

ROSTAD RANCH MITIGATION SITE

Project Overview

MDT Project: STPX 002(749), UPN #5565

Watershed: Watershed #10 – Musselshell River Basin

Monitoring Year: 2022

Years Monitored: 10th year of monitoring

Corps Permit Number: NWO-2006-90851-MTB

Monitoring Conducted By: Confluence Consulting Inc.

Dates Monitoring Was Conducted: June 27, 2022

Purpose of the Approved Project:

The site was originally constructed to provide 39.70 acres of compensatory wetland mitigation credits for wetland impacts associated with future transportation projects in Watershed #10 – Musselshell River Basin. The initial project consisted of filling drainage ditches, excavating and grading the site to distribute water across the site, and creating open-water areas. Adaptive Management actions were undertaken in 2017 to install several spreader berms to improve distribution of supplemental irrigation water across the site. After discussions with the Corps and the Design Consultant, the overall wetland development goal was reduced to 27.4 wetland credit acres.

Site Location:

Latitude: 46.462457 **Longitude:** –110.294063

County: Meagher **Nearest Town:** Martinsdale, MT

Map Included: Figure 1 – Site Location Map on page #10.

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

Adaptive Management: In 2017, several berms were installed to improve overall water management and distribution for increased wetland expansion across the site.

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

Activity: N/A **Date:** N/A

Specific recommendations for any additional corrective actions: Weed treatment should continue in 2023 so that the site may continue to meet this performance criteria.

Anticipated Wetland Credit Acres: 27.4

Wetland Credit Acres Generated to Date: 30.57

Previous Monitoring Reports:

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

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

Monitoring Period: 5 years from construction completion or until concurrence by the US Army Corps of Engineers (USACE).

Performance Standards: A summary of performance standards established for the Rostad Ranch site and whether they are being achieved is provided in Table 1.

Table 1. Summary of Performance Standards

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	The three parameter criteria for hydrology, vegetation, and soils as outlined in the 1987 Wetland Manual and 2010 Great Plains Regional Supplement.	Y	Wetland habitat areas within the mitigation site meet the three parameters required to qualify as wetlands. This criterion is met in 2022.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Y	Irrigation water was diverted into the site on May 11th and turned off on May 15, 2022. During the site monitoring event in June, precipitation provided overland flow that flooded the site, including non-wetland areas. This criterion is met in 2022.
Hydric Soil	Hydric soil conditions are present or appear to be forming.	Y	The constructed wetland complex is beginning to develop hydric soils in areas that were identified as nonhydric prior to construction. Hydric soil characteristics remain present in areas that were identified as wetland prior to construction.
	Soil is sufficiently stable to prevent erosion.	Y	Disturbed soil is stable and does not exhibit signs of erosion.
	Soil is able to support plant cover.	Y	Plant cover has developed and remains stable across previously disturbed soils.
Hydrophytic Vegetation	Combined absolute cover of facultative or wetter species is greater than or equal to 70 percent.	Y	Wetland areas within the mitigation site contain greater than 70% absolute cover from hydrophytic vegetation (OBL, FACW, and FAC).
	Noxious weeds do not exceed 5 percent cover.	Y	Weed treatment has been effective, and noxious weed cover is estimated to be approximately 2% across the mitigation site.
Woody Plants	Plantings exceed 50 percent survival after 5 years.	Y	Woody plant survival was estimated at 50 percent in 2022 for all plantings, meeting the 50 percent survival rate. Woody volunteers continue to establish around planting zones.
Open-Water Areas	Open water that is established within the designated wetland cells will be considered successful and creditable if open water does not exceed 10 percent of the total wetland acreage.	Y	In 2022, no open water was observed at the mitigation site. Inundated areas of ponding related to recent events were ephemeral not identified as open water habitat. This criterion is met.
Upland Buffer	Success will be achieved when noxious weeds do not exceed 5 percent cover within the buffer areas on the site.	Y	Noxious weed cover was well below the 5% threshold within the upland buffer areas.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Upland Buffer	Any area that was disturbed within creditable buffer zone must have at least 50 percent aerial cover of desirable upland plant species by the end of the monitoring period.	Y	Upland buffers that surround wetland areas within the site exhibited greater than 50 percent aerial cover of non-weed species in 2022.
Weed Control	Weed-control measures are implemented to minimize and/or eliminate infestations of state-listed noxious weed species within the site.	Y	Noxious weed treatment has been effective at managing noxious weed cover. State-listed noxious weed species across the site were estimated at 2 percent absolute cover in 2022.
Fencing	Wildlife-friendly fencing is installed along the easement boundaries.	Y	Wildlife-friendly fencing was installed with the construction of this site around the easement boundaries and remains in functional condition.

Summary Data

Wetland Delineation – The total wetland acreage delineated in 2022 was 29.48 acres, which included preexisting wetlands (see maps in Appendix A). This is a 0.55-acre increase in wetland acreage from 2021. The adaptive management strategies implemented in 2017 increased the amount of inundation in some places on the site and has supplied hydrology to support the development of wetlands in areas previously identified as upland. Some of the newly inundated and saturated areas are beginning to transition to include more hydrophytic species, and soils are developing hydric features. With sustained hydrology in upcoming years, wetlands are likely to continue to develop and expand across the mitigation site.

Vegetation – A total of 93 plant species were identified on the site from 2013 through 2022, with three new species identified at the site in 2022. A comprehensive species list can be found in Appendix B (Table B-1). Vegetation communities were identified and mapped by plant composition and dominance. Community composition has shifted across the site, with a noticeable change in *Alopecurus pratensis* replacing *Phalaris arundinacea* as a dominant species. This shift was reflected in the creation of Wetland Type (WT) 14 (*Alopecurus pratensis*/*Eleocharis palustris*) to replace WT 12 (*Phalaris arundinacea*/*Eleocharis palustris*). Similarly, WT 15 (*Typha latifolia*) was created to replace WT 5 (*Typha latifolia*/*Glyceria grandis*). A new wetland community, WT 16 (*Carex praegracilis*/*Poa pratensis*) was identified in 2022 north of the berm at T-4 start. This area was previously mapped as Upland Type (UT) 8 (*Bromus inermis*) and has shifted to include a dominance of hydrophytic species related to supplemental hydrology in this area resultant of the adaptive management strategies implemented in 2017. The following vegetation community types were identified in 2022:

- Upland Type 8 – *Bromus inermis*
- Upland Type 11 – *Elymus trachycaulus*/*Pascopyrum smithii*
- Wetland Type 2 – *Juncus balticus*/*Carex nebrascensis*
- Wetland Type 3 – *Salix exigua*
- Wetland Type 7 – *Phalaris arundinacea*
- Wetland Type 10 – *Alopecurus pratensis*
- Wetland Type 14 – *Alopecurus pratensis*/*Eleocharis palustris*
- Wetland Type 15 – *Typha latifolia*

- Wetland Type 16 – *Carex praegracilis/Poa pratensis*

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 depicted on Figure A-3 (Appendix A).

Absolute cover of state-listed noxious weeds was estimated at two percent across the entire site. Canada thistle (*Cirsium arvense*) was observed in nine locations with patch sizes ranging from trace to high. Weed management for Canada thistle should focus on the infestations in the southwest portion of the site to be most effective at reducing noxious weed cover and controlling spread. Spotted knapweed (*Centaurea stoebe*) was observed at four locations in trace patch sizes, as well as one trace patch of houndstongue (*Cynoglossum officinale*). Weed locations are identified in Figure A-3, Appendix A.

Vegetation cover was measured along four transects in 2022 (Figure A-2, Appendix A). Summaries of the data collected at these transects are presented in Tables 2-5 below, and detailed data for each transect are provided in the monitoring forms in Appendix B. Photographs of the transect start and end points are provided in Appendix C.

Table 2 summarizes the data for T-1 which is 422 feet long and intersects UT 8 and UT 11, and WT 7, WT 14, and WT 15. Wetland habitat along the transect increased five percent from 61% in 2021 to 66% in 2022, and the total number of species observed along the transect increased by two, one upland species and one hydrophytic species. Total vegetative cover has increased slightly from 2021 to 2022.

Table 2. Data Summary for T-1 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site

Monitoring Year	2017	2018	2019	2020	2021	2022
Transect Length (feet)	422	422	422	422	422	422
Vegetation Community Transitions Along Transect	5	5	5	5	5	5
Vegetation Communities Along Transect	5	5	5	6	6	5
Hydrophytic Vegetation Communities Along Transect	4	4	4	4	4	3
Total Vegetative Species	23	26	23	22	23	25
Total Hydrophytic Species	10	11	10	8	10	11
Total Upland Species	13	15	13	14	13	14
Estimated % Total Vegetative Cover	95	95	95	95	95	96
Estimated % Unvegetated	5	5	5	5	5	4
% Transect Length Comprising Hydrophytic Vegetation Communities	56	62	62	61	61	66
% Transect Length Comprising Upland Vegetation Communities	44	38	38	39	39	34
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mud Flat	0	0	0	0	0	0

Data collected on T-2 are summarized in Table 3. T-2 is 453 feet long and intersects UT 8 and WT 2 and WT 10. Ninety-two percent of the transect crossed wetland habitat in 2022, which is a one percent decrease from 2021. Total vegetative cover has remained constant at 95 percent from 2016 to 2022.

Table 3. Data Summary for T-2 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site

Monitoring Year	2017	2018	2019	2020	2021	2022
Transect Length (feet)	453	453	453	453	453	453
Vegetation Community Transitions Along Transect	2	3	3	4	4	5
Vegetation Communities Along Transect	2	3	3	3	3	3
Hydrophytic Vegetation Communities Along Transect	1	2	2	2	2	2
Total Vegetative Species	17	16	16	16	19	21
Total Hydrophytic Species	6	7	9	6	8	8
Total Upland Species	11	9	7	10	11	13
Estimated % Total Vegetative Cover	95	95	95	95	95	95
Estimated % Unvegetated	5	5	5	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	76	76	78	82	93	92
% Transect Length Comprising Upland Vegetation Communities	24	24	22	18	7	8
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mud Flat	0	0	0	0	0	0

Data collected on T-3 are summarized in Table 4. T-3 is 320 feet long and intersects WT 2, WT 10, and WT 15. The transect is completely comprised of wetland habitat, which is consistent with findings from 2018-2022. The total number of species observed in 2022 increased by one from the previous year, and the number of hydrophytic species remained consistent at twelve. Total vegetative cover is increased by two percent from 2021 to 2022.

Table 4. Data Summary for T-3 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site

Monitoring Year	2017	2018	2019	2020	2021	2022
Transect Length (feet)	320	320	320	320	320	320
Vegetation Community Transitions Along Transect	3	3	3	3	3	3
Vegetation Communities Along Transect	3	3	3	3	3	3
Hydrophytic Vegetation Communities Along Transect	2	3	3	3	3	3
Total Vegetative Species	23	23	21	22	19	20
Total Hydrophytic Species	15	16	16	16	12	12
Total Upland Species	8	7	5	6	7	8
Estimated % Total Vegetative Cover	80	85	85	90	90	92
Estimated % Unvegetated	20	15	15	10	10	8
% Transect Length Comprising Hydrophytic Vegetation Communities	91	100	100	100	100	100
% Transect Length Comprising Upland Vegetation Communities	9	0	0	0	0	0
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mud Flat	0	0	0	0	0	0

Data collected on T-4 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 5. T-4 was established in 2017 following adaptive management actions at the site and is 412 feet long. T-4 intersects UT 8, and new wetland WT 16. The percent of the transect that crosses wetland increased from 2021 to 2022 by 13 percent as a result of the wetland expanding north of the berm where T-4 starts. Total vegetative cover increased slightly from eighty-five to eighty-seven percent in 2022.

Table 5. Data Summary for T-4 From 2017 Through 2022 at the Rostad Ranch Wetland Mitigation Site

Monitoring Year	2017	2018	2019	2020	2021	2022
Transect Length (feet)	412	412	412	412	412	412
Vegetation Community Transitions Along Transect	4	3	3	4	2	2
Vegetation Communities Along Transect	3	2	2	3	2	2
Hydrophytic Vegetation Communities Along Transect	1	1	1	1	1	1
Total Vegetative Species	10	16	14	17	15	17
Total Hydrophytic Species	1	3	5	4	3	5
Total Upland Species	10	13	9	13	12	12
Estimated % Total Vegetative Cover	70	80	80	80	85	87
Estimated % Unvegetated	30	20	20	20	15	13
% Transect Length Comprising Hydrophytic Vegetation Communities	12	12	21	8	10	23
% Transect Length Comprising Upland Vegetation Communities	88	88	79	80	90	77
% Transect Length Comprising Unvegetated Open Water	0	0	0	0	0	0
% Transect Length Comprising of Mud Flat	0	0	0	0	0	0

Woody Plant Survival – Woody plant survival was estimated at 50 percent in 2022 for all plantings. Approximately 2,000 willow cuttings were planted throughout the excavated areas when the site was constructed in 2012. Willow cuttings appeared healthy and vigorous with minimal signs of browse. A total of 100 black cottonwoods (*Populus balsamifera*) and 100 quaking aspens (*Populus tremuloides*) were installed around the perimeter of the proposed open-water areas in 2012, and survival of these containerized, 5-gallon plant materials was also estimated at 50 percent in 2022. Willow dominance continues to increase via natural recruitment in the southern portion of the site within WT 3 – *Salix exigua*. An additional volunteer *Salix exigua* community has been developing in the north portion of the site, west of the excavated wetland cell (Appendix A, Figure A-3).

Hydrology – The hydrology for the site is supplied from multiple sources, including a shallow seasonal groundwater table, groundwater that emerges from a natural spring located near the narrow-leaf willow (*Salix exigua*) stand in the southern portion of the site, direct precipitation, surface runoff, and surface-water diversion out of an adjacent irrigation canal. Irrigation water was diverted onto the site on May 11, 2022 and was turned off on May 15, 2021. The site was irrigated earlier and for a shorter duration than in previous years due to calls from downstream senior water right users within the Musselshell River basin, similar to 2021. However, during the monitoring event in June, up to 1.25 feet of surface water was observed across in the site in both wetland and upland areas. This precipitation accumulated from a large rain event one week prior to monitoring, and the precipitation was retained and dispersed at the mitigation site demonstrating the success and effectiveness of the adaptive management actions taken in the spring of 2017 (See Figure A-2 for berm locations). One groundwater monitoring well remains at the site and is monitored monthly by the US Geological Survey (USGS). On June 27, 2022 the well measured 4.71 feet to the water table below land surface.

