Montana Department of Transportation Wetland Mitigation Monitoring Report

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: 2022

Years Monitored: 10th year of monitoring

Corps Permit Number: NWO-2002-90-599 and NWO-2006-90676 MTB

Monitoring Conducted By: Confluence Consulting Inc. for MDT

Dates Monitoring Was Conducted: May 31st - June 2nd, 2022

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. Wetland compensatory mitigation ratios from the Montana Regulatory Program of the US Army Corps of Engineers, dated April 2005, were used to determine the anticipated mitigation credits outlined in the approved wetland mitigation plan, which indicated that the project could earn 11.79 acres of wetland mitigation credit. 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, this report encompasses only the three remaining Forsyth sites where monitoring continued in 2022.

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: Continue to treat noxious weed, especially at the Middle site.

Anticipated Wetland Credit Acres: 11.79

Wetland Credit Acres Generated to Date: 4.74

Wetland Acreage within the Project Area: 3.18

Mudflat Acreage within the Project Area: 0.51

Open Water within the Project Area: 8.26 acres

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

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 at the three FNW sites in 2022 was 3.18 acres of palustrine emergent wetland. Additionally, 8.26-acres of open water and 0.51-acres of mud flat were mapped at the FNW-West site. No open water or mud flats were identified at the Middle or East sites. Across the three sites, wetland area and open water increased by 0.35 and 0.66 acres respectively, when compared to 2021 acreages (Table 1; Figures A-3 and A-4, Appendix A).

The adaptive management strategies implemented in 2017 (repair of a breached dike) at the FNW-West site has 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 in 2020, 2021, and 2022. More open water was observed in 2022 than in 2021, likely due to heavy spring precipitation. Several areas delineated as mudflat habitat in 2021 were inundated in 2022, therefore the increased inundation at the site lead to a reduction on mudflat acreage in 2022. The increased inundation also resulted in minor expansions of the wetland boundaries in the southwestern portion of the site (Table 1).

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). Options to assign credit acres for open water and mud flat habitats are still pending, and therefore wetland acreage credited to this site 2020-2022 is significantly less than what was reported in 2019 and earlier.

Table 1. Wetland Habitat Acreages Delineated at the FNW Sites (2015 and 2020–2022)

Site	2015 (acres)	2020 (acres)		2021 (acres)			2022 (acres)		
		Wetland	Open Water	Wetland	Open Water	Mud flat	Wetland	Open Water	Mud flat
FNW-West	6.01	1.61	8.90	1.66	7.60	1.36	1.86	8.26	0.51
FNW-Middle	0.49	0.58	-	0.58	-	-	0.58	-	-
FNW-East	0.46	0.60	-	0.59	-	-	0.74	-	-
Total	**6.96**	**2.79**	**8.9**	**2.83**	**7.6**	**1.36**	**3.18**	**8.26**	**0.51**

Functional Assessment – The FNW-East and Middle sites are considered Category III wetlands, and the FNW- West site is a Category II wetland (Table 2), that received MWAM scores of 68.18%, 42.14%, and 46.88% respectively. All three sites generated a combined total of 84.22 Functional Units in 2022 (Appendix B), which is an increase of 1.72 functional units since 2021.

Photographs – Photographs were taken at all three FNW sites in 2022 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.aspx).

Wildlife – Wildlife species that were observed directly or indirectly at the three monitoring sites during the 2022 field surveys are listed in the Wetland Mitigation Site Monitoring forms for each site (Appendix B). Many bird species were observed at the West site, some birds were observed at the East site, and no birds were observed at the Middle site.

Table 2. 2022 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**

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

Summary Data: Specific to the FNW-West Site

FNW-West Site Vegetation – Nine vegetation communities, identified based on plant composition and dominance, were mapped on the FNW–West site in 2022. 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 Wetland Type 18 – *Hordeum jubatum/Typha spp.* in 2020, and Wetland 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 less than 5% cover of emergent vegetation are represented by Wetland Type 17 – Open Water/Aquatic Macrophytes. The Mudflat Community was created to classify previously inundated areas that were exposed in 2021 and 2022 and have less than 5% vegetative cover. Upland Type 20 – *Thlaspi arvense/Lepidium perfoliatum* was

established in 2022, to reflect an area on the southeast portion of the site that was dominated by these annual species.

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 2022:

- 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
- Upland Type 20 - *Thlaspi arvense/Lepidium perfoliatum*

Vegetation cover was measured along two transects in 2022 (Tables 3 & 4; Figure A-2, Appendix A). Table 3 summarizes the data for T-1 which is 282 feet long and intersects Upland Type 6, Wetland Type 18, and aquatic communities 19 (mudflat), and 17 (open water). The amount of open water along T-1 decreased from 89% to 88% between 2021 and 2022 and mudflat coverage increased from 2% to 4%. The total amount of vegetation increased by 1% and bare ground decreased and increased by 1% (Table 3).

Table 3. Data Summary for T-1 From 2016 Through 2022 at the FNW-West Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**282**	**282**	**282**	**282**	**282**	**282**	**282**
Vegetation Community Transitions Along Transect	7	5	1	1	2	3	2
Vegetation Communities Along Transect	5	5	1	1	2	3	2
Hydrophytic Vegetation Communities Along Transect	4	2	0	1	1	1	1
Total Vegetative Species	26	18	5	4	9	7	8
Total Hydrophytic Species	5	4	0	1	3	1	1
Total Upland Species	21	14	5	4	6	6	7
Estimated % Total Vegetative Cover	90	46	5	10	3	3	4
Estimated % Unvegetated	10	54	95	65	97	97	96
% Transect Length Comprising Hydrophytic Vegetation Communities	37	34	0	30	3	4	3
% Transect Length Comprising Upland Vegetation Communities	63	66	5	5	5	5	5
% Transect Length Comprising Unvegetated Open Water	0	0	95	65	92	89	88
% Transect Length Comprising of Mudflat	0	0	0	0	0	2	4

T-2 is 261 feet long and intersects Upland Types 5 and 6, and Wetland Types 19 (mudflat), and 17 (open water). Eighty-five percent of the transect crossed open water habitat in 2022, and 5% crossed mudflat. Total vegetative cover along the transect was 5% (Table 4).

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.

Ten noxious weed patches were mapped at FNW-West in 2022, which is an increase of 2 patches since 2022. All noxious weed patches were comprised of two Priority 2B species. Canada thistle (*Cirsium arvense*) was observed in low and moderate cover classes at seven locations, and two moderately sized patches of leafy spurge (*Euphorbia esula*) were observed. One salt cedar (*Tamarix chinensis*) that had been identified in previous years appears to have been eradicated (Figure A-3; Appendix A). The two new noxious weed patches were comprised of Canada thistle, and two Canada thistle patches increased in size and percent cover. The amount of leafy spurge cover on the southeast portion of the site also increased from trace to moderate cover. Across all plant communities, a total of 84 plant species have been identified on the site from 2013 through 2022 (Table B-1; Appendix B).

Table 4. Data Summary for T-2 From 2016 Through 2022 at the FNW-West Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**261**	**261**	**261**	**261**	**261**	**261**	**261**
Vegetation Community Transitions Along Transect	2	3	2	2	3	3	3
Vegetation Communities Along Transect	3	4	3	3	3	2	2
Hydrophytic Vegetation Communities Along Transect	1	2	1	1	1	1	0
Total Vegetative Species	28	19	13	15	19	20	21
Total Hydrophytic Species	8	9	4	5	6	7	6
Total Upland Species	20	10	9	10	13	13	15
Estimated % Total Vegetative Cover	82	92	20	20	3	3	5
Estimated % Unvegetated	13	8	80	80	97	97	95
% Transect Length Comprising Hydrophytic Vegetation Communities	87	87	90	90	2	3	0
% Transect Length Comprising Upland Vegetation Communities	13	13	10	10	7	7	10
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	91	87	85
% Transect Length Comprising of Mudflat	0	0	0	0	0	5	5

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 likely received heavy runoff from Big Porcupine Creek and East Spring Coulee in the spring of 2022, which was unusually wet.

Indicators of wetland hydrology observed at the FNW-West site included inundation on aerial imagery, oxidized rhizospheres on living roots, geomorphic position, salt crusts, saturation, high water table, and surface water.

FNW-West Site Soils – Soil test pits were excavated at eight locations (DP01-04w and DP01-04u; Appendix A). Test pits at DP01-03w and DP01-03u were located in areas originally mapped as the Marvan silty clay soil series (NRCS 2022), where DP04w and 04 were located in areas originally mapped as the Borollic Camborthids-Ustic Torriorthents complex. Nearly all soil horizons had matrix colors on the 5Y or 2.5Y soil color charts, and textures ranged from silty clay to sandy clay loam. Wetland soils contained 2-50% redoximorphic features in the form of concentrations and depletions. The only hydric soil indicator observed was depleted matrix.

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 2022:

- 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). Fourteen occurrences of Priority 2B noxious weeds, Canada thistle (*Cirsium arvense*) and field bindweed (*Convolvulus arvensis*), were observed at the site in 2022. Cover classes of the weed infestations ranged from trace to moderate (Figure A-6, Appendix A) with two previously observed patching increasing from trace to low cover. Field bindweed cover increased notably between 2021 and 2022. A total of 61 plant species were identified on the site from 2013 through 2022 (for a comprehensive plant list, see Table B-2; Appendix B).

Vegetation cover was measured along one transect (T-1) at FNW-Middle in 2022 (Figure A-5, Appendix A). T-1 is 50 feet long and intersects Upland Type 3 and Wetland Type 5. Twenty-eight percent of the transect crossed wetland habitat in 2022, the number of hydrophytic species observed increased by one, and the amount of hydrophytic species cover increased by 1% since 2021. The vegetation along the slopes of the swale was more hydrophytic than what was observed in the last two years. Twenty-three species were observed along T-1 in 2022, and the total amount of vegetative cover increased by 3% (Table 5). 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. Data Summary for T-1 From 2016 Through 2022 at the FNW-Middle Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**50**	**50**	**50**	**50**	**50**	**50**	**50**
Vegetation Community Transitions Along Transect	2	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1	1
Total Vegetative Species	11	17	17	16	24	22	23
Total Hydrophytic Species	3	4	5	4	11	6	7
Total Upland Species	8	13	12	12	13	16	16
Estimated % Total Vegetative Cover	85	83	85	85	85	85	87
Estimated % Unvegetated	15	17	15	15	15	15	13
% Transect Length Comprising Hydrophytic Vegetation Communities	30	38	38	38	24	24	28
% Transect Length Comprising Upland Vegetation Communities	70	62	62	62	76	76	72
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	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 1st, 2022 when the field survey was completed. Hydrologic indicators that were observed at this site included drift deposits, water-stained leaves, oxidized rhizospheres on living roots, surface soil cracks, 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 (2022). DP01w is located in the excavated depression near the east end of the site within Wetland Type 5, *Hordeum jubatum/Eleocharis paulustris*. The soil profile revealed two inches of a dark greyish brown (2.5Y 4/2) clay that had 10% redoximorphic concentrations, over 14+ inches of greyish brown (2.5Y 5/2) clay with 5% redoximorphic concentrations in the matrix. This soil meets the qualifications for the Depleted Matrix Hydric Soil Indicator. DP01u is located in Upland Type 3 – *Pascopyrum smithii/Elymus canadensis*. The soil profile revealed two inches of olive brown (2.5Y 4/3) silty clay loam on top of 14+ inches of a dark greyish brown (2.5Y 4/2) clay. 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 2022:

- 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 2022 (for a comprehensive plant list, see Table B-3; Appendix B). Infestations of one Priority 2B noxious weed, field bindweed (*Convolvulus arvensis*) were mapped in three locations (Figure A-9, Appendix A). Saltcedar (*Tamarix chinensis*) had previously been mapped at this site but appears to have been eradicated. No woody plants were installed at the FNW-East site. However, 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 FNW-East in 2022 (Figure A-8, Appendix A). T-1 is 125 feet long and intersects Upland Type 3, and Wetland Type 4. Fifty-two percent of the transect crossed wetland habitat and total vegetative cover was 96%, which is an increase of 1% since 2022. The number of vegetative species and hydrophytic species observed along the transect increased by 1 since 2021 (Table 6). 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.

T-2 is 181 feet long and intersects Upland Type 3 and Wetland Type 4. In 2022, sixty percent of the transect crossed wetland habitat in 2021, which was consistent with 2021.The number of hydrophytic species observed along the transect increased by one, and the total number of upland species observed increased by 2. Total vegetative cover has remained constant at 98 percent from 2017 to 2022 (Table 7).

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 oxidized rhizospheres on living roots, surface soil cracks, geomorphic position, and a vegetation community that passes the FAC-neutral test.

