MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT

FORT PECK – NORTHEAST MITIGATION SITE
VALLEY COUNTY, MONTANA

PROJECT CONSTRUCTED: 2015

MONITORING REPORT #1: DECEMBER 2017



Prepared for:

VISION ZERO
zero deaths · zero serious injuries
MONTANA DEPARTMENT OF TRANSPORTATION

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MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2017

FORT PECK – NORTHEAST MITIGATION SITE VALLEY COUNTY, MONTANA

INITIAL CONSTRUCTION: 2015

MDT Project Number STPP 17-1(7)0
Control Number 5157001

USACE: NWO-2014-01507-MTB

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1.0 INTRODUCTION

The Fort Peck – Northeast 2017 Wetland Mitigation Monitoring Report presents the results of the first year of post-construction monitoring at the Fort Peck – Northeast mitigation area after project construction in 2015. The first year of monitoring is intended to establish baseline conditions by which subsequent monitoring of the site can be compared. This Montana Department of Transportation (MDT) wetland mitigation project is located in Section 22, Township 27 North, Range 41 East, Valley County, Montana. This MDT-owned property is located approximately 5.0 miles north of Fort Peck, Montana, and is adjacent to the Intersection of MT117 and G-C Road as illustrated in Figure 1-1. The site is intended to provide 3.41 acres of compensatory wetland mitigation credits for wetland impacts associated with the Fort Peck – Northeast highway reconstruction project and to serve as a mitigation bank for future transportation projects in Watershed #12 – Lower Missouri River. The US Army Corps of Engineers (USACE) permit #NWO-2014-01507-MTB approved the Fort Peck – Northeast project and proposed crediting that was presented in the *Fort Peck – Northeast Wetland Mitigation Plan* [MDT, 2015]. The objectives of this project include establishing (creating) emergent marsh wetlands and a protective 50-foot-wide upland buffer.

This 4.52-acre site was selected based on its geomorphic location below a natural terrace and near several small drainage features that flow towards the site. These drainages supply surface runoff from precipitation events at a frequency and duration during the growing season that will encourage wetland development at the site. Hydrology from these natural drainages has historically been used to irrigate the pasture at this location with excess water drained off to the south and east of the site in adjacent roadside ditch wetlands. The clay soils at this site would allow for water collection at peak times of the year and would reduce natural infiltration below the surface. Wetlands existed in the borrow ditches adjacent to the roadway in this area before construction.

Upon completion of the feasibility evaluation of the site, the probability of creating a self-sustaining aquatic resource at this location was determined to likely be very high. Developing an aquatic resource on this site would require a minimum amount of construction and, over the long term, would require minimal maintenance. The favorable soils and the high probability of sufficient hydrology for the site were two of the primary factors in this decision to move forward with mitigation at this location. MDT selected this site for on-site wetland development because no approved wetland mitigation banks are currently within the Watershed #12 – Lower Missouri River Basin.

The project objectives as described in the *Fort Peck – Northeast Wetland Mitigation Plan* [MDT, 2015] include the following:

- 3.13 acres of emergent marsh wetland will be created by excavating down to the preferred ground elevation in the proposed wetland cell.
- 1.39 acres of upland buffer will be developed along the entire perimeter of the wetland.

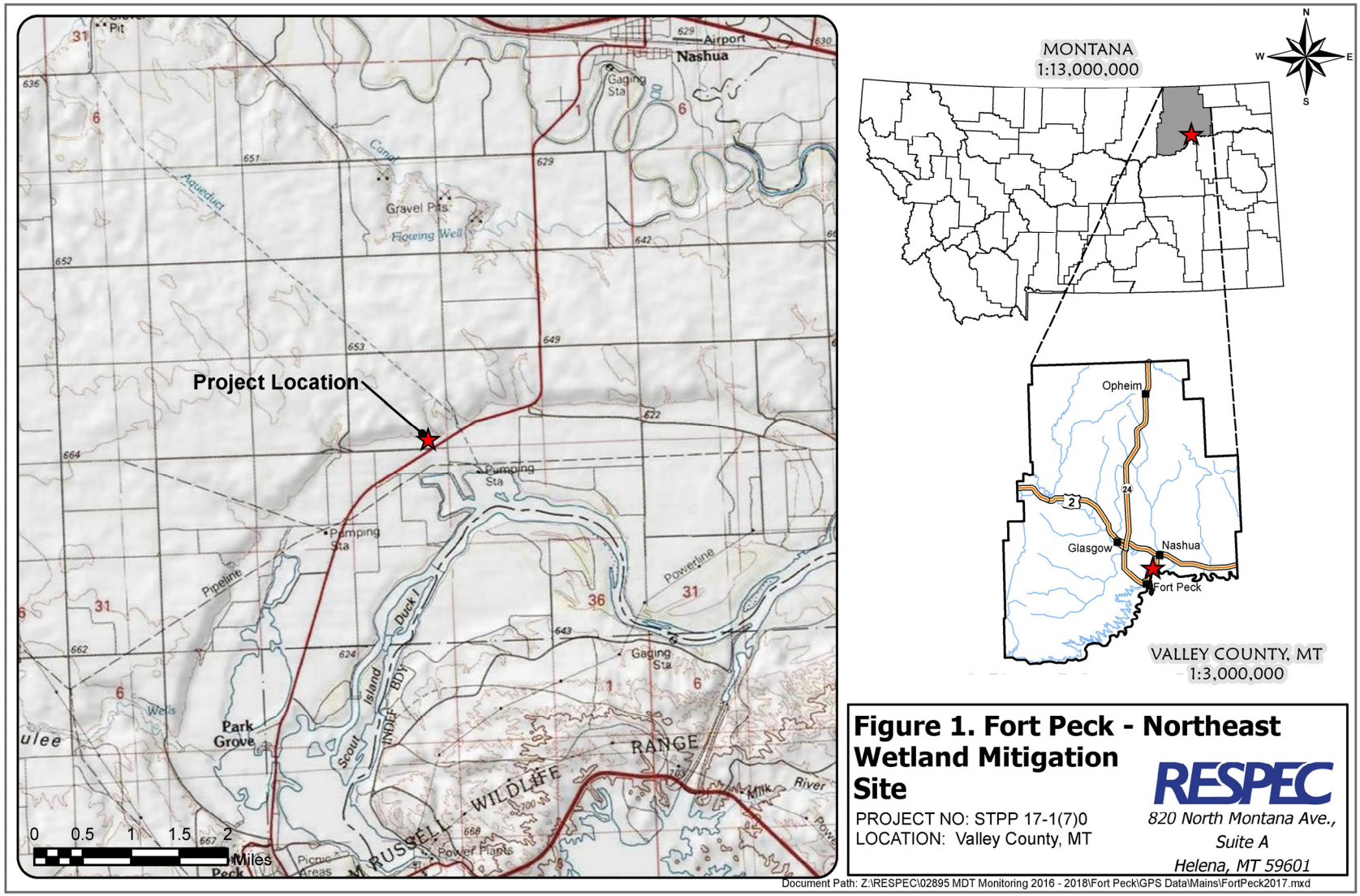


Figure 1-1. Project Location of the Fort Peck – Northeast Site.

Table 1-1 provides a breakdown of the compensatory credits by mitigation type, including a brief description of each credit type, USACE mitigation ratios [USACE, 2005], and anticipated mitigation credits, assuming that the site develops to its full potential. A maximum of 3.41 acres of mitigation credit would be anticipated at the Fort Peck – Northeast site.

Table 1-1. Wetland Credit Determination for the Fort Peck – Northeast Site

Compensatory Mitigation Type	Mitigation Area Description	Proposed Wetland Type[a]	Mitigation Surface Area (acres)	USACE Mitigation Ratios[b]	Anticipated Mitigation Credit (acres)
Base Bid Credits					
Creation (Establishment)	Depressional wetland	Palustrine emergent	3.13	1:1	3.13
Upland buffer	50-foot-wide perimeter	N/A	1.39	5:1	0.28
Total Mitigation Credit					**3.41**

(a) Cowardin et al. [1979].
(b) Ratios used are from Column A of the Montana Regulatory Program Wetland Compensatory Mitigation Ratios April 2005 [USACE, 2005].

Performance standards for the Fort Peck – Northeast wetland mitigation site are listed below.

1. **Wetland Characteristics** for created wetlands within the project limits will meet the three parameter criteria for hydrology, vegetation, and soils established for determining wetland areas as outlined in the 1987 *Corps of Engineers Wetland Delineation Manual* (1987 Wetland Manual) [Environmental Laboratory, 1987] and the 2010 *Regional Supplement to the Corps of Engineers Manual: Great Plains Region (Version 2.0)* (2010 GP Regional Supplement) [USACE, 2010].
    a. **Wetland Hydrology Success** will be achieved where wetland hydrology is present as per the technical guidelines for Wetland Hydrology Indicator procedures established within the 2010 GP Regional Supplement. Soil saturation will be present for at least 12.5 percent of the growing season. Soil saturation will be determined based on primary and secondary hydrology indicators as provided in the GP supplement. The presence of primary indicators observed during fieldwork will be used to make a formal determination as to hydrologic success within the restored wetland.
    b. **Wetland Hydric Soil Success** will be achieved where hydric soil conditions are present (per the most recent Natural Resource Conservation Service [NRCS] definitions for hydric soil) or appear to be forming, the soil is sufficiently stable to prevent erosion, and the soil is able to support plant cover. Soil sampling will be conducted during the monitoring period to determine if wetland areas are exhibiting characteristics of hydric soils. Because typical hydric soil indicators may require long periods to form, a lack of distinctive hydric soil features will not be considered a failure if hydrologic and vegetation success is achieved.

c. **Hydrophytic Vegetation Success** will be determined by delineating the developing wetlands by using the technical guidelines established in the 1987 Wetland Manual and the 2010 GP Regional Supplement. Hydrophytic vegetation success will be achieved where combined relative areal cover of facultative or wetter species is 80 percent or greater and state-listed noxious weeds do not exceed 5 percent cover. The hydrophytic vegetation indicator procedures established in the 2010 GP Regional Supplement will be used to determine dominance. These procedures will be applied during future routine wetland determinations in the created/restored wetlands and results will be documented on the Wetland Determination Data forms (Appendix B). Vegetation communities will be identified according to their strata (i.e., trees, sapling/shrub, herbaceous, and woody vine), and the percent aerial coverage of each plant species within those stratum will be recorded.

2. **Open-Water Areas** are intended to provide seasonal open water during the spring and early summer within the site. Open water will, therefore, be considered successful and creditable as wetland vegetation establishes in the form of either emergent, floating, and/or submerged hydrophytes over the course of the monitoring period.
3. **Upland Buffer** success will be achieved when noxious weeds do not exceed 5 percent cover within the buffer area on site. Any area within the creditable buffer area that is disturbed by project construction must have at least 50 percent aerial cover of nonnoxious weed species by the end of the monitoring period.
4. **Functional Assessments** will be conducted annually by using the most recent version of the MDT Montana Wetland Assessment Method to determine an overall rating of the site. The site will be considered fully functional and creditable when it achieves a Category III or better rating at the end of the compensatory monitoring period.
5. **Weed Control** will be implemented based on annual monitoring of the site to determine weed species and the degree of infestation within the site. Control measures based on the monitoring results will be implemented by MDT to minimize and/or eliminate the intrusion of state-listed noxious weed species within the site. Success will be achieved where less than 5 percent absolute cover of noxious weed species occurs across the site.

