FORSYTH – NORTHWEST MITIGATION SITES: FORSYTH WEST, MIDDLE, AND EAST

Project Overview

MDT Project: STTP 14 (9)259, UPN #4059

Watershed: Watershed #14 – Middle Yellowstone

Monitoring Year: 2021

Years Monitored: 9th year of monitoring

Corps Permit Number: NWO-2002-90-599 and NWO-2006-906-76 MTB

Monitoring Conducted By: Confluence Consulting Inc. for MDT

Dates Monitoring Was Conducted: June 24, 2021

Purpose of the Approved Project:

The Forsyth – Northwest (FNW) sites were developed to mitigate for a cumulative total of 8.98 acres of wetland impacts associated with two Montana Department of Transportation (MDT) highway construction projects: (1) the Volborg – North and South project, constructed in 2004, and (2) the FNW project, constructed in 2012. Applying standard wetland compensatory mitigation ratios (US Army Corps of Engineers 2005), the total area of required mitigation presented in the approved wetland mitigation plan was 11 acres. Four individual mitigation sites in close proximity to each other were constructed as part of this project and include the Treasure County Line, Forsyth West, Forsyth Middle, and Forsyth East. Monitoring at the Treasure County Line site was completed in 2017, and monitoring at the three remaining sites continued in 2021.

Site Locations:

West site - Latitude: 46.33927, **Longitude:** –106.876743

Middle site - Latitude: 46.323159**, Longitude:** -106.843010

East site - Latitude: 46.31969, **Longitude:** -106.83657

County: Rosebud **Nearest Town:** Forsyth, MT

Map Included: Yes, Figure 1

Mitigation Site Construction Started: Spring 2012 **Construction Ended:** Fall 2012

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

Activity: None **Date:** NA

Specific recommendations for corrective actions: MDT may want to investigate whether or not changes are needed to address increases in open water and mudflat habitat at the West site.

Anticipated Wetland Credit Acres: 11.79

Wetland Credit Acres Generated to Date: 4.18

Wetland Acreage within the Project Area: 2.83

Mudflat Acreage within the Project Area: 1.36

Open Water within the Project Area: 7.60 acres

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

Monitoring Period: 5 years from construction completion or until concurrence by the US Army Corps of Engineers (USACE). The monitoring period was extended because of adaptive management actions in 2017 to repair a failed dike structure at the FNW-West mitigation site.

Requirements (from approved mitigation plan, banking instrument, or Department of Army (DA) permit conditions)

Summary of Performance Standards: Formal performance standards were not developed as part of the mitigation plan for these sites. All three sites have developed wetland habitat as intended and contain wetland vegetation, hydric soils, and indicators of wetland hydrology. All of the sites are stable, have less than 5 percent total noxious weed cover. The East and Middle sites are functioning as designed, but the West site has recently lost wetland acreage due to a change in how the USACE is awarding credit for the palustrine aquatic bed wetland type.

Summary Data: Combined West, Middle, and East Sites

Wetland Delineation – The total wetland acreage delineated in 2021 at the three sites was 2.76 acres of palustrine emergent wetland. Additionally, in 2021, 7.60-acres of open water were mapped at the FNW-West site, as well as 1.36-acres of mud flat. No open water or mud flats were identified at the Middle or East sites (Table 1; Figures A-2 and A-4, Appendix A). In 2020, the USACE provided guidance on open water, defining it as, "areas of open water of any depth with less than 5% rooted emergent vegetation, no vegetation, submerged non-rooted vegetation, and/or submerged vegetation rooted in the substrate that does not extend above the water surface" (Green 2022). The adaptive management strategies implemented in 2017 (repair of a breached berm/dike) at the FNW-West site resulted in broader inundation across the site, and in response to the inundation, some areas that were previously delineated as wetland were delineated as open water from 2020-2021. Likely due to persistent drought conditions since June 2020 (NOAA 2022), the open water had receded in 2021, leaving broad areas of mudflat habitat in places that had previously been inundated with shallow water. Options to assign credit acres for open water and mud flat habitats are pending, and therefore wetland acreage credited to this site in 2021 is significantly less than what was reported in 2019 and earlier.

Table 1. Wetland Habitat Acreages Delineated at the FNW Sites (2015–2021)

Site	2015 (acres)	2016 (acres)	2017 (acres)	2018 (acres)	2019 (acres)	2020 (acres)		2021 (acres)		
						Wetland	Open Water	Wetland	Open Water	Mud flat
FNW-West	6.01	6.01	5.89	10.55	10.55	1.61	8.9	1.66	7.60	1.36
FNW-Middle	0.49	0.49	0.58	0.58	0.58	0.58	-	0.58	-	-
FNW-East	0.46	0.43	0.43	0.56	0.56	0.60	-	0.59	-	-
Total	**6.96**	**6.93**	**6.90**	**11.69**	**11.69**	**2.79**	**8.9**	**2.83**	**7.6**	**1.36**

Functional Assessment – All three FNW sites are considered Category III wetlands and generated a total of 82.5 combined Functional Units in 2021 (Table 2). This is an increase of 16.56 functional units since 2020. This functional lift is largely due to the creation of mudflats at FNW-West, which has increased the complexity of general wildlife habitat available at the site by increasing the number of available habitat types within the site. However, this change does not equate to an increased score in the structural diversity category of the MWAM, as this category only considers vegetated habitat types. Completed Montana Wetland Assessment Method (MWAM) forms for the FNW sites are provided in Appendix B.

Photographs – Photographs were taken at all three FNW sites in 2021 and are provided in Appendix C. The photographs taken at permanent photo points, transect endpoints, and data points are presented alongside photos from the first year of monitoring. Please refer to previous years' monitoring reports for photographs from all other years.
(https://www.mdt.mt.gov/publications/brochures/wetland_mitigation.shtml).

Wildlife – Wildlife species that were observed directly or indirectly at the three monitoring sites during the 2021 field surveys are listed in the Wetland Mitigation Site Monitoring forms for each site (Appendix B). Wildlife observations at the FNW-Middle and FNW-East sites were minimal in 2021 as the sites are relatively small and not very diverse, and because the surveys were completed in the middle of the day. More wildlife observations were made at the FNW-West site, and included thirteen bird species, several white-tailed deer, two turtles, and a muskrat, along with coyote scat, and racoon tracks and scat.

Table 2. 2021 Montana Wetland Assessment Method (MWAM) Functional Value Summary for the Forsyth Northwest Sites. Values shown are the actual functional points scored by each site.

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	FNW-West	FNW-Middle	FNW-East
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)
Montana Natural Heritage Program (MTNHP) Species Habitat	High (0.9)	High (0.9)	High (0.9)
General Wildlife Habitat	Exceptional (1)	Mod (0.4)	Mod (0.4)
General Fish/Aquatic Habitat	Low (0.3)	N/A	N/A
Flood Attenuation	Mod (0.6)	N/A	N/A
Short- and Long-Term, Surface-Water Storage	High (1)	Low (0.3)	Low (0.3)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (0.8)	High (0.8)
Sediment/Shoreline Stabilization	Mod (0.7)	NA	N/A
Production Export/Food Chain Support	High (0.8)	Low (0.3)	Mod (0.4)
Groundwater Discharge/Recharge	High (1)	N/A	Mod (0.7)
Uniqueness	Low (0.3)	Low (0.2)	Low (0.2)
Recreation/Education Potential (bonus points)	High (0.2)	Low (0.05)	Low (0.05)
Actual Points/Possible Points	**7.5/11**	**2.95/7**	**3.75/8**
% of Possible Score Achieved	**68.18%**	**42.14%**	**46.88%**
Overall Category	**II**	**III**	**III**
Total Acreage of Assessed Wetlands Within Site Boundaries	**10.62[(a)]**	**0.58[(a)]**	**0.59[(a)]**

[(a)] Assessment area included, wetland, open water, and mud flats.

Summary Data: Specific to the FNW-West Site

FNW-West Site Vegetation – Eight vegetation communities, identified based on plant composition and dominance, were mapped on the FNW–West site in 2021. This site underwent extensive change following repair of the dike and subsequent flooding of the site in 2018 and 2019 and is now largely inundated with open water. There have been significant changes in the vegetation communities as a result of the flooding as much of the vegetation has died off in the inundated areas, including woody species such as cottonwood and willow. These changes have led to shifts in plant community composition and include changes in dominance within some of the previously mapped community types, the elimination of a few previously observed community types, and the addition of Community Type 18 – *Hordeum jubatum/Typha spp.* in 2020, and Community Type 19 – Mudflats in 2021. Wetland community types are found in the mudflats and fringes around the open water or in areas that are shallow enough to support emergent vegetation. Inundated areas with greater than 5% cover of emergent vegetation are represented by Community Type 17 – Open Water/Aquatic Macrophytes. The Mudflat Community was created to classify previously inundated areas that were exposed in 2021 but have less than 5% vegetative cover. The presence of mudflats in 2021 corresponded with decreased open water during a drought year.

The community composition for each community type is provided in full detail on the Wetland Mitigation Site Monitoring forms (Appendix B), and the community boundaries are shown on Figure A-3 (Appendix A). The following vegetation community types were identified at the FNW-West mitigation site in 2021:

- Upland Type 1 – *Bromus tectorum*/*Sarcobatus vermiculatus*
- Upland Type 5 – *Symphoricarpos albus*/*Pascopyrum smithii*
- Upland Type 6 – *Pascopyrum smithii*/*Bromus tectorum*
- Wetland Type 8 – *Typha latifolia*/*Eleocharis palustris*
- Wetland Type 16 - *Alopecurus arundinaceus/Hordeum jubatum*
- Wetland Type 17 – Open Water/Aquatic Macrophytes.
- Wetland Type 18 – *Hordeum jubatum/Typha spp.*
- Wetland Type 19 - Mudflat

Vegetation cover was measured along two transects in 2021 (Tables 3 & 4; Figure A-2, Appendix A). Table 3 summarizes the data for T-1 which is 282 feet long and intersects upland Community Type 1, wetland Community Type 18, and aquatic communities 19 (mudflat), and 17 (open water). The amount of open water along T-1 transect decreased from 92% to 89% between 2020 and 2021 with a corresponding increase in mudflat from 0% to 3%. The total amount of vegetation and bare ground across the transect remained consistent from 2020, though 2 fewer hydrophytic species were observed in 2021. Data collected on T-2 are summarized in Table 4. T-2 is 261 feet long and intersects wetland Community Type 16, aquatic communities 19 (mudflat), and 17 (open water). Eighty-seven percent of the transect crossed open water habitat in 2021, and 5% crossed mudflat. Total vegetative cover remains at 3%, which is consistent with 2020 observations and one additional hydrophytic species was observed in 2021.

Table 3. Data Summary for T-1 From 2016 Through 2021 at the FNW-West Site

Monitoring Year	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**
Transect Length (feet)	**282**	**282**	**282**	**282**	**282**	**282**
Vegetation Community Transitions Along Transect	7	5	1	1	2	3
Vegetation Communities Along Transect	5	5	1	1	2	3
Hydrophytic Vegetation Communities Along Transect	4	2	0	1	1	1
Total Vegetative Species	26	18	5	4	9	7
Total Hydrophytic Species	5	4	0	1	3	1
Total Upland Species	21	14	5	4	6	6
Estimated % Total Vegetative Cover	90	46	5	10	3	3
Estimated % Unvegetated	10	54	95	65	97	97
% Transect Length Comprising Hydrophytic Vegetation Communities	37	34	0	30	3	4
% Transect Length Comprising Upland Vegetation Communities	63	66	5	5	5	5
% Transect Length Comprising Unvegetated Open Water	0	0	95	65	92	89
% Transect Length Comprising of Mudflat	0	0	0	0	0	2

Detailed data collected along each transect are provided in the Wetland Mitigation Site Monitoring form in Appendix B. Photographs of the transect end points are provided in Appendix C.

Table 4. Data Summary for T-2 From 2016 Through 2021 at the FNW-West Site

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	**261**	**261**	**261**	**261**	**261**	**261**
Vegetation Community Transitions Along Transect	2	3	2	2	3	3
Vegetation Communities Along Transect	3	4	3	3	3	2
Hydrophytic Vegetation Communities Along Transect	1	2	1	1	1	1
Total Vegetative Species	28	19	13	15	19	20
Total Hydrophytic Species	8	9	4	5	6	7
Total Upland Species	20	10	9	10	13	13
Estimated % Total Vegetative Cover	82	92	20	20	3	3
Estimated % Unvegetated	13	8	80	80	97	97
% Transect Length Comprising Hydrophytic Vegetation Communities	87	87	90	90	2	0
% Transect Length Comprising Upland Vegetation Communities	13	13	10	10	7	7
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	91	87
% Transect Length Comprising of Mudflat	0	0	0	0	0	5

Eight noxious weed patches were mapped at FNW-West in 2021, which is an increase of 6 patches since 2020. All noxious weed patches were comprised of Priority 2B species. Canada thistle (*Cirsium arvense*) was observed in trace and low cover classes at five locations, and trace occurrences of leafy spurge (*Euphorbia esula*) and salt cedar (*Tamarix chinensis*) occurred along the edges of the site in 2021 (Figure A-3; Appendix A). Across all plant communities, a total of 82 plant species have been identified on the site from 2013 through 2021 (Table B-1; Appendix B).

FNW-West Site Hydrology – The main source of hydrology at the FNW-West site is surface runoff from precipitation events in the East Spring Coulee, which flows directly into the site. Additional hydrology is provided by a seasonally high groundwater table and flood flows from nearby Big Porcupine Creek. The mitigation site received heavy runoff from Big Porcupine Creek and East Spring Coulee in 2018 and 2019 which filled the all of the low-lying areas within the site. It is likely that some of this water was retained on site over the 2020-2021 winter as the snowpack, and therefore spring runoff, was less significant in 2021 than in the previous three years.

FNW-West Site Soils – Soil test pits were excavated at two locations (DP01w and DP01u; Appendix A). Both test pits were located in areas originally mapped as the Marvan silty clay soil series (NRCS 2021). DP01w was located in a wetland area directly adjacent to the mudflats that occur along the eastern edge of the FNW-West open water area. The profile at DP01w revealed three inches of silty clay that was 85% olive brown (2.5Y 4/2), with 15% dark brown concentrations. The next horizon occurred between 3 and 12 inches and was comprised of clay that was 60% dark grayish brown (2.5Y 4/2) and 20% grayish brown (2.5Y 5/2), with 15% dark brown (7.5YR) and 5% black (10Y 2.5/1) redoximorphic concentrations. This soil met the requirements of the depleted matrix (F3) hydric soil indicator.

DP01u was located in an upland area between Highway 12 and the wetland area and had a soil profile that revealed three inches of a dark greyish brown (2.5Y 4/2) silty clay over nine inches of greyish brown (2.5Y 5/2) silty clay.

Summary Data: Specific to FNW-Middle Site

FNW-Middle Site Vegetation – Vegetation communities were identified based on plant composition and dominance. The following vegetation community types were identified at FNW-Middle in 2021:

- Upland Type 3 – *Pascopyrum smithii/Elymus canadensis*

- Wetland Type 5 – *Hordeum jubatum/Eleocharis palustris*

The community composition for each community type is provided in full detail on the Wetland Mitigation Site Monitoring form (Appendix B), and the community boundaries are shown on Figure A-6 (Appendix A). Thirteen occurrences of Priority 2B noxious weeds, Canada thistle (*Cirsium arvense*) and field bindweed (*Convolvulus arvensis*), were observed at the site in 2021. Cover classes of the weed infestations ranged from trace to moderate (Figure A-6, Appendix A). A total of 62 plant species were identified on the site from 2013 through 2021 (for a comprehensive plant list, see Table B-1; Appendix B).

