#### Montana Department of Transportation Wetland Mitigation Monitoring Report

## SILICON MOUNTAIN MITIGATION SITE

**Project Overview** 

**MDT Project Number:** STPX 47 (024) 56 UPN# 5034

Watershed: Watershed #2 – Upper Clark Fork of the Columbia River

**Monitoring Year: 2021** 

Years Monitored: 7th year of monitoring

Corps Permit Number: NWO-2012-01822-MTH

Stream Protection Act (SPA) Number: MDT-R2-74-201 Monitoring Conducted By: Confluence Consulting Inc Dates Monitoring Was Conducted: June 29-30, 2021

**Purpose of the Approved Project:** 

The Silicon Mountain wetland mitigation project was developed cooperatively by the Montana Department of Transportation (MDT) and Butte – Silver Bow County (BSBC) to provide MDT with 11.45 acres of compensatory wetland mitigation credits and 12,369 stream mitigation credits for wetland and stream impacts associated with Butte Silver Bow County's Silicon Tech Park and Port bridge/road realignment project and impacts associated with future Montana Department of Transportation (MDT) project-related wetland and stream impacts in Watershed #2 – Upper Clark Fork River. The mitigation project is intended to: (a) establish 6.77 acres of emergent and scrub/shrub wetland by excavating and creating six wetland cells; (b) protect 10.06 acres of existing emergent and scrub/shrub wetland; (c) restore upland, wetland, and riparian areas that were impacted by the new bridge/roadway alignment via seeding and planting of mostly native graminoids, shrubs, and trees; (d) restore and reconstruct approximately 3,250 linear feet of the Sand Creek channel to its historic natural condition; and (e) relocate and restore approximately 650 linear feet of the Sand Creek channel on 2.04 acres of privately owned property south of the MDT bridge/road realignment project.

**Site Location:** 

Latitude: 45.998489 Longitude: -112.662948

County: Butte Silver Bow Nearest Town: Rocker, MT

Map Included: Figure 1 on page #10

Mitigation Site Construction Started: 2013 Construction Ended: 2015

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

Activity: Weed Spraying Date: October 2021 Specific recommendations for any additional corrective

actions: Weed treatment will continue in 2022.

**Anticipated Wetland Credit Acres: 11.45** 

Wetland Credit Acres Generated to Date: 12.99

**Anticipated Stream Credits: 12,369.50** 

Stream Credits Generated to Date: 12,369.50

**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).

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

**Performance Standards:** A summary of performance standards, associated success criteria, and 2021 achievement status for the Silicon Mountain site is provided in Table 1.

**Table 1. Summary of Performance Standards** 

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
Wetland Characteristics	The three parameter criteria for hydrology, vegetation, and soils are met as outlined in the 1987 Wetland Manual and 2010 Regional Supplement.	Y	Areas that are identified as wetland habitat within the mitigation site meet the three parameter criteria.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Y	Areas that are identified as wetland habitat within the mitigation site exhibit soil saturation for at least 12.5 percent of the growing season.
	Hydric soil conditions are present or appear to be forming.	Υ	Hydric soil characteristics have developed throughout all constructed wetlands.
Hydric Soil	Soil is sufficiently stable to prevent erosion.	Υ	Disturbed soil is stable and generally does not exhibit signs of erosion.
	Soil is able to support plant cover.	Υ	Plant cover is establishing well within developed wetlands.
Hydrophytic	Success is achieved where combined absolute cover of facultative or wetter species is ≥ 70 percent.	Y	Established wetland cells support 70 percent or greater cover of hydrophytic vegetation (OBL, FACW, and FAC).
Vegetation	State-listed noxious weeds do not exceed 10 percent absolute cover.	Y	Montana state-listed noxious weeds are estimated at 2 percent absolute cover within wetland areas.
Channel- Restoration	Revegetation along the new Sand Creek channel corridor will be considered successful when banks are vegetated with a majority of deep- rooting riparian and wetland herbaceous and woody plant species.	Y	The majority of stream bank vegetation along the constructed Sand Creek channel corridor is dominated by vegetation communities with stability ratings greater than or equal to 6.
Success	The intent of the stream restoration is to allow for the stream to naturally migrate within the floodplain and to allow it to freely move and stabilize itself within the site.	Y	The stream has plenty of space within the floodplain for natural migration. The stream currently appears to be stable with no lateral adjustment observed after construction.
Stream Bank Vegetation	Banks are vegetated with a majority of deep-rooting riparian plant species that have root-stability indexes ≥ 6.	Υ	The majority of stream bank vegetation along the constructed Sand Creek channel corridor is dominated by vegetation communities with stability ratings greater than or equal to 6.
Open Water	The project is intended to provide seasonal open water during the spring and early summer within excavated depressions. As the growing season progresses and the groundwater levels recede, vegetation is expected to germinate within the majority of the depressions. Open water with submerged and/or floating vegetation will, therefore, be considered successful and creditable.	Υ	In 2021, wetland Cells 2, 3, and a portion of 4 exhibited rooted hydrophytic vegetation and evidence of seasonal open water earlier in the spring. Wetland Cells 1, 5, the northern portion of 4, and portion of WL-13 appear to support perennial inundation and exhibit an aquatic macrophyte community.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
	Noxious weeds do not exceed 10 percent cover within upland buffer area.	Y	Noxious weed cover is approximately 2 percent within the upland buffer.
Upland Buffer	Any area that was disturbed within the creditable buffer zone must have at least 50 percent aerial cover of nonweed species by the end of the monitoring period.		Disturbed areas have established greater than 50 percent cover by non-noxious weed species.
Weed Control	Control measures will be based on annual monitoring of the site to determine weed species and the degree of infestation within the site; control measures based on the monitoring results will be implemented by MDT to minimize and/or eliminate the intrusion of state-listed noxious weed species within the site.	Υ	State-listed noxious weed species across the site have been monitored and mapped during each post-construction monitoring event. Noxious weeds were sprayed in October 2021 by MDT's contractor. The contractor was scheduled to spray the site in July, but due to Stage 2 fire restrictions on state lands, it was delayed until the fall. MDT administers on-going weed-control efforts and will continue, as needed, to reduce existing noxious weed infestations. Montana state-listed noxious weeds are estimated at 4 percent absolute cover across the entire site.

#### **Summary Data**

Wetland Delineation — The total wetland acreage delineated in 2021, including pre-existing wetland areas, was 18.07 acres (Table 2; Appendix A), which is an increase of 2.38 acres since 2020. The delineation confirmed 8.42 acres of established wetland in and adjacent to the excavated cells and stream channel, and 9.7 acres in the preserved wetland areas (Table 2). In 2020, the USACE (N. Green, personal communication, May 6, 2020) provided guidance on open water, defining it as "areas of open water of any depth with less than 5% rooted emergent vegetation, no vegetation, submerged non-rooted vegetation, and/or submerged vegetation rooted in the substrate that does not extend above the water surface." In accordance with this recent USACE guidance, open water accounted for 3.24 acres of the mitigation site in 2021 (Table 2). Mudflat was observed for the first time at this site in 2021, in areas within preserved wetland cell 13 that were mapped as open water in 2020. The increase in total wetland acreage observed in 2021 is primarily a result of newly developed wetland areas adjacent to wetland cells 1, 2, and the Sand Creek channel. Uplands accounted for approximately 26.85 acres of the mitigation site and the remaining 1.7 acres are represented by the restored Sand Creek channel (Figure A-3, Appendix A).