Figures A-2 and A-3 (Appendix A) of this report show the site monitoring activity locations and mapped site features, respectively. The MDT Wetland Mitigation Site Monitoring form, USACE GP Wetland Determination Data forms [USACE, 2010], and the 2008 MDT Montana Wetland Assessment Method (MWAM) forms [Berglund and McEldowney, 2008] are included in Appendix B. Project area photographs are included in Appendix C, and the MDT plan sheets for the Fort Peck – Northeast site are provided in Appendix D.

2.0 METHODS

The 2017 monitoring event was completed on July 11, 2017, with a second (informal) site visit completed on September 28, 2017. Information for the Wetland Mitigation Site Monitoring form and Wetland Determination Data forms was recorded in the field during the site investigation (Appendix B). Monitoring activity sites were located with a global positioning system (GPS) and are illustrated on Figure A-2 (Appendix A). Data-collection activities included a wetland delineation, vegetation community mapping, vegetation transect monitoring, soil and hydrology data collection, bird- and wildlife-use documentation, photographic documentation, functional assessment, and a nonengineering examination of the infrastructure established within the mitigation project area.

2.1 HYDROLOGY

The presence of hydrological indicators as outlined on the Wetland Determination Data forms was assessed at two data points established within the project area. The hydrologic indicators were evaluated according to features observed in situ during the site visit. The data were recorded on the Wetland Determination Data forms (Appendix B). Hydrologic assessments allow evaluation of mitigation goals that address inundation and saturation requirements.

Technical criteria for wetland hydrology guidelines have been established as “permanent or periodic inundation, or soil saturation within 12 inches of the ground surface for a significant period (12.5 percent of the growing season) during the growing season” [USACE, 2010]. Systems with continuous inundation or saturation for more than 12.5 percent of the growing season are considered jurisdictional wetlands. The growing season is defined for purposes of this report as the number of days when a 50 percent probability exists that the minimum daily temperature is greater than or equal to 28.5 degrees Fahrenheit [Environmental Laboratory, 1987]. Temperature data recorded for the meteorological station at the Fort Peck Power Plant, Montana (243176), which is located approximately 5 miles south of the Fort Peck – Northeast site, have a median (5 years in 10) growing season length of 165 days. Areas that are defined as wetlands would require 20.6 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria.

Soil pits that were excavated during the wetland delineation were used to evaluate groundwater levels within 18–20 inches of the ground surface. The data were recorded on the Wetland Determination Data forms (Appendix B). Precipitation data from the Fort Peck Power Plant meteorological station were also reviewed and compared to long-term averages for this site.

2.2 VEGETATION

The boundaries of general dominant-species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on the 2017 aerial photographs. The percent cover of dominant species within a community type was estimated and recorded using the following values: 0 (< 1 percent), 1 (1–5 percent), 2 (6–10 percent), 3 (11–20 percent), 4 (21–50 percent), and 5 (> 50 percent) (Appendix B). Community types were named based on the predominant vegetation species that characterized each mapped polygon (Figure A-3, Appendix A).

Vegetation composition was assessed and recorded along one vegetation belt transect (T-1) that is approximately 10 feet wide and 343 feet long (Figure A-2, Appendix A). The transect endpoints were recorded with a resource-grade GPS unit. Spatial changes in the dominant vegetation communities were recorded along the stationed transect. The percent aerial cover of each vegetation species within the belt transect was estimated using the same values and cover ranges that were used for the vegetation community polygon data (Appendix B). Photographs were taken at the transect endpoints during the monitoring event (Appendix C).

The *Montana Noxious Weed List* (February 2017), which was prepared by the Montana Department of Agriculture [2017], was used to categorize weeds identified within the site. The location of noxious weeds was noted in the field and mapped on the aerial photograph with noxious weed species color-coded (Figure A-3, Appendix A). Cover classes are represented by a T, L, M, or H, which represent less than 1 percent, 1–5 percent, 6–25 percent, and 26–100 percent, respectively. The total cover by noxious weeds overall across the site was estimated based on the noxious weed cover classes and project acreage.

2.3 SOIL

Soil information was obtained from the *Web Soil Survey for Valley County, Montana* and in situ soil descriptions accessed from the NRCS official soil description website [US Department of Agriculture, 2017]. Soil cores were excavated by using a Montana sharpshooter shovel and evaluated according to procedures outlined in the 1987 Wetland Manual and the 2010 GP Regional Supplement. A description of the soil profile, including hydric soil indicators when present, was recorded on the Wetland Determination Data form for each profile (Appendix B).

2.4 WETLAND DELINEATION

Waters of the US, including special aquatic sites and jurisdictional wetlands, were delineated throughout the project area in accordance with criteria established in the 1987 Wetland Manual and the 2010 GP Regional Supplement. The technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology described in the 2010 GP Regional Supplement must be satisfied to delineate a representative area as wetland. The name and indicator status of plant species was derived from the 2016 National Wetland Plant List (NWPL) [Lichvar et al., 2016]. A routine level-2 on-site determination method [Environmental Laboratory, 1987] was used to delineate jurisdictional areas within the project boundaries. The information was recorded onto Wetland Determination Data forms (Appendix B).

The wetland boundary was determined in the field based on changes in plant communities and/or hydrology and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross-referenced with soil and vegetation communities as supportive information for this delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters met the criteria, the area was designated as wetland and mapped by vegetation community type. If any one of the parameters did not exhibit positive wetland indicators, the area was determined to be upland unless the site was classified as an atypical situation, potential problem area, or special aquatic site (i.e.,

mudflat). The wetland boundary was surveyed with GPS technology and identified on the 2017 aerial photographs. Wetland areas were estimated using GIS methods.

2.5 WILDLIFE

Observations and other positive indicators of use by mammal, reptile, amphibian, and bird species were recorded on the Wetland Mitigation Site Monitoring forms during each of the site visits. Indirect-use indicators, including tracks, scat, burrows, eggshells, skins, and bones, were also recorded. These signs were recorded while traversing the site for other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive list of wildlife species observed on the sites each year is compiled and updated annually in each report.

2.6 FUNCTIONAL ASSESSMENT

The MDT MWAM [Berglund and McEldowney, 2008] was used to evaluate functions and values on the sites. This method provides an objective means of assigning an overall rating to wetlands and provides regulators with a means of assessing mitigation success based on wetland functions. Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society and relate to ecological significance without regard to subjective human values [Berglund and McEldowney, 2008]. Field data for this assessment were collected during the site visit. A single MWAM form was completed for created wetlands on the site (Appendix B).

2.7 PHOTOGRAPHIC DOCUMENTATION

Monitoring at photo points provided supplemental information that documented wetland, upland, and transect conditions; site trends; and current land uses that surround the site. Photographs were taken at established photo points throughout the mitigation site during the site visit (Appendix C). Photo-point locations were recorded with a resource-grade GPS unit (Figure A-2, Appendix A).

2.8 GLOBAL POSITIONING SYSTEM DATA

Site features and survey points were collected by using a resource-grade (± 1 meter) Trimble R1 GNSS GPS receiver and companion Android tablet during the 2017 monitoring season. The collected data were then transferred to a personal computer, imported into GIS, and projected in Montana State Plane Single Zone NAD 83 (units in meters). Site features and survey points that were located with GPS included wetland boundaries, fence boundaries, photo points, transect endpoints, noxious weed infestations, and wetland data points.

2.9 MAINTENANCE NEEDS

Channels, engineered structures, fencing, and other man-made features were examined during the site visit for obvious signs of breaching, damage, or other problems. This examination was cursory and did not constitute an engineering-level structural inspection.

3.0 RESULTS

3.1 HYDROLOGY

Climate data from the meteorological station at the Fort Peck Power Plant near Fort Peck, Montana (243176) [Western Regional Climate Center, 2017], which is located approximately 5 miles south of the site, recorded an average annual precipitation rate of 12.07 inches from 1956 to 2016. Annual precipitation in recent years was 10.22 inches in 2015 (below average) and 18.23 inches in 2016 (significantly above average). Through August 2017, precipitation totaled 2.98 inches at this site, which is approximately 6.6 inches below the long-term average (9.58 inches) for this time.

The primary source of hydrology at the site is from surface-water discharge from an isolated 150-acre drainage basin located to the west. Surface water is conveyed to the site via a roadside ditch on the northern side of the county-administered G-C Road. With well-above-average precipitation in 2016, the first growing season after construction, the site likely remained saturated throughout the growing season and allowed for extensive wetland plant development. At the time of the July 11, 2017, survey, approximately 80 percent of all wetland vegetation in the excavated cell and surrounding upland vegetation was brown, which indicated poor hydrologic conditions in the spring and early summer. Approximately 75 percent of the excavated cell had recently filled with surface runoff at the time of the survey. During an opportunistic visit to the site on September 28, 2017, the entire wetland cell was saturated to the surface and had experienced a “greening up” as shown in the second Photo-Point 1 photograph provided in Appendix C.

Two data points were established at the site in 2017 to monitor wetland development at the site. DP-1W is located in the excavated wetland cell and DP-1U is located in the upland adjacent to the wetland. Surface water was present at DP-1W during the July 11 survey; however, no saturation was noted in the upper 18 inches. Soils associated with DP-1U were very dry and crumbly to 18 inches.

3.2 VEGETATION

Monitoring year 2017 marked the first year of monitoring at the Fort Peck – Northeast site. A total of 16 plant species were noted in 2017 and are listed Table 3-1. One upland community type and two wetland community types were identified and mapped at the site in 2017 (Figure A-3, Appendix A). Dominant plant species that were observed within each community are listed on the Wetland

Mitigation Site Monitoring form (Appendix B). The vegetation community types identified on the site in 2017 are as follows:

- Wetland Type 1 – *Eleocharis palustris/Rumex crispus*
- Wetland Type 2 – *Alopecurus arundinaceus*
- Upland Type 3 – *Agropyron cristatum*

Wetland community Type 1 – *Eleocharis palustris/Rumex crispus* was mapped across 2.7 acres of the project area in the bottom of the wetland depression. Patches of broad-leaf cattail (*Typha latifolia*) are starting to develop but did not represent a dominance in 2017. As long as hydrology

persists on the site, portions of the wetland depression will likely convert to cattail and a new community type in the future. In 2017, this community type represented 93 percent of the entire wetland area at the site.