Vegetation cover was measured along one transect (T-1) at FNW-Middle in 2021 (Figure A-5, Appendix A). Detailed data collected along T-1 are provided in the Wetland Mitigation Site Monitoring form in Appendix B. Photographs of the transect end points are provided in Appendix C. Table 5 summarizes the data for T-1 which is 50 feet long and intersects upland Community Type 3 and wetland Community Type 5. Twenty-four percent of the transect crossed wetland habitat in 2021, which was consistent with observations in 2020. However, the number of hydrophytic species and the amount of cover provided by hydrophytic species decreased in 2021 as a result of the site being more mesic than in years past. The vegetation along the slopes of the swale was dominated by upland species, and the total number of species observed along T-1 increased from 13 to 16 since 2021. The total amount of vegetative cover has remained constant at this site from 2016 to 2021.

Table 5. Data Summary for T-1 From 2016 Through 2021 at the FNW-Middle Site

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	**50**	**50**	**50**	**50**	**50**	**50**
Vegetation Community Transitions Along Transect	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1
Total Vegetative Species	11	17	17	16	24	22
Total Hydrophytic Species	3	4	5	4	11	6
Total Upland Species	8	13	12	12	13	16
Estimated % Total Vegetative Cover	85	83	85	85	85	85
Estimated % Unvegetated	15	17	15	15	15	15
% Transect Length Comprising Hydrophytic Vegetation Communities	30	38	38	38	24	24
% Transect Length Comprising Upland Vegetation Communities	70	62	62	62	76	76
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0

FNW-Middle Site Hydrology – This site is situated near an abandoned meander bend that is associated with Big Porcupine Creek. The site may experience occasional flooding during high flows in Big Porcupine Creek but is not intended to exhibit perennial hydrology because of its proximity to Montana Highway 12. The excavated depression was likely saturated earlier in the year, but was not inundated or saturated on June 24th, 2021 when the field survey was completed. Hydrologic indicators that were observed at this site included surface soil cracks, water-stained leaves, positive FAC-neutral test results, and geomorphic position.

FNW-Middle Site Soils – Soil test pits were examined at two locations (DP01w and DP01u; Figure A-5, Appendix A), and both locations were within what was originally mapped as the Harlem silty clay soil series by the NRCS. DP01w is located in an excavated depression near the center of the site. The soil profile revealed three inches of a dark greyish-brown (2.5Y 4/2) silty clay that had 15% prominent

redoximorphic concentrations. This horizon sat over nine inches of clay with 60% dark greyish brown (2.5Y 4/2) and 20% grayish brown (2.5Y 5/2) with 5% black (2.5Y 2.5/1) depletions and 15% dark brown (7.5YR 3/4) concentrations in the matrix. This soil meets the qualifications for the Depleted Matrix Hydric Soil Indicator (F3). DP01u is located in upland Community Type 3 – *Pascopyrum smithii/Elymus canadensis*. The soil profile revealed two inches of dark grey (2.5Y 4/1) silty clay loam on top of 10 inches of a dark greyish brown (2.5Y 4/2) silty clay loam. No hydric soil indicators were observed within the upland sample pit.

Summary Data: Specific to FNW-East Site

FNW-East Site Vegetation – Vegetation communities were identified based on plant composition and dominance. The following vegetation community types were identified in 2021:

- Upland Type 3 – *Pascopyrum smithii/Elymus spp.*
- Wetland Type 4 – *Hordeum jubatum/Eleocharis palustris.*

The community composition for each community type is provided in full detail on the Wetland Mitigation Site Monitoring form (Appendix B), and community boundaries are shown on Figure A-3 (Appendix A).

A total of 59 plant species were identified on the site from 2013 through 2021 (for a comprehensive plant list, see Table B-1; Appendix B). Infestations of two Priority 2B noxious weeds, saltcedar (*Tamarix chinensis*) and field bindweed (*Convolvulus arvensis*) were mapped in several locations (Figure A-9, Appendix A). No woody plants were installed at the FNW-East site. Mature cottonwoods and willows adjacent to the site appear to be acting as a source population for the cottonwood and willow seedlings that have begun to colonize the site.

Vegetation cover was measured along two transects (T-1 and T-2) at the FNW-East in 2021 (Figure A-8, Appendix A). Detailed data collected along each transect are provided in the Wetland Mitigation Site Monitoring form in Appendix B. Photographs of the transect end points are provided in Appendix C. Table 6 summarizes the data for T-1 which is 125 feet long and intersects upland Community Type 3, and wetland Community Type 4. Fifty-two percent of the transect crossed wetland habitat and total vegetative cover remained at 95%, which is consistent with previous years. The number of vegetative species and hydrophytic species observed along the transect decreased by 2 since 2020.

Table 6. Data Summary for T-1 From 2016 Through 2021 at the FNW-East Site

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	**125**	**125**	**125**	**125**	**125**	**125**
Vegetation Community Transitions Along Transect	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1
Total Vegetative Species	22	17	17	16	16	14
Total Hydrophytic Species	9	7	7	7	4	2
Total Upland Species	11	10	10	9	12	12
Estimated % Total Vegetative Cover	90	95	95	95	95	95
Estimated % Unvegetated	10	5	5	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	50	50	52	52	52	52
% Transect Length Comprising Upland Vegetation Communities	50	50	48	48	48	48
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0

Data collected on T-2 are summarized in Table 7, which is 181 feet long and intersects upland Community Type 3 and wetland Community Type 4. Sixty percent of the transect crossed wetland habitat in 2021, an increase of 5% from the previous year. The number of hydrophytic species observed along the transect increased by one, and the total number of vegetative species observed increased by 2. Total vegetative cover has remained constant at 98 percent from 2017 to 2021.

Table 7. Data Summary for T-2 From 2016 Through 2021 at the FNW-East Site

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	**181**	**181**	**181**	**181**	**181**	**181**
Vegetation Community Transitions Along Transect	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1
Total Vegetative Species	26	11	14	15	10	12
Total Hydrophytic Species	6	4	6	6	2	3
Total Upland Species	20	7	8	9	8	9
Estimated % Total Vegetative Cover	94	98	98	98	98	98
Estimated % Unvegetated	6	2	2	2	2	2
% Transect Length Comprising Hydrophytic Vegetation Communities	44	55	55	55	55	60
% Transect Length Comprising Upland Vegetation Communities	56	45	45	45	45	40
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0

FNW-East Site Hydrology – The FNW-East site is very similar to the FNW-Middle site. The main sources of hydrology at the FNW-East site are shallow groundwater, direct precipitation, and surface runoff from adjacent uplands. Old meander scars of Big Porcupine Creek with relict and contemporary wetland characteristics are located directly adjacent to the site. Hydrologic indicators that were observed at this site included drainage patterns, surface soil cracks, geomorphic position, and vegetation communities that pass the FAC-neutral test.

FNW-East Site Soils – Soil test pits were examined at four locations (DP01w, DP01u, DP02w, and DP02u; Appendix A), and all locations were within what was originally mapped as the Harlem silty clay soil series (NRCS 2021).

DP01w was located in the central portion of the southeastern wetland. The soil profile at DP01w revealed three inches of olive grey (5Y 4/2) clay with 7% prominent dark brown (7.5YR 3/4) concentrations over 10 inches of 60% olive grey (5Y 5/2) and 39% very dark greenish-grey (10YR 3/1) with 1% prominent dark brown (10YR 3/3) redoximorphic concentrations in the matrix. This soil meets the qualifications for the Depleted Matrix Hydric Soil Indicator (F3).

DP01u was located in an upland area between Highway 12 and the wetland area and had a soil profile that revealed two inches of a dark greyish brown (2.5Y 4/2) silty clay over eight inches of greyish brown (2.5Y 5/2) silty clay. A third horizon was identified from 10 to 13 inches that was a dark grey (2.5Y 4/1) silty clay that contained 7% dark brown (7.5YR 3/3) redoximorphic concentrations within the matrix. While this last horizon met some of the requirements for the depleted matrix indicator, it failed to meet the minimum thickness requirement. Therefore, the soil in this location was not considered hydric.

DP02w was located in the central portion of the northwest wetland and contained 4 inches of dark grayish brown (2.5Y 4/2) silty clay with 3% weak red (2.5YR 4/2) redoximorphic concentrations in the

matrix, over nine inches of clay that was 60% dark grayish brown (2.5Y 4/2), and 40% very dark grayish olive (10Y 3/2). This soil meets the qualifications for the Depleted Matrix Hydric Soil Indicator (F3).

DP02u was located in an upland area upgradient from DP02w. The DP02w soil profile revealed two inches of olive (5Y 4/3) sandy clay loam over 11 inches of olive gray (5Y 4/2) clay with 1% dark brown (7.5YR 3/4) relict mottles. No evidence of hydric soils was observed within the upland sample pit.

Table 8. Credit/Debit Summary for the Forsyth – Northwest Project

Project Site	Actual Acres	Type	Debit Ratio	Debit Acres
Volborg-N&S	6.80	Debit	1.5:1	10.20
Forsyth-NW Previously Mitigated	1.78	Debit	1:1	1.78
Forsyth-NW Remaining	0.4	Debit	2:1	0.80
BNRR – 2KM W Pompey's Pillar	0.17	Debit	1:1	0.17
Total	9.15		**Total Debits**	**12.95**
Mitigation Site	**Actual Acres**	**Mitigation Type**	**Credit Ratio**	**Credit Acres**
West Site (Site 1)	1.66	Creation Credit	1:1	1.66
	1.29	Preservation Credit	4:1	0.32
	1.80	Upland Buffer Credit	5:1	0.36
	7.60	Open Water Credit[a]	TBD	TBD
	1.36	Mud Flat Credit[a]	TBD	TBD
Middle Site (Site 2)	0.58	Creation Credit	1:1	0.58
	1.22	Upland Buffer Credit	5:1	0.24
East Site (Site 3)	0.59	Creation Credit	1:1	0.59
	2.15	Upland Buffer Credit	5:1	0.43
Total	**18.25**		**Total Credits**	**4.18**
			Net Credits	**-8.77**

[(a)] Open water and mud flat credit ratio and associated credit acreage are to be determined (TBD)

Mitigation Credit Summary: All Sites – Table 8 summarizes the estimated wetland credits at all three remaining FNW sites based on the USACE-approved credit ratios and the wetland delineations completed in July 2021. Table 8 also includes credits already approved from the Treasure County Line and a wetland debit summary from the Volborg – North and South project. The three FNW sites and Treasure County site have produced 6.76 credit acres combined. However, the number of credit acres earned to date does not include any credits for either the open water or the mud flats that are present at the FNW West site. Once credit ratios are determined for these two habitat types, the site will likely receive additional credit acres.

Conclusions - Formal performance standards were not developed as part of the mitigation plan for the FNW sites. All three sites have developed wetland habitat as intended and positive indicators of wetland vegetation, hydric soils, and wetland hydrology have been consistently observed across all monitoring years. All sites are stable and have less than 5 percent total noxious weed cover. The East site is functioning as designed in the areas that have developed wetland characteristics, but the middle portion of the site, which was originally intended to be wetland, remains as upland.

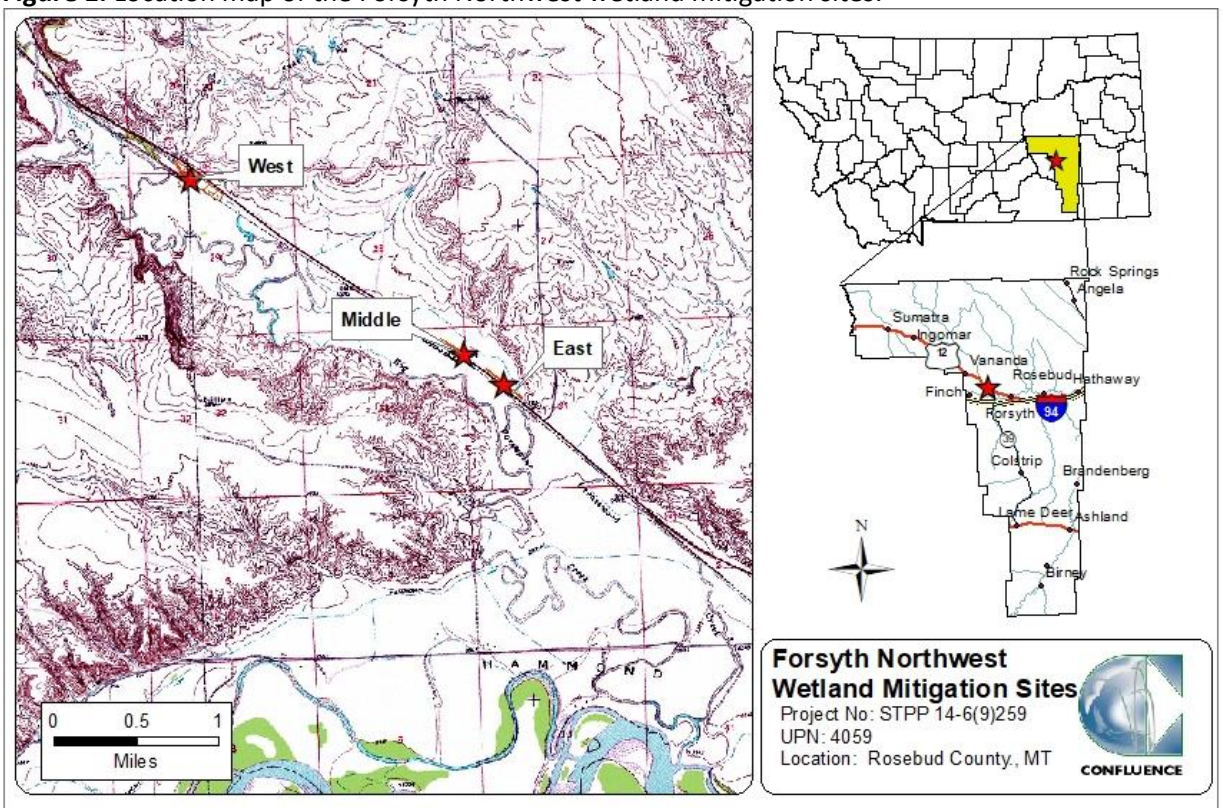
The Middle site appeared to be drier in 2020 and 2021 than in previous years, as was evident by shifts in the vegetation community composition from more to less hydrophytic species cover, and in less obvious hydric soil indicators. These changes are likely the result drought conditions which have persisted since June of 2020.

The West site has developed a large expanse of open water since corrective actions were undertaken to repair the original dike structure that had failed in 2017. Due to this large expanse of open water, in

2020, this area was removed from the wetland acreage and was not used to calculate mitigation credits. In 2021, some of this open water area had become an exposed mudflat, which was considered part of the Assessment Area (AA) in the MWAM, but not counted toward mitigation credit acreage. Options to include open water and mudflats in the mitigation crediting scheme require approval from USACE and are currently pending. Given that crediting ratios are unknown for these two habitat types, the FNW mitigation sites only earned 4.18 mitigation credit acres in 2021 and are falling short 8.77 of the credits required to satisfy the 12.95 acres of wetland debits created by the Volborg – North and South and Forsyth Northwest construction projects (Table 8).

Maps, Plans, Photos

Figure 1. Location map of the Forsyth Northwest wetland mitigation sites.



Project Area Maps/Figures: See Appendix A.

Data Forms: See Appendix B (Site Monitoring form, Table B-1: plant list, USACE data forms, and MWAM forms).

Photos: See Appendix C.