FNW-East Site Soils – Soil test pits were examined in eight locations (DP01-04w and DP01-04u; Appendix A), and all locations were within what was originally mapped as the Harlem silty clay soil series (NRCS 2022). All dominant matrix colors were found on the 2.5Y soil color chart. Wetland soils contained 2-10% redoximorphic concentrations in and up to 30% depletions and has textures ranging from sandy

clay to clay. Two of the upland soil pits qualified for the depleted matrix hydric soil indicator but he sample plot did not contain evidence of wetland hydrology or hydrophytic vegetation. The hydric soil indicators observed within the upland plots indicate that the wetlands may be expanding within this created wetland though there is insufficient evidence to support expanding the wetland boundary at this time.

Table 6. Data Summary for T-1 From 2016 Through 2022 at the FNW-East Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**125**	**125**	**125**	**125**	**125**	**125**	**125**
Vegetation Community Transitions Along Transect	2	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1	1
Total Vegetative Species	22	17	17	16	16	14	15
Total Hydrophytic Species	9	7	7	7	4	2	2
Total Upland Species	11	10	10	9	12	12	13
Estimated % Total Vegetative Cover	90	95	95	95	95	95	96
Estimated % Unvegetated	10	5	5	5	5	5	4
% Transect Length Comprising Hydrophytic Vegetation Communities	50	50	52	52	52	52	52
% Transect Length Comprising Upland Vegetation Communities	50	50	48	48	48	48	48
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0	0

Table 7. Data Summary for T-2 From 2016 Through 2022 at the FNW-East Site

Monitoring Year	2016	2017	2018	2019	2020	2021	2022
Transect Length (feet)	**181**	**181**	**181**	**181**	**181**	**181**	**181**
Vegetation Community Transitions Along Transect	2	2	2	2	2	2	2
Vegetation Communities Along Transect	2	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1	1
Total Vegetative Species	26	11	14	15	10	12	15
Total Hydrophytic Species	6	4	6	6	2	3	4
Total Upland Species	20	7	8	9	8	9	11
Estimated % Total Vegetative Cover	94	98	98	98	98	98	98
Estimated % Unvegetated	6	2	2	2	2	2	2
% Transect Length Comprising Hydrophytic Vegetation Communities	44	55	55	55	55	60	60
% Transect Length Comprising Upland Vegetation Communities	56	45	45	45	45	40	40
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0	0
% Transect Length Comprising of Mudflat	0	0	0	0	0	0	0

Mitigation Credit Summary: All Sites

The three FNW sites produced 4.62 credit acres combined in 2022. However, the number of credit acres earned 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. 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 will need to earn an additional 8.33 credits to satisfy the 12.95 debits acres created by the Volborg – North and South and Forsyth Northwest construction projects (Table 8).

Table 8. 2022 Credit/Debit Summary for the Forsyth – Northwest Project

Project Site	Actual Acres	Type	Debit Ratio	Debit Acres
West Site (Site 1)	1.71	Creation Credit	1:1	1.71
	1.29	Preservation Credit	4:1	0.32
	3.01	Upland Buffer Credit	5:1	0.60
	8.26	Open Water Credit[a]	TBD	TBD
	0.51	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)	0.74	Creation Credit	1:1	0.74
	2.00	Upland Buffer Credit	5:1	0.40
Total	**19.32**		**Total Credits**	**4.62**

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

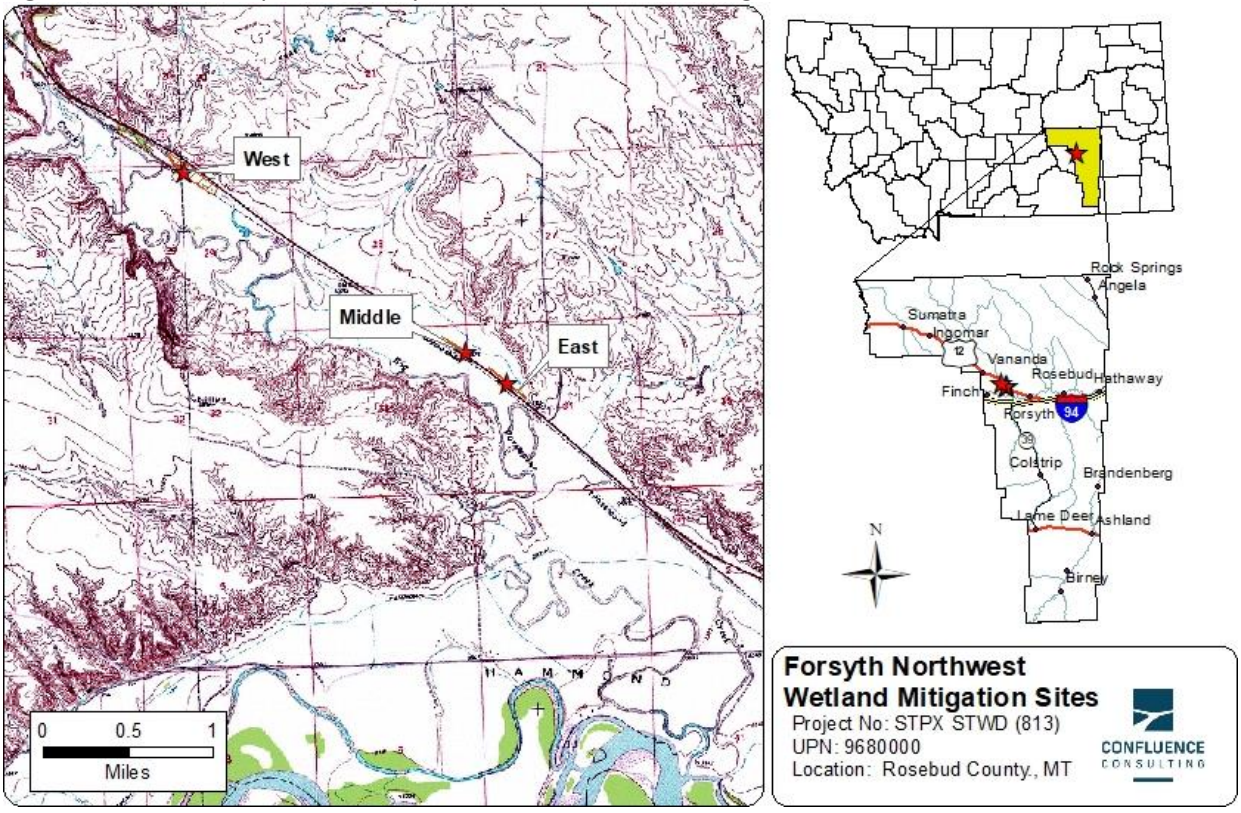
Conclusions

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.

All three FNW sites were wetter in 2022 than in the previous two years. The FNW-West site contained more open water in 2022 than in 2021, and this change resulted in a site-wide reduction of mudflat habitat due to increased inundation. Additionally, some habitat previously mapped as mudflat transitioned into PEM wetland due to increased wetland vegetation growth. These Community Type shifts were not reflected in the data collected along the vegetation transects due to the transects not overlapping the locations where these changes were observed. The FNW-Middle and East sites exhibited vegetation community shifts which resulted in more hydrophytic species cover, and more obvious hydric soil indicators. The wetland area in FNW-East site also expanded by 0.15 acres in 2022. These changes are likely the result of large amounts of precipitation experienced in the spring of 2022, and the corresponding drought cessation. Should similar conditions persist over the next year, the wetland acreage is likely to increase again in 2023.

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 Forsyth Northwest Monitoring Report located on the MDT website at this link:

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

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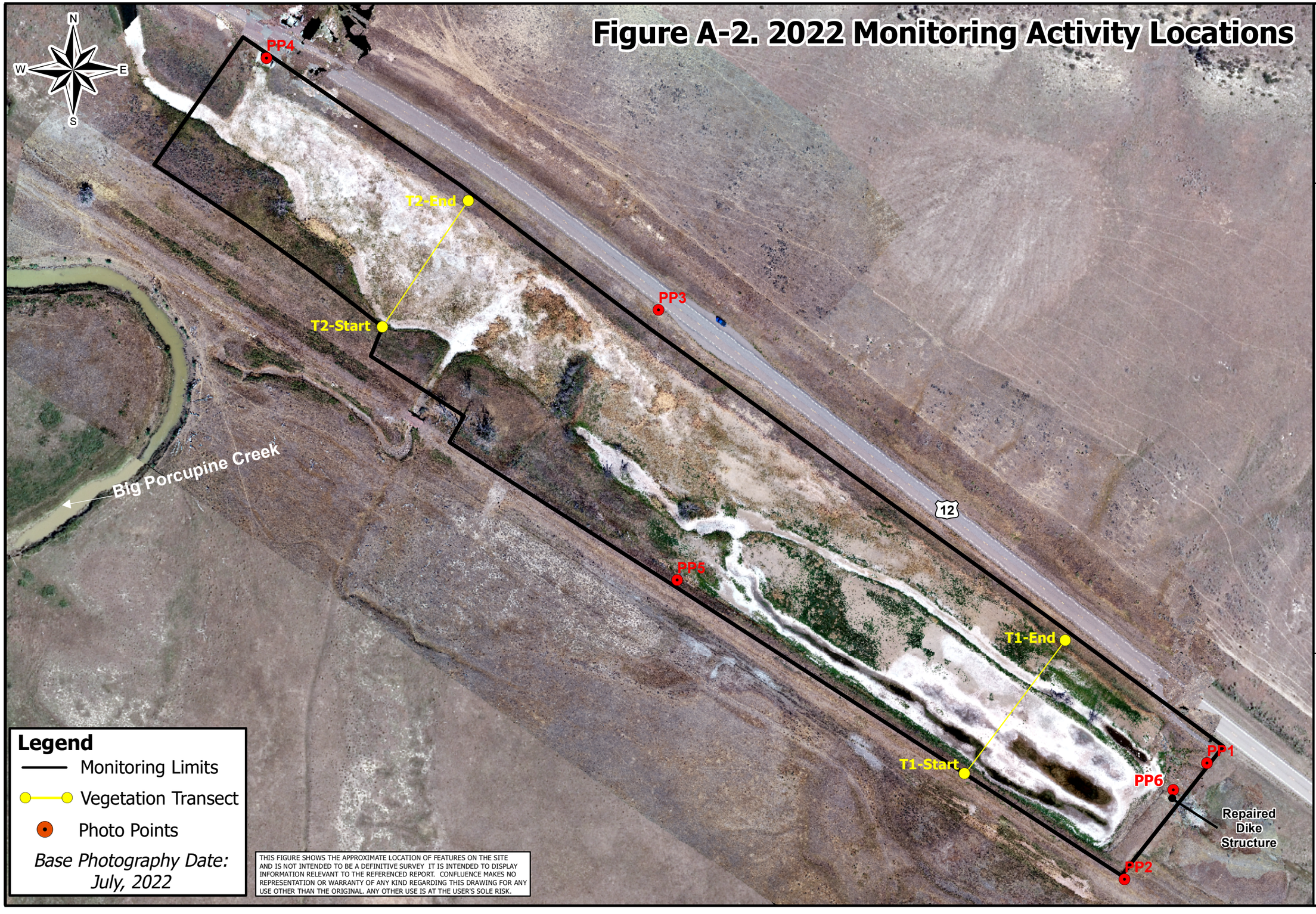
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APPENDIX A
PROJECT AREA MAPS

