Montana Department of Transportation Wetland Mitigation Monitoring Report

JTX - TUNNICLIFF RANCH MITIGATION SITE

Project Overview

MDT Project Number: STPX-STWD (056) UPN# 7286 Watershed: Watershed #14 – Middle Yellowstone

Monitoring Year: 2021

Years Monitored: 6th year of monitoring

Corps Permit Number: NWO-2010-01938-MTH

Monitoring Conducted By: Confluence Consulting Inc

Dates Monitoring Was Conducted: June 18 and 19, 2021

Purpose of the Approved Project:

The site was constructed to provide 29.63 acres of compensatory wetland mitigation credits for wetland impacts associated with future transportation project-related projects in Watershed #14 – Middle Yellowstone. Construction consisted of excavating a series of 13 cells ranging in size from 0.33 to 1.50 acres. Eight woody planting enclosures, with 1,650 containerized woody plantings, were constructed around the periphery of excavated cells to establish scrub/shrub wetland and riparian habitat.

Site Location:

Latitude: 45.83953 Longitude: - 107.59887 County: Big Horn Nearest Town: Hardin, MT

Map Included: Figure 1 on page #8.

Mitigation Site Construction Started: Fall/2015 Construction Ended: Winter/2016 Dates of Any Recent Corrective or Maintenance Activities (since previous report):

Activity: None Date: N/A

Specific recommendations for any additional corrective actions: MDT should evaluate the methods used to treat noxious weeds in 2022, so that noxious weed cover remains below the 5% threshold. Four enclosure fences need repair. Three fences were damaged in the lightning-sparked fire that occurred in July 2020 and another fence has a hole and is sagging (See Figure A-3). MDT should evaluate the reestablishment and location of woody species on the site. MDT could consider reconfiguring the planting exclosures and replanting woody vegetation at the site to meet performance standards.

Anticipated Wetland Credit Acres: 29.63

Wetland Credit Acres Generated to Date: 10.87

Previous Monitoring Reports:

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

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

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

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

Table 1. Summary of Performance Standards

	Table 1. Summary		
Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	The three parameter criteria for hydrology, vegetation, and soils are met as outlined in the 1987 Wetland Manual and 2010 Great Plains Regional Supplement.	Y	All 13 excavated cells contain wetlands and meet the wetland hydrology, vegetation, and soil requirements. Wetlands have developed across 8.18 acres of the site in 2021.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Y	All 13 excavated cells were saturated near the surface during the 2021 monitoring event.
	Hydric soil conditions are present or appear to be forming.	Υ	All excavated cells within the mitigation site exhibit hydric soil indicators (e.g., sulfidic odor, depleted matrix, redox dark surface).
Hydric Soil	Soil is sufficiently stable to prevent erosion.	Υ	Disturbed soil is stable and does not exhibit signs of erosion.
	Soil is able to support plant cover.	Y	Vegetative cover was estimated as 85% across disturbed upland areas and 50-90% across wetland areas in 2021. Soils on the site are supporting plant cover.
	Wetland plant communities are delineated as hydrophytic by using technical guidelines.	Y	All 13 excavated cells had developed wetland plant communities as of the 2021 monitoring event.
Hydrophytic Vegetation	Noxious weeds do not exceed 5 percent cover.	Y	Noxious weeds were identified in nine locations across the site and noxious weed cover was estimated at 3% in 2021. No noxious weeds were detected within the wetland vegetation communities.
Vegetation Hydrophytic vegetation success will include achieving a minimum overall vegetation cover of 70 percent in created wetland areas within 5 years after site construction.		N	Vegetative cover within the excavated cells ranged from 40 to 90 percent in 2021. Cells 1, 2, and 3 were the only cells that didn't meet the 70% cover threshold. This performance measure for all created wetland areas is trending in a positive direction.
Woody Plants	Plantings exceed 50 percent survival after 5 years.	N	Less than 2 percent of the woody plants installed at the site were alive in 2021.
	Noxious weeds do not exceed 5 percent cover within the buffer areas on the site.		Noxious weed cover was estimated at 3% across the site in 2021. All weed infestations were located within the upland buffer.
Upland Buffer	Any disturbed area within the creditable buffer zone must have at least 50 percent aerial cover of non-weed species by the end of the monitoring period.	Y	Upland buffers that surround the wetland areas exhibited approximately 80% aerial cover of non-weed species, with the exception of the burned area which exhibited approximately 45% cover.
Fencing	Wildlife-friendly fencing is installed along the easement boundaries.	Y	Wildlife-friendly fencing has been installed around three sides of the easement boundary and is in good condition. The western boundary has standard barbed wire fencing.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
	Fencing is installed around planting exclosures (PE).	N/Y	Exclosure fences PE-01 and PE-03 were burned in the July 2020 fire. PE-05 has a hole, and a short segment of fence sagging from the top that need minimal repair.

Summary Data

Wetland Delineation – In 2021, because of severe drought conditions experienced in the region (Fuchs and Riganti 2021), wetland cells were significantly dewatered and displayed a reduction in vegetative cover of wetland plant species. However, all 13 wetland cells were dominated by wetland vegetation, have developed hydric soil indicators, and exhibit wetland hydrology. A total of 8.18 acres of emergent wetland were delineated within 13 wetland cells, which is a 0.44-acre decrease from 2020. This reduction in wetland acreage is likely due to the severe drought as the hydrology in the excavated wetland cells are dependent on seasonally high groundwater associated with Bighorn River flows.

Before construction, MDT identified two small palustrine emergent wetlands in the southeastern corner of the site and a smaller palustrine emergent wetland along the eastern boundary, which altogether totaled 0.03 acre. These small wetlands were identified and mapped during the 2021 monitoring event, and no changes were noted from previous years (Figure A-3, Appendix A).

Functional Assessment — The JTX Tunnicliff mitigation site has developed into a Category III wetland that generated 44.99 Functional Units in 2021 (Table 2). . The rating for sediment/shoreline stabilization was eliminated due to the lack of open water on the site in 2021, decreasing the number of possible functional points. In wetter years, this rating is likely to increase again. Completed Montana Wetland Assessment Method (MWAM) forms for the site are provided in Appendix B.

Vegetation - All desirable vegetation communities within the mitigation site were robust in 2021, though effects of the drought were detected. The wetland plant communities exhibited significantly decreased coverage from obligate and FAC-wet species, and the upland plant communities displayed only moderate vigor and increased amounts of litter. A total of 70 plant species have been identified at the site over the last 5 years, with one new species reported in 2021 (Table B-1; Appendix B).

Four upland community types and two wetland community types were identified and mapped at the site in 2021 (Figure A-3, Appendix A). Dominant plant species observed within each community are listed on the Wetland Mitigation Site Monitoring form (Appendix B). The majority of the excavated cells have developed a wetland community dominated by *Schoenoplectus spp./Typha latifolia* (i.e. Wetland Type 9). In previous years, wetland cells 1, 2, 3, and 10 had wetland plant communities that are still becoming established and thus the community type in these cells was named "transitional wetland". In 2021, the vegetation community was renamed as wetland community type 13 (*Hordeum jubatum/Elymus repens*), which reflects the continuous increase in hydrophytic vegetation that has been observed between 2019 and 2021.

The vegetation community types identified on the site in 2021 are as follows:

- Upland Type 6 *Pascopyrum smithii/Poa pratensis*
- Upland Type 7 Schedonorus pratensis
- Upland Type 8 *Elymus hispidus*
- Upland Type 12 Elaeagnus angustifolia/Elymus hispidus

- Wetland Type 9 Schoenoplectus spp./Typha latifolia
- Wetland Type 13 –*Hordeum jubatum/Elymus repens*

Nine areas containing state-listed Priority 2B noxious weeds were mapped at the JTX – Tunnicliff mitigation site in 2021. All noxious weed infestations were located in the upland buffer areas and none were located within the wetland cells (Figure A-3, Appendix A). Four instances of Russian knapweed (*Acroptilon repens*) were recorded at trace and low cover classes, as well as two trace and low occurrences of houndstongue (*Cynoglossum officinale*), two trace occurrences of Canada thistle (*Cirsium arvense*), and one low occurrence of field bindweed (*Convolvulus arvensis*), as shown on Figure A-3. Noxious weed cover was estimated at 3% across the site. The increase in noxious weed cover is likely a result of isolated occurrences expanding and becoming detectable in a drought year. Due to stage 2 fire restrictions on state land in 2021, noxious weeds were not sprayed. Historically, the weed control program at the JTX Tunnicliff site has been effective in reducing weed infestations and should continue in subsequent years to prevent a further increase.

Table 2. Montana Wetland Assessment Method Summary for the JTX - Tunnicliff Ranch Site

Function and Value Parameters 2008 MDT Montana Wetland Assessment Method	2017	2018	2019	2020	2021
Listed/Proposed T&E Species Habitat	Low (0.0)				
MTNHP Species Habitat	Low (0.1)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)
General Wildlife Habitat	Mod (0.4)	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)
General Fish/Aquatic Habitat	N/A	N/A	N/A	N/A	N/A
Flood Attenuation	Mod (0.5)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)
Short and Long Term Surface Water Storage	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)	High (0.9)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	Mod (0.7)	Mod (0.7)	Mod (0.7)	High (1)
Sediment/Shoreline Stabilization	N/A	Mod (0.6)	Mod (0.6)	Mod (0.6)	N/A
Production Export/Food Chain Support	Mod (0.4)	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)
Groundwater Discharge/Recharge	Mod (0.7)				
Uniqueness	Mod (0.4)				
Recreation/Education Potential	High (0.2)				
Actual Points/Possible Points	4.0/9	5.9/10	5.9/10	5.9/10	5.5/9
% of Possible Score Achieved	44%	59%	59%	59%	61.11%
Overall Category	III	III	III	III	III
Total Acreage of Assessed Wetlands within Site Boundaries (ac)	3.86	8.31	8.38	8.62	8.18
Functional Units (acreage x actual points)	15.3	49.10	49.40	50.86	44.99

Three very small wetlands were identified within the monitoring area before site development but were not assigned a community type because of their small size (total 0.03 acre). Wetland species associated with these small wetland pockets include creeping meadow foxtail (*Alopecurus arundinaceus*), Baltic rush (*Juncus balticus*), and sedges (*Carex* spp.).

Vegetation cover was measured along two transects (T-1 and T-2) in 2021 (Figure A-2, Appendix A). Table 3 summarizes the data collected along T-1, which is 792 feet long and intersects upland vegetation

community Type 8 – *Elymus hispidus* and wetland community Type 9 – *Schoenoplectus* spp./*Typha latifolia*. Fifty-seven percent of the transect crossed wetland habitat, which is a 1 percent decrease since 2020. Total vegetative cover remained consistent at 95 percent from 2020 to 2021 (Table 3). Photographs of the transect end points are provided in Appendix C.

Table 3. Data Summary for T-1 From 2016 Through 2021 at the JTX – Tunnicliff Ranch Site

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	792	792	792	792	792	792
Vegetation Community Transitions Along Transect	1	6	6	5	5	6
Vegetation Communities Along Transect	2	2	2	2	2	2
Hydrophytic Vegetation Communities Along Transect	0	1	1	1	1	1
Total Vegetative Species	10	21	21	21	26	21
Total Hydrophytic Species	2	8	9	9	8	9
Total Upland Species	8	13	12	12	18	12
Estimated % Total Vegetative Cover	75	60	75	95	95	95
Estimated % Unvegetated	25	40	25	5	5	5
% Transect Length Comprising Hydrophytic Vegetation Communities	0	47	53	56	58	57
% Transect Length Comprising Upland Vegetation Communities	100	53	47	44	42	43
% Transect Length Comprising Open Water Transitional Wetland	0	0	0	0	0	0

Data collected on T-2 (Wetland Mitigation Site Monitoring form, Appendix B) are summarized in Table 4. T-2 is 900 feet long and intersects upland community Type 8 and wetland community types 9 and 13. Fifty-four percent of the transect crossed wetland habitat in 2021, which is a 14% decrease since 2020. The transect no longer contains open water, and transitional wetland habitat was classified as community type 13 (*Hordeum jubatum/Elymus repens*) for the first time this year. Total vegetative cover remained consistent at 85 percent from 2020 to 2021.

Table 4. Data Summary for T-2 From 2016 Through 2021 at the JTX - Tunnicliff Ranch Site

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	900	900	900	900	900	900
Vegetation Community Transitions Along Transect	1	6	5	5	5	7
Vegetation Communities Along Transect	2	3	3	3	3	3
Hydrophytic Vegetation Communities Along Transect	0	1	2	2	2	2
Total Vegetative Species	12	11	11	11	21	20
Total Hydrophytic Species	0	5	6	6	10	11
Total Upland Species	12	6	5	5	11	9
Estimated % Total Vegetative Cover	60	60	65	85	85	85
Estimated % Unvegetated	40	40	35	15	15	15
% Transect Length Comprising Hydrophytic Vegetation Communities	0	12	14	14	68	54
% Transect Length Comprising Upland Vegetation Communities	100	88	33	33	32	46
% Transect Length Comprising Open Water Transitional Wetland	0	0	53	53	0	0

Eight woody plant enclosures (PE-1 through PE-8) were monitored for woody plant survival in 2021 by walking and recording live woody stems (Figure A-3 Appendix A). A total of 1,650 containerized woody plants were installed in the eight plant enclosures in 2016. Woody species planted at the site include silver buffalo-berry (*Sheperdia argentea*), Douglas hawthorne (*Crataegus douglasii*), silverberry (*Elaeaganus commutata*), common chokecherry (*Prunus virginiana*), plains cottonwood (*Populus*)

deltoids), box elder (Acer negundo), and bur oak (Quercus macrocarpa). The overall survival of woody vegetation at the site is estimated at 1%, with a total of 13 live planted observed, all contained within PE-6. In July 2020, a lightening sparked grassfire burned approximately 4.5 acres, including approximately half of PE-01 and three quarters of PE-03 (Figure A-3, Appendix A). Any live woody vegetation remaining within PE-01 and PE-03 were destroyed. Within PE-06, PE-07, and PE-08, volunteer Russian Olive (Elaeagnus angustifolia) were observed. Wildlife fencing around each enclosure was effective in keeping wildlife away from plantings, as no signs of browse were noted. Despite the weed fabric that was installed around each woody plant, grasses and forbs were outcompeting most of the plantings.

Hydrology – Groundwater is expected to be the primary hydrologic source for wetland development, with precipitation supplementing site hydrology. Groundwater monitoring completed by the US Geological Survey (USGS) in 2021 shows groundwater levels were 4 to 6 feet below the ground surface elevation of 2,835.4 feet in well # 455029107355601 from April through August. This well is located in an upland area, and the ground surface elevation is approximately 3.4 feet above the wetland cell deign elevation of 2832.0 feet (Table 5; USGS 2021).

Table 5. 2021 USGS Groundwater Well Data for the JTX – Tunnicliff Ranch Site

2021 discr					
Date	Date Mountain Time Depth to water level, feet below land surface		Date Mountain Time level, feet		Approximate depth to groundwater below wetland cell design elevation
4/12/2021	5:47 pm	4.87	1.47		
5/19/2021	4:21 pm	4.65	1.25		
6/16/2021	3:25 pm	5.3	1.9		
7/23/2021	7:51 pm	6.1	2.7		
8/13/2021	5:18 pm	6.23	2.83		

No surface water was observed at the site in 2021. Hydrologic indicators encountered within excavated wetland cells across the site included water-stained leaves, geomorphic position, a positive FAC-neutral test, salt crust, near surface soil saturation, oxidized rhizospheres on living roots, and a high water table.

Soils – Paired sampling plots were excavated at 10 locations (Figure A-2 – Appendix A), wetland soil pits were located inside the excavated depressions and upland soil pits were located upslope and just outside of the wetland boundaries. Soil textures within the wetland soil pits ranged from sandy clay to clay. The depleted matrix (F3) hydric soil indicator was observed within every wetland soil pit. Soil textures within upland soil pits ranged from sandy loam to clay. No hydric soil indicators were observed in any of the upland soil pits. Additional field observations for the 20 sample plots are provided in the wetland determination data forms in Appendix B.

Photographs – Photographs were taken at photo points 1–4 (PP1 to PP4), transect endpoints, and data points and are provided in Appendix C, with comparisons between 2021 and the first year of monitoring. Please refer to previous years' monitoring reports for all previous annual photographs (https://www.mdt.mt.gov/publications/brochures/wetland mitigation.shtml).

Credit Summary – As of June 2021, the JTX – Tunnicliff Ranch site had developed 10.87 mitigation credit acres (Table 6). The site is currently receiving 8.18 acres for wetland development, which is a 0.44

credit-acre decrease from 2020 primarily due to extreme drought conditions in the region since the last monitoring event. Wetlands credits are expected to increase across the site when normal climatic conditions return to the region. The original mitigation credit strategy called for the eight woody plant enclosures to be credited at 5:1 if the enclosures were successful in producing scrub/shrub habitat across the site. With less than 1 percent of the woody plants surviving in 2021, the woody planting credit metric is not being met and no credits have been achieved for these areas. Additional credits from the site include 0.03 acre for preservation of existing wetlands on the site before construction and 2.66 acres of upland buffer credit. Table 6 summarizes the current estimated wetland credits based on the USACE-approved credit ratios [USACE 2005] and the wetland delineation that was completed in June 2021.

Table 6. Wetland Mitigation Credits Estimated for the JTX – Tunnicliff Ranch Site (2016–2020)

Compensatory Mitigation Type	Mitigation Area Description	Wetland Type ^(a)	Anticipated Mitigation Surface Area (acres)	USACE- Approved Mitigation Ratios	Anticipated Mitigation Credit (acres)	2016 Mitigation Credit (acres)	2017 Mitigation Credit (acres)	2018 Mitigation Credit (acres)	2019 Mitigation Credit (acres)	2020 Mitigation Credit (acres)	2021 Mitigation Credit (acres)
Creation (Establishment)	Depressional wetlands	Palustrine emergent and palustrine scrub/shrub	26.85	1:1	26.85	0	3.86	8.31	8.35	8.62	8.18
Creation (Reestablishment)	Woody plant enclosures	Palustrine scrub/shrub	2.73	5:1	0.55	0.5	0.47	0	0	0	0
Preservation	Pre-project Wetlands	Palustrine Emergent	0.03	1:1	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Upland Buffer	100-foot wide upland perimeter	N/A	10.98	5:1	2.2	0	2.66	2.66	2.66	2.66	2.66
		Totals	40.6		29.63	0.5	7.02	11.00	11.04	11.31	10.87

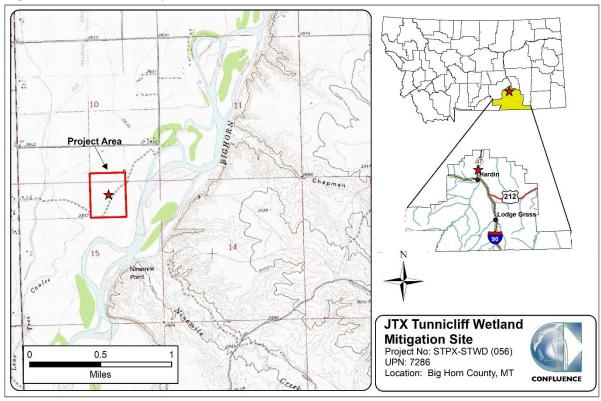
Wildlife – Eight bird species were identified at the site in 2021. Five of the eight species were reported at the site for the first time in 2021. Seven of the eight bird boxes installed at the site are functional and were full of nesting material. One birdbox, located on the west fence line, was absent from the site.

Conclusions

In the sixth year of monitoring, the JTX-Tunnicliff mitigation site met all but two of the established performance standards. The wetland areas are becoming well developed, even in the presence of drought conditions. The site appears to be stable and resilient, even following the disturbance of a small wildfire in 2020. In 2021, the standard that requires hydrophytic vegetation to cover at least ≥70 percent of monitored wetland areas was not met in cells 1, 2, and 3, though vegetation continues to establish and total cover is slowly increasing. Cover from hydrophytic vegetation is expected to continue to increase as the trend has been positive over the last few years. No remedial actions are recommended to increase hydrophytic vegetation. However, the standard which requires that woody plant survival exceeds 50 percent after 5 years was not met. Woody plant survival is not likely to meet this performance standard in the absence of adaptive management. Finally, noxious weed cover increased 1% between 2020 and 2021 with 7 new infestations. The total cover is less than 5% across the site and continues to meet performance standards. As spraying has historically been successful at reducing infestations at the site, it is recommended that MDT continues noxious weed management in subsequent years.