Table 2. Upland, Wetland & Aquatic Habitat Acreage Delineated at the Silicon Mountain Site From 2016 to 2021

Habitat Type	2016 Acreage	2017 Acreage	2018 Acreage	2019 Acreage	2020 Acreage	2021 Acreage
Uplands	31.80	31.30	30.50	30.10	28.96	26.85
Total Wetland & Aquatic Habitat	18.30	18.80	19.60	20.00	21.14	23.25
Establishment (Creation)	6.30	6.30	7.10	7.50	6.04	8.42
Preservation	10.30	10.80	10.80	10.80	9.65	9.65
Open Water					3.75	3.24
Mudflat					0.00	0.24
Stream Channel	1.70	1.70	1.70	1.70	1.70	1.70

Project Area = 50.10 Acres

**Vegetation** – A total of 178 plant species have been identified at the site from 2015 through 2021, including one new species in 2021, thread-leaved sedge (*Carex filifolia*). Vegetation communities were identified by species composition and dominance. The following eight wetland and six upland community types were identified and mapped at the mitigation site in 2021:

- Upland Type 2 Descurainia sophia/Thlaspi arvense
- Upland Type 3 Bromus inermis/Poa pratensis
- Upland Type 5 *Elymus repens/Bromus inermis*
- Upland Type 10 Artemisia tridentata/Poa spp.
- Upland Type 13 Leymus cinereus/Elymus trachycaulus
- Upland Type 15 Poa pratensis/Elymus repens
- Wetland Type 4 Carex spp./Juncus balticus
- Wetland Type 7 Open Water/Aquatic Macrophytes
- Wetland Type 8 Salix exigua/Juncus balticus
- Wetland Type 9 Juncus balticus/Elymus repens
- Wetland Type 11 Typha latifolia
- Wetland Type 14 Eleocharis palustris/Deschampsia caespitosa
- Wetland Type 16 Juncus balticus/Eleocharis palustris
- Wetland Type 17 Salix spp.

The community composition for each community type (CT) is provided in full detail on the Wetland Mitigation Site Monitoring form (Appendix B), and the community boundaries shown on Figure A-3 (Appendix A). A small portion of upland CT 13 remains the primary CT observed in a newly established wetland area within and surrounding wetland cell 6 in the western part of the project area. Upland CT 13 will be reevaluated in this newly established wetland area and split into a new wetland CT during the 2022 monitoring event.

Vegetation cover was measured along two belt transects (T-1 and T-2) in 2021 (Figure A-2, Appendix A). Photographs of the transect end points are provided in Appendix C. Table 3 summarizes the data for T-1 from 2016 through 2021. T-1 is 564 feet long and intersects CT 3, 11, 13, and 16. Hydrophytic vegetation accounted for 86 percent of the transect in 2021. There was no change in transect intervals, total cover, and minimal change in species presence and their associated cover classes between 2020 and 2021. In 2021, areas observed as shallow standing water within CT 11 along this transect in 2020, were instead saturated to the ground surface.

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

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	564	564	564	564	564	564
Vegetation Community Transitions Along Transect	6	6	6	6	6	6
Vegetation Communities Along Transect	4	4	5	5	4	4
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	2	2
Total Vegetative Species	48	54	42	43	47	46
Total Hydrophytic Species	26	33	28	31	35	35
Total Upland Species	22	21	14	12	12	11
Estimated % Total Vegetative Cover	90	90	90	93	93	93

Monitoring Year	2016	2017	2018	2019	2020	2021
Estimated % Unvegetated	10	10	10	7	7	7
% Transect Length Comprising Hydrophytic Vegetation Communities	81.3	86.0	86.0	86.0	86.0	86.0
% Transect Length Comprising Upland Vegetation Communities	18.7	14.0	14.0	14.0	14.0	14.0
% Transect Length Comprising Open Water	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Mudflat	0.0	0.0	0.0	0.0	0.0	0.0

Table 4 summarizes the data for T-2 from 2016 through 2021. T-2 is 219 feet long and intersects vegetation community Types 3, 11, 14, and 15. Hydrophytic vegetation accounted for 90 percent of the transect in 2021 which is consistent with observations in 2018 through 2020. Total upland species observed along the transect, decreased minimally during the 2021 monitoring event. Total cover increased by 2 percent in 2021, which included an increase in Baltic rush (*Juncus balticus*) observed within CT 11 and 14.

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

Monitoring Year	2016	2017	2018	2019	2020	2021
Transect Length (feet)	219	219	219	219	219	219
Vegetation Community Transitions Along Transect	2	2	2	3	3	3
Vegetation Communities Along Transect	3	3	3	4	4	4
Hydrophytic Vegetation Communities Along Transect	1	1	1	2	2	2
Total Vegetative Species	21	47	27	35	37	35
Total Hydrophytic Species	10	24	17	19	26	26
Total Upland Species	11	23	10	16	11	9
Estimated % Total Vegetative Cover	45	55	72	87.5	85	87
Estimated % Unvegetated	55	45	28	12.5	15	13
% Transect Length Comprising Hydrophytic Vegetation Communities	88.1	88.1	90.9	90.4	89.5	89.5
% Transect Length Comprising Upland Vegetation Communities	11.9	11.9	9.1	9.6	10.5	10.5
% Transect Length Comprising Open Water	0.0	0.0	0.0	0.0	0.0	0.0
% Transect Length Comprising Mudflat	0.0	0.0	0.0	0.0	0.0	0.0

Priority 2B noxious weeds identified within the Silicon Mountain mitigation site included spotted knapweed (*Centaurea stoebe*), leafy spurge (*Euphorbia esula*), and Canada thistle (*Cirsium arvense*). These infestation areas, ranging from trace to moderate cover classes, were mapped in 2021 and are shown on Figure A-3 in Appendix A. Common tansy (*Tanacetum vulgare*), butter-and-eggs (*Linaria vulgaris*), and Russian knapweed (*Acroptilon repens*), were also observed as isolated individuals in several locations across the site, but were not mapped. Weed control efforts have been effective in decreasing weed infestations from 2020 to 2021. MDT has an ongoing weed-control program, which included weed spraying by contractors in early June 2021, prior to the late June 2021 monitoring event. The site is currently achieving success criteria established for noxious weed cover within wetland and upland buffer areas.

MDT planted an estimated 30,000 willow cuttings and 350 containerized shrubs and trees along the stream banks of the Sand Creek channel, in riparian areas, and in small clusters around the perimeter of the excavated wetland cells. An estimated 17 percent of the containerized woody plantings had survived through the 2021 survey, consistent with that observed in 2020. An estimated 85 percent of the installed willow cuttings had survived; young shoots arising from the installed cuttings ranged from 12 to

60 inches in length. The willow cuttings were healthy and robust, with no signs of insect damage or disease observed.

**Hydrology** – During the 2021 investigation, the average depth of surface water across the site was estimated at 0.5 feet with a range of depths from 0.1 to 4 feet. Open water, totaling 3.24 acres, was present and mapped within constructed Cells 1, 4, and 5 and preserved wetland cell 13. Soils were saturated to the surface within Cells 2 and 3. In 2021, surface soil cracks were present within constructed Cell 6, but no saturation or surface water was observed during the monitoring event. Flowing water was present in the entire length of the Sand Creek channel. Groundwater monitoring by the US Geological Survey (USGS) from 2016 through 2020 indicates increasing groundwater levels across the site. May 2019 and 2020 water levels were the highest recorded to date, at 0.63-ft and 0.85-ft below land surface, respectively. Monitoring efforts in 2021 show groundwater levels in a portion of the site at 1.01 to 2.81 feet below the land surface elevation of 5,347 feet from April through September (Table 5) [USGS, 2021]. The 2021 data indicate groundwater levels at the site, between April and September, were on average slightly lower than 2019 and 2020, higher than 2016 and 2017, and similar to groundwater levels observed in 2018 [USGS, 2021].

2021 Discrete water-level measurements								
Date	Time Mountain Time	Depth to water level, feet below land surface						
4/5/2021	8:38 am	2.23						
5/24/2021	10:02 am	1.01						
8/26/2021	6:32 pm	2.81						

Table 5. 2021 USGS Groundwater Well Data for the Silicon Mountain Site

**Soils** – Paired soil pits were excavated at seven locations (14 pits) to determine the extent of hydric and upland soil development across the site in 2021 (Appendices A and B). Soil textures within wetland test pits ranged from mucky peat to coarse sand to silty clay. Hydric soil indicators were observed in all but two wetland test pits and included depleted matrix, redox dark surface, and hydrogen sulfide. The wetland test pits (i.e., DP02w and DP03w) that lacked hydric soil indicators exhibited hydrologic indicators, including surface water, soil saturation, high water table, oxidized rhizospheres on living roots, geomorphic position, and passing the FAC-neutral test; all dominant plant species were OBL and FACW, and the wetland boundary had an abrupt edge.