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

Figure A-2. 2022 Monitoring Activity Locations



Legend

- Monitoring Limits
- Vegetation Transect
- Photo Points

Base Photography Date: July, 2022

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

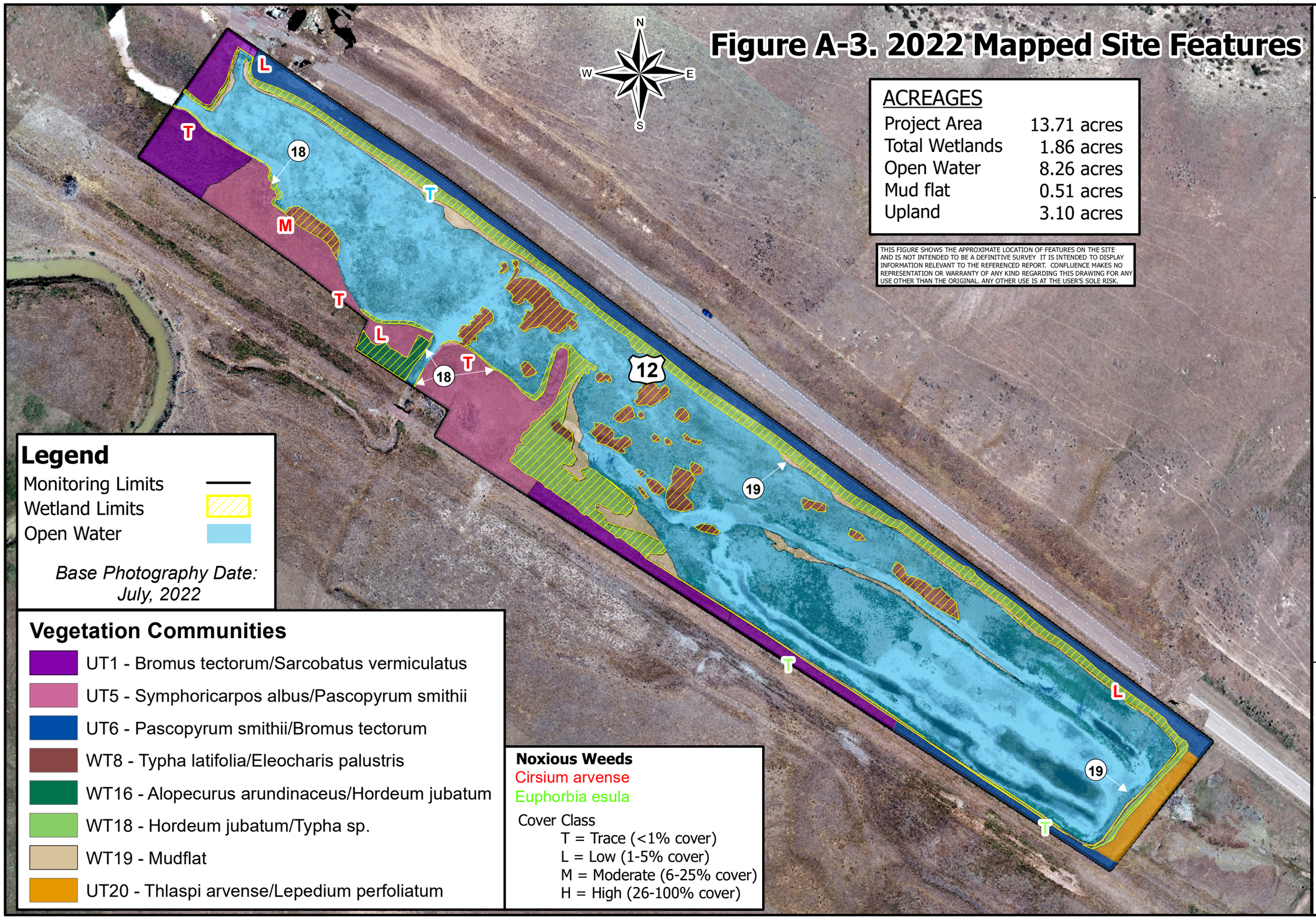
CONFLUENCE CONSULTING

Forsyth NW - West Site
2022 Monitoring Activity Locations

0 65 130 260 390 520 650 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Map Date:	February 27, 2023
Project Manager:	R. McEldowney
Drawn By:	RCJ

Figure A-3. 2022 Mapped Site Features



ACREAGES	
Project Area	13.71 acres
Total Wetlands	1.86 acres
Open Water	8.26 acres
Mud flat	0.51 acres
Upland	3.10 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. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

CONFLUENCE CONSULTING

Legend

Monitoring Limits

Wetland Limits

Open Water

Base Photography Date: July, 2022

Vegetation Communities

- UT1 - Bromus tectorum/Sarcobatus vermiculatus
- UT5 - Symphoricarpos albus/Pascopyrum smithii
- UT6 - Pascopyrum smithii/Bromus tectorum
- WT8 - Typha latifolia/Eleocharis palustris
- WT16 - Alopecurus arundinaceus/Hordeum jubatum
- WT18 - Hordeum jubatum/Typha sp.
- WT19 - Mudflat
- UT20 - Thlaspi arvense/Lepedium perfoliatum

Noxious Weeds

Cirsium arvense

Euphorbia esula

Cover Class

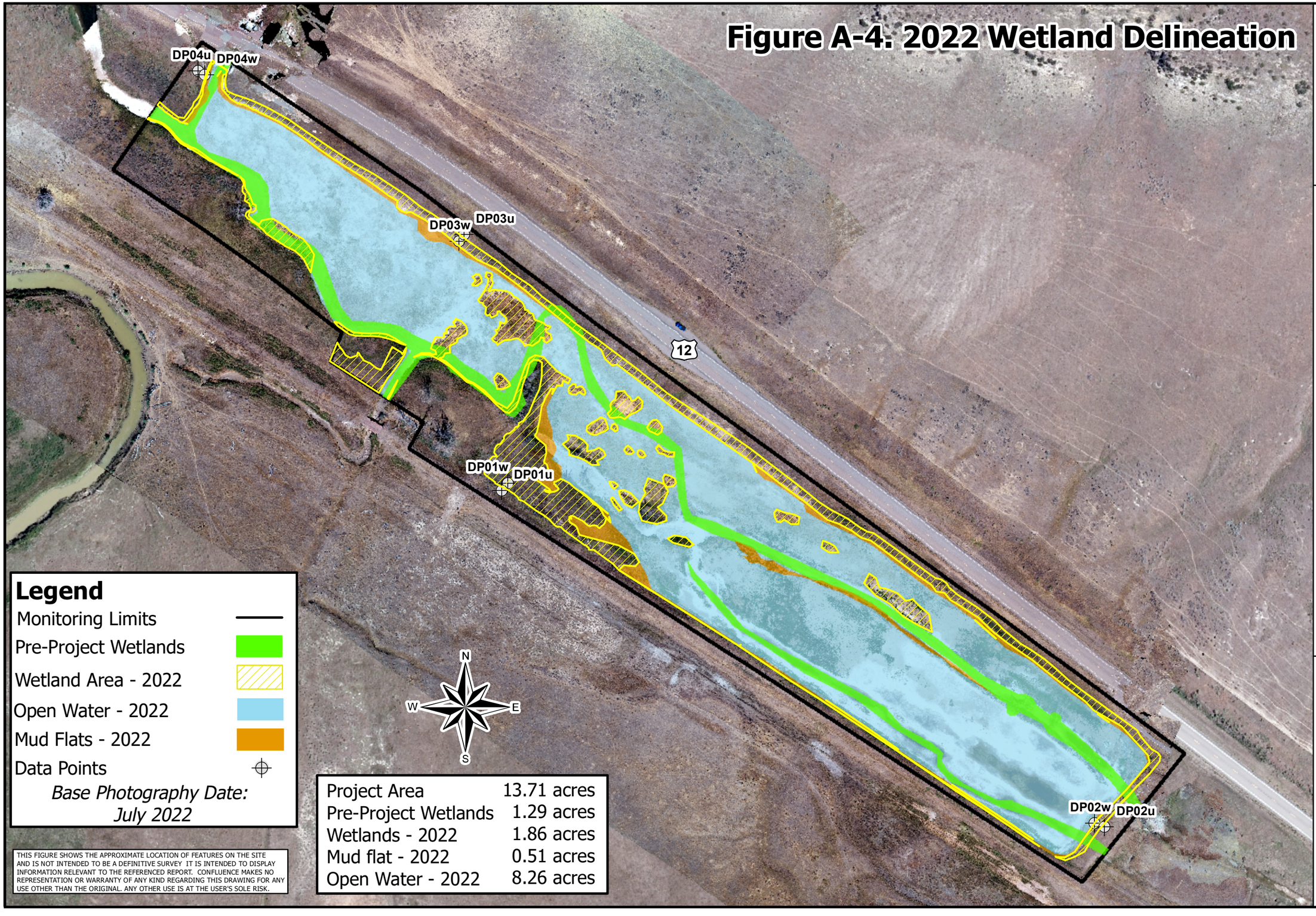
T = Trace (<1% cover)
L = Low (1-5% cover)
M = Moderate (6-25% cover)
H = High (26-100% cover)

Forsyth NW - West Site
2022 Mapped Site Features

0 65 130 260 390 520 650 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Map Date:	February 28, 2023
Project Manager:	R. McEldowney
Drawn By:	RCJ

Figure A-4. 2022 Wetland Delineation



Legend

- Monitoring Limits
- Pre-Project Wetlands
- Wetland Area - 2022
- Open Water - 2022
- Mud Flats - 2022
- Data Points

Base Photography Date: July 2022

Project Area	13.71 acres
Pre-Project Wetlands	1.29 acres
Wetlands - 2022	1.86 acres
Mud flat - 2022	0.51 acres
Open Water - 2022	8.26 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. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

CONFLUENCE CONSULTING

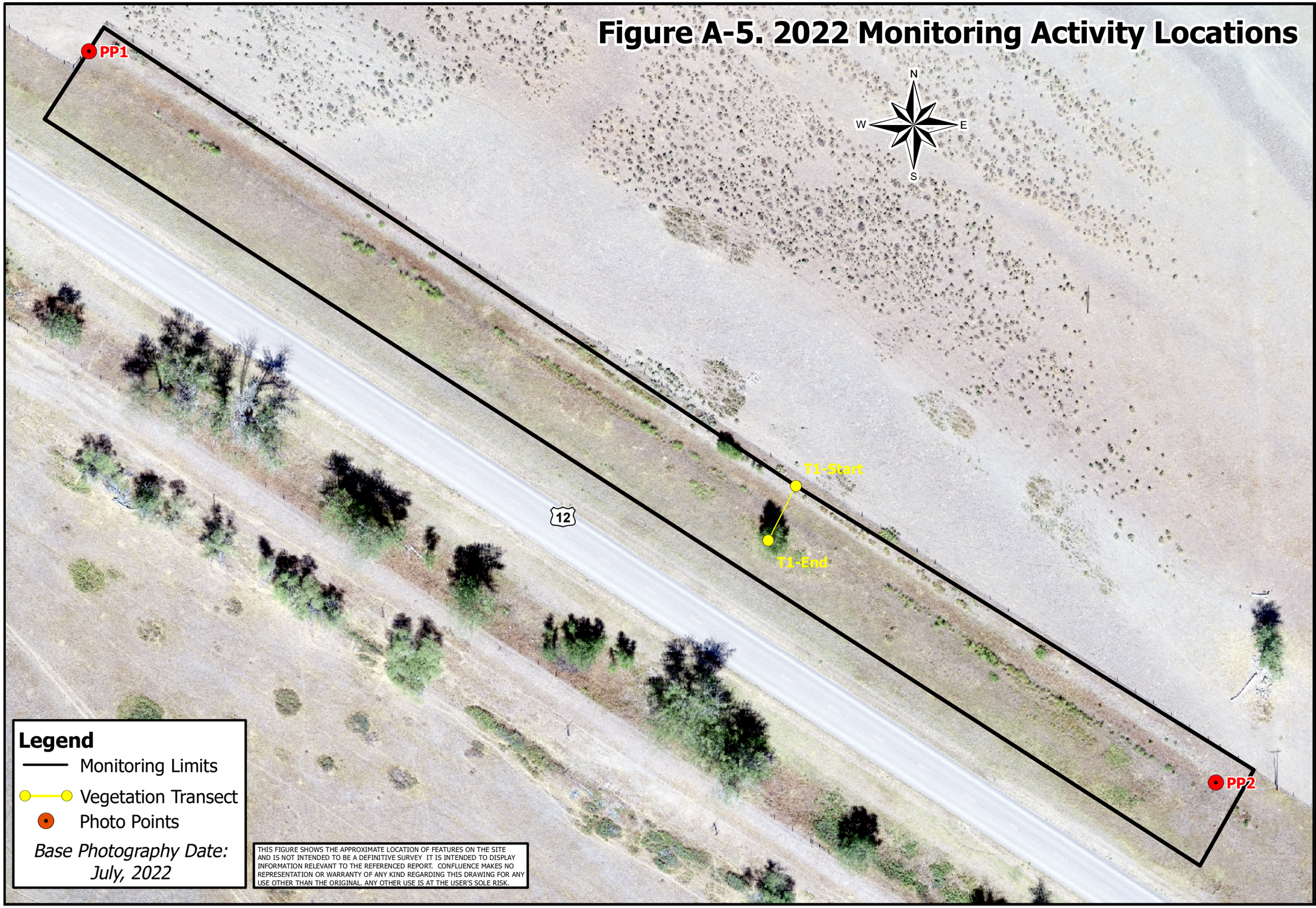
Forsyth NW - West Site
2022 Wetland Delineation

0 65 130 260 390 520 650 Feet

Project: STTP 14(9)259
Location: Rosebud Co., Montana
Map Date: March 1, 2023
Project Manager: R. McEldowney
Drawn By: RCJ

File: X:\Project\MDT Wetland Mitigation 2\Mains\Forsyth NW\2022\West Site\Delin2022_MDT.mxd