Maps, Plans, Photos

Figure 1. Site Location Map



Project Area Maps/Figures: See Appendix A (Monitoring Activity Locations; Mapped Site Features; and Wetland Delineation)

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

Photos: See Appendix C (Photo Points, Paired Sampling Point Photos, and Transect Photos)

Plans: See Appendix D of 2016 Monitoring Report

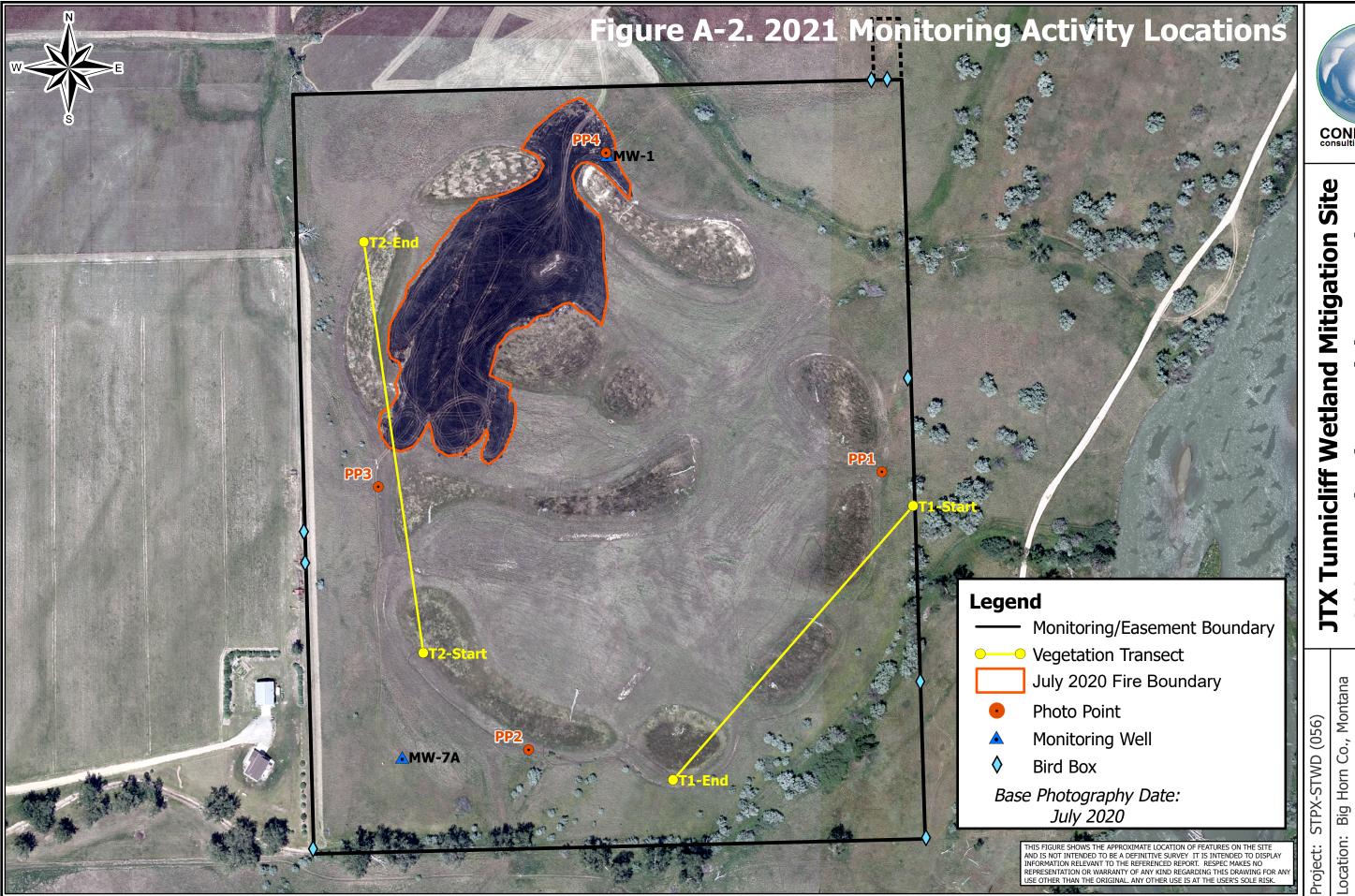
https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2016 REPORTS/JTX Tunnicliff.P DF

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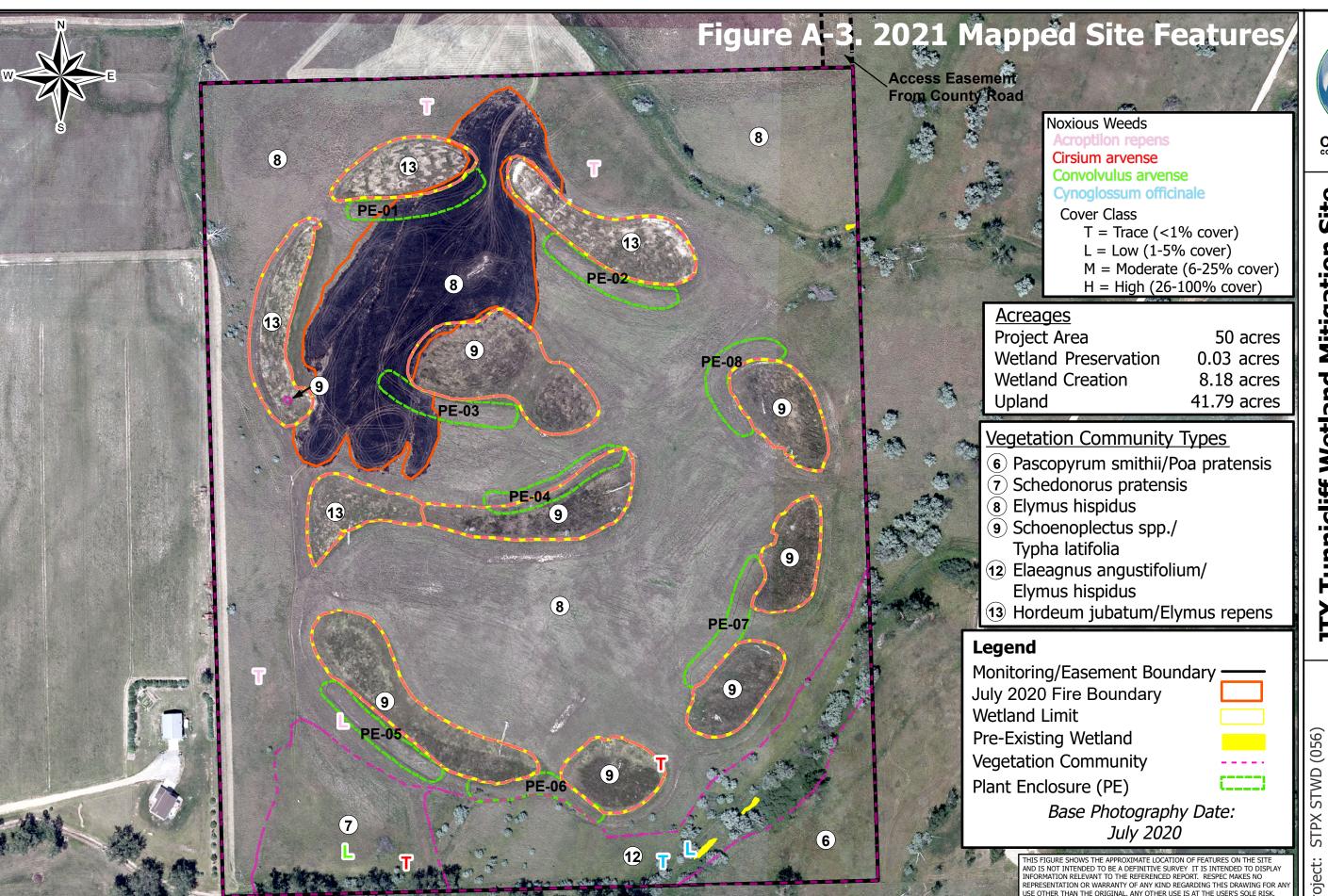
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APPENDIX A PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring JTX – Tunnicliff Ranch Big Horn County, Montana

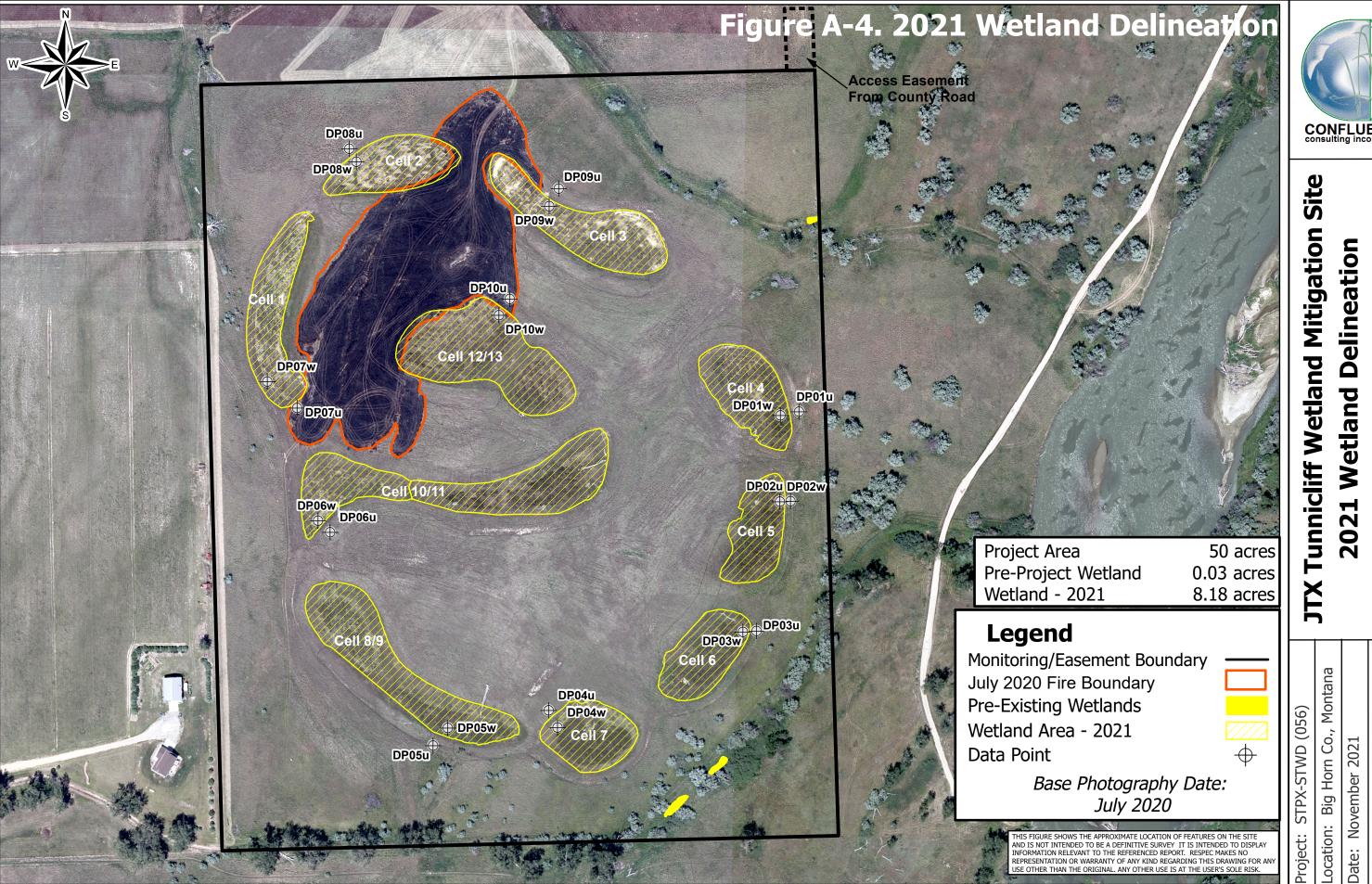






Tunnicliff Wetland Mitigation Site Site Features Mapped

McEldowney



R McEldowney

APPENDIX B MONITORING FORMS

MDT Wetland Mitigation Monitoring JTX – Tunnicliff Ranch Big Horn County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: <u>JTX-T</u>	unnicliffAssessment Date/Time	<u>6/18/2</u> 02
Person(s) conductin	ng the assessment: R Jones, J Trilling	
Weather: Sunny, lig	ght wind, 95 degrees Location: Hardin	
MDT District: Billing	gsMilepost:	
Legal Description:	T <u>1N</u> R <u>33E</u> Section(s) <u>15</u>	
Initial Evaluation Da	ate <u>: 6/15/2016</u> Monitoring Year: <u>6</u> #Visits in Year: <u>1</u>	
Size of Evaluation A	Area: 50 (acres)	
Land use surroundir		
Rural agriculture, s Big Horn River Flo	sparsely developed residential areas, Grant Marsh Wildlife Manageme oodplain.	ent Area, and
	HYDROLOGY	
Surface Water Source: _	Groundwater	
Inundation:	Average Depth:0 (ft) Range of Depths: (ft)	
Percent of assessment a	area under inundation:0 %	
Depth at emergent vege	etation-open water boundary:0 (ft)	
If assessment area is no	ot inundated then are the soils saturated within 12 inches of surface:	Yes
	ology on the site (ex. – drift lines, erosion, stained vegetation, etc <u>:</u>	
<u> </u>	served in 2021. These are the lowest water levels observed at the site	in
Groundwater Monit	oring Wells	
Record depth of water	er surface below ground surface, in feet.	
Well ID	Water Surface Depth (ft)	
MW-1	5.32	
MW-7A	7.64	
Additional Activities Checklist:		
	on-open water boundary on aerial photograph.	
	ce water during each site visit and look for evidence of past surface water	
elevations (drift lines, erosion, v		
	ındwater monitoring well locations, if present.	
lydrology Notes:		
=	ove are from USGS readings on 7/05/2021 (MW-1) and 7/23/2021 (M elow Land Surface (BLS).	W-

VEGETATION COMMUNITIES

Site JTX-Tunnicliff

(Cover Class Codes $\mathbf{0} = < 1\%$, $\mathbf{1} = 1.5\%$, $\mathbf{2} = 6.10\%$, $\mathbf{3} = 11.20\%$, $\mathbf{4} = 21.50\%$, $\mathbf{5} = >50\%$)

Community # 6 Community Type: Pascopyrum smithii / Poa pratensis Acres: 1.44

Species	Cover class	Species	Cover class
Acroptilon repens	0	Bromus inermis	3
Bromus japonicus	1	Elymus hispidus	1
Galium aparine	1	Lepidium perfoliatum	0
Lepidium perfoliatum	0	Pascopyrum smithii	4
Poa pratensis	4	Sisymbrium altissimum	0
_			

Comments:

Grass dominated upland plant community observed in the SE corner of the site.

Community # 7 Community Type: Schedonorus pratensis / Acres: 2.19

Species	Cover class	Species	Cover class
Acroptilon repens	0	Arctium lappa	0
Bromus inermis	1	Bromus japonicus	1
Cirsium arvense	0	Convolvulus arvensis	0
Cynoglossum officinale	0	Dactylis glomerata	1
Elaeagnus angustifolia	0	Elymus hispidus	1
Glycyrrhiza lepidota	0	Iva axillaris	0
Medicago sativa	0	Poa pratensis	1
Ribes aureum	0	Rosa woodsii	0
Schedonorus pratensis	5	Sisymbrium altissimum	0
Tragopogon dubius	0		

Comments:

Grass dominated upland plant community observed in the SW portion of the site. Many species recorded with a cover value of less than 1 percent are not included in this list, but appear in the comprehensive species list for the site.

Community # 8 Community Type: Elymus hispidus / Acres: 34.88

Species	Cover class	Species	Cover class
Acroptilon repens	0	Asclepias speciosa	0
Bare Ground	0	Bassia scoparia	0
Bromus arvensis	0	Bromus inermis	1
Bromus japonicus	1	Bromus tectorum	1
Chenopodium album	1	Convolvulus arvensis	1
Elaeagnus angustifolia	0	Elymus hispidus	5
Elymus repens	1	Equisetum arvense	0
Galium aparine	1	Glycyrrhiza lepidota	1
Grindelia squarrosa	0	Hordeum jubatum	0
Iva axillaris	1	Lepidium perfoliatum	1
Medicago sativa	0	Melilotus officinalis	0
Poa pratensis	1	Schedonorus pratensis	1
Sisymbrium altissimum	0	Sporobolus airoides	0
Taraxacum officinale	1	Thinopyrum ponticum	2
Xanthium strumarium	0		
_			

Comments:

Comments:

Upland plant community observed throughout the majority of the mitigation site. Overgrown with high Elymus hispidus litter component.

Community # 9 Cor	nmunity Type:	Schoenoplectus spp. / Typha latifoli	a Acres:	<u>5.48</u>
Species	Cover class	Species	Cover class	
Alopecurus arundinaceus	1	Bare Ground	1	
Beckmannia syzigachne	0	Bromus arvensis	0	
Chenopodium album	0	Chenopodium rubrum	0	
Cirsium arvense	0	Distichlis spicata	1	
Elaeagnus angustifolia	0	Eleocharis palustris	0	
Elymus hispidus	0	Elymus repens	1	
Glycyrrhiza lepidota	0	Hordeum jubatum	1	
Juncus balticus	1	Juncus torreyi	0	
Open Water	2	Puccinellia nuttalliana	0	
Rumex crispus	0	Schoenoplectus acutus	1	
Schoenoplectus americanus	0	Schoenoplectus maritimus	2	
Schoenoplectus pungens	1	Typha angustifolia	3	
Typha latifolia	4	Xanthium strumarium	0	
_				

CT-9 is a PEM wetland community. Drought in 2021 appears to have decreased abundance of Typha latifolia and Schoenoplectus spp.

Community # 12	Community Type:	Elaeagnus angustifolia / Elymus hispidus	Acres:	<u>3.46</u>
----------------	------------------------	--	--------	-------------

Species	Cover class	Species	Cover class
Acroptilon repens	0	Alopecurus arundinaceus	2
Bromus inermis	2	Carex sp.	1
Cynoglossum officinale	1	Echinocystis lobata	1
Elaeagnus angustifolia	3	Elymus hispidus	4
raxinus pennsylvanica	1	Salix fragilis	0
Shepherdia argentea	2	Symphoricarpos albus	1
Thinopyrum ponticum	1		

Comments:

Upland plant community located in the southern portion of project area; species and cover consistent with 2020 observations.

Community # 13 Community Type: Hordeum jubatum / Elymus repens Acres: 2.7

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Bare Ground	3
Chenopodium album	1	Chenopodium rubrum	0
Distichlis spicata	1	Elaeagnus angustifolia	0
Elymus hispidus	0	Elymus repens	3
ordeum jubatum	3	Juncus torreyi	0
uccinellia nuttalliana	2	Schoenoplectus acutus	1
choenoplectus maritimus	1	Schoenoplectus pungens	0
ypha angustifolia	1	Typha latifolia	1

Comments:

Community noted as "transitional wetland" in 2020. The trasition away from upland vegetation and toward more hydrophytic vegetation continued in 2021 and thus the community was given a name and number. During the 2021 site visit, no open water was observed, and higher cover provided by Elymus repens was observed. Despite the high amounts of Elymus repens, the community is considered a PEM wetland.

Total Vegetation Community Acreage

50.0

VEGETATION TRANSECTS

JTX-Tunnicliff		Da	te:	6/18/2021
Transect Number: 1		_ Compass Di	rection from Start:2	200_
Interval Data:				
Ending Station	156	Community Type:	Elymus hispidus /	
Species		Cover class	Species	Cover class
Bare Ground		1	Bromus inermis	1
Elymus hispidus		5	Equisetum arvense	0
Melilotus officinalis		0	Poa pratensis	1
Schedonorus pratensis		2	Taraxacum officinale	2
Thinopyrum ponticum		1		
Ending Station	237	Community Type:	Schoenoplectus spp. / Typ	ha latifolia
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		4	Bare Ground	2
Hordeum jubatum		1	Juncus balticus	1
Juncus torreyi		1	Schoenoplectus acutus	1
Typha angustifolia		1	Typha latifolia	2
Ending Station	325	Community Type:	Elymus hispidus /	
Species		Cover class	Species	Cover class
Elymus hispidus		5	Poa pratensis	0
Schedonorus pratensis		1	Thinopyrum ponticum	2
Ending Station	549	Community Type:	Schoenoplectus spp. / Typ	ha latifolia
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		2	Bare Ground	2
Chenopodium rubrum		1	Elymus hispidus	0
Elymus repens		1	Hordeum jubatum	1
Juncus torreyi		1	Schoenoplectus acutus	2
Schoenoplectus maritimus	3	2	Typha angustifolia	1
Typha latifolia		3	Xanthium strumarium	0
Ending Station	638	Community Type:	Elymus hispidus /	
Species		Cover class	Species	Cover class
Bare Ground		1	Bromus inermis	0
Elaeagnus angustifolia		0	Elymus hispidus	4
Elymus repens		0	Equisetum arvense	0
Glycyrrhiza lepidota		0	Hordeum jubatum	0
Poa pratensis		0	Taraxacum officinale	0
Thinopyrum ponticum		4	Xanthium strumarium	0

782 Community Type:	Schoenoplectus spp. / Typha	latifolia
Cover class	Species	Cover class
1	Bare Ground	2
3	Elaeagnus angustifolia	0
2	Glycyrrhiza lepidota	0
0	Juncus balticus	1
3	Schoenoplectus maritimus	1
1	Typha latifolia	1
792 Community Type:	Elymus hispidus /	
Cover class	Species	Cover class
2	Elymus hispidus	4
0	Schedonorus pratensis	1
	Cover class 1 3 2 0 3 1 792 Community Type: Cover class 2	Cover class 1 Bare Ground 3 Elaeagnus angustifolia 2 Glycyrrhiza lepidota 0 Juncus balticus 3 Schoenoplectus maritimus 1 Typha latifolia 792 Community Type: Elymus hispidus / Cover class 2 Elymus hispidus

Transect Notes:

Total vegetation cover remained consistent at 95% cover from 2019 to 2021. A transect interval was added in 2021 where the wetland boundary has receded.