Photographs – Photographs taken in 2022 at photo points 1–10 (PP1 to PP10), transect endpoints, and data points (Appendix C). Please refer to previous years' monitoring reports for photographs from all other years. <https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx>

Soils – Soil test pits were excavated at twenty-two locations across the sixty-acre mitigation site. Soil series mapped within the site include the Veryney-Notter cobbly loams soil unit and the Delpoint variant-Marmarth-Cabbart loam soil unit (NRCS 2022). Wetland soil pits exhibited the hydric soil indicators redox dark surface and depleted matrix. No hydric soil indicators were observed in upland sample pits, except at DP09u, which demonstrated redox dark surface. This soil pit is located on an upland berm and is surround by wetland. Although concentrations were observed, the three concurrent parameters of hydric soils, evidence of wetland hydrology,

and a hydrophytic vegetation community were not met, and the sample point is therefore considered upland. Soil textures within the wetland plots ranged from sandy clay loam to clay. Gravels and cobbles were common in the soil matrices, and a hard pan layer was observed at 10 inches in DP03u, which limited excavation at this soil pit.

Wildlife – Nine bird species were observed at the site during the 2022 monitoring, and 39 have been reported historically. Many bobolinks (*Dolichonyx oryzivorus*) were observed foraging, nesting, and loafing along the fence line and throughout the site. Six of the seven bird boxes installed at the site are intact. Tree swallows were observed around two bird boxes at the southeast corner of the site, although the rest of the bird boxes appeared vacant and out of use. In addition to avian observations, frogs and a white-tailed deer and fawn were observed at the site, indicating a diversity of wildlife use by amphibians, mammals, and birds.

Functional Assessment – Overall, the site MWAM functional rating improved from a Category III to a Category II wetland in 2022. This increase comes from both an increase in the wetland acreage and the MWAM rating of general wildlife habitat increasing from low to moderate, as the site was not hayed prior to monitoring in 2022 as it was in 2021. The 2022 functional assessment results for the Rostad Ranch Mitigation Site are summarized in Table 6. Completed Montana Wetland Assessment Method (MWAM) forms for the site are provided in Appendix B.

Table 6. Montana Wetland Assessment Method Summary for the Rostad Ranch Wetland Mitigation Site

Function and Value Parameters from the Montana Wetland Assessment Method	2014 ^(a)	2015 ^(a)	2016 ^(a)	2017 ^(a)	2018 ^(a)	2019 ^(a)	2020 ^(a)	2021 ^(b)	2022 ^(b)
Listed/Proposed T&E Species Habitat	Low (0)	Low (0)	Low (0)	Low (0)	Low (0)	Low (0)	Low (0)	Low (0)	Low (0.1)
MTNHP Species Habitat	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
General Wildlife Habitat	Low (0.3)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Low (0.3)	Mod (0.5)
General Fish/Aquatic Habitat	NA	NA	NA	NA	NA	NA	NA	NA	NA
Flood Attenuation	NA	NA	NA	NA	NA	NA	NA	NA	NA
Short- and Long-Term Surface Water Storage	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
Production Export/Food Chain Support	Mod (0.6)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	High (0.8)	Mod (0.6)	Mod (0.8)
Groundwater Discharge/Recharge	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)
Uniqueness	Low (0.2)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.2)	Low (0.3)
Recreation/Education Potential (bonus points)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)	Low (0.05)
Actual Points/Possible Points	4.65/9	5.75/9	5.75/9	5.75/9	5.75/9	5.75/9	6.05/9	5.55/9	6.15/9
% of Possible Score Achieved	51.7%	63.9%	63.9%	63.9%	63.9%	63.9%	67.2%	61.7%	68.33%
Overall Category	III	III	III	III	III	III	III	III	II

(a) 1999 MWAM form (Berglund, 1999)

(b) 2008 MWAM form (Berglund and McEldowney, 2008)

Credit Summary

Wetland Credits - Table 7 summarizes the estimated wetland credits based on the USACE-approved credit ratios and the wetland delineations completed in 2020-2022. Proposed mitigation credits from the Rostad Ranch Mitigation Plan (Montana Department of Transportation 2007) included reestablishing 27.11 wetland acres, rehabilitating 2.63 wetland acres, creating 9.84 wetland acres, preserving 0.25 wetland acres, and maintaining 6.76 acres of upland buffer, to produce a total of 39.7 mitigation credit acres. Adaptive management activities on the site in 2017 resulted in a shift of crediting, which decreased the overall rehabilitated wetland acreage and increased the reestablished and created wetland acreage, such that the total number of anticipated wetland credit acres was reduced to 27.4. The mitigation credits estimated in 2022, including the upland buffer credits, totaled 30.57 credit acres which is an increase of 0.37 credits from 2021.

Functional Credits – Table 8 summarizes the functional units generated at the Rostad Ranch mitigation site in 2022. The *2007 Rostad Ranch Mitigation Plan, Meagher County, Montana* (MDT 2007) anticipates increasing functional points at the site from 3.2 of 9 possible points pre-construction to 6.4 of 9 possible points post-construction. The associated increase in functional points would result in increasing the wetland from Category II to Category III, and the planned development of 39.84 acres of wetland would generate 254.91 units after the completed monitoring period. In 2022, the Rostad Ranch site achieved 6.15 of 9 possible points and has generated a total of 173.03 Functional Units to date. This is 81.88 Functional Units short of the anticipated goal established in the 2007 Mitigation Plan, but an increase of 18.72 units from 2021.

Table 7. Wetland Mitigation Credits Estimated for the Rostad Ranch Site (2020–2022)

Compensatory Mitigation Type	Wetland Type (FGDC 2013)	Approved Mitigation Ratios ^(a)	Anticipated Mitigation Area (acres)	Anticipated Mitigation Credit (acres)	2020 Delineated Mitigation Areas (acres)	2020 Estimated Mitigation Credit (acres)	2021 Delineated Mitigation Areas (acres)	2021 Estimated Mitigation Credit (acres)	2022 Delineated Mitigation Areas (acres)	2022 Estimated Mitigation Credit (acres)
Restoration (Re-establishment)	Palustrine Emergent	1:1	27.11	27.11 ^(d)	18.46	18.46	19.30	19.30	19.37	19.37
Establishment (Creation)	Palustrine Emergent	1:1	9.84	9.84 ^(d)	7.5	7.5	7.32	7.32	7.80	7.80
Restoration (Rehabilitation)	Palustrine Emergent	1.5:1	2.63	1.75 ^(d)	2.06	1.37	2.06	1.37	2.06	1.37
Preservation	Palustrine, Scrub/shrub	4:1	0.25	0.06	0.25	0.06	0.25	0.06	0.25	0.06
Upland Buffer	N/A	5:1	6.76 ^(b)	1.35 ^(b)	6.76 ^(b)	1.35 ^(b)	12.79 ^(c)	2.56 ^(c)	11.90 ^(c)	2.38 ^(c)
Permanent Wetland Impact	N/A	1:1	N/A	-0.41	N/A	-0.41	N/A	-0.41	N/A	-0.41
		Totals	46.59	39.70	35.03	28.34	41.72	30.20	41.38	30.57

(a) Mitigation credit ratios utilized were from the Montana Corps Regulatory Programs 2005 Wetland Credit Ratios [USACE, 2005].

(b) Anticipated upland buffer credits were used for the first several years of the project.

(c) Upland buffer credit acres were calculated based on the area of a 50-foot buffer around the most to-date delineated wetland boundary.

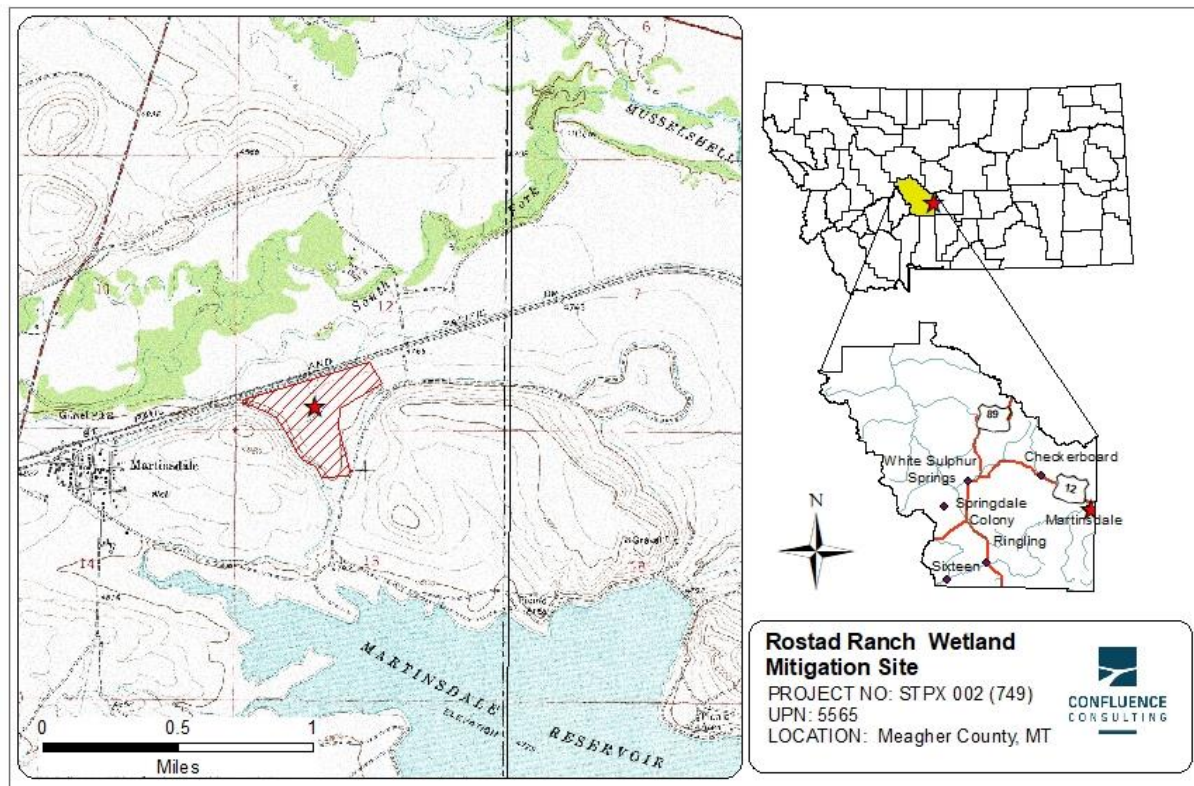
(d) Adaptive management activities on the site in 2017 resulted in a shift of crediting such that the total number of anticipated wetland credit acres was reduced to 27.4

Table 8. Functional Unit Credits for the Rostad Ranch Wetland Mitigation Site

Compensatory Mitigation Type	2022 Delineated Acres	Mitigation Ratio	2022 Mitigation Credit Acres	MWAM Actual Points	2022 Functional Units Generated
Restoration (Reestablishment)	19.37	1:1	19.37	6.05	117.19
Establishment (Creation)	7.80	1:1	7.80	6.05	47.19
Restoration (Rehabilitation)	2.06	1.5:1	1.37	6.05	8.29
Preservation	0.25	4:1	0.06	6.05	0.36
Upland Buffer	11.90	5:1	2.38	N/A	N/A
	(Mitigation Credit Acres × Actual Points)				173.03

Maps, Plans, Photos

Figure 1: Site Location Map



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

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

Photos: See Appendix C.

Plans: See Appendix D of 2018 Monitoring Report

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

Conclusions

In 2022, the Rostad Ranch Mitigation Site again met all the established performance standards. Wetland habitat is expanding and developing into a diverse system with volunteer woody species, which contributes to a diversity of habitat types. Since adaptive management actions were implemented in 2017 to more effectively spread water across the site, the wetland areas on the site have gradually expanded. Effects of the management actions were especially evident during the 2022 monitoring event, as water from precipitation prior to monitoring was effectively retained and distributed across the site by berms and feeder ditches. The results of the 2022 monitoring event estimate the generation of 30.57 mitigation credit acres, which exceeds the target number of 27.4-acres by 3.18 acres. Based on the success of the adaptive management plan and continued wetland expansion observed in 2021-2022, despite drier than normal years (Hartman 2022), the site has the potential to provide additional wetland credits going forward.