Figure A-5. 2022 Monitoring Activity Locations



Legend

- Monitoring Limits
- Vegetation Transect
- Photo Points

Base Photography Date: July, 2022

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

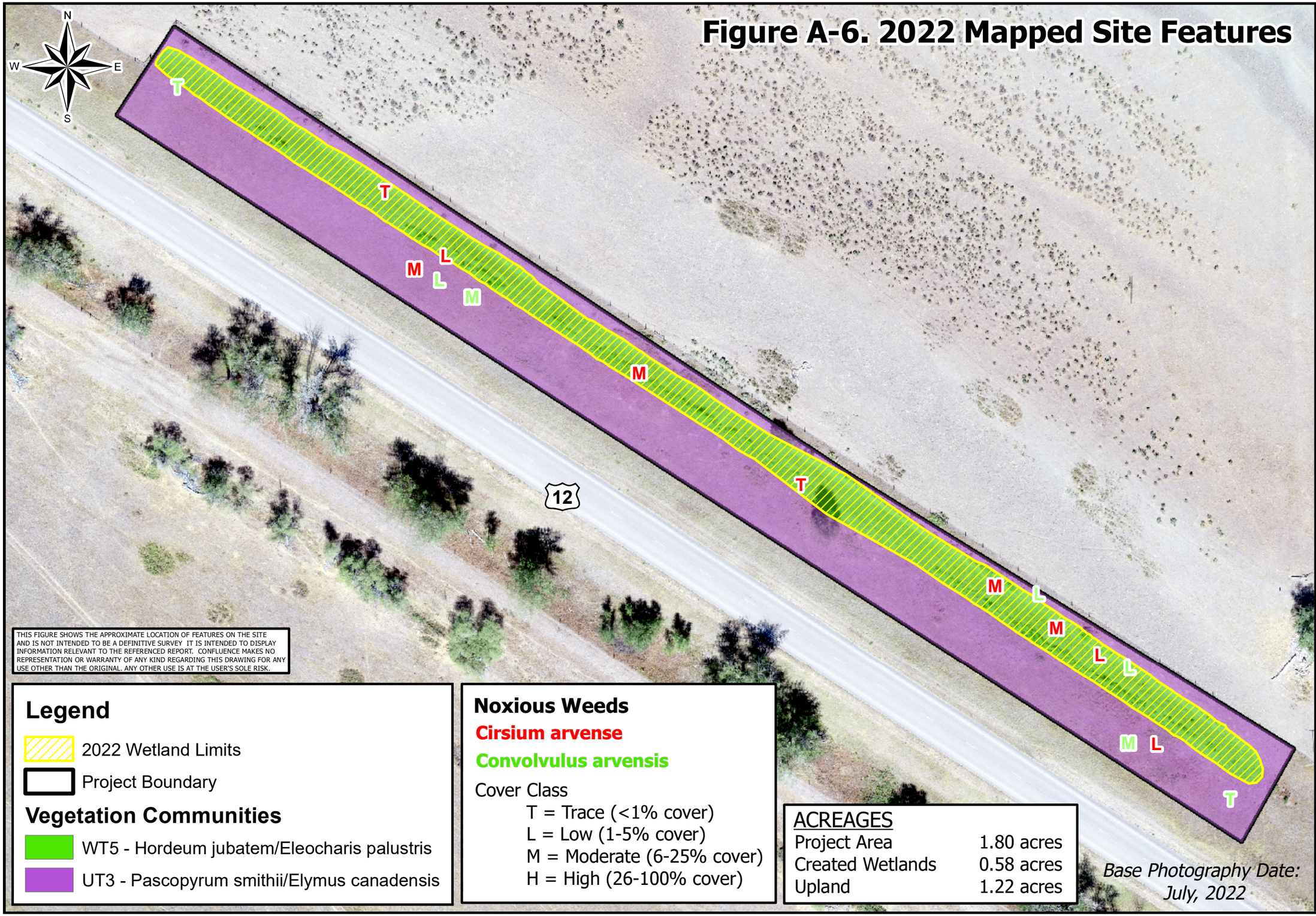
CONFLUENCE CONSULTING

Forsyth NW - Middle Site
2022 Monitoring Activity Locations

0 30 60 120 180 240 300 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Map Date:	March 1, 2023
Project Manager:	R. McEldowney
Drawn By:	RCJ

Figure A-6. 2022 Mapped Site Features



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

Legend

- 2022 Wetland Limits
- Project Boundary

Vegetation Communities

- WT5 - Hordeum jubatem/Eleocharis palustris
- UT3 - Pascopyrum smithii/Elymus canadensis

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

Base Photography Date: July, 2022

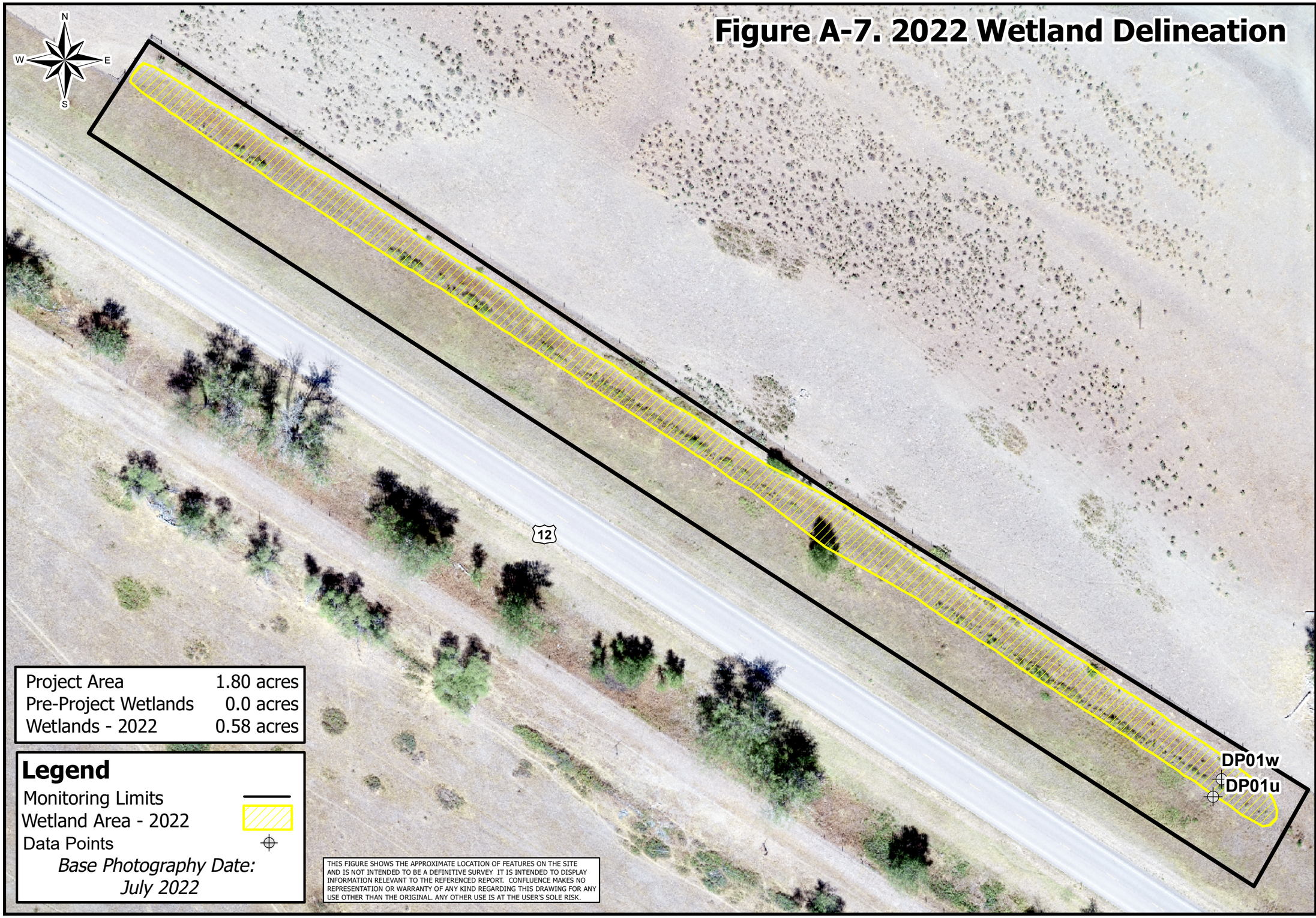
CONFLUENCE CONSULTING

Forsyth NW - Middle Site
2022 Mapped Site Features

0 30 60 120 180 240 300 Feet

Project: STTP 14(9)259
Location: Rosebud Co., Montana
Map Date: March 1, 2023
Project Manager: R. McEldowney
Drawn By: RCJ

Figure A-7. 2022 Wetland Delineation



Project Area	1.80 acres
Pre-Project Wetlands	0.0 acres
Wetlands - 2022	0.58 acres

Legend

Monitoring Limits

Wetland Area - 2022

Data Points

Base Photography Date: July 2022

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

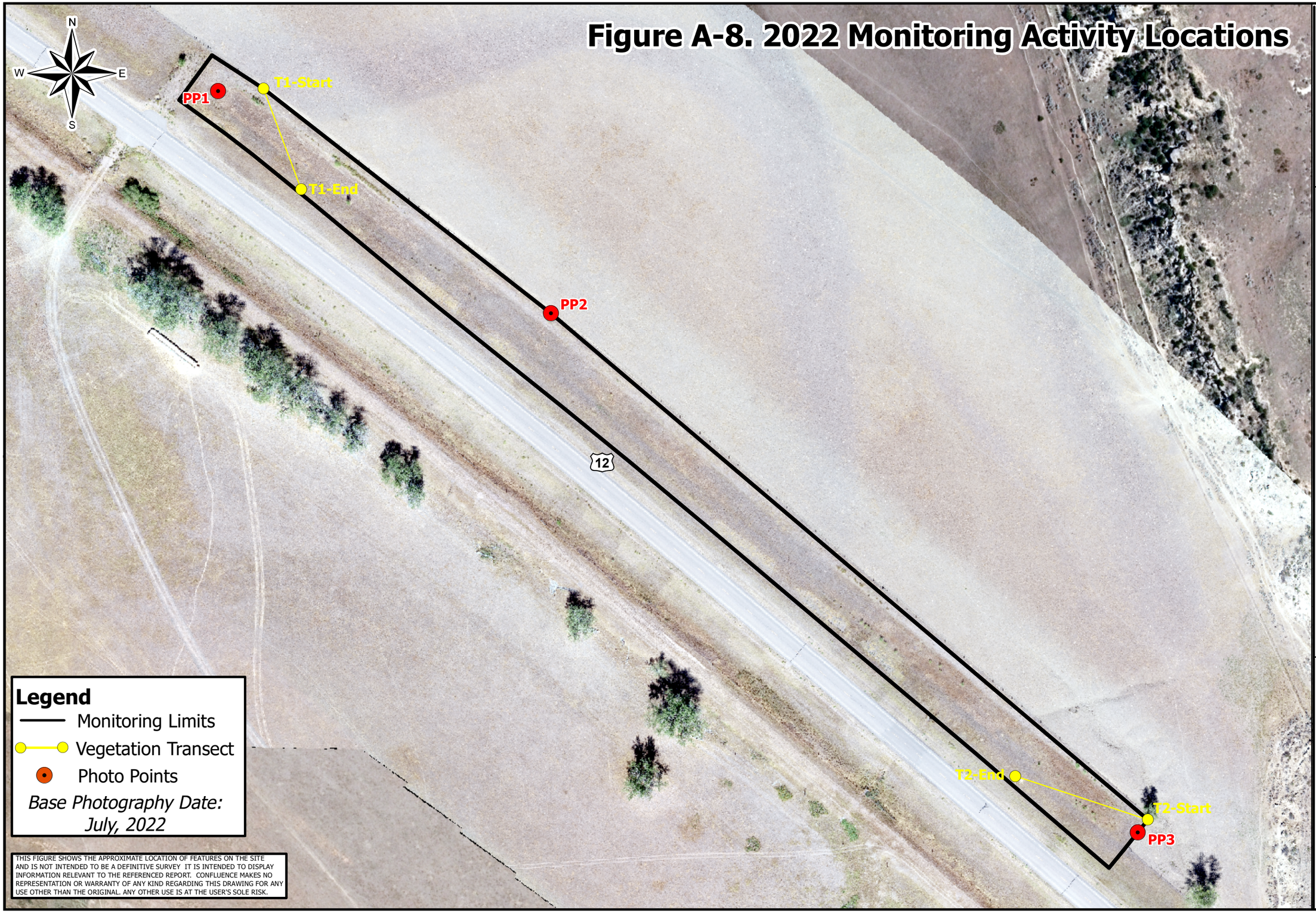
CONFLUENCE CONSULTING

Forsyth NW - Middle Site
2022 Wetland Delineation

0 30 60 120 180 240 300 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Map Date:	March 1, 2023
Project Manager:	R. McEldowney
Drawn By:	RCJ