Interval Data: 127 Community Type: Schoenoplectus spp. / Typha latifolia **Ending Station** Cover class **Cover class Species** Species 2 2 Alopecurus arundinaceus Bare Ground 1 Chenopodium album 2 Bromus arvensis Chenopodium rubrum 3 Eleocharis palustris 0 2 3 Elymus repens Hordeum jubatum 0 1 Puccinellia nuttalliana Schoenoplectus acutus 2 Schoenoplectus maritimus Typha angustifolia 1 0 Typha latifolia **Ending Station** 266 Community Type: Elymus hispidus / **Species** Cover class **Species Cover class** Bare Ground 1 Bromus arvensis 2 Chenopodium album 0 Elymus hispidus 5 Hordeum jubatum 1 Sisymbrium altissimum 0 2 Thinopyrum ponticum 391 Community Type: Hordeum jubatum / Elymus repens **Ending Station Species** Cover class **Species** Cover class Alopecurus arundinaceus 2 Bare Ground 3 Distichlis spicata 0 Elymus hispidus 2 Elymus repens 2 Hordeum jubatum 3 Juncus torreyi 0 Puccinellia nuttalliana 1 Schoenoplectus acutus 1 0 Schoenoplectus pungens 535 Community Type: Elymus hispidus / **Ending Station Cover class Species** Cover class Species Bare Ground 2 Chenopodium album 1 Elymus hispidus 5 Elymus repens 1 2 2 Lepidium perfoliatum Thinopyrum ponticum **Ending Station** 624 Community Type: Hordeum jubatum / Elymus repens **Species** Cover class Species Cover class 3 Bare ground 5 Distichlis spicata Elymus hispidus 2 4 Elymus repens 0 0 Hordeum jubatum Puccinellia nuttalliana Schoenoplectus maritimus 1

Compass Direction from Start: 330

Transect Number: 2

Ending Station	728	Community Type:	Elymus hispidus /	
Species		Cover class	Species	Cover class
Bare Ground		2	Bassia scoparia	1
Chenopodium album		1	Elymus hispidus	5
Elymus repens		2		
Ending Station	875	Community Type:	Hordeum jubatum / Elymus r	epens
Species		Cover class	Species	Cover class
Bare Ground		1	Chenopodium album	1
Chenopodium rubrum		1	Distichlis spicata	0
Elymus hispidus		1	Elymus repens	2
Hordeum jubatum		3	Puccinellia nuttalliana	2
Schoenoplectus maritimus	;	3	Schoenoplectus pungens	1
Typha angustifolia		1	Typha latifolia	1
Ending Station	900	Community Type:	Elymus hispidus /	
Species		Cover class	Species	Cover class
Bare Ground		1	Bromus japonicus	1
Chenopodium album		0	Elymus hispidus	5
Lepidium perfoliatum		0	Sisymbrium altissimum	0
Thinopyrum ponticum		2		

Transect Notes:

The transect no longer contains open water. The community type previously described as "transitional wetland" has been re-named (CT 13) as it is now dominated by hydrophytic plant species.

PLANTED WOODY VEGETATION SURVIVAL

JTX-Tunnicliff

Planting Type	#Planted	#Alive Notes
PE-1	0	0 3/4 burned in July 2020. No survival of planted woody vegetation observed
PE-2	0	 Heavy grass and weedy forb competition has elminated woody vegetation
PE-3	0	0 1/3 burned in 2020, no survival of planted woody vegetation observed
PE-4	0	0 No survival of planted woody vegetation observed
PE-5	0	0 No survival of planted woody vegetation observed
PE-6	13	13 13 quaking aspen, volunteer Russian Olive
PE-7	0	0 1 volunteer Russian Olive
PE-8	0	 No survival of planted woody vegetation observed, 15 volunteer Russian Olive
Total Live	13	13 1% Survival (of original 1650 planted)

Comments

1,650 containerized woody plants were installed in 8 planting areas. All plantings were in 1 gallon containers except for cottonwood which were in 5 gallon containers. Very little survivorship of woody species plantings was observed. Volunteer Russian olives establishment was observed across the site, including several in PE-6. The fencing at PE-1 and PE-3 was damaged by a wildfire that occured in July 2020 and needs repair. Fencing repairs (sagging and holes) are also needed on the southwest and north east sides of PE-5, and the south end of PE-6.

JTX-Tunnicliff

WILDLIFE

Were man-made nesting structures installed	? <u>Yes</u>
If yes, type of structure: Bird boxes	
How many?8	
Are the nesting structures being used?	Yes
Do the nesting structures need repairs?	Yes

Nesting Structure Comments:

Seven of the 8 nesting boxes on site were full of nesting material. One box on the west fence line was absent from the site in monitoring years 2020-2021.

Species	#Observed	Behavior	Habitat	
American White Pelican	13	FO		
Bald Eagle	1	FO		
Common Nighthawk	1	FO		
Cordilleran Flycatcher	1	FO		
Great Blue Heron	2	FO		
Osprey	2	FO		
Red-winged Blackbird	3	FO, L		
Western Meadowlark	2	FO		
Bird Comments				

BEHAVIOR CODES

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

HABITAT CODES

AB = Aquatic bed **SS** = Scrub/Shrub **FO** = Forested **UP** = Upland buffer **I** = Island

WM = Wet meadow MA = Marsh US = Unconsolidated shore MF = Mud Flat OW = Open Water

Mammals and Herptiles

Wildlife Comments:

Five new bird species recorded at the site for the first time in 2021.

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.
- **V** At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.
- **V** At least one photograph showing the buffer surrounding the wetland.
- \checkmark One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description		
DP01u	45.839775	-107.59657				
DP01w	45.839755	-107.596727				
DP02u	45.839249	-107.59666				
DP02w	45.839246	-107.59675				
DP03u	45.838485	-107.596973				
DP03w	45.838481	-107.597089				
DP04u	45.838048	-107.598745				
DP04w	45.837946	-107.598673				
DP05u	45.837856	-107.599729				
DP05w	45.837957	-107.599601				
DP06u	45.839131	-107.600554				
DP06w	45.8392	-107.600655				
DP07u	45.839867	-107.600808				
DP07w	45.840591	-107.600013				
DP08u	45.841391	-107.600313				
DP08w	45.841314	-107.600256				
DP09u	45.841125	-107.598553				
DP09w	45.841023	-107.598637				
DP10u	45.840482	-107.598989				
DP10w	45.840387	-107.599085				
PP 1, Photo 2:	45.83945617	-107.5966157	270	PP-1		
PP 1, Photo 3:	45.83945617	-107.5966157	220	PP-1		
PP 2, Photo 1:	45.83785325	-107.5996803	315	PP-2		
PP 2, Photo 2:	45.83785325	-107.5996803	0	PP-2		
PP 2, Photo 3:	45.83785325	-107.5996803	45	PP-2		
PP 3, Photo 1:	45.83943906	-107.6009084	140	PP-3		
PP 3, Photo 2:	45.83943906	-107.6009084	100	PP-3		
			B-1	6		

PP 3, Photo 3:	45.83943906	-107.6009084	45	PP-3
PP 4, Photo 1:	45.84139478	-107.5988983	105	PP-4
PP 4, Photo 2	45.84139478	-107.5988983	160	PP-4
PP 4, Photo 3	45.84139478	-107.5988983	240	PP-4
PP1, Photo 1:	45.83945617	-107.5966157	320	PP-1
Transect 1 end:	45.83765226	-107.5984577	50	T-1 end
Transect 1 start:	45.8392488	-107.5963573	200	T-1 start
Transect 2 end:	45.84089981	-107.6009804	160	T-2 end
Transect 2 start:	45.83844422	-107.6005579	330	T-2 start

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
V	One photo showing upland use surrounding the wetland.
V	One photo showing the buffer around the wetland
✓	One photo from each end of each vegetation transect, toward the transect
	Vegetation
	vegetation
⊻ Ma	ap vegetation community boundaries
✓ Co	mplete Vegetation Transects
	Soils
_	
✓ As	sess soils
	Wetland Delineations
✓	Delineate wetlands according to applicable USACE protocol (1987 form or
	ement)
✓	Delineate wetland – upland boundary onto aerial photograph.
Wetla	nd Delineation Comments
We	tland boundaries for the excavated wetland cells correlate with the vegetation community boundaries.
	Functional Assessments
✓	Complete and attach full MDT Montana Wetland Assessment Method field
orms	
Eunot	ional Assessment Comments:
ıCat	egory III wetland.

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? No							
If yes, are the structures in need of repair?							
If yes, describe the problems below.							
See planted veg and bird box comments for repairs needed.							

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: JTX Tunicliff		City/Cour	nty: Big Horn		Sampling E)ate:6/1	8/2021
Applicant/Owner: MDT				State: Montar	1a Sampling P	oint: DP01	u
Investigator(s): R. Jones, J Trilling		Section,	Township, Range: _	15	1N	33E	
Landform (hillslope, terrace, etc.): Flat						Slope (%)	.: 3
Subregion (LRR): LRR G Soil Map Unit Name: Ku: Kyle silty clay, 4-8% slopes				οN/Λ/I class	sification: Not N	Ларреd.	
Are climatic / hydrologic conditions on the site typical for this	time of w	oor? Voc	✓ No □	(If no explain i	in Domarka		
Are Vegetation, Soil, or Hydrology s							ı. 🗆
Are Vegetation, Soil, or Hydrology s	ignificantly	y disturbed	a? Are Norm	ai Circumstance	s present? Ye	;s <u> </u>	10
SUMMARY OF FINDINGS - Attach site map							se atc
		y sampi	ing point locat	ions, transet			
Hydrophytic Vegetation Present? Yes Northern North		Is	the Sampled Area			_	
Wetland Hydrology Present? Yes N		w	vithin a Wetland?	Yes _	No _	<u> </u>	
Remarks: Upland sample point located outside Cell 4							
Opiana sample point located outside Cell 4	٠.						
VEGETATION - Use scientific names of plan	te						
Absolute	Domian	nt Indic	cator	ominance Test v	worksheet		
Tree Stratum Plot size (30 Foot Radius) % Cover:	Species	s? Statu	us	umber of Domina			
				at are OBL, FAC		0 (A)	
				otal Number of D Decies Across Al		4 (B)	
Ocallia (Obasila Otastana - Plata in (45 Foot Podina)				ercent of Domina at Are OBL, FA		0.0 %	(A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius) Elaeagnus angustifolia 10	V	FACL	Pr	evalence Index	worksheet		
Elaeagrius arigustiiolia 10	V	FACC	<u>, </u>	Total % Cove	er of:	Multiply b	эу:
			OI	BL species	0 X 1	0	
				CW species	0 X2	0	
				AC species ACU species	0 X3 30 X4	120	
<u>Herbaceous Stratum</u> Plot size (5 Foot Radius)				PL species	30 A4 27 X5	120 135	=
Alyssum alyssoides 1		NL					
Atriplex sp 1				olumn Totals	57 (A)	255	(B)
Bromus japonicus 10	<u> </u>	NL		Prevalence In	idex = B/A =	4.	.47
Convolvulus arvensis 5 Elymus hispidus 10		NL NL	Hy	drophytic Vege			
Elymus hispidus 10 Pascopyrum smithii 20	✓	FACU		☐ 1 - Rapid T	Test for Hydroph	ytic Vegetati	ion
1 decopyram on them	V	17100		2 - Domina	ance Test is >50	%	
				3 - Prevale	ence Index is <=	3.0	
				supporting	ological Adaptation data in remarks		
				sheet.			
				☐ 5 - Wetland	d Non-Vascular	Plants	
Was da Vine Otractions - Distance (00 Foot Dadios)				☐ Problemation	c Hydrophytic V	egetation (E	xplain)
Woody Vine Stratum Plot size (30 Foot Radius)				cators of hydric sent, unless dist			
Percent Bare Ground 53				drophytic Vege esent?	etation Yes	s 🗌 NO	✓
Remarks:			I				
BG/litter=53%. Data point is dominated by upland ve	egetation						

US Army Corps of Engineers Great Plains - Version 2.0

SOIL							Sampling Poin	t: <u>DP01u</u>
Profile Desc	cription: (Describe	to the depth ne	eded to docume	ent the indicator or o	confirm	the absence o	of indicators.)	
Depth	Matrix			Features				
(inches)	Color (moist)	%C	olor (moist)	<u>% Type¹ l</u>	Loc ²	Texture	Remarks	
0-13	10YR 4/2	100				Clay	Salt deposits	6
			-					-
	-							
	-							
	-							
¹ Type: C=C	oncentration, D=Dep	letion, RM=Red	uced Matrix, CS=	Covered or Coated S	Sand Gra	nins. ² Loca	ation: PL=Pore Lining,	M=Matrix.
	Indicators: (Applic						for Problematic Hydric	
Histosol	I (A1)		Sandy GI	eyed Matrix (S4)		1 cm M	uck (A9) (LRR I, J)	
Histic E	pipedon (A2)		Sandy Re				Prairie Redox (A16) (LR	R F, G, H)
_	istic (A3)		=	Matrix (S6)			urface (S7) (LRR G)	
	en Sulfide (A4)		_ :	ucky Mineral (F1)			ains Depressions (F16)	
	d Layers (A5) (LRR F		_	leyed Matrix (F2)			R H outside of MLRA	72 & 73)
	uck (A9) (LRR F, G, I d Below Dark Surfac			Matrix (F3) ark Surface (F6)		=	ed Vertic (F18) rent Material (TF2)	
	ark Surface (A12)	S (A11)		Dark Surface (F7)			nallow Dark Surface (TF	:12)
	Mucky Mineral (S1)			epressions (F8)		$=$ \cdot	Explain in Remarks)	,
	Mucky Peat or Peat (S2) (LRR G, H)		ns Depressions (F16)	ı		of hydrophytic vegetatio	n and
5 cm Mu	ucky Peat or Peat (S	B) (LRR F)	(MLR	A 72 & 73 of LRR H)	ı	wetland	hydrology must be pre-	sent,
						unless	disturbed or problemation	C.
Restrictive	Layer (if present):							
Type:								
. ,	ches):					Hydric Soil I	Present? Yes	No <u></u>
Remarks: N	lo hydric soil indica	tors observed						
HYDROLO	GY							
	drology Indicators:							
_	cators (minimum of o	ne required: che	eck all that apply)			Secondar	ry Indicators (minimum	of two required)
	Water (A1)	no roquirou, orio	Salt Crust (E				ace Soil Cracks (B6)	or two rodanou,
	ater Table (A2)		`	ertebrates (B13)			sely Vegetated Concav	e Surface (B8)
Saturati				ulfide Odor (C1)			nage Patterns (B10)	o canado (Bo)
_	Marks (B1)		_	Water Table (C2)			ized Rhizospheres on L	ivina Roots (C3)
	nt Deposits (B2)			izospheres on Living	Roots (0		here tilled)	3 · · · · · · · · · · · · · · · · · · ·
	posits (B3)		(where no		,		fish Burrows (C8)	
	at or Crust (B4)			Reduced Iron (C4)			ration Visible on Aerial I	magery (C9)
Iron Der	posits (B5)		Thin Muck S	Surface (C7)		Geor	morphic Position (D2)	
Inundati	ion Visible on Aerial I	magery (B7)	Other (Expla	ain in Remarks)		FAC-	-Neutral Test (D5)	
☐ Water-S	Stained Leaves (B9)					Frost	t-Heave Hummocks (D7	') (LRR F)
Field Obser	vations:	_						
Surface Wat	ter Present? Y	es \square No $_$	Depth (inch	nes):				
Water Table	Present? Y			nes):				
Saturation P	resent? Y		✓ Depth (inch		Wetla	nd Hydrology	Present? Yes	No
	pillary fringe)							
Describe Re	corded Data (stream	gauge, monitor	ıng well, aerial ph	notos, previous inspec	ctions), if	avallable:		
Remarks: No	o evidence of wetla	and hydrology	observed.					

SOIL

Project/Site: JTX Tunicliff	City/County: Big Horn		Sampling Dat	te:6/18/2021
Applicant/Owner: MDT	_ , ,	State: Montai	na Sampling Poi	nt: DP01w
Investigator(s): R. Jones, J Trilling				
Landform (hillslope, terrace, etc.): Depression				Slope (%):
Subregion (LRR): LRR G Lat: _		D Lona:	-107.596727 _D	Patum: NAD 83
Soil Map Unit Name: Ku: Kyle silty clay, 4-8% slopes				
Are climatic / hydrologic conditions on the site typical for this time of				
Are Vegetation, Soil, or Hydrology significar				✓ No □
Are Vegetation , Soil , or Hydrology naturally				
SUMMARY OF FINDINGS – Attach site map showi	•			
Hydrophytic Vegetation Present? Yes V No Hydric Soil Present? Yes No Remarks: PEM DEPRESSIONAL wetland in cell 4.	Is the Sampled within a Wetlan		✓ No	
VEGETATION - Use scientific names of plants				
Tree Stratum Plot size (30 Foot Radius) Absolute Domi Spec		Dominance Test	worksheet	
, % Cover. Spec	ies? Status	Number of Dominathat are OBL, FAC		2 (A)
		Total Number of D Species Across A		3 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Domina That Are OBL, FA		66.7 % (A/B)
- Interest (10 Test Maria)		Prevalence Index	worksheet	
		Total % Cov		Multiply by:
		OBL species FACW species	45 X1 25 X2	45 50
		FAC species	0 X3	0
Herbaceous Stratum Plot size (5 Foot Radius)		FACU species	20 X4	80
Elymus repens 20	FACU	UPL species	0 X5	0
Juncus balticus 25	FACW	Column Totals	90 (A)	175 (B)
Schoenoplectus pungens 5	OBL	Prevalence In	ndex = B/A =	1.94
Typha angustifolia 40 ✓	OBL	Hydrophytic Veg	etation Indicators	<u>. </u>
		1 - Rapid	Test for Hydrophyti	c Vegetation
		✓ 2 - Domina	ance Test is >50%	
		✓ 3 - Prevale	ence Index is <= 3.	0
		supporting	ological Adaptation data in remarks o	
		sheet.	d Nam Wassadan Di	
			d Non-Vascular Pla	
Woody Vine Stratum Plot size (30 Foot Radius)			ic Hydrophytic Veg	, , ,
incomprising the second of the		Indicators of hydric present, unless dist	urbed or problema	
Percent Bare Ground 10		Hydrophytic Veg Present?	etation Yes	✓ NO □
Remarks:	a positive develor	toot and a married	oo index lees 4	on or caucht-
BG/litter=10%. Evidence of hydrophytic vegetation includes 3.0.	s a positive dominance i	iesi and a prevaler	ice index less tha	an or equal to

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Texture (inches) Type Remarks 0-9 5YR C 5YR 4/1 93 4/6 M Silty Clay 12+ Gravels **Gravel bottom** 9-12 10YR 5/2 98 5YR 4/6 2 CS M Sand Gravelly. ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Black Histic (A3) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations common within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) ✓ Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes ☐ No ✓ Depth (inches): Water Table Present? Wetland Hydrology Present? Yes Saturation Present? Yes ____ No ___ Depth (inches): ___ (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Soils moist. Evidence of wetland hydrology includes water stained leaves, a positive FAC-Neutral test, and geomorphic position.

Sampling Point: DP01w

Project/Site: JTX Tunicliff	City/County: Big Horn	Sa	mpling Date:	6/18/2021
Applicant/Owner: MDT		_ _{State:} <u>Montana</u> _{Sa}	mpling Point: DI	P02u
Investigator(s): R. Jones, J Trilling	Section, Township, Range:	15 1N	33E	
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, conv	/ex, none): flat	Slope	(%):10
Subregion (LRR): LRR G Lat:	45.839249 Lo	ng:107	.59666 Datum	NAD 83
Subregion (LRR): LRR G Lat: Lat: Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet		NWI classificatio	_{n:} Not Mapped	l.
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🗹 No 🗌	(If no, explain in Rema	arks.)	
Are Vegetation, Soil, or Hydrology significantly				No \square
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If neede	d explain any answers ir	n Remarks)	
SUMMARY OF FINDINGS – Attach site map showing				tures, etc.
Hydrophytic Vegetation Present? Yes No W Hydric Soil Present? Yes No W Wetland Hydrology Present? Yes No W Remarks: Upland sample point located outside cell 5.	Is the Sampled Are within a Wetland?	ea Yes	No_	
VEGETATION - Use scientific names of plants				
Tree Stratum Plot size (30 Foot Radius) Absolute Domian		Dominance Test worksh	neet	
Tree Stratum Plot size (30 Foot Radius) % Cover: Species	1	Number of Dominant Spe hat are OBL, FACW or F		(A)
		Fotal Number of Dominar Species Across All Strata		(B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Spe That Are OBL, FACW, or		% (A/B)
Supringo and Statum	F	Prevalence Index works	heet	
	 	Total % Cover of:		iply by:
		•		0
				15
Harbanas Otratura Plataira (5 Fact Padius)		•		8
Herbaceous Stratum Plot size (5 Foot Radius) Convolvulus arvensis 2	NL	JPL species 77	X 5	885
Elymus hispidus 75		Column Totals 84	(A) 4	(B)
Equisetum laevigatum 5	FAC	Prevalence Index =		4.86
Pascopyrum smithii 2	FACU	Hydrophytic Vegetation		
		1 - Rapid Test for		etation
		2 - Dominance Te		,
		3 - Prevalence Inc		
		4 - Morphological supporting data in sheet.		
		5 - Wetland Non-V	/ascular Plants	
		Problematic Hydro	ophytic Vegetatic	n (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		dicators of hydric sil and vesent, unless disturbed o	wetland hydrolog	y must be
Percent Bare Ground 16		Hydrophytic Vegetation Present?	Yes 🗌 1	NO 🗹
Remarks:	<u>'</u>			
BG/litter=16%. Data point is dominated by upland vegetation				

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features % Loc2 Color (moist) Color (moist) Texture (inches) 0-6 100 **10YR** 4/2 Clay 100 6-16 10YR 4/3 Sandy Loam ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) \perp 1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: No hydric soil indicators observed. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes ____ No ___ Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes ____ No ___ Depth (inches): _____ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No evidence of wetland hydrology observed.