References

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APPENDIX A

PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring
Rostad Ranch
Meagher County, Montana

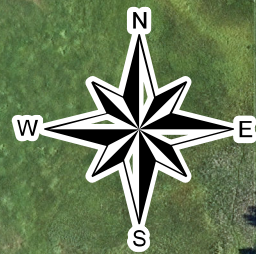
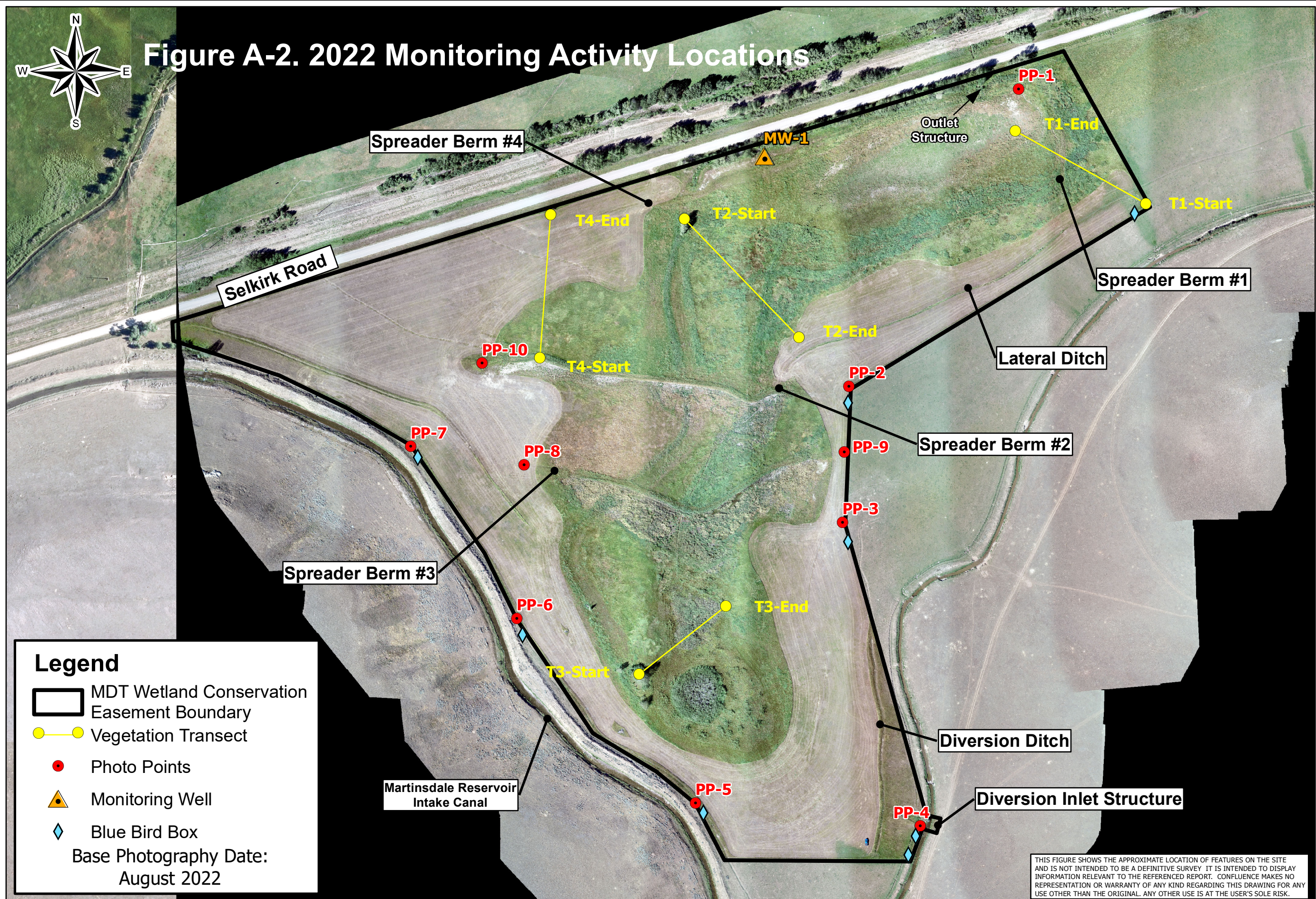


Figure A-2. 2022 Monitoring Activity Locations



Rostad Ranch Wetland Mitigation Site
2022 Monitoring Activity Locations



Legend

- MDT Wetland Conservation Easement Boundary
- Vegetation Transect
- Photo Points
- Monitoring Well
- Blue Bird Box

Base Photography Date:
August 2022

Project: STPX 002 (749)

Location: Meagher Co., Montana

Map Creation Date: February 2023

Project Manager: R. McElDowney

Drawn By: SNW

File: X:\Project\MDT Wetland Mitigation 2\Main\Rostad\2022\Monitor\2022_MDT.mxd

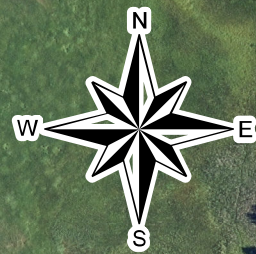
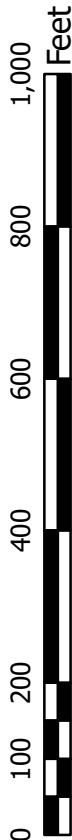


Figure A-3. 2022 Mapped Site Features



Rostad Ranch Wetland Mitigation Site
2022 Mapped Site Features



Vegetation Community Types

- ② Juncus balticus/Carex nebrascensis
- ③ Salix exigua
- ⑦ Phalaris arundinacea
- ⑧ Bromus inermis
- ⑩ Alopecurus pratensis
- ⑪ Elymus trachycaulus/Pascopyrum smithii
- ⑭ Alopecurus pratensis/Eleocharis palustris
- ⑮ Typha latifolia
- ⑯ Carex praegracilis/Poa pratensis

Acreages

Project Area	60.00 acres
Upland	30.52 acres
Total Wetlands	29.48 acres
Re-established Wetlands	19.37 acres
Created Wetlands	7.80 acres
Rehabilitated Wetlands	2.06 acres
Preserved Wetlands	0.25 acres

Noxious Weeds

- Centaurea stoebe
- Cirsium arvense
- Cynoglossum officinale

Cover Class

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

Legend

MDT Wetland Conservation
Easement Boundary
Wetland Limits

Base Photography Date:
August 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.

Martinsdale Reservoir
Intake Canal

Selkirk Road

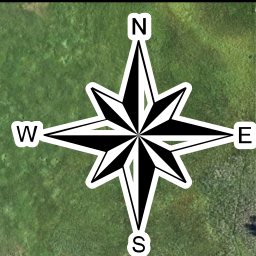
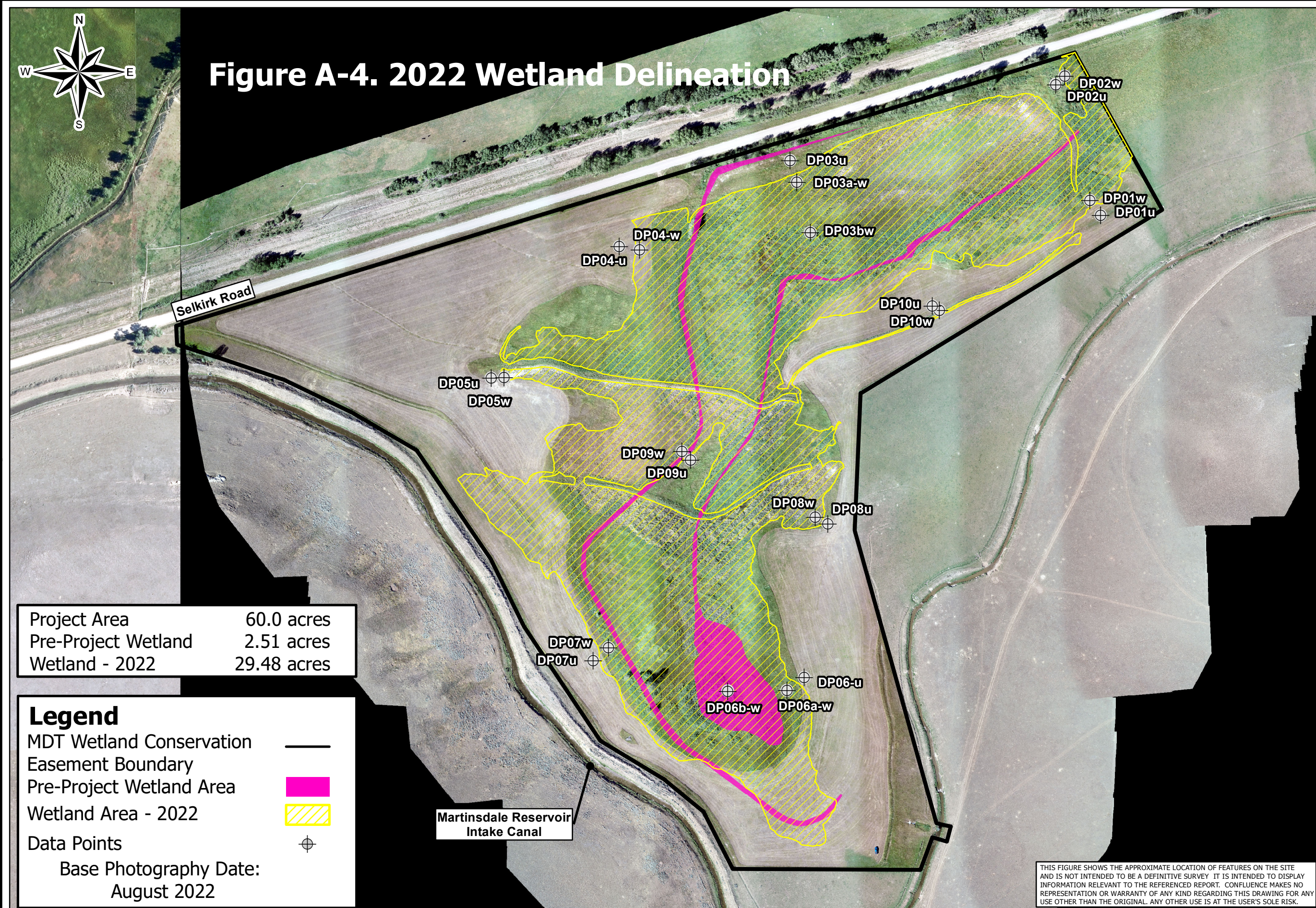


Figure A-4. 2022 Wetland Delineation



Project Area	60.0 acres
Pre-Project Wetland	2.51 acres
Wetland - 2022	29.48 acres

Legend

MDT Wetland Conservation Easement Boundary —

Pre-Project Wetland Area

Wetland Area - 2022

Data Points +

Base Photography Date:
August 2022



Rostad Ranch Wetland Mitigation Site
2022 Wetland Delineation



Project: STPX 002 (749)
Location: Meagher Co., Montana
Map Creation Date: January 2023
Project Manager: R. McElidowney
Drawn By: SNW

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APPENDIX B

MONITORING FORMS

MDT Wetland Mitigation Monitoring
Rostad Ranch
Meagher County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Rostad Ranch Assessment Date/Time 6/27/2022

Person(s) conducting the assessment: S Weyant, W Fouts, M Hickey

Weather: Sunny, 90 degrees Location: Martinsdale, MT

MDT District: Billings Milepost: _____

Legal Description: T 8N R 11E Section(s) 12 and 13

Initial Evaluation Date: 8/21/2013 Monitoring Year: 10 #Visits in Year: 1

Size of Evaluation Area: 60 (acres)

Land use surrounding wetland:

Agriculture

HYDROLOGY

Surface Water Source: Groundwater, supplemental hydrology from ditch/headgate, surface runoff

Inundation: ☒ Average Depth: 0.25 (ft) Range of Depths: 0-2 (ft)

Percent of assessment area under inundation: 0 %

Depth at emergent vegetation-open water boundary: 0.25 (ft)

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

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

Drainage patterns, soil saturation, water marks, geomorphic position, FAC-neutral test, soil surface cracks, drift lines, and iron deposits.

Groundwater Monitoring Wells

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

Well ID	Water Surface Depth (ft)
MW-1	4.71

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:

Groundwater well measured 6/27/2022 by USGS. Depths are Below Land Surface (BLS). Inundation from abnormally high and flashy overland flow was observed across the site, including in non-wetland areas with upland vegetation communities lacking hydric soils and/or sustained wetland hydrology.

VEGETATION COMMUNITIES

Site Rostad Ranch

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

Community # 2 **Community Type:** Juncus balticus / Carex nebrascensis

Acres: 7.66

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus pratensis	3
Beckmannia syzigachne	0	Bromus inermis	0
Carex bebbii	0	Carex nebrascensis	4
Carex pellita	1	Carex praegracilis	2
Carex utriculata	1	Cirsium arvense	0
Deschampsia caespitosa	0	Eleocharis palustris	3
Eleocharis palustris	0	Elymus repens	0
Elymus trachycaulus	0	Epilobium ciliatum	0
Hordeum jubatum	1	Juncus balticus	4
Juncus bufonius	0	Mentha arvensis	1
Open Water	1	Pascopyrum smithii	0
Phalaris arundinacea	2	Phleum pratense	1
Poa palustris	2	Poa pratensis	1
Populus balsamifera	0	Rumex crispus	1
Salix exigua	1	Schedonorus pratensis	0
Schoenoplectus maritimus	0	Sonchus arvensis	1
Taraxacum officinale	0	Trifolium pratense	0
Triglochin maritima	0	Typha latifolia	1

Comments:

Wet meadow community type. Revegetation successful since 2013. 0-14 inches of surface water observed within this community type, as well as an increase in cover of Carex praegracilis and Eleocharis palustris in 2022.

Community # 3 **Community Type:** Salix exigua /**Acres:** 0.8

Species	Cover class	Species	Cover class
Agrostis gigantea	0	Alopecurus pratensis	2
Beckmannia syzigachne	0	Carex bebbii	0
Carex nebrascensis	1	Carex pellita	1
Carex praegracilis	1	Deschampsia caespitosa	1
Eleocharis palustris	2	Juncus balticus	1
Poa palustris	1	Salix exigua	5
Salix lutea	1	Schedonorus pratensis	1
Typha latifolia	0	Veronica peregrina	0

Comments:

Undisturbed Salix community near southern extent of monitoring boundary. A volunteer Salix community is establishing in the middle of the site as well.

Community # 7 **Community Type:** Phalaris arundinacea /**Acres:** 1.53

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus arundinaceus	2
Alopecurus pratensis	2	Amaranthus retroflexus	0
Bromus inermis	0	Carex nebrascensis	1
Carex praegracilis	2	Cirsium arvense	0
Deschampsia caespitosa	0	Eleocharis palustris	1
Elymus repens	3	Elymus trachycaulus	1
Juncus balticus	1	Medicago sativa	0
Phalaris arundinacea	4	Phleum pratense	1
Poa palustris	0	Poa pratensis	2
Populus balsamifera	1	Rumex crispus	0
Salix exigua	0	Thlaspi arvense	0
Trifolium pratense	1	Typha latifolia	0

Comments:

This community has expanded and contracted over the last several years and greatly diminished in 2022. Observable in areas transitioning from non-wetland to more hydrophytic vegetation communities.

Community # 8 **Community Type:** Bromus inermis /**Acres:** 29.36

Species	Cover class	Species	Cover class
Achillea millefolium	0	Agrostis gigantea	0
Alopecurus pratensis	0	Bromus inermis	5
Carex praegracilis	1	Carum carvi	1
Centaurea stoebe	0	Cirsium arvense	0
Elymus repens	2	Elymus trachycaulus	2
Juncus balticus	1	Medicago sativa	0
Melilotus officinalis	0	Pascopyrum smithii	1
Phalaris arundinacea	1	Phleum pratense	3
Poa palustris	0	Poa pratensis	3
Populus angustifolia	1	Schedonorus arundinaceus	0
Schedonorus pratensis	2	Sinapis arvensis	0
Symphyotrichum ascendens	1	Symphyotrichum ericoides	0
Taraxacum officinale	1	Trifolium pratense	1
Trifolium repens	1		

Comments:

Graminoid dominated upland community observed in non-wetland areas across the site. Previously recorded as UT1 with a prevalence of Phleum pratense, which has increased in cover from 2021.