Soil textures within upland test pits ranged from loamy sand to sandy clay. No hydric soil indicators were observed in any of the upland test pits. Additional field observations for the 14 data points are provided in the USACE wetland determination data forms in Appendix B.

In 2017, there were a few rills noted on the southern slope of wetland Cell 5, north of the constructed bike path, which resulted in sediment deposition. In 2020 and 2021, perennial vegetation was established within and adjacent to the erosion, and the rills appeared inactive.

**Photographs** – Seven wetland photo points and ten stream photo points were initially established in the project area in 2015 (PP-1 to PP-17; Figure A-2, Appendix A). Photographs of all surveyed channel cross sections, wetland determination data points, and vegetation transect endpoints (T-1 and T-2) are provided in Appendix C, with comparison between 2021 and the first year of monitoring. The locations of these photographs are illustrated on Figure A-2 in Appendix A. Please refer to previous years' monitoring reports for all previous annual photographs

(https://www.mdt.mt.gov/publications/brochures/wetland\_mitigation.shtml).

**Functional Assessment** – The 2008 Montana Wetland Assessment Method (MWAM) form [Berglund and McEldowney, 2008] was used to evaluate the site in 2020 (Table 6; Appendix B). Four distinct

Assessment Areas (AA) were evaluated at the site in 2021 and include AA1 – Established Wetland Cells 2, 3, and 4; AA2 – Established Wetland Cells 1 and 5; AA3 – Preservation Wetlands; and AA4 – Established Wetland Cells 2, 3, and 4 are classified as Category II wetlands and received high ratings for General Wildlife Habitat, Sediment/Shoreline Stabilization, Production Export/Food Chain Support, and Recreation/Education Potential. AA2 – Established Wetland Cells 1 and 5 are classified as Category II wetlands and received an exceptional rating for Production Export/Food Chain Support and high ratings for General Wildlife Habitat, Short- and Long-Term Surface-Water Storage, Sediment/Shoreline Stabilization, Groundwater Discharge/Recharge, and Recreation/Education Potential. AA3 – Preservation Wetlands were also classified as Category II wetlands and received high ratings for General Wildlife Habitat, Short- and Long-Term Surface-Water Storage, and Groundwater Discharge/Recharge, and Recreation/Education Potential. AA4 was rated as a Category III wetland. Functional unit credits, based on the mitigation credit acreage for the site in 2021, is provided in Table 9.

Table 6. Montana Wetland Assessment Method Summary for the Silicon Mountain Site

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	2021 AA 1 (Established Wetland Cells 2, 3, and 4)	2021 AA 2 (Established Wetland Cells 1 and 5)	2021 AA3 (Preservation Wetlands)	2021 AA4 (Established Wetland Cell 6)
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	Low (0.0)	Low (0.0)	Low (0.0)	Low (0.0)
Montana Natural Heritage Program Species (MTNHP) Habitat	Mod (0.5)	Mod (0.5)	Mod (0.5)	Mod (0.5)
General Wildlife Habitat	High (0.9)	High (0.9)	High (0.9)	Mod (0.4)
General Fish/Aquatic Habitat	NA	NA	NA	NA
Flood Attenuation	NA	NA	NA	NA
Short- and Long-Term, Surface-Water Storage	Mod (0.6)	High (0.8)	High (0.8)	Low (0.3)
Sediment/Nutrient/Toxicant Removal	High (1.0)	Mod (0.7)	Mod (0.7)	Mod (0.7)
Sediment/Shoreline Stabilization	Mod (0.6)	High (1.0)	Mod (0.7)	Low (0.2)
Production Export/Food Chain Support	High (0.9)	Exceptional (1.0)	Mod (0.6)	Mod (0.4)
Groundwater Discharge/Recharge	Mod (0.7)	High (1.0)	High (1.0)	Mod (0.7)
Uniqueness	Mod (0.5)	Mod (0.6)	Mod (0.4)	Low (0.3)
Recreation/Education Potential (bonus points)	High (0.2)	High (0.2)	High (0.2)	NA
Actual Points/Possible Points	5.9/9	6.7/9	6.2/9	3.5/9
% of Possible Score Achieved	66%	74%	69%	39%
Overall Category	II	II	II	III
Total Acreage of Assessed Wetlands Within Site Boundaries	3.9	6.3	11.0	0.44

**Wildlife** – Eighteen bird species were identified in 2021 at the Silicon Mountain site and included several wetland-dependent species. In addition to the bird observations, white-tailed deer, a mountain cottontail rabbit, and a common garter snake were also observed (Appendix B).

**Stream Monitoring** – The annual cross section survey of the Sand Creek reconstructed channel revealed horizontal and vertical change since 2020. Cross sections 5 and 7 exhibited downcutting of the thalweg, both surveyed at 0.6-foot lower than in 2020. Cross sections 4 and 7 exhibited minor aggradation and point bar growth in 2021. Cross Section 6 showed the most noticeable shifts from previous years, but in

2021 appeared nearly consistent with the 2020 survey (see Cross Section figures in Appendix D). The section aggraded in 2019 and 2020, while it exhibited scouring in 2017 and 2018. Cross Section 7 (just downstream) appears to serve as the hydraulic control for the reach immediately upstream, likely due to the similar bed elevation and aggradation witnessed in Cross Section 6 in previous years. These annual fluctuations are likely the result of varied relative magnitude in annual spring runoff. Anecdotal evidence suggests that 2017 and 2018 were large runoff years, 2019 and 2021 were smaller runoff years, and 2020 of greater magnitude than 2019 and 2021. Large runoff years generally appear to induce more substantial scouring of pools, and low runoff years generally appear to promote relatively more aggradation.

In 2021, all 16 belt transects monitored along Sand Creek exhibited vegetation communities with stability ratings of 6 or greater, which successfully meets the site's performance criterion. Willow species, including yellow willow (*Salix lutea*), narrow-leaf willow (*Salix exigua*), and Pacific willow (*Salix lasiandra*), represent the dominant community type identified along the stream bank transects. Dominant herbaceous species observed within the willow dominated communities included red-tinge bulrush (*Scripus microcarpus*), Nebraska sedge (*Carex nebrascensis*), and Northwest Territory sedge (*Carex utriculata*). The willows continue to increase in height and width along the stream banks, with minor shifts in species dominance observed during the 2021 monitoring event.

#### Credit Summary - Stream Credits

The goal of the stream mitigation component of the Silicon Mountain project includes restoring approximately 4,300 linear feet of Sand Creek, with 3,900 linear feet considered creditable based on location and design. The project is expected to generate a total of 12,369.50 stream mitigation credits, as shown in Table 7. To date, the project is meeting the two success criteria established for stream mitigation components of the project. Stream cross sections for 2021 are provided in Appendix D and are compared to previous years' monitoring.

Mitigation Reach	Linear Feet	Sum of Mitigation Factors <sup>(a)</sup>	Mitigation Credits
Reach 1	3,250.00	3.20	10,400.00
Reach 2	650.00	3.03	1,969.50
Total	3,900.00		12,369.50

Table 7. 2021 Stream Mitigation Credits for the Silicon Mountain Site

#### Credit Summary – Wetland Credits

In 2021, a total of 32.35 acres were delineated at the Silicon Mountain site, including 8.42 acres of wetland establishment, 9.65 acres of wetland preservation, 10.80 acres of upland buffer, 3.24 acres of open water, and 0.24 acres of mudflat (Table 8).

Applying the USACE-approved ratios to these values, a total of 12.99 acres of mitigation credit are estimated for 2021 (Table 8), which is 1.54 acres greater than the targeted 11.45 acres anticipated at this site. This is the first year the site has not only met but exceeded the anticipated mitigation credit acres.