Plans: See Appendix D of 2013 Monitoring Report.
https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2013_REPORTS/FORSYTH_NORTHWEST_2013_FINAL.PDF

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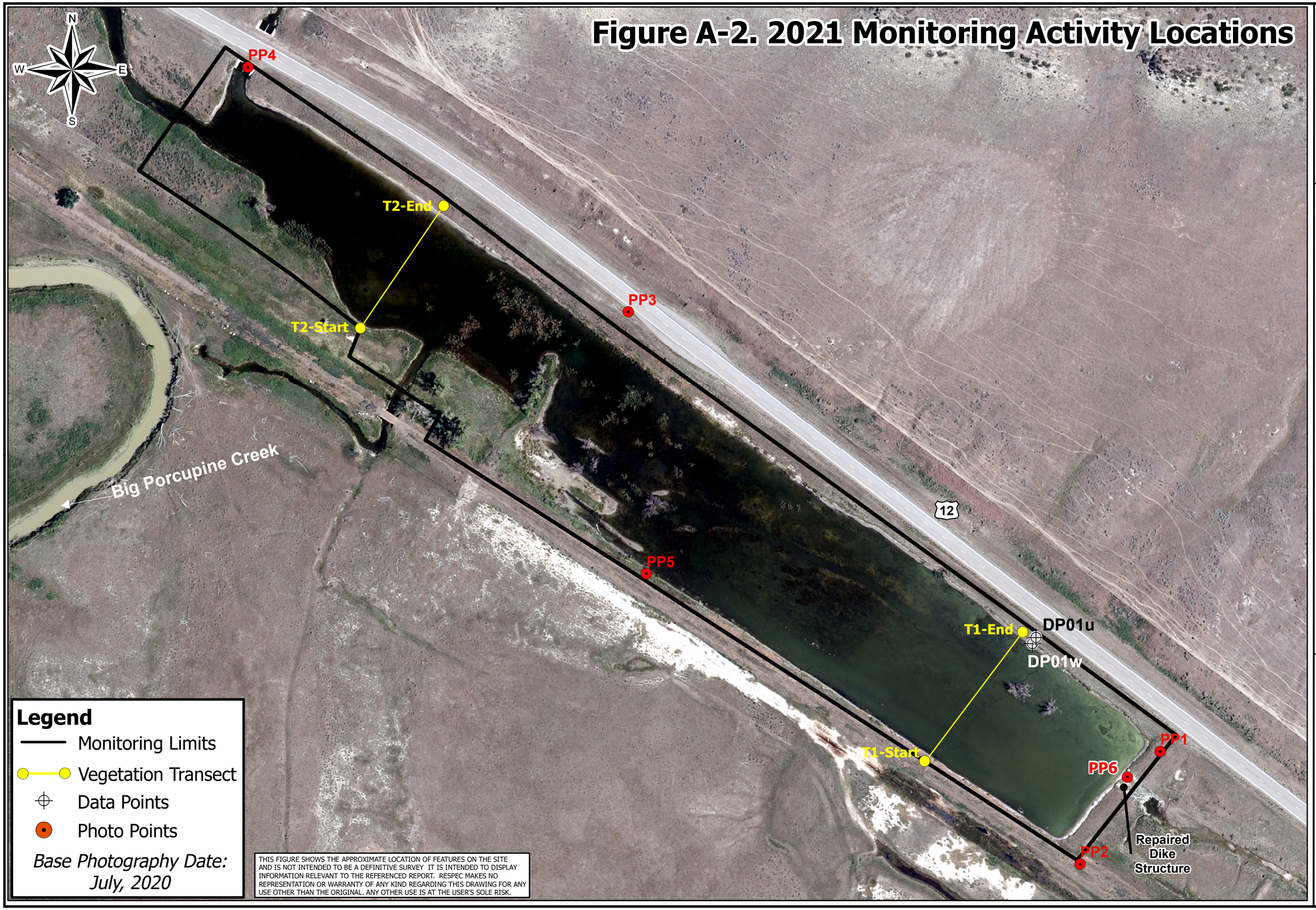
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APPENDIX A
PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
Forsyth Northwest – West, Middle, and East Sites
Rosebud County, Montana

Figure A-2. 2021 Monitoring Activity Locations



Legend

- Monitoring Limits
- Vegetation Transect
- Data Points
- 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.

CONFLUENCE
consulting incorporated

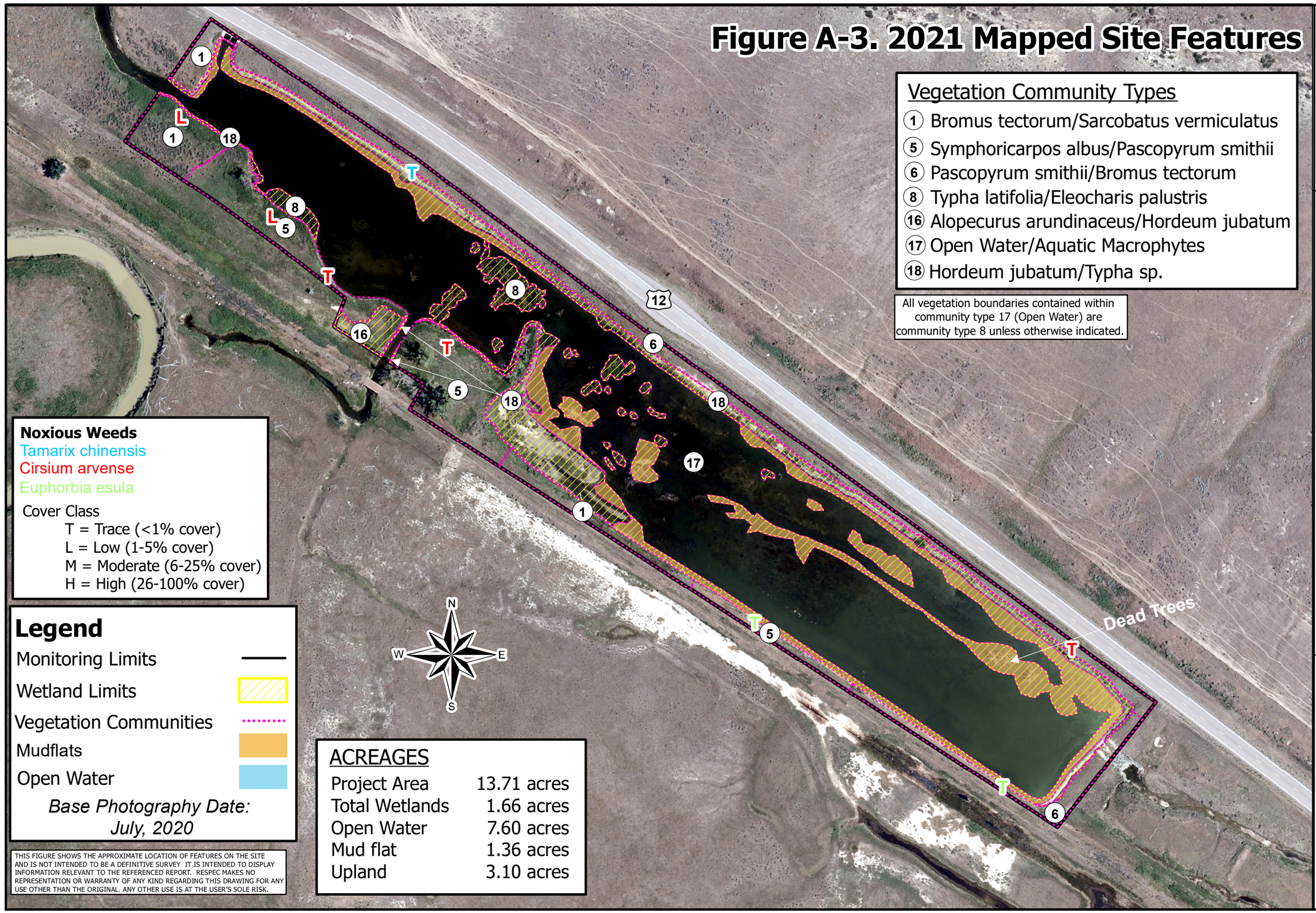
Forsyth NW - West Site
2021 Monitoring Activity Locations

0 65 130 260 390 520 650 Feet

Project: STTP 14(9)259
Location: Rosebud Co., Montana
Date: February 2022
Project Manager: R. McEldowney
Drawn By: RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\West Site\Monitor2021_MDT.mxd

Figure A-3. 2021 Mapped Site Features



Vegetation Community Types

1. Bromus tectorum/Sarcobatus vermiculatus
5. Symphoricarpos albus/Pascopyrum smithii
6. Pascopyrum smithii/Bromus tectorum
8. Typha latifolia/Eleocharis palustris
16. Alopecurus arundinaceus/Hordeum jubatum
17. Open Water/Aquatic Macrophytes
18. Hordeum jubatum/Typha sp.

All vegetation boundaries contained within community type 17 (Open Water) are community type 8 unless otherwise indicated.

Noxious Weeds
Tamarix chinensis
Cirsium arvense
Euphorbia esula

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

Legend

Monitoring Limits
Wetland Limits
Vegetation Communities
Mudflats
Open Water

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.

ACREAGES

Project Area	13.71 acres
Total Wetlands	1.66 acres
Open Water	7.60 acres
Mud flat	1.36 acres
Upland	3.10 acres

CONFLUENCE
consulting incorporated

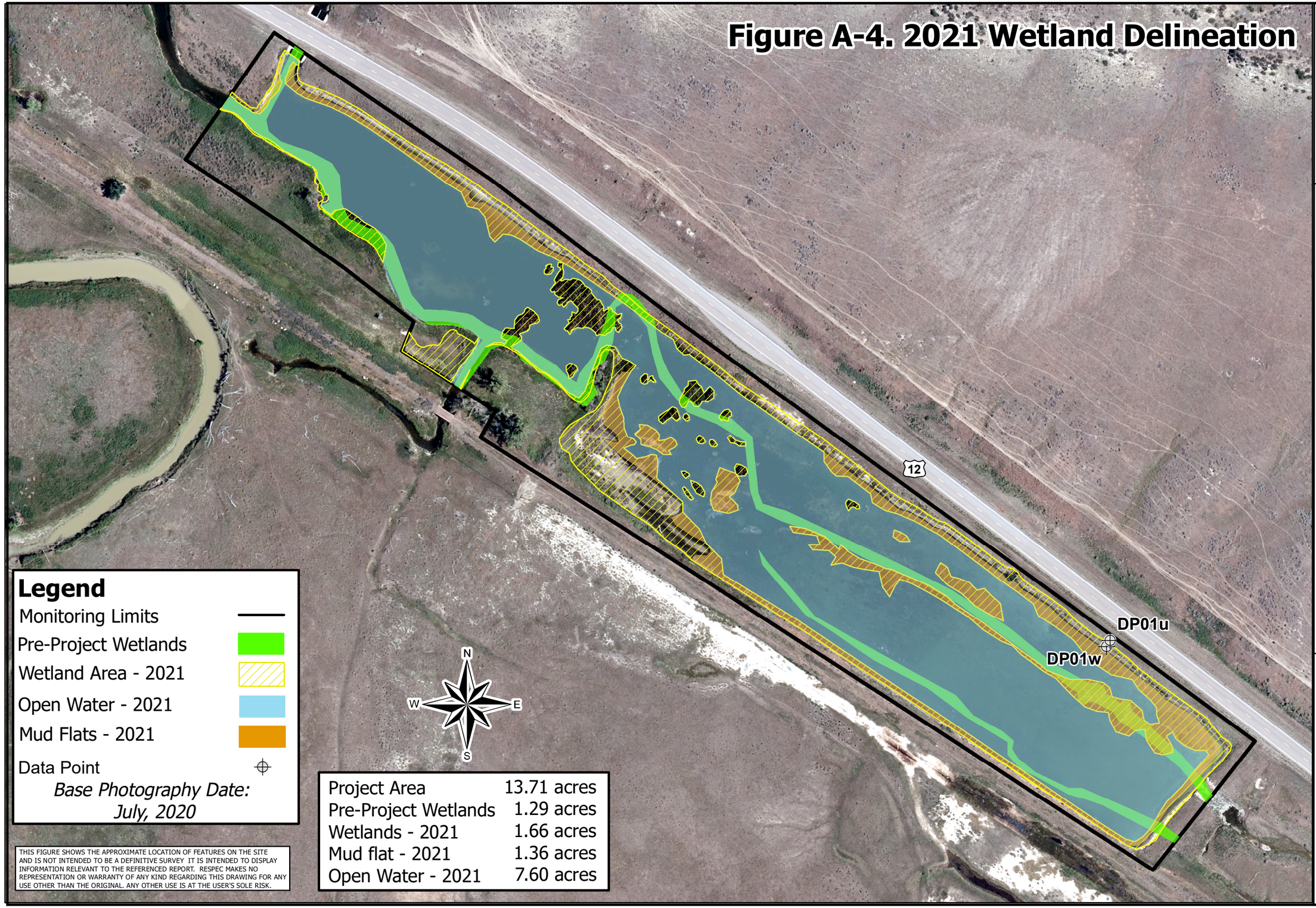
Forsyth NW - West Site
2021 Mapped Site Features

0 65 130 260 390 520 650 Feet

Project: STTP 14(9)259
Location: Rosebud Co., Montana
Date: February 2022
Project Manager: R. McEldowney
Drawn By: RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\West Site\Forsyth West Veg2021_MDT.mxd

Figure A-4. 2021 Wetland Delineation



Legend

- Monitoring Limits
- Pre-Project Wetlands
- Wetland Area - 2021
- Open Water - 2021
- Mud Flats - 2021
- Data Point

Base Photography Date: July, 2020

Project Area	13.71 acres
Pre-Project Wetlands	1.29 acres
Wetlands - 2021	1.66 acres
Mud flat - 2021	1.36 acres
Open Water - 2021	7.60 acres

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.

CONFLUENCE
consulting incorporated

Forsyth NW - West Site
2021 Wetland Delineation

0 65 130 260 390 520 650 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Date:	September 2021
Project Manager:	R. McEldowney
Drawn By:	RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\West Site\Delin2021_MDT.mxd

Figure A-5. 2021 Monitoring Activity Locations



Legend

- Monitoring Limits
- Vegetation Transect
- Data Points
- 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.