Community # 10 **Community Type:** Alopecurus pratensis /**Acres:** 11.22

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus arundinaceus	1
Alopecurus pratensis	5	Bromus inermis	0
Carex nebrascensis	1	Carex pellita	1
Cirsium arvense	0	Eleocharis palustris	0
Elymus repens	1	Elymus trachycaulus	1
Hordeum jubatum	0	Juncus balticus	3
Phalaris arundinacea	2	Poa palustris	0
Poa pratensis	0	Populus balsamifera	1
Rumex crispus	0	Salix exigua	0
Typha latifolia	1		

Comments:

This community has replaced WT 7 (Phalaris arundinaceus) and is the dominant wetland community type observed across the site. Aggressive, introduced species Alopecurus pratensis occurs in monocultures and outcompetes most other species in the area.

Community # 11 **Community Type:** Elymus trachycaulus / Pascopyrum smithii **Acres:** 0.83

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Bare Ground	3
Bromus inermis	1	Chenopodium album	0
Cirsium arvense	0	Elymus repens	2
Elymus trachycaulus	3	Melilotus officinalis	0
Pascopyrum smithii	3	Phalaris arundinacea	0
Poa pratensis	0	Sinapis arvensis	0
Symphyotrichum ascendens	0	Symphyotrichum ericoides	0
Trifolium hybridum	0		

Comments:

This community type was found in areas that were revegetated following the 2017 construction and has since largely been replaced by UT 8, and is present only south of the berm near T-4 end.

Community # 14 **Community Type:** Alopecurus pratensis / Eleocharis palustris **Acres:** 4.22

Species	Cover class	Species	Cover class
Alopecurus pratensis	5	Bare Ground	0
Beckmannia syzigachne	1	Carex nebrascensis	2
Carex pellita	0	Eleocharis palustris	3
Elymus trachycaulus	0	Glyceria grandis	0
Open Water	2	Phalaris arundinacea	0
Rumex crispus	1	Schoenoplectus maritimus	1
Typha angustifolia	1	Typha latifolia	1

Comments:

New community type created in 2022, previously recorded as Phalaris arundinacea/Eleocharis palustris. This wetland community is found around the boundaries of wetter communities that exhibited surface water in 2022.

Community # 15 **Community Type:** Typha latifolia /**Acres:** 3.55

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Bare Ground	1
Beckmannia syzigachne	1	Carex nebrascensis	1
Carex pellita	1	Carex utriculata	1
Eleocharis palustris	3	Elymus trachycaulus	1
Glyceria grandis	0	Glyceria striata	0
Hippuris vulgaris	1	Open Water	2
Phalaris arundinacea	1	Rumex crispus	1
Salix exigua	1	Schoenoplectus maritimus	1
Typha latifolia	4		

Comments:

Cattail wetland community type which has evolved in 2022 to replace WT 5 (Glyceria grandis/Typha latifolia). Inundation within cattail marshes ranged from 0-1.5 feet.

The open water area previous mapped as WT 13 in 2021 was inundated with 1-1.5' of water during the June 2022 monitoring event, and emergent grasses were observed on the bed of the excavated area. The aerial drone imagery flown in August 2022 shows vegetation growing and no surface water. Upland areas of the site were also inundated in June from recent high runoff related to recent precipitation events. Therefore, the community was mapped as WT 15, which is most representative of the ongoing conditions observed at this location.

Community # 16 **Community Type:** Carex praegracilis / Poa pratensis**Acres:** 0.5

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Bare Ground	5
Bromus inermis	1	Carex praegracilis	4
Chenopodium album	0	Chenopodium rubrum	0
Distichlis spicata	0	Eleocharis palustris	1
Eleocharis palustris	2	Elymus repens	1
Phalaris arundinacea	1	Phleum pratense	2
Poa palustris	0	Poa pratensis	4
Potentilla gracilis	0	Rumex crispus	0
Salicornia rubra	0	Schedonorus pratensis	1
Schoenoplectus maritimus	1	Typha latifolia	0

Comments:

New vegetation community created in 2022 to document the transitional species observed along transect 4 where the wetland boundary is expanding. Community is a mix of hydrophytic and upland species.

Total Vegetation Community Acreage**60.0**

VEGETATION TRANSECTS

Site: Rostad Ranch Date: 6/27/2022

Transect Number: 1 **Compass Direction from Start:** 290

Interval Data:

Ending Station 122 **Community Type:** Bromus inermis /

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Bromus inermis	5
Carex praegracilis	1	Carum carvi	1
Cirsium arvense	0	Elymus repens	2
Elymus trachycaulus	1	Juncus balticus	0
Phleum pratense	2	Poa pratensis	3
Schedonorus arundinaceus	0	Symphyotrichum ascendens	0
Taraxacum officinale	0		

Ending Station 261 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus pratensis	2
Bromus inermis	0	Carex nebrascensis	2
Carex praegracilis	1	Elymus repens	1
Juncus balticus	1	Phalaris arundinacea	4
Poa palustris	2		

Ending Station 282 **Community Type:** Elymus trachycaulus / Pascopyrum smithii

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Bare Ground	3
Elymus repens	2	Elymus trachycaulus	3
Pascopyrum smithii	1	Phalaris arundinacea	2
Poa pratensis	1		

Ending Station 358 **Community Type:** Phalaris arundinacea /

Species	Cover class	Species	Cover class
Agrostis gigantea	0	Alopecurus pratensis	2
Carex nebrascensis	0	Cirsium arvense	0
Elymus trachycaulus	1	Phalaris arundinacea	5
Phleum pratense	0	Rumex crispus	1

Ending Station 386 **Community Type:** Alopecurus pratensis / Eleocharis palustris

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Bare Ground	0
Carex pellita	1	Eleocharis palustris	1
Elymus trachycaulus	0	Glyceria grandis	5
Phalaris arundinacea	2	Rumex crispus	1
Typha latifolia	0		

Ending Station 422 **Community Type:** Typha latifolia /

Species	Cover class	Species	Cover class
Bare Ground	1	Beckmannia syzigachne	1
Eleocharis palustris	2	Glyceria grandis	2
Open Water	0	Phalaris arundinacea	4
Rumex Crispus	0	Schoenoplectus maritimus	0
Typha latifolia	1		

Transect Notes:

Phalaris arundinacea, Alopecurus pratensis, and Glyceria grandis have greatly increased in cover, reducing bare ground from a cover class of 3 to 1. Open water along the transect ranged from 0-4 inches deep.

Transect Number: 2 **Compass Direction from Start:** 120

Interval Data:

Ending Station 130 **Community Type:** Alopecurus pratensis /

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus pratensis	5
Bromus inermis	0	Carex nebrascensis	1
Carex pellita	2	Elymus repens	1
Elymus trachycaulus	3	Juncus balticus	1
Phalaris arundinacea	1	Poa palustris	1
Populus balsamifera	0	Rumex crispus	0

Ending Station 234 **Community Type:** Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Bare Ground	3
Bare Ground	3	Bromus tectorum	4
Bromus tectorum	4	Carex nebrascensis	1
Carex pellita	1	Eleocharis palustris	2
Elymus repens	0	Juncus balticus	5
Pascopyrum smithii	3	Pascopyrum smithii	3
Poa palustris	1	Poa pratensis	1
Poa pratensis	1		

Ending Station 256 **Community Type:** Alopecurus pratensis /

Species	Cover class	Species	Cover class
Alopecurus pratensis	3	Juncus balticus	1
Open Water	5	Open Water	5
Phalaris arundinacea	5	Poa palustris	1

Ending Station 285 **Community Type:** Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Bare Ground	5
Bare Ground	5	Carex nebrascensis	0
Carex praegracilis	1	Eleocharis palustris	2
Juncus balticus	5	Schoenoplectus maritimus	1
Schoenoplectus maritimus	1	Taraxacum officinale	0

Ending Station 418 **Community Type:** Alopecurus pratensis /

Species	Cover class	Species	Cover class
Alopecurus pratensis	5	Bare Ground	3
Bare Ground	3	Chenopodium album	2
Chenopodium album	2	Elymus trachycaulus	2
Elymus trachycaulus	2	Hordeum jubatum	3
Hordeum jubatum	3	Phalaris arundinacea	2
Poa palustris	1	Poa pratensis	1
Salix exigua	0	Schoenoplectus maritimus	4
Schoenoplectus maritimus	4		

Ending Station 453 **Community Type:** Bromus inermis /

Species	Cover class	Species	Cover class
Bare Ground	2	Bare Ground	2
Bromus arvensis	1	Bromus arvensis	1
Bromus inermis	4	Bromus tectorum	2
Bromus tectorum	2	Chenopodium album	2
Chenopodium album	2	Elymus lanceolatus	1
Elymus lanceolatus	1	Hordeum jubatum	2
Hordeum jubatum	2	Lepidium perfoliatum	1
Lepidium perfoliatum	1	Medicago sativa	0
Melilotus officinalis	1	Melilotus officinalis	1
Pascopyrum smithii	3	Pascopyrum smithii	3
Phleum pratense	1	Poa pratensis	2
Schedonorus pratensis	1	Symphyotrichum ascendens	0
Taraxacum officinale	1		

Transect Notes:

WT 2 has expanded and comprises the majority of this transect. Phalaris arundinacea has been replaced by Alopecurus pratensis, and the vegetation types along this transect are becoming more hydrophytic, consistent with observations in 2021.

Transect Number: 3 **Compass Direction from Start:** 30

Interval Data:

Ending Station 10 **Community Type:** Alopecurus pratensis /

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus arundinaceus	4
Cirsium arvense	0	Eleocharis palustris	0
Juncus balticus	3	Phalaris arundinacea	1
Poa pratensis	1	Populus balsamifera	4

Ending Station 123 **Community Type:** Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus pratensis	3
Carex nebrascensis	1	Carex pellita	2
Cirsium arvense	0	Eleocharis palustris	2
Juncus balticus	4	Phalaris arundinacea	1
Salix exigua	1	Schedonorus pratensis	0
Sonchus arvensis	2	Taraxacum officinale	1
Triglochin maritima	1	Typha latifolia	1

Ending Station 288 **Community Type:** Typha latifolia /

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Bare Ground	1
Carex nebrascensis	2	Carex pellita	1
Carex utriculata	2	Eleocharis palustris	3
Glyceria grandis	0	Open Water	1
Phalaris arundinacea	0	Salix exigua	1
Typha latifolia	5		

Ending Station 306 **Community Type:** Juncus balticus / Carex nebrascensis

Species	Cover class	Species	Cover class
Agrostis gigantea	1	Alopecurus pratensis	2
Carex nebrascensis	2	Carex utriculata	2
Eleocharis palustris	3	Juncus balticus	3
Open Water	1	Salix exigua	2
Schoenoplectus maritimus	1	Typha latifolia	1

Transect Notes:

Transect composed entirely of wetland community types. Open water along the transect ranged from 0-5 inches deep.

Transect Number: 4 **Compass Direction from Start:** 0

Interval Data:

Ending Station 17		Community Type: Bromus inermis /	
Species	Cover class	Species	Cover class
Bromus inermis	2	Elymus repens	2
Phalaris arundinacea	4		
Ending Station 110		Community Type: Carex praegracilis / Poa pratensis	
Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Bromus inermis	2
Carex praegracilis	5	Eleocharis palustris	1
Elymus repens	1	Phalaris arundinacea	1
Phleum pratense	2	Poa palustris	2
Poa pratensis	3	Potentilla gracilis	0
Schedonorus pratensis	1	Typha latifolia	0
Ending Station 412		Community Type: Bromus inermis /	
Species	Cover class	Species	Cover class
Bromus inermis	5	Cirsium arvense	0
Elymus repens	2	Elymus trachycaulus	2
Pascopyrum smithii	2	Phleum pratense	1
Poa pratensis	4	Symphyotrichum ascendens	1
Taraxacum officinale	0		

Transect Notes:

The second interval along T-4 is a new community type created in 2022 to document the transitional community from upland to hydrophytic species where the wetland boundary is expanding.

PLANTED WOODY VEGETATION SURVIVAL

Rostad Ranch

Planting Type	#Planted	#Alive	Notes
Populus balsamifera	100		Estimated 50% survival
Populus tremuloides	100		Estimated 50% survival
Salix sp.	2000		Estimated 50% survival

Comments

Willow stakes were planted in spring 2013. Due to tall herbaceous vegetation, locating all plantings was difficult during the site visit, especially locating stems that had died. Live plants observed looked healthy. Survival in 2022 was estimated at 50% based on the number of live stems observed. Willows are naturally expanding around vegetation community 3 in the southern area of the site. Volunteer *Salix exigua* and *Populus balsamifera* are appearing around the edges of WT 3 and WT 2 in the south eastern area of the site, and a new *Salix* community is establishing in the middle of the site.

Rostad Ranch

WILDLIFE

Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: Blue Bird Boxes

How many? 7

Are the nesting structures being used? No

Do the nesting structures need repairs? Yes

Nesting Structure Comments:

One bird box, originally located near the start of T-1, in the NE corner of the site was reported missing in 2021 and was not replaced in 2022. All other bird boxes appear in good condition with little evidence of use, except two bird boxes along the SE boundary of the site where Tree Swallows were observed and appeared to be nesting.

Species	#Observed	Behavior	Habitat
Bobolink	2	FO, F, L	
Brown-headed Cowbird	5	FO	
Dusky Flycatcher	1	FO, L	
Killdeer	1	F, L	
Mallard	3	L	
Red-winged Blackbird	5	FO, L	
Sandhill Crane	2	FO, F, L	
Swallow sp.	8	FO	
Wilson's Snipe	3	L, FO	

Bird Comments

Nine bird species 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

Species	# Observed	Tracks	Scat	Burrows	Comments
Frog sp.	2	No	No	No	
White-tailed Deer	2	Yes	Yes	Yes	

Wildlife Comments:

Evidence of wildlife on site include observations, tracks, scat, and burrows.