<sup>(</sup>a) From Table 7 of Silicon Mountain Aquatic Resource Mitigation Plan, Watershed #2 – Upper Clark Fork of the Columbia River, Butte-Silver Bow County, MT [Confluence Consulting, Inc., 2013].

Table 8. Summary of Wetland Mitigation Credits at the Silicon Mountain Site from 2017 through 2021

Compensatory Mitigation Type	Mitigation Area Description	Wetland Type <sup>(b)</sup>	Anticipated Mitigation Surface Area (acres)	USACE- Approved Mitigation Ratios	Anticipated Mitigation Credit (acres)	2017 Delineated Acres	2017 Mitigation Credit (acres)	2018 Delineated Acres	2018 Mitigation Credit (acres)	2019 Delineated Acres	2019 Mitigation Credit (acres)	2020 Delineated Acres	2020 Mitigation Credit (acres)	2021 Delineated Acres	2021 Mitigation Credit (acres)
Establishment (Creation)	Wetland Cells 1, 2, 3, 4, 5 & 6	Palustrine Emergent, Aquatic Bed	6.77	1:1	6.77	6.30	6.30	7.10	7.10	7.5	7.5	6.04	6.04	8.42	8.42
Preservation	Existing Wetland Areas	Palustrine Emergent, Scrub-Shrub	10.06	4:1	2.52	10.8	2.7	10.8	2.7	10.8	2.5	9.65	2.41	9.65	2.41
Upland Buffer	50-Foot-Wide Upland Perimeter	N/A	10.80	5:1	2.16	10.80	2.16	10.80	2.16	10.8	2.16	10.80	2.16	10.80	2.16
Open Water <sup>(a)</sup>	Wetland Cells 1, 4, 5, & 13	Lacustrine/ Palustrine Aquatic Bed	TBD <sup>(a)</sup>	TBD <sup>(a)</sup>	TBD <sup>(a)</sup>	N/A	N/A	N/A	N/A	N/A	N/A	3.75	TBD <sup>(a)</sup>	3.24	TBD <sup>(a)</sup>
Mudflat <sup>(a)</sup>	Preserved Wetland Cell 13	Palustrine Aquatic Bed	TBD <sup>(a)</sup>	TBD <sup>(a)</sup>	TBD <sup>(a)</sup>	N/A	N/A	N/A	N/A	N/A	N/A		TBD <sup>(a)</sup>	0.24	TBD <sup>(a)</sup>
	Totals		27.6		11.45	27.90	11.16	28.7	11.96	29.10	12.16	30.24	10.61	32.35	12.99

<sup>(</sup>a) Mitigation ratios and crediting for Open Water and Mudflat are To Be Determined (TBD).

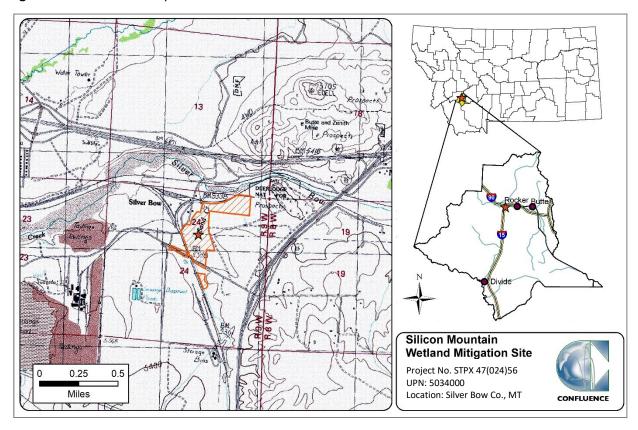
Table 9. 2021 Functional Unit Credits at the Silicon Mountain Site

Mitigation Area Description	2021 Delineated Acres	Ratio	2021 Mitigation Credit Acres	MWAM Actual Points (see Table 6)	Functional Units
Wetland Cell 1 (Establishment)	3.21	1:1	3.21	6.7	21.51
Wetland Cell 2 (Establishment)	1.93	1:1	1.93	5.9	11.39
Wetland Cell 3 (Establishment)	0.67	1:1	0.67	5.9	3.95
Wetland Cell 4 (Establishment)	1.26	1:1	1.26	5.9	7.43
Wetland Cell 5 (Establishment)	0.66	1:1	0.66	6.7	4.42
Wetland Cell 6 (Establishment)	0.44	1:1	0.44	3.5	1.54
Preservation	9.65	4:1	2.41	6.2	14.94
Upland Buffer	10.80	5:1	2.16	N/A	N/A
Functional Unit Credits (Mitigation Credit Acres × Actual Points)					65.18

<sup>(</sup>b) [FGDC, 2013]

# Maps, Plans, Photos

Figure 1. Site Location Map



**Project Area Maps/Figures:** See Appendix A (Figure A-2 – 2021 Monitoring Activity Locations; Figure A-3 – 2021 Mapped Site Features; Figure A-4 – 2021 Wetland Credit Areas; and Figure A-5 – 2021 Wetland Delineation)

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

Plant List: See Appendix B (Table B-1)

Photos: See Appendix C

Channel Cross Sections: See Appendix D

Plans: See Appendix D of 2015 Monitoring Report

https://www.mdt.mt.gov/other/webdata/external/planning/wetlands/2015 REPORTS/2015 Silicon M

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#### Conclusions

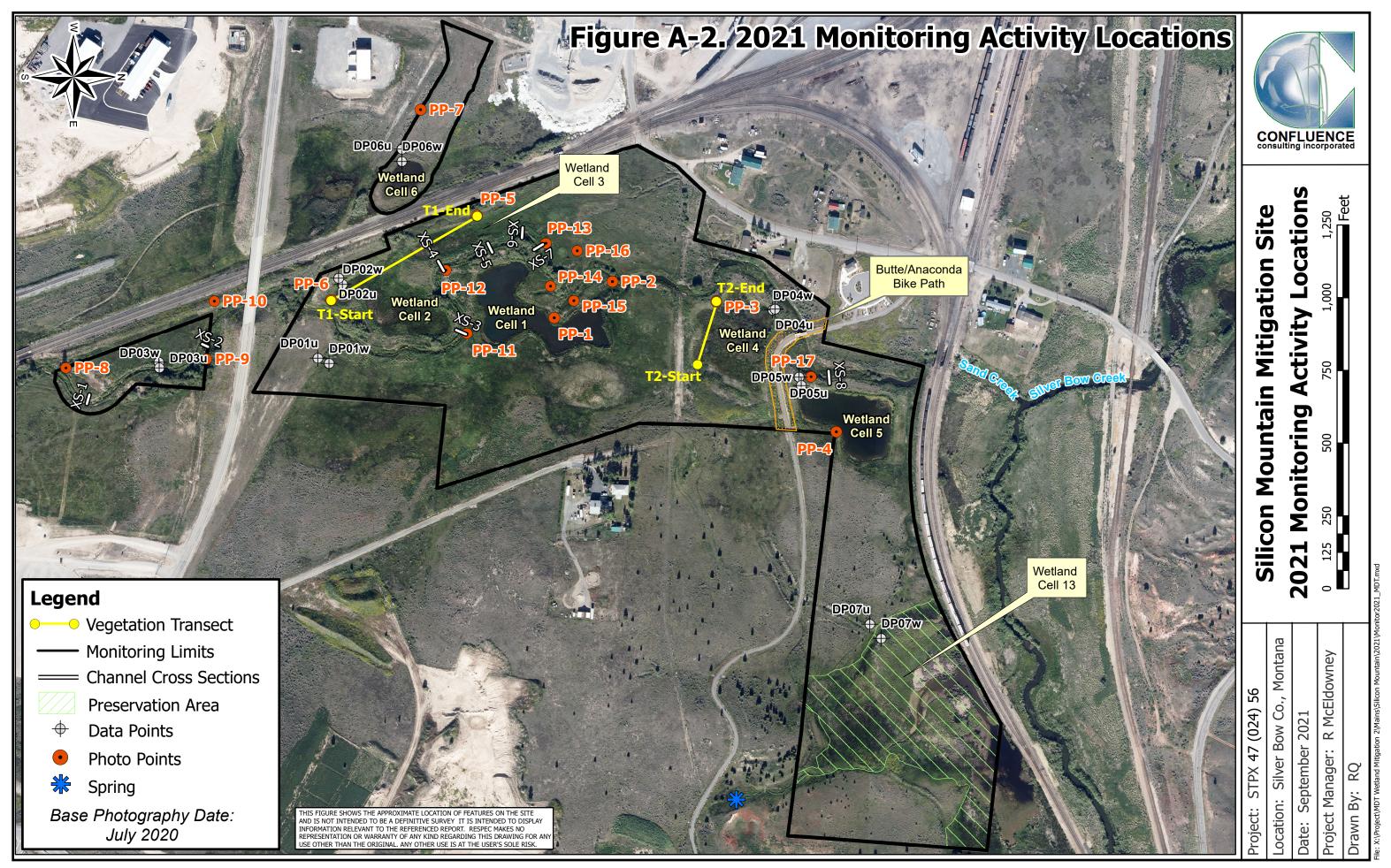
Based on the results of the seventh year of monitoring, the mitigation site continues to develop into a diverse stream and wetland ecosystem. The site is meeting all established performance criteria and has exceeded the anticipated mitigation credit acreage, as documented in Tables 1 and 8, respectively. Wetland cells are developing as intended and wetland acreage continues to increase with each successive monitoring event. The Sand Creek channel is dynamic and continues to develop. Willow cuttings installed along the banks of Sand Creek are doing well and streambanks are stable with thriving woody vegetation communities. At this time, no remedial actions are necessary because the site has continued to develop as intended.