Sampling Point: DP02u

Project/Site: JTX Tunicliff	City/County: Big Horn	Samplinç	Date: 6/18/2021
		State: Montana_ Sampling	
Investigator(s): R. Jones, J Trilling	Section, Township, Rang	ge:15 1N	33E
Landform (hillslope, terrace, etc.): Depression			
Subregion (LRR): LRR G Lat:	45.839246	Long: -107.5967	5 _{Datum} : NAD 83
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet		NI/M/I classification: NO	t Mapped.
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet Are climatic / hydrologic conditions on the site typical for this time of ye	ara Vac 🗸 Na [(If no explain in Remarks)	
Are Climatic / hydrologic conditions on the site typical for this time of year	alif res NO	(II IIO, explain in Remarks.)	v 🗸 N. 🗆
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "N	ormal Circumstances present?	Yes <u> </u>
Are Vegetation, Soil, or Hydrology naturally pro			
SUMMARY OF FINDINGS – Attach site map showing	sampling point lo	cations, transects, impor	tant features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled A	Area	
Hydric Soil Present? Yes Wetland Hydrology Present? Yes No No No No No No No N	within a Wetland	? Yes <u> </u>	
Remarks: PEM DEPRESSIONAL wetland in cell 5.			
VEGETATION - Use scientific names of plants			
Tree Stratum Plot size (30 Foot Radius) Absolute Domian Species		Dominance Test worksheet	
, 10 GOVGI. CPOSICS	· Otalus	Number of Dominant Species that are OBL, FACW or FAC:	1 (A)
		Total Number of Dominant Species Across All Strata:	1 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC:	100.0 % (A/B)
<u>Japhing/Girlab Gtratain</u> 1 lot size (15 1 oot Nadius)	-	Prevalence Index worksheet	
		Total % Cover of:	Multiply by:
		OBL species 42 X 1	42
		FACW species 20 X 2	40
		FAC species 0 X 3 FACU species 13 X 4	0 52
Herbaceous Stratum Plot size (5 Foot Radius)		UPL species 0 X 5	0
Alopecurus arundinaceus 10	FACW		
Chenopodium album 10	FACU	Column Totals 75 (A	A) 134 (B)
Elymus repens 3	FACU	Prevalence Index = B/A =	1.79
Hordeum jubatum 10 Schoenoplectus pungens 2	FACW OBL	Hydrophytic Vegetation Indica	
Typha angustifolia 40	OBL	1 - Rapid Test for Hydro	phytic Vegetation
Typha diigustiolia 40 V	OBL	✓ 2 - Dominance Test is >	50%
		3 - Prevalence Index is	<= 3.0
		4 - Morphological Adapta supporting data in remainsheet.	
		5 - Wetland Non-Vascula	ar Plants
		Problematic Hydrophytic	
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetlan	,
		present, unless disturbed or probl	
Percent Bare Ground 25		Hydrophytic Vegetation Present?	es ✔ NO
Remarks:			
BG/litter=25%. Evidence of hydrophytic vegetation includes a 3.0.	positive dominance te	st and a prevalence index les	s than or equal to

Profile Desc	ription: (Describe	to the depth	needed to docu	ment the ind	icator	or confirm	m the absence of indicato	rs.)
Depth	Matrix			ox Features	- 1			
(inches)	Color (moist)		Color (moist)	%	Type ¹	_Loc ²	Texture	Remarks
0-16	10YR 4/2	85 10	YR 4/4	15	C I	М	Sandy Clay Loam	
·				 				
	oncentration, D=Dep					d Sand G		Pore Lining, M=Matrix.
	Indicators: (Applica	able to all LF			•		Indicators for Problem	-
Histosol				Gleyed Matrix	x (S4)		1 cm Muck (A9) (L	
	oipedon (A2)			Redox (S5)				ox (A16) (LRR F, G, H)
	istic (A3)			d Matrix (S6)			Dark Surface (S7)	
	en Sulfide (A4) d Layers (A5) (LRR F	.)		Mucky Miner Gleyed Matri			High Plains Depre	e of MLRA 72 & 73)
	ıck (A9) (LRR F, G, F			ed Matrix (F3)			Reduced Vertic (F	•
	d Below Dark Surface		·	Dark Surface			Red Parent Materi	,
	ark Surface (A12)	,	=	ed Dark Surfa	. ,		 ✓ Very Shallow Dark	
Sandy M	lucky Mineral (S1)		Redox	Depressions	(F8)		Other (Explain in F	Remarks)
2.5 cm M	Mucky Peat or Peat (52) (LRR G, I	H) 🔲 High P	lains Depress	ions (F	16)	³ Indicators of hydrophy	tic vegetation and
5 cm Mu	icky Peat or Peat (S3	3) (LRR F)	(MI	_RA 72 & 73	of LRR	H)	wetland hydrology	
							unless disturbed o	r problematic.
Restrictive	Layer (if present):							
Type:			_					
Depth (in	ches):		_				Hydric Soil Present?	Yes No
Remarks: D	istinct redoximorph	nic concentr	ations commor	throughout	the de	epleted n	natrix.	
HYDROLO	CV							
	drology Indicators:							
	cators (minimum of o	ne required; o		•				s (minimum of two required)
	Water (A1)		✓ Salt Crus				Surface Soil Cra	, ,
	ater Table (A2)			rvertebrates (ated Concave Surface (B8)
✓ Saturation				Sulfide Odor			Drainage Patter	` '
	larks (B1)		_ •	on Water Tab	, ,	_		spheres on Living Roots (C3)
	nt Deposits (B2)			Rhizospheres	on Livi	ng Roots		
	posits (B3)			not tilled)			Crayfish Burrow	
	at or Crust (B4)			of Reduced I		.)	=	le on Aerial Imagery (C9)
	posits (B5)	(5.7)		k Surface (C7			✓ Geomorphic Po	` '
	on Visible on Aerial I	magery (B7)	Other (Ex	plain in Rema	arks)		FAC-Neutral Te	• •
	tained Leaves (B9)						Frost-Heave Hu	mmocks (D7) (LRR F)
Field Obser		П	y					
Surface Wat			Depth (ir					
Water Table	Present? Yo		Depth (ir			_		
Saturation P		es 🔽 No	Depth (ir	nches):	3	_ Wet	land Hydrology Present?	Yes No
(includes car	oillary fringe) corded Data (stream	gauge monit	oring well aerial	photos previ	ous ins	pections)	if available	
2000100110	aca Data (Strodill	54490, IIIOIIII	y #611, a011a1	F.1.0.00, PIOVI	240 1113	, conons),	,	
Remarks: -	.,							
IZEIIIAIKS. EV	vidence of wetland	hydrology ir	nciudes soils sa	aturated with	nın 3 in	ches of	the soil surface, salt cru	st, geomorphic position,
an	id a positive FAC-N	neuliai lest.						

SOIL

Sampling Point: DP02w

Project/Site: JTX Tunicliff		_ City/C	ounty: Big Horn		Sampling [)ate:6/1	8/2021
Applicant/Owner: MDT				State: Monta	na Sampling P	oint: DP03ı	r
Investigator(s): R. Jones, J Trilling		_ Sectio	n, Township, Rang	e:15	1N	33E	
Landform (hillslope, terrace, etc.): Terrace		Local	relief (concave, co	nvex, none): flat		_ Slope (%):	18
Subregion (LRR): LRR G	Lat:		45.838485	Long:	-107.596973	Datum: NA	D 83
Subregion (LRR): LRR G Soil Map Unit Name: Hh: Haverson and Lo	hmiller soils			NWI clas	ssification: Not N	/lapped.	
Are climatic / hydrologic conditions on the site	typical for this time of	year? Ye	es 🔽 No 🗀	(If no, explain	in Remarks.)		
Are Vegetation, Soil, or Hydro	_					es_VN	o
Are Vegetation, Soil, or Hydro	ology naturally i	problema	tic? (If need	ded, explain any an	swers in Remarl	<s.)< th=""><th></th></s.)<>	
SUMMARY OF FINDINGS - Attack							s, etc.
Hydric Soil Present? Ye	es No V es No V	_ _ _	Is the Sampled A	rea ? Yes _	□ No No	<u> </u>	
VEGETATION - Use scientific nan							
Tree Stratum Plot size (30 Foot Radius	Absolute Domia		dicator	Dominance Test	worksheet		
Tion of the state	^{s)} % Cover: Speci	es? St	atus	Number of Domin that are OBL, FAC		0 (A)	
				Total Number of E Species Across A		1 (B)	
Sapling/Shrub Stratum Plot size (15	Foot Radius)			Percent of Domina That Are OBL, FA		0.0 % ((A/B)
(10	, , , , , , , , , , , , , , , , , , , ,			Prevalence Index			
				Total % Cov		Multiply b	ıy:
				OBL species FACW species	0 X1 0 X2	0	_
				FAC species	0 X2	0	-
Howhere the Street time Plot size / F	Foot Padius)			FACU species	8 X4	32	
Herbaceous Stratum Plot size (5 Convolvulus arvensis	1	NL		UPL species	76 X5	380	
Elymus hispidus	75	NL		Column Totals	84 (A)	412	(B)
Elymus repens	1 🗍	FAC	CU	Prevalence I	ndex = B/A =	4.	90
Glycyrrhiza lepidota	2 🗌	FAC	U	Hydrophytic Veg			
Pascopyrum smithii	5 🗌	FAC	CU		Test for Hydroph		on
				2 - Domina	ance Test is >50	1%	
				3 - Prevale	ence Index is <=	3.0	
				4 - Morph	ological Adaptati	one (Provide	
					g data in remarks		
				☐ 5 - Wetlan	d Non-Vascular	Plants	
				☐ Problemat	ic Hydrophytic V	egetation (Ex	xplain)
Woody Vine Stratum Plot size (30	Foot Radius)			ndicators of hydric oresent, unless dist			
Percent Bare Ground 16				Hydrophytic Veg Present?	etation Yes	s 🗌 NO	✓
Remarks:			•				
BG/litter=16%. Data point is dominated	by upland vegetatio	n.					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features % Loc2 Color (moist) Color (moist) Texture (inches) 0-06 100 **10YR** 3/3 Clay 100 06-16 10YR 4/3 Sandy Loam ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) \perp 1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: No hydric soil indicators observed. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes ____ No ___ Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes ____ No ___ Depth (inches): _____ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No evidence of wetland hydrology observed.

Sampling Point: DP03u

Project/Site: JTX Tunicliff	City/County: Big Horn	Sampling Da	ate: 6/18/2021
		State: Montana Sampling Po	
	Section, Township, Rang		
Landform (hillslope, terrace, etc.): Depression	Local relief (concave, co	onvex, none):flat	Slope (%):1
Subregion (LRR): LRR G	45.838481	Long:107.597089	Datum: NAD 83
Soil Map Unit Name: Hh: Haverson and Lohmiller soils		NWI classification: Not M	apped.
Soil Map Unit Name: Hh: Haverson and Lohmiller soils 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 signific	antly disturbed? Are "N	lormal Circumstances" present? Yes	, <u>V</u> No
Are Vegetation, Soil, or Hydrology natura	lly problematic? (If nee	ded, explain any answers in Remarks	s.)
SUMMARY OF FINDINGS - Attach site map show	wing sampling point lo	cations, transects, importan	t features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: PEM DEPRESSIONAL wetland in cell 6.	Is the Sampled A within a Wetland	Area d? Yes <u>✔</u> No]
VEGETATION - Use scientific names of plants			
Tree Stratum Plot size (30 Foot Radius) Absolute Do % Cover: Sp	miant Indicator ecies? Status	Dominance Test worksheet	
		Number of Dominant Species that are OBL, FACW or FAC:	1 (A)
		Total Number of Dominant Species Across All Strata:	2 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC:	50.0 % (A/B)
,		Prevalence Index worksheet	
		Total % Cover of: OBL species 23 X 1	Multiply by:
		FACW species 15 X 2	30
		FAC species 0 X3	0
Herbaceous Stratum Plot size (5 Foot Radius)		FACU species 40 X 4	160
Alopecurus arundinaceus 5	FACW	UPL species 0 X 5	0
	✓ FACU	Column Totals 78 (A)	213 (B)
Hordeum jubatum 10	FACW	Prevalence Index = B/A =	2.73
Schoenoplectus pungens 3 [Typha angustifolia 20	OBL OBL ✓	Hydrophytic Vegetation Indicator	
Typna angustiona 20	V OBL	1 - Rapid Test for Hydrophy	-
		2 - Dominance Test is >50%	
		✓ 3 - Prevalence Index is <= 3	
		4 - Morphological Adaptation supporting data in remarks of sheet.	
		5 - Wetland Non-Vascular P	lants
		Problematic Hydrophytic Ve	getation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetland hy present, unless disturbed or problema	drology must be
Percent Bare Ground 22		Hydrophytic Vegetation Present? Yes	
Percent Bare Ground 22 Remarks:			
BG/litter=22%. Evidence of hydrophytic vegetation include	les a prevalence index less	s than or equal to 3.0.	

SOIL Sampling Point: DP03w Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Type Texture (inches) 0 - 1415 С PL**10YR** 4/2 85 7.5YR 4/4 Clay Loam 7.5YR 14-16 10YR 5/2 75 3/4 25 C Clay M ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Black Histic (A3) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations common along pore linings and many within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) ✓ Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) ✓ Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes Yes ✓ No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes soils saturated within 3 inches of the soil surface, oxidized rhizospheres on living roots, salt crust, and geomorphic postion.

Project/Site: JTX Tunicliff	City/Co	unty: Big Horn		Sampling Da	ate:6/1	8/2021
Applicant/Owner: MDT						
Investigator(s): R. Jones, J Trilling	Section	n, Township, Range:	15	1N	33E	
Landform (hillslope, terrace, etc.): Terrace	Local i	relief (concave, conv	ex, none): conca	ve	Slope (%):	18
Subregion (LRR): LRR G Lat:		45.838048 Lc	ng:	-107.598745	Datum: NA	.D 83
Subregion (LRR): LRR G Lat: Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet			NWI class	sification: Not M	apped.	
Are climatic / hydrologic conditions on the site typical for this time of	of year? Ye	s <u></u> No	(If no, explain i	n Remarks.)		
Are Vegetation, Soil, or Hydrology significa	ntly disturb	ed? Are "Nor	mal Circumstance	s" present? Yes	; <u> </u>	o
Are Vegetation, Soil, or Hydrology naturally	y problemat	ic? (If neede	d, explain any ans	wers in Remarks	s.)	
SUMMARY OF FINDINGS - Attach site map show	ing sam	pling point loca	tions, transec	cts, importan	t feature	s, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No W	1	Is the Sampled Are		□ No <u>✓</u>]	
Remarks: Upland sample point located outside cell 7. VEGETATION - Use scientific names of plants						
Absolute Dom		licator	Dominance Test v	worksheet		
Tree Stratum Plot size (30 Foot Radius) % Cover: Spec	cies? Sta		Number of Domina hat are OBL, FAC		0 (A)	
			otal Number of Do Species Across All		2 (B)	
Sapling/Shrub Stratum Plot size (15 Foot Radius)			Percent of Domina That Are OBL, FAC		0.0 % ((A/B)
Elaeagnus angustifolia 5	FAC	CU F	Prevalence Index		.	
		-	Total % Cove OBL species	er of: 0 X 1	Multiply b	<u>y:</u>
			ACW species	0 X 2	0	\exists
			AC species	0 X3	0	
Herbaceous Stratum Plot size (5 Foot Radius)			FACU species JPL species		20 475	=
Elymus hispidus 95	NL					(D)
			Column Totals	100 (A)	495	(B)
			Prevalence In		4.9	95
			lydrophytic Vege	etation Indicator est for Hydrophy		on
			_	ince Test is >50%	•	OII
				nce Index is <= 3		
				logical Adaptation		
				data in remarks		
			5 - Wetland	d Non-Vascular P	lants	
			Problemation	c Hydrophytic Ve	getation (Ex	xplain)
Woody Vine Stratum Plot size (30 Foot Radius)			dicators of hydric s esent, unless distu			
Percent Bare Ground 5			lydrophytic Vege Present?	etation Yes	□ NO	✓
Remarks:		•				
BG/litter=5%. Data point is dominated by upland vegetation	on.					

SOIL							Sampling Point: DF	04u
Profile Desc	ription: (Describe	to the depth ne	eded to documen	t the indicator or c	onfirm	the absence of in	dicators.)	
Depth	Matrix		Redox Fe					
(inches)	Color (moist)	%C	olor (moist)	<u>% Type¹ L</u>	.oc ²	Texture	Remarks	
0-16	10YR 4/3	100				Clay Loam		
	oncentration, D=Dep				and Gra		: PL=Pore Lining, M=M	
Hydric Soil	Indicators: (Application	able to all LRR	s, unless otherwis	se noted.)			roblematic Hydric Soi	ls³:
Histosol	` '			red Matrix (S4)			(A9) (LRR I, J)	
	oipedon (A2)		Sandy Red				e Redox (A16) (LRR F,	G, H)
\equiv	istic (A3) en Sulfide (A4)		Stripped Ma	atrix (S6) ky Mineral (F1)			e (S7) (LRR G) Depressions (F16)	
	d Layers (A5) (LRR F	:)	=	yed Matrix (F2)			outside of MLRA 72 &	73)
	ıck (A9) (LRR F, G, I		Depleted M			Reduced Ve		10)
	d Below Dark Surface			Surface (F6)		=	Material (TF2)	
Thick Da	ark Surface (A12)		Depleted D	ark Surface (F7)		☐ Very Shallov	w Dark Surface (TF12)	
	lucky Mineral (S1)			ressions (F8)			ain in Remarks)	
	Mucky Peat or Peat (Depressions (F16)		-	drophytic vegetation and	t
5 cm Mu	ucky Peat or Peat (S3	3) (LRR F)	(MLRA	72 & 73 of LRR H)			rology must be present,	
Doctrictive I	Layer (if present):					uniess distu	rbed or problematic.	
Type:								
	ches):					Hydric Soil Pres	ent? Yes 🔲 N	lo 🔽
						Tryuno con Trec		
rtemants. N	o hydric soil indica	tors observed						
HYDROLO								
	drology Indicators:							
	cators (minimum of o	ne required; che					dicators (minimum of two	o required)
	Water (A1)		Salt Crust (B1	,			Soil Cracks (B6)	
	ater Table (A2)		Aquatic Invert			_	Vegetated Concave Sur	face (B8)
Saturation			Hydrogen Sulf			= -	Patterns (B10)	Danta (02)
	larks (B1)			Vater Table (C2) ospheres on Living	Dooto ((Rhizospheres on Living	Roots (C3)
	nt Deposits (B2) posits (B3)		(where not		KOOIS (C		Burrows (C8)	
	at or Crust (B4)			tined) teduced Iron (C4)			n Visible on Aerial Imag	any (CQ)
	posits (B5)		Thin Muck Su				hic Position (D2)	ery (O3)
	on Visible on Aerial I	magery (B7)	Other (Explain	, ,			tral Test (D5)	
	tained Leaves (B9)	magery (B1)	Other (Explain	i iii reomane)			ave Hummocks (D7) (L	RR F)
Field Obser							(= 1) (=	, ,
Surface Wat		es 🗆 No	✓ Depth (inche	s).				
Water Table			✓ Depth (inche					
Saturation P			Depth (inches		Wetla	nd Hydrology Pre	sent? Yes	No <u>~</u>
(includes car	oillary fringe)							
Describe Re	corded Data (stream	gauge, monitori	ing well, aerial pho	tos, previous inspec	tions), if	r available:		
Damester								
Remarks: No	evidence of wetla	and hydrology	observed.					

Project/Site: JTX Tunicliff	City/County: Big Horn	Sampling	Date:6/18/2021
		State: Montana_ Sampling	
Investigator(s): R. Jones, J Trilling	Section, Township, Rang	_{je:} 15 1N	33E
Landform (hillslope, terrace, etc.): Depression			
Subregion (LRR): LRR G Lat:	45.837946	Long: -107.598673	NAD 83
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet	10.00.010	Not	Manned
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet Are climatic / hydrologic conditions on the site typical for this time of ye		NVVI classification: 1001	- парроц.
Are climatic / hydrologic conditions on the site typical for this time of ye	ar? Yes <u> </u> No		
Are Vegetation, Soil, or Hydrology significantly	disturbed? Are "No	ormal Circumstances" present? \	′es _ No _ L
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If need	ded, explain any answers in Rema	rks.)
SUMMARY OF FINDINGS – Attach site map showing	sampling point lo	cations, transects, import	ant features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No No No No No No No N	Is the Sampled A	Area ? Yes <u>V</u> No _	
Remarks: PEM DEPRESSIONAL wetland in cell 7.			
VEGETATION - Use scientific names of plants Absolute Domian	t Indicator	Dominance Test worksheet	
Tree Stratum Plot size (30 Foot Radius) % Cover: Species	? Status	Number of Dominant Species that are OBL, FACW or FAC:	2 (A)
		Total Number of Dominant Species Across All Strata:	2 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		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	15
		FACW species 55 X 2 FAC species 0 X 3	110
		FACU species 5 X 4	20
Herbaceous Stratum Plot size (5 Foot Radius)		UPL species 0 X 5	0
Alopecurus arundinaceus 30	FACW	Column Totals 75 (A) 14E (B)
Chenopodium album 5	FACU	Column Totals 75 (A	
Hordeum jubatum 10 ☐ Juncus balticus 15 ✓	FACW FACW	Prevalence Index = B/A =	1.93
Juncus balticus 15 ✓ Schoenoplectus pungens 10	OBL	Hydrophytic Vegetation Indica	
Typha angustifolia 5	OBL	1 - Rapid Test for Hydrop	, ,
Typha angustiona		✓ 2 - Dominance Test is >5	0%
		3 - Prevalence Index is <	= 3.0
		 4 - Morphological Adapta supporting data in remark sheet. 	
		5 - Wetland Non-Vascula	r Plants
		Problematic Hydrophytic	Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wetland	I hydrology must be
Percent Bare Ground 25	Ë	Hydronhytic Vegetation	es 🗹 NO 🗌
Remarks:			
BG/litter=25%. Evidence of hydrophytic vegetation includes a 3.0.	positive dominance te	st and a prevalence index less	than or equal to

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Type Texture (inches) Remarks 0-09 15 С PL**10YR** 4/2 85 7.5YR 3/4 Silty Clay 7.5YR 09-12 10YR 4/2 4/6 3 CS M Sand Very gravelly. 12+ **Gravel Bottom** ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Black Histic (A3) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations common along pore linings. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) Saturation (A3) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) ✓ Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Saturation Present? Yes ____ No ___ Depth (inches): ___ (includes capillary fringe) 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.