Figure A-8. 2022 Monitoring Activity Locations



Legend

- Monitoring Limits
- Vegetation Transect
- Photo Points

Base Photography Date: July, 2022

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

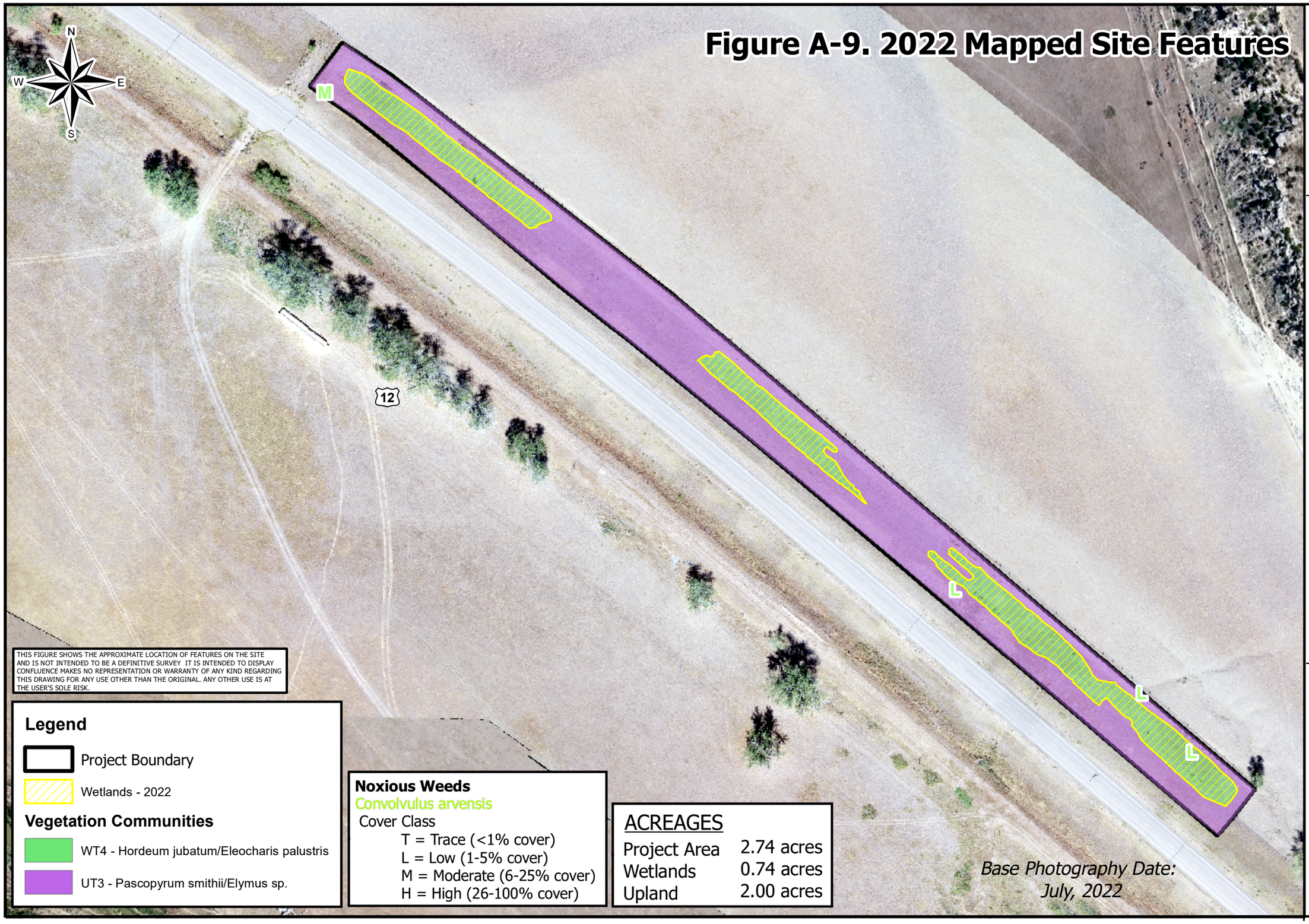
CONFLUENCE CONSULTING

Forsyth NW - East Site
2022 Monitoring Activity Locations

0 50 100 200 300 400 500 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Map Date:	March 1, 2023
Project Manager:	R. McEldowney
Drawn By:	RCJ

Figure A-9. 2022 Mapped Site Features



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 CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

Legend

- Project Boundary
- Wetlands - 2022

Vegetation Communities

- WT4 - Hordeum jubatum/Eleocharis palustris
- UT3 - Pascopyrum smithii/Elymus sp.

Noxious Weeds

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	2.74 acres
Wetlands	0.74 acres
Upland	2.00 acres

Base Photography Date: July, 2022

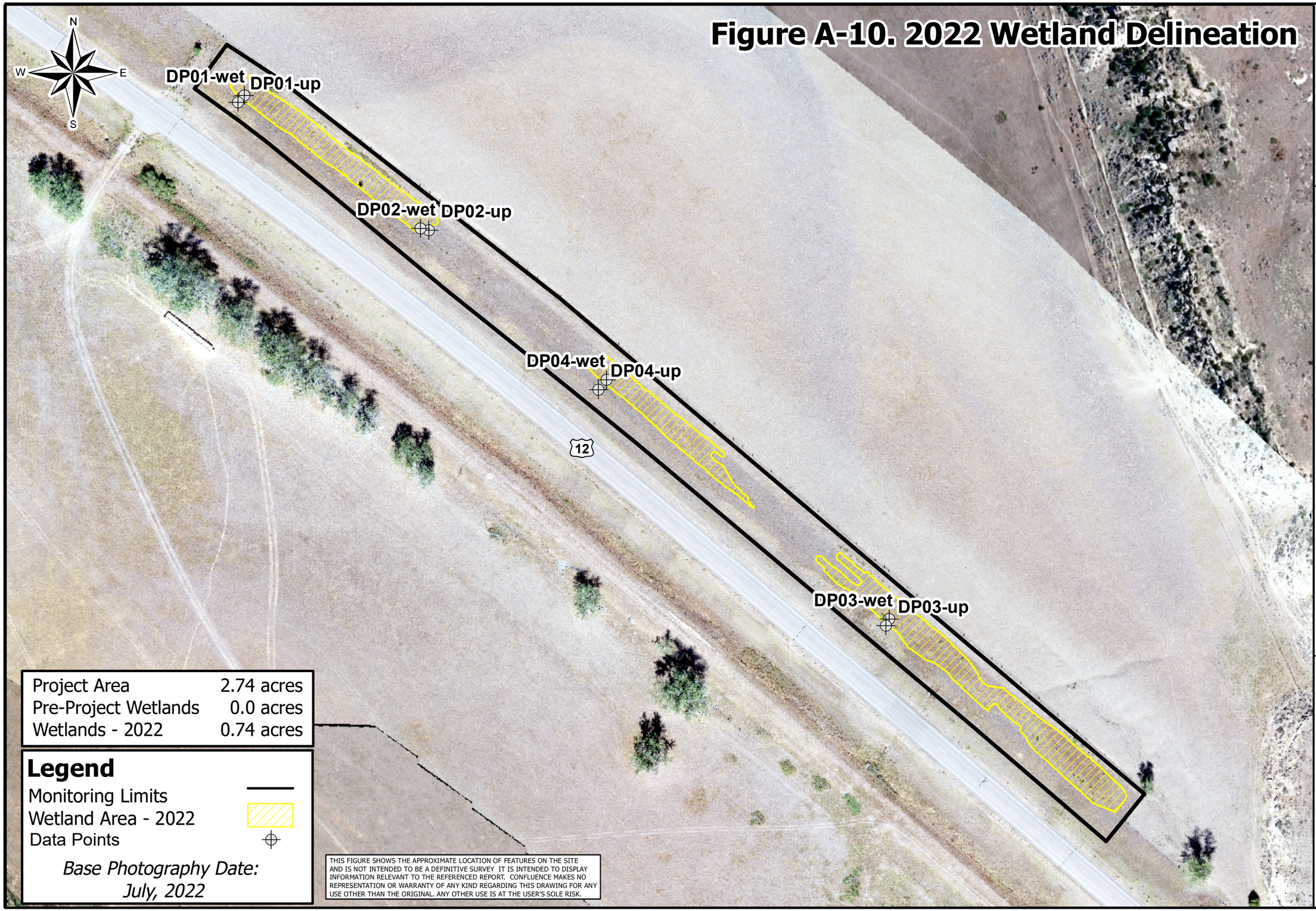
CONFLUENCE CONSULTING

Forsyth NW - East Site
2022 Mapped Site Features

0 50 100 200 300 400 500 Feet

Project:	STTP 14(9)259
Location:	Rosebud Co., Montana
Map Date:	March 1, 2023
Project Manager:	R. McEldowney
Drawn By:	RCJ

Figure A-10. 2022 Wetland Delineation



CONFLUENCE CONSULTING

Forsyth NW - East Site
2022 Wetland Delineation

0 50 100 200 300 400 500 Feet

Project Area	2.74 acres
Pre-Project Wetlands	0.0 acres
Wetlands - 2022	0.74 acres

Legend

- Monitoring Limits
- Wetland Area - 2022
- Data Points

Base Photography Date: July, 2022

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

Project: STTP 14(9)259
Location: Rosebud Co., Montana
Date: November 25, 2022
Project Manager: R. McEldowney
Drawn By: RCJ

APPENDIX B
MONITORING FORMS

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

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (East) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-01u

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

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope (%): 36

Subregion (LRR): LRR G Lat: 46.320907 Long: -106.838693 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent 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: This point is located adjacent to SP01w on a slope to the southwest of the wetland cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus tectorum	2	☐	NL
Lactuca serriola	2	☐	FAC
Pascopyrum smithii	50	☑	FACU
Poa pratensis	5	☐	FACU
Thlaspi arvense	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 36

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	2 X 3	6
FACU species	60 X 4	240
UPL species	2 X 5	10
Column Totals	64 (A)	256 (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:

The sample location is dominated by facultative-upland species, and there is no evidence of a hydrophytic plant community present.

SOIL

Sampling Point: DP-01u

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					Sandy Clay Loam	
03-16+	2.5Y 4/2	100					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: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-01w

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

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

Subregion (LRR): LRR G Lat: 46.32093 Long: -106.83866 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent 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: This point is located in a PEM, depressional wetland at the west end of the exavated wetland cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	45	☑	FACW
Eleocharis palustris	20	☑	OBL
Lactuca serriola	2	☐	FAC
Thlaspi arvense	1	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 32

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	20	X 1	20
FACW species	45	X 2	90
FAC species	2	X 3	6
FACU species	1	X 4	4
UPL species	0	X 5	0
Column Totals	68 (A)		120 (B)

Prevalence Index = B/A = 1.76

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of a hydrophytic plant community is present in a positive dominance test and a low prevalence index.

SOIL

Sampling Point: DP-01w

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	2.5 4/2	93	2.5YR 3/6	7	C	M, PL	Clay	
02-16+	2.5Y 4/2	68	7.5YR 4/4	2	C	M	Clay	
02-16+			5G 4/1	30	D	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 and gleyed 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 present in oxidized rhizospheres, surface soil cracks, a geomorphic position that supports wetland hydrology, and a positive FAC-neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (East) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-02w

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

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

Subregion (LRR): LRR G Lat: 46.320438 Long: -106.837783 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent 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: This is a PEM, depressional wetland located in the bottom of an excavated wetland cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	25	☑	FACW
Eleocharis palustris	10	☑	OBL
Hordeum jubatum	5	☐	FACW
Juncus balticus	2	☐	FACW
Pascopyrum smithii	5	☐	FACU
Poa pratensis	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 48

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	32	X 2	64
FAC species	0	X 3	0
FACU species	10	X 4	40
UPL species	0	X 5	0
Column Totals	52 (A)		114 (B)

Prevalence Index = B/A = 2.19

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of a hydrophytic plant community present in a positive dominance test and a prevalence index below three.

SOIL

Sampling Point: DP-02w

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	2.5YR 4/2	100					Clay	
02-12	2.5Y 4/2	95	7.5YR 5/8	5	C	PL	Clay	
12-16+	2.5Y 4/3	93	7.5YR 4/6	70	CS		Fine Sandy 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 in 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 observed in algal mats and water stained leaves, as well as surface soil cracks.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (East) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-03u

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

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

Subregion (LRR): LRR G Lat: 46.318974 Long: -106.835472 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent 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: Upland sample point adjacent to DP-03w on slope surrounding wetland swale.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Lactuca serriola	2	☐	FAC
Pascopyrum smithii	30	☑	FACU
Poa compressa	20	☑	FACU
Poa pratensis	10	☐	FACU
Schedonorus pratensis	2	☐	FACU
Thlaspi arvense	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 31

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	2 X 3	6
FACU species	67 X 4	268
UPL species	0 X 5	0
Column Totals	69 (A)	274 (B)

Prevalence Index = B/A = 3.97

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:

The site is dominated by upland facultative species.

SOIL

Sampling Point: DP-03u

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						Clay	
04-16+	2.5Y 5/2	90	2.5Y 4/1	10	D	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: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-03w

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

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

Subregion (LRR): LRR G Lat: 46.318997 Long: -106.835454 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent 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: This point is located in a PEM, depressional wetland on the southeast side of the excavated wetland cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	30	☑	FACW
Eleocharis palustris	10	☐	OBL
Hordeum jubatum	5	☐	FACW
Lactuca serriola	10	☐	FAC
Pascopyrum smithii	2	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 43

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	10	X 1	10
FACW species	35	X 2	70
FAC species	10	X 3	30
FACU species	2	X 4	8
UPL species	0	X 5	0
Column Totals	57 (A)		118 (B)

Prevalence Index = B/A = 2.07

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of a hydrophytic plant community present in a positive dominance test and a prevalence index of less than 3.