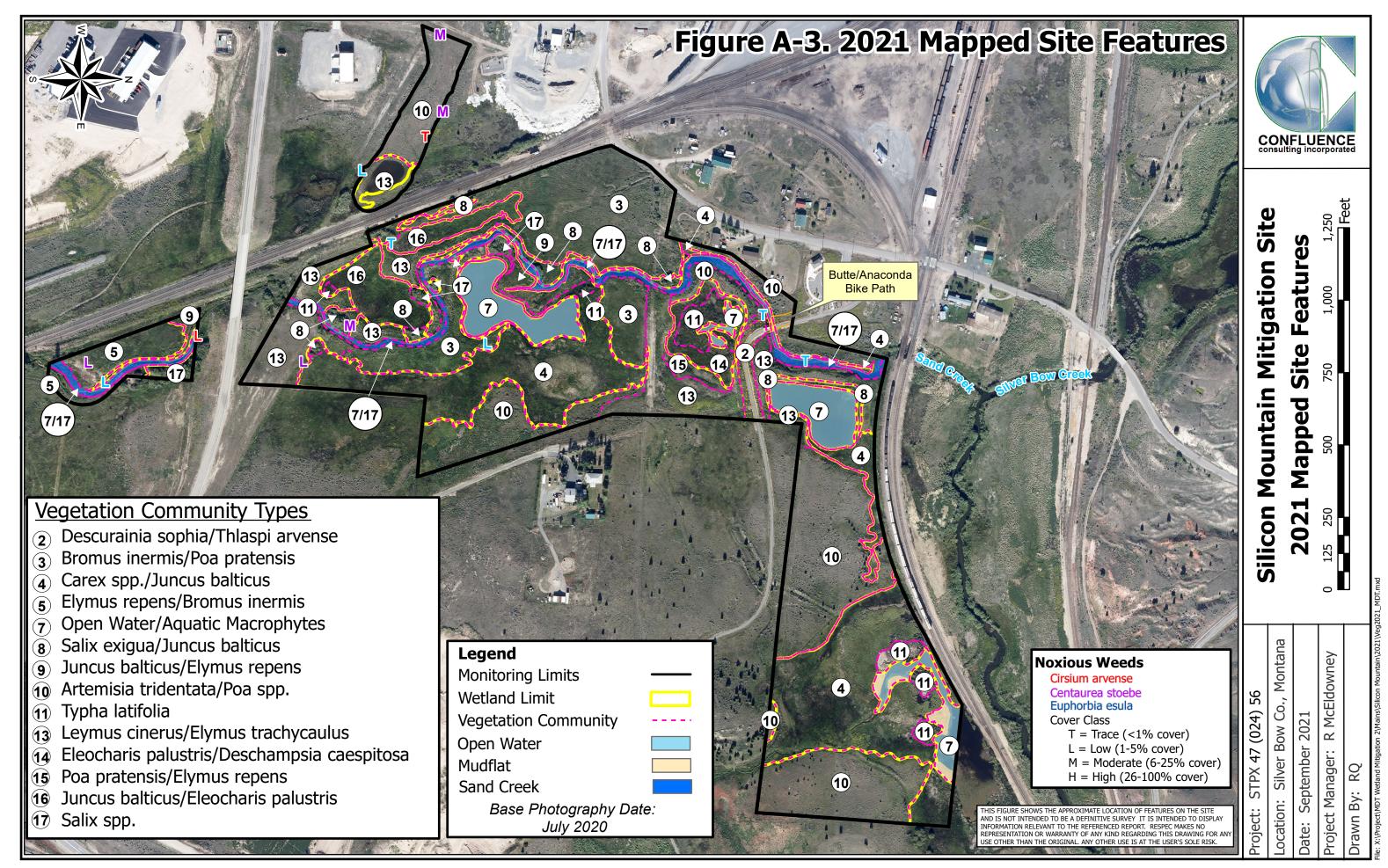
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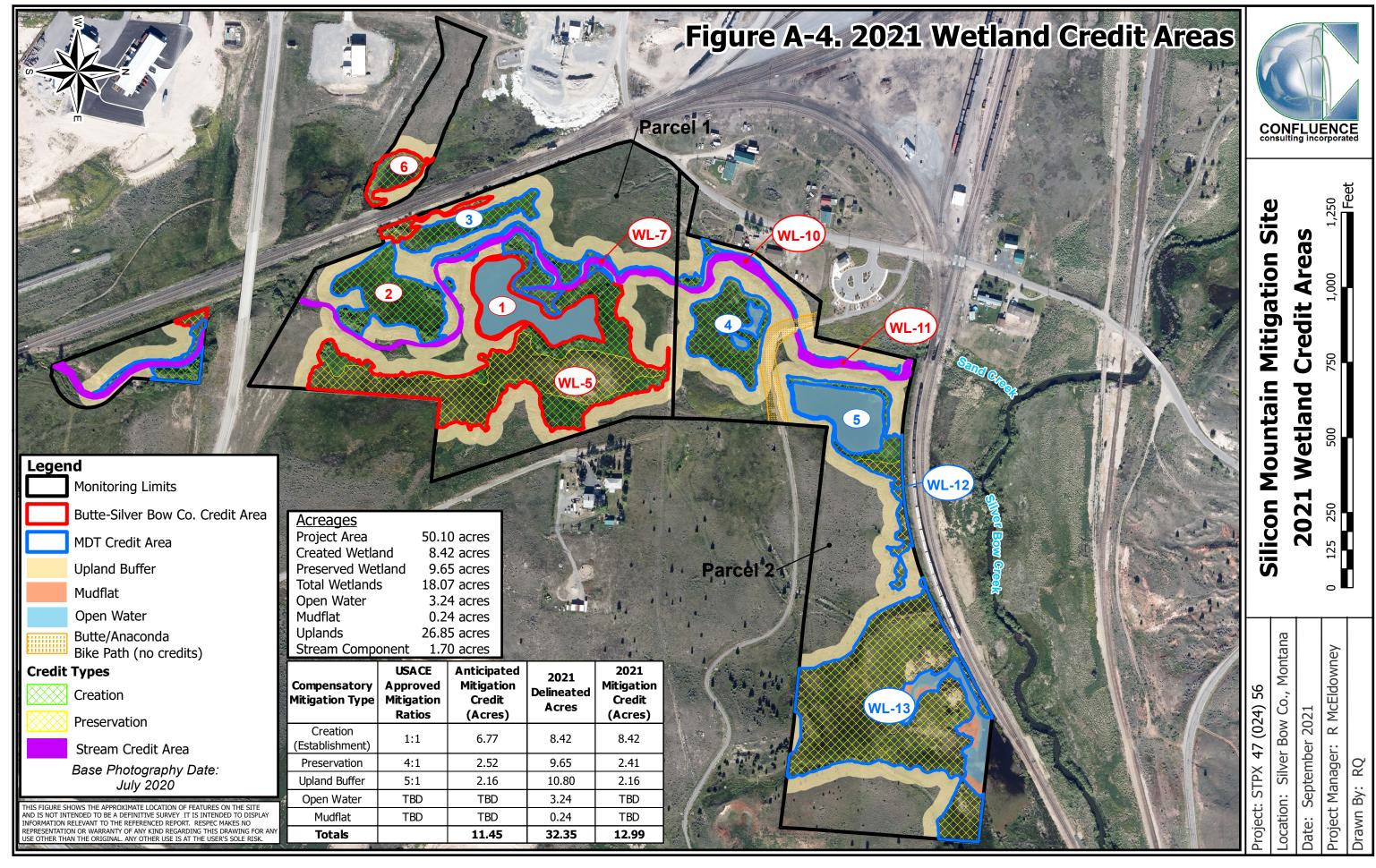
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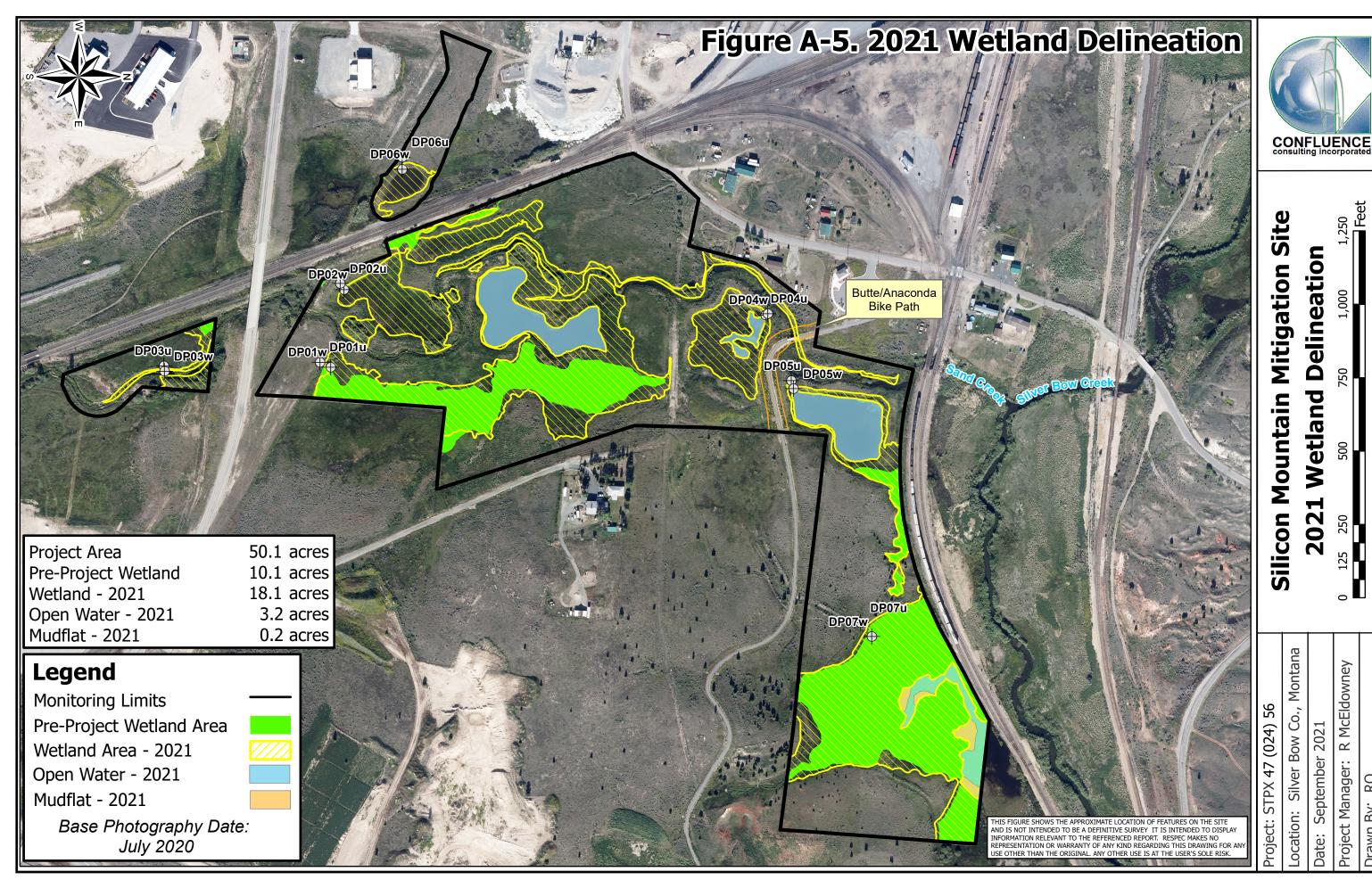
# APPENDIX A PROJECT AREA MAPS

MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana









**Delineation** 

Wetland

2021

# APPENDIX B MONITORING FORMS

MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana

# MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: <u>Silicon Mountain</u> Assessment Date/Time	<u>6/29/2</u> 02
Person(s) conducting the assessment: R Quire, R Jones, S Weyant	
Weather: 85 degrees, sunny, clear Location: 5 miles west of Butte	
MDT District: ButteMilepost: MP 119 on I-15	
Legal Description: T <u>3N</u> R <u>9E</u> Section(s) 24	
Initial Evaluation Date: 6/23/2015 Monitoring Year: 7_#Visits in Year: 1	
Size of Evaluation Area: 50.1 (acres)	
Land use surrounding wetland:	
Mix of commercial (railroad), residential, and parkland (bikeway)	
HYDROLOGY	
Surface Water Source: Sand Creek and a well defined spring.	
Inundation: Average Depth:0.5 (ft) Range of Depths:0.1-4 (ft)	
Percent of assessment area under inundation:15 %	
Depth at emergent vegetation-open water boundary:0.3 (ft)	
If assessment area is not inundated then are the soils saturated within 12 inches of surface:	⁄es_
Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc <u>:</u>	
Wetland soil pits had a high water table and/or were saturated within the upper 12 inches. A positive FAC-neutral test, geomorphic position, surface soil cracks, and sulfidic odor were als observed.	80
Groundwater Monitoring Wells	
Record depth of water surface below ground surface, in feet.	
Well ID Water Surface Depth (ft)	
Additional Activities Checklist:	
☐ Map emergent vegetation-open water boundary on aerial photograph.	
Observe extent of surface water during each site visit and look for evidence of past surface water	
elevations (drift lines, erosion, vegetation staining, etc.)	
Use GPS to survey groundwater monitoring well locations, if present.  Hydrology Notes:	
Two wells onsite that remained after construction are monitored by USGS. Open water was present >90 percent of wetland Cells 1 and 5. Shallow ponded water was present across ~50 percent of Cell 4. Soils were saturated to surface in cells 2 and 3. Flowing water was present entire length of the Sand Creek channel	

#### **VEGETATION COMMUNITIES**

# Site \_Silicon Mountain

(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 # 2 Community Type: Descurainia sophia / Thlaspi arvense Acres: 0.4

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Artemisia tridentata	1
Bassia scoparia	2	Bromus tectorum	2
Camelina microcarpa	2	Descurainia sophia	2
Elymus trachycaulus	1	Lepidium perfoliatum	2
Leymus cinereus	1	Pascopyrum smithii	1
Thlaspi arvense	3		

#### Comments:

Upland community composed of mostly early successional, non-native species commonly found on disturbed landscapes. In 2021 this community type was mapped along the Butte/Anaconda bike path. Minimal change in species richness and cover were observed here between 2020 and 2021. Thlaspi arvense remains the dominant species in this community.