Rostad Ranch

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	46.462959	-110.291902		
DP01w	46.46307	-110.292021		
DP02u	46.463946	-110.292406		
DP02w	46.464009	-110.29231		
DP03a-w	46.463186	-110.295234		
DP03b-w	46.462806	-110.29508		
DP03u	46.46335	-110.29531		
DP04u	46.462685	-110.29717		
DP04w	46.462662	-110.29695		
DP05u	46.46168	-110.29856		
DP05w	46.461684	-110.29842		
DP06a-w	46.45934	-110.295285		
DP06b-w	46.459327	-110.295935		
DP06u	46.459437	-110.295096		
DP07u	46.459547	-110.297411		
DP07w	46.459646	-110.297244		
DP08u	46.460599	-110.294856		
DP08w	46.460652	-110.294993		
DP09u	46.461073	-110.296365		
DP09w	46.461141	-110.296461		
DP10u	46.462259	-110.293734		
DP10w	46.462229	-110.293657		
MW-01	46.463359	-110.295505		
Photo point 1	46.463894	-110.292697		
Photo point 10	46.461759	-110.298593		
Photo point 2	46.461612	-110.294535		
Photo point 3	46.460573	-110.294591		
Photo point 4	46.458259	-110.293701		

Photo point 5	46.458417	-110.296185
Photo point 6	46.459813	-110.298179
Photo point 7	46.461119	-110.299371
Photo point 8	46.460987	-110.298118
Photo point 9	46.461106	-110.294579
Transect 1 End	46.463576102426	-110.2927263717
Transect 1 Start	46.463029103021	-110.291276
Transect 2 End	46.461978946056	-110.295094
Transect 2 Start	46.462875830304	-110.29637
Transect 3 End	46.459923761462	-110.2958697392
Transect 3 Start	46.459397471592	-110.296821
Transect 4 End	46.4629	-110.297851
Transect 4 Start	46.461803077753	-110.297953

Comments:

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

29.48 acres of wetland delineated in 2022.

Functional Assessments

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

Functional Assessment Comments:

Category 2 wetland. Actual functional units increased from 5.55 in 2021 to 6.15 in 2022.

Maintenance

Were man-made nesting structure installed at this site? Yes

If yes, do they need to be repaired? Yes

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

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

into or out of the wetland? Yes

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

If yes, describe the problems below.

--

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP01u
 Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR E Lat: 46.462959 Long: -110.291902 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Upland sample point located slightly upslope from DP01w.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	30	<input checked="" type="checkbox"/>	UPL
Elymus repens	40	<input checked="" type="checkbox"/>	FACU
Elymus trachycaulus	20	<input checked="" type="checkbox"/>	FACU
Poa pratensis	5	<input type="checkbox"/>	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 5

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 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	<u>0</u>
FACW species 0 X 2	<u>0</u>
FAC species 0 X 3	<u>0</u>
FACU species 65 X 4	<u>260</u>
UPL species 30 X 5	<u>150</u>
Column Totals <u>95</u> (A)	<u>410</u> (B)

Prevalence Index = B/A = **4.32**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☒

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP01u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-03	10YR	3/2	100				Silty Clay Loam	Fine roots
03-16	10YR	3/2	100				Silty Clay Loam	

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

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

- | | |
|--|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Gleyed Matrix (S4) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR F) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) | <input type="checkbox"/> High Plains Depressions (F16) |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F) | |

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

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: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP01w
 Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom, toeslope Local relief (concave, convex, none): flat Slope (%): 1
 Subregion (LRR): LRR E Lat: 46.46307 Long: -110.292021 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: PEM, slope wetland. Sample point located in south corner of the north east arm of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	5	<input type="checkbox"/>	UPL
Carex nebrascensis	25	<input checked="" type="checkbox"/>	OBL
Carum carvi	1	<input type="checkbox"/>	UPL
Elymus trachycaulus	15	<input type="checkbox"/>	FACU
Phalaris arundinacea	35	<input checked="" type="checkbox"/>	FACW
Poa pratensis	18	<input type="checkbox"/>	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 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 25 X 1	<u>25</u>
FACW species 35 X 2	<u>70</u>
FAC species 0 X 3	<u>0</u>
FACU species 33 X 4	<u>132</u>
UPL species 7 X 5	<u>35</u>
Column Totals <u>100</u> (A)	<u>262</u> (B)

Prevalence Index = B/A = **2.62**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive dominance test and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP01w

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

Depth (inches)	Matrix		%	Redox Features				Type ¹	Loc ²	Texture	Remarks
	Color (moist)			Color (moist)		%					
0-06	10YR	3/2	100							Silty Clay Loam	
06-16	10YR	5/2	95	7.5YR	4/6	5		C	M	Clay	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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): 12
Saturation Present? Yes ☒ No ☐ Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation within 9" of the soil surface, and positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP02u
 Investigator(s): W Fouts, S Weyant, M Hickey Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR E Lat: 46.463946 Long: -110.292406 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Upland sample point located on a berm upslope from DP02w.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	30	<input checked="" type="checkbox"/>	UPL
Elymus repens	35	<input checked="" type="checkbox"/>	FACU
Elymus trachycaulus	25	<input checked="" type="checkbox"/>	FACU
Phalaris arundinacea	10	<input type="checkbox"/>	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	<input type="text" value="0"/>
FACW species	10 X 2	<input type="text" value="20"/>
FAC species	0 X 3	<input type="text" value="0"/>
FACU species	60 X 4	<input type="text" value="240"/>
UPL species	30 X 5	<input type="text" value="150"/>
Column Totals	<input type="text" value="100"/> (A)	<input type="text" value="410"/> (B)

Prevalence Index = B/A = **4.10**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☒

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP02u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-05	10YR	4/2	100				Sandy Clay Loam	
05-17	2.5Y	4/2	100				Sandy Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

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: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP02w
 Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave Slope (%): 20
 Subregion (LRR): LRR E Lat: 46.464009 Long: -110.29231 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: PEM, slope wetland. Sample point located in lowland in the northeast-most corner of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Scientific Name	Absolute % Cover	Domiant Species?	Indicator Status
<i>Agrostis stolonifera</i>	5	<input type="checkbox"/>	FACW
<i>Alopecurus arundinaceus</i>	10	<input type="checkbox"/>	FACW
<i>Glycyrrhiza lepidota</i>	5	<input type="checkbox"/>	FACU
<i>Phalaris arundinacea</i>	80	<input checked="" type="checkbox"/>	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	<input type="text" value="0"/>
FACW species	95 X 2	<input type="text" value="190"/>
FAC species	0 X 3	<input type="text" value="0"/>
FACU species	5 X 4	<input type="text" value="20"/>
UPL species	0 X 5	<input type="text" value="0"/>
Column Totals	<input type="text" value="100"/> (A)	<input type="text" value="210"/> (B)

Prevalence Index = B/A = **2.10**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP02w

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

Depth (inches)	Matrix		Redox Features						Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²				
0-04	10YR	4/2	100						Silty Clay Loam	
04-16	10YR	4/2	98	7.5YR	4/6	2	C	M	Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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 within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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): 7
 Saturation Present? Yes ☒ No ☐ Depth (inches): 4
 (includes capillary fringe)
Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation within 4" of the soil surface, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP03a-w
 Investigator(s): W Fouts, S Weyant Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): undulating Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.463186 Long: -110.295234 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter cobbly loams, 2-4% 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: PEM, slope wetland. Sample point is approximately 1.5' lower in elevation than DP03u.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

<i>Alopecurus pratensis</i>	20	<input checked="" type="checkbox"/>	FACW
<i>Carex nebrascensis</i>	25	<input checked="" type="checkbox"/>	OBL
<i>Carex pellita</i>	15	<input checked="" type="checkbox"/>	OBL
<i>Eleocharis palustris</i>	10	<input type="checkbox"/>	OBL
<i>Juncus balticus</i>	10	<input type="checkbox"/>	FACW
<i>Phalaris arundinacea</i>	15	<input checked="" type="checkbox"/>	FACW

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: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 50 X 1	<input type="text" value="50"/>
FACW species 45 X 2	<input type="text" value="90"/>
FAC species 0 X 3	<input type="text" value="0"/>
FACU species 0 X 4	<input type="text" value="0"/>
UPL species 0 X 5	<input type="text" value="0"/>
Column Totals <input type="text" value="95"/> (A)	<input type="text" value="140"/> (B)

Prevalence Index = B/A = **1.47**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP03a-w

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-02	10YR	4/1		100			Clay	Many roots
02-16	10YR	5/1		100			Clay	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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: Depleted matrix observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 1
Water Table Present? Yes ☒ No ☐ Depth (inches): 0
Saturation Present? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes surface water, high water table, saturation to the soil surface, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP03b-w
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): undulating Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.462806 Long: -110.29508 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loam, 2-4% 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks: PSS, slope wetland. Sample point is located in the volunteer Salix exigua community developing in the north portion of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Salix exigua 30 ☒ FACW

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus pratensis	40	<input checked="" type="checkbox"/>	FACW
Carex praeacris	10	<input type="checkbox"/>	FACW
Eleocharis palustris	5	<input type="checkbox"/>	OBL
Juncus balticus	10	<input type="checkbox"/>	FACW
Poa palustris	5	<input type="checkbox"/>	FACW
Taraxacum officinale	2	<input type="checkbox"/>	FACU

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 5 X 1	<u>5</u>
FACW species 95 X 2	<u>190</u>
FAC species 0 X 3	<u>0</u>
FACU species 2 X 4	<u>8</u>
UPL species 0 X 5	<u>0</u>
Column Totals <u>102</u> (A)	<u>203</u> (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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0. Approximately 15% of the vegetation cover within the herbaceous plot is occupied by shrub cover (Salix exigua).

SOIL

Sampling Point: DP03b-w

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

Depth (inches)	Matrix			Redox Features					Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²			
0-08	10YR	4/2	90	N	2.5/0	2	C	M	Clay Loam	Mn concentrations
0-08	10YR	4/2	90	7.5YR	4/4	8	C	M	Clay Loam	
08-18	2.5Y	5/2	90	7.5YR	4/6	10	C	M	Clay	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Distinct and prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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): 10
Saturation Present? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation to the soil surface, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP03u
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): convex Slope (%): 10
 Subregion (LRR): LRR E Lat: 46.46335 Long: -110.29531 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Upland sample point located near preexisting wetland, no longer identified as wetland. The constructed berm is vegetated by upland species and the soil is extremely compacted.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	20	<input checked="" type="checkbox"/>	UPL
Elymus repens	72	<input checked="" type="checkbox"/>	FACU
Elymus trachycaulus	5	<input type="checkbox"/>	FACU
Poa pratensis	3	<input type="checkbox"/>	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 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	<u>0</u>
FACW species 0 X 2	<u>0</u>
FAC species 0 X 3	<u>0</u>
FACU species 80 X 4	<u>320</u>
UPL species 20 X 5	<u>100</u>
Column Totals <u>100</u> (A)	<u>420</u> (B)

Prevalence Index = B/A = **4.20**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☒

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP03u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-04	10YR	3/2		100			Silty Clay Loam	
04-10	10YR	4/1		100			Clay	
10+							Hardpan	Refusal

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks: No hydric soil indicators observed. Soil is too compacted to dig beyond 10 inches.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

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: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP04u
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.462685 Long: -110.29717 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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 <input type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>			

Remarks: Upland sample point located approximately 6" higher in elevation than DP04w.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

<i>Alopecurus pratensis</i>	5	<input type="checkbox"/>	FACW
<i>Elymus repens</i>	15	<input type="checkbox"/>	FACU
<i>Elymus trachycaulus</i>	35	<input checked="" type="checkbox"/>	FACU
<i>Phleum pratense</i>	2	<input type="checkbox"/>	FACU
<i>Poa pratensis</i>	30	<input checked="" type="checkbox"/>	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: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	<input type="text" value="0"/>
FACW species	5 X 2	<input type="text" value="10"/>
FAC species	0 X 3	<input type="text" value="0"/>
FACU species	82 X 4	<input type="text" value="328"/>
UPL species	3 X 5	<input type="text" value="15"/>
Column Totals	<input type="text" value="90"/> (A)	<input type="text" value="353"/> (B)

Prevalence Index = B/A = **3.92**

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:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP04u

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

Depth (inches)	Matrix		%	Redox Features				Loc ²	Texture	Remarks
	Color (moist)			Color (moist)	%	Type ¹				
0-07	10YR	3/2	100						Clay	
07-16	10YR	4/1	99	10YR	4/4	1	C	M	Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

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: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP04w
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.462662 Long: -110.29695 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: PEM, slope wetland. This data point is located in an area where the vegetation community is transitioning to become more hydrophytic - Phalaris arundinacea is increasing in this area.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Carex praeegracilis	30	<input checked="" type="checkbox"/>	FACW
Elymus repens	20	<input checked="" type="checkbox"/>	FACU
Elymus trachycaulus	30	<input checked="" type="checkbox"/>	FACU
Phalaris arundinacea	5	<input type="checkbox"/>	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: 1 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 0 X 1	<u>0</u>
FACW species 85 X 2	<u>170</u>
FAC species 0 X 3	<u>0</u>
FACU species 50 X 4	<u>200</u>
UPL species 0 X 5	<u>0</u>
Column Totals <u>135</u> (A)	<u>370</u> (B)

Prevalence Index = B/A = **2.74**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP04w

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

Depth (inches)	Matrix			Redox Features					Texture	Remarks
	Color (moist)		%	Color (moist)		%	Type ¹	Loc ²		
0-06	2.5Y	4/2	95	7.5YR	4/4	5	C	PL	Clay Loam	
06-16	10YR	4/2	92	7.5YR	5/6	8	C	M	Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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): 2
Water Table Present? Yes ☒ No ☐ Depth (inches): 0
Saturation Present? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes surface water, high water table, and saturation to the soil surface.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP05u
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR E Lat: 46.46168 Long: 46.46335 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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 located south of berm in the center of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Species	Absolute % Cover	Domiant Species?	Indicator Status
Bromus inermis	10	<input type="checkbox"/>	UPL
Elymus repens	60	<input checked="" type="checkbox"/>	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 30

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	<input type="text" value="0"/>
FACW species	0 X 2	<input type="text" value="0"/>
FAC species	0 X 3	<input type="text" value="0"/>
FACU species	60 X 4	<input type="text" value="240"/>
UPL species	10 X 5	<input type="text" value="50"/>
Column Totals	<input type="text" value="70"/> (A)	<input type="text" value="290"/> (B)

Prevalence Index = B/A = **4.14**

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:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP05u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-02	10YR	4/2	100				Silty Clay Loam	Roots
02-16	10YR	5/3	100				Clay	Cobbly. Shale fragments

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

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: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP05w
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): LRR E Lat: 46.461684 Long: -110.29842 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: PEM, slope wetland. Sample point located south of berm in the central portion of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

<i>Alopecurus arundinaceus</i>	15	<input type="checkbox"/>	FACW
<i>Eleocharis palustris</i>	35	<input checked="" type="checkbox"/>	OBL
<i>Elymus repens</i>	25	<input checked="" type="checkbox"/>	FACU
<i>Poa pratensis</i>	5	<input type="checkbox"/>	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: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 35 X 1	<input type="text" value="35"/>
FACW species 15 X 2	<input type="text" value="30"/>
FAC species 0 X 3	<input type="text" value="0"/>
FACU species 30 X 4	<input type="text" value="120"/>
UPL species 0 X 5	<input type="text" value="0"/>
Column Totals <input type="text" value="80"/> (A)	<input type="text" value="185"/> (B)