Sampling Point: DP04w

Project/Site: JTX Tunicliff	City/County: Big Horn		_ Sampling Date	: 6/18/20	121
Applicant/Owner: MDT		_{State:} Montana	_ Sampling Point	_{t:} DP05u	
Investigator(s): R. Jones, J Trilling	Section, Township, Range:	15 11	٧ 33	E	
Landform (hillslope, terrace, etc.): Terrace			s	lope (%):	18
Subregion (LRR): LRR G	45.837856 Lo	na: -1	07.599729 _{Da}	tum: NAD 83	3
Subregion (LRR): LRR G Lat: Lat: Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet		NWI classifi	cation: PEM1C	<u> </u>	
Are climatic / hydrologic conditions on the site typical for this time of y	ear? Yes 🔽 No 🗌	(If no explain in F	Remarks)		
Are Vegetation, Soil, or Hydrology significantl				✓ No [
Are Vegetation, Soil, or Hydrology naturally p	coblematic? (If needs	d evolain any answ	are in Demarke \	110	
SUMMARY OF FINDINGS – Attach site map showin				features, e	tc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Upland sample point located outside cell 8/9.	Is the Sampled Are within a Wetland?	ea Yes	No <u>✓</u>	_	
VEGETATION - Use scientific names of plants					
Tree Stratum Plot size (30 Foot Radius) Absolute Domial		Dominance Test wo	rksheet		
Tree Stratum Plot size (30 Foot Radius) % Cover: Specie	1	Number of Dominant hat are OBL, FACW		0 (A)	
		Fotal Number of Dom Species Across All S		1 (B)	
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant That Are OBL, FACV		0.0 % (A/B)	ı
,	I	Prevalence Index w			
	-	Total % Cover of OBL species	of: I 0 X 1	Multiply by:	
		FACW species	0 X 1 0 X 2	0	
		AC species	0 X3	0	
Herbaceous Stratum Plot size (5 Foot Radius)		FACU species	1 X4	4	
Convolvulus arvensis 1	NL	JPL species	91 X5	455	
Elymus hispidus 90 🗸	NL	Column Totals	92 (A)	459 ((B)
Elymus repens 1	FACU	Prevalence Inde	x = B/A =	4.99	
		lydrophytic Vegeta	tion Indicators		
		1 - Rapid Tes	t for Hydrophytic	Vegetation	
		2 - Dominanc	e Test is >50%		
		3 - Prevalenc	e Index is <= 3.0		
			gical Adaptations ta in remarks or	`	
			Ion-Vascular Plar	nto	
Woody Vine Stratum Plot size (30 Foot Radius)		dicators of hydric sil		rology must be	•
	ı	esent, unless disturb Hydrophytic Vegeta		c for #3, 4, 5. NO ✓	
Percent Bare Ground 8		Present?			
Remarks: BG/litter=8%. Data point is dominated by upland vegetation.					

SOIL						Sampling Point: DP0)5u
Profile Desc	ription: (Describe	to the depth ne	eded to document the indica	ator or confirm	the absence of	indicators.)	
Depth	Matrix		Redox Features				
(inches)	Color (moist)	<u> </u>	olor (moist)	pe ¹ Loc ²	Texture	Remarks	
0-15	10YR 3/2	100			Clay		
				<u> </u>			
		· ——					
		- 					
			uced Matrix, CS=Covered or C	oated Sand Gra		on: PL=Pore Lining, M=Ma	
Hydric Soil	Indicators: (Applic	able to all LRR	s, unless otherwise noted.)			r Problematic Hydric Soils	s³:
Histosol	` '		Sandy Gleyed Matrix (S4)		k (A9) (LRR I, J)	
	oipedon (A2)		Sandy Redox (S5)		_	airie Redox (A16) (LRR F, C	9 , H)
\equiv	istic (A3) en Sulfide (A4)			/E1)		ace (S7) (LRR G) s Depressions (F16)	
	d Layers (A5) (LRR F	=)	Loamy Gleyed Matrix (H outside of MLRA 72 & 7	3)
	uck (A9) (LRR F, G, I		Depleted Matrix (F3)	12)		Vertic (F18)	•,
	d Below Dark Surfac		Redox Dark Surface (F	·6)	=	nt Material (TF2)	
Thick Da	ark Surface (A12)		Depleted Dark Surface	(F7)	☐ Very Sha	llow Dark Surface (TF12)	
	lucky Mineral (S1)		Redox Depressions (F	•		plain in Remarks)	
	Mucky Peat or Peat (High Plains Depression			hydrophytic vegetation and	
5 cm Mu	ucky Peat or Peat (S	B) (LRR F)	(MLRA 72 & 73 of	LRR H)		ydrology must be present,	
Destrictive	Layer (if present):				uniess dis	sturbed or problematic.	
Type:	Layer (ii present).						
	ches):				Hydric Soil Dr.	esent? Yes 🔲 No	· 🔽
. `					Tiyano com Ti		
rtemants. N	o hydric soil indica	ilors observed	•				
HYDROLO							
_	drology Indicators:						
	cators (minimum of o	ne required; che				Indicators (minimum of two	required)
	Water (A1)		Salt Crust (B11)			e Soil Cracks (B6)	
	ater Table (A2)		Aquatic Invertebrates (B1			ly Vegetated Concave Surf	ace (B8)
Saturation			Hydrogen Sulfide Odor (C			ge Patterns (B10)	Danta (02)
	larks (B1)		Dry-Season Water TableOxidized Rhizospheres or			ed Rhizospheres on Living F	700ts (C3)
	nt Deposits (B2)		(where not tilled)	I Living Roots (C		re tilled)	
	oosits (B3) at or Crust (B4)		Presence of Reduced Iron	n (C4)		h Burrows (C8) tion Visible on Aerial Image	n. (C0)
	posits (B5)		Thin Muck Surface (C7)	1 (04)		orphic Position (D2)	ry (Ca)
	on Visible on Aerial I	magery (B7)	Other (Explain in Remark	s)		eutral Test (D5)	
	tained Leaves (B9)	magery (Dr)	Other (Explain in Remark	<i>5</i> ,	=	leave Hummocks (D7)(LR	RF)
Field Obser						(= .) (=.)	,
Surface Wat		es 🗆 No	Depth (inches):				
Water Table			Depth (inches):				
Saturation P			Depth (inches):		nd Hydrology P	resent? Yes N	o_ <u>~</u>
(includes car	oillary fringe)						<u> </u>
Describe Re	corded Data (stream	gauge, monitor	ing well, aerial photos, previou	s inspections), if	r available:		
Dames							
Remarks: No	evidence of wetla	and hydrology	observed.				

Project/Site: JTX Tunicliff			City/County: Big Horn Sampling Date:6/1				8/2021		
Investigator(s): R. Jones, J Trilling									
Landform (hillslope, terrace, etc.): Depression									. :
Subregion (LBB): LRR G	l at:		45 83795	7 Long:		 107.599601	Old	m: NA	· AD 83
Subregion (LRR): LRR G Soil Map Unit Name: Hh: Haverson and Lohmiller soils	Lai wet		10.00700	Long.	A () = = = = : £	: PFN	_ Datu //1C	III. <u></u>	
Are climatic / hydrologic conditions on the site typical for thi				N\	vi ciassit	cation: · _ ·		-	-
Are Vegetation, Soil, or Hydrology s Are Vegetation, Soil, or Hydrology r	significantly	y disturl	oed? Are "	Normal Circum	nstances"	present? Y	′es <u></u> rks.)	<u>]</u> N	lo
SUMMARY OF FINDINGS – Attach site map	showing	g sam	pling point l	ocations, tr	ansect	s, importa	ant fe	ature	s, etc
	lo lo		Is the Sampled within a Wetlar		Yes	<u>✓</u> No_		-	
VEGETATION - Use scientific names of plar	nto.								
Absolute		nt In	dicator	Dominance	Tost w	orkshoot			
Tree Stratum Plot size (30 Foot Radius) % Cover	: Species	s? Si	tatus	Number of that are OB	Dominan	t Species		2 _(A)	
				Total Numb				3 (B)	
Sapling/Shrub Stratum Plot size (15 Foot Radius)				Percent of I That Are Ol			66	.7 %	(A/B)
<u>oupmigronius otratam</u> Fiot 5126 (15 Fiot Radias)				Prevalence	Index w	orksheet			
					% Cover		Mı	ultiply b	ру:
				OBL specie		25 X 1		25	_
				FACW specie		40 X2 0 X3		80	_
				FACU specie				0 60	=
Herbaceous Stratum Plot size (5 Foot Radius)				UPL specie				0	-
Chenopodium album 5		FAC		,		80 (A)	\	165	(D)
Chenopodium rubrum 5		OBL		Columnia	ais	80 (A	,		(B)
Elymus repens 10		FAC		Preval	ence Ind	ex = B/A =		2.	.06
Hordeum jubatum 40 Schoenoplectus acutus 3		FAC OBL			_	ation Indicat			
Schoenoplectus acutus 3 Schoenoplectus maritimus 5		OBL			Rapid Tes	st for Hydrop	hytic V	egetati	ion
Schoenoplectus mantinus 3 Schoenoplectus pungens 2		OBL		✓ 2-1	Dominand	ce Test is >5	0%		
Typha angustifolia 10		OBL		✓ 3-1	² revalenc	e Index is <:	= 3.0		
Typna angaotholia		051		sup she	porting da et.	gical Adapta ata in remark Non-Vasculal	s or or	n separ	
				Drob	nlematic I	Hydrophytic \	Veneto	ıtion /⊏	ynlain)
Woody Vine Stratum Plot size (30 Foot Radius)				Indicators of present, unle	hydric sil	and wetland	hydrol	iogy mu	ust be
Percent Bare Ground 20				Hydrophyti Present?		tion	es 🗸	NO	
Remarks:									
BG/litter=20%. Evidence of hydrophytic vegetation	includes a	a posit	ive dominance	test and a pre	evalence	index less	than	or equ	ıal to

Sampling Point: DP05w Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Type Texture (inches) 0-04 7 C **10YR** 4/2 93 7.5YR 3/4 M Silty Clay Loam 04-11 7.5YR **10YR** 3/4 15 C Sandy Clay Loam 4/2 85 M 7.5YR 7 C Clay 11 - 13 +10YR 4/2 93 4/6 M ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Black Histic (A3) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations common throughout the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) ✓ Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) ✓ Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes _____ No ___ Yes ✓ No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes soils saturated within 2 inches of the soil surface, salt crust, oxidized rhizospheres on living roots, geomorphic position, and a positive FAC-Neutral test.

Project/Site: JTX Tunicliff	City/County: Big Horn		_ Sampling Date	e:6/18	3/2021
Applicant/Owner: MDT		_{State:} Montana	_ Sampling Poin	ıt: DP06u	
Investigator(s): R. Jones, J Trilling	Section, Township, Range	:151	N 33	3E	
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, conv	vex, none): flat		Slope (%): _	18
Subregion (LRR): LRR G Lat: Lat: Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet	45.839131 Lo	ong:	107.600554 Da	atum: NAC	O 83
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet		NWI classif	fication: Not Mar	ped.	
Are climatic / hydrologic conditions on the site typical for this time of ye	ar? Yes 🔽 No 🔲	(If no, explain in	Remarks.)		
Are Vegetation, Soil, or Hydrology significantly				✓ No	, _ 🗆
Are Vegetation, Soil, or Hydrology naturally pro	oblematic? (If neede	ed, explain any answ	ers in Remarks.)		
SUMMARY OF FINDINGS – Attach site map showing					s, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No V No V	Is the Sampled Are within a Wetland?		No		
Remarks: Upland sample point located outside cell 10/11. VEGETATION - Use scientific names of plants					
Absolute Domiant		Dominance Test we	orksheet		
Tree Stratum Plot size (30 Foot Radius) % Cover: Species	? Status	Number of Dominan that are OBL, FACW	t Species	0 (A)	
		Total Number of Dor Species Across All S		1 (B)	
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant That Are OBL, FAC		0.0 % (A	√B)
,		Prevalence Index w			
	-	Total % Cover OBL species	0 X 1	Multiply by 0	<u>/:</u>
		FACW species	0 X1	0	=
	I	FAC species	0 X3	0	
Herbaceous Stratum Plot size (5 Foot Radius)		FACU species	0 X4	0	
Elymus hispidus 90	NL	UPL species	90 X5	450	
		Column Totals	90 (A)	450	(B)
		Prevalence Inde	ex = B/A =	5.0	10
		Hydrophytic Vegeta			
			st for Hydrophytic	: Vegetatio	'n
			ce Test is >50%		
		☐ 3 - Prevalend	ce Index is <= 3.0)	
			gical Adaptations ata in remarks or		te
		5 - Wetland 1	Non-Vascular Pla	ınts	
		Problematic	Hydrophytic Vege	etation (Exp	plain)
Woody Vine Stratum Plot size (30 Foot Radius)		dicators of hydric sil esent, unless disturb			
Percent Bare Ground 10		Hydrophytic Vegeta Present?	ation Yes	□ NO	✓
Remarks: BG/litter=10%. Data point is dominated by upland vegetation.					

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features % Loc² Color (moist) Color (moist) Texture (inches) 0-06 100 **10YR** 3/2 Clay 100 06 - 1510YR 4/3 Sandy Loam ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) Hydrogen Sulfide (A4) High Plains Depressions (F16) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) \perp 1 cm Muck (A9) (LRR F, G, H) Depleted Matrix (F3) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: No hydric soil indicators observed. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) Saturation (A3) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes ____ No ___ Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Yes ____ No ___ Depth (inches): _____ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: No evidence of wetland hydrology observed.

Sampling Point: DP06u

Project/Site: JTX Tunicliff	City/County: Big Horn			Sampling Date	:6/18/2021
Applicant/Owner: MDT		State: M	ontana s	Sampling Point	t: DP06w
Investigator(s): R. Jones, J Trilling				33	
Landform (hillslope, terrace, etc.): Depression				 / s	lope (%):
Subregion (LRR): LRR G Lat:					
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet					
Are climatic / hydrologic conditions on the site typical for this time of y	rear? Ves 🗸 No	(If no, ex	nlain in Rei	marks)	-
Are Vegetation, Soil, or Hydrology significantly					✓ No □
Are Vegetation , Soil , or Hydrology naturally p	roblematic?	eded, explain a			
	•		-	· ·	
SUMMARY OF FINDINGS – Attach site map showin	g sampling point i	ocations, tra	insects,	important	reatures, etc
Hydrophytic Vegetation Present? Yes No	Is the Sampled	Area			
Hydric Soil Present? Yes V No No	within a Wetlan	nd?	Yes <u> </u>	No	
Wetland Hydrology Present? Wetland Hydrology Present? Yes V No Pemarks: Present Pre	-				
Remarks: PEM DEPRESSIONAL wetland in cell 10/11.					
VECTATION Has a significant and a significant an					
VEGETATION - Use scientific names of plants Absolute Domia	nt Indicator	Ι			
Tree Stratum Plot size (30 Foot Radius) % Cover: Species		Dominance			
		Number of E that are OBL			2 (A)
		Total Number Species Acr			3 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of D That Are OB			66.7 % (A/B)
Supring Gillar Gillaria		Prevalence	Index worl		
			6 Cover of:		Multiply by:
		OBL species		5 X1 5 X2	15 90
		FAC species		0 X3	0
Harbara and Otration Plateira (5 Feet Padius)		FACU speci		0 X4	80
Herbaceous Stratum Plot size (5 Foot Radius) Alopecurus arundinaceus 20	FACW	UPL species	1	0 X5	50
Elymus hispidus 10	NL	Column Tota	als 90) (A)	235 (B)
Elymus repens 20	FACU		nce Index		2.61
Hordeum jubatum 25 ✓	FACW			n Indicators	
Puccinellia nuttalliana 15	OBL		•	or Hydrophytic	Vegetation
			•	Test is >50%	J
				ndex is <= 3.0	ı
				al Adaptations	
			orting data	in remarks or	
		☐ 5 - W	etland Non	n-Vascular Plar	nts
		Prob	ematic Hyd	drophytic Vege	tation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)				d wetland hydr or problemation	rology must be
Developt Boye Crownd 40		Hydrophytic			
Percent Bare Ground 10 Remarks:		1			
BG/litter=10%. Evidence of hydrophytic vegetation includes 3.0.	a positive dominance	test and a pre	valence in	dex less that	n or equal to

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Type¹ Texture (inches) 0-06 10YR С **10YR** 4/2 95 3/4 5 M Silty Clay 06-14 10YR 4/2 7.5YR 4/6 7 C Ы Sandy Clay Loam 91 2 C M 06-14 10YR 4/2 91 N 3/0 Sandy Clay Loam ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Soils moist. Distinct redoximorphic and gleyed concentrations common within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) Saturation (A3) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) ✓ Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes ____ No ___ Depth (inches): Water Table Present? Wetland Hydrology Present? Yes No Saturation Present? Yes ____ No ___ Depth (inches): _____ (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes salt crust, oxidized rhizospheres on living roots, and geomorphic position.

Sampling Point: DP06w

Project/Site: JTX Tunicliff	_ City/County: Big Horn	Sar	npling Date:6/18/2021
Applicant/Owner: MDT		_{State:} <u>Montana</u> _{San}	npling Point: DP07u
Investigator(s): R. Jones, J Trilling	_ Section, Township, Range	_: 15 1N	33E
Landform (hillslope, terrace, etc.): Terrace	_ Local relief (concave, con	vex, none): flat	Slope (%):
Subregion (LRR): LRR G	45.839867 L	ong: -107.60	00808 _{Datum:} NAD 83
Subregion (LRR): LRR G Lat: _ Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet		NWI classification	 _{1:} Not Mapped.
Are climatic / hydrologic conditions on the site typical for this time of	vear? Yes 🔽 No 🗆	(If no. explain in Rema	rks.)
Are Vegetation, Soil, or Hydrology significant			
Are Vegetation, Soil, or Hydrology naturally p	problematic? (If needs	ed explain any answers in	Remarks)
SUMMARY OF FINDINGS – Attach site map showing			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Wetland Sample point located outside cell 1 in burn	within a Wetland?	ea Yes	No 🔽
VEGETATION - Use scientific names of plants			
Tree Stratum Plot size (30 Foot Radius) Absolute Domia		Dominance Test workshe	eet
Tree Stratum Plot size (30 Foot Radius) % Cover: Specie		Number of Dominant Spec that are OBL, FACW or FA	
		Total Number of Dominant Species Across All Strata:	
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Spec That Are OBL, FACW, or F	
(10)		Prevalence Index worksh	
		Total % Cover of: OBL species 0	X 1 0
		•	X1 0 X2 0
		FAC species 10	
Herbaceous Stratum Plot size (5 Foot Radius)		FACU species 35	X 4 140
Bromus japonicus 25	NL	UPL species 50	X 5 250
Elymus hispidus 25	NL	Column Totals 95	(A) 420 (B)
Iva axillaris 10	FAC	Prevalence Index = B	3/A = 4.42
Pascopyrum smithii 20 🔽	FACU	Hydrophytic Vegetation I	ndicators
Poa pratensis 15	FACU		Hydrophytic Vegetation
		2 - Dominance Tes	st is >50%
		3 - Prevalence Inde	ex is <= 3.0
		supporting data in r	Adaptations (Provide remarks or on separate
		sheet.	and an Dianta
		5 - Wetland Non-Va	
Woody Vine Stratum Plot size (30 Foot Radius)		□ Problematic Hydrop	phytic Vegetation (Explain)
Tiot size (30 Foot Nadius)	рі	dicators of hydric sil and w resent, unless disturbed or	
Percent Bare Ground 5		Hydrophytic Vegetation Present?	Yes NO
Remarks: BG/litter=5%. Data point is dominated by upland vegetation			

SOIL						Sampling Point: DP07u
Profile Desc	cription: (Describe	to the depth ne	eded to document the	indicator or cor	nfirm the absence	of indicators.)
Depth	Matrix		Redox Featur		2	
(inches)	Color (moist)	<u> </u>	olor (moist) %	Type ¹ Loc		Remarks
0-15	10YR 4/2	100			Clay	
	-					
		· · · · · · · · · · · · · · · · · · ·	uced Matrix, CS=Cover			cation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (Applic	able to all LRR	s, unless otherwise no	ted.)		for Problematic Hydric Soils ³ :
Histosol	` '		Sandy Gleyed M			Muck (A9) (LRR I, J)
	pipedon (A2)		Sandy Redox (S			Prairie Redox (A16) (LRR F, G, H)
	istic (A3) en Sulfide (A4)		Stripped Matrix (` '		Surface (S7) (LRR G) Plains Depressions (F16)
	d Layers (A5) (LRR F	=)	Loamy Gleyed N	, ,		RR H outside of MLRA 72 & 73)
	uck (A9) (LRR F, G, I		Depleted Matrix			ed Vertic (F18)
	d Below Dark Surfac		Redox Dark Sur		=	arent Material (TF2)
Thick D	ark Surface (A12)		Depleted Dark S	Surface (F7)	☐ Very S	Shallow Dark Surface (TF12)
	Mucky Mineral (S1)		Redox Depressi			(Explain in Remarks)
	Mucky Peat or Peat (High Plains Dep			of hydrophytic vegetation and
5 cm Mu	ucky Peat or Peat (S	3) (LRR F)	(MLRA 72 &	73 of LRR H)		d hydrology must be present,
Destrictive	Layer (if present):				uniess	disturbed or problematic.
Type:						
	ches):				Hydric Soil	Present? Yes No
. ,	· -				Tryunc con	1103cm: 103 NO
Nemana. N	o hydric soil indica	tors observed	•			
HYDROLO						
_	drology Indicators:					
	cators (minimum of o	ne required; che				ary Indicators (minimum of two required)
	Water (A1)		Salt Crust (B11)			face Soil Cracks (B6)
	ater Table (A2)		Aquatic Invertebrat		_	rsely Vegetated Concave Surface (B8)
Saturati			Hydrogen Sulfide (inage Patterns (B10)
	larks (B1)		Dry-Season Water			dized Rhizospheres on Living Roots (C3)
	nt Deposits (B2)		Oxidized Rhizosph			/here tilled)
	posits (B3) at or Crust (B4)		(where not tilled Presence of Reduc			yfish Burrows (C8) uration Visible on Aerial Imagery (C9)
	oosits (B5)		Thin Muck Surface		_	emorphic Position (D2)
	ion Visible on Aerial I	mageny (R7)	Other (Explain in R	, ,		C-Neutral Test (D5)
	Stained Leaves (B9)	magery (D7)	Other (Explain in I	terriarks)	=	st-Heave Hummocks (D7) (LRR F)
Field Obser						Stributo Hammooke (B7) (Ertiti)
Surface Wat		es 🗆 No	Depth (inches):			
Water Table			Depth (inches):			
Saturation P			Depth (inches):		Metland Hydrolog	y Present? Yes No
(includes ca	pillary fringe)					y 1 103e11t: 163 NO
Describe Re	corded Data (stream	gauge, monitor	ng well, aerial photos, p	revious inspectio	ns), if available:	
Remarks: No	o evidence of wetla	and hydrology	observed.			