CONFLUENCE
consulting incorporated

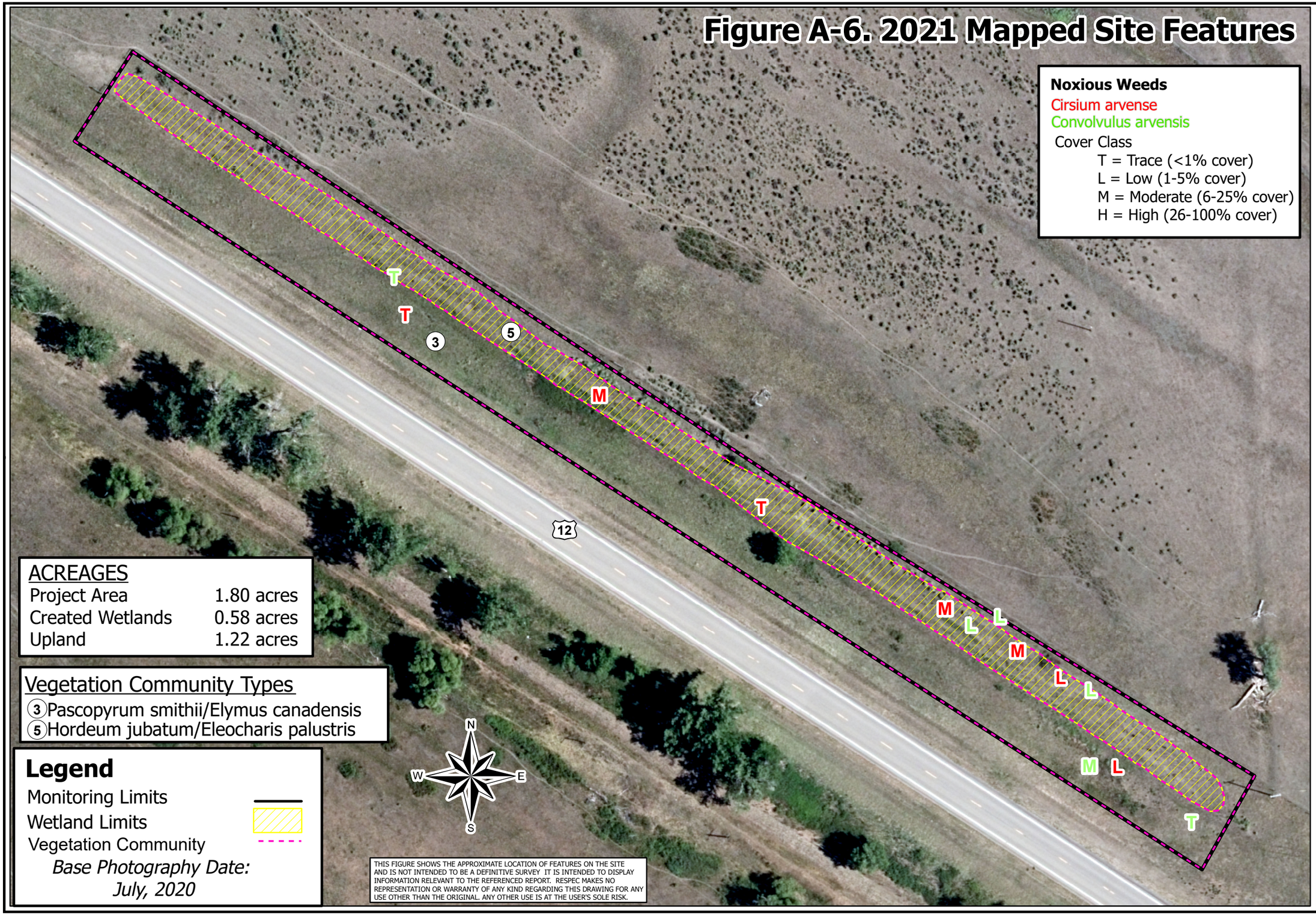
Forsyth NW - Middle Site
2021 Monitoring Activity Locations

0 30 60 120 180 240 300 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Date:	February 2022
Project Manager:	R. McEldowney
Drawn By:	RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\Middle Site\Monitor2021_MDT.mxd

Figure A-6. 2021 Mapped Site Features



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

ACREAGES

Project Area	1.80 acres
Created Wetlands	0.58 acres
Upland	1.22 acres

Vegetation Community Types
(3) Pascopyrum smithii/Elymus canadensis
(5) Hordeum jubatum/Eleocharis palustris

Legend
Monitoring Limits
Wetland Limits
Vegetation Community

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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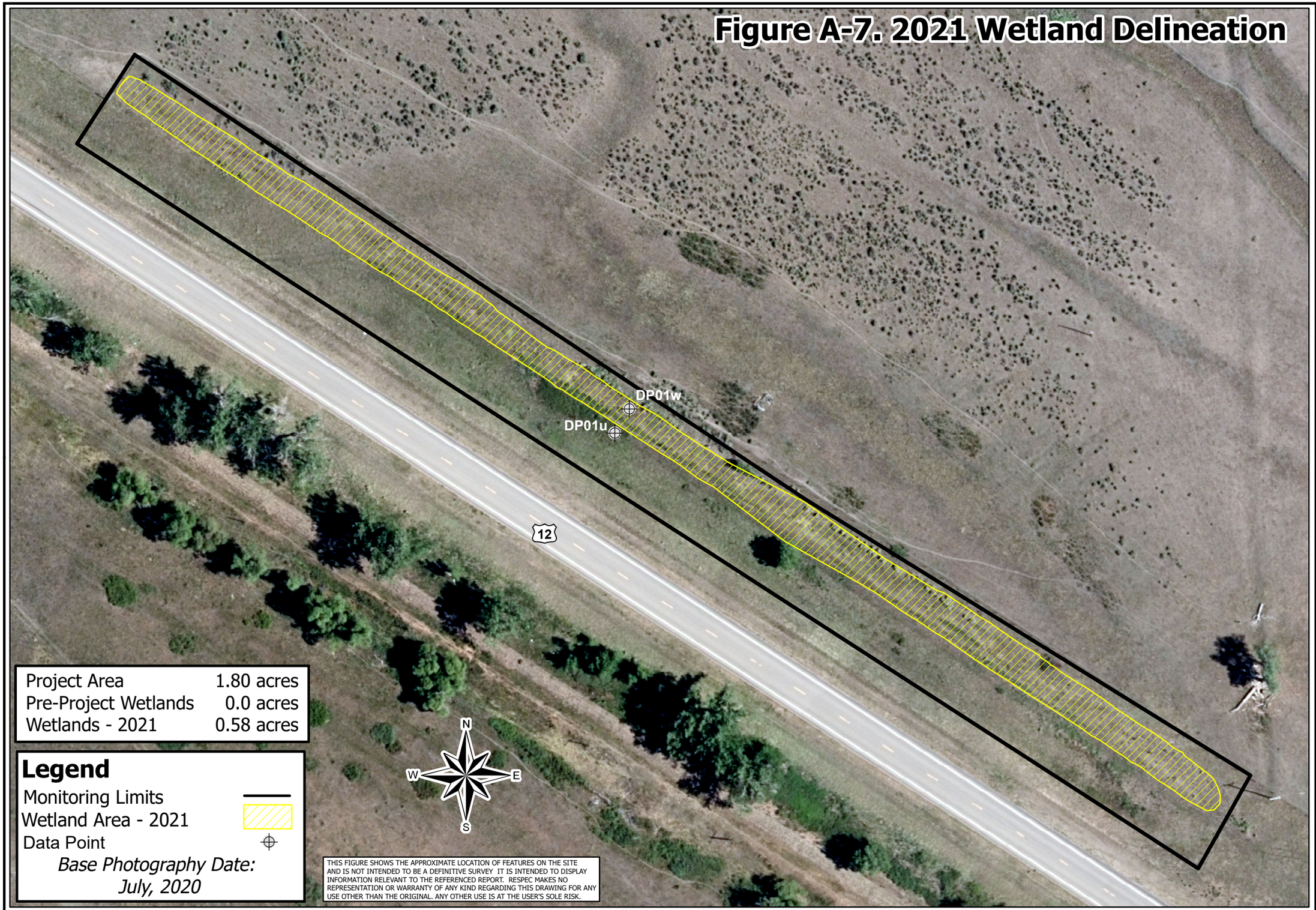
Forsyth NW - Middle Site
2021 Mapped Site Features

0 30 60 120 180 240 300 Feet

Project: STTP 14(9)259
Location: Rosebud Co., Montana
Date: February 2022
Project Manager: R. McEldowney
Drawn By: RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\Middle Site\Veg2021_MDTa.mxd

Figure A-7. 2021 Wetland Delineation



Project Area	1.80 acres
Pre-Project Wetlands	0.0 acres
Wetlands - 2021	0.58 acres

Legend

Monitoring Limits

Wetland Area - 2021

Data Point

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.

CONFLUENCE
consulting incorporated

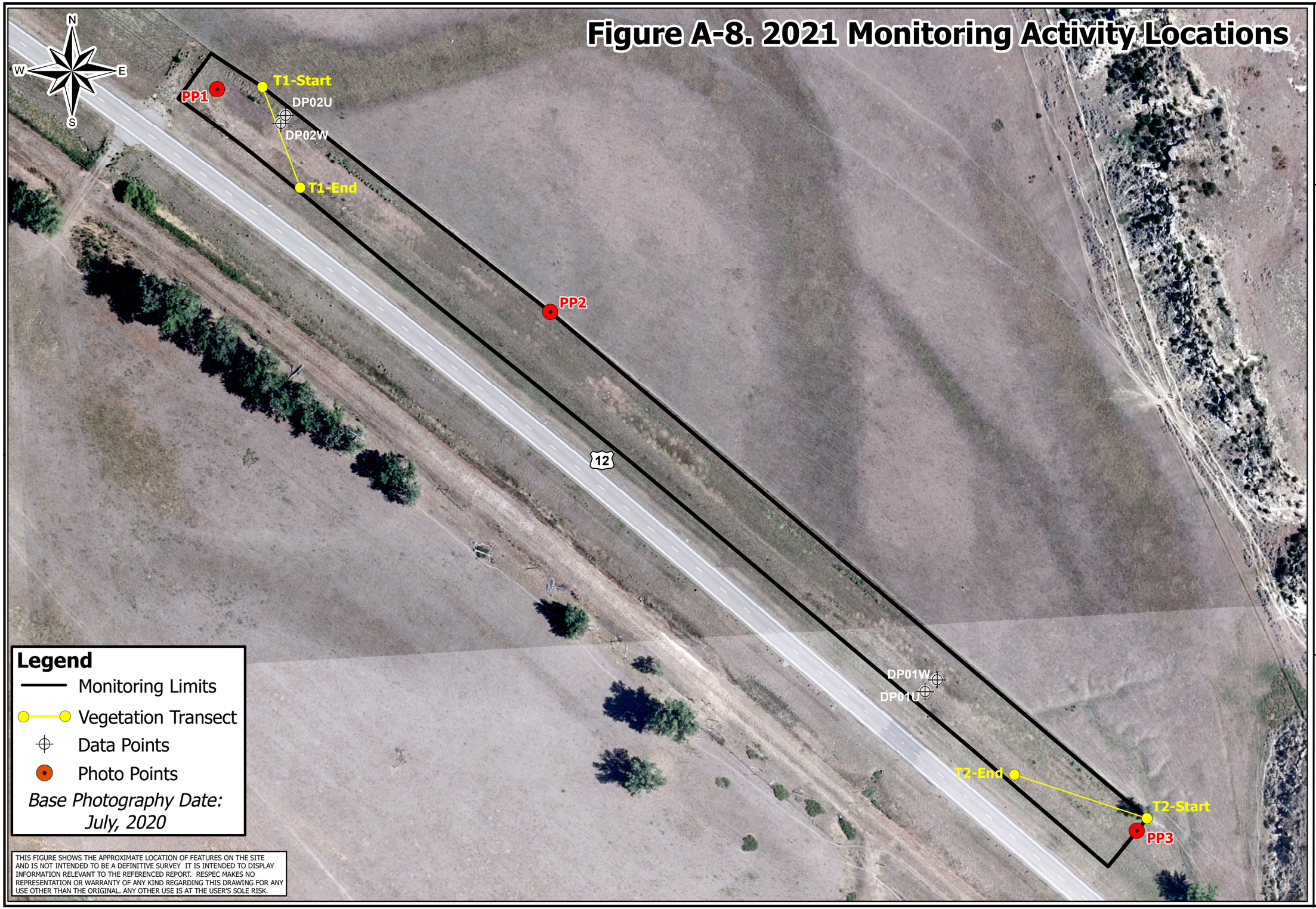
Forsyth NW - Middle Site
2021 Wetland Delineation

0 30 60 120 180 240 300 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Date:	February 2022
Project Manager:	R. McEldowney
Drawn By:	RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\Middle Site\Delin2021_MDT.mxd

Figure A-8. 2021 Monitoring Activity Locations



Legend

- Monitoring Limits
- Vegetation Transect
- Data Points
- 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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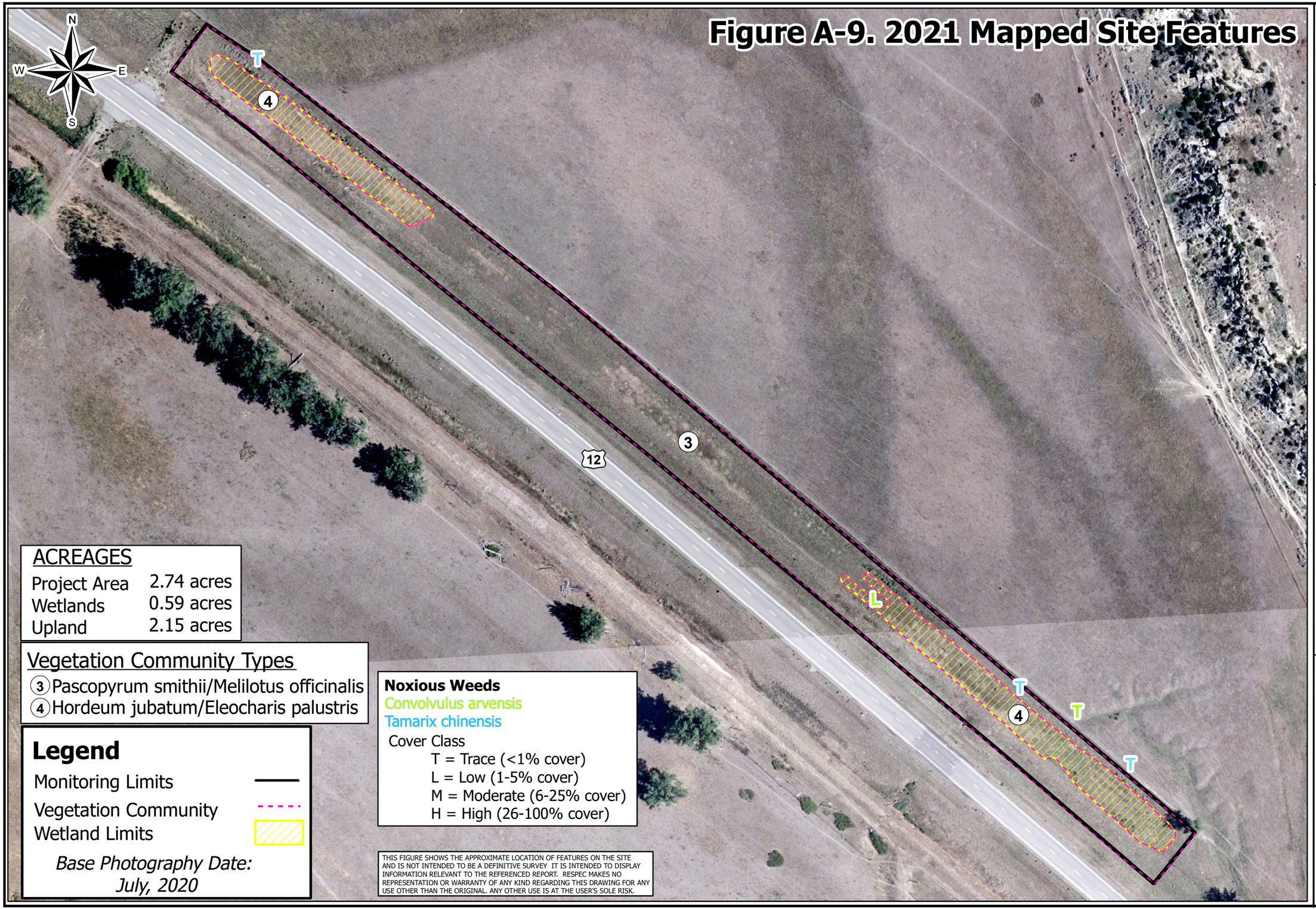
Forsyth NW - East Site
2021 Monitoring Activity Locations

0 50 100 200 300 400 500 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Date:	February 2022
Project Manager:	R. McEldowney
Drawn By:	RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\East Site\Monitor2021_MDT.mxd

Figure A-9. 2021 Mapped Site Features



ACREAGES

Project Area	2.74 acres
Wetlands	0.59 acres
Upland	2.15 acres

Vegetation Community Types

(3) Pascopyrum smithii/Melilotus officinalis
(4) Hordeum jubatum/Eleocharis palustris

Legend

Monitoring Limits
Vegetation Community
Wetland Limits

Base Photography Date: July, 2020

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

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.