Prevalence Index = B/A = **2.31**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP05w

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-09	10YR	5/1	100				Clay	
09-14	10YR	5/1	100				Clay	Hardpan/shale at bottom

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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: Depleted matrix observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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): 5
Water Table Present? Yes ☒ No ☐ Depth (inches): 0
Saturation Present? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes surface water, high water table, saturation to the soil surface, and geomorphic position.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP06a-w
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.45934 Long: -110.295285 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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: PEM, slope wetland. Sample point located in the south east portion of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

<i>Alopecurus arundinaceus</i>	15	<input checked="" type="checkbox"/>	FACW
<i>Carex nebrascensis</i>	10	<input type="checkbox"/>	OBL
<i>Cirsium arvense</i>	1	<input type="checkbox"/>	FACU
<i>Eleocharis palustris</i>	15	<input checked="" type="checkbox"/>	OBL
<i>Juncus balticus</i>	25	<input checked="" type="checkbox"/>	FACW
<i>Juncus longistylis</i>	1	<input type="checkbox"/>	FACW
<i>Phalaris arundinacea</i>	5	<input type="checkbox"/>	FACW
<i>Phleum pratense</i>	1	<input type="checkbox"/>	FACU
<i>Poa palustris</i>	10	<input type="checkbox"/>	FACW
<i>Taraxacum officinale</i>	3	<input type="checkbox"/>	FACU
<i>Trifolium hybridum</i>	14	<input type="checkbox"/>	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 3 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 25 X 1	<u>25</u>
FACW species 56 X 2	<u>112</u>
FAC species 0 X 3	<u>0</u>
FACU species 19 X 4	<u>76</u>
UPL species 0 X 5	<u>0</u>
Column Totals <u>100</u> (A)	<u>213</u> (B)

Prevalence Index = B/A = **2.13**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP06a-w

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

Depth (inches)	Matrix		%	Redox Features			Type ¹	Loc ²	Texture	Remarks
	Color (moist)			Color (moist)	%					
0-02	10YR	3/2	100						Clay	
02-08	10YR	4/1	90	7.5YR	5/4	10	C	M,PL	Clay	C - living roots
08-16	2.5Y	6/2	98	10YR	6/6	2	C	M,PL	Sandy Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if present):

 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes ☒ No ☐

Remarks: Prominent redoximorphic concentrations common within the matrix and along pore linings.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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): 16
 Saturation Present? Yes ☐ No ☒ Depth (inches): _____
 (includes capillary fringe)
Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes oxidized rhizospheres on living roots, geomorphic position, and a positive FAC-Neutral test. High water table observed at 16".

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP06b-w
 Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 13 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): undulating, concave Slope (%): 5
 Subregion (LRR): LRR E Lat: 46.459327 Long: -110.295935 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: PSS, slope wetland. Sample point located in the pre-existing scrub shrub wetland in the south portion of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Salix exiqua 40 ☒ FACW

Herbaceous Stratum Plot size (5 Foot Radius)

Alopecurus arundinaceus 10 ☐ FACW
Juncus balticus 1 ☐ FACW
Phalaris arundinacea 70 ☒ FACW

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: 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	0 X 1	<u>0</u>
FACW species	121 X 2	<u>242</u>
FAC species	0 X 3	<u>0</u>
FACU species	0 X 4	<u>0</u>
UPL species	0 X 5	<u>0</u>
Column Totals	<u>121</u> (A)	<u>242</u> (B)

Prevalence Index = B/A = **2.00**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP06b-w

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

Depth (inches)	Matrix		%	Redox Features			Type ¹	Loc ²	Texture	Remarks
	Color (moist)			Color (moist)	%					
0-05	7.5YR	2.5/1	100						Clay Loam	
05-17	2.5Y	4/1	80	7.5YR	4/6	20	C	M	Sandy Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input checked="" type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ☒ No ☐ Depth (inches): 1

Water Table Present? Yes ☒ No ☐ Depth (inches): 3

Saturation Present? Yes ☒ No ☐ Depth (inches): 0

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes surface water, high water table, saturation to the soil surface, iron deposits, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP06u
 Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 13 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): undulating, convex Slope (%): 1
 Subregion (LRR): LRR E Lat: 46.459437 Long: -110.295096 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: Upland sample point located on gentle hillside in the northeast portion of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	10	<input type="checkbox"/>	UPL
Cirsium arvense	3	<input type="checkbox"/>	FACU
Elymus repens	10	<input type="checkbox"/>	FACU
Phleum pratense	25	<input checked="" type="checkbox"/>	FACU
Poa pratensis	18	<input type="checkbox"/>	FACU
Schedonorus arundinaceus	25	<input checked="" type="checkbox"/>	FACU
Taraxacum officinale	2	<input type="checkbox"/>	FACU
Trifolium hybridum	2	<input type="checkbox"/>	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 5

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 0 X 1	<input type="text" value="0"/>
FACW species 0 X 2	<input type="text" value="0"/>
FAC species 0 X 3	<input type="text" value="0"/>
FACU species 85 X 4	<input type="text" value="340"/>
UPL species 10 X 5	<input type="text" value="50"/>
Column Totals 95 (A)	390 (B)

Prevalence Index = B/A = 4.11

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☒

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP06u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-04	10YR	3/2	100				Clay Loam	
04-18	10YR	5/3	100				Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐
- 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____
 (includes capillary fringe)
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: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP07u
 Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 13 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom, low bench Local relief (concave, convex, none): flat Slope (%): 1
 Subregion (LRR): LRR E Lat: 46.459547 Long: -110.297411 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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 located on low bench in the south west portion of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	55	<input checked="" type="checkbox"/>	UPL
Elymus repens	10	<input type="checkbox"/>	FACU
Poa pratensis	15	<input type="checkbox"/>	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: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 0 X 1	<input type="text" value="0"/>
FACW species 0 X 2	<input type="text" value="0"/>
FAC species 0 X 3	<input type="text" value="0"/>
FACU species 25 X 4	<input type="text" value="100"/>
UPL species 55 X 5	<input type="text" value="275"/>
Column Totals <input type="text" value="80"/> (A)	<input type="text" value="375"/> (B)

Prevalence Index = B/A = **4.69**

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:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP07u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y	3/2		100			Sandy Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

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. Soil dry.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/28/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP07w
 Investigator(s): S Weyant, W Fouts Section, Township, Range: 13 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.459646 Long: -110.297244 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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: PEM, slope wetland. Sample point located near pre-existing wetland in the south west portion of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

<i>Alopecurus arundinaceus</i>	32	<input checked="" type="checkbox"/>	FACW
<i>Carex nebrascensis</i>	15	<input type="checkbox"/>	OBL
<i>Cirsium arvense</i>	1	<input type="checkbox"/>	FACU
<i>Juncus balticus</i>	10	<input type="checkbox"/>	FACW
<i>Phalaris arundinacea</i>	32	<input checked="" type="checkbox"/>	FACW
<i>Poa palustris</i>	5	<input type="checkbox"/>	FACW

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 5

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 15 X 1	<u>15</u>
FACW species 79 X 2	<u>158</u>
FAC species 0 X 3	<u>0</u>
FACU species 1 X 4	<u>4</u>
UPL species 0 X 5	<u>0</u>
Column Totals <u>95</u> (A)	<u>177</u> (B)

Prevalence Index = B/A = 1.86

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP07w

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

Depth (inches)	Matrix		%	Redox Features			Type ¹	Loc ²	Texture	Remarks
	Color (moist)			Color (moist)	%					
0-03	10YR	4/2	100						Sandy Clay Loam	
03-16	10YR	4/2	98	7.5YR	6/8	2	C	M,PL	Sandy Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

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

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP08u
 Investigator(s): W Fouts, S Weyant Section, Township, Range: 13 8N 11E
 Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope (%): 2
 Subregion (LRR): LRR E Lat: 46.460599 Long: -110.294856 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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 located approximately 3' higher in elevation than DP08w.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	60	<input checked="" type="checkbox"/>	UPL
Elymus repens	20	<input checked="" type="checkbox"/>	FACU
Elymus trachycaulus	15	<input type="checkbox"/>	FACU
Poa pratensis	5	<input type="checkbox"/>	FACU

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	<input type="text" value="0"/>
FACW species	0 X 2	<input type="text" value="0"/>
FAC species	0 X 3	<input type="text" value="0"/>
FACU species	40 X 4	<input type="text" value="160"/>
UPL species	60 X 5	<input type="text" value="300"/>
Column Totals	<input type="text" value="100"/> (A)	<input type="text" value="460"/> (B)

Prevalence Index = B/A = **4.60**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☒

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP08u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-03	10YR	3/2	100				Silty Clay Loam	Roots
03-16	10YR	3/2	100				Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

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: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP08w
 Investigator(s): W Fouts, S Weyant Section, Township, Range: 13 8N 11E
 Landform (hillslope, terrace, etc.): Lowland, toeslope Local relief (concave, convex, none): undulating/concave Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.460652 Long: -110.294993 Datum: NAD 83
 Soil Map Unit Name: Delpoint variant-Mamarth-Cabart Loams, 2-8% 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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>			

Remarks: PEM, slope wetland. Sample point located along the east central boundary of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

<i>Alopecurus arundinaceus</i>	15	<input checked="" type="checkbox"/>	FACW
<i>Carex praeegracilis</i>	5	<input type="checkbox"/>	FACW
<i>Cirsium arvense</i>	1	<input type="checkbox"/>	FACU
<i>Eleocharis palustris</i>	5	<input type="checkbox"/>	OBL
<i>Elymus repens</i>	20	<input checked="" type="checkbox"/>	FACU
<i>Juncus balticus</i>	5	<input type="checkbox"/>	FACW
<i>Medicago sativa</i>	5	<input type="checkbox"/>	UPL
<i>Phalaris arundinacea</i>	15	<input checked="" type="checkbox"/>	FACW
<i>Phleum pratense</i>	2	<input type="checkbox"/>	FACU
<i>Rumex crispus</i>	1	<input type="checkbox"/>	FAC
<i>Symphotrichum ascendens</i>	2	<input type="checkbox"/>	FACU
<i>Taraxacum officinale</i>	3	<input type="checkbox"/>	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: 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 5 X 1	5
FACW species 40 X 2	80
FAC species 1 X 3	3
FACU species 26 X 4	104
UPL species 7 X 5	35
Column Totals 79 (A)	227 (B)

Prevalence Index = B/A = **2.87**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive dominance test and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP08w

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

Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%		Color (moist)	%	Type ¹	Loc ²		
0-16	10YR	4/2	98	N	2.5/0	2	C	M, PL	Silty Clay Loam

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Distinct redoximorphic concentrations common along pore linings and within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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): 10
Saturation Present? Yes ☒ No ☐ Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes high water table, saturation to the soil surface, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP09u
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): flat Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.461073 Long: -110.296365 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-8% 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 located on upland peninsula in the center of the mitigation site. The upland area is approximately 1.5' higher than the surrounding wetland.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	75	<input checked="" type="checkbox"/>	UPL
Cirsium arvense	2	<input type="checkbox"/>	FACU
Elymus repens	15	<input type="checkbox"/>	FACU
Poa pratensis	3	<input type="checkbox"/>	FACU
Taraxacum officinale	5	<input type="checkbox"/>	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: (A)

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

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

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 0 X 1	<input type="text" value="0"/>
FACW species 0 X 2	<input type="text" value="0"/>
FAC species 0 X 3	<input type="text" value="0"/>
FACU species 25 X 4	<input type="text" value="100"/>
UPL species 75 X 5	<input type="text" value="375"/>
Column Totals <input type="text" value="100"/> (A)	<input type="text" value="475"/> (B)

Prevalence Index = B/A = **4.75**

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:

Data point is dominated by upland vegetation. No hydrophytic plant species observed.

SOIL

Sampling Point: DP09u

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

Depth (inches)	Matrix		%	Redox Features			Loc ²	Texture	Remarks
	Color (moist)			Color (moist)	%	Type ¹			
0-04	10YR	3/2	100					Sandy Clay Loam	Roots
04-16	10YR	3/2	92	7.5YR	3/4	8		Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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. Although redoximorphic concentrations were observed, they may be relict. The sample point lacked a hydrophytic vegetation community and evidence of wetland hydrology and is therefore considered non-wetland.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

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: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP09w
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): undulating Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.461141 Long: -110.296461 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks: PEM, slope wetland. Sample point located near pre-existing wetland.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

<u>Alopecurus arundinaceus</u>	<u>95</u>	<input checked="" type="checkbox"/>	<u>FACW</u>
<u>Phalaris arundinacea</u>	<u>5</u>	<input type="checkbox"/>	<u>FACW</u>

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 0

Dominance Test worksheet

Number of Dominant Species that are OBL, FACW or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	<u>0</u>
FACW species	100 X 2	<u>200</u>
FAC species	0 X 3	<u>0</u>
FACU species	0 X 4	<u>0</u>
UPL species	0 X 5	<u>0</u>
Column Totals	<u>100</u> (A)	<u>200</u> (B)

Prevalence Index = B/A = 2.00

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:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP09w

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

Depth (inches)	Matrix		%	Redox Features				Type ¹	Loc ²	Texture	Remarks
	Color (moist)			Color (moist)	%						
0-01	10YR	3/1	100							Silty Clay Loam	
01-16	10YR	4/2	97	N	2.5/0	1	C	M		Clay	
01-16				7.5YR	4/6	2	C	M		Clay	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ☒ No ☐

Remarks: Prominent redoximorphic concentrations common within the depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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? Yes ☐ No ☒ Depth (inches): _____

(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Evidence of wetland hydrology includes geomorphic position and a positive FAC-Neutral test. Soil moist.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP10u
 Investigator(s): S Weyant, W Fouts, M Hickey Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): undulating Slope (%): 5
 Subregion (LRR): LRR E Lat: 46.462259 Long: -110.293734 Datum: NAD 83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% 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: This point is located between an irrigation ditch and a large wetland cell, and is currently receiving overland flow.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Herbaceous Stratum Plot size (5 Foot Radius)

Bromus inermis	75	<input checked="" type="checkbox"/>	UPL
Medicago sativa	1	<input type="checkbox"/>	UPL
Phleum pratense	5	<input type="checkbox"/>	FACU
Poa pratensis	15	<input type="checkbox"/>	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: (A)
 Total Number of Dominant Species Across All Strata: (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: % (A/B)

Prevalence Index worksheet

Total % Cover of:		Multiply by:
OBL species	0 X 1	<input type="text" value="0"/>
FACW species	0 X 2	<input type="text" value="0"/>
FAC species	0 X 3	<input type="text" value="0"/>
FACU species	20 X 4	<input type="text" value="80"/>
UPL species	76 X 5	<input type="text" value="380"/>
Column Totals	<input type="text" value="96"/> (A)	<input type="text" value="460"/> (B)

Prevalence Index = B/A = **4.79**

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☐ NO ☒

Remarks:

Data point is dominated by upland vegetation.

