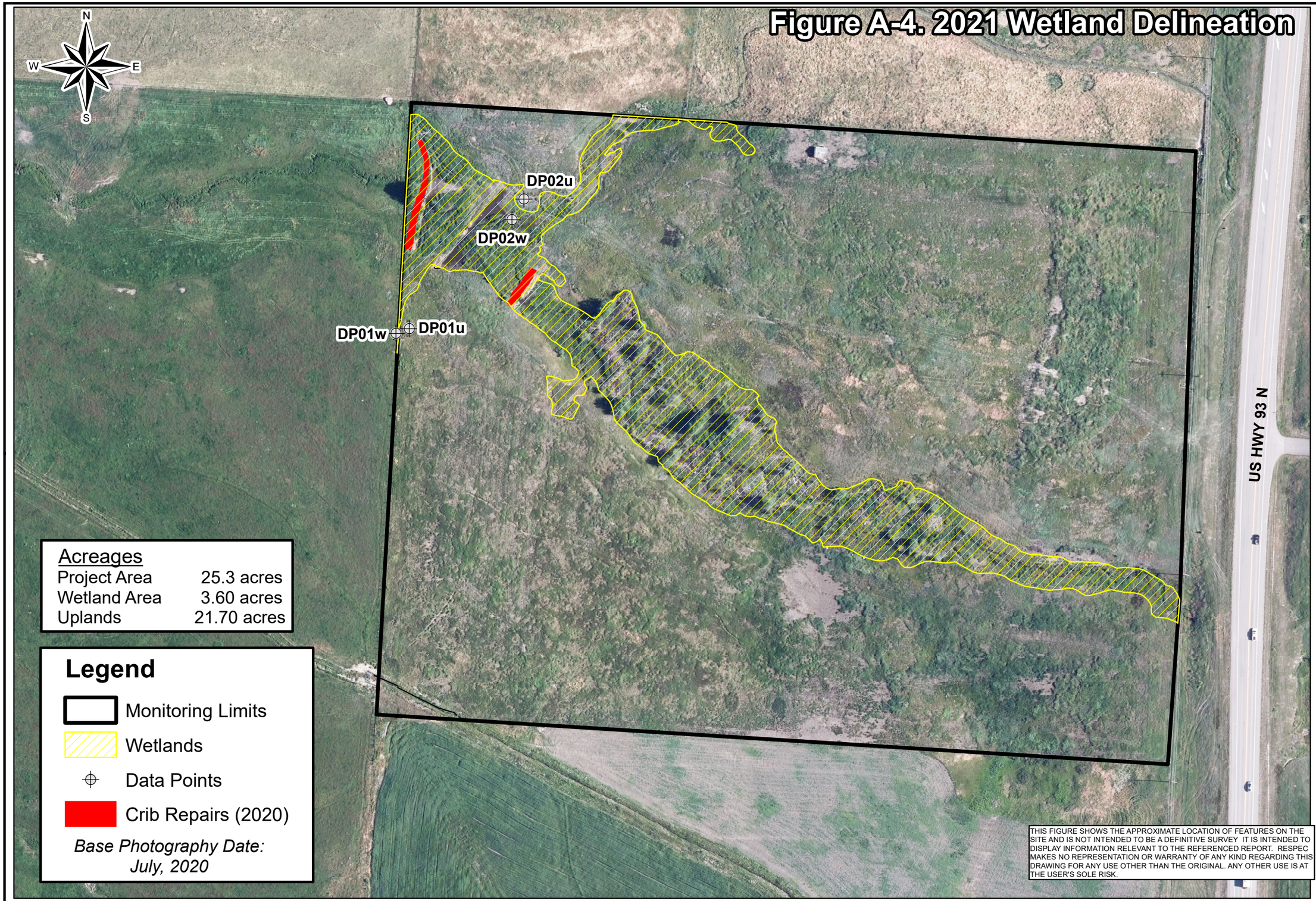
US-93 Peterson Mitigation Site
2021 Mapped Site Features

0 60 120 240 360 480 600 Feet

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

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Figure A-4. 2021 Wetland Delineation



Acreages	
Project Area	25.3 acres
Wetland Area	3.60 acres
Uplands	21.70 acres

Legend

- Monitoring Limits
- Wetlands
- Data Points
- Crib Repairs (2020)

Base Photography Date: July, 2020

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US-93 Peterson Mitigation Site
2021 Wetland Delineation

0 60 120 240 360 480 600 Feet

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

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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 7/12/2021

Person(s) conducting the assessment: S Weyant

Weather: Smokey, calm, 85 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: 13 #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: 0-3 **(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:

Drift lines, stained vegetation, and algal mats.