Community # 3 Community Type: Bromus inermis / Poa pratensis Acres: 7.5

Species	Cover class	Species	Cover class
Achillea millefolium	1	Agrostis stolonifera	1
Alopecurus arundinaceus	0	Artemisia tridentata	1
Astragalus cicer	1	Bare Ground	1
Bromus inermis	4	Centaurea stoebe	0
Cirsium arvense	0	Deschampsia caespitosa	0
Elymus repens	3	Elymus trachycaulus	2
Juncus balticus	0	Koeleria macrantha	1
Leymus cinereus	2	Melilotus officinalis	1
Phalaris arundinacea	0	Poa palustris	1
Poa pratensis	3	Poa secunda	1
Potentilla anserina	0	Schedonorus pratensis	1
Solidago gigantea	0	Sonchus arvensis	1
Thlaspi arvense	1	Trifolium hybridum	1

## Comments:

Upland community. In 2021, acreage decreased from 8.4 to 7.5 acres. This upland CT was replaced by wetland CT 9 and 17 just west of wetland cell 1, in a newly delineated wetland area. Both Bromus inermis and Poa pratensis had decreased in these new wetland areas, and were replaced by a dominance of Juncus balticus, Elymus repens, and Salix spp.

Community # 4 Community Type: Carex spp. / Juncus balticus Acres: 11.37

Species	Cover class	Species	Cover class
Calamagrostis canadensis	1	Carex aquatilis	2
Carex nebrascensis	3	Carex praticola	1
Carex utriculata	2	Cirsium arvense	0
Deschampsia caespitosa	2	Juncus balticus	4
Mentha arvensis	1	Poa palustris	1
Poa pratensis	2	Potentilla anserina	2
Typha latifolia	1		

#### Comments:

Existing wetland community. In 2021, CT4 and corresponding wetland boundary expanded by 0.4 acres, primarily along the northwestern project boundary, west and adjacent to Sand Creek.

Community # 5 Community Type: Elymus repens / Bromus inermis Acres: 1.29

Species	Cover class	Species	Cover class
Astragalus cicer	1	Bromus inermis	3
Bromus tectorum	1	Cirsium arvense	0
Descurainia sophia	1	Elymus repens	4
Elymus trachycaulus	1	Juncus balticus	3
Leymus cinereus	1	Pascopyrum smithii	2
Poa pratensis	1	Potentilla anserina	1
Salix exigua	1		

#### Comments:

Upland community south of the road alignment and overpass. This upland CT decreased by 0.35 acres in 2021 due to shift in species dominance, from Bromus inermis to Juncus balticus and Salix spp. Increased wetland acreage and wetland CT 9 and 17 replaced portions of this CT in 2021.

Community # 7 Community Type: Open Water / Aquatic macrophytes Acres: 5.19

Species	Cover class	Species	Cover class
Algae, green	3	Beckmannia syzigachne	1
Eleocharis palustris	1	Juncus balticus	1
Lemna minor	1	Mudflat	1
Open Water	5	Typha latifolia	2

### **Comments:**

Within created wetland cells 1, 4, 5, preserved wetland cell 13 in the NE of portion of project area, and within the stream channel. This CT was not observed in created wetland cell 6 in 2021, now replaced by CT 13. In 2021, less than 5% of this community was represented by mudflat, likely a result of the extreme drought much of the state experienced during the 2021 growing season.

Community # 8 Community Type: Salix exigua / Juncus balticus Acres: 0.93

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Calamagrostis canadensis	1	Carex nebrascensis	2
arex pellita	2	Carex utriculata	2
icuta douglasii	1	Eleocharis palustris	2
yceria striata	1	Hordeum jubatum	1
ncus balticus	3	Mentha arvensis	1
lix exigua	4	Salix geyeriana	1
lix lasiandra	1	Salix lutea	1
irpus microcarpus	1		

#### Comments:

Existing wetland west of wetland cell 2. In 2018 - 2020 observed along the northwest and southwest sides of wetland cell 5. In 2021, this CT increased by 0.49-acre, east of wetland cell 2 and south of road alignment and overpass, replacing portions of CT 13 and 5.

Community # 9 Community Type: Juncus balticus / Elymus repens Acres: 1.05

Species	Cover class	Species	Cover class
Bromus inermis	1	Cirsium arvense	0
Elymus repens	3	Epilobium ciliatum	0
Geum macrophyllum	0	Hordeum jubatum	0
Juncus balticus	5	Poa palustris	1
Poa pratensis	3	Potentilla anserina	1
Rumex crispus	0	Salix exigua	1
Solidago gigantea	1	Symphyotrichum lanceolatun	n 1
Thlaspi arvense	1		

#### Comments:

In previous years, this wetland community was observed in a small wetland area in the parcel south of the bridge. It expanded minimally in 2020, and then in 2021 acreage of this CT increased from 0.07 to 1.05 acres.

This wetland CT replaced upland CT 3 just west of wetland cell 1, in a newly delineated wetland area. Bromus inermis had decreased substantially in these new wetland areas, and was replaced by a dominance of Juncus balticus, Elymus repens, and Salix spp.

Community # 10 Community Type: Artemisia tridentata / Poa spp. Acres: 11.64

Species	Cover class	Species	Cover class
Artemisia tridentata	3	Astragalus agrestis	1
Bromus inermis	1	Ericameria nauseosa	1
Hesperostipa comata	1	Juniperus scopulorum	2
Koeleria macrantha	1	Leymus cinereus	1
Pascopyrum smithii	3	Poa pratensis	2
Poa secunda	3	Pseudoroegneria spicata	0
Symphyotrichum falcatum	2		

#### **Comments:**

Upland shrubland. In 2021, acreage decreased by 0.41-acre. Replaced by wetland CT 4 in newly delineated wetland areas located near the northeast and northwest project boundary.

Community # 11 Community Type: Typha latifolia / Acres: 1.35

Species	Cover class	Species	Cover class
Alisma plantago-aquatica	0	Alopecurus aequalis	0
Beckmannia syzigachne	1	Calamagrostis canadensis	1
Carex nebrascensis	1	Cyrtorhyncha cymbalaria	1
Deschampsia caespitosa	1	Eleocharis palustris	2
Glyceria grandis	1	Juncus balticus	1
Juncus bufonius	1	Juncus effusus	1
Mentha arvensis	1	Mud Flats	1
Open Water	3	Poa palustris	0
Potentilla anserina	1	Ranunculus sceleratus	0
Salix lasiandra	0	Salix lutea	1
Schoenoplectus tabernaemor	nt 2	Scirpus microcarpus	1
Typha latifolia	5		

### **Comments:**

In 2018, a portion of wetland cell 4 transitioned to a dominance of Typha latifolia. In 2019 CT 11 increased in size across wetland cell 4, replacing portions of CT 14. In 2020, expanded CT11 in existing wetland WL-13 at northeast project boundary. In 2021, CT 11 decreased by 0.12-acre in wetland cell 4, replaced by wetland CT 14.

Community #	13	<b>Community Type:</b>	Leymus cinereus / Elymus trachycaulus	<b>Acres:</b> 6.1	13

Species	Cover class	Species	Cover class
Astragalus cicer	1	Bare Ground	1
Bromus inermis	1	Camelina microcarpa	0
Cirsium arvense	1	Elymus repens	1
Elymus trachycaulus	3	Epilobium ciliatum	0
Euphorbia esula	0	Festuca ovina	1
Hordeum jubatum	1	Juncus balticus	1
epidium draba	0	Leymus cinereus	4
lelilotus officinalis	1	Poa palustris	1
oa pratensis	2	Poa secunda	1
Potentilla anserina	0	Silene latifolia	0
Sonchus arvensis	0	Thlaspi arvense	1
rifolium longipes	1		

# Comments:

Community dominated by FAC graminoids, located in upland areas around wetland cells 4 and 5. Also located in area delineated as wetland in and around cell 6.