SOIL

Sampling Point: DP-03w

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
0-05	2.5Y 4/2	83	10Y 4/1	10	D	M	Clay	
0-05			2.5YR 5/8	7	C	M	Clay	
05-16+	2.5Y 4/2	75	2.5YR 4/8	5	C	M	Clay	
05-16+			2.5Y 4/1	20	D	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 in 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: Alongside algal mats, water stained leaves, surface soil cracks, and the geomorphic position of the point, the flow pattern at the sample point provided evidence of wetland hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (East) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-04u

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

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

Subregion (LRR): LRR G Lat: 46.319845 Long: -106.836901 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent 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: Upland sample point adjacent to DP-04w.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Chenopodium album	5	☐	FACU
Lactuca serriola	5	☐	FAC
Lepidium perfoliatum	1	☐	FAC
Pascopyrum smithii	30	☑	FACU
Sisymbrium altissimum	4	☐	FACU
Thlaspi arvense	10	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 45

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	6 X 3	18
FACU species	49 X 4	196
UPL species	0 X 5	0
Column Totals	55 (A)	214 (B)

Prevalence Index = B/A = 3.89

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:

The sample site is populated by facultative upland species, and lacks a hydrophytic vegetation indicator.

SOIL

Sampling Point: DP-04u

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 4/3						Clay Loam	**Soil is very dry.**
02-08	2.5Y 4/2						Clay	
08-17	2.5Y 4/2	95	5YR 4/6	5	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: Relict 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: No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (East) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-04w

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

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

Subregion (LRR): LRR G Lat: 46.319879 Long: -106.836857 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent 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 located in center portion of excavated wetland cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	35	☑	FACW
Chenopodium album	5	☐	FACU
Eleocharis palustris	10	☑	OBL
Hordeum jubatum	10	☑	FACW
Lactuca serriola	1	☐	FAC
Pascopyrum smithii	10	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 29

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	10	X 1	10
FACW species	45	X 2	90
FAC species	1	X 3	3
FACU species	15	X 4	60
UPL species	0	X 5	0
Column Totals	71 (A)		163 (B)

Prevalence Index = B/A = 2.30

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:

With a high proportion of facultative-wetland and obligate species, evidence of a hydrophytic plant community includes a positive dominance test and a prevalence index below 3.

SOIL

Sampling Point: DP-04w

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
0-05	2.5Y 4/2	98	2.5YR 4/4	2	C	M, PL	Clay	
05-11	2.5Y 4/2	80	10Y 4/1	20	D	M	Clay	
11-16	2.5Y 4/3	90	7.5YR 4/6	10	CS		Fine Sandy 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 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 observed in the presence of surface cracks and drift debris.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (East) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-02u

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

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

Subregion (LRR): LRR G Lat: 46.32043 Long: -106.83774 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent slopes NWI classification: Not mapped

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

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

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

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

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

Remarks: Upland sample point within swale just outside of wetland boundary from DP-02wet.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	5	☐	FACW
Hordeum jubatum	2	☐	FACW
Lactuca serriola	1	☐	FAC
Pascopyrum smithii	40	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 52

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	7 X 2	14
FAC species	1 X 3	3
FACU species	40 X 4	160
UPL species	0 X 5	0
Column Totals	48 (A)	177 (B)

Prevalence Index = B/A = 3.69

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:

No evidence of a hydrophytic plant community observed.

SOIL

Sampling Point: DP-02u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16+	2.5Y 4/2	99	2.5YR 3/1	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: Limited evidence of wetland hydrology present in surface soil cracks, however the lack of hydrophytic vegetation and hydric soil indicators imply that the plot location does not have saturated soils long or frequently enough to be considered a wetland.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (Middle) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-01u

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

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

Subregion (LRR): LRR G Lat: 46.322287 Long: -106.841307 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent slopes NWI classification: PABFh

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 adjacent to DP-01w

VEGETATION - Use scientific names of plant

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Rosa woodsii	45	☑	FACU
Symphoricarpos albus	15	☑	UPL

Herbaceous Stratum Plot size (5 Foot Radius)

Lactuca serriola	5	☐	FAC
Pascopyrum smithii	40	☑	FACU
Poa pratensis	10	☐	FACU
Taraxacum officinale	1	☐	FACU
Thlaspi arvense	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 39

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 3 (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	101	X 4	404
UPL species	15	X 5	75
Column Totals	121 (A)		494 (B)

Prevalence Index = B/A = 4.08

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☐ NO ☑

Remarks:

No evidence of a hydrophytic plant community observed.

SOIL

Sampling Point: DP-01u

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 4/3						Silty Clay Loam	
02-16+	2.5Y 4/2						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 (Middle) City/County: Rosebud Sampling Date: 6/1/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-01w

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

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

Subregion (LRR): LRR G Lat: 46.322321 Long: -106.841281 Datum: NAD 83

Soil Map Unit Name: 98: Harlem Silty Clay, 0 to 2 percent slopes NWI classification: PABFh

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 located in excavated wetland cell.

VEGETATION - Use scientific names of plant

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

Sapling/Shrub Stratum (Plot size (15 Foot Radius))			
Salix lutea	2	☑	FACW

Herbaceous Stratum (Plot size (5 Foot Radius))			
Eleocharis palustris	10	☑	OBL
Hordeum jubatum	5	☑	FACW
Juncus balticus	5	☑	FACW
Lactuca serriola	5	☑	FAC
Pascopyrum smithii	10	☑	FACU
Poa pratensis	5	☑	FACU

Woody Vine Stratum (Plot size (30 Foot Radius))

Percent Bare Ground 60

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 71.4 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	10	X 1	10
FACW species	12	X 2	24
FAC species	5	X 3	15
FACU species	15	X 4	60
UPL species	0	X 5	0
Column Totals	42 (A)		109 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of hydrophytic vegetation present in a positive dominance test and a prevalence index below 3.

SOIL

Sampling Point: DP-01w

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 4/3	90	2.5YR 4/6	10	C	M	Clay	
02-16+	2.5Y 5/2	95	7.5YR 4/6	5	C	PL, 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 features common in 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 present in drift deposits, water stained leaves, oxidized rhizospheres along living roots, and cracks in the soil surface.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (West) City/County: Rosebud Sampling Date: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-01u

Investigator(s): R Jones Section, Township, Range: 29 7N 39E

Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): flat Slope (%): 36

Subregion (LRR): LRR G Lat: 46.338269 Long: -106.875452 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0 to 2 percent slopes NWI classification: Not mapped

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

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

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

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

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

Remarks: Upland sample plot located next to the old railroad grade. Presence of charcoal noted in soil pit.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus tectorum	2	☐	NL
Iva axillaris	10	☐	FAC
Pascopyrum smithii	30	☑	FACU
Poa pratensis	40	☑	FACU
Sisymbrium altissimum	8	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 10

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 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	10	X 3	30
FACU species	78	X 4	312
UPL species	2	X 5	10
Column Totals	90 (A)		352 (B)

Prevalence Index = B/A = 3.91

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:

No evidence of hydrophytic vegetation present.

SOIL

Sampling Point: DP-01u

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
0-05	10YR 2/1						Sandy Loam	**Soil very dry.**
05-16+	2.5Y 4/3						Sandy 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. Charcoal in pit.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ 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: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-01w

Investigator(s): R Jones Section, Township, Range: 29 7N 39E

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

Subregion (LRR): LRR G Lat: 46.338301 Long: -106.875412 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0 to 2 percent 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 plot, located in expanded wetland area in southern-central portion of the site.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus	20	☑	FACW
Bassia scoparia	5	☐	FACU
Cirsium arvense	2	☐	FACU
Cyrtorhyncha cymbalaria	35	☑	OBL
Hordeum jubatum	20	☑	FACW
Pascopyrum smithii	10	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 8

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	35	X 1	35
FACW species	40	X 2	80
FAC species	0	X 3	0
FACU species	17	X 4	68
UPL species	0	X 5	0
Column Totals	92 (A)		183 (B)

Prevalence Index = B/A = 1.99

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive dominance test and a prevalence index below three.

SOIL

Sampling Point: DP-01w

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	10YR 4/1	75	5YR 4/6	25	C	M, PL	Clay	
04-07	2.5Y 4/1	60	7.5YR 4/4	10	C	M, PL	Clay	
04-07			10Y 3/1	30	D	M	Clay	
07-16+	2.5Y 4/3	95	7.5YR 3/3	5	C	M, PL	Sandy 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: Many prominent redoximorphic concentrations prominent within the depleted matrix and along pore linings.

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 present in inundation seen on aerials, oxidized rhizospheres on roots, a postive FAC-neutral test, and a geomorphic position that supports wetland hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (West) City/County: Rosebud Sampling Date: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-02u

Investigator(s): R Jones Section, Township, Range: 29 7N 39E

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

Subregion (LRR): LRR G Lat: 46.336647 Long: -106.871571 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0 to 2 percent slopes NWI classification: Not mapped

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

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

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

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

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

Remarks: Upland sample plot located on dike on the east side of the created wetland.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus tectorum	5	☐	NL
Chenopodium album	2	☐	FACU
Lepidium perfoliatum	15	☑	FAC
Pascopyrum smithii	10	☐	FACU
Thlaspi arvense	28	☑	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 40

Dominance Test worksheet

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	0
FACW species	0 X 2	0
FAC species	15 X 3	45
FACU species	40 X 4	160
UPL species	5 X 5	25
Column Totals	60 (A)	230 (B)

Prevalence Index = B/A = 3.83

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:

Vegetation dominated by facultative upland and facultative species, and does not pass any hydrophytic vegetation tests.

SOIL

Sampling Point: DP-02u

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						Clay	
02-16+	2.5Y 4/3						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 indicator 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: Surface cracks are present due to water temporarily overflowing onto the dike. Otherwise, no indicators of wetland hydrology were observed.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (West) City/County: Rosebud Sampling Date: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-02w

Investigator(s): R Jones Section, Township, Range: 29 7N 39E

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

Subregion (LRR): LRR G Lat: 46.336665 Long: -106.871635 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0 to 2 percent 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 plot located between dike and open water on the eastern portion of the excavated cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Chenopodium album	10	☑	FACU
Chenopodium rubrum	10	☑	OBL
Eleocharis palustris	20	☑	OBL
Hordeum jubatum	5	☐	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 55

Dominance Test worksheet

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

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

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

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	30	X 1	30
FACW species	5	X 2	10
FAC species	0	X 3	0
FACU species	10	X 4	40
UPL species	0	X 5	0
Column Totals	45 (A)		80 (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of hydrophytic vegetation is present in both a positive dominance test and a prevalence index below 3.

SOIL

Sampling Point: DP-02w

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
0-05	2.5YR 4/3	80	2.5Y 3/6	20	C	M, PL	Silty Clay	
05-16+	2.5Y 4/2	80	N 3/0	20	D	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: Prominent redoximorphic concentrations common within the first horizon, prominent depletions in the second horizon.

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): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Saturation to the soil surface and salt crusts indicate wetland hydrology. Surface water was observed within 10 feet of soil pit.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (West) City/County: Rosebud Sampling Date: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-03u

Investigator(s): R Jones Section, Township, Range: 20 7N 39E

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

Subregion (LRR): LRR G Lat: 46.339438 Long: -106.875645 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0 to 2 percent slopes NWI classification: Not mapped

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

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

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

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

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

Remarks: Upland sample plot between Highway 12 and wetland.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Elymus trachycaulus	11	☑	FACU
Lepidium perfoliatum	1	☐	FAC
Pascopyrum smithii	25	☑	FACU
Thlaspi arvense	1	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 61

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	37 X 4	148
UPL species	0 X 5	0
Column Totals	38 (A)	151 (B)

Prevalence Index = B/A = 3.97

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:

An upland vegetation community is present at this data point.

SOIL

Sampling Point: DP-03u

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
0-01	2.5Y 4/3						Silty Clay Loam	
01-11	2.5Y 4/3	99	7.5YR 5/8	1			Clay	
11+								**Rock/Asphalt bottom**

[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: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-03w

Investigator(s): R Jones Section, Township, Range: 20 7N 39E

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

Subregion (LRR): LRR G Lat: 46.339408 Long: -106.875679 Datum: NAD 83

Soil Map Unit Name: 138: Marvan silty clay, 0 to 2 percent 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 plot located on the northern side of the wetland cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status
Chenopodium album	10	☑	FACU
Distichlis spicata	15	☑	FACW
Eleocharis palustris	2	☐	OBL
Hordeum jubatum	10	☑	FACW
Lepidium perfoliatum	3	☐	FAC
Puccinellia nuttalliana	2	☐	OBL
Sarcobatus vermiculatus	3	☐	FAC
Schoenoplectus maritimus	15	☑	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 40

Dominance Test worksheet

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

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:	
OBL species	19	X 1	19
FACW species	25	X 2	50
FAC species	6	X 3	18
FACU species	10	X 4	40
UPL species	0	X 5	0
Column Totals	60 (A)		127 (B)

Prevalence Index = B/A = 2.12

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence of hydrophytic vegetation present in both a positive dominance test and a prevalence index that is less than 3.