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, indicating improvements made to the structures in May 2020 are successful and functioning as intended. No obvious signs of breaching due to voids, undercuts, etc. were observed. The wetland/upland boundary at the site is distinct.

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:** 1.6

Species	Cover class	Species	Cover class
Alnus incana	1	Brassica juncea	2
Carex aquatilis	1	Carex nebrascensis	2
Carex pellita	2	Carex stipata	2
Cirsium arvense	1	Dipsacus fullonum	1
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	0	Solanum dulcamara	2
Typha latifolia	3		

Comments:

Wetland community type updated in 2021 from Phalaris arundinacea to Phalaris arundinacea/Carex spp.

Community # 7 **Community Type:** Elymus repens / Poa pratensis **Acres:** 20.4

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

Comments:

Upland community type.

Community # 8 Community Type: Typha latifolia / Phalaris arundinacea **Acres:** 1.8

Species	Cover class	Species	Cover class
Alnus incana	2	Brassica juncea	1
Carex aquatilis	1	Carex nebrascensis	1
Carex stipata	0	Carex utriculata	2
Cirsium arvense	1	Cirsium vulgare	0
Cornus alba	1	Dipsacus fullonum	2
Epilobium ciliatum	3	Geum macrophyllum	1
Lemna minor	1	Nasturtium microphyllum	1
Nasturtium officinale	3	Nepeta cataria	1
Phalaris arundinacea	3	Poa palustris	1
Poa pratensis	1	Rosa woodsii	1
Salix exigua	1	Solanum dulcamara	3
Typha latifolia	4		

Comments:

Wetland community type.

Community # 10 Community Type: Elymus repens / Sisymbrium altissimum **Acres:** 1.4

Species	Cover class	Species	Cover class
Bromus inermis	1	Cirsium vulgare	0
Elymus repens	4	Sisymbrium altissimum	4

Comments:

Upland community type.

Community # 13 Community Type: Carex nebrascensis / Nasturtium officinale **Acres:** 0.2

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

Comments:

Community type 13 was added in 2021 to replace community type 12 (Carex nebrascensis/Poa pratensis).

Total Vegetation Community Acreage **25.3**

VEGETATION TRANSECTS

Site: US 93 Peterson Date: 7/12/2021

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

Interval Data:

Ending Station 15 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Brassica juncea	1	Dipsacus fullonum	1
Elymus repens	4	Poa pratensis	4

Ending Station 140 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	0	Brassica juncea	2
Carex nebrascensis	0	Carex stipata	1
Carex utriculata	1	Cirsium arvense	1
Cirsium vulgare	0	Dipsacus fullonum	2
Epilobium ciliatum	0	Nasturtium microphyllum	4
Phalaris arundinacea	2	Poa pratensis	0
Rosa woodsii	1	Solanum dulcamara	1
Typha latifolia	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

Transect Notes:

Wetland interval has increased 19 feet in length since 2017.

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

Interval Data:

Ending Station 193 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	2	Brassica juncea	2
Dipsacus fullonum	2	Epilobium ciliatum	3
Geum macrophyllum	1	Nasturtium officinale	3
Phalaris arundinacea	1	Solanum dulcamara	4
Typha latifolia	4		

Ending Station 217 **Community Type:** Elymus repens / Poa pratensis

Species	Cover class	Species	Cover class
Brassica juncea	0	Dipsacus fullonum	0
Poa pratensis	5		

Ending Station 258 **Community Type:** Typha latifolia / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alnus incana	1	Brassica juncea	1
Carex nebrascensis	3	Cirsium arvense	0
Geum macrophyllum	0	Nasturtium officinale	1
Poa palustris	0	Typha latifolia	5

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

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

Transect Notes:

Transect composed of upland and wetland community types.