Table 3-1. Vegetation Species Observed in 2017 at the Fort Peck – Northeast Site

Scientific Names	Common Names	GP Indicator Status[(a)]
Agropyron cristatum	Crested Wheatgrass	NL
Alopecurus arundinaceus	Creeping Meadow Foxtail	FACW
Apocynum cannabinum	Clasping Dogbane	FAC
Bassia scoparia	Mexican-Fireweed	FACU
Bromus inermis	Smooth Brome	UPL
Chenopodium glaucum	Oak-Leaf Goosefoot	FAC
Coreopsis tinctoria	Golden Tickseed	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elymus trachycaulus	Slender Wild Rye	FACU
Hordeum jubatum	Foxtail Barley	FACW
Lepidium perfoliatum	Clasping Pepperwort	FAC
Melilotus officinalis	Yellow Sweet-Clover	FACU
Pascopyrum smithii	Western Wheatgrass	FACU
Rumex crispus	Curly Dock	FAC
Thinopyrum intermedium	Intermediate Wheatgrass	NL
Typha latifolia	Broad-Leaf Cattail	OBL

(a) 2016 NWPL [Lichvar et al., 2016].

Wetland community Type 2 – *Alopecurus arundinaceus* was mapped across 0.20 acre of the project area around the entire periphery of the wetland depression. This narrow band around the periphery of the main wetland cell is slightly drier than the bottom of the wetland cell and more conducive to the establishment of creeping meadow foxtail (*Alopecurus arundinaceus*), which is a FACW species. This narrow band has the potential for volunteer woody species to establish, but as of 2017, none have germinated on the site.

Upland community Type 3 – *Agropyron cristatum* was mapped across 1.5 acres of the site and occupies a majority of the undisturbed and disturbed uplands that surround the wetland depression. Other species that occur in the disturbed uplands across the site include intermediate wheatgrass (*Thinopyrum intermedium*), slender wild rye (*Elymus trachycaulus*), yellow sweet-clover (*Melilotus officinalis*), and clasping pepperwort (*Lepidium perfoliatum*).

Vegetation cover was measured along one transect (T-1) at the Fort Peck - Northeast site for the first time in 2017 (Figure A-2, Appendix A). Photographs of the transect end points are provided in Appendix C. Table 3-2 and Charts 3-1 and 3-2 summarize the data for T-1 (Wetland Mitigation Site Monitoring form, Appendix B). T-1 is 343 feet long and intersects all three community types on the site.

Table 3-2. Data Summary for T-1 in 2017 at the Fort Peck – Northeast Site

Monitoring Year	2017
Transect Length (feet)	**343**
Vegetation Community Transitions Along Transect	4
Vegetation Communities Along Transect	3
Hydrophytic Vegetation Communities Along Transect	2
Total Vegetative Species	12
Total Hydrophytic Species	5
Total Upland Species	7
Estimated % Total Vegetative Cover	80
Estimated % Unvegetated	20
% Transect Length Comprising Hydrophytic Vegetation Communities	83
% Transect Length Comprising Upland Vegetation Communities	17
% Transect Length Comprising Unvegetated Open Water	0
% Transect Length Comprising Mudflat	0

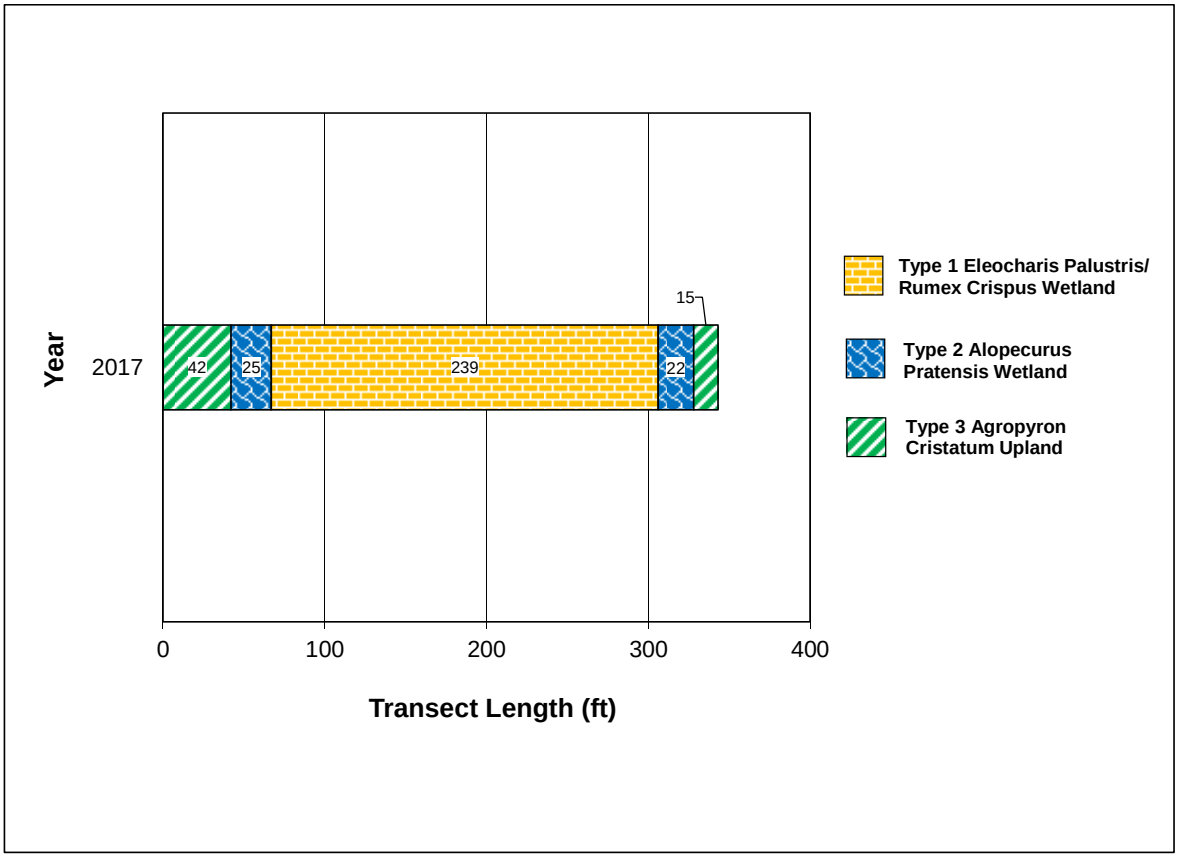


Chart 3-1. Transect Map Showing Community Types on T-1 From Start (0 Foot) to Finish (343 Feet) at the Fort Peck – Northeast Site in 2017.

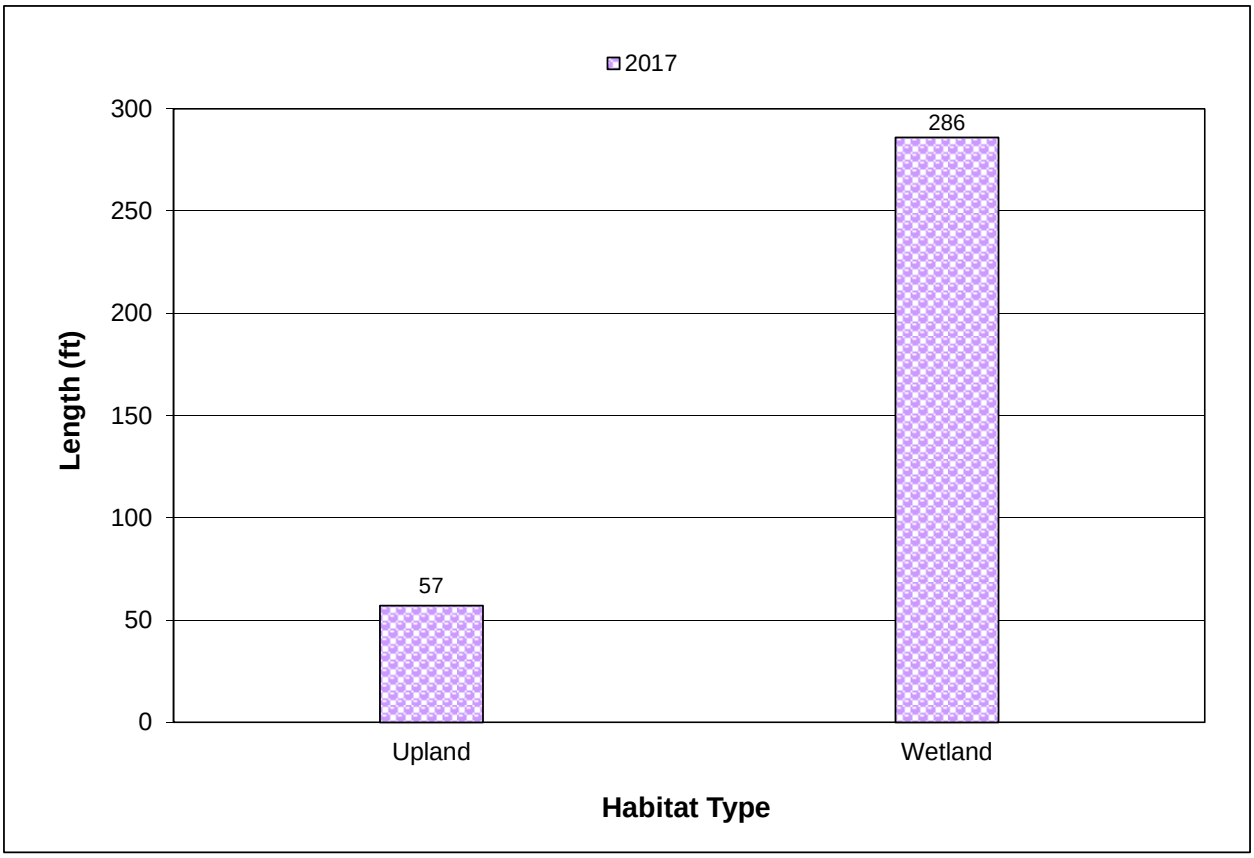


Chart 3-2. Length of Habitat Types Within T-1 in 2017 at the Fort Peck – Northeast Site.

A single infestation of a state-listed Priority 2B noxious weed was identified and mapped at the Fort Peck – Northeast site in 2017 (Figure A-3, Appendix A). One small infestation of Canada thistle (*Cirsium arvence*) was observed along the southeastern boundary of the site. MDT has a weed management program for treating weeds at all mitigation sites; the Fort Peck – Northeast wetland site will be added to the treatment schedule for 2018.

3.3 SOIL

The NRCS Soil Survey for Valley County indicates that the wetland mitigation site falls within an area mapped as Harlem Silty Clay loam series [USDA, 2017]. The intent of the project was to excavate the native soil and underlying materials to a preferred elevation to create emergent wetland in the bottom of the excavation. After removing the native soils, salvaged wetland soil from wetlands that were impacted by the roadway project were spread across the bottom of the excavation. The salvaged wetland soil used for this project already contained hydric soil indicators as described below.

Soil test pits were excavated at two locations (Figure A-2). DP-1U and DP-1W were located adjacent to and within the excavated wetland cell respectively. The soil profile at DP-1W, revealed a brown (10YR 4/1) clay loam with 10 percent 10YR 5/8 iron depletions. The hydric soil characteristic identified in the upper 12 inches of the soil profile were likely developed before being placed in the

excavated cell. Hydric soils will continue to develop at this site over time assuming adequate hydrology. The soil profile at DP-1U revealed a brown (10 YR 3/2) loam and was very dry throughout the monitoring event. No hydric soil indicators were observed for DP-1U.