CONFLUENCE
consulting incorporated

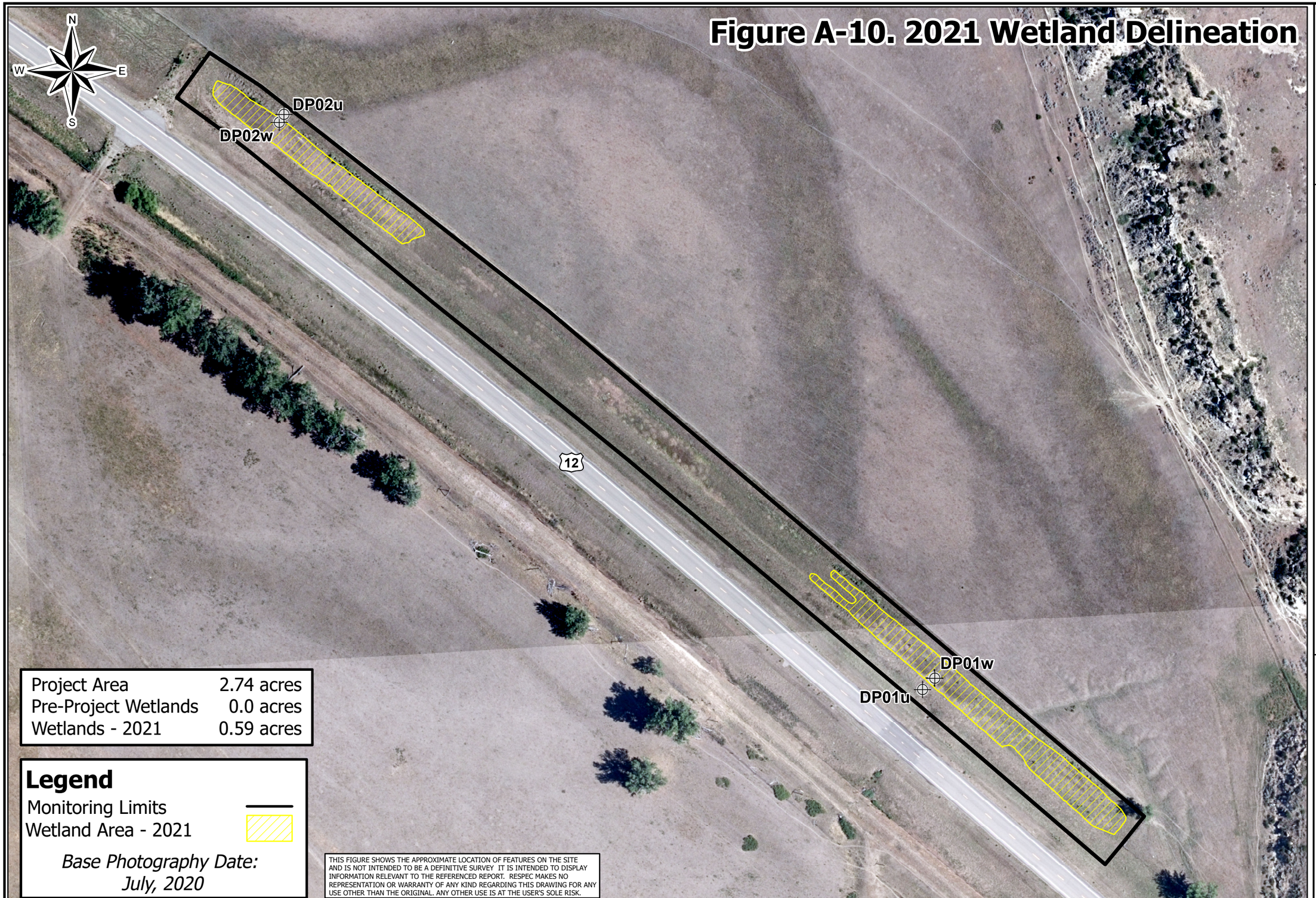
Forsyth NW - East Site
2021 Mapped Site Features

0 50 100 200 300 400 500 Feet

Project: STTP 14(9)259
Location: Rosebud Co., Montana
Date: February 2022
Project Manager: R. McEldowney
Drawn By: RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\East Site\Veg2021_MDT.mxd

Figure A-10. 2021 Wetland Delineation



Project Area	2.74 acres
Pre-Project Wetlands	0.0 acres
Wetlands - 2021	0.59 acres

Legend

Monitoring Limits

Wetland Area - 2021

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.

CONFLUENCE
consulting incorporated

Forsyth NW - East Site
2021 Wetland Delineation

0 50 100 200 300 400 500 Feet

Project: STTP 14(9)259

Location: Rosebud Co., Montana

Date: February 2022

Project Manager: R. McEldowney

Drawn By: RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2021\East Site\Delin2021_MDT.mxd

APPENDIX B
MONITORING FORMS

MDT Wetland Mitigation Monitoring
Forsyth Northwest – West, Middle, and East Sites
Rosebud County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - West Assessment Date/Time 6/23/2021

Person(s) conducting the assessment: R. Jones

Weather: Partly sunny, 95 degrees F Location: ~15 miles NW of Forsyth

MDT District: Glendive Milepost: RP 280 on US 12

Legal Description: T 7N R 39E Section(s) 20 & 29

Initial Evaluation Date: 8/15/2013 Monitoring Year: 9 #Visits in Year: 1

Size of Evaluation Area: 13.71 (acres)

Land use surrounding wetland:

Agriculture, grazing, US 12

HYDROLOGY

Surface Water Source: Big Porcupine Cr., E.Spring Coulee, runoff, seasonally high ground water

Inundation: ☑ Average Depth: 1 **(ft)** Range of Depths: 0.5-4 **(ft)**

Percent of assessment area under inundation: 80 %

Depth at emergent vegetation-open water boundary: 2 **(ft)**

If assessment area is not inundated then are the soils saturated within 12 inches of surface: No

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

Majority of the wetland area inundated in 2021, athough less inundated than in 2020. Several mudflat areas have developed due to a drop in water levels.

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:

Hydrologic sources include Big Porcupine Creek, East Spring Coulee, and a high water table.

Mitigation area receives surface water from East Spring Creek Coulee and from periodic flooding of Big Porcupine Creek. The majority of the site was inudated during the 2021 site visit. The site supports extended periods of inundatation as is evidenced by drowned woody vegetation and an absence of herbaceous vegetation around the edges of the open water.

VEGETATION COMMUNITIES

Site Forsyth NW - West

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

Community # 1 **Community Type:** Bromus tectorum / Sarcobatus vermiculatus **Acres:** 0.65

Species	Cover class	Species	Cover class
Bare Ground	3	Bassia scoparia	1
Bromus inermis	1	Bromus tectorum	3
Chenopodium album	1	Elymus repens	1
Euphorbia esula	1	Hordeum jubatum	1
Opuntia polyacantha	0	Pascopyrum smithii	2
Poa pratensis	1	Sarcobatus vermiculatus	2
Schedonorus pratensis	2	Thlaspi arvense	1
Yucca glauca	0		

Comments:

Some areas previously classified as CT 1 have transitioned to CT 6 and thus the acreage covered by CT 1 decreased by 0.11 acres in 2021.

Community # 5 **Community Type:** Symphoricarpos albus / Pascopyrum smithii **Acres:** 1.32

Species	Cover class	Species	Cover class
Bare Ground	1	Bassia scoparia	1
Bromus inermis	1	Bromus japonicus	1
Chenopodium album	1	Cirsium arvense	1
Eleocharis lanceolata	1	Elymus repens	1
Glycyrrhiza lepidota	1	Hordeum jubatum	1
Pascopyrum smithii	5	Poa compressa	2
Poa pratensis	2	Sarcobatus vermiculatus	1
Symphoricarpos albus	2	Thlaspi arvense	1

Comments:

Upland community type.

Community # 6 Community Type: Pascopyrum smithii / Bromus tectorum **Acres:** 1.13

Species	Cover class	Species	Cover class
Achnatherum hymenoides	0	Bare Ground	3
Bassia scoparia	0	Bromus arvensis	1
Bromus japonicus	0	Bromus tectorum	2
Chenopodium album	1	Elymus canadensis	1
Elymus lanceolatus	1	Elymus trachycaulus	1
Helianthus annuus	0	Hordeum jubatum	2
Lepidium perfoliatum	1	Linum lewisii	0
Melilotus officinalis	0	Pascopyrum smithii	5
Poa pratensis	0	Sisymbrium altissimum	2
Thlaspi arvense	0		

Comments:

Some areas previously classified as CT 1 have transitioned to CT 6 and thus the acreage covered by CT 6 increased by 0.11 acres in 2021.

Community # 8 Community Type: Typha latifolia / Eleocharis palustris **Acres:** 0.36

Species	Cover class	Species	Cover class
Eleocharis palustris	2	Open Water	2
Populus deltoides	1	Salix amygdaloides	1
Schoenoplectus acutus	0	Schoenoplectus maritimus	0
Sonchus arvensis	1	Spartina pectinata	1
Typha angustifolia	3	Typha latifolia	4

Comments:

Wetland community type.

Community # 16 Community Type: Alopecurus arundinaceus / Hordeum jubatum **Acres:** 0.11

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	4	Bare Ground	1
Cirsium arvense	0	Eleocharis lanceolata	0
Elymus repens	0	Glycyrrhiza lepidota	0
Hordeum jubatum	4	Pascopyrum smithii	0
Poa compressa	0	Rumex crispus	3
Sagittaria cuneata	1	Symphoricarpos albus	0

Comments:

The area occupied by this CT increased by 0.05 acres in 2021.

Community # 17 Community Type: Open Water / Aquatic macrophytes **Acres:** 7.6

Species	Cover class	Species	Cover class
Aquatic macrophytes	0	Eleocharis palustris	0
Open Water	5	Schoenoplectus maritimus	1
Typha angustifolia	1	Typha latifolia	1

Comments:

Community type was signicantly revised from previous years to account for differential mapping of open water.

Community # 18 Community Type: Hordeum jubatum / Typha spp. **Acres:** 1.18

Species	Cover class	Species	Cover class
Bare Ground	4	Chenopodium album	1
Eleocharis palustris	2	Elymus trachycaulus	0
Grindelia squarrosa	1	Hordeum jubatum	2
Open Water	1	Polygonum aviculare	0
Populus deltoides	0	Puccinellia nuttalliana	1
Rumex crispus	0	Salicornia rubra	1
Schoenoplectus maritimus	2	Typha angustifolia	2
Typha latifolia	1		

Comments:

This community type was created to replace CT9, Eleocharis palustris/Open Water as a result of the need to classify open water as its own community type, and the need for a new wetland community that fringes open water.

In 2021, wetland vegetation was very robust and bare ground decreased.

Community # 19 Community Type: Mudflat / **Acres:** 1.36

Species	Cover class	Species	Cover class
Bare Ground	5	Chenopodium album	0
Chenopodium rubrum	0	Distichlis spicata	0
Eleocharis palustris	1	Rumex crispus	0
Salicornia rubra	0	Schoenoplectus maritimus	1

Comments:

This community type was created in 2021 to classify wetland area around pond edges that are no longer inundated and have <5% vegetative cover.

Total Vegetation Community Acreage **13.71**

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

VEGETATION TRANSECTS

Site: Forsyth NW - West Date: 6/23/2021

Transect Number: 1 **Compass Direction from Start:** 25

Interval Data:

Ending Station 14 **Community Type:** Pascopyrum smithii / Bromus tectorum

Species	Cover class	Species	Cover class
Bare Ground	3	Bromus tectorum	4
Pascopyrum smithii	3	Poa pratensis	1

Ending Station 265 **Community Type:** Open Water / Aquatic macrophytes

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 270 **Community Type:** Mud Flat /

Species	Cover class	Species	Cover class
Bare Ground	5	Schoenoplectus maritimus	1

Ending Station 282 **Community Type:** Hordeum jubatum / Typha sp.

Species	Cover class	Species	Cover class
Bare Ground	3	Chenopodium album	2
Elymus trachycaulus	2	Hordeum jubatum	3
Schoenoplectus maritimus	4		

Transect Notes:

Majority of transect is now inundated.

Transect Number: 2 **Compass Direction from Start:** 25

Interval Data:

Ending Station 10 **Community Type:** Symphoricarpos albus / Pascopyrum smithii

Species	Cover class	Species	Cover class
Bare Ground	1	Cirsium arvense	0
Eleocharis lanceolata	0	Elymus repens	4
Glycyrrhiza lepidota	1	Hordeum jubatum	1
Pascopyrum smithii	1	Poa compressa	4
Symphoricarpos albus	0		

Ending Station 238 **Community Type:** Open Water / Aquatic macrophytes

Species	Cover class	Species	Cover class
Eleocharis palustris	0	Open Water	5
Typha angustifolia	1		

Ending Station 252 **Community Type:** Mudflat /

Species	Cover class	Species	Cover class
Bare Ground	5	Chenopodium album	0
Chenopodium rubrum	0	Distichlis spicata	0
Salicornia rubra	0	Schoenoplectus maritimus	0

Ending Station 261 **Community Type:** Pascopyrum smithii / Bromus tectorum

Species	Cover class	Species	Cover class
Bare Ground	2	Bromus arvensis	1
Bromus tectorum	2	Chenopodium album	2
Elymus lanceolatus	1	Hordeum jubatum	2
Lepidium perfoliatum	1	Melilotus officinalis	1
Pascopyrum smithii	3		

Transect Notes:

Majority of transect is now inundated.

PLANTED WOODY VEGETATION SURVIVAL

Forsyth NW - West

Comments

No woody vegetation planted at site. Natural recruitment of cottonwoods and willows is occurring.

Forsyth NW - West

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
American Wigeon	6	BP, F	FO, I, MA, MF, OW
Canada Goose	7		
Cliff Swallow	20		
Common Nighthawk	2		
Gadwall	6	F, L	MA, OW, UP
Great Blue Heron	3		
Killdeer	7		
Mallard	4		I, MA, OW, UP
Northern Shoveler	2		
Red-winged Blackbird	5		
Willet	5	F	I, MA, MF
Wilson's Snipe	3		
Yellow-headed Blackbird	2		

Bird Comments

Many broods of ducklings on site. Full brood of wigeon observed. Unidentified brood of ducklings still in the nest observed on southern portion of site. Numerous dabbling ducks observed, not all could be identified.

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
Coyote		No	Yes	No	
Muskrat	1	No	No	No	
Raccoon		Yes	Yes	No	
Turtle sp.	1	No	No	Yes	Female actively laying eggs
White-tailed Deer		Yes	Yes	No	

Wildlife Comments:

A diversity of wildlife and bird species utilize this site.