SOIL

Sampling Point: DP10u

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-04	10YR	3/1		100			Sandy Clay Loam	
04-17	10YR	4/2		100			Sandy Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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)

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Observations of surface water and saturation were related to recent above average precipitation events, and are not sustained through the growing season to support the development of hydric soil conditions or to support a hydrophytic vegetation community.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Rostad Ranch City/County: Meagher Sampling Date: 6/27/2022
 Applicant/Owner: MDT State: Montana Sampling Point: DP10W
 Investigator(s): W Fouts Section, Township, Range: 12 8N 11E
 Landform (hillslope, terrace, etc.): Channel (active) Local relief (concave, convex, none): undulating Slope (%): 0
 Subregion (LRR): LRR E Lat: 46.462229 Long: -110.293657 Datum: NAD83
 Soil Map Unit Name: Varney-Notter Cobbly Loams, 2-4% slopes NWI classification: Not mapped

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes ☒ No ☐
 Hydric Soil Present? Yes ☒ No ☐
 Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: PEM, slope wetland. Sample point is located in the feeder ditch in the north east arm of the mitigation site.

VEGETATION - Use scientific names of plants

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

Sapling/Shrub Stratum Plot size (15 Foot Radius)

Salix exigua 1 ☒ FACW

Herbaceous Stratum Plot size (5 Foot Radius)

<u>Eleocharis palustris</u>	14	<input type="checkbox"/>	OBL
<u>Elymus repens</u>	10	<input type="checkbox"/>	FACU
<u>Phalaris arundinacea</u>	55	<input checked="" type="checkbox"/>	FACW
<u>Rumex occidentalis</u>	5	<input type="checkbox"/>	OBL

Woody Vine Stratum Plot size (30 Foot Radius)

Percent Bare Ground 25

Dominance Test worksheet

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

Prevalence Index worksheet

Total % Cover of:	Multiply by:
OBL species 19 X 1	<u>19</u>
FACW species 56 X 2	<u>112</u>
FAC species 0 X 3	<u>0</u>
FACU species 10 X 4	<u>40</u>
UPL species 0 X 5	<u>0</u>
Column Totals <u>85</u> (A)	<u>171</u> (B)

Prevalence Index = B/A = 2.01

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 soil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.

Hydrophytic Vegetation Present? Yes ☒ NO ☐

Remarks:

Evidence of hydrophytic vegetation includes a positive rapid test, a positive dominance test, and a prevalence index less than or equal to 3.0.

SOIL

Sampling Point: DP10w

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-03	10YR	4/1		100			Silty Clay Loam	Roots
03-16	10YR	5/1		100			Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- ☐ 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)

³Indicators 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: Depleted matrix observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- | | |
|--|---|
| <input checked="" type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input checked="" type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input checked="" type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Water Marks (B1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) | (where not tilled) |
| <input type="checkbox"/> Algal Mat or Crust (B4) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

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 <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): 6
Water Table Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Depth (inches): 0
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	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 surface water, high water table, saturation to the soil surface, geomorphic position, and positive FAC-Neutral test.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Rostad Ranch 2. MDT project# STPX 002(749) Control# 9680000

3. Evaluation Date 6/27/2022 4. Evaluators S. Weyant 5. Wetland/Site# (s) Rostad Mitigation Site

6. Wetland Location(s): T 8 N R 11 E Sec1 12 T 8 N R 11 E Sec2 13

Approx Stationing or Mileposts

Watershed 10 - Musselshell Watershed/County Meagher

7. Evaluating Agency CCI for MDT

8. Wetland size acres 29.48

Purpose of Evaluation

☐ Wetlands potentially affected by MDT project

☐ Mitigation Wetlands: pre-construction

☒ Mitigation Wetlands: post construction

☐ Other

9. Assessment area (AA) size (acres) 29.48

How assessed: Measured e.g. by GPS

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
Slope	Emergent Wetland	Excavated	Seasonal/Intermittent	77
Slope	Scrub-Shrub Wetland		Seasonal/Intermittent	3
Depressional	Emergent Wetland	Excavated	Seasonal/Intermittent	6
Depressional	Emergent Wetland	Excavated	Seasonal/Intermittent	14

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)

Rangeland surrounds the site to the West, South, and East, and is bordered by a lightly used county road to the North.

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

Centaurea stoebe, *Cirsium arvense*, and *Cynoglossum officinale*.

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

The AA was historically drained and heavily grazed by cattle. A drainage ditch bisected the property prior to construction of the mitigation wetland. Historic and existing wetlands were expanded through construction activities with the goal of establishing or re-establishing emergent and scrub-shrub wetland. Surrounding land use includes transportation corridors (county road, historic railroad berm), and agriculture (hay production and cattle grazing). The South Fork of the Musselshell River is located to the north of the mitigation site.

13. Structural Diversity: (based on number of "Cowardin" **vegetated** classes present [do not include unvegetated classes], see #10 above)

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
>= 3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	<NO	YES>	L
1 class, monoculture (1 species comprises >=90% of total cover)	L	NA	NA	NA

Comments: Emergent and scrub-shrub vegetation classes present.

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 Report (Project Code 2022-0090125) , MTNHP Environmental Summary Report for Lat 46.44560 and Long -110.26057

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 14A above)

i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions):

Primary or critical habitat (list species) ☒ D ☐ S

Secondary habitat (list Species) ☒ D ☐ S

Incidental habitat (list species) ☐ D ☐ S

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 Observations of *Downingia laeta* in wetland during 2013-15 site visits. Long-billed curlews and upland sandpipers were observed by MDT staff in 2019-20. Bobolinks observed at the site in 2022.

14C. General Wildlife Habitat Rating:

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

Moderate

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

- ☐ observations of abundant wildlife #s or high species diversity (during any period)
- ☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

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

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

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

- ☒ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☒ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

ii. **Wildlife** habitat features (Working from top to bottom, check appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **vegetated** classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

Structural diversity (see #13)	High								Moderate								Low			
Class cover distribution (all vegetated classes)	Even				Uneven				Even				Uneven				Even			
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12)	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 #12)	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 #12)	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

Site is being used by deer and various bird species. Active Sandhill Crane nesting observed in wetlands in 2016, 2018, and 2019 (observed by MDT), and again in 2022.

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					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover																		
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:

Modified Rating

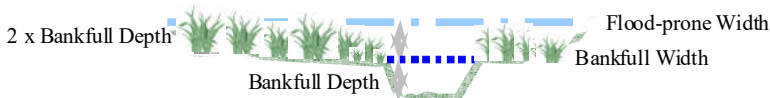
iii. **Final Score and Rating:** **Comments:** AA does not support perennial water to provide fish habitat.

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: No flooding occurs via in-channel or overbank flow.

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: Depressional area and portions of slope wetlands maintain water seasonally/intermittently. Adaptive management in 2017 resulted in an increased score for this function.

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: More than 80 percent of the wetlands are vegetated. A restricted outlet is located in the depressional area as a constructed overflow channel.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, 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: Ponded water was present in the northeast corner of the site, surrounded by a vegetation community dominated by *Phalaris arundinacea*, which has a stability rating of 9.

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: Moderate biological activity; qualifying upland buffer exists.

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)

Criteria	Duration of saturation at AA Wetlands <i>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</i>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	NA			

Comments: Seasonal/intermittent water regime within the AA.

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		
	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: PEM & PSS wetlands are common in the area. Structural diversity and disturbance are moderate.

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:

Currently no recreation/education occurs at the site.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Rostad Mitigation Site

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	.1	1	2.95	<input type="checkbox"/>
B. MT Natural Heritage Program Species Habitat	H	.9	1	26.53	<input checked="" type="checkbox"/>
C. General Wildlife Habitat	M	.5	1	14.74	<input checked="" type="checkbox"/>
D. General Fish Habitat	NA	0	0	0.00	<input type="checkbox"/>
E. Flood Attenuation	NA	0	0	0.00	<input type="checkbox"/>
F. Short and Long Term Surface Water Storage	H	.9	1	26.53	<input checked="" type="checkbox"/>
G. Sediment/Nutrient/Toxicant Removal	H	1	1	29.48	<input type="checkbox"/>
H. Sediment/Shoreline Stabilization	H	.9	1	26.53	<input type="checkbox"/>
I. Production Export/Food Chain Support	H	.8	1	23.58	<input type="checkbox"/>
J. Groundwater Discharge/Recharge	M	.7	1	20.64	<input checked="" type="checkbox"/>
K. Uniqueness	L	.3	1	8.84	<input type="checkbox"/>
L. Recreation/Education Potential (bonus points)	L	.05	NA	1.47	<input type="checkbox"/>
Totals:		6.15	9	181.30	
Percent of Possible Score			68.33 %		

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
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Table B-1. Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2022.

Scientific Names	Common Names	GP Indicator Status ⁽¹⁾
<i>Achillea millefolium</i>	Common Yarrow	FACU
<i>Agropyron cristatum</i>	Crested Wheatgrass	UPL
<i>Agrostis gigantea</i>	Black Bent	FACW
<i>Algae, green</i>	Algae, green	NL
<i>Alopecurus arundinaceus</i>	Creeping-Meadow Foxtail	FACW
<i>Alopecurus pratensis</i>	Field Meadow-Foxtail	FACW
<i>Amaranthus retroflexus</i>	Red-Root	FACU
<i>Ambrosia acanthicarpa</i>	Flat-spine Ragweed	UPL
<i>Artemisia ludoviciana</i>	White Sagebrush	UPL
<i>Aster</i> sp.	Aster	UPL
<i>Bassia scoparia</i>	Mexican-Fireweed	FACU
<i>Beckmannia syzigachne</i>	American Slough Grass	OBL
<i>Berteroa incana</i>	Hoary False-alyssum	UPL
<i>Bromus arvensis</i>	Field Brome	FACU
<i>Bromus carinatus</i>	California Brome	UPL
<i>Bromus inermis</i>	Smooth Brome	UPL
<i>Cardaria draba</i>	Whitetop	UPL
<i>Carex bebbii</i>	Bebb's Sedge	OBL
<i>Carex nebrascensis</i>	Nebraska Sedge	OBL
<i>Carex pellita</i>	Woolly Sedge	OBL
<i>Carex praegracilis</i>	Clustered Field Sedge	FACW
<i>Carex stipata</i>	Stalk-Grain Sedge	OBL
<i>Carex utriculata</i>	Northwest Territory Sedge	OBL
<i>Carum carvi</i>	Caraway	UPL
<i>Centaurea stoebe</i>	Spotted Knapweed	UPL
<i>Chenopodium album</i>	Lamb's-Quarters	FACU
<i>Chenopodium</i> sp.	Goosefoot	UPL
<i>Cicuta douglasii</i>	Western Water-Hemlock	OBL
<i>Cirsium arvense</i>	Canadian Thistle	FACU
<i>Convolvulus arvensis</i>	Field Bindweed	UPL
<i>Cynoglossum officinale</i>	Gypsy-Flower	FACU
<i>Cyrtorhyncha cymbalaria</i>	Alkali Buttercup	OBL
<i>Dactylis glomerata</i>	Orchard Grass	FACU
<i>Deschampsia caespitosa</i>	Tufted Hair Grass	FACW
<i>Descurainia sophia</i>	Herb Sophia	UPL
<i>Downingia laeta</i>	Great Basin Calico-Flower	OBL
<i>Eleocharis acicularis</i>	Needle Spike-Rush	OBL
<i>Eleocharis palustris</i>	Common Spike-Rush	OBL
<i>Elymus hispidus</i>	Intermediate Wheatgrass	UPL

Table B-1. Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2022.

Scientific Names	Common Names	GP Indicator Status ⁽¹⁾
<i>Elymus repens</i>	Creeping Wild Rye	FACU
<i>Elymus trachycaulus</i>	Slender Wild Rye	FACU
<i>Epilobium ciliatum</i>	Fringed Willowherb	FACW
<i>Equisetum arvense</i>	Field Horsetail	FAC
<i>Equisetum laevigatum</i>	Smooth Scouring-Rush	FAC
<i>Glyceria grandis</i>	American Manna Grass	OBL
<i>Glyceria striata</i>	Fowl Manna Grass	OBL
<i>Glycyrrhiza lepidota</i>	American Licorice	FACU
<i>Helianthus annuus</i>	Common Sunflower	FACU
<i>Hippuris vulgaris</i>	Common Mare's-Tail	OBL
<i>Hordeum jubatum</i>	Fox-Tail Barley	FACW
<i>Juncus articulatus</i>	Joint-Leaf Rush	OBL
<i>Juncus balticus</i>	Baltic Rush	FACW
<i>Juncus bufonius</i>	Toad Rush	OBL
<i>Juncus longistylis</i>	Long-Style Rush	FACW
<i>Lactuca serriola</i>	Prickly Lettuce	FAC
<i>Lepidium densiflorum</i>	Miner's Pepperwort	FAC
<i>Medicago sativa</i>	Alfalfa	UPL
<i>Melilotus albus</i>	White Sweetclover	UPL
<i>Melilotus officinalis</i>	Yellow Sweet-Clover	FACU
<i>Mentha arvensis</i>	American Wild Mint	FACW
<i>Pascopyrum smithii</i>	Western-Wheat Grass	FACU
<i>Phalaris arundinacea</i>	Reed Canary Grass	FACW
<i>Phleum pratense</i>	Common Timothy	FACU
<i>Plantago major</i>	Great Plantain	FAC
<i>Poa palustris</i>	Fowl Blue Grass	FACW
<i>Poa pratensis</i>	Kentucky Blue Grass	FACU
<i>Polypogon monspeliensis</i>	Annual Rabbit's-Foot Grass	FACW
<i>Populus angustifolia</i>	Narrow-Leaf Cottonwood	FACW
<i>Populus balsamifera</i>	Balsam Poplar	FACW
<i>Populus tremuloides</i>	Quaking Aspen	FAC
<i>Potentilla anserina</i>	Silverweed	FACW
<i>Potentilla gracilis</i>	Graceful Cinquefoil	FAC
<i>Rumex crispus</i>	Curly Dock	FAC
<i>Rumex occidentalis</i>	Western Dock	OBL
<i>Salix exigua</i>	Narrow-Leaf Willow	FACW
<i>Schedonorus pratensis</i>	Meadow False Rye Grass	FACU
<i>Schoenoplectus maritimus</i>	Saltmarsh Club-Rush	OBL
<i>Sinapis arvensis</i>	Wild Mustard	UPL

Table B-1. Rostad Ranch Wetland Mitigation Site. Comprehensive Plant Species List 2013-2022.