3.4 WETLAND DELINEATION

Two data points (DP-1U and DP-1W) were evaluated to confirm the wetland boundary determination (Figure A-2, Appendix A; Wetland Determination Data forms, Appendix B). Several other undocumented soil pits were evaluated around the perimeter of the wetland to confirm that all of the wetland parameters were being met. The 2017 wetland delineation identified a total of 2.9 acres of wetland/aquatic habitat at the Fort Peck – Northeast site. The entire excavation qualified as wetland in 2017, because all three wetland parameters were being met across the site. Soil saturation extended a short distance up the side slope of the excavation, which allowed a prevalence of hydrophytic vegetation to establish in this area.

3.5 WILDLIFE

A comprehensive list of wildlife species that were directly or indirectly observed in 2017 is presented in Table 3-3 and noted on the Wetland Mitigation Site Monitoring form (Appendix B). During the field survey, no observations of mammals, herptiles, or signs of use were recorded. The site may become more used by herptiles and other wildlife as water regimes stabilize and the site matures. Four bird species were observed at the site in 2017: American goldfinch (*Spinus tristus*), mourning dove (*Zenaida macroura*), western kingbird (*Tyrannus verticalis*), and western meadowlark (*Sturnella neglecta*). No bird boxes have been installed at the site.

Table 3-3. Wildlife Species Observed in 2017 at the Fort Peck – Northeast Site

Common Name	Scientific Name
Bird	
American Goldfinch	*Spinus tristus*
Mourning Dove	*Zenaida macroura*
Western Kingbird	*Tyrannus verticalis*
Western Meadowlark	*Sturnella neglecta*

3.6 FUNCTIONAL ASSESSMENT

The project site contained no wetlands before construction in the fall of 2015; therefore, no pre-project MDT MWAM was completed. At the time of the July 2017 monitoring, 2.9 acres of wetland had developed at this site. The 2008 MDT MWAM [Berglund and McEldowney, 2008] was used to evaluate the functions and values of the 2.9 acres of developed wetland at the site. Project wetlands received high ratings for short- and long-term surface-water storage and sediment/nutrient/toxicant removal while receiving low to moderate ratings for all other assessed functions and values. These values are provided in Table 3-4. The 2017 MWAM form for the Fort Peck – Northeast site is located in Appendix B.

Table 3-4. Functions and Values of the Fort Peck – Northeast Site in 2017

Function and Value Parameters 2008 MDT Montana Wetland Assessment Method	2017 Wetland Creation
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	Low (0.0)
Montana Natural Heritage Program (MTNHP) Species Habitat	Low (0.1)
General Wildlife Habitat	Mod (0.4)
General Fish/Aquatic Habitat	N/A
Flood Attenuation	N/A
Short- and Long-Term Surface-Water Storage	High (0.9)
Sediment/Nutrient/Toxicant Removal	High (0.9)
Sediment/Shoreline Stabilization	N/A
Production Export/Food Chain Support	Mod (0.6)
Groundwater Discharge/Recharge	N/A
Uniqueness	Low (0.3)
Recreation/Education Potential	Mod (0.1)
Actual Points/Possible Points	**3.3/7.0**
% of Possible Score Achieved	**47%**
Overall Category	**III**
Total Acreage of Assessed Wetlands within Site Boundaries (ac)	**2.9**
Functional Units (acreage × actual points)	**9.57**

3.7 PHOTOGRAPHIC DOCUMENTATION

Photographs that were taken at Photo Points 1–4 (PP1 through PP4) and transect endpoints are provided in Appendix C. Note that PP1 was taken on July 11 and September 28, 2017, and both photographs are provided for comparison. Vegetation in July was mostly brown and appeared cured out, but late summer inundation at the site resulted in a "greening up" of the site through the fall.

3.8 MAINTENANCE NEEDS

No diversion structures or nesting structures are currently installed at the site. The fence and access gate installed around the site following construction was in good condition at the time of the field survey, and no maintenance is necessary. One small infestation of Canada thistle, which is a Priority 2B noxious weed, was observed along the southern side of the project area between the wetland and the highway. MDT has an ongoing weed-control program for their mitigation sites that includes an annual assessment of weeds that were identified at each location and treatment to contain and control identified populations.

3.9 CURRENT CREDIT SUMMARY

As discussed, the Fort Peck - Northeast site has developed 2.9 acres of wetland during the first two growing seasons after construction in the fall of 2015. Continued monitoring will document wetland development at the site, and wetland mitigation credits will be tracked accordingly. Table 3-5

summarizes the current estimated wetland credits based on the USACE-approved credit ratios [USACE, 2005] and the wetland delineation that was completed in July 2017.

Table 3-5. Wetland Mitigation Credits Estimated for the Fort Peck – Northeast Site in 2017

Compensatory Mitigation Type	Mitigation Area Description	Wetland Type[(a)]	Anticipated Mitigation Surface Area (acres)	USACE-Approved Mitigation Ratios	Anticipated Mitigation Credit (acres)	2017 Delineated Acres	2017 Mitigation Credit (acres)
Creation (Establishment)	Depressional wetlands	Palustrine emergent	3.13	1:1	3.13	2.9	2.9
Upland Buffer	50-foot wide upland perimeter	N/A	1.39	5:1	0.28	1.6	0.32
Totals			**4.52**		**3.41**	**4.5**	**3.22**

(a) Cowardin et al. [1979].

Table 3-6 provides a summary of the site conditions in relation to the established performance standards and success criteria. Success criteria related to all identified performance standards were being met in the first year of monitoring. All of the performance standards and success criteria will continue to be monitored annually.

Table 3-6. Summary of Performance Standards and Success Criteria (Page 1 of 2)

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	The three parameter criteria for hydrology, vegetation, and soils are met as outlined in the 1987 Wetland Manual and 2010 GP Regional Supplement.	Y	With the introduction of salvaged wetland soil to the excavated depression and the immediate saturation of soil, this mitigation very quickly developed all three wetland parameters.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Y	Soil is sufficiently saturated in the excavated depression to support a prevalence of wetland vegetation.
Hydric Soil	Hydric soil conditions are present or appear to be forming.	Y	Hydric soil was brought in to line the bottom of the excavation, so this criterion has been met.
	Soil is sufficiently stable to prevent erosion.	Y	Soil is very stable; no erosion noted.
	Soil is able to support plant cover.	Y	Plant cover in the wetland exceeded 80% after 1 year.
Hydrophytic Vegetation	Wetlands are delineated as hydrophytic by using technical guidelines.	Y	FAC, FACW and OBL plant species dominate the wetland depression.
	Noxious weeds do not exceed 5 percent cover.	Y	One small infestation of Canada thistle was identified during the 2017 monitoring. Weed cover across the entire site in 2017 is less than 1 percent.
	Hydrophytic vegetation success will include achieving a minimum overall vegetation cover of 80 percent in created wetland areas within 5 years after site construction.	Y	Plant cover in the wetland exceeded 80% after 1 year.
Open Water	This project is meant to provide seasonal open water during the spring and early summer months within this site. Open water will, therefore, be considered successful and creditable as wetland vegetation establishes in the form of either emergent, floating, and/or submerged species of plants.	Y	Standing water was noted at the time of the July 11 field survey as well as during the site visit in September to a maximum depth of 1 foot.

Table 3-6. Summary of Performance Standards and Success Criteria (Page 2 of 2)

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Upland Buffer	Noxious weeds do not exceed 5 percent cover within the buffer areas on site.	Y	Noxious weed cover was <1% at the site in 2017.
	Any disturbed area within the creditable buffer zone must have at least 50 percent aerial cover of nonweed species by the end of the monitoring period.	Y	Upland buffer is already meeting this criteria after year 1 of monitoring.
Functional Assessments	The site will be considered successful when noxious weed aerial coverage is less than 5% at the end of the 5-year monitoring period.	Y	This site rates out as a Category III wetland after 1 year of monitoring.
Noxious Weeds	The site will be considered successful when noxious weed aerial coverage is less than 5% at the end of the five-year monitoring period.	Y	Noxious weed cover was < 1% at the site in 2017.

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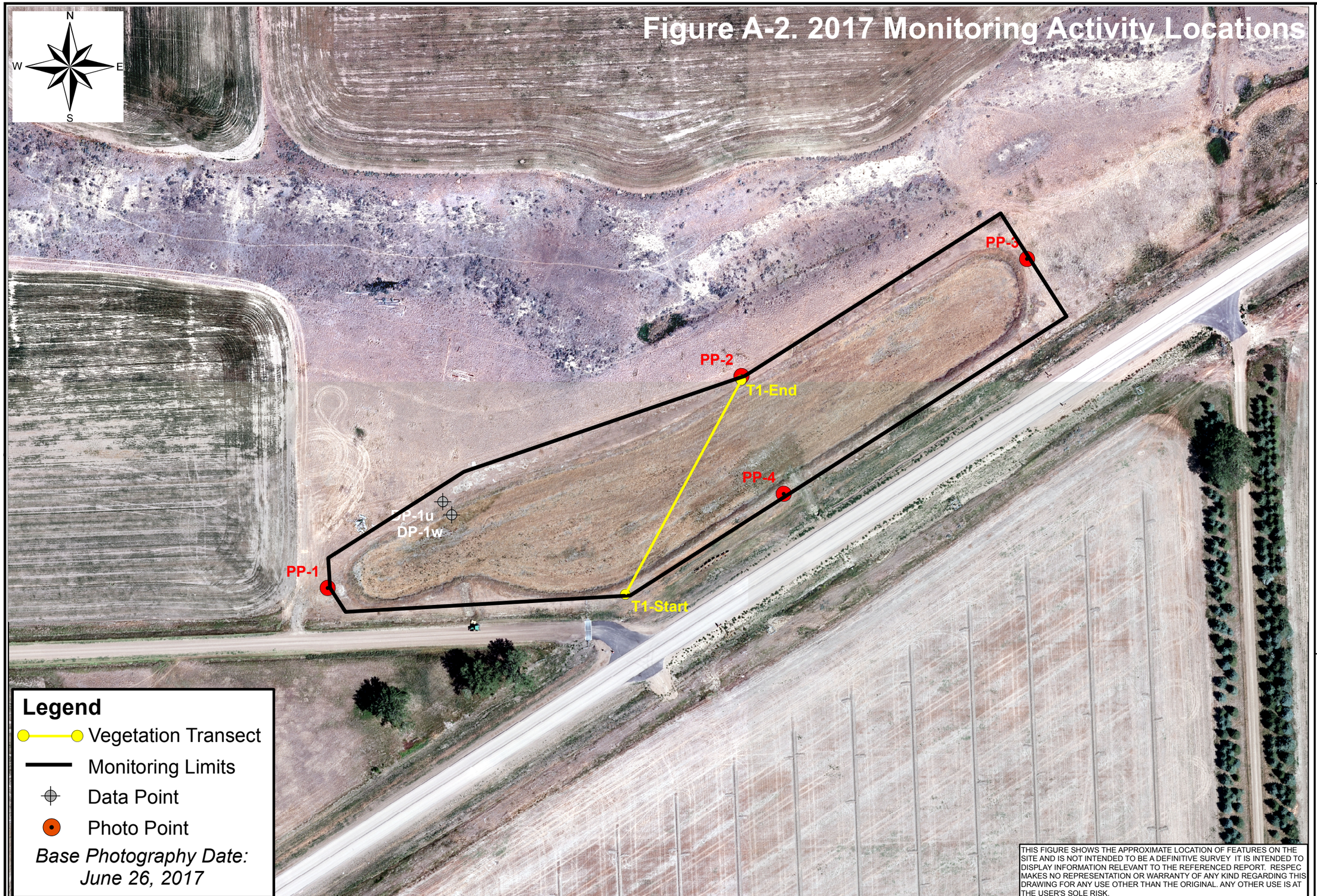
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APPENDIX A
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
Fort Peck – Northeast
Valley County, Montana