Forsyth NW - West

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	46.337455	-106.87196		
DP01w	46.337427	-106.871985		
PP-1	46.336914	-106.871132	270	Photo Point 1 (Pano):
PP-2	46.336468	-106.871811	350	Photo Point 2 (Pano):
PP-3	46.339088	-106.874611	230	Photo Point 3 (Pano):
PP-4	46.340237	-106.877312	210	Photo Point 4 (Pano):
PP-5	46.337817	-106.874587	45	Photo Point 5 (Pano):
PP-6	46.3368	-106.8714	300	Completed Dike:
PP-6a	46.3368	-106.8714	120	Completed Dike:
T-1 end	46.337456	-106.872063	205	Transect 1 end:
T-1 start	46.33691	-106.872772	25	Transect 1 start:
T-2 end	46.339561	-106.875854	205	Transect 2 end:
T-2 start	46.339001	-106.87645	25	Transect 2 start:

Comments:

Forsyth NW - West

ADDITIONAL ITEMS CHECKLIST

Hydrology

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

Photos

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

Vegetation

☑ Map vegetation community boundaries

☑ Complete Vegetation Transects

Soils

☑ Assess soils

Wetland Delineations

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

Wetland Delineation Comments

Wetland boundaries changed drastically since 2020 due to decreased inundation and subsequent development of mudflat habitat.

Functional Assessments

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

Functional Assessment Comments:

Category III 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.

The dike appears to be functioning well.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW West City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 33 7N 39E

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

Subregion (LRR): LRR G Lat: 46.337455 Long: -106.87196 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0-2% 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 ☑
Hydric Soil Present?	Yes ☐	No ☑
Wetland Hydrology Present?	Yes ☐	No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks: Upland sample point. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus japonicus	1	☐	NL
Bromus tectorum	1	☐	NL
Elymus trachycaulus	5	☐	FACU
Pascopyrum smithii	65	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 28

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	70	X 4	280
UPL species	2	X 5	10
Column Totals	72 (A)		290 (B)

Prevalence Index = B/A = 4.03

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=72%. Data point is dominated by upland vegetation.

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
0-03	2.5Y 4/2	100					Clay	**Excavation difficult at 6"**
03-12	2.5Y 4/2	100					Silty Clay	**Gravelly, hard.**

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ 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, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW West City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 33 7N 39E

Landform (hillslope, terrace, etc.): Shoreline Local relief (concave, convex, none): concave Slope (%): 2

Subregion (LRR): LRR G Lat: 46.337427 Long: -106.871985 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0-2% 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 DEPRESSIONAL wetland. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Chenopodium album	5	☐	FACU
Chenopodium rubrum	1	☐	OBL
Eleocharis palustris	2	☐	OBL
Elymus trachycaulus	5	☐	FACU
Schoenoplectus maritimus	62	☑	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 25

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 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	65	X 1	65
FACW species	0	X 2	0
FAC species	0	X 3	0
FACU species	10	X 4	40
UPL species	0	X 5	0
Column Totals	75 (A)		105 (B)

Prevalence Index = B/A = 1.40

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=25%. 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: 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
0-06	2.5Y 4/1	90	5YR 3/6	10	C	M	Silty Clay	
06-12	10Y 4/0	30	2.5YR 3/6	30	C	PL	Silty Clay	
06-12	2.5YR 5/2	30	5YR 3/4	10	C	M	Silty Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (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: Sulfidic odor observed. Prominent redoximorphic concentrations many along pore linings and within 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)
- ☐ 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, monitoring well, aerial photos, previous inspections), if available:

Remarks: Evidence of wetland hydrology include sulfidic odor, salt crust, oxidizied rhizospheres on living roots, surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Forsyth NW - West **2. MDT project#** STPP 14(9)259 **Control#** 9680000

3. Evaluation Date 7/7/2021 **4. Evaluators** R Jones **5. Wetland/Site# (s)** Forsyth NW - West

6. Wetland Location(s): **T** 7 N **R** 39 E **Sec1** 20 **T** 7 N **R** 39 E **Sec2** 29

Approx Stationing or Mileposts RP 280 on US 12

Watershed 14 - Middle Yellowstone **Watershed/County** Rosebud

7. Evaluating Agency CCI for MDT

8. Wetland size acres 10.62

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 10.62

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Riverine	Emergent Wetland	Excavated	Permanent/Perennial	15.6
Riverine	Unconsolidated Bottom	Excavated	Permanent/Perennial	12.8
Riverine	Unconsolidated Bottom	Impounded	Permanent/Perennial	71.6

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)

Construction activities in 2017 to repair the dike structure temporarily increased disturbance rating at the site to high in 2017, was reduced to moderate in 2018 and 2019, and reduced to low in 2020 and 2021.

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

Euphorbia esula, Cirsium arvense, Tamarix chinensis

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

AA includes existing and constructed wetlands within floodplain of Big Spring Coulee and Big Porcupine Creek. Surrounding land includes US 12 and rangeland tha supports livestock grazing.

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 wetland surrounding and within an open water area, and recently developed mudflats.

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

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 for Rosebud County

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 Ammannia robusta (S2)

Secondary habitat (list Species) ○ D ○ S

Incidental habitat (list species) ○ D ○ S Great Blue Heron (S3)

No usable habitat ☐ S

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

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

Sources for documented use Ammannia observed within AA in 2019.

14C. General Wildlife Habitat Rating:

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

Substantial (based on any of the following [check]):

- [x] observations of abundant wildlife #s or high species diversity (during any period)
- [x] abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- [x] 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 The site was full of waterfowl and shorebirds during the 2021 site visit. Evidence of use by deer, fox, raccoons, reptiles, and amphibians was also observed.

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

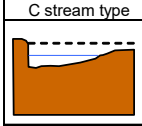
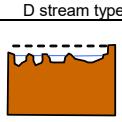
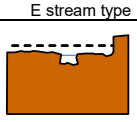
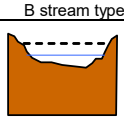
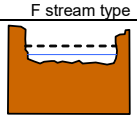
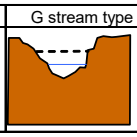
Modifed Rating .3L

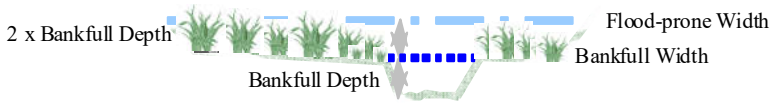
iii. Final Score and Rating: .3 L **Comments:** reduced inudation has reduced fish habitat on site in 2021.

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: The site provides flood attenuation functions for the adjacent Big Procupine Creek.

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: Site has been moved into the perennial category due to consistant inundation over the last two years.

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: Open/standing water was present across entire site in 2021; wetland vegetation cover is less than 70 percent in some delineated wetlands. Cover has increased in the wetland fringe, but was low in the mudflat areas.

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: Shoreline has a significant amount of stabilizing vegetation when the water is high - at lower water levels, the shoreline is primarily bare mudflat.

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: Upland buffer between northern boundary of AA and highway greater than 50ft.

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: Site hydrology is combination of seasonally high groundwater table and runoff. Water is held on the site via an impoundment (dike).

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: AA is becoming less diverse as vegetation intolerant of inundation dies off.

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:

Property is owned by MDT, and is easily accessible. Potential exists for bird and wildife viewing opportunites.

General Site Notes

Site was providing highly valuable habitat to shorebirds and waterfowl during 2021, which was an extremely dry year.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Forsyth NW - West

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0.00	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	9.56	☐
C. General Wildlife Habitat	E	1	1	10.62	☑
D. General Fish Habitat	L	.3	1	3.19	☐
E. Flood Attenuation	M	.6	1	6.37	☐
F. Short and Long Term Surface Water Storage	H	1	1	10.62	☑
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	7.43	☐
H. Sediment/Shoreline Stabilization	M	.7	1	7.43	☐
I. Production Export/Food Chain Support	H	.8	1	8.50	☑
J. Groundwater Discharge/Recharge	H	1	1	10.62	☑
K. Uniqueness	L	.3	1	3.19	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	2.12	☐
Totals:		7.5	11	79.65	
Percent of Possible Score			**68.18** %		

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. Forsyth Northwest – West Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status[(a)]
Agropyron cristatum	Crested Wheatgrass	UPL
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW
Amaranthus retroflexus	Red-Root	FACU
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Aquatic macrophytes	Aquatic macrophytes	UPL
Artemesia biennis	Biennial Wormwood	FACU
Asclepias speciosa	Showy Milkweed	FAC
Atriplex argentea	Silverscale	FAC
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Carex sp.	Sedge	N/A
Chenopodium album	Lamb's-Quarters	FACU
Chenopodium rubrum	Red Goosefoot	OBL
Cichorium intybus	Chicory	FACU
Cirsium arvense	Canadian Thistle	FACU
Comandra umbellata	Bastard-Toadflax	UPL
Convolvulus arvensis	Field Bindweed	UPL
Deschampsia caespitosa	Tufted Hair Grass	FACW
Descurainia sophia	Herb Sophia	UPL
Distichlis spicata	Coastal Salt Grass	FACW
Echinochloa crus-galli	Large Barnyard Grass	FAC
Elaeagnus angustifolia	Russian-Olive	FACU
Eleocharis lanceolata	Dagger-Leaf Spike-Rush	FACW
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus hispidus	Intermediate Wheatgrass	UPL
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	UPL
Glyceria elata	Tall Manna Grass	OBL
Glycyrrhiza lepidota	American Licorice	FACU
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hordeum brachyantherum	Meadow Barley	FAC
Hordeum jubatum	Fox-Tail Barley	FACW
Hordeum marinum	Seaside Barley	FACU
Iva axillaris	Deer-root	FAC
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC

Table B-1. Forsyth Northwest – West Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status[(a)]
Linum lewisii	Prairie Flax	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FDCW
Nassella viridula	Green Needle Grass	UPL
Pascopyrum smithii	Western-Wheat Grass	FACU
Phalaris arundinacea	Reed Canary Grass	FACW
Poa compressa	Flat-Stem Blue Grass	FACU
Poa palustris	Fowl Blue Grass	FACW
Poa pratensis	Kentucky Blue Grass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Mexican Coneflower	UPL
Ribes aureum	Golden Currant	FACU
Ribes cereum	Wax Currant	UPL
Rosa arkansana	Prairie Rose	FACU
Rumex crispus	Curly Dock	FAC
Sagittaria cuneata	Arum-Leaf Arrowhead	OBL
Salicornia rubra	Red Saltwort	OBL
Salix amygdaloides	Peach-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Sarcobatus vermiculatus	Greasewood	FAC
Schedonorus pratensis	False Meadow Rye Grass	FACU
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Setaria pumila	Yellow Bristle Grass	FACU
Sonchus arvensis	Field Sow-Thistle	FAC
Spartina pectinata	Freshwater Cord Grass	FACW
Sporobolis airoides	Alkali-Sacaron	FAC
Symphoricarpos albus	Common Snowberry	UPL
Tamarix chinensis	Salt-cedar	UPL
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Typha angustifolia	Narrow-Leaf Cat-Tail	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Xanthium strumarium	Rough Cockleburr	FAC
Yucca glauca	Small Soapweed Yucca	UPL

[(a)] 2018 NWPL (USACE 2018)

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - Middle Assessment Date/Time 6/23/2021

Person(s) conducting the assessment: R. Jones

Weather: Partly sunny, 85 degrees F Location: ~9 miles NW of Forsyth

MDT District: Glendive Milepost: ~262 on US 12

Legal Description: T 7N R 39E Section(s) 33

Initial Evaluation Date: 8/15/2013 Monitoring Year: 9 #Visits in Year: 1

Size of Evaluation Area: 1.8 (acres)

Land use surrounding wetland:

Rangeland with evidence of grazing and Highway 12.

HYDROLOGY

Surface Water Source: Precipitation, runoff, and overflow from ditch

Inundation: ☐ Average Depth: 0 **(ft)** Range of Depths: 0 **(ft)**

Percent of assessment area under inundation: 0 %

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: No

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

Geomorphic position, surface soil cracks, water stained leaves.

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:

Site exhibited more marginal wetland habitat in 2021 due to drought.

VEGETATION COMMUNITIES

Site Forsyth NW - Middle

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

Community # 3 **Community Type:** Pascopyrum smithii / Elymus canadensis **Acres:** 1.22

Species	Cover class	Species	Cover class
Bare Ground	2	Bromus arvensis	0
Bromus inermis	2	Bromus tectorum	1
Chenopodium album	1	Cirsium arvense	2
Convolvulus arvensis	1	Elymus canadensis	1
Elymus elymoides	1	Elymus trachycaulus	1
Hordeum jubatum	1	Lactuca serriola	1
Linum lewisii	1	Melilotus officinalis	0
Pascopyrum smithii	4	Poa palustris	1
Poa pratensis	1	Populus deltoides	1
Ratibida columnifera	1	Rumex crispus	0
Sarcobatus vermiculatus	1	Schedonorus pratensis	1
Symphoricarpos albus	2	Thlaspi arvense	1
Tragopogon dubius	1		

Comments:

Community # 5 **Community Type:** Hordeum jubatum / Eleocharis palustris **Acres:** 0.58

Species	Cover class	Species	Cover class
Bare Ground	4	Bromus arvensis	1
Deschampsia elongata	1	Eleocharis palustris	2
Elymus lanceolatus	1	Elymus repens	1
Elymus trachycaulus	2	Hordeum jubatum	3
Juncus balticus	0	Lactuca serriola	2
Nassella viridula	1	Pascopyrum smithii	2
Poa palustris	1	Populus deltoides	0
Puccinellia nuttalliana	1	Rumex crispus	0
Salix lutea	1	Schedonorus pratensis	2
Schoenoplectus maritimus	0	Tragopogon dubius	1

Comments:

This community has been described as CT4 in previous years, but was changed due to Puccinellia nuttalliana being nearly absent, a reduction Eleocharis palustris, and an increase in FAC and FACU species.

Total Vegetation Community Acreage **1.8**

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

VEGETATION TRANSECTS

Site: Forsyth NW - Middle Date: 6/23/2021

Transect Number: 1 **Compass Direction from Start:** 205

Interval Data:

Ending Station 14 **Community Type:** Pascopyrum smithii / Elymus canadensis

Species	Cover class	Species	Cover class
Bare Ground	3	Chenopodium album	0
Elymus canadensis	1	Elymus elymoides	1
Pascopyrum smithii	3	Schedonorus pratensis	1
Tragopogon dubius	0		

Ending Station 26 **Community Type:** Hordeum jubatum / Eleocharis palustris

Species	Cover class	Species	Cover class
Bare Ground	2	Deschampsia elongata	1
Eleocharis palustris	0	Elymus lanceolatus	0
Elymus repens	1	Elymus trachycaulus	0
Hordeum jubatum	3	Juncus balticus	0
Lactuca serriola	0	Poa palustris	0
Puccinellia nuttalliana	0	Schedonorus pratensis	4
Tragopogon dubius	1		

Ending Station 50 **Community Type:** Pascopyrum smithii / Elymus canadensis

Species	Cover class	Species	Cover class
Bare Ground	3	Bromus inermis	0
Chenopodium album	0	Elymus canadensis	0
Elymus trachycaulus	2	Hordeum jubatum	0
Pascopyrum smithii	2	Poa pratensis	1
Populus deltoides	4	Ratibida columnifera	0
Schedonorus pratensis	1	Symphoricarpos albus	1

Transect Notes:

Increased bare ground in 2021 due to drought.

PLANTED WOODY VEGETATION SURVIVAL

Forsyth NW - Middle

Comments

No planted woody vegetation. Young volunteer cottonwoods doing well around edge of wetland, especially on southeast end.

Forsyth NW - Middle

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

Bird Comments

No birds observed in 2021.

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

Wildlife Comments:
Very little wildlife or sign of wildlife noted during the 2021 field survey.

Forsyth NW - Middle

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	46.323056	-106.842911		
DP01w	46.323105	-106.842865		
PP-1	46.322174	-106.840996	300	Photo Point 1:
PP-2	46.323803	-106.844337	120	Photo Point 2:
T-1 end	46.322754	-106.842438	25	Transect 1 end:
T-1 start	46.322948	-106.842323	205	Transect 1 start:

Comments:

Forsyth NW - Middle

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

0.58 acres of wetlands delineated in 2021.