Scientific Names	Common Names	GP Indicator Status⁽¹⁾
<i>Sonchus arvensis</i>	Field Sow-Thistle	FAC
<i>Symphyotrichum ascendens</i>	Western American-Aster	FACU
<i>Symphyotrichum ericoides</i>	White Heath American-Aster	FACU
<i>Tanacetum vulgare</i>	Common Tansy	FACU
<i>Taraxacum officinale</i>	Common Dandelion	FACU
<i>Thlaspi arvense</i>	Field Pennycress	FACU
<i>Tragopogon dubius</i>	Meadow Goat's-beard	UPL
<i>Trifolium arvense</i>	Rabbit-foot Clover	UPL
<i>Trifolium hybridum</i>	Alsike Clover	FACU
<i>Trifolium pratense</i>	Red Clover	FACU
<i>Trifolium repens</i>	White Clover	FACU
<i>Triglochin maritima</i>	Seaside Arrow-Grass	OBL
<i>Typha angustifolia</i>	Narrow-Leaf Cat-tail	OBL
<i>Typha latifolia</i>	Broad-Leaf Cat-Tail	OBL
<i>Veronica peregrina</i>	Neckweed	FACW

¹ 2020 NWPL (USACE 2020)

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

APPENDIX C

PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring

Rostad Ranch

Meagher County, Montana

Rostad Ranch: Photo Point Photographs



Photo Point 1 – Panorama; Location: Northeast Corner; Bearing 200 degrees; Year 2013



Photo Point 1 – Panorama; Location: Northeast Corner; Bearing 200 degrees; Year 2022



Photo Point 2 – Panorama; Location: East Fence Corner; Bearing 125 degrees; Year 2013



Photo Point 2 – Panorama; Location: East Fence Corner; Bearing 125 degrees; Year 2022

Rostad Ranch: Photo Point Photographs



Photo Point 3 – Panorama; Location: East Fence Line; Bearing 280 degrees; Year 2013



Photo Point 3 – Panorama; Location: East Fence Line; Bearing 280 degrees; Year 2022



Photo Point 4 – Panorama; Location: SE Fence Corner; Bearing 240 degrees; Year 2013



Photo Point 4 – Panorama; Location: SE Fence Corner; Bearing 240 degrees; Year 2022

Rostad Ranch: Photo Point Photographs



Photo Point 5 – Panorama; Location: SW Fence Corner; Bearing 200 degrees; Year 2013



Photo Point 5 – Panorama; Location: SW Fence Corner; Bearing 200 degrees; Year 2022



Photo Point 7 – Panorama; Location: West Fence Corner; Bearing 90 degrees; Year 2013



Photo Point 7 – Panorama; Location: West Fence Corner; Bearing 90 degrees; Year 2022

Rostad Ranch: Photo Point Photographs



Photo Point 6 **Location:** West Fence Line
Bearing: 30 degrees **Year:** 2013



Photo Point 6 **Location:** West Fence Line
Bearing: 30 degrees **Year:** 2022



Photo Point 6 **Location:** West Fence Line
Bearing: 100 degrees **Year:** 2013



Photo Point 6 **Location:** West Fence Line
Bearing: 100 degrees **Year:** 2022



Photo Point 8 **Location:** West Central
Bearing: 90 degrees **Year:** 2017



Photo Point 8 **Location:** West Central
Bearing: 90 degrees **Year:** 2022

Rostad Ranch: Photo Point Photographs



Photo Point 9 **Location:** East Fence Line
Bearing: 240 degrees **Year:** 2017



Photo Point 9 **Location:** East Fence Line
Bearing: 240 degrees **Year:** 2022



Photo Point 10 **Location:** West Central
Bearing: 80 degrees **Year:** 2017

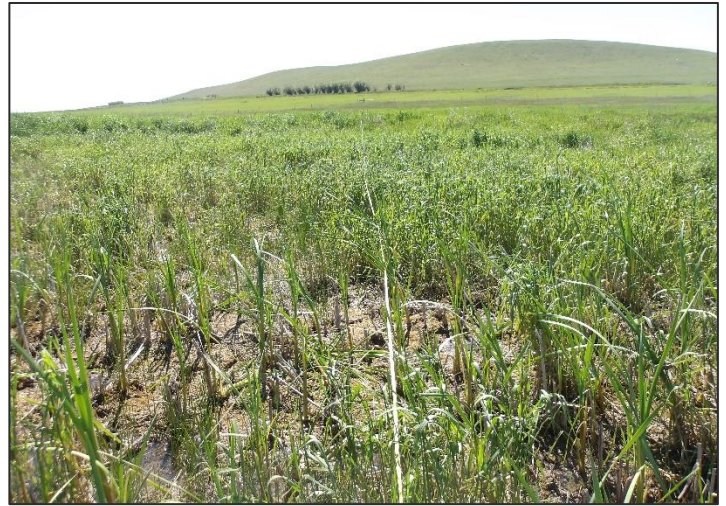


Photo Point 10 **Location:** West Central
Bearing: 80 degrees **Year:** 2022

Rostad Ranch: Transect Photographs



Transect 1: Start **Location:** NE Branch of site
Bearing: 290 degrees **Year:** 2013



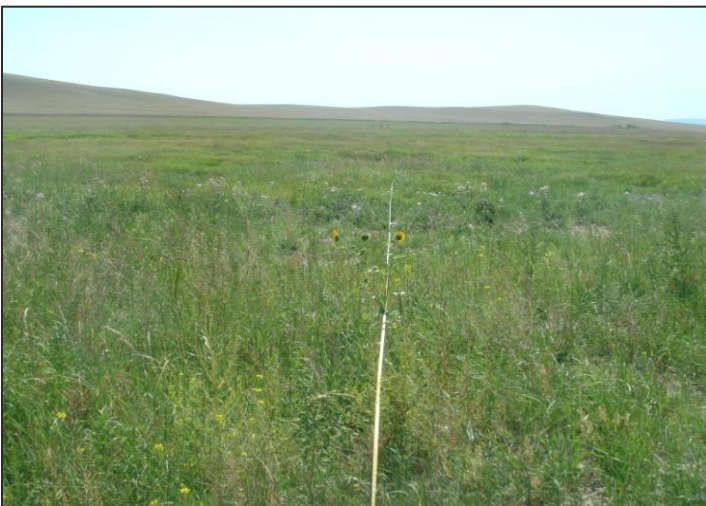
Transect 1: Start **Location:** NE Branch of site
Bearing: 290 degrees **Year:** 2022



Transect 1: End **Location:** NE Branch of site
Bearing: 110 degrees **Year:** 2013



Transect 1: End **Location:** NE Branch of site
Bearing: 110 degrees **Year:** 2022



Transect 2: Start **Location:** North Central
Bearing: 130 degrees **Year:** 2013



Transect 2: Start **Location:** North Central
Bearing: 130 degrees **Year:** 2022

Rostad Ranch: Transect Photographs



Transect 2: End
Bearing: 310 degrees

Location: North Central
Year: 2013



Transect 2: End
Bearing: 310 degrees

Location: North Central
Year: 2022



Transect 3: Start
Bearing: 30 degrees

Location: South Portion of site
Year: 2013



Transect 3: Start
Bearing: 30 degrees

Location: South Portion of site
Year: 2022



Transect 3: End
Bearing 30: degrees

Location: South Portion of site
Year: 2013



Transect 3: End
Bearing: 30: degrees

Location: South Portion of site
Year: 2022

Rostad Ranch: Transect Photographs



Transect 4: Start
Bearing: 0 degrees

Location: Northwest Portion
Year: 2017



Transect 4: Start
Bearing: 0 degrees

Location: Northwest Portion
Year: 2022



Transect 4: End
Bearing: 180 degrees

Location: Northwest Portion
Year: 2017



Transect 4: End
Bearing: 180 degrees

Location: Northwest Portion
Year: 2022

Rostad Ranch: Data Point Photographs



Data Point: DP01w

Location: NE corner of site. Veg CT 2.

Year: 2022



Data Point: DP01u

Location: NE corner of site. Veg CT 8.

Year: 2022



Data Point: DP02w

Location: NE corner of site. Veg CT 2.

Year: 2022



Data Point: DP02u

Location: NE corner of site. Veg CT 8.

Year: 2022



Data Point: DP03a-w

Location: Near N boundary of site. Veg CT 10.

Year: 2022

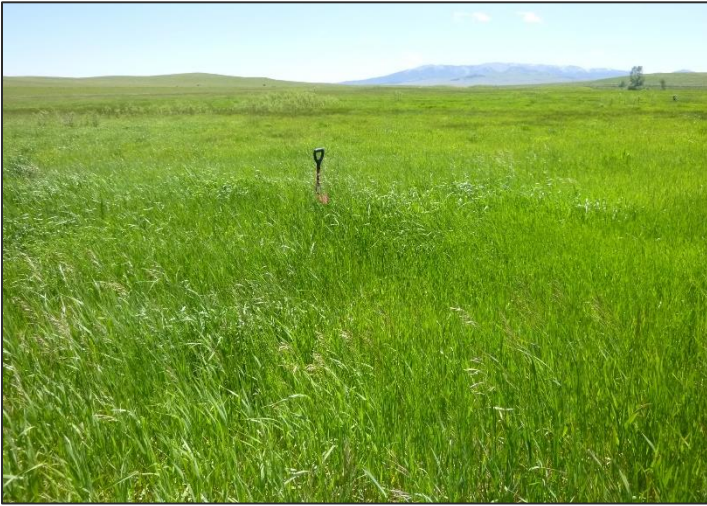


Data Point: DP03b-w

Location: Near N boundary of site. Veg CT 3.

Year: 2022

Rostad Ranch: Data Point Photographs



Data Point: DP03-u

Location: Near N boundary of site. Veg CT 8. **Year:** 2022



Data Point: DP04w

Location: Near N boundary of site. Veg CT 10. **Year:** 2022



Data Point: DP04u

Location: Near N boundary of site. Veg CT 8. **Year:** 2022



Data Point: DP05w

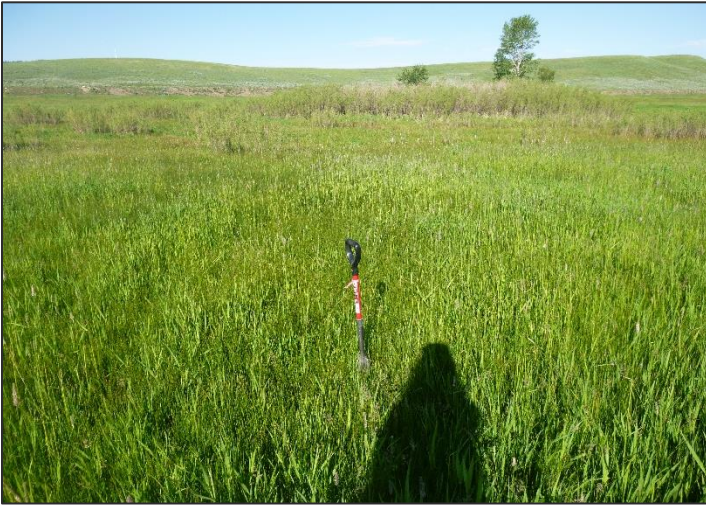
Location: NW corner of site. Veg CT 14. **Year:** 2022



Data Point: DP05u

Location: NW corner of site. Veg CT 11. **Year:** 2022

Rostad Ranch: Data Point Photographs



Data Point: DP06a-w

Location: S central project area. Veg CT 3. **Year:** 2022



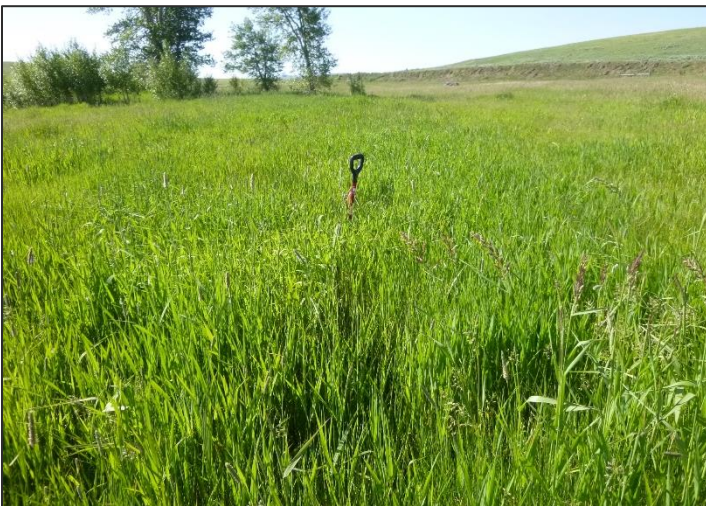
Data Point: DP06b-w

Location: SE project area. Veg CT 10. **Year:** 2022



Data Point: DP06u

Location: SE project area. Veg CT 8. **Year:** 2022



Data Point: DP07w

Location: SW project area. Veg CT 10. **Year:** 2022



Data Point: DP07u

Location: SW project area. Veg CT 8. **Year:** 2022

Rostad Ranch: Data Point Photographs



Data Point: DP08w

Location: E-central project area. Veg CT 15. **Year:** 2022



Data Point: DP08u

Location: E-central project area. Veg CT 8. **Year:** 2022



Data Point: DP09w

Location: Center of project area. Veg CT 10. **Year:** 2022



Data Point: DP09u

Location: Center of project area. Veg CT 8. **Year:** 2022



Data Point: DP10w
Location: Feeder ditch in NE project area. Veg CT 7.

Year: 2022



Data Point: DP10u
Location: N of Feeder ditch in NE project area. Veg CT 8.

Year: 2022