Figure A-2. 2017 Monitoring Activity Locations



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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Suite A
Helena, MT 59601

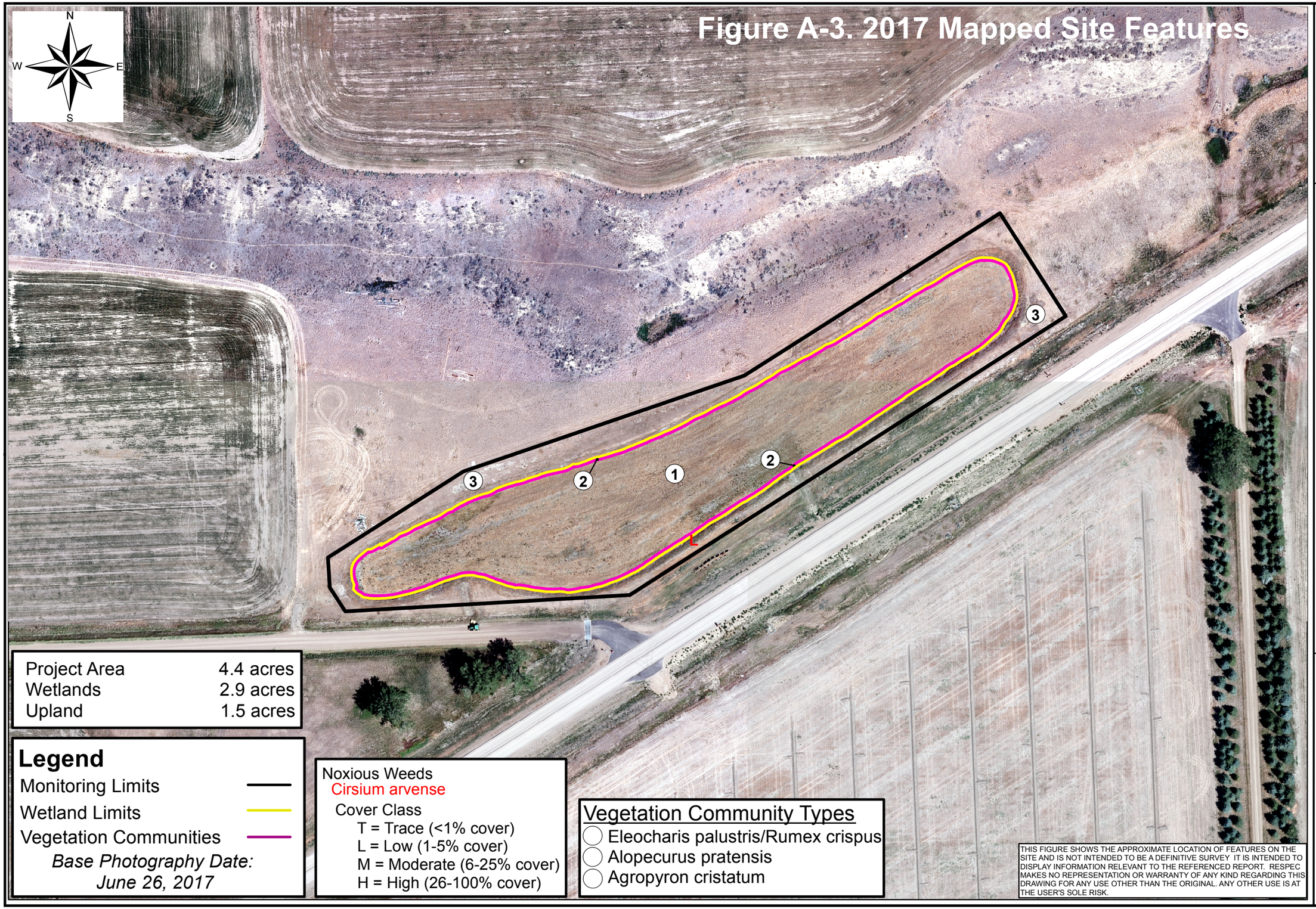
Fort Peck - Northeast Wetland Mitigation Site
2017 Monitoring Activity Locations

0 70 140 280 420 560 Feet

Project:	NH-1-(46)633
Location:	Valley Co., Montana
Date:	December 2017
Project Manager:	M. Traxler
Drawn By:	J. Rosenbaum

File: Z:\RESPEC\02895 MDT Monitoring 2016 - 2018\Fort Peck\GPS Data\Mains\Monitor2017.mxd

Figure A-3. 2017 Mapped Site Features



Project Area	4.4 acres
Wetlands	2.9 acres
Upland	1.5 acres

Legend

- Monitoring Limits
- Wetland Limits
- Vegetation Communities

Base Photography Date: June 26, 2017

Noxious Weeds
Cirsium arvense
Cover Class
T = Trace (<1% cover)
L = Low (1-5% cover)
M = Moderate (6-25% cover)
H = High (26-100% cover)

Vegetation Community Types
- Eleocharis palustris/Rumex crispus
- Alopecurus pratensis
- Agropyron cristatum

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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Fort Peck - Northeast Wetland Mitigation Site
2017 Mapped Site Features

0 70 140 280 420 560 Feet

Project: NH-1-(46)633
Location: Valley Co., Montana
Date: December 2017
Project Manager: M. Traxler
Drawn By: J. Rosenbaum

File: Z:\RESPEC\02895 MDT Monitoring 2016 - 2018\Fort Peck\GPS Data\Mains\Veg2017.mxd

APPENDIX B
MONITORING FORMS

MDT Wetland Mitigation Monitoring
Fort Peck – Northeast
Valley County, Montana

RESPEC/MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: **Fort Peck Northeast** Project Number: _____
Assessment Date: **July 11, 2017** Person(s) conducting the assessment: **M. Traxler**
Location: **5 miles north of Fort Peck** MDT District: **Glendive**
Milepost: **Intersection MT-117 and G-C Road**
Legal Description: T **27N** R **41E** Section **22**
Weather Conditions: **partly cloudy, 80 degrees** Time of Day: **1:00 PM**
Initial Evaluation Date: **July 11, 2017** Monitoring Year: **1** # Visits in Year: **1**
Size of evaluation area: **4.52 acres** Land use surrounding wetland: **Agriculture, pasture, MT Highway 117, G-C Road**

HYDROLOGY

Surface Water Source: **Precipitation, runoff, groundwater**
Inundation: **Present** Average Depth: **0.25 feet** Range of Depths: **0-12 in.**
Percent of assessment area under inundation: **65%**
Depth at emergent vegetation-open water boundary: **NA feet**
If assessment area is not inundated then are the soils saturated within 12 inches of surface: _
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc.):
Geomorphic position, inundation and saturation visible on aerial, FAC-neutral test, water marks.

Groundwater Monitoring Wells: **Absent**
Record depth of water below ground surface (in feet):

Well Number	Depth	Well Number	Depth	Well Number	Depth

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.

COMMENTS / PROBLEMS:

VEGETATION COMMUNITIES

Community Number: **1** Community Title (main spp): **Eleocharis palustris/Rumex crispus**

Dominant Species	% Cover	Dominant Species	% Cover
Eleocharis palustris	5 = > 50%		
Rumex crispus	3 = 11-20%		
Hordeum jubatum	2 = 6-10%		
Alopecurus arundinaceus	1 = 1-5%		
Typha latifolia	2 = 6-10%		

Comments / Problems: **Through time expect Typha to spread as long as inundation persists**

Community Number: **2** Community Title (main spp): **Alopecurus arundinaceus**

Dominant Species	% Cover	Dominant Species	% Cover
Alopecurus arundinaceus	5 = > 50%		
Rumex crispus	2 = 6-10%		
Hordeum jubatum	2 = 6-10%		

Comments / Problems: **Narrow band around periphery of excavated cell - slightly drier than bottom of excavation.**

Community Number: **3** Community Title (main spp): **Agropyron cristatum**

Dominant Species	% Cover	Dominant Species	% Cover
Agropyron cristatum	5 = > 50%		
Thinopyrum intermedium	2 = 6-10%		
Elymus trachycaulus	2 = 6-10%		
Pascopyrum smithii	2 = 6-10%		
Lepidium perfoliatum	1 = 1-5%		

Comments / Problems: **This community represents all upland areas surrounding the wetland.**

Community Number: ___ Community Title (main spp): _____

Dominant Species	% Cover	Dominant Species	% Cover

Comments / Problems: _____

Additional Activities Checklist:

☒ Record and map vegetative communities on aerial photograph.