PLANTED WOODY VEGETATION SURVIVAL

US 93 Peterson

Planting Type	#Planted	#Alive	Notes
Alnus incana	1163		
Beula 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 or 2021 monitoring events. Woody plants were evaluated based on ocular observation. Alnus incana has the highest woody plant density and is thriving. Rosa woodsii and Cornus alba are present along the wetland/upland boundary, and Salix exigua is present within community type 8. Overall, woody vegetation is maturing and diversifying and provides important wildlife habitat and structural diversity at the site.

US 93 Peterson

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
Northern Harrier	1	FO	
Owl			
Red-winged Blackbird	10	FO, L	
Turkey Vulture	1	FO	

Bird Comments

Owl pellet observed on site.

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
Crayfish	1	No	No	No	
Fish sp.	5	No	No	No	
White-tailed Deer		Yes	Yes	No	

Wildlife Comments:

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

US 93 Peterson

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	47.36203	-114.102007		
DP01w	47.362006	-114.102087		
DP02u	47.362592	-114.101359		
DP02w	47.362505	-114.101424		
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.

Comments:

Photo point 8 created in 2020.

US 93 Peterson

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

Overflow irrigation is no longer present to support wetland hydrology and hydric soil development, resulting in decreased wetland acreage previously gained in 2020.

Functional Assessments

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

Functional Assessment Comments:

Category II 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? No

If yes, describe the problems below.

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

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 6/24/2021

Applicant/Owner: MDT | State: Montana | Sampling Point: DP01u

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

Landform (hillslope, terrace, etc.): Undulating | Local relief (concave, convex, none): flat | Slope (%): 9

Subregion (LRR): LRR E | Lat: 47.36203 | Long: -114.102007 | 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 located outside wetland boundary.

VEGETATION - Use scientific names of plant

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	35	☑	UPL
Carex nebrascensis	1	☐	OBL
Cirsium arvense	1	☐	FAC
Cirsium vulgare	3	☐	FACU
Dipsacus fullonum	1	☐	FAC
Pascopyrum smithii	4	☐	FACU
Poa palustris	25	☑	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 30

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	1	X 1	1
FACW species	0	X 2	0
FAC species	27	X 3	81
FACU species	7	X 4	28
UPL species	35	X 5	175
Column Totals	70 (A)		285 (B)

Prevalence Index = B/A = 4.07143

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:
BG/litter=30%. Sample point located in area previously supported by irrigation overflow and delineated as wetland in 2020 with litter composed of Carex nebrascensis. This area is now upland and overgrown with Brassica juncea.

SOIL

Sampling Point: DP01u

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
0-13	10YR 3/1	100					Clay Loam	**Dry and 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 evidence of hydric soil indicators observed. Soil pit excavated to a maximum depth of 13 inches due to dry and compacted soil, an upland plant community, and no evidence of wetland hydrology.

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: 6/24/2021

Applicant/Owner: MDT | State: Montana | Sampling Point: DP01w

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

Landform (hillslope, terrace, etc.): Undulating | Local relief (concave, convex, none): concave | Slope (%): 9

Subregion (LRR): LRR E | Lat: 47.362006 | Long: -114.102087 | 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:
PEM slope wetland.

VEGETATION - Use scientific names of plant

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 aquatilis	10	☐	OBL
Carex nebrascensis	15	☑	OBL
Cirsium arvense	1	☐	FAC
Poa palustris	10	☐	FAC
Poa pratensis	40	☑	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 14

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	25	X 1	25
FACW species	0	X 2	0
FAC species	51	X 3	153
FACU species	0	X 4	0
UPL species	10	X 5	50
Column Totals	86 (A)		228 (B)

Prevalence Index = B/A = 2.65116

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:
BG/litter=14%. Evidence of hydrophytic vegetation includes a positive dominance test and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP01w

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 4/1	97	7.5YR 4/6	3	C	M	Loam	

[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 features common throughout the depleted 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 include geomorphic position and a positive FAC-Neutral test. Soil moist.