Functional Assessments

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

Functional Assessment Comments:

Category 3 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? No

If yes, are the structures in need of repair?

If yes, describe the problems below.

N/A.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW Middle City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 34 7N 39E

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

Subregion (LRR): LRR G Lat: 46.323056 Long: -106.842911 Datum: NAD 83

Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally flooded 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 ☑
Hydric Soil Present?	Yes ☐	No ☑
Wetland Hydrology Present?	Yes ☐	No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks: Upland sample point located outside wetland boundary in center of site. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	7	☐	UPL
Cirsium arvense	10	☑	FACU
Convolvulus arvensis	10	☑	NL
Elymus canadensis	2	☐	FACU
Linum lewisii	1	☐	NL
Pascopyrum smithii	20	☑	FACU
Poa pratensis	10	☑	FACU
Sarcobatus vermiculatus	5	☐	FAC
Stipa viridula	5	☐	NL

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: 0 (A)

Total Number of Dominant Species Across All Strata: 4 (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	5 X 3	15
FACU species	42 X 4	168
UPL species	23 X 5	115
Column Totals	70 (A)	298 (B)

Prevalence Index = B/A = 4.26

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%. Data point is dominated by upland vegetation.

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
0-02	2.5Y 4/1	100					Silty Clay Loam	
02-12	2.5Y 4/2	100					Silty Clay 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)
- ☐ Stratified Layers (A5) (**LRR F**)
- ☐ 1 cm Muck (A9) (**LRR F, G, H**)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ☐ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ 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, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW Middle City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 34 7N 39E

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): LRR G Lat: 46.323105 Long: -106.842865 Datum: NAD 83

Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally flooded NWI classification: Not Mapped.

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

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

Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ☑ No ☐	**Is the Sampled Area within a Wetland?** Yes ☑ No ☐
Hydric Soil Present?	Yes ☑ No ☐	
Wetland Hydrology Present?	Yes ☑ No ☐	

Remarks: PEM RIVERINE wetland in roadside swale. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Carex nebrascensis	10	☑	OBL
Cirsium arvense	5	☐	FACU
Eleocharis palustris	15	☑	OBL
Hordeum jubatum	10	☑	FACW
Juncus balticus	3	☐	FACW
Lactuca serriola	2	☐	FAC
Poa pratensis	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 50

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (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	25	X 1	25
FACW species	13	X 2	26
FAC species	2	X 3	6
FACU species	10	X 4	40
UPL species	0	X 5	0
Column Totals	50 (A)		97 (B)

Prevalence Index = B/A = 1.94

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=50%. 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: 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
0-03	2.5Y 4/2	85	7.5YR 3/4	15	C	M	Silty Clay	
03-12	2.5Y 5/2	20	5Y 2.5/1	5	C	M	Clay	**Very hard. Mixed matrix**
03-12	2.5Y 4/2	60	7.5YR 3/4	15	C	M	Clay	**Very hard. Mixed matrix**

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic concentrations many within 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)
- ☐ 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, monitoring well, aerial photos, previous inspections), if available:

Remarks: Evidence of wetland hydrology includes drain pattern, surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Forsyth NW - Middle **2. MDT project#** STPP 14(9)259 **Control#** 9680000

3. Evaluation Date 7/8/2021 **4. Evaluators** R Jones **5. Wetland/Site# (s)** Forsyth NW - Middle

6. Wetland Location(s): **T** 7 N **R** 39 E **Sec1** 33 **T** 7 N **R** 39 E **Sec2** 34

Approx Stationing or Mileposts ~262 on US 12

Watershed 4 - Middle Yellowstone **Watershed/County** Rosebud

7. Evaluating Agency CCI for MDT

8. Wetland size acres 0.58

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.58

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

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

11. Estimated Relative Abundance Abundant

12. General Condition of AA

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

Site is adjacent to a highway. The adjacent right-of-way is mowed, sprayed for weeds and plowed.

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

No Tamarix was observed on site. Canada thistle and field bindweed have increased and Euphorbia esula observed in 2020.

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

AA very similar to Forsyth NW - East, only smaller. AA includes a linear, excavated roadside depression parallel to US 12. Surrounding land includes agriculture (grazing) and highway.

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: PEM wetland

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

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

i. AA is Documented (D) or Suspected (S) to contain (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

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 for Rosebud County

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 Scarlet Ammannia - Ammannia robusta (S2)

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ○ D ◉ S Great Blue Heron (S3)

No usable habitat ☐ S

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

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

Sources for documented use MTNHP SOC report for T7N R39E reported an Ammannia observation in 2013.

14C. General Wildlife Habitat Rating:

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

Low

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 Very few signs of wildlife observed during field survey. This area is close to the roadway and will likely never achieve a high wildlife habitat rating.

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.)

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**

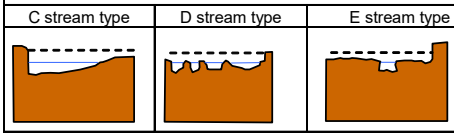
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

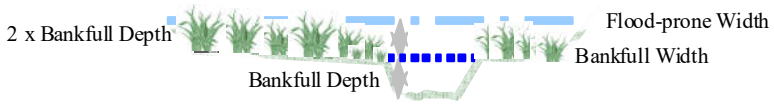
iii. Final Score and Rating: 0 NA **Comments:** Not applicable.

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: AA not subject to flooding

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: AA subject to ponding from snowmelt, precipitation and overland flow from adjacent roads and uplands.

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: Enclosed basin will filter sediment, nutrients, and toxicants well.

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: Not applicable.

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** .3L

Comments: Site has limited food chain value.

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: AA w/out permeable substrate, holds surface water eventually lost to evaporation.

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: Habitat within AA typical of roadside ditch.

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:

AA small, adjacent to highway, and with little to no recreation or education potential.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Forsyth NW - Middle

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0.00	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	0.52	☑
C. General Wildlife Habitat	M	.4	1	0.23	☑
D. General Fish Habitat	NA	0	0	0.00	☐
E. Flood Attenuation	NA	0	0	0.00	☐
F. Short and Long Term Surface Water Storage	L	.3	1	0.17	☑
G. Sediment/Nutrient/Toxicant Removal	H	.8	1	0.46	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0.00	☐
I. Production Export/Food Chain Support	L	.3	1	0.17	☐
J. Groundwater Discharge/Recharge	NA	0	0	0.00	☐
K. Uniqueness	L	.2	1	0.12	☐
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.03	☐
Totals:		2.95	7	1.71	
Percent of Possible Score			**42.14** %		

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-2. Forsyth Northwest – Middle Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status[(a)]
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Avena fatua	Wild Oats	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Chenopodium album	Lamb's-Quarters	FACU
Cirsium arvense	Canadian Thistle	FACU
Convolvulus arvensis	Field Bindweed	UPL
Deschampsia caespitosa	Tufted Hair Grass	FACW
Deschampsia elongata	Slender Hair Grass	FAC
Echinochloa crus-galli	Large Barnyard Grass	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus elymoides	Western-Bottlebrush grass	FACU
Elymus lanceolatus	Streamside Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	UPL
Filago arvensis	Field Fluffweed	UPL
Glyceria grandis	American Manna Grass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hordeum jubatum	Fox-Tail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FAC
Nassella viridula	Barkworth Green Needlegrass	UPL
Panicum capillare	Common Panic Grass	FAC
Pascopyrum smithii	Western-Wheat Grass	FACU
Poa compressa	Flat-Stem Blue Grass	FACU
Poa palustris	Fowl Blue Grass	FACW
Poa pratensis	Kentucky Blue Grass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	UPL
Rosa arkansana	Prairie Rose	FACU

Table B-2. Forsyth Northwest – Middle Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status[(a)]
Rumex acetosella	Common Sheep Sorrel	FAC
Rumex crispus	Curly Dock	FAC
Salix amygdaloides	Peach-Leaf Willow	FACW
Salix exigua	Narrow-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Salix lutea	Yellow Willow	FACW
Sarcobatus vermiculatus	Greasewood	FAC
Schedonorus pratensis	Meadow False Rye Grass	FACU
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Setaria pumila	Yellow Bristle Grass	FACU
Solanum rostratum	Buffalo Bur	UPL
Symphoricarpos albus	Common Snowberry	UPL
Tamarix chinensis	Salt-cedar	UPL
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Xanthium strumarium	Rough Cockleburr	FAC

[(a)] 2018 NWPL (USACE 2018)

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - East Assessment Date/Time 6/23/2021

Person(s) conducting the assessment: R. Jones

Weather: Partly sunny, 85 degrees F Location: ~8 miles NW of Forsyth

MDT District: Glendive Milepost: ~262.3 on US 12

Legal Description: T 7N R 39E Section(s) 34

Initial Evaluation Date: 8/15/2013 Monitoring Year: 9 #Visits in Year: 1

Size of Evaluation Area: 2.76 (acres)

Land use surrounding wetland:

Agriculture and US Highway 12.

HYDROLOGY

Surface Water Source: Precipitation, runoff

Inundation: ☐ Average Depth: 0 **(ft)** Range of Depths: 0 **(ft)**

Percent of assessment area under inundation: 0 %

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: No

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

Geomorphic position, surface soil cracks, oxidized rhizospheres on living roots, water stained leaves.

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:

Site was very dry on the day of investigation.

VEGETATION COMMUNITIES

Site Forsyth NW - East

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

Community # 3 **Community Type:** Pascopyrum smithii / Elymus spp. **Acres:** 2.17

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Alopecurus arundinaceus	1
Ambrosia psilostachya	1	Bare Ground	3
Bromus arvensis	1	Bromus japonicus	0
Bromus tectorum	1	Chenopodium album	1
Convolvulus arvensis	1	Elymus canadensis	1
Elymus repens	1	Elymus trachycaulus	2
Euphorbia esula	0	Grindelia squarrosa	1
Hordeum jubatum	1	Lactuca serriola	1
Linum lewisii	0	Melilotus officinalis	0
Pascopyrum smithii	5	Poa compressa	1
Populus tremuloides	0	Rumex crispus	1
Schedonorus pratensis	0	Sisymbrium altissimum	0
Tragopogon dubius	1		

Comments:

Significant increase in bare ground and decrease in total cover.

Community # 4 **Community Type:** Hordeum jubatum / Eleocharis palustris **Acres:** 0.59

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Alopecurus pratensis	3
Bare Ground	3	Convolvulus arvensis	0
Eleocharis palustris	3	Elymus repens	1
Hordeum jubatum	2	Lactuca serriola	0
Pascopyrum smithii	1	Poa compressa	1
Poa pratensis	1	Populus deltoides	1
Rumex crispus	0	Salix fragilis	1
Schedonorus pratensis	1	Schoenoplectus maritimus	0
Spartina pectinata	0		

Comments:

Increased woody vegetation over previous years. Reduced cover of Eleocharis palustris.

Total Vegetation Community Acreage **2.76**

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

VEGETATION TRANSECTS

Site: Forsyth NW - East Date: 6/23/2021

Transect Number: 1 **Compass Direction from Start:** 145

Interval Data:

Ending Station 32 **Community Type:** Pascopyrum smithii / Elymus sp.

Species	Cover class	Species	Cover class
Bare Ground	1	Pascopyrum smithii	5
Schedonorus pratensis	0	Sisymbrium altissimum	0

Ending Station 97 **Community Type:** Hordeum jubatum / Eleocharis palustris

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	4	Bare Ground	4
Convolvulus arvensis	0	Eleocharis palustris	1
Elymus repens	1	Hordeum jubatum	1
Lactuca serriola	0		

Ending Station 125 **Community Type:** Pascopyrum smithii / Elymus sp.

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	0	Bare Ground	2
Bromus japonicus	0	Bromus tectorum	1
Chenopodium album	1	Convolvulus arvensis	2
Elymus trachycaulus	1	Lactuca serriola	0
Pascopyrum smithii	2	Poa compressa	2

Transect Notes:

Increased bare ground in 2021, likely due to drought.

Transect Number: 2 **Compass Direction from Start:** 280

Interval Data:

Ending Station 21 **Community Type:** Pascopyrum smithii / Elymus spp.

Species	Cover class	Species	Cover class
Bare Ground	4	Grindelia squarrosa	1
Hordeum jubatum	1	Pascopyrum smithii	5
Poa compressa	1		

Ending Station 130 **Community Type:** Hordeum jubatum / Eleocharis palustris

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	3
Convolvulus arvensis	1	Eleocharis palustris	3
Hordeum jubatum	3	Lactuca serriola	1
Pascopyrum smithii	3	Poa compressa	2
Salix fragilis	2	Schedonorus pratensis	1

Ending Station 181 **Community Type:** Pascopyrum smithii / Elymus spp.

Species	Cover class	Species	Cover class
Bare Ground	4	Chenopodium album	0
Lactuca serriola	0	Pascopyrum smithii	5
Poa compressa	1	Rumex crispus	1

Transect Notes:

More bare ground observed in 2021.

PLANTED WOODY VEGETATION SURVIVAL

Forsyth NW - East

Comments

No planted woody vegetation.

Forsyth NW - East

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
Golden Eagle	1	FO	
Meadowlark	2	FO	SS, UP
Tree Swallow	1	L	FO, SS, UP

Bird Comments

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

Wildlife Comments:
Very little wildlife or sign of wildlife noted during the 2021 field survey.

Forsyth NW - East

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	46.318814	-106.835271		
DP01w	46.318853	-106.83521		
DP02u	46.32089	-106.838377		
DP02w	46.320863	-106.838401		
PP-1	46.321003	-106.838814	125	Photo Point 1
PP-2	46.320068	-106.837128	210	Photo Point 2
PP-3	46.318233	-106.834335	305	Photo Point 3
T-1 end	46.320297	-106.838493	325	Transect 1 end
T-1 start	46.321045	-106.838486	145	Transect 1 start
T-2 end	46.318417	-106.834923	100	Transect 2 end
T-2 start	46.318336	-106.834175	280	Transect 2 start

Comments:

Forsyth NW - East

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

In 2021, 0.59-acres or wetland were delineated, an increase of 0.03-acres from 2020.

Functional Assessments

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

Functional Assessment Comments:

Category 3 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? No

If yes, are the structures in need of repair?

If yes, describe the problems below.

N/A

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW East City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 34 7N 34E

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 35

Subregion (LRR): LRR G Lat: -106.835271 Long: 46.318814 Datum: NAD 83

Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally flooded 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 ☑
Hydric Soil Present?	Yes ☐	No ☑
Wetland Hydrology Present?	Yes ☐	No ☑

Is the Sampled Area within a Wetland? Yes ☐ No ☑

Remarks: Upland sample point outside wetland boundary at south end of site. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Pascopyrum smithii	30	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 70

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 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	30 X 4	120
UPL species	0 X 5	0
Column Totals	30 (A)	120 (B)

Prevalence Index = B/A = 4.00

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=70%. Data point is dominated by upland vegetation.