SOIL

Sampling Point: DP-03w

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
0-05	5Y 4/2	93	7.5YR 4/6	7	C	M, PL	Silty Clay	
05-11	2.5Y 4/3	50	10YR 4/4	20	C	M	Silty Clay	
05-11			10Y 4/1	30	D	M	Silty Clay	
11-16+	2.5Y 4/3	50	7.5YR 4/6+5/	50	C,	M	Sandy 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: Prominent redoximorphic concentrations common in mottles and along pore linings 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): 10

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Soil saturation at a depth of 10", salt crusts, the point's geomorphic position, postive FAC-neutral test, and oxidized rhizospheres along living roots indicate wetland hydrology.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Forsyth NW (West) City/County: Rosebud Sampling Date: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-04u

Investigator(s): R Jones Section, Township, Range: 20 7N 39E

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

Subregion (LRR): LRR G Lat: 46.340222 Long: -106.877354 Datum: NAD 83

Soil Map Unit Name: 36: Borollic Camborthids-Ustic Torriorthents complex, 0 to 8 percent slop 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 adjacent to DP-04w in northern-most corner of the monitoring area.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Elymus trachycaulus	10	☐	FACU
Lepidium perfoliatum	10	☐	FAC
Pascopyrum smithii	55	☑	FACU
Sisymbrium altissimum	5	☐	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 20

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	10	X 3	30
FACU species	70	X 4	280
UPL species	0	X 5	0
Column Totals	80 (A)		310 (B)

Prevalence Index = B/A = **3.88**

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:

The vegetation community at the sample point is dominated by facultative upland species.

SOIL

Sampling Point: DP-04u

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 3/3	100					Clay Loam	**Soil very dry**
02-16+	2.5Y 4/3	100					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 (West) City/County: Rosebud Sampling Date: 6/2/2022

Applicant/Owner: MDT State: Montana Sampling Point: DP-04w

Investigator(s): R Jones Section, Township, Range: 20 7N 39E

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

Subregion (LRR): LRR G Lat: 46.340203 Long: -106.877312 Datum: NAD 83

Soil Map Unit Name: 36: Borollic Camborthids-Ustic Torriorthents complex, 0 to 8 percent slop 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 plot located just downstream of the culvert at the northern end of the excavated cell.

VEGETATION - Use scientific names of plant

Tree Stratum Plot size (30 Foot Radius)

	Absolute % Cover:	Domiant Species?	Indicator Status

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Cyrtorhyncha cymbalaria	5	☐	OBL
Eleocharis palustris	30	☑	OBL
Elymus canadensis	5	☐	FACU
Hordeum jubatum	5	☐	FACW
Lepidium perfoliatum	3	☐	FAC
Salicornia rubra	10	☐	OBL
Schoenoplectus maritimus	25	☑	OBL
Spartina pectinata	2	☐	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 15

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	70	X 1	70
FACW species	7	X 2	14
FAC species	3	X 3	9
FACU species	5	X 4	20
UPL species	0	X 5	0
Column Totals	85 (A)		113 (B)

Prevalence Index = B/A = 1.33

Hydrophytic Vegetation Indicators

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

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

Hydrophytic Vegetation Present? Yes ☑ NO ☐

Remarks:

Evidence for a hydrophytic plant community includes a positive dominance test and a prevalence index below three.

SOIL

Sampling Point: DP-04w

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	60	7.5YR 4/4	40	C	M,PL	Fine Sandy Clay	
04-15	2.5Y 4/3	73	N 4/2	20	D	M	Sandy Clay Loam	
04-15			7.5YR 3/4	7	C	M,PL		

[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 present within the depleted matrix and along pore linings.

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): 3

Water Table Present? Yes ☑ No ☐ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes ☑ No ☐ Depth (inches): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Evidence of wetland hydrology includes a high water table, saturation at the soil surface, a positive FAC-neutral test, and surface water to a depth of 3" at the sampling point.

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - East Assessment Date/Time 6/1/2022

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: 10 #Visits in Year: 1

Size of Evaluation Area: 2.74 (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:** 2.02

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Alopecurus arundinaceus	1
Ambrosia psilostachya	0	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	0
Hordeum jubatum	1	Lactuca serriola	1
Lepidium perfoliatum	2	Linum lewisii	0
Pascopyrum smithii	5	Poa compressa	1
Poa pratensis	2	Populus tremuloides	0
Rumex crispus	1	Schedonorus pratensis	1
Sisymbrium altissimum	0	Thlaspi arvense	3
Tragopogon dubius	1		

Comments:

Significant increase in bare ground and decrease in total cover.

Community # 4 **Community Type:** Hordeum jubatum / Eleocharis palustris **Acres:** 0.72

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

Comments:

Reduced cover from Hordeum jubatum across site, and increased cover from Pascopyrum smithii in wetlands.

Total Vegetation Community Acreage **2.74**

VEGETATION TRANSECTS

Site: Forsyth NW - East Date: 6/1/2022

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	3	Lactuca serriola	1
Lepidium perfoliatum	1	Pascopyrum smithii	5
Schedonorus pratensis	0	Sisymbrium altissimum	0
Thlaspi arvense	2		

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

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	5	Bare Ground	3
Eleocharis palustris	2	Elymus repens	1
Hordeum jubatum	1		

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

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	2
Bromus japonicus	0	Bromus tectorum	0
Chenopodium album	2	Convolvulus arvensis	2
Elymus trachycaulus	2	Lactuca serriola	3
Lepidium perfoliatum	1	Pascopyrum smithii	2
Poa compressa	2	Schedonorus pratensis	0
Thlaspi arvense	2		

Transect Notes:

Increased vegetative cover since 2021, especially from annual forb species. Annual weed cover was highest in areas that had high amounts of bare ground in 2021.

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	0
Hordeum jubatum	0	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	0	Lactuca serriola	3
Pascopyrum smithii	3	Poa compressa	3
Puccinellia nuttalliana	1	Salix fragilis	1
Schedonorus pratensis	1	Tragopogon dubius	0

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

Species	Cover class	Species	Cover class
Bare Ground	3	Chenopodium album	0
Lactuca serriola	1	Pascopyrum smithii	5
Poa compressa	2	Rumex crispus	1
Thlaspi arvense	2	Tragopogon dubius	0

Transect Notes:

Increased vegetative cover since 2021, especially from annual forb species. Annual weed cover was highest in areas that had high amounts of bare ground 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
Eastern Kingbird	3	L, FO, BP	UP
Meadowlark	2	FO	
Purple Martin	4	L	UP
Western Kingbird	4	L, FO, BP	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:
No wildlife noted during the 2022 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	46.320907	-106.838693		
DP01w	46.32093	-106.83866		
DP02u	46.32043	-106.83774		
DP02w	46.320438	-106.837783		
DP03u	46.318974	-106.835472		
DP03w	46.318997	-106.835454		
DP04u	46.319845	-106.836901		
DP04w	46.319879	-106.836857		
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 2022, 0.74-acres or wetland were delineated, an increase of 0.14-acres from 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

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - Middle Assessment Date/Time 6/1/2022

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: 10 #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 still exhibits more marginal wetland habitat in 2022.

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
Grindelia squarrosa	0	Hordeum jubatum	1
Juncus balticus	1	Lactuca serriola	1
Linum lewisii	0	Melilotus officinalis	0
Pascopyrum smithii	4	Poa palustris	1
Poa pratensis	2	Populus deltoides	1
Ratibida columnifera	1	Rosa woodsii	1
Rumex crispus	0	Sarcobatus vermiculatus	1
Schedonorus pratensis	1	Symphoricarpos albus	2
Taraxacum officinale	0	Thlaspi arvense	1
Tragopogon dubius	1		

Comments:

Upland community surrounding wetland swale.

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

Species	Cover class	Species	Cover class
Bare Ground	4	Bromus arvensis	1
Chenopodium album	1	Cirsium arvense	2
Convolvulus arvensis	1	Deschampsia elongata	1
Eleocharis palustris	2	Elymus lanceolatus	1
Elymus repens	1	Elymus trachycaulus	2
Grindelia squarrosa	1	Hordeum jubatum	1
Juncus balticus	0	Lactuca serriola	3
Lepidium perfoliatum	0	Medicago sativa	0
Nassella viridula	1	Pascopyrum smithii	2
Poa palustris	1	Poa pratensis	1
Populus deltoides	1	Puccinellia nuttalliana	2
Rumex crispus	0	Salix lutea	1
Schedonorus pratensis	2	Schoenoplectus maritimus	1
Thlaspi arvense	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**

VEGETATION TRANSECTS

Site: Forsyth NW - Middle Date: 6/1/2022

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	1
Convolvulus arvensis	0	Elymus canadensis	1
Grindelia squarrosa	0	Juncus balticus	1
Pascopyrum smithii	3	Schedonorus pratensis	0
Taraxacum officinale	0	Tragopogon dubius	0

Ending Station 28 **Community Type:** Hordeum jubatum / Eleocharis palustris

Species	Cover class	Species	Cover class
Bare Ground	2	Deschampsia elongata	1
Eleocharis palustris	1	Elymus repens	1
Elymus trachycaulus	0	Hordeum jubatum	1
Juncus balticus	0	Lactuca serriola	1
Lepidium perfoliatum	0	Pascopyrum smithii	1
Poa palustris	0	Poa pratensis	2
Puccinellia nuttalliana	1	Schedonorus pratensis	4
Thlaspi arvense	0	Tragopogon dubius	0

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

Species	Cover class	Species	Cover class
Bare Ground	3	Elymus trachycaulus	1
Pascopyrum smithii	2	Poa pratensis	3
Populus deltoides	4	Ratibida columnifera	0
Schedonorus pratensis	1	Symphoricarpos albus	2

Transect Notes:

Increased cover in 2022.

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 2022.

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 2022 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	46.322287	-106.841307		
DP01w	46.322321	-106.841281		
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 2022.

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.

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Forsyth NW - West Assessment Date/Time 6/2/2022

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: 10 #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: 82 %

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 2022. Much of the mudflats observed in 2021 were inundated or had developed more vegetation in 2022.

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 2022 site visit and water depth was 6 inches to 1 foot deeper than in 2021. 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:** 0.79

Species	Cover class	Species	Cover class
Bare Ground	3	Bassia scoparia	1
Bromus inermis	2	Bromus tectorum	4
Chenopodium album	1	Elymus repens	2
Euphorbia esula	1	Galium triflorum	0
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:

Sarcobartus vermiculatus observed in poor condition.

Community # 5 **Community Type:** Symphoricarpos albus / Pascopyrum smithii **Acres:** 1.18

Species	Cover class	Species	Cover class
Bare Ground	1	Bassia scoparia	1
Bromus inermis	2	Bromus japonicus	0
Carex sp.	0	Chenopodium album	1
Cirsium arvense	2	Eleocharis lanceolata	1
Elymus repens	3	Glycyrrhiza lepidota	1
Grindelia squarrosa	0	Hordeum jubatum	0
Pascopyrum smithii	0	Poa compressa	1
Poa pratensis	3	Ribes sp.	1
Sarcobatus vermiculatus	1	Symphoricarpos albus	2
Thlaspi arvense	1		

Comments:

Upland community type.

Community # 6 Community Type: Pascopyrum smithii / Bromus tectorum **Acres:** 0.99

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

Comments:

Some areas previously classified as CT 6 have transitioned to CT 1 and thus the acreage covered by CT 6 decreased by 0.14 acres in 2022.

Community # 8 Community Type: Typha latifolia / Eleocharis palustris **Acres:** 0.58

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:

CT 8 acreage increased by 0.22 acres since 2021. This shift is reflective of Typha expansion across the site.

Community # 16 Community Type: Alopecurus arundinaceus / Hordeum jubatum **Acres:** 0.08

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 boundaries of this CT changed slightly in 2022.

Community # 17 Community Type: Open Water / Aquatic macrophytes **Acres:** 8.26

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

Comments:

0.66 acre increase in open water since 2021.

Community # 18 Community Type: Hordeum jubatum / Typha spp. **Acres:** 1.19

Species	Cover class	Species	Cover class
Bare Ground	4	Chenopodium album	1
Eleocharis palustris	3	Elymus trachycaulus	0
Grindelia squarrosa	1	Hordeum jubatum	2
Open Water	1	Pascopyrum smithii	0
Poa pratensis	0	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 2022, the acreage of this CT increased by 0.07 acres.

Community # 19 Community Type: Mudflat / **Acres:** 0.51

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	1	Schoenoplectus maritimus	1

Comments:

Mudflats acreage decreased by 0.91 acres in 2022 due to increased inundation and increased growth of emergent plant species in areas previously classified as mudflat.

Community # 20 **Community Type:** Thlaspi arvense / Lepidium perfoliatum **Acres:** 0.14

Species	Cover class	Species	Cover class
Bare Ground	2	Chenopodium album	2
Lepidium perfoliatum	4	Pascopyrum smithii	2
Sarcobatus vermiculatus	0	Thlaspi arvense	4

Comments:

New community type on SE end of project area.