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

Project/Site: US 93 N Peterson | City/County: Lake | Sampling Date: 6/24/2021

Applicant/Owner: MDT | State: Montana | Sampling Point: DP02u

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

Landform (hillslope, terrace, etc.): Mound | Local relief (concave, convex, none): flat | Slope (%): 3

Subregion (LRR): LRR E | Lat: 47.362592 | Long: -114.101359 | 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:
Upland sample point located across wetland boundary.

VEGETATION - Use scientific names of plant

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	45	☑	UPL
Pascopyrum smithii	5	☐	FACU
Poa palustris	15	☑	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 35

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	15	X 3	45
FACU species	5	X 4	20
UPL species	45	X 5	225
Column Totals	65 (A)		290 (B)

Prevalence Index = B/A = 4.46154

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:
BG/litter=35%. Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP02u

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
0-13	10YR 3/1	100					Clay Loam	**Extremely 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 evidence of 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: 6/24/2021

Applicant/Owner: MDT | State: Montana | Sampling Point: DP02w

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

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

Subregion (LRR): LRR E | Lat: 47.362505 | Long: -114.101424 | 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 riverine wetland.

VEGETATION - Use scientific names of plant

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 aquatilis	20	☑	OBL
Carex nebrascensis	50	☑	OBL
Nasturtium officinale	15	☐	OBL

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: 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	85	X 1	85
FACW species	0	X 2	0
FAC species	0	X 3	0
FACU species	0	X 4	0
UPL species	10	X 5	50
Column Totals	95 (A)		135 (B)

Prevalence Index = B/A = 1.42105

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:
BG/litter=5%. Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP02w

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
0-14	10YR 3/1	85	10YR 4/6	15	C	M	Clay	**Gravelly.**

[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 throughout 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): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

Evidence of wetland hydrology include soils saturated to surface, geomorphic position and a positive FAC-Neutral test. FE deposits and 6" of surface water observed within 10' of the soil pit.

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 3.6

How assessed: Measured e.g. by GPS

Purpose of Evaluation

- ☐ **Wetlands potentially affected by MDT project**
- ☐ **Mitigation Wetlands: pre-construction**
- ☑ **Mitigation Wetlands: post construction**
- ☐ **Other**

9. Assesssment area (AA) size (acres) 3.6

How assessed: Measured e.g. by GPS

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	80
Riverine	Scrub-Shrub Wetland	Impounded	Permanent/Perennial	10
Slope	Emergent Wetland	Impounded	Seasonal/Intermittent	10

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 wetlands. 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, Lepidium draba, Iris pseudocorus, Leucanthemum vulgare, and Ventenata dubia.

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 Passerines) 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 USFWS T&E list, CSKT Wildlife staff observation in 2017/2018.

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 Herson (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 Species of Concern Report

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 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:*

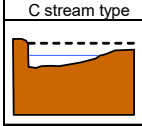
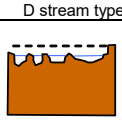
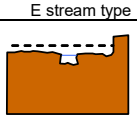
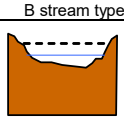
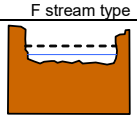
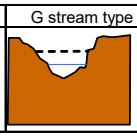
Modifed Rating .3L

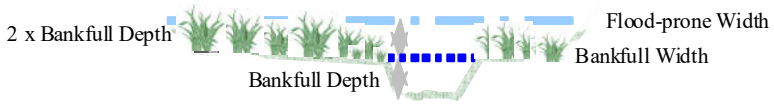
iii. Final Score and Rating: .3 L **Comments:** General fish habitat rated NA due to impassable barriers (log cribs) that prevented fish from using AA in previous years. Rating adjusting in 2021 due to observation of minnows in channel during the site monitoring event.

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 3.60 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

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

ii. Recharge Indicators

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

iii. Rating (use the information from i and ii above and the table below to arrive at [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 from surface water and water retention by cribs, but seeps occur north and south of 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 potential for education.

General Site Notes

Wetland acreage decreased 0.34-acres from 2021. The 2008 version of the MWAM form was utilized for the first time in 2021.