PLANTED WOODY VEGETATION SURVIVAL

Plant Species	Number Originally Planted	Number Observed	Mortality Causes

Comments / Problems: **NA**

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: **Fort Peck Northeast** Date: **July 11, 2017** Examiner: **M. Traxler**
Transect Number: **1** Approximate Transect Length: **343 feet** Compass Direction from Start: **30˚** Note: _____

Transect Interval Length: **42 feet (station 0-42)**	
Vegetation Community Type: Agropyron cristatum	
Plant Species	**Cover**
Agropyron cristatum	3 = 11-20%
Chenopodium glaucum	1 = 1-5%
Lepidium perfoliatum	1 = 1-5%
Pascopyrum smithii	2 = 6-10%
Bromus inermis	2 = 6-10%
Elymus trachycaulus	3 = 11-20%
Total Vegetative Cover:	70%

Transect Interval Length: **25 feet (station 42-67)**	
Vegetation Community Type: Alopecurus arundinaceus	
Plant Species	**Cover**
Alopecurus arundinaceus	4 = 21-50%
Chenopodium glaucum	1 = 1-5%
Lepidium perfoliatum	1 = 1-5%
Hordeum jubatum	1 = 1-5%
Eleocharis palustris	3 = 11-20%
Bare Ground	3 = 11-20%
Total Vegetative Cover:	80%

Transect Interval Length: **239 feet (station 67-306)**	
Vegetation Community Type: Eleocharis palustris/Rumex crispus	
Plant Species	**Cover**
Eleocharis palustris	4 = 21-50%
Rumex crispus	3 = 11-20%
Typha latifolia	3 = 11-20%
Bare ground	3 = 11-20%
Total Vegetative Cover:	85%

Transect Interval Length: **22 feet (station 306-328)**	
Vegetation Community Type: Alopecurus arundinaceus	
Plant Species	**Cover**
Alopecurus arundinaceus	4 = 21-50%
Hordeum jubatum	2 = 6-10%
Eleocharis palustris	1 = 1-5%
Lepidium perfoliatum	1 = 1-5%
Rumex crispus	1 = 1-5%
Thinopyrum intermedium	1 = 1-5%
Total Vegetative Cover:	70%

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: **Fort Peck Northeast** Date: **July 11, 2017** Examiner: **M. Traxler**
Transect Number: **1** Approximate Transect Length: **343 feet** Compass Direction from Start: **30˚** Note: _____

Transect Interval Length: **15 feet (station 328-343)**	
Vegetation Community Type: Agropyron cristatum	
Plant Species	**Cover**
Agropyron cristatum	5 = > 50%
Total Vegetative Cover:	75%

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	**Cover**
Total Vegetative Cover:	%

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	**Cover**
Total Vegetative Cover:	%

Transect Interval Length:	
Vegetation Community Type:	
Plant Species	**Cover**
Total Vegetative Cover:	%

MDT WETLAND MONITORING – VEGETATION TRANSECT

Cover Estimate		Indicator Class	Source
+ = < 1%	3 = 11-10%	+ = Obligate	P = Planted
1 = 1-5%	4 = 21-50%	- = Facultative/Wet	V = Volunteer
2 = 6-10%	5 = > 50%	0 = Facultative	

Percent of perimeter developing wetland vegetation (excluding dam/berm structures): ___ %

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at the point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 foot wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Comments: _____

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.

Location	Photograph Frame #	Photograph Description & Lat/Long	Compass Reading (°)
PP-1		Photo Point 1: 48.073995 / -106.409143	NE
PP-2		Photo Point 2 (Pano): 48.074736 / -106.406756	S
PP-3		Photo Point 3: 48.075136 / -106.405116	SW
PP-4		Photo Point 4, Photo 1: 48.074282 / -106.406544	NE
PP-4		Photo Point 4, Photo 2: 48.074282 / -106.406544	N
PP-4		Photo Point 4, Photo 3: 48.074282 / -106.406544	W
T-1 start		Transect 1 start: 48.073925 / -106.407461	NE
T-1 end		Transect 1 end: 48.074736 / -106.406756	SW
DP-1U		Upland soil pit: 48.07403 / -106.408473	
DP-1W		Wetland soil pit: 48.074253 / -106.408426	

Comments / Problems: _____

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points set at a 5 second recording rate. Record file numbers for site in designated GPS field notebook.

GPS Checklist:

- ☒ Upland/wetland boundary.
- ☒ 4-6 landmarks that are recognizable on the aerial photograph.
- ☒ Start and End points of vegetation transect(s).
- ☒ Photograph reference points.
- ☐ Groundwater monitoring well locations.
- ☐ Bird nest boxes.

Comments / Problems: _____

WETLAND DELINEATION

(attach COE delineation forms)

At each site conduct these checklist items:

- ☒ Delineate wetlands according to the 1987 Army COE manual and regional supplement.
- ☒ Delineate wetland – upland boundary onto aerial photograph.

Comments / Problems: _____

FUNCTIONAL ASSESSMENT

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

Comments / Problems: _____

MAINTENANCE

Were man-made nesting structure installed at this site? **No**
If yes, do they need to be repaired? **NA**
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? **No**
If yes, are the structures working properly and in good working order? **NA**
If no, describe the problems below.

Comments / Problems: _____

WILDLIFE

Birds

Were man-made nesting structures installed? **No**
If yes, type of structure: _____ How many? _____
Are the nesting structures being used? **NA**
Do the nesting structures need repairs? _____

Mammals and Herptiles

Mammal and Herptile Species	Number Observed	Indirect Indication of Use			
		Tracks	Scat	Burrows	Other
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	
		☐	☐	☐	

Additional Activities Checklist:
NA Macroinvertebrate Sampling (if required)

Comments / Problems: No mammal/Herptile sightings or sign of use within the study area. Only avian species noted.

BIRD SURVEY – FIELD DATA SHEET

Site: **Fort Peck Northeast** Date: **7/11/17**
Survey Time: **1:00 pm** to **3:00 pm**

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Mourning dove	2	FO	UP MA				
Western meadowlark	3	FO	UP MA				
Western kingbird	1	L	UP				
American goldfinch	1	L	UP				

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

HABITAT CODES
AB = Aquatic bed
FO = Forested
I = Island
MA = Marsh
MF = Mud Flat
OW = Open Water
SS = Scrub/Shrub
UP = Upland buffer
WM = Wet meadow
US = Unconsolidated shore

Weather: **80-90 degress, mostly sunny, thunderstorms approaching**

Notes: _____

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Fort Peck Northeast **City/County:** Valley **Sampling Date:** 11-Jul-17

Applicant/Owner: MDT **State:** MT **Sampling Point:** **DP-1U**

Investigator(s): RESPEC - Mark Traxler **Section, Township, Range:** S 22 T 27 N R 41 E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0% 0.0 °

Subregion (LRR): LRR F **Lat.:** 48.07403 **Long.:** -106.408473 **Datum:** NAD 83

Soil Map Unit Name: Harlem silty clay loam **NWI classification:** none

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 ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks:
Upland data point.

VEGETATION - Use scientific names of plants

FWS Region: GP

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30 Foot Radius)				
1.	0	☐		
2.	0	☐		
3.	0	☐		
4.	0	☐		
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Foot Radius)				
1.	0	☐		
2.	0	☐		
3.	0	☐		
4.	0	☐		
5.	0	☐		
	0	= Total Cover		
Herb Stratum (Plot size: 5 Foot Radius)				
1. Agropyron cristatum	100	☑	100.0%	UPL
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	100	= Total Cover		
Woody Vine Stratum (Plot size: 30 Foot Radius)				
1.	0	☐		
2.	0	☐		
	0	= Total Cover		

% Bare Ground in Herb Stratum 0

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: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	100	x 5 =	500
Column Totals:	100 (A)		500 (B)

Prevalence Index = B/A = 5

Hydrophytic Vegetation Indicators:

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

[1] **Indicators of hydric soil and wetland hydrology must be present.**

Hydrophytic Vegetation Present? Yes ○ No ◉

Remarks:

Data point comprised of 100% upland grass.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP-1U

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
0-8	10YR	3/2	100					Loam	no mottles

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR I, J)
- ☐ Coastal Prairie Redox (A16) (LRR F, G, H)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) **(LRR H outside of MLRA 72 and 73)**
- ☐ Reduced Vertic (F18)
- ☐ 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 present. Soil very dry and hard.

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)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ○ No ◉ 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators present.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Fort Peck Northeast **City/County:** Valley **Sampling Date:** 11-Jul-17

Applicant/Owner: MDT **State:** MT **Sampling Point:** **DP-1W**

Investigator(s): RESPEC - Mark Traxler **Section, Township, Range:** S 22 T 27 N R 41 E

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 0.0% 0.0 °

Subregion (LRR): LRR F **Lat.:** 48.074253 **Long.:** -106.408426 **Datum:** NAD 83

Soil Map Unit Name: Harlem silty clay loam **NWI classification:** none

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:
Data point located in excavated wetland depression. All vegetation at time of survey was brown; however, site was revisited on 9/28/17 and vegetation had greened.

VEGETATION - Use scientific names of plants

FWS Region: GP

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30 Foot Radius)				
1.	0	☐		
2.	0	☐		
3.	0	☐		
4.	0	☐		
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Foot Radius)				
1.	0	☐		
2.	0	☐		
3.	0	☐		
4.	0	☐		
5.	0	☐		
	0	= Total Cover		
Herb Stratum (Plot size: 5 Foot Radius)				
1. Eleocharis palustris	70	☑	73.7%	OBL
2. Rumex crispus	10	☐	10.5%	FAC
3. Typha latifolia	10	☐	10.5%	OBL
4. Alopecurus arundinaceus	5	☐	5.3%	FACW
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
	95	= Total Cover		
Woody Vine Stratum (Plot size: 30 Foot Radius)				
1.	0	☐		
2.	0	☐		
	0	= Total Cover		

% Bare Ground in Herb Stratum 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: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	80	x 1 =	80	
FACW species	5	x 2 =	10	
FAC species	10	x 3 =	30	
FACU species	0	x 4 =	0	
UPL species	0	x 5 =	0	
Column Totals:	95	(A)	120	(B)

Prevalence Index = B/A = 1.263

Hydrophytic Vegetation Indicators:

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

[1] **Indicators of hydric soil and wetland hydrology must be present.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

All species in plot are FAC, FACW, or OBL. Dominance Test 100% and Prevalence Index < 3.0.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: DP-1W

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	90	10YR	5/8	10	D	M	Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (LRR I, J)
- ☐ Coastal Prairie Redox (A16) (LRR F, G, H)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) **(LRR H outside of MLRA 72 and 73)**
- ☐ Reduced Vertic (F18)
- ☐ 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:

Data point meets criteria for 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)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry Season Water Table (C2)
- ☐ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	1
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, monitor well, aerial photos, previous inspections), if available:

Remarks:

Surface water appeared to be very recent.

MDT MONTANA WETLAND ASSESSMENT FORM (revised March 2008)

1. Project Name: Fort Peck Northeast **2. MDT Project #:** _ **3. Control #:** _____

3. Evaluation Date: July 11, 2017 **4. Evaluator(s):** Mark Traxler **5. Wetland/Site #(s):** Created Wetland

6. Wetland Location(s): Township 27 N, Range 41 E, Section 22; Township ___N, Range ___E, Section _____

Approximate Stationing or Roadposts: Stations 373+23.61 LT to 383+52.77 LT on MT-117

Watershed: 12 - Lower Missouri **County:** _ _ Valley _____

7. Evaluating Agency: RESPEC for MDT

Purpose of Evaluation:

- ☐ **Wetland potentially affected by MDT project**
- ☐ **Mitigation wetlands; pre-construction**
- ☒ **Mitigation wetlands; post-construction**
- ☐ **Other** _____

8. Wetland Size (acre): _____ (visually estimated)
2.9 (measured, e.g. GPS)

9. Assessment Area (AA) Size (acre): _____ (visually estimated)
(see manual for determining AA) 2.9 (measured, e.g. GPS)

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA (See manual for definitions.)