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
0-02	2.5Y 4/2	100					Silty Clay	
02-10	2.5Y 5/2	100					Silty Clay	
10-13	2.5Y 4/1	93	7.5YR 3/3	7	C	M	Silty Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ 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, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW East City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 34 7N 39E

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

Subregion (LRR): LRR G Lat: 46.318853 Long: -106.83521 Datum: NAD 83

Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally flooded 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 DEPRESSIONAL wetland at south end of site. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	10	☑	FACW
Eleocharis palustris	10	☑	OBL
Hordeum jubatum	5	☐	FACW
Lactuca serriola	5	☐	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 70

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 2 (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	10	X 1	10
FACW species	15	X 2	30
FAC species	5	X 3	15
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	30 (A)		55 (B)

Prevalence Index = B/A = 1.83

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=70%. 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: 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
0-03	5Y 4/2	93	7.5YR 3/4	7	C	M	Clay	
03-13	10YR 3/1	39					Clay	
03-13	5Y 5/2	60	10YR 3/3	1	C	M	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Prominent redoximorphic concentrations common within the 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): _____

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

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

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes drain pattern, surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW East City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 34 7N 39E

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): undulating Slope (%): 10

Subregion (LRR): LRR G Lat: 46.32089 Long: -106.838377 Datum: NAD 83

Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally flooded 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 outside wetland boundary at north end of site. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Chenopodium album	2	☐	FACU
Convolvulus arvensis	5	☑	NL
Lactuca serriola	1	☐	FAC
Pascopyrum smithii	15	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 77

Dominance Test worksheet

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	1 X 3	3
FACU species	17 X 4	68
UPL species	5 X 5	25
Column Totals	23 (A)	96 (B)

Prevalence Index = B/A = 4.17

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=77%. 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
0-02	5Y 4/3	100					Sandy Clay Loam	**very dry soil**
02-13	5Y 4/2	99	7.5YR 3/4	1	C	M	Clay	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☑

Remarks: No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ 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, monitoring well, aerial photos, previous inspections), if available:

Remarks: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW East City/County: Rosebud Sampling Date: 6/24/2021

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

Investigator(s): R Jones Section, Township, Range: 34 7N 34E

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 1

Subregion (LRR): LRR G Lat: 46.320863 Long: -106.838401 Datum: NAD 83

Soil Map Unit Name: 98: Harlem silty clay, 0-2% slopes, occasionally flooded 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 DEPRESSIONAL wetland. Hydrologic conditions on the site are atypical. According to the National Climatic Data Center, Rosebud County experienced Moderate Drought (D1) in June 2021. NOAA indicates that the are has been in moderate drought since June of 2020.

VEGETATION - Use scientific names of plants

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	19	☑	FACW
Eleocharis palustris	10	☑	OBL
Lactuca serriola	1	☐	FAC

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 70

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 2 (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	10	X 1	10
FACW species	19	X 2	38
FAC species	1	X 3	3
FACU species	0	X 4	0
UPL species	0	X 5	0
Column Totals	30 (A)		51 (B)

Prevalence Index = B/A = 1.70

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=70%. 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
0-04	2.5Y 4/2	97	2.5YR 4/2	3	D	M	Silty Clay	
04-13	2.5Y 4/2	60	10Y 3/2	40	C	M	Clay	**Mixed matrix**
04-13	10YR 3/2	40					Clay	**Mixed matrix**

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) (**LRR I, J**)
- ☐ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ☐ Dark Surface (S7) (**LRR G**)
- ☐ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☑ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☑ No ☐

Remarks: Although no hydric soil indicators were observed, this soil is likely to be saturated, flooded, or ponded long enough during the growing season to develop anerobic conditions in the upper part, in years with normal climatic conditions. The absence of hydric soil indictors at a marginal wetland site is not unprecedented under moderate dought conditions.

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, monitoring well, aerial photos, previous inspections), if available:

Remarks: Evidence of wetland hydrology includes surface soil cracks, geomorphic position, and a positive FAC-Neutral test.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Forsyth NW - East **2. MDT project#** STPP 14(9)259 **Control#** 9680000

3. Evaluation Date 7/8/2021 **4. Evaluators** R Jones **5. Wetland/Site# (s)** Forsyth NW - East

6. Wetland Location(s): **T** 7 N **R** 39 E **Sec1** 34 **T** **R** **Sec2**

Approx Stationing or Mileposts ~262.3 on US 12

Watershed 14 - Middle Yellowstone **Watershed/County** Rosebud

7. Evaluating Agency CCI for MDT

8. Wetland size acres 0.59

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.59

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

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

11. Estimated Relative Abundance Abundant

12. General Condition of AA

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (**ANVS**) 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 experienced a decrease in vegetatative cover in 2021, possilby due to decreased moisture availability as compared to recent years. Center of basin continues to qualify as upland, though some wetland characteristics were observed in an area which is smaller than the agreed upon minmum mapping unit.

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

Convolvulus arvensis

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

AA is a roadside depression excavated parallel to US 12. Surrounding land includes agriculture (grazing) and a secondary highway.

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 vegetation is dominant but cottonwood saplings are becoming well established. Some portions of the site may eventually transition to PSS.

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

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 for Rosebud County

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 Scarlet Ammannia - Ammannia robusta (S2), Western Hog-nosed Snake

Secondary habitat (list Species) ◉ D ◉ S

Incidental habitat (list species) ○ D ◉ S Great Blue Heron (S3)

No usable habitat ☐ S

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

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

Sources for documented use MTNHP SOC report for T7N R39E reported an Ammannia observation in 2013.

14C. General Wildlife Habitat Rating:

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

Low

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 Very few signs of wildlife observed during field survey. This area is close to the roadway and will likely never achieve a high wildlife habitat rating.

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.)

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**

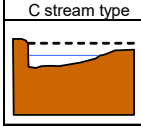
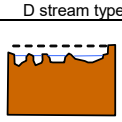
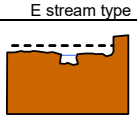
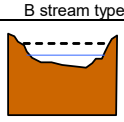
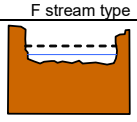
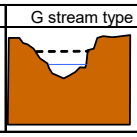
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

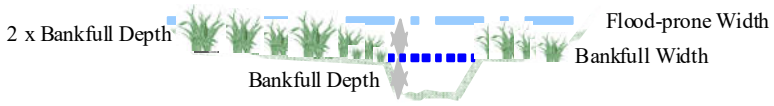
iii. Final Score and Rating: 0 NA **Comments:** No fish habitat exists on site.

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: AA not subject to flooding.

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: AA subject to ponding following large precipitation or runoff events.

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: Vegetation cover increased in the AA in 2021.

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: NA - no open water exists on site.

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** .4M

Comments: Rating modified over previous years due to decrease in noxious weed cover.

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: AA hydrologically connected to a historic oxbow.

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: Ponding was observed on site in 2014, but not observed since.

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: AA resembles a roadside ditch.

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:

AA small, adjacent to highway, and with little to no recreation or education potential.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Forsyth NW - East

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0.00	☐
B. MT Natural Heritage Program Species Habitat	H	.9	1	0.53	☑
C. General Wildlife Habitat	M	.4	1	0.24	☐
D. General Fish Habitat	NA	0	0	0.00	☐
E. Flood Attenuation	NA	0	0	0.00	☐
F. Short and Long Term Surface Water Storage	L	.3	1	0.18	☐
G. Sediment/Nutrient/Toxicant Removal	H	.8	1	0.47	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0.00	☐
I. Production Export/Food Chain Support	M	.4	1	0.24	☐
J. Groundwater Discharge/Recharge	M	.7	1	0.41	☑
K. Uniqueness	L	.2	1	0.12	☐
L. Recreation/Education Potential (bonus points)	L	.05	NA	0.03	☐
Totals:		3.75	8	2.21	
Percent of Possible Score			**46.88** %		

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-3. Forsyth Northwest – East Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status[(a)]
Agropyron cristatum	Crested Wheatgrass	UPL
Algae, green	Algae, green	N/A
Alisma triviale	Northern Water-Plantain	OBL
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW
Alopecurus pratensis	Field Meadow-Foxtail	FACW
Ambrosia psilostachya	Perennial Ragweed	FACU
Ammannia robusta	Grand Redstem	OBL
Artemisia frigida	Fringed Sage	UPL
Bassia scoparia	Mexican-Fireweed	FACU
Bromus arvensis	Japanese Brome	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	UPL
Bromus tectorum	Cheatgrass	UPL
Chenopodium album	Lamb's-Quarters	FACU
Convolvulus arvensis	Field Bindweed	UPL
Descurainia sophia	Herb Sophia	UPL
Echinochloa crus-galli	Large Barnyard Grass	FAC
Eleocharis palustris	Common Spike-Rush	OBL
Elymus canadensis	Nodding Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FACU
Elymus sp.	Wild Rye	N/A
Elymus trachycaulus	Slender Wild Rye	FACU
Euphorbia esula	Leafy Spurge	UPL
Filago arvensis	Field Fluffweed	UPL
Glyceria elata	Tall Manna Grass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	UPL
Helianthus annuus	Common Sunflower	FACU
Hesperostipa comata	Needle-and-Thread	UPL
Hordeum jubatum	Fox-Tail Barley	FACW
Lactuca serriola	Prickly Lettuce	FAC
Lepidium perfoliatum	Clasping Pepperwort	FAC
Linum lewisii	Prairie Flax	UPL
Medicago sativa	Alfalfa	UPL
Melilotus officinalis	Yellow Sweet-Clover	FACU
Muhlenbergia asperifolia	Alkali Muhly	FACW
Pascopyrum smithii	Western-Wheat Grass	FACU
Poa compressa	Flat-stem Blue Grass	FACU
Poa pratensis	Kentucky Blue Grass	FACU
Polygonum aviculare	Yard Knotweed	FACU
Populus deltoides	Eastern Cottonwood	FAC
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	UPL
Rumex acetosella	Common Sheep Sorrel	FAC
Rumex crispus	Curly Dock	FAC
Sagittaria cuneata	Arum-Leaf Arrowhead	OBL

Table B-3. Forsyth Northwest – East Wetland Mitigation Site. Comprehensive Vegetation Species List (2013-2021)

Scientific Names	Common Names	GP Indicator Status[(a)]
Salix exigua	Narrow-Leaf Willow	FACW
Salix fragilis	Fragile Willow	FAC
Schedonorous pratensis	Meadow False Rye Grass	FACU
Schoenoplectus maritimus	Saltmarsh Club-Rush	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Solanum rostratum	Buffalo Bur	UPL
Spartina pectinata	Freshwater Cord Grass	FACW
Tamarix chinensis	Salt-cedar	UPL
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	FACU
Tragopogon dubius	Meadow Goat's-beard	UPL
Typha angustifolia	Narrow-Leaf Cat-Tail	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Veronica sp.	Speedwell	N/A

[(a)] 2018 NWPL (USACE 2018)

APPENDIX C
PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Forsyth Northwest – West, Middle, and East Sites
Rosebud County, Montana

Forsyth Northwest – West Site: Photo Point Photographs



Photo Point 1: Located near NE Corner of SE End; Bearing 270 degrees; Year 2013



Photo Point 1: Located near NE Corner of SE End; Bearing 270 degrees; Year 2021



Photo Point 2: Located near SW Corner of SE End; Bearing 350 degrees; Year 2013



Photo Point 2: Located near SW Corner of SE End; Bearing 350 degrees; Year 2021

Forsyth Northwest – West Site: Photo Point Photographs



Photo Point 3: Located near NE side near middle of site; Bearing 230 degrees; Year 2013



Photo Point 3: Located near NE side near middle of site; Bearing 230 degrees; Year 2021



Photo Point 4: Located near NE corner of NW end; Bearing 210 degrees; Year 2013



Photo Point 4: Located near NE corner of NW end; Bearing 210 degrees; Year 2021

Forsyth Northwest – West Site: Photo Point Photographs



Photo Point 5: Located near SW side near middle of site; Bearing 45 degrees; Year 2013



Photo Point 5: Located near SW side near middle of site; Bearing 45 degrees; Year 2021



Photo Point 6 **Location:** Center of new dike
Bearing: 300 degrees **Year:** 2017

Photo not taken in 2021

Photo Point 6 **Location:** Center of new dike
Bearing: 300 degrees **Year:** 2021



Photo Point 6 **Location:** Center of new dike
Bearing: 120 degrees **Year:** 2017



Photo Point 6 **Location:** Center of new dike
Bearing: 120 degrees **Year:** 2021

Forsyth Northwest – West Site: Transect Photographs



Transect 1: Start **Location:** SE end of site
Bearing: 25 degrees **Year:** 2013



Transect 1: Start **Location:** SE end of site
Bearing: 25 degrees **Year:** 2021



Transect 1: End **Location:** SE end
Bearing: 205 degrees **Year:** 2013



Transect 1: End **Location:** SE end
Bearing: 205 degrees **Year:** 2021



Transect 2: Start **Location:** NW End
Bearing: 25 degrees **Year:** 2013



Transect 2: Start **Location:** NW End
Bearing: 25 degrees **Year:** 2021

Forsyth Northwest – West Site: Transect and Data Point Photographs



Transect 2: End
Location: Northwest End
Bearing: 205 degrees
Year: 2013



Transect 2: End
Location: Northwest End
Bearing: 205 degrees
Year: 2021



Data Point: DP01w
Location: SE part of site
Year: 2021



Data Point: DP01u
Location: SE part of site
Year: 2021

Forsyth Northwest – Middle: Photo Point and Transect Photographs



Photo Point: 1 **Location:** Northwest End
Bearing: 120 degrees **Year:** 2013



Photo Point: 1 **Location:** Northwest End
Bearing: 120 degrees **Year:** 2021



Photo Point: 2 **Location:** Southeast end
Bearing: 300 degrees **Year:** 2013



Photo Point: 2 **Location:** Southeast end
Bearing: 300 degrees **Year:** 2021



Transect 1: Start **Location:** Middle of Site
Bearing: 205 degrees **Year:** 2013



Transect 1: Start **Location:** Middle of Site
Bearing: 205 degrees **Year:** 2021

Forsyth Northwest – Middle: Transect and Data Point Photographs



Transect 1: End **Location:** Middle of Site
Bearing: 25 degrees **Year:** 2013



Transect 1: End **Location:** Middle of Site
Bearing: 25 degrees **Year:** 2021



Data Point: DP01w **Location:** Middle of site
Year: 2021



Data Point: DP01u **Location:** Middle of site
Year: 2021

Forsyth Northwest – East Site: Photo Point Photographs



Photo Point: 1 **Location**: NW end of site
Bearing: 125 degrees **Year** 2013



Photo Point: 1 **Location:** NW end of site
Bearing: 125 degrees **Year**: 2021



Photo Point 2: Location: Near Center of Site; Bearing 210 degrees; Year 2013



Photo Point 2: Location: Near Center of Site; Bearing 210 degrees; Year 2021



Photo Point: 3 **Location:** SE end of site
Bearing: 305 degrees **Year**: 2013



Photo Point: 3 **Location:** SE end of site
Bearing: 305 degrees **Year:** 2021

Forsyth Northwest – East Site: Transect Photographs



Transect 1: Start **Location:** Northwest End
Bearing: 145 degrees **Year:** 2013



Transect 1: Start **Location:** Northwest End
Bearing: 145 degrees **Year:** 2021



Transect 1: End **Location:** Northwest End
Bearing: 325 degrees **Year**: 2013



Transect 1: End **Location**: Northwest End
Bearing: 325 degrees **Year:** 2021



Transect 2: Start **Location:** Southeast End
Bearing: 280 degrees **Year:** 2013



Transect 2: Start **Location:** Southeast End
Bearing: 280 degrees **Year:** 2021

Forsyth Northwest – East Site: Transect and Data Point Photographs



Transect 2: End **Location:** Southeast End
Bearing:100 degrees **Year:** 2013



Transect 2: End **Location:** Northwest End
Bearing: 100 degrees **Year:** 2021



Data Point: DP01w **Location:** SW portion of site
Year: 2021



Data Point: DP01u **Location:** SW portion of site
Year: 2021



Data Point: DP02w **Location:** NE portion of site
Year: 2021



Data Point: DP02u **Location:** NE portion of site
Year: 2021