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	2.88	☐
B. MT Natural Heritage Program Species Habitat	L	.1	1	0.36	☐
C. General Wildlife Habitat	H	.9	1	3.24	☑
D. General Fish Habitat	L	.3	1	1.08	☐
E. Flood Attenuation	M	.6	1	2.16	☐
F. Short and Long Term Surface Water Storage	H	.8	1	2.88	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	3.60	☑
H. Sediment/Shoreline Stabilization	H	1	1	3.60	☑
I. Production Export/Food Chain Support	H	.8	1	2.88	☐
J. Groundwater Discharge/Recharge	H	1	1	3.60	☑
K. Uniqueness	M	.4	1	1.44	☐
L. Recreation/Education Potential (bonus points)	H	.15	NA	0.54	☐
Totals:		7.85	11	28.26	
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 2008-2021

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**

Table B-1. US93 N Peterson Mitigation Site. Comprehensive Vegetation Species List 2008-2021

Scientific Name	Common Name	WMVC Wetland Indicator[(a)]
Impatiens ecalcarata	Spurless Touch-Me-Not	FACW
Iris pseudacorus	Pale-Yellow Iris	OBL
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 sp.	Willow	N/A

Table B-1. US93 N Peterson Mitigation Site. Comprehensive Vegetation Species List 2008-2021

Scientific Name	Common Name	WMVC Wetland Indicator[(a)]
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
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
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)] 2018 NWPL (USACE 2018)

New species identified in 2021 are **bolded**.

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:** 2021



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



Photo Point: 2 **Location:** PP2 photo 1
Bearing: 35 degrees **Year:** 2021



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



Photo Point: 2 **Location:** PP2 photo 2
Bearing: 110 degrees **Year:** 2021

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:** 2021



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



Photo Point: 5 **Location**: Wetland boundary
Bearing: 175 degrees **Year**: 2021



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



Photo Point: 6 **Location:** Transect 2 Start
Bearing: 315 degrees **Year:** 2021

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:** 2021



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



Photo Point: 7 **Location:** PP7 photo 2
Bearing: 267 degrees **Year:** 2021



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



Photo Point: 8 **Location:** New crib structure.
Bearing: 34 degrees **Year**: 2021

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:** 2021

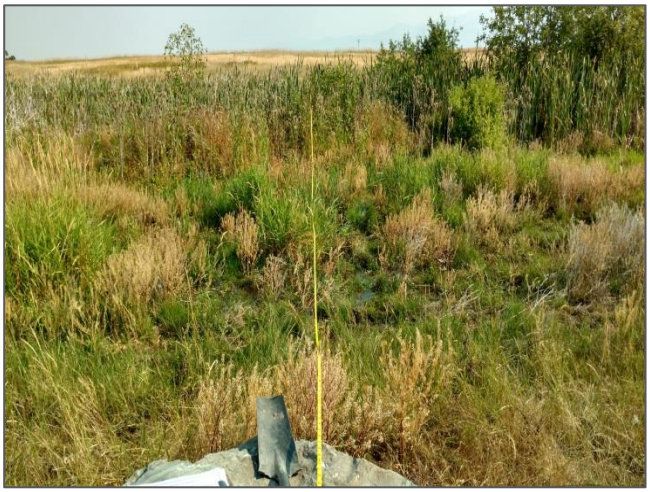


Photo Point 3 (T-1 End) **Location:** T-1 End
Bearing: 45 degrees **Year**: 2017



Photo Point 3 (T-1 End) **Location:** T-1 End
Bearing: 45 degrees **Year:** 2021



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**: 2021



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:** 2021

US93 Peterson: Data Point Photographs



Data Point: DP01w
Year: 2021



Data Point: DP01u
Year: 2021



Data Point: DP02w
Year: 2021



Data Point: DP02u
Year: 2021

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 (2021).



Additional Photo 2. Looking N/NE at new middle crib structure (2021).



Additional Photo 3. Looking N/NE at middle crib structure outfall (2021).



Additional Photo 4. Looking south at downstream outfall structure (2021).



Additional Photo 5. Looking north from south side of downstream-most crib structure (2021).