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% OF AA
Depressional	Emergent Wetland	Excavated	Seasonal / Intermittent	100

Comments: _____

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin; see manual.)
common

12. GENERAL CONDITION OF AA

i. Disturbance: Use matrix below to select the appropriate response; see manual for Montana listed noxious weed and aquatic nuisance vegetation species 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%.	---	---	---
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	---
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%.	---	---	---

Comments (types of disturbance, intensity, season, etc.)**:** The wetland mitigation site was constructed in 2015. Gravel was excavated from the site to be used for the adjacent roadway reconstruction. Salvaged topsoil was used to line the bottom of the excavation. The site is now fenced and no grazing or other ag uses occur within the site. Land outside the mitigation area is activly managed for agricultural purposes and Hwy 117 is adjacent to the site.

ii. Prominent noxious, aquatic nuisance, and other exotic vegetation species: Canada thistle

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA is an excavated depression adjacent to MT-117. Gravel was mined for the highway reconstruction and reclaimed for wetland development. The entire excavation has developed emergent wetland and is surrounded by a small upland buffer. Outside the AA, adjacent land is used for agricultural purposes and roads.

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 one is forested) classes	---	NA	NA	NA
2 (or 1 if forested) classes	---	NA	NA	NA
1 class, but not a monoculture	mod	←NO	YES→	---
1 class, monoculture (1 species comprises ≥90% of total cover)	---	NA	NA	NA

Comments: Emergent vegetation comprised of creeping spike rush, curly dock, cattail, and creeping meadow foxtail.

Wetland/Site #(s): Fort Peck NE - created wetland

14A. HABITAT FOR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED PLANTS OR ANIMALS

i. AA is Documented (D) or Suspected (S) to contain: Check box based on definitions in manual.

Primary or critical habitat (**list species**) ☐ D ☐ S _____
Secondary habitat (**list species**) ☐ D ☐ S _____
Incidental habitat (**list species**) ☐ D ☐ S _____
No usable habitat ☒ S

ii. Rating: Based on the strongest habitat chosen in 14A(i) above, select the corresponding functional point and rating.

Highest Habitat Level	Doc/Primary	Sus/Primary	Doc/Secondary	Sus/Secondary	Doc/Incidental	Sus/Incidental	None
Functional Point/Rating	---	---	---	---	---	---	0L

Sources for documented use (e.g. observations, records): USFWS list for Valley County; no habitat present for species or documented occurences.

14B. HABITAT FOR PLANTS OR ANIMALS RATED S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM
Do not include species listed in 14A above.

i. AA is Documented (D) or Suspected (S) to contain: Check box based on definitions in manual.

Primary or critical habitat (**list species**) ☐ D ☐ S _____
Secondary habitat (**list species**) ☐ D ☐ S _____
Incidental habitat (**list species**) ☐ D ☒ S Great Plains Toad G5S2
No usable habitat ☐ S

ii. Rating: Based on the strongest habitat chosen in 14A(i) above, select the corresponding functional point and rating.

Highest Habitat Level	Doc/Primary	Sus/Primary	Doc/Secondary	Sus/Secondary	Doc/Incidental	Sus/Incidental	None
S1 Species Functional Point/Rating	---	---	---	---	---	---	---
S2 and S3 Species Functional Point/Rating	---	---	---	---	---	.1L	---

Sources for documented use (e.g. observations, records): MTNHP Species of Concern database

14C. GENERAL WILDLIFE HABITAT RATING

i. Evidence of Overall Wildlife Use in the AA: Check substantial, moderate, or low based on supporting evidence.

☐ ***Substantial:*** Based on any of the following [check].
- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interview with local biologist 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
- ☐ interview with local biologist with knowledge of 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
- ☐ interview with local biologist 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 manual 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)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
☒ **Moderate Disturbance** at AA (see #12i)	---	---	---	---	---	---	---	---	---	H	---	---	---	---	---	---	---	---	---	---
☐ **High Disturbance** at AA (see #12i)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

iii. Rating: Use the conclusions from i and ii above and the matrix below to select the functional point and rating.

Evidence of Wildlife Use (i)	Wildlife Habitat Features Rating (ii)			
	☐ **Exceptional**	☒ **High**	☐ **Moderate**	☐ **Low**
☐ **Substantial**	---	---	---	---
☐ **Moderate**	---	---	---	---
☒ **Minimal**	---	.4M	---	---

Comments: Wetland will receive more use as it develops. Only birds observed in 2017.

Wetland/Site #(s): Fort Peck NE - created wetland

14D. GENERAL FISH HABITAT ☒ **NA** (proceed to 14E)

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 the NA box and proceed to 14E.

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].

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

i. Habitat Quality and Known / Suspected Fish Species in AA: Use matrix to select the functional point 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	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
FWP Tier II or **Native Game** fish species	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
FWP Tier III or **Introduced Game** fish	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
FWP Non-Game Tier IV or **No** fish species	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Sources used for identifying fish spp. potentially found in AA: _____

ii. Modified Rating: NOTE: Modified score cannot exceed 1.0 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?* ☐ **YES**, reduce score in **i** by 0.1 = __ or ☒ **N0**

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area; specify in comments) for native fish or introduced game fish? ☐ **YES**, add to score in **i** or **iia** 0.1 = __ or ☒ **N0**

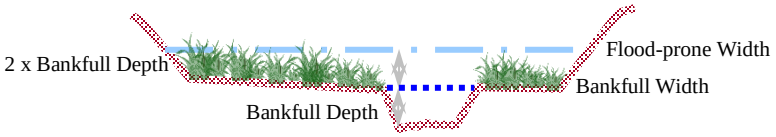
iii. Final Score and Rating: _ **Comments:** No perennial water within AA for fish habitat.

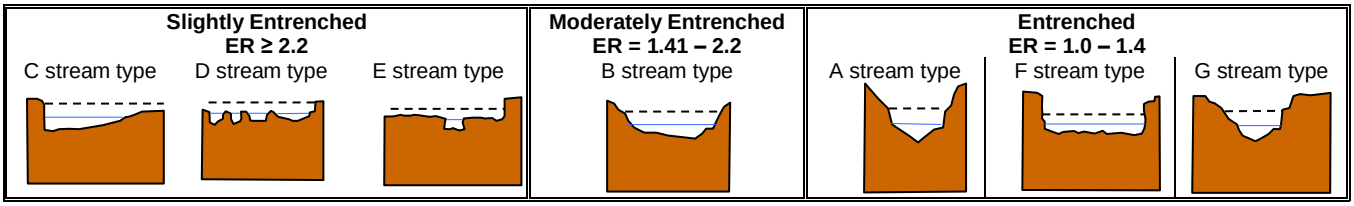
14E. FLOOD ATTENUATION ☒ **NA** (proceed to 14F)

Applies only to wetlands that are subject to flooding via in-channel or overbank flow.
If wetlands in AA are not flooded from in-channel or overbank flow, check the NA box and proceed to 14F.

Entrenchment Ratio (ER) Estimation (see manual for additional guidance). Entrenchment ratio = (flood-prone width) / (bankfull width).
Flood-prone width = estimated horizontal projection of where 2 X maximum bankfull depth elevation intersects the floodplain on each side of the stream.

_____ / _____ = _____
flood prone width / bankfull width = entrenchment ratio





i. Rating: Working from top to bottom, use the matrix below to select the functional point 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		
Percent 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**	---	---	---	---	---	---	---	---	---
AA contains **unrestricted outlet**	---	---	---	---	---	---	---	---	---

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? ☐ YES ☒ NO **Comments:** No flooding occurs via in-channel or overbank flow.

Wetland/Site #(s): Fort Peck NE - created wetland

14F. SHORT AND LONG TERM SURFACE WATER STORAGE ☐ **NA** (proceed to 14G)

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, then check the NA box and proceed to 14G.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see manual 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**	---	.9H	---	---	---	---	---	---	---
Wetlands in AA flood or pond **< 5 out of 10 years**	---	---	---	---	---	---	---	---	---

Comments: Depressional area recieves surface runnoff and precipitation. Ponds annually for part of growing season.

14G. SEDIMENT / NUTRIENT / TOXICANT / RETENTION AND REMOVAL ☐ **NA** (proceed to 14H)

Applies to wetland 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, check the NA box and proceed to 14H.

i. Rating: Working from top to bottom, use the matrix below to select the functional point and rating.

Sediment, Nutrient, and Toxicant Input Levels within AA	**AA receives or surrounding land use has potential to deliver 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 is 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 has 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**	---	---	---	---	---	---	---	---
AA contains **unrestricted outlet**	.9H	---	---	---	---	---	---	---

Comments: More than 90 percent of the excavation area is covered with wetland vegetation. An outlet culvert allows surface water to flow through the site when it reaches a certain elevation.

14H. SEDIMENT / SHORELINE STABILIZATION ☒ **NA** (proceed to 14I)

Applies only if AA occurs on or within the banks of 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, check the NA box and proceed to 14I.

% 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%**	---	---	---
☐ **35-64%**	---	---	---
☐ **< 35%**	---	---	---

Comments: AA does not support open water areas subject to wave action.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. Level of Biological Activity: Synthesis of wildlife and fish habitat rates (select).

General Fish Habitat Rating (14Diii)	**General Wildlife Habitat Rating (14Ciii)**		
	☐ **E/H**	☒ **M**	☐ **L**
☐ **E/H**	---	---	---
☐ **M**	---	---	---
☐ **L**	---	---	---
☒ **NA**	---	M	---

ii. Rating: Working from top to bottom, use the matrix below to select the functional point and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14Ii); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to the duration of surface water in the AA, where P/P, S/I, and T/E were previously defined, and A = "absent" [see manual 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	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
S/I	---	---	---	---	---	---	---	---	.6M	---	---	---	---	---	---	---	---	---
T/E/A	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Wetland/Site #(s): Fort Peck NE - created wetland

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT (continued)

iii. Modified Rating: Note: Modified score cannot exceed 1.0 or be less than 0.1.

Vegetated Upland Buffer: 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).
Is there an average ≥ 50-foot wide vegetated upland buffer around ≥ 75% of the AA's perimeter? ☒ **YES**, add 0.1 to score in **ii** = ___ ☐ **NO**

iv. Final Score and Rating: .7M **Comments:** Moderate biologial activity; no fish habitat; vegetative component <5 acres with a upland buffer.

14J. GROUNDWATER DISCHARGE / RECHARGE
Check the appropriate indicators in i and 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 select the functional point and rating.

Criteria	Duration of Saturation at AA Wetlands ***FROM GROUNDWATER DISCHARGE*** or ***WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*** ☐ P/P	☐ S/I	☐ T	☐ None
☐ **Groundwater Discharge or Recharge**	---	---	---	---
☒ **Insufficient Data/Information**	NA			

Comments: Surface water feeds wetland

14K. UNIQUENESS

i. Rating: Working from top to bottom, use the matrix below to select the functional point 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)	---	---	---	---	---	---	---	---	---
☒ **Moderate Disturbance** at AA (#12i)	---	---	---	---	---	---	---	.3L	---
☐ **High Disturbance** at AA (#12i)	---	---	---	---	---	---	---	---	---

Comments: _____

14L. RECREATION / EDUCATION POTENTIAL ☐ NA (proceed to Overall Summary and Rating page)
Affords 'bonus' points if AA provides a recreational or educational opportunity.

i. Is the AA a known or potential recreational or educational site? ☒ **YES**, go to ii. ☐ **NO**, check the NA box.

ii. Check categories that apply to the AA: ☒ Educational/Scientific Study ☒ Consumptive Recreational ☒Non-consumptive recreational
☐ Other: _____

iii. Rating: Use the matrix below to select the functional point and rating.