Project/Site: JTX Tunicliff	City/County: Big Horn	Samp	oling Date: 6/18/2021
		State: Montana Samp	
Investigator(s): R. Jones, J Trilling			33E
Landform (hillslope, terrace, etc.): Depression			
Subregion (LRR): LRR G Lat:	45.840591	-107.600	013 Datum: NAD 83
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet		NIM electification:	Not Mapped.
Are climatic / hydrologic conditions on the site typical for this time of		INVVI Classification	- 1
Are Vegetation, Soil, or Hydrology significar			
Are Vegetation, Soil, or Hydrology naturally			
SUMMARY OF FINDINGS – Attach site map showi	ng sampling point lo	cations, transects, imp	ortant features, etc.
Hydrophytic Vegetation Present? Yes <u>✓</u> No	── Is the Sampled A	٨٧٥٥	
Hydric Soil Present? Yes ✓ No ☐ Wetland Hydrology Present? Yes ✓ No ☐	within a Wetland	Area d? Yes✓_	No 🗆
Wetland Hydrology Present? Yes No No			<u> </u>
Remarks: PEM DEPRESSIONAL wetland in cell 7.			
VEGETATION - Use scientific names of plants			
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover: Spec		Dominance Test workshee	t
	ico: ciaias	Number of Dominant Species that are OBL, FACW or FAC	
		Total Number of Dominant Species Across All Strata:	2 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FA	s C: 50.0 % (A/B)
Japania Japania Communication		Prevalence Index workshee	
		Total % Cover of:	Multiply by:
		OBL species 10 X FACW species 10 X	_
		FAC species 10 X	
District / F. Foot Pedius)		FACU species 20 X	
Herbaceous Stratum Plot size (5 Foot Radius) Elymus repens 20 ✓	FACU	UPL species 0 X	5 0
Hordeum jubatum 10	FACW	Column Totals 40	(A) 110 (B)
Puccinellia nuttalliana 5	OBL		0.75
Schoenoplectus pungens 5	OBL	Prevalence Index = B/A	•
		Hydrophytic Vegetation Inc 1 - Rapid Test for Hydrophytics	
		2 - Dominance Test is	
		✓ 3 - Prevalence Index	
		4 - Morphological Ada supporting data in rer sheet.	
		5 - Wetland Non-Vas	cular Plants
			ytic Vegetation (Explain)
Woody Vine Stratum Plot size (30 Foot Radius)		Indicators of hydric sil and wet present, unless disturbed or pr	land hydrology must be
Developed Brown Organized GO		Hydrophytic Vegetation Present?	Yes ✔ NO
Percent Bare Ground 60 Remarks:	_	11000111	
BG/litter=60%. Evidence of hydrophytic vegetation includes	s a prevalence index less	s than or equal to 3.0.	

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Texture (inches) Type 0 - 1315 C 10YR 4/2 85 7.5YR 3/4 M Silty Clay ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Black Histic (A3) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations common within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) ✓ Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) ✓ Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes Yes _ No _ Depth (inches): ____ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes soils saturated to surface, salt crust, oxidized rhizospheres on living roots, and geomorphic position.

Sampling Point: DP07w

Project/Site: JTX Tunicliff	City/County: Big Horn	Si	ampling Date: _	6/19/2021
Applicant/Owner: MDT		_ _{State:} <u>Montana</u> _{Sa}	ampling Point: _	DP08u
Investigator(s): R. Jones, J Trilling	Section, Township, Range:	10 1N	33E	
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, conv	ex, none): flat	Slop	oe (%):
Subregion (LRR): LRR G	45.841391 _{Lo}	ng: -107.	600313 _{Datur}	m: NAD 83
Subregion (LRR): LRR G Lat: Lat: Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet	_	NWI classificati	 _{on:} Not Марре	∍d.
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🔽 No	(If no, explain in Rem	narks.)	
Are Vegetation, Soil, or Hydrology significantly				No □
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If needed	d explain any answers i	in Remarks)	
SUMMARY OF FINDINGS – Attach site map showing				atures, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Upland sample point located outside cell 2.	Is the Sampled Are within a Wetland?	a Yes	_ No <u> </u>	
VEGETATION - Use scientific names of plants				
Tree Stratum Plot size (30 Foot Radius) Absolute Domian		ominance Test works	heet	
Tree Stratum Plot size (30 Foot Radius) % Cover: Species	N	lumber of Dominant Spe nat are OBL, FACW or F		0 (A)
		otal Number of Domina species Across All Strata		1 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		ercent of Dominant Spe hat Are OBL, FACW, or		0 % (A/B)
	P	revalence Index works	sheet	
	-	Total % Cover of:		ultiply by:
		•) X1) X2	0
			; X3	45
Herbaceous Stratum Plot size (5 Foot Radius)) X4	0
Bromus japonicus 30	NL L	JPL species 40) X 5	200
Elymus hispidus 10	NL C	Column Totals 55	(A)	245 (B)
Iva axillaris 10	FAC	Prevalence Index =	B/A =	4.45
Lepidium perfoliatum 5	FAC FAC	lydrophytic Vegetation	n Indicators	
		1 - Rapid Test for	r Hydrophytic Ve	egetation
		2 - Dominance Te	est is >50%	
		3 - Prevalence In	dex is <= 3.0	
		4 - Morphological supporting data in		
		sheet. 5 - Wetland Non-	Vaccular Plante	
		Problematic Hydr		
Woody Vine Stratum Plot size (30 Foot Radius)		licators of hydric sil and esent, unless disturbed o	wetland hydrolo	ogy must be
Percent Bare Ground 45	F	lydrophytic Vegetation		NO 🔽
Remarks:				
BG/litter=45%. Data point is dominated by upland vegetation				

SOIL							Sampling Point: [P08u
Profile Desc	ription: (Describe	to the depth ne	eded to documer	nt the indicator or c	onfirm t	the absence of ind	dicators.)	
Depth	Matrix		Redox F					
(inches)	Color (moist)	%C	olor (moist)	<u>% Type¹ L</u>	.oc ²	Texture	Remarks	
0-15	10YR 4/3	100				Sandy Loam		
								-
	oncentration, D=Dep	· · · · · · · · · · · · · · · · · · ·			and Gra		PL=Pore Lining, M=	
Hydric Soil	Indicators: (Application	able to all LRR	s, unless otherwi	se noted.)			roblematic Hydric S	oils³:
Histosol	` '			yed Matrix (S4)			A9) (LRR I, J)	
	oipedon (A2)		Sandy Red	, ,			Redox (A16) (LRR	F, G, H)
\equiv	istic (A3) en Sulfide (A4)		Stripped M	atrix (56) cky Mineral (F1)			e (S7) (LRR G) Depressions (F16)	
	d Layers (A5) (LRR F	=)	_	yed Matrix (F2)			outside of MLRA 72	& 7 3)
	ıck (A9) (LRR F, G, I		Depleted M			Reduced Ve		u 10)
	d Below Dark Surface		_	k Surface (F6)		=	Material (TF2)	
Thick Da	ark Surface (A12)		Depleted D	ark Surface (F7)		☐ Very Shallow	v Dark Surface (TF12)
	lucky Mineral (S1)			ressions (F8)			in in Remarks)	
	Mucky Peat or Peat (Depressions (F16)			drophytic vegetation a	
5 cm Mu	ucky Peat or Peat (S3	3) (LRR F)	(MLRA	72 & 73 of LRR H)			ology must be preser	ıt,
Destrictive	Layer (if present):					uniess distur	bed or problematic.	
Type:								
	ches):					Hydric Soil Dress	ent? Yes	No 🔽
. `						Tryunc con r resc		
Nemans. N	o hydric soil indica	tors observed	•					
HYDROLO								
_	drology Indicators:							
	cators (minimum of o	ne required; che					licators (minimum of	wo required)
	Water (A1)		Salt Crust (B1	,			oil Cracks (B6)	
	ater Table (A2)			tebrates (B13)		_	Vegetated Concave S	Surface (B8)
Saturation			_	fide Odor (C1)		= -	Patterns (B10)	
	larks (B1)			Vater Table (C2)	D 1 - (C		Rhizospheres on Livii	ng Roots (C3)
	nt Deposits (B2)			cospheres on Living F	Roots (C		•	
	oosits (B3) at or Crust (B4)		(where not	Reduced Iron (C4)			Burrows (C8) I Visible on Aerial Ima	naan. (CO)
	oosits (B5)		Thin Muck Su			_	nic Position (D2)	igery (C9)
	on Visible on Aerial I	mageny (B7)	_	n in Remarks)			ral Test (D5)	
	tained Leaves (B9)	magery (D7)	Other (Explain	ii iii iteiliaiks)		<u> </u>	ve Hummocks (D7)	(I RR F)
Field Obser							vo riaminiosko (Br)	(=::::)
Surface Wat		es 🗆 No	✓ Denth (inche	s):				
Water Table			Depth (inche					
Saturation P			Depth (inche		\/\otlar	nd Hydrology Pres	ent? Ves	No
	oillary fringe)	es <u> </u>	_ V _ Deptil (illelle		vvetiai	id Hydrology Fres	Sent: 165	110
Describe Re	corded Data (stream	gauge, monitori	ng well, aerial pho	tos, previous inspec	tions), if	available:		<u> </u>
Remarks: No	evidence of wetla	and hydrology	observed.					

Project/Site: JTX Tunicliff		City/Co	untv: Big Horn		Sampling	Date: 6/19/20:	21
Applicant/Owner: MDT							
nvestigator(s): R. Jones, J Trilling							_
andform (hillslope, terrace, etc.): Depression							_
Subregion (LRR): LRR G							
Soil Map Unit Name: Hh: Haverson and Lohmil	Lat ller soils, wet		40.01101.	LONG.	Not		_
Are climatic / hydrologic conditions on the site typic			[INVVI CIE	issification: 1101		_
							_
Are Vegetation, Soil, or Hydrology Are Vegetation, Soil, or Hydrology	significantly	ly disturb	ed? Are "N	ormal Circumstand	ces" present? Y	es No L	_
Are Vegetation, Soil, or Hydrology	naturally p	roblemat	ic? (If need	ded, explain any a	nswers in Remai	rks.)	
SUMMARY OF FINDINGS – Attach sit	e map showin	g samı	pling point lo	cations, trans	ects, importa	ant features, et	C.
	✓ No □ ✓ No □		Is the Sampled A		No		
Remarks: PEM DEPRESSIONAL wetland in	cell 2.						
VEGETATION - Use scientific names	of plants						_
The Ctueture Diet size (OO Feet Deditie)	Absolute Domiar % Cover: Specie		licator atus	Dominance Tes	t worksheet		
,	% Cover. Specie	:5! Sta	atus	Number of Domi that are OBL, FA		1 (A)	
				Total Number of Species Across		2 (B)	
Sapling/Shrub Stratum Plot size (15 Foot	t Radius)			Percent of Domin		50.0 % (A/B)	
	,			Prevalence Inde			
				Total % Co		Multiply by:	_
				OBL species FACW species	5 X1 20 X2	40	
				FAC species		0	
	. D. II.)			FACU species	30 X4	120	
Herbaceous Stratum Plot size (5 Foot Elymus hispidus	,	NII		UPL species	5 X 5	25	
Elymus repens	5 <u> </u>	NL FAC		Column Totals	60 (A)) 190 (E	В)
Hordeum jubatum	20	FAC		_	` `	3.17	-,
Puccinellia nuttalliana	5	OBL			Index = B/A =		
- Goomonia Hattamana		022		Hydrophytic Ve	-		
				_	Test for Hydrop	,	
					nance Test is >5		
				☐ 3 - Preva	lence Index is <=	= 3.0	
					nological Adaptat ng data in remark	tions (Provide s or on separate	
					nd Non-Vascular	r Plants	
						Vegetation (Explain	1)
Woody Vine Stratum Plot size (30 Foot	: Radius)			ndicators of hydric	c sil and wetland	hydrology must be ematic for #3, 4, 5.	•
Percent Bare Ground 40				Hydrophytic Ve Present?	getation Ye	es 🗸 NO 🗌	
Remarks:			L				_
BG/litter=40%. Although the data point lack	ed a hydrophytic	vegetat	ion indicator, or	e of the domina	nt plant specie	s was hydrophyti	C.

hydric soil development was observed, and the data point is supported by wetland hydrology (1987 COE Wetland Delineation Manual).

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Type Texture (inches) Remarks 0-04 С **10YR** 4/1 85 7.5YR 3/4 15 M Clay Loam 04-10 7.5YR **10YR** 4/1 4/6 7 CS Sand 93 M Very gravelly. 7.5YR 7 10 - 1310YR 4/1 93 3/4 CS M Sand ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Black Histic (A3) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations common within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) Surface Soil Cracks (B6) ✓ High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) Hydrogen Sulfide Odor (C1) ✓ Saturation (A3) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes ✓ No □ Depth (inches): Water Table Present? Wetland Hydrology Present? Yes 0 Yes _ No _ Depth (inches): ___ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes a high water table, soils saturated to surface, salt crust, and geomorphic position.

Sampling Point: DP08w

Project/Site: JTX Tunicliff	City/County: Big Horn	Sar	mpling Date:6/1	9/2021
Applicant/Owner: MDT		_ _{State:} <u>Montana</u> _{Sar}	npling Point: DP09u	Į.
Investigator(s): R. Jones, J Trilling	Section, Township, Range:	10 1N	33E	
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, conve	ex, none): flat	Slope (%):	9
Subregion (LRR): LRR G	45.841125 Lor	ng: -107.5	98553 _{Datum:} NA	.D 83
Subregion (LRR): LRR G Lat: Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet	_	NWI classification	 ₁: Not Mapped.	
Are climatic / hydrologic conditions on the site typical for this time of ye	ear? Yes 🔽 No	(If no, explain in Rema	rks.)	
Are Vegetation, Soil, or Hydrology significantly				o 🗆
Are Vegetation, Soil, or Hydrology naturally pr	oblematic? (If needed	t explain any answers in	Remarks)	
SUMMARY OF FINDINGS – Attach site map showing				s, etc.
Hydrophytic Vegetation Present? Yes No W Hydric Soil Present? Yes No W Wetland Hydrology Present? Yes No W Remarks: Upland sample point located outside cell 3.	Is the Sampled Area within a Wetland?	a Yes	No	
VEGETATION - Use scientific names of plants				
Tree Stratum Plot size (30 Foot Radius) Absolute Domian		ominance Test worksh	eet	
Tree Stratum Plot size (30 Foot Radius) % Cover: Species	N	umber of Dominant Spec at are OBL, FACW or FA		
		otal Number of Dominant pecies Across All Strata:		
Sapling/Shrub Stratum Plot size (15 Foot Radius)		ercent of Dominant Spec hat Are OBL, FACW, or f		(A/B)
,	Р	revalence Index worksh		
	-	Total % Cover of: BL species 0	X 1 0	<u>y:</u>
		•	X 1 0 X 2 0	
			X3 9	
Herbaceous Stratum Plot size (5 Foot Radius)			X 4 0	
Elymus hispidus 80	NL	PL species 80	X 5 400	
Iva axillaris 1	FAC	olumn Totals 83	(A) 409	(B)
Lepidium perfoliatum 2	FAC	Prevalence Index = E	3/A = 4.9	93
	н	ydrophytic Vegetation I	ndicators	
		1 - Rapid Test for I	Hydrophytic Vegetation	on
		2 - Dominance Tes	st is >50%	
		3 - Prevalence Inde	ex is <= 3.0	
			Adaptations (Provide remarks or on separa	
		5 - Wetland Non-Va	accular Plante	
Woody Vine Stratum Plot size (30 Foot Radius)		icators of hydric sil and w sent, unless disturbed or		ıst be
Porcent Porc Ground 17	н	ydrophytic Vegetation resent?	Yes NO	4 , 5.
Percent Bare Ground 17 Remarks:	I ·		 	
BG/litter=17%. Data point is dominated by upland vegetation				

SOIL							Sampling Point: DF	P09u
Profile Desc	ription: (Describe	to the depth ne	eded to documer	nt the indicator or c	onfirm	the absence of in	dicators.)	
Depth	Matrix		Redox F					
(inches)	Color (moist)	%C	olor (moist)	% Type¹ L	.oc ²	Texture	Remarks	
0-15	10YR 4/3	100				Clay Loam		
	oncentration, D=Dep	· · · · · · · · · · · · · · · · · · ·			and Gra		: PL=Pore Lining, M=M	
Hydric Soil	Indicators: (Application	able to all LRR	s, unless otherwi	se noted.)			roblematic Hydric So	ils³:
Histosol	` '			yed Matrix (S4)			(A9) (LRR I, J)	
	oipedon (A2)		☐ Sandy Red				e Redox (A16) (LRR F,	G , H)
\equiv	istic (A3) en Sulfide (A4)		Stripped M	atrix (S6) cky Mineral (F1)			e (S7) (LRR G) Depressions (F16)	
	d Layers (A5) (LRR F	=)	·	yed Matrix (F2)		_ •	outside of MLRA 72 &	73)
	ıck (A9) (LRR F, G, I		Depleted M			Reduced Ve		10)
	d Below Dark Surface			k Surface (F6)		=	Material (TF2)	
Thick Da	ark Surface (A12)		Depleted D	ark Surface (F7)		☐ Very Shallov	w Dark Surface (TF12)	
	lucky Mineral (S1)			ressions (F8)			ain in Remarks)	
	Mucky Peat or Peat (Depressions (F16)			drophytic vegetation an	
5 cm Mu	ucky Peat or Peat (S3	3) (LRR F)	(MLRA	72 & 73 of LRR H)			rology must be present,	
Doctrictive I	Layer (if present):					uniess distu	rbed or problematic.	
Type:								
	ches):					Hydric Soil Pres	ent? Yes 🔲 l	No 🔽
						Tryanc con rics	- 103	
Nemans. N	o hydric soil indica	tors observed	•					
HYDROLO								
	drology Indicators:							
	cators (minimum of o	ne required; che					dicators (minimum of tw	<u>ro required)</u>
	Water (A1)		Salt Crust (B	,			Soil Cracks (B6)	
	ater Table (A2)			tebrates (B13)		_	Vegetated Concave Su	rface (B8)
Saturation			_	fide Odor (C1)			Patterns (B10)	D 1 - (00)
	larks (B1)			Vater Table (C2) cospheres on Living	Dooto ((Rhizospheres on Living	Roots (C3)
	nt Deposits (B2)		(where not		KOOIS (C		•	
	oosits (B3) at or Crust (B4)			Reduced Iron (C4)			Burrows (C8) n Visible on Aerial Imag	ieny (CQ)
	posits (B5)		Thin Muck Su				hic Position (D2)	ery (Ca)
	on Visible on Aerial I	magery (B7)		n in Remarks)			tral Test (D5)	
	tained Leaves (B9)	magory (<i>D1)</i>	Other (Explain	ir iir rtomantoj		<u> </u>	ave Hummocks (D7) (L	RR F)
Field Obser							(- 1) (-	,
Surface Wat		es 🗆 No	✓ Depth (inche	es):				
Water Table			Depth (inche					
Saturation P			<u>✓</u> Depth (inche		Wetla	nd Hydrology Pre	sent? Yes	No <u> </u>
(includes car	oillary fringe)							
Describe Re	corded Data (stream	gauge, monitori	ng well, aerial pho	itos, previous inspec	tions), if	r available:		
Damester								
Remarks: No	evidence of wetla	and hydrology	observed.					