Total Vegetation Community Acreage **13.72**

VEGETATION TRANSECTS

Site: Forsyth NW - West Date: 6/2/2022

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	1	Bromus tectorum	5
Euphorbia esula	3	Pascopyrum smithii	2
Poa pratensis	1		

Ending Station 264 **Community Type:** Open Water / Aquatic macrophytes

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 275 **Community Type:** Mudflat /

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	1	Chenopodium album	4
Elymus trachycaulus	2	Hordeum jubatum	2
Pascopyrum smithii	2	Poa pratensis	1
Schoenoplectus maritimus	1		

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	2	Cirsium arvense	1
Eleocharis lanceolata	1	Elymus repens	3
Glycyrrhiza lepidota	0	Grindelia squarrosa	1
Hordeum jubatum	0	Pascopyrum smithii	1
Poa pratensis	2	Symphoricarpos albus	1

Ending Station 232 **Community Type:** Open Water / Aquatic macrophytes

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

Ending Station 245 **Community Type:** Mudflat /

Species	Cover class	Species	Cover class
Bare Ground	5	Chenopodium album	1
Chenopodium rubrum	0	Salicornia rubra	1
Schoenoplectus maritimus	1	Unk. Succulent	1

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

Species	Cover class	Species	Cover class
Bare Ground	1	Bromus arvensis	0
Bromus tectorum	1	Chenopodium album	0
Elymus lanceolatus	1	Elymus trachycaulus	0
Hordeum jubatum	1	Lepidium perfoliatum	3
Pascopyrum smithii	2	Poa pratensis	1
Sisymbrium altissimum	1		

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 Coot	1	F	OW
American Wigeon	2	F, L	OW, MA
Cinnamon Teal	3	F, L	OW
Cliff Swallow	4	FO	UP, OW
Common Nighthawk	4	FO	UP
Killdeer	4	F, N	MF, UP
Mallard	2	F, L	OW, MA
Mourning Dove	2	L	UP
Northern Pintail	2	F	OW, MA
Northern Shoveler	1	F	OW
Red-winged Blackbird	2	L, N	MA
Sandpiper Sp.	3	F	MF
Snipe	8	F	MF
Vulture sp.	2	FO	UP
Willet	3	F	MF, MA
Yellow-headed Blackbird	5	L, F	MA

Bird Comments

Many ducks on the site, 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

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	46.338269	-106.875452		
DP01w	46.338301	-106.875412		
DP02u	46.336647	-106.871571		
DP02w	46.336665	-106.871635		
DP03u	46.339438	-106.875645		
DP03w	46.339408	-106.875679		
DP04u	46.340222	-106.877354		
DP04w	46.340203	-106.877312		
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 II wetland.

Maintenance

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

If yes, do they need to be repaired?

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

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

into or out of the wetland? Yes

If yes, are the structures in need of repair? No

If yes, describe the problems below.

The dike appears to be functioning well.

Water flowed over dike at some point within the last year.

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 6/1/2022 **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 0.74

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.74

☐ **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 an increase in vegetatative cover in 2022, likely due to high amounts of spring precipitation. Center of basin has transitoned back into a wetland.

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 IPaC

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 No wildlife sign 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**

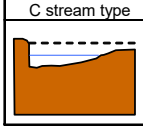
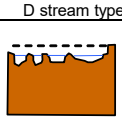
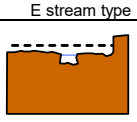
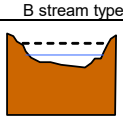
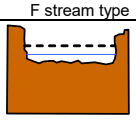
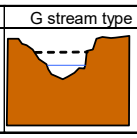
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

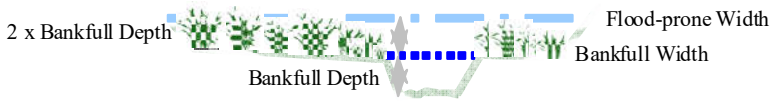
iii. Final Score and Rating: 0 NA **Comments:** No fish habitat exists on site.

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 is part of 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

Wetland area increased by 0.14 acres since 2021.

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		☐
B. MT Natural Heritage Program Species Habitat	H	.9	1		☑
C. General Wildlife Habitat	M	.4	1		☐
D. General Fish Habitat	NA	0	0		☐
E. Flood Attenuation	NA	0	0		☐
F. Short and Long Term Surface Water Storage	L	.3	1		☐
G. Sediment/Nutrient/Toxicant Removal	H	.8	1		☑
H. Sediment/Shoreline Stabilization	NA	0	0		☐
I. Production Export/Food Chain Support	M	.4	1		☐
J. Groundwater Discharge/Recharge	M	.7	1		☑
K. Uniqueness	L	.2	1		☐
L. Recreation/Education Potential (bonus points)	L	.05	NA		☐
Totals:		3.75	8		
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

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 6/1/2022 **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**
- ☐ **Mitigation Wetlands: pre-construction**
- ☑ **Mitigation Wetlands: post construction**
- ☐ **Other**

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

How assessed: Measured e.g. by GPS

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
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 IPaC

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 No wildlife sign 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**

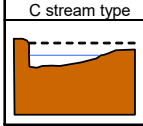
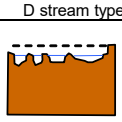
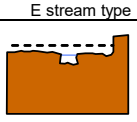
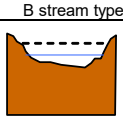
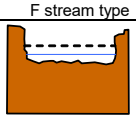
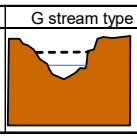
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

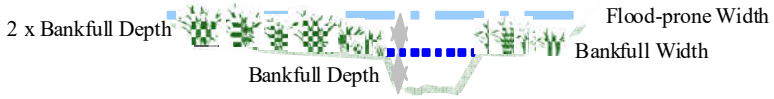
iii. Final Score and Rating: 0 NA **Comments:** Not applicable.

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

Increase in noxious weed cover in 2022.

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		☐
B. MT Natural Heritage Program Species Habitat	H	.9	1		☑
C. General Wildlife Habitat	M	.4	1		☑
D. General Fish Habitat	NA	0	0		☐
E. Flood Attenuation	NA	0	0		☐
F. Short and Long Term Surface Water Storage	L	.3	1		☑
G. Sediment/Nutrient/Toxicant Removal	H	.8	1		☑
H. Sediment/Shoreline Stabilization	NA	0	0		☐
I. Production Export/Food Chain Support	L	.3	1		☐
J. Groundwater Discharge/Recharge	NA	0	0		☐
K. Uniqueness	L	.2	1		☐
L. Recreation/Education Potential (bonus points)	L	.05	NA		☐
Totals:		2.95	7		
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

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 6/2/2022 **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 1.86

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 10.63

☐ **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	13.4
Riverine	Unconsolidated Bottom	Excavated	Permanent/Perennial	5
Riverine	Unconsolidated Bottom	Impounded	Permanent/Perennial	81.6

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.

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

Euphorbia esula, Cirsium arvense
Cirsium arvense, Euphorbia esula

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 that 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 an open water area.

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 IPaC

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)
- [ ] 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 2022 site visit. Turtles and frogs were 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

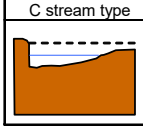
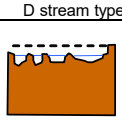
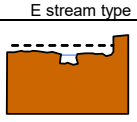
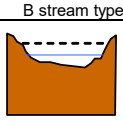
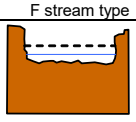
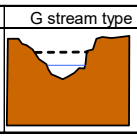
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating .3L

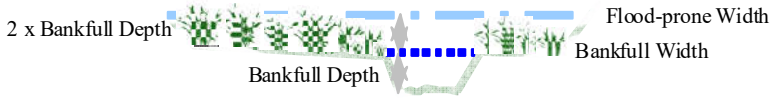
iii. Final Score and Rating: .3 L **Comments:** Increased inudation increased fish habitat on site in 2022. While the site was not designed to provide fish habitat, fish have been using the site as a result of flooding and inundation.

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 three 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 structurally 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 provided highly valuable habitat to shorebirds and waterfowl during 2022.

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		☐
B. MT Natural Heritage Program Species Habitat	H	.9	1		☐
C. General Wildlife Habitat	E	1	1		☑
D. General Fish Habitat	L	.3	1		☐
E. Flood Attenuation	M	.6	1		☐
F. Short and Long Term Surface Water Storage	H	1	1		☑
G. Sediment/Nutrient/Toxicant Removal	M	.7	1		☐
H. Sediment/Shoreline Stabilization	M	.7	1		☐
I. Production Export/Food Chain Support	H	.8	1		☑
J. Groundwater Discharge/Recharge	H	1	1		☑
K. Uniqueness	L	.3	1		☐
L. Recreation/Education Potential (bonus points)	H	.2	NA		☐
Totals:		7.5	11		
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. 2022 Plant Species List – FWN-West.

Scientific Names	Common Names	GP Indicator Status[(a)]
Agropyron cristatum	Crested Wheatgrass	UPL
Algae, green	Algae, green	OBL
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
Chorispora tenella	**Crossflower**	**UPL**
Convolvulus arvensis	Field Bindweed	UPL
Descurainia pinnata	**Western tansymustard**	**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	UPL
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

Table B-1. 2022 Plant Species List – FWN-West.

Scientific Names	Common Names	GP Indicator Status[(a)]
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
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	UPL

[(a)] 2020 NWPL (USACE 2020)

New species identified in 2022 are **bolded**.

Table B-2. 2022 Plant Species List – FWN- Middle.

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

Table B-2. 2022 Plant Species List – FWN- Middle.

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
Puccinellia nuttalliana	Nuttall's Alkali Grass	OBL
Ratibida columnifera	Prairie Coneflower	UPL
Rosa arkansana	Prairie Rose	FACU
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)] 2020 NWPL (USACE 2020)

Table B-3. 2022 Plans Species List – FNW-East.

Scientific Names	Common Names	GP Indicator Status[(a)]
Agropyron cristatum	Crested Wheatgrass	UPL
Algae, green	Algae, green	UPL
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	UPL
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

Table B-3. 2022 Plans Species List – FNW-East.

Ratibida columnifera	Prairie Coneflower	UPL
Rumex acetosella	Common Sheep Sorrel	FAC
Rumex crispus	Curly Dock	FAC
Sagittaria cuneata	Arum-Leaf Arrowhead	OBL
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	UPL

[(a)] 2020 NWPL (USACE 2020)

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 2022



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 2022

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 2022



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 2022

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 2022



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



Photo Point 6 **Location:** Center of new dike
Bearing: 300 degrees **Year:** 2022



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:** 2022

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:** 2022



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



Transect 1: End **Location:** SE end
Bearing: 205 degrees **Year:** 2022



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



Transect 2: Start **Location:** NW End
Bearing: 25 degrees **Year:** 2022

Forsyth Northwest – West Site: Transect and Data Point Photographs



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



Transect 2: End
Bearing: 205 degrees
Location: Northwest End
Year: 2022



Data Point: DP01w
Location: S side of site
Year: 2022



Data Point: DP01u
Location: S side of site
Year: 2022



Data point: DP02w
Location: SE End
Year: 2022



Data point: DP02u
Location: SE End, on dike
Year: 2022

Forsyth Northwest – West Site: Data Point Photographs



Data Point: DP03w **Location:** N side of site
Year: 2022



Data Point: DP03u **Location:** N side of site
Bearing: 25 degrees **Year:** 2022



Data Point: DP04w **Location:** NW Corner
Year: 2022



Data Point: DP04u **Location:** NW Corner
Year: 2022

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:** 2022



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



Photo Point: 2 **Location:** Southeast end
Bearing: 300 degrees **Year:** 2022



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



Transect 1: Start **Location:** Middle of Site
Bearing: 205 degrees **Year:** 2022

Forsyth Northwest – Middle: Transect and Data Point Photographs



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



Transect 1: End
Bearing: 25 degrees
Location: Middle of Site
Year: 2022



Data Point: DP01w
Location: Southeast end
Year: 2022



Data Point: DP01u
Location: Southeast end
Year: 2022

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**: 2022



Photo Point 2: Located near Center of Site; Bearing 210 degrees; Year 2013



Photo Point 2: Located near Center of Site; Bearing 210 degrees; Year 2022



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:** 2022

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:** 2022



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



Transect 1: End **Location**: Northwest End
Bearing: 325 degrees **Year:** 2022



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



Transect 2: Start **Location:** Southeast End
Bearing: 280 degrees **Year:** 2022

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:** 2022



Data point: DP01w **Location:** Northwest End
Year: 2022



Data point: DP01u **Location**: Northwest End
Year: 2022



Data point: DP02w **Location:** Northwest Side
Year: 2022



Data point: DP02u **Location:** Northwest Side
Year: 2022

Forsyth Northwest – East Site: Data Point Photographs



Data point: DP03w **Location:** Southeast Side
Year: 2022



Data point: DP03u **Location:** Southeast Side
Year: 2022



Data point: DP04w **Location:** Middle of site
Year: 2022



Data point: DP04u **Location**: Middle of site
Year: 2022