Known or Potential Recreational or Educational Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	---	---
Private ownership with general public access (no permission required)	---	.1M
Private or public ownership without general public access, or requiring permission for public access	---	---

Comments: Currently no recreation/education occurs at the site.

15. GENERAL SITE NOTES: _____

Wetland/Site #(s): Fort Peck NE - created wetland

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	low 0.00	1.00	0	
B. MT Natural Heritage Program Species Habitat	low 0.10	1.00	0.29	*
C. General Wildlife Habitat	mod 0.40	1.00	1.16	
D. General Fish Habitat	NA	NA	0	
E. Flood Attenuation	NA	NA	0	
F. Short and Long Term Surface Water Storage	high 0.90	1.00	2.61	
G. Sediment / Nutrient / Toxicant Removal	high 0.90	1.00	2.61	*
H. Sediment / Shoreline Stabilization	NA	NA	0	*
I. Production Export / Food Chain Support	mod 0.60	1.00	1.74	*
J. Groundwater Discharge / Recharge	NA	NA	2.03	
K. Uniqueness	low 0.30	1.00	0.87	
L. Recreation / Education Potential (bonus point)	mod 0.10		0.29	
Total Points	**3.30**	**7**	**9.57 Total Functional Units**	
Percent of Possible Score 47% (round to nearest whole number)				

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; if not 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 (AA) RATING: Check the appropriate category based on the criteria outlined above.

☐ **I** ☐ **II** ☒ **III** ☐ **IV**

APPENDIX C
PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Fort Peck – Northeast
Valley County, Montana

Fort Peck – Northeast: Photo Point Photographs



Photo Point: 1 Location: West side of property
Bearing: Northeast Year: 2017 (July 11)



Photo Point: 1 Location: West side of property
Bearing: Northeast Year: 2017 (September 28)



Photo Point: 3 Location: NE corner of property
Bearing: Southwest Year: 2017



Photo Point: 4 Location: South side of property
Bearing: Northeast Year: 2017



Photo Point: 4 Location: South side of property
Bearing: North Year: 2017



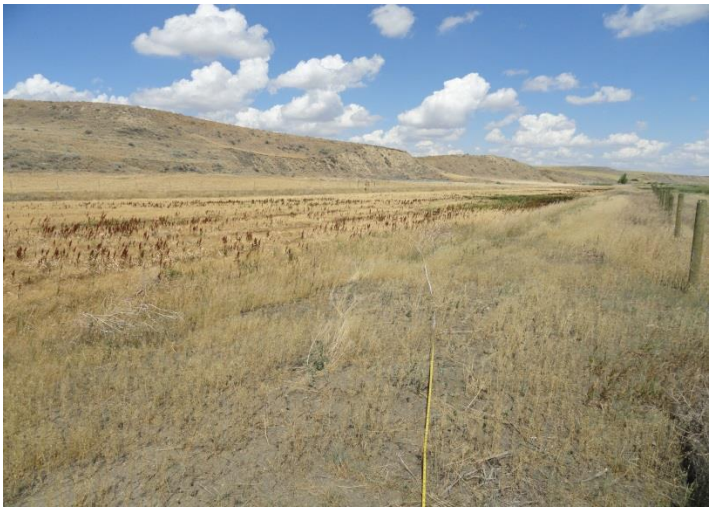
Photo Point: 4 Location: South side of property
Bearing: West Year: 2017

Fort Peck – Northeast: Photo Point Photographs



Photo Point 2 – Panorama; Location: North Fenceline; Bearing south; Year 2017

Fort Peck – Northeast: Transect and Data Point Photographs



Transect 1: Start Location: South side of property
Bearing: Northeast Year 2017



Transect 1: End Location: NE side of property
Bearing: Southwest Year 2017



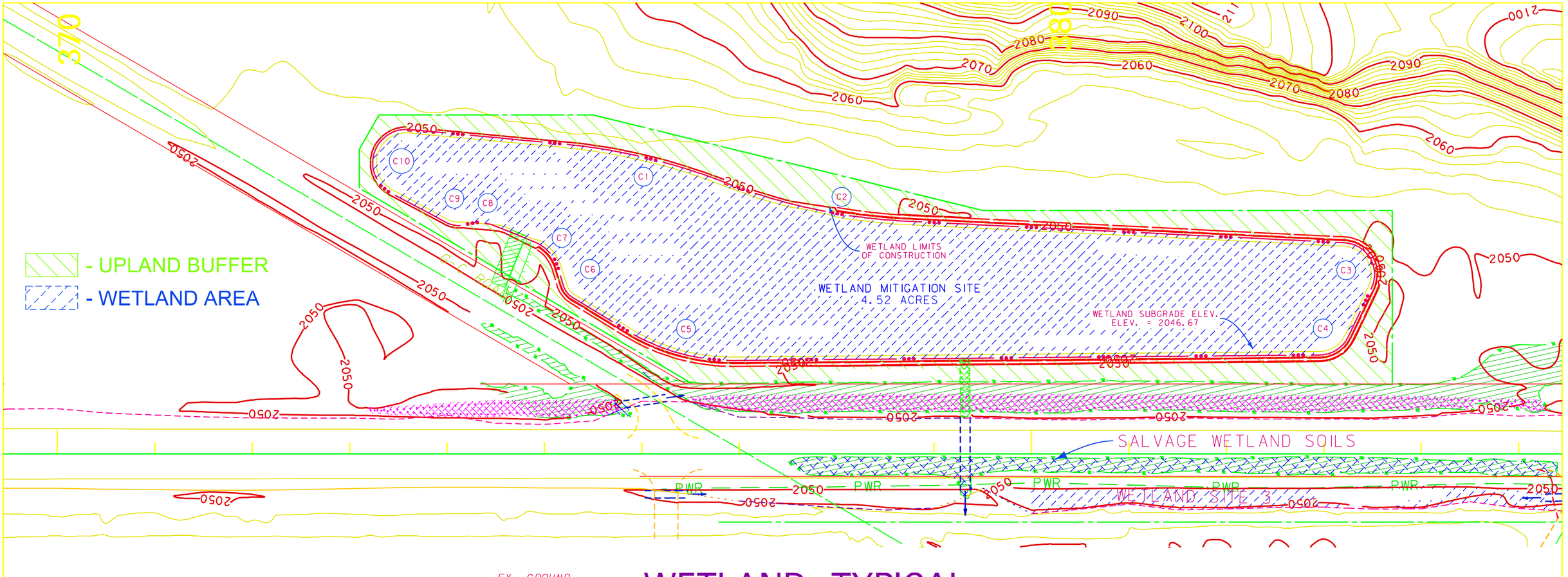
Data Point: DP-1W Location: West end
Year 2017

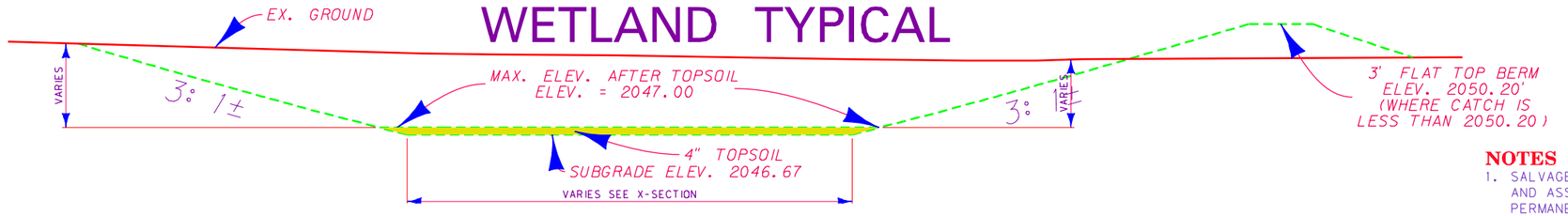


Data Point: DP-1U Location: West end
Year 2017

APPENDIX D
PROJECT PLAN SHEETS

MDT Wetland Mitigation Monitoring
Fort Peck – Northeast
Valley County, Montana





WETLAND MITIGATION TYPE	ACREAGE	RATIO ▲	CREDIT ACRES
MITIGATION AREA SIZE	4.52		
PROPOSED CREATION	3.13	1:1	3.13
UPLAND BUFFER*	1.39	5:1	0.28
TOTAL MITIGATION AREA CREDITS			3.41

* THE UPLAND BUFFER AND THE PERIMETER OF THE WETLAND AREA TO THE PERIMETER BOUNDARY

RATIOS UTILIZED ARE FROM THE COLUMN A OF THE MONTANA REGULATORY PROGRAM WETLAND COMPENSATORY MITIGATION RATIOS APRIL 2005.

WETLAND ITEMS

STATION FROM	STATION TO	QUANTITY	DESCRIPTION	REMARKS
373+23.61	383+52.77	17,527 YD³	WETLAND EXC.	
374+52.36	374+73.84	40 YD³	EXC.	INLET DICH LT. (200' LT.)
374+60.41	374+83.11	35 YD³	EMB. +	DITCH BLOCK LT. (188' LT.)
377+51.19	385+40.17	155 YD³	SALVAGE WETLAND SOIL & VEGETATION	PERMANENT IMPACTS FROM WL-SITE 3
379+32.00		66 YD²	TURF REINFORCEMENT MAT	LINE OVERFLOW OUTFALL
400+96.16	408+24.96	250 YD³	SALVAGE WETLAND SOIL & VEGETATION	PERMANENT IMPACTS FROM WL-SITE 5

FOR INFORMATION ONLY - QUANTITIES INCLUDED IN LUMP SUM BID

NOTES

1. SALVAGE WETLAND VEGETATION AND ASSOCIATED SOILS FROM PERMANENTLY IMPACTED WETLANDS AND PLACE IN NEW WETLAND SITE (SEE SPECIAL PROVISON)
2. PROPOSED WETLANDS AREA OF 3.13 ACRES BASED UPON WATER ELEV. OF 2049.19
3. PROVIDE AN UNDULATING BOTTOM WITH A FINISHED SURFACE ELEV. AFTER THE PLACEMENT OF THE TOPSOIL TO BE BOUNDED BETWEEN A MIN. ELEV. 2046.17 AND A MAX. ELEV. OF 2047.00

FORT PECK – NORTHEAST

WETLAND MITIGATION CREDITS

3
2
MDT MONTANA DEPARTMENT OF TRANSPORTATION
$FILEABBREV$ $DATE$ $TIME$ $username$
DESIGNED BY
REVIEWED BY
CHECKED BY
ROAD PLANS
VALLEY COUNTY
FORT PECK - NORTHEAST
CSF= 0.99945007 RP 0.0 TO RP 6.0
CSF= 0.99947864 RP 6.0 TO RP 11.3
UPN 5157001
STPP - FLA 17-1(9)0
SHEET 50 OF 76