Project/Site: JTX Tunicliff City/County: Big Hor	n Sampling Date 6/19/2021
Applicant/Owner: MDT	
Investigator(s): R. Jones, J Trilling Section, Township, R.	
Landform (hillslope, terrace, etc.): Depression Local relief (concave,	convey nano): CONCAVE Slane (%):
Subregion (LRR): LRR G Lat: 45.84102	
Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet	Zo Long:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	NVVI classification: NVVI classification:
Are Vegetation, Soil, or Hydrology significantly disturbed? Are Vegetation, Soil, or Hydrology naturally problematic? (If n	* "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problematic? (If n	needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point	locations, transects, important features, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Wetland Hydrology Present? Remarks: PEM DEPRESSIONAL wetland in cell 3.	
VEGETATION - Use scientific names of plants	
Absolute Domiant Indicator	Dominance Test worksheet
Tree Stratum Plot size (30 Foot Radius) % Cover: Species? Status	
	Number of Dominant Species that are OBL, FACW or FAC: 1 (A)
	Total Number of Dominant Species Across All Strata: 2 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)	Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)
(10	Prevalence Index worksheet
	Total % Cover of: Multiply by:
	OBL species 0 X 1 0 FACW species 20 X 2 40
	FACW species 20 X 2 40 FAC species 0 X 3 0
	FACU species 31 X4 124
Herbaceous Stratum Plot size (5 Foot Radius)	UPL species 0 X 5 0
Chenopodium album 1 FACU Elymus repens 30 ✓ FACU	Column Totals 51 (A) 164 (B)
Hordeum jubatum 20 ▼ FACW	Prevalence Index = B/A = 3.22
	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
	supporting data in remarks or on separate sheet.
	5 - Wetland Non-Vascular Plants
Woody Vine Stratum Plot size (30 Foot Radius)	✓ Problematic Hydrophytic Vegetation (Explain)
woody vine Stratum Flot Size (30 Foot Radius)	Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
	Hydrophytic Vegetation Yes ✓ NO
Percent Bare Ground 49	Present?
Remarks: BG/litter=49%. Although the data point lacked a hydrophytic vegetation indicator,	one of the dominant plant species was hydrophytic,

BG/litter=49%. Although the data point lacked a hydrophytic vegetation indicator, one of the dominant plant species was hydrophytic, hydric soil development was observed, and the data point is supported by wetland hydrology (1987 COE Wetland Delineation Manual).

Sampling Point: DP09w Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Loc² Color (moist) Type Texture (inches) 0-04 25 С PL**10YR** 4/1 75 7.5YR 3/4 Clay Loam 04-09 10YR C 10YR 80 4/4 20 Loamy Sand 4/2 M 100 09-13 10YR 4/2 Sand Very gravelly. ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Black Histic (A3) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (LRR F, G, H) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations many within the depleted matrix and along pore linings. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aguatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) ✓ Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) ✓ Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) FAC-Neutral Test (D5) Other (Explain in Remarks) Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes Yes ✓ No Depth (inches): Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes saturation within 2 inches of the soil surface, salt crust, oxidized rhizospheres on living roots, and geomorphic position.

Project/Site: JTX Tunicliff	City/County: Big Horn		_ Sampling Date	:6/19/	/2021
Applicant/Owner: MDT		_{State:} Montana	_ Sampling Point	_{i:} <u>DP10u</u>	
Investigator(s): R. Jones, J Trilling	Section, Township, Range	: <u>15</u> 1	N 33	E	
Landform (hillslope, terrace, etc.): Terrace	Local relief (concave, con	vex, none): flat	s	lope (%): _	9
Subregion (LRR): LRR G Lat:	45.840482 L	ong:1	07.598989 _{Da}	tum: NAD	83
Subregion (LRR): LRR G Lat: Lat: Soil Map Unit Name: Hh: Haverson and Lohmiller soils, wet	_	NWI classifi	 _{ication:} Not Map	ped.	
Are climatic / hydrologic conditions on the site typical for this time of ye	ar? Yes No □	(If no, explain in I	Remarks.)		
Are Vegetation, Soil, or Hydrology significantly				✓ No	
Are Vegetation, Soil, or Hydrology naturally pro	blematic? (If needs	ed. explain anv answ	ers in Remarks.)		
SUMMARY OF FINDINGS – Attach site map showing				features,	, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No V No V		ea Yes	No ✓	_	
Remarks: Upland sample point located outside cell 12/13 in but VEGETATION - Use scientific names of plants	iii aica.				
Absolute Domiant		Dominance Test wo	orksheet		
Tree Stratum Plot size (30 Foot Radius) % Cover: Species	? Status	Number of Dominant that are OBL, FACW	t Species	0 (A)	
		Total Number of Don Species Across All S		1 (B)	
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant That Are OBL, FACV		0.0 % (A/	/B)
,		Prevalence Index w			
		Total % Cover of OBL species	of: ! 0 X1	Multiply by:	
		FACW species	0 X 1 0 X 2	0	=
		FAC species	1 X3	3	7
Herbaceous Stratum Plot size (5 Foot Radius)		FACU species	0 X4	0	
Elymus hispidus 30	NL	UPL species	30 X5	150	
Lepidium perfoliatum 1	FAC	Column Totals	31 (A)	153	(B)
		Prevalence Inde	ex = B/A =	4.94	4
		Hydrophytic Vegeta	tion Indicators		
		1 - Rapid Tes	st for Hydrophytic	Vegetation	1
		2 - Dominano	ce Test is >50%		
		☐ 3 - Prevalenc	ce Index is <= 3.0		
			gical Adaptations ata in remarks or		e
			lon-Vascular Plar	nts	
		☐ Problematic I	Hydrophytic Vege	tation (Exp	olain)
Woody Vine Stratum Plot size (30 Foot Radius)		dicators of hydric sil	and wetland hydr	ology must	t be
Percent Bare Ground 69		Hydrophytic Vegeta Present?	tion Yes	NO	✓
Remarks: BG/litter=69%. Data point is dominated by upland vegetation.					

SOIL							Sampling Point: D	P10u
Profile Desc	ription: (Describe	to the depth ne	eded to docume	nt the indicator or c	onfirm	the absence of ind	licators.)	
Depth	Matrix			Redox Features				
(inches)	Color (moist)	%C	olor (moist)	% Type¹ L	.oc ²	Texture	Remarks	
0-15	10YR 4/3	100				Sandy Loam		
	oncentration, D=Dep	· · · · · · · · · · · · · · · · · · ·			and Gra		PL=Pore Lining, M=1	
Hydric Soil	Indicators: (Application	able to all LRR	s, unless otherwi	se noted.)			roblematic Hydric Sc	oils³:
Histosol	` '			yed Matrix (S4)			49) (LRR I, J)	
	oipedon (A2)		Sandy Red	, ,			Redox (A16) (LRR F	, G , H)
\equiv	istic (A3)		Stripped Matrix (S6)			☐ Dark Surface (S7) (LRR G) ☐ High Plains Depressions (F16)		
☐ Hydrogen Sulfide (A4) ☐ Loamy Mucky Mineral (F1) ☐ Stratified Layers (A5) (LRR F) ☐ Loamy Gleyed Matrix (F2)						_ •	utside of MLRA 72 8	73)
							rtic (F18)	. 10)
	d Below Dark Surface			k Surface (F6)		=	Material (TF2)	
Thick Dark Surface (A12) Depleted Dark Surface (F7)						☐ Very Shallow	/ Dark Surface (TF12)	
	lucky Mineral (S1)			oressions (F8)			in in Remarks)	
	Mucky Peat or Peat (s Depressions (F16)			Irophytic vegetation ar	
5 cm Mu	ucky Peat or Peat (S3	3) (LRR F)	(MLRA	72 & 73 of LRR H)			ology must be present	ί,
Destrictive	Layer (if present):					uniess distur	bed or problematic.	
Type:								
	ches):					Hydric Soil Press	ent? Yes	No 🔽
. `						- Trydric Con 1 1030		
Nemans. N	o hydric soil indica	tors observed	•					
HYDROLO								
Wetland Hy	drology Indicators:							
Primary India	cators (minimum of o	ne required; che	ck all that apply)			Secondary Ind	icators (minimum of ty	vo required)
Surface	Water (A1)		Salt Crust (B	,			oil Cracks (B6)	
	ater Table (A2)			tebrates (B13)			egetated Concave Si	urface (B8)
Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10)								
Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3)								
Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled)								
	posits (B3)		(where not				Surrows (C8)	(00)
	at or Crust (B4) posits (B5)		Thin Muck Su	Reduced Iron (C4)		_	Visible on Aerial Imag nic Position (D2)	gery (C9)
	oosแร (ฮอ) on Visible on Aerial I	mageny (B7)		n in Remarks)			ral Test (D5)	
	tained Leaves (B9)	magery (b/)	Other (Explai	ii iii ixeiliaiks)		<u> </u>	ve Hummocks (D7) (I	RR F)
Field Obser				1			ve rialilinocks (D7) (i	-1(1(1)
Surface Wat		es 🗆 No	✓ Depth (inche	es):				
Water Table								
Water Table Present? Yes No Depth (inches): Saturation Present? Yes No Depth (inches):						nd Hydrology Pres	ent? Ves	No
(includes capillary fringe)						na riyarology Fres	ent: 1es	NO
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:								
Remarks: No	evidence of wetla	and hydrology	observed.					

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: JTX Tunicliff	Ci	ty/County: Big Ho	rn	Sampling Date:	6/19/2021
Applicant/Owner: MDT			State: Montana	Sampling Point	DP10w
Investigator(s): R. Jones, J Trilling				IN 33I	
Landform (hillslope, terrace, etc.): Depression				e si	ope (%):
Subregion (LRR): LRR G					
Soil Map Unit Name: Hh: Haverson and Lohmiller so	oils, wet		0NWI classi	fication: Not Map	ped.
Are climatic / hydrologic conditions on the site typical for					
Are Vegetation, Soil, or Hydrology			······································		✓ No □
Are Vegetation , Soil , or Hydrology	naturally probl	ematic? (If	needed, explain any ansv		
SUMMARY OF FINDINGS – Attach site ma		•		, in the second second	eatures, etc
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Wetland Hydrology Present? Remarks: PEM DEPRESSIONAL wetland in cell 1	No	Is the Sample within a Wetl		✓ No □	_
VEGETATION - Use scientific names of p					
Trac Strature Plat size (20 Feet Redive) Absol	ute Domiant	Indicator	Dominance Test w	orksheet	
Tree Stratum Plot size (30 Foot Radius) % Co	ver: Species?	Status	Number of Dominar	nt Species	2 (A)
			Total Number of Do Species Across All		3 _(B)
Continue/Church Christian District /45 Foot Dodi			Percent of Dominar That Are OBL, FAC		6.7 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radi	us)		Prevalence Index	worksheet	
			Total % Cove		Multiply by:
			OBL species	22 X1	22
			FACW species FAC species	40 X 2 0 X 3	0
			FACU species		60
Herbaceous Stratum Plot size (5 Foot Radi			UPL species		0
- · · · · · · · · · · · · · · · · · · ·		FACW	Column Totals	77 (A)	162 (B)
Elymus repens Hordeum jubatum		FACU FACW			2.10
Schoenoplectus americanus		OBL	Prevalence Inc		2.10
Schoenoplectus maritimus		OBL	Hydrophytic Veget	ation Indicators est for Hydrophytic	Vogotation
	20 🗸 (OBL	·		vegetation
				ice Test is >50%	
			✓ 3 - Prevalen	ce Index is <= 3.0	
				ogical Adaptations (lata in remarks or c	
			5 - Wetland	Non-Vascular Plan	ıts
			Problematic	Hydrophytic Veget	tation (Explain)
Woody Vine Stratum Plot size (30 Foot Radi	us)		Indicators of hydric si present, unless distur	I and wetland hydro	ology must be
Percent Bare Ground 23			Hydrophytic Veget Present?	-	
Remarks:					
BG/litter=23%. Evidence of hydrophytic vegetation 3.0.	on includes a po	ositive dominanc	e test and a prevalenc	e index less thar	า or equal to

US Army Corps of Engineers Great Plains - Version 2.0

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Matrix Redox Features Color (moist) Color (moist) Loc² Texture (inches) Type 0-06 5YR 5 С **10YR** 4/2 95 3/4 M Sandy Clay 95 5 06 - 1410YR 4/2 10YR 3/4 C Loamy Sand M ²Location: PL=Pore Lining, M=Matrix. ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Histosol (A1) 1 cm Muck (A9) (**LRR I, J**) Sandy Gleyed Matrix (S4) Histic Epipedon (A2) Sandy Redox (S5) Coast Prairie Redox (A16) (LRR F, G, H) Stripped Matrix (S6) Dark Surface (S7) (LRR G) Black Histic (A3) Loamy Mucky Mineral (F1) High Plains Depressions (F16) Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Stratified Layers (A5) (LRR F) (LRR H outside of MLRA 72 & 73) ✓ Depleted Matrix (F3) \perp 1 cm Muck (A9) (**LRR F, G, H**) Reduced Vertic (F18) Redox Dark Surface (F6) Red Parent Material (TF2) Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Very Shallow Dark Surface (TF12) Thick Dark Surface (A12) Sandy Mucky Mineral (S1) Redox Depressions (F8) Other (Explain in Remarks) High Plains Depressions (F16) ³Indicators of hydrophytic vegetation and 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) 5 cm Mucky Peat or Peat (S3) (LRR F) (MLRA 72 & 73 of LRR H) wetland hydrology must be present. unless disturbed or problematic. Restrictive Layer (if present): Type: Hydric Soil Present? Depth (inches): Remarks: Distinct redoximorphic concentrations common within the depleted matrix. **HYDROLOGY** Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) Secondary Indicators (minimum of two required) Surface Water (A1) ✓ Salt Crust (B11) Surface Soil Cracks (B6) High Water Table (A2) Aquatic Invertebrates (B13) Sparsely Vegetated Concave Surface (B8) ✓ Saturation (A3) Hydrogen Sulfide Odor (C1) Drainage Patterns (B10) Water Marks (B1) Dry-Season Water Table (C2) Oxidized Rhizospheres on Living Roots (C3) Sediment Deposits (B2) Oxidized Rhizospheres on Living Roots (C3) (where tilled) Drift Deposits (B3) (where not tilled) Crayfish Burrows (C8) Algal Mat or Crust (B4) Presence of Reduced Iron (C4) Saturation Visible on Aerial Imagery (C9) Iron Deposits (B5) Thin Muck Surface (C7) Geomorphic Position (D2) Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) ▼ FAC-Neutral Test (D5) ✓ Water-Stained Leaves (B9) Frost-Heave Hummocks (D7) (LRR F) Field Observations: Yes No Depth (inches): Surface Water Present? Yes No Depth (inches): Water Table Present? Wetland Hydrology Present? Yes Yes _ No _ Depth (inches): ____ Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Evidence of wetland hydrology includes saturation within 3 inches of the soil surface, water stained leaves, salt crust, geomorphic position, and a positive FAC-Neutral test.

Sampling Point: DP10w

SOIL

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name	Project name JTX-Tunnicliff			2. MDT project#	S	TPX STWD (056)	Cont	rol#	9680000
3. Evaluation Date	6/18/2021	4. Evaluators	R. Jon	es, J. Trilling	5. We	tland/Site# (JTX Tun	nicliff		
6. Wetland Location(s	Mileposts	NA	33E	Sec1 10	Т	1N	R 33E	Sec2	15	
	liddle Yellows		atersne	ed/County Bigl	norn					
7. Evaluating Agency		or MDT					d size acres		.d	8.18
Purpose of Evaluatio Wetlands potentia		hy MDT project				How asse	ssea: ssment area	Measure	ea e.g.	8.18
☐ Mitigation Wetlan	_					(AA) size				0.10
✓ Mitigation Wetlan	•					How asse	ssed:	Measure	d e.g.	by GPS
Other										
10. Classification of \	Wetland and	Aquatic Habitat	s in AA							
HGM Class (Brinson)		iss (Cowardin)		Modifier (Cowa	rdin)		Regime		% of A	NA .
Depressional	Eme	rgent Wetland		Excavated		Seasonal	/Intermittent			100
Setimated Relative General Condition i. Disturbance: (use aquatic nuisance vegi	n of AA matrix below t	o determine [circle]		ate response – see	nstructi	ons for Montan	a-listed noxio	us weed an	d	
			Manag	Proged in predominantly		nt conditions adjacended not cultivated,			ivated o	r heavily grazed
Cond	litions within AA		natura hayed conve roads	al state; is not grazed, l, logged, or otherwise rted; does not contain or buildings; and noxio or ANVS cover is <=15	se su us fev	oderately grazed of lectively logged; of bject to minor clear w roads or building ted or ANVS cove	or hayed or or has been aring; contains gs; noxious	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 grazed, hayed, logged, or othe roads or occupied buildings; a <=15%.	erwise converted	does not contain	lo	w disturbance	low distur	moderate disturbance				
AA not cultivated, but may be selectively logged; or has bee placement, or hydrological alte noxious weed or ANVS cover	n subject to relat eration; contains	vely minor clearing, fill		moderate disturbance] _r	noderate dis	high disturbance			
AA cultivated or heavily grazes ubstantial fill placement, grachigh road or building density; >=30%.	ding, clearing, or	hydrological alteration;	hig	gh disturbance		high distu	high disturbance			
Comments: (types of coverence o	stablished ex	cept for areas tha	t burned	cies:						
Convolvulus arvensis, C					itat					
Fishing Acess Site, large	_			g .aa uoo/nai						

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	ls current management existence of additiona	Modified Rating	
>=3 (or 2 if 1 is forested) classes	Н	NA	NA	NA
2 (or 1 if forested) classes	М	NA	NA	NA
1 dass, but not a monoculture	M	<no< td=""><td>YES></td><td>L</td></no<>	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments:	Site contains PEM wetland.

SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT

14A. Habitat for Federall	v Listed or Prop	oosed Threatened	l or Endanger	ed Plants or Animals:
---------------------------	------------------	------------------	---------------	-----------------------

Primary or critical habitat	(list species)	(D (S				
Secondary habitat (list Sp	ecies)	(D () S				
Incidental habitat (list spe	ecies)	□ D) s				
No usable habitat		√ S					
ii. Rating (use the cond	usions from i a	bove and the m	atrix below to arrive	e at [check] the fun	ctional 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	OL
Sources for documented use	SFWS T&E list t	or Big Horn Co	unty				

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

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

Primary or critical habitat (list species)	□ D □ S	
Secondary habitat (list Species)	● D ○ S	Bur oak (S2) documented on site in 2017.
Incidental habitat (list species)	○ D • S	Great Blue Heron (S3)
No usable habitat	_ s	

ii. Rating (use the conclusions from 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	OL

Sources for documented use

Suitable great blue heron habitat

14C. General W i. Evider	lildlife H				se in t	he AA	(ched	ck sul	ostanti	al, mod	erate,	or lo	ow ba	sed on	supp	ortin	g evi	dence)					
Substantial (base observations abundant wild presence of e interviews with	of abunda llife sign s xtremely	int wildl uch as imiting	life #s scat, habita	or high tracks, at featu	n specie , nest st ures not	ructure availa	es, gam	ne trails	, etc.	,	fev littl spa	v or no e to n arse a	o wildlii o wildli adjacen	fe sign t upland	vations	during	g peak	k]): cuse per	riods	erate			
Moderate (based of observations ✓ common occu ✓ adequate adjainterviews with	of scattered currence of acent uplated	ed wildl wildlife and food alogists	ife gro sign : d sour with k	oups or such a ces knowle	n individ s scat, t	tracks,	nest st	ructure	es, game	trails, et	c.												
ii. Wildlife hab from #13. For other in terms of permanent/per- terms]) Structural	class co	ver to ercent	be com	positi positi al/inte	ered ev on of t ermitte	enly on the AA	distribu . (see	uted, t #10).	he mos Abbre	st and le viations	ast pre for sur	evale face = ab	nt veç water sent [s	duration	l class ons are	es m	ust be	e withir s: P/P ner defi	n 20% c = nitions	of each	e		
diversity (see #13) Class cover distribution (all vegetated		Even		Hig	gh	Une	even			Ever	1	Mode	erate	Unev	/en				ven				
classes) Duration of surface water in ≥ 10% of AA Low disturbance	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	А			
at AA (see #12i) Moderate disturbance at AA	E H	Н	E H	Н	Е	E H	H	М	E H	н	Н	M M	E	Н	M	M L	E H	Н	M	M			
(see #12i) High disturbance at AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	L	М	L	L	L	L	L	L	L			
iii. Rating (ns fro	om ia	nd ii a	abo ve	and	the ma					[checkatures			tiona	l point	s and	rating))		\neg
		.00 (1)		E	Except	ional				High						derat	e				Low		
Substantial					1E					.9H						8H	L				.7M	L	
Moderate					.9⊦	1				.7N	1					5M	L				.3L		
Minimal					.6N	1				.4M	1					2L					.1L		
Comments	Evide	nce of	f mai	mmal	l use o	obser	ved ir	n 202	1; dee	r bed a	nd bro	owse	ed veç	getatio	n, and	d bur	rows	from	unknov	wn spe	ecies.	·	
14D. General I could be used restorable due NA here	by fish to habit and pro	i.e., fi at cor ceed	ish u nstra to 14	se is ints, IE.)	precli or is r	uded not de	by pe esired	erched I from	d culve a mai	ert or ot nageme	ther ba	arriei rspe	r, etc. ective]. If th [such	ne AA as fis	is no h en	ot us trapp	ed by ed in	fish, fis	sh use	is not		
i. Habitat Qu Duration of surfac		Kilov	VII / S					ili AA	(user	naunx to						pomis	anu	raung)					
in AA Aquatic hiding / re	sting /		Optim		ermaner	<u>nt / Per</u> dequat		Po	or	Opt	imal	Seaso	onal / Ir Adeq	<u>ntermitte</u> uate		Poor	┪	Opti			y / Ephemeral		bor
escape cover Thermal cover op suboptimal	timal/	0	İ	S	0	i	S	0	S	0	S		0	S	0		s	0	S	0	s	0	s
FWP Tier I fish FWP Tier II or Game fish sp	Native	.9H		.9H .8H	.8⊦ .7M		.7M .6M	.6M	.5M	.9H .8H	.8H .7M	+-	7M 6M	.6M	.5N	-	IM IM	.7M .6M	.6M .5M	.5M	.4M	.3L .2L	.3L
FWP Tier II	or	.8H	1	.7M	.6M	1	.5M	.5M	.4M	.7M	.6М		5М	.4M	.41	1 .:	3L	.5M	.4M	.3L	.2L	.2L	.1L

B-63

.4M

.4M

.3L

.2L

.3L

.2L

.2L

.1L

.2L

.1L

.1L

.4M

.5M

.5M

.4M

.4M

.3L

.5M

FWP Non-Game Tier IV or No fish species

Sources used for identifying fish sp. potentially	found in A	4 <i>:</i>								
ii. Modified Rating (NOTE: Modified score of a) Is fish use of the AA significantly reduced by current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nuityes, reduce score in i above by 0.1: Modified	a culvert, of of TMDL de sance plan	dike, or other n evelopment wit	nan-made s h listed "Pro	obable Imp	aired Úse	s" includir	ng cold or w	varm water	ne If	
b) Does the AA contain a documented spawning comments) for native fish or introduced game fish	_	ther critical hai		e (i.e., sanc add 0.1 to th Modifed	ne adjuste		•			
iii. Final Score and Rating: 0 NA	Commo	ents: No fish	habitat v	vithin AA						
, Ш	re and pro	ceed to 14F.)					ds in AA ar	e not floode	d from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosge		tly entrenched	- C, D, E	Moderate	ely entren	ched – B	Entrenc	hed-A, F, G	stream	
1994, 1996) % of flooded wetland classified as forested and/or scrub/shrub	75%	stream type 25-75%	<25%	75%	25-75%		75%	25-75%	<25%	
AA contains no outlet or restricted outlet	_1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.9⊦	H8.	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
Slightly Entrenched			Entrenched			_	Entrenched			7
ER = >2.2 C stream type D stream type E stream	m type		41 – 2.2 am type	As	stream type		R = 1.0 – 1.4 F stream typ		stream type	
					<u> </u>					
2 x Bankfull D		Bankfull D	epth \	4414	Bar 250 =	nkfull Wid	one Width lth	2.8		
ii. Are ≥10 acres of wetland in the AA subject to	o flooding	AND are man-ı	made featu	res which n	nay be si		damaged b	y floods loo	ated	
within 0.5 mile downstream of the AA (check)? Comments:	Y ()	N (●)	:141_	l. £1	! 41					
AA subject to periodic floo Entrenchment ratio estima										
14F. Short and Long Term Surface Waupland surface flow, or groundwater flow. 14G.) i. Rating (Working from top to bottom, water durations are as follows: P/P = perfurther definitions of these terms1.)	If nowe use the m	tlands in the	AA are su arrive at	bject to flo [check] the	ooding o	r ponding nal point	i, dick [s and ratir	NA here	and proce	eed to
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic		>5 acre feet			1.1 to	5 acre feet			≤1 acre foot	
flooding or ponding Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	Ī	S/I	T/E	P/P	S/I	T/E
Wattands in AA flood or nond > 5 out of 40 years	1H	.9Н	.8H	.81	1	.6M	.5M	.4M	.3L	.2L

Comments:

Wetlands in AA flood or pond < 5 out of 10 years

Due to the depth of the excavated cells relative to the surrounding uplands, this site is capable of providing a large amount of surface water storage.

.7M

.5M

.4M

.3L

.2L

.7M

.9H

.8H

i. R: = low	ating (working from t	op to bott	om, use t	the matrix t	elow to a	arrive at [check] the function	al points	and rat	ing [H	= high,	M = m	oderate, o
= 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.				nutrien with po	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 Evidence of flooding / ponding in AA				70%	V	< 70%	Val	≥ 70%			Vaa	< 70	
AA co	AA contains no or restricted outlet		Yes 1H	.8H	Yes .7M	.5M	Yes .5N	1	.4N	1	.3L		.2L
AA co	AA contains unrestricted outlet		.9H	.7M	.6M	.4M	.41	<u>-</u> -	.3L		.2L		.1L
14H S	AA has pot Gediment/Shoreline Stage, or on the shoreline	abilization	: (Applies	only if AA o	ccurs on o	r within the bank	s or a river, str	eam, or o	other natu	ıral or n		de	
	ed to 14I.) ating (working from top	to bottom,	use the ma	atrix below to	arrive at	[check] the funct	ional points an	d rating)					
shoreli	ver of wetland streambank of ine by species with stability see Appendix F).		Perman	ent / Perennia		f surface water adja		Ĭ	mporary / I	Epheme	ral		
≥ 65%				1H		.9H .7M			.				
35-64%	%			.7M		.6M			.51	М			
< 35%	1			.3L		.2L			.1	L			
<u>i. l</u>	l. Production Export/F	Food Chair	n Support	: Idlife and fisl									
	eneral Fish Habitat Rating (14D.iii.)	E/H	eneral Wil	dlife Habita M	t Rating (1	L							
	E/H			н		М							
-		Н											
	М	н		М		М							
	L	Н		М		L							
wetlar subsu		H M H o to bottom c; Factor B ree rows per	= level of lertain to du	M M natrix below biological acuration of sui	tivity rating	L L t [check] the fund	l.i.); Factor C =	whether	or not the	e AA co	ntains a	surface	e or
wetlar subsu [see in A B	L N/A ating (Working from top nd component in the AA urface outlet; the final the nstructions for further de Vegetated or High M.	H M H o to bottom x; Factor B ree rows pe efinitions of mponent >5 a oderate	= level of lertain to du f these terrores Low	M M matrix below biological acuration of surms].	tivity rating face wate Vegeta High	L L [check] the fund from above (14 r in the AA, when ated component 1-5 a Moderate	I.i.); Factor C = re P/P, S/I, and cres	whether T/E are a	or not the as previo	e AA co usly de ated com Mode	ontains a fined, ar ponent <1 a erate	a surface nd A = "a acre	e or absent"
wetlar subsu [see in	ating (Working from top and component in the AA arface outlet; the final the next outlet;	H M H o to bottom x; Factor B ree rows perfinitions of the state of	= level of lertain to dufthese terrores Low Yes	M M matrix below biological acuration of surms].)	tivity rating face water Vegeta High No	t [check] the fund from above (14 r in the AA, wher ated component 1-5 a Moderate Yes No	Li.); Factor C = ee P/P, S/I, and cres	whether T/E are a	or not the as previo	e AA cously de ated com	ontains a fined, ar ponent <1 a erate No	a surface and A = "a acre L Yes	e or absent"
wetlar subsu [see ii A B C	L N/A ating (Working from top and component in the AA arface outlet; the final the netructions for further developed to the structions for further developed to the struction of the struction	H M H O to bottom ; Factor B ree rows perinitions of mponent >5 and oderate No .5M	= level of lertain to du f these terr cres Low Yes .6M	M M M M M M M M M M M M M M M M M M M	tivity rating face water Veget: High No .6M .6M	t [check] the function of from above (14 r in the AA, where we have a ted component 1-5 a Moderate Yes No	Li.); Factor C = e P/P, S/I, and cres Low Yes No .5M .3L	whether T/E are a	or not the as previo	e AA cously de ated com Mode Yes .6M	ontains a fined, ar ponent <1 a erate No	a surface and A = "; acre L Yes .3L	e or absent"
wetlar subsu [see ii A B C	ating (Working from top and component in the AA arface outlet; the final the next outlet;	H M H o to bottom x; Factor B ree rows prefinitions of mponent >5 a oderate No .5M	= level of lertain to du f these terrores Low Yes .6M .5M	M M matrix below biological acuration of surms].)	tivity rating face water Vegeta High No	t [check] the fund from above (14 r in the AA, wher ated component 1-5 a Moderate Yes No	Li.); Factor C = ee P/P, S/I, and cres	whether T/E are a	or not the as previo	e AA cously de ated com	ontains a fined, ar ponent <1 a erate No	a surface and A = "a acre L Yes	e or absent"
wetlar subsu [see in A B C P/P S/I T/E/A Siii. Moolant cocontrol) a) /s the control a) /s the control a)	L N/A ating (Working from top nd component in the AA urface outlet; the final the nstructions for further downstructions for f	H M H O to bottom x; Factor B ree rows pe efinitions of mponent >5 a oderate No .5M .4M .3L Modified s ed or ANVS	= level of lettain to du f these terricres Low Yes	M M M M M M M M M M M M M M M M M M M	Vegeted No .5M .4M .4M .4M .4M .4M .4M .4M .4M .4M .4	t [check] the funnt from above (14 r in the AA, where the triangle of the AA circ.	Li.); Factor C = e P/P, S/I, and cres Low Yes No .5M .3L .4M .2L .3L .1L	whether T/E are a High High High High High High High High	veget No SM	e AA ccusly de ated com Mode Yes .6M .4M	ontains a fined, ar fined,	a surface and A = "; acre L Yes .3L .3L	e or absent"

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) i. Discharge Indicators ii. Recharge Indicators Permeable substrate present without underlying impeding layer The AA is a slope wetland Springs or seeps are known or observed Wetland contains inlet but no outlet Vegetation growing during dormant season/drought Stream is a known 'losing' stream; discharge volume decreases Wetland occurs at the toe of a natural slope Other: 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: iii. Rating (use the information from i and ii above and the table below to arrive at [check] the functional points and rating) Duration of saturation at AA Wetlands <u>FROM GROUNDWATER</u> <u>DISCHARGE OR WITH WATER</u> THAT IS RECHARGING THE GROUNDWATER SYSTEM Criteria P/P S/I None Groundwater Discharge or Recharge 1H .4M .1L .7M Insufficient Data/Information Comments: The site was designed to have excavated wetland cells that utilize a high groundwater table as the primary source of wetland 14K. Uniqueness: i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating) AA does not contain previously AA contains fen, bog, warm springs cited rare types and structural AA does not contain previously Replacement potential or mature (>80 yr-old) forested diversity (#13) is high or contains cited rare types or associations wetland or plant association listed and structural diversity (#13) is plant association listed as "S2" by as "S1" by the MTNHP the MTNHP low-moderate Estimated relative abundant abundant abundant commo common rare rare common rare abundance (#11) Low disturbance at AA 1H .9H H8. .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H .8H .7M .7M .5M .4M .4M .2L .3L AA (#12i) High disturbance at AA .3L .8H .7H .6M .6M .4M .3L .2L .1L (#12i) Comments: Wetland type is common in the Bighorn River floodplain. 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 $N\bigcirc$ (if 'Yes' continue with the evaluation; if 'No' then click NA here and proceed to the overall summary and rating page) 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) 15H .2H Private ownership with general public access (no permission required) .15H .1M Private or public ownership without general public access, or requiring permission for public access .1M .05L Comments: Site owned by MFWP and part of larger Grant Marsh WMA property. **General Site Notes** In 2021, as a result of severe drought conditions, this site was significantly dewatered and displayed a reduction in vegetative cover from obligate wetland plant species.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): JTX Tunnicliff

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1	0.00	
B. MT Natural Heritage Program Species Habitat	М	.6	1	4.91	
C. General Wildlife Habitat	М	.7	1	5.73	✓
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	М	.6	1	4.91	
F. Short and Long Term Surface Water Storage	Н	.9	1	7.36	✓
G. Sediment/Nutrient/Toxicant Removal	Н	1	1	8.18	V
H. Sediment/Shoreline Stabilization	NA	0	0	0.00	
Production Export/Food Chain Support	М	.5	1	4.09	
J. Groundwater Discharge/Recharge	М	.7	1	5.73	✓
K. Uniqueness	L	.3	1	2.45	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	1.64	
Totals:		5.5	9	44.99	
Percent of Possible Score			61.11 %		

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 "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)

|--|

Table B-1. JTX Tunnicliff Wetland Mitigation Site. Comprehensive Vegetation Species List 2017-2021

Scientific Names	Common Names	GP Indicator Status ^(a)		
Acer negundo	Box Elder	FAC		
Acroptilon repens	Russian Knapweed	UPL		
Agropyron cristatum	Crested Wheatgrass	UPL		
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FACW		
Arctium lappa	Greater Burdock	UPL		
Asclepias speciosa	Showy Milkweed	FAC		
Bassia scoparia	Mexican-Fireweed	FACU		
Beckmannia syzigachne	American Slough Grass	OBL		
Brassica sp.	Mustard sp.	NA		
Bromus arvensis (japonicus)	Field Brome	FACU		
Bromus ciliatus	Fringed Brome	FAC		
Bromus inermis	Smooth Brome	UPL		
Carex sp.	Sedge	NA		
Chenopodium album	Lamb's-Quarters	FACU		
Chenopodium glaucum	Oak-Leaf Goosefoot	FAC		
Chenopodium rubrum	Red Goosefoot	OBL		
Cirsium arvense	Canadian Thistle	FACU		
Convolvulus arvensis	Field Bindweed	UPL		
Crataegus douglasii	Douglas Hawthorne	FAC		
Cynoglossum officinale	Gypsy-Flower	FACU		
Dactylis glomerata	Orchardgrass	FACU		
Distichlis spicata	Coastal Salt Grass	FACW		
Echinocystis lobata	Wild Cucumber	FAC		
Elaeagnus angustifolia	Russian-Olive	FACU		
Elaeagnus commutata	Silverberry	UPL		
Eleocharis palustris	Common Spike-Rush	OBL		
Elymus hispidus	Intermediate Wheatgrass	UPL		
Elymus repens	Creeping Wild Rye	FACU		
Elymus trachycaulus	Slender Wild Rye	FACU		
Equisetum arvense	Field Horsetail	FAC		
Fraxinus pennsylvanica	Green Ash	FAC		
Galium aparine	Sticky-Willy	FACU		
Glycyrrhiza lepidota	American Licorice	FACU		
Hordeum jubatum	Fox-Tail Barley	FACW		
Iva axillaris	Deer-root	FAC		
Juncus balticus	Baltic rush	FACW		
Juncus torreyi	Torrey's Rush	FACW		
Lepidium perfoliatum	Clasping Pepperwort	FAC		
Leymus cinereus	Great Basin Lyme Grass	UPL		
Medicago lupulina	Black Medick	FACU		
Medicago sativa	Alfalfa	UPL		

Table B-1. JTX Tunnicliff Wetland Mitigation Site. Comprehensive Vegetation Species List 2017-2021

Scientific Names	Common Names	GP Indicator Status ^(a)
Melilotis albus	White Sweet-Clover	UPL
Melilotis officinalis	Yellow Sweet-Clover	FACU
Pascopyrum smithii	Western Wheatgrass	FACU
Poa pratensis	Kentucky Blue Grass	FACU
Poa secunda	Curly Blue Grass	FACU
Populus deltoides	Eastern Cottonwood	FAC
Prunus virginiana	Common Chokecherry	FACU
Puccinellia nuttaliana	Nutall's Alkali Grass	OBL
Quercus macrocarpa	Bur Oak	FACU
Rosa woodsii	Wood's Rose	FACU
Rumex crispus	Curly Dock	FAC
Salix fragilis	Crack Willow	FAC
Schedonorus pratensis	False Meadow Rye	FACU
Shepherdia argentea	Silver Buffalo-Berry	UPL
Schoenoplectus acutus	Hard-Stem Club-Rush	OBL
Schoenoplectus americanus	Chairmaker's Club-rush	OBL
Schoenoplectus maritimus	Saltmarsh Club-rush	OBL
Schoenoplectus pungens	Three-Square	OBL
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sporobolus airoides	Alkali-sacaton	FAC
Symphoricarpos albus	Common Snowberry	UPL
Taraxacum officinale	Common Dandelion	FACU
Thinopyrum ponticum	Tall Wheatgrass	UPL
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium fragiferum	Strawberry-head Clover	FAC
Trifolium repens	White Clover	FACU
Typha angustifolia	Narrow-leaf Cat-tail	OBL
Typha latifolia	Broad-leaf Cat-tail	OBL
Xanthium strumarium	Rough Cockleburr	FAC

⁽a) 2018 NWPL (USACE 2018)

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

APPENDIX C PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring JTX – Tunnicliff Ranch Big Horn County, Montana



Photo Point: 1 Bearing: 320 degrees

Location: Looking NW at Cell 4 Year: 2016



Photo Point: 1 Bearing: 320 degrees

Location: Looking NW at Cell 4 Year: 2021



Photo Point: 1 Location: Looking east across property Bearing: 270 degrees Year: 2016



Photo Point: 1 Location: Looking east across property Bearing: 270 degrees Year: 2021



Photo Point: 1 Bearing: 220 degrees

Location: Looking SW at Cell 5 Year: 2016



Photo Point: 1 Bearing: 220 degrees

Location: Looking SW at Cell 5 Year: 2021



Photo Point: 2 Bearing: 315 degrees

Location: Looking NW at Cell 9 Year: 2016



Photo Point: 2 Bearing: 315 degrees

Location: Looking NW at Cell 9 Year: 2021



Photo Point: 2 Bearing: 0 degrees

Location: Looking North at Cell 8/9 Year: 2016



Photo Point: 2 Location: Looking North at Cell 8/9 Bearing: 0 degrees Year: 2021



Photo Point: 2 Bearing: 45 degrees

Location: Looking NE at Cell 8 Year: 2016



Photo Point: 2

Location: Looking NE at Cell 8

Bearing: 45 degrees Year: 2021



Photo Point: 3 Bearing: 140 degrees

Location: Looking SE at Cell 13 Year: 2016



Photo Point: 3 Bearing: 140 degrees

Location: Looking SE at Cell 13 Year: 2021



Photo Point: 3 Bearing: 100 degrees

Location: Looking East at Cell 13 Year: 2016



Photo Point: 3 Bearing: 100 degrees

Location: Looking East at Cell 13 Year: 2021



Photo Point: 3 Location: W side of property Looking NE Bearing: 45 degrees Year: 2016



Photo Point: 3 Location: W side of property Looking NE Bearing: 45 degrees Year: 2021



Photo Point: 4 Bearing: 105 degrees

Location: Looking East at Cell 3 Year: 2016



Photo Point: 4 Bearing: 105 degrees

Location: Looking East at Cell 3 Year: 2021



Photo Point: 4 Bearing: 160 degrees

Location: Looking South at Cell 3 Year: 2016



Photo Point: 4 Location: Looking South at Cell 3 Bearing: 160 degrees Year: 2021



Photo Point: 4 Bearing: 240 degrees

Location: Looking West at Cell 2

Year: 2016



Photo Point: 4 Bearing: 240 degrees

Location: Looking West at Cell 2

JTX Tunnicliff: 2021 Transect Photographs



Transect 1: Start Bearing: 230 degrees

Location: SE corner of property Year: 2016



Transect 1: Start Bearing: 230 degrees

Location: SE corner of property Year: 2021



Transect 1: End Bearing: 50 degrees

Location: SE corner of property Year: 2016



Transect 1: End Bearing: 50 degrees

Location: SE corner of property Year: 2021



Transect 2: Start Bearing: 350 degrees

Location: West side of property Year: 2016



Transect 2: Start Bearing: 350 degrees

Location: West side of property



Transect 2: End Bearing: 170 degrees

Location: West side of property Year: 2016



Transect 2: End Bearing: 170 degrees

Location: West side of property Year: 2021



Data Point: DP01w Year: 2021

Location: Cell 4



Data Point: DP01u Year: 2021

Location: Cell 4



Data Point: DP02w Year: 2021

Location: Cell 5



Data Point: DP02u

Location: Cell 5



Data Point: DP03w Year: 2021



Data Point: DP03u Year: 2021

Location: Cell 6



Data Point: DP04w Year: 2021



Data Point: DP04u Year: 2021

Location: Cell 7



Data Point: DP05w Year: 2021

Location: Cell 8/9

Location: Cell 6



Data Point: DP05u

Location: Cell 8/9



Data Point: DP06w



Data Point: D06u Year: 2021



Data Point: DP07w Year: 2021



Location: Cell 1

Location: Cell 10/11



Data Point: DP07u cell 1 within 2020 burn area



Data Point: DP08w Year: 2021

Location: Cell 2



Data Point: DP08u

Year: 2021

Location: Cell 2



Data Point: DP09w Year: 2021



Location: Cell 3



Data Point: DP09u Year: 2021





Data Point: DP10w Year: 2021



Location: Cell 12/13



Data Point: DP10u Year: 2021

Location: Cell 12/13