Community #	14	Community Type:	Eleocharis palustris / Deschampsia caespitosa Acres:	0.61

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus aequalis	1
Beckmannia syzigachne	1	Deschampsia caespitosa	3
Eleocharis palustris	3	Epilobium ciliatum	1
Hordeum jubatum	1	Juncus balticus	2
Mentha arvensis	1	Open Water	1
Persicaria amphibia	1	Poa palustris	1
Potentilla anserina	1	Sonchus arvensis	0
Гурha latifolia	1		
omments:			

Located in wetland cell 4.

Community #	15	<b>Community Type:</b>	Poa pratensis / Elymus repens	Acres:	0.28
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Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Astragalus cicer	1
Bare Ground	2	Bromus inermis	2
Elymus repens	3	Elymus trachycaulus	2
Epilobium ciliatum	0	Festuca ovina	1
Hordeum jubatum	0	Leymus cinereus	2
Linum lewisii	1	Poa palustris	1
Poa pratensis	4	Puccinellia nuttalliana	1
Thlaspi arvense	1	Trifolium hybridum	1
Comments:			

Located east of wetland cell 4, on the upland slope above the cell.

Community # 16 Community Type: Juncus balticus / Eleocharis palustris <u>1.86</u> Acres:

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus aequalis	1
Alopecurus arundinaceus	1	Alopecurus pratensis	1
Bare Ground	1	Beckmannia syzigachne	2
Carex aquatilis	1	Carex nebrascensis	1
Carex pellita	0	Cicuta douglasii	1
Cyrtorhyncha cymbalaria	1	Deschampsia caespitosa	2
Eleocharis palustris	3	Elymus repens	0
Epilobium ciliatum	1	Glyceria grandis	1
Glyceria striata	1	Hordeum jubatum	1
Juncus balticus	0	Juncus balticus	4
Juncus bufonius	1	Juncus effusus	1
Mentha arvensis	1	Open Water	2
Phalaris arundinacea	1	Plantago major	0
Poa palustris	1	Poa pratensis	0
Potentilla anserina	1	Salix bebbiana	0
Salix exigua	0	Salix lasiandra	1
Sonchus arvensis	0	Symphyotrichum ciliatum	1
Trifolium longipes	1	Typha latifolia	1

# Comments:

Located in wetland cells 2 and 3.

Community # 17 Community Type: Salix spp. / Acres: 0.45

Species	Cover class	Species	Cover class
Alnus incana	1	Carex pellita	1
Carex utriculata	1	Juncus balticus	1
Salix bebbiana	2	Salix boothii	2
Salix exigua	4	Salix geyeriana	2
Salix lutea	2		

### Comments:

Added in 2019. In 2020 and 2021, development of planted/volunteer willows and alder on the edges of wetland cells 1 and 3 has continued. In 2021, this CT increased by 0.4-acre in newly delineated wetland areas west of cell 1, north of cell 2, and south of the road alignment and overpass.

# Total Vegetation Community Acreage

50.1

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

# **VEGETATION TRANSECTS**

Silicon Mountain		Da	te:	6/29/2021
Transect Number: 1		ompass Di	rection from Start: 32	22_
Interval Data:				
Ending Station	15 Commu	nity Type:	Leymus cinereus / Elymus t	rachycaulus
Species	Cover c	lass	Species	Cover class
Astragalus cicer		1	Bare Ground	2
Cirsium arvense		1	Elymus repens	1
Elymus trachycaulus		3	Epilobium ciliatum	0
Festuca ovina		1	Juncus balticus	1
Leymus cinereus		4	Poa pratensis	2
Poa secunda		2	Silene latifolia	0
Sonchus arvensis		1	Thlaspi arvense	0
Ending Station	31 Commu	nity Type:	Juncus balticus / Eleocharis	palustris
Species	Cover c	lass	Species	Cover class
Alopecurus arundinaceus		1	Bare Ground	1
Cyrtorhyncha cymbalaria		1	Deschampsia caespitosa	2
Eleocharis palustris		3	Epilobium ciliatum	1
Juncus balticus		4	Juncus bufonius	0
Juncus effusus		1	Mentha arvensis	1
Poa palustris		1	Potentilla anserina	1
Sonchus arvensis		1	Sonchus arvensis	1
Typha latifolia		1		
<b>Ending Station</b>	64 Commu	nity Type:	Typha latifolia /	
Species	Cover c	lass	Species	Cover class
Beckmannia syzigachne		0	Cyrtorhyncha cymbalaria	0
Deschampsia caespitosa		1	Eleocharis palustris	3
Glyceria grandis		0	Juncus balticus	2
Juncus bufonius		1	Juncus effusus	2
Open Water		1	Poa palustris	1
Salix lasiandra		0	Scirpus microcarpus	1
Typha latifolia		4		

Ending Station	264	Community Type:	Juncus balticus / Eleocharis p	oalustris
Species		Cover class	Species	Cover class
Alopecurus arundinaceus		1	Alopecurus pratensis	1
Bare Ground		2	Beckmannia syzigachne	0
Carex nebrascensis		1	Carex pellita	1
Deschampsia caespitosa		1	Eleocharis palustris	3
Elymus repens		2	Glyceria grandis	1
Hordeum jubatum		1	Juncus balticus	4
Juncus effusus		2	Phalaris arundinacea	1
Plantago major		0	Poa palustris	1
Potentilla anserina		2	Salix bebbiana	0
Salix lasiandra		0	Typha latifolia	1
Ending Station	300	Community Type:	Leymus cinereus / Elymus tra	achycaulus
Species		Cover class	Species	Cover class
Bare Ground		2	Bromus inermis	3
Camelina microcarpa		1	Elymus repens	2
Elymus trachycaulus		2	Euphorbia esula	1
Juncus balticus		1	Lepidium draba	0
Leymus cinereus		4	Poa pratensis	2
Thlaspi arvense		1	Trifolium longipes	1
Ending Station	535	Community Type:	Juncus balticus / Eleocharis	oalustris
Species		Cover class	Species	Cover class
Agrostis stolonifera		1	Alopecurus arundinaceus	2
Bare Ground		2	Carex aquatilis	2
Carex nebrascensis		2	Cyrtorhyncha cymbalaria	1
Deschampsia caespitosa		2	Eleocharis palustris	2
Epilobium ciliatum		0	Glyceria striata	0
Hordeum jubatum		1	Juncus balticus	4
Mentha arvensis		1	Phalaris arundinacea	1
Poa palustris		1	Poa pratensis	1
Potentilla anserina		1	Salix exigua	0
Symphyotrichum ciliatum		1	Typha latifolia	0
Ending Station	564	Community Type:	Bromus inermis / Poa pratens	sis
Species		Cover class	Species	Cover class
Agrostis stolonifera		2	Alopecurus arundinaceus	1
Bare Ground		1	Bromus inermis	4
Elymus repens		1	Elymus trachycaulus	1
Phalaris arundinacea		0	Poa palustris	1
Poa pratensis		3	Potentilla anserina	1
Sonchus arvensis		1	Trifolium hybridum	2
Transect Notes:				
			B-10	

Less OW observed within CT 11 along this transect, soil mostly saturated to surface in areas previously observed as OW in 2020. No change in transect intervals, minimal change in species presence and cover since 2020. Increase in Alopecurus arundinaceus observed across wetland CTs along transect.

**Interval Data:** 10 Community Type: Poa pratensis / Elymus repens **Ending Station** Cover class Cover class **Species** Species Agrostis stolonifera 0 2 Astragalus cicer Bare Ground 3 2 Bromus inermis 2 Elymus repens Elymus trachycaulus 1 1 1 Festuca ovina Hordeum jubatum Leymus cinereus 1 Linum lewisii 0 3 Poa palustris 1 Poa pratensis Puccinellia nuttalliana 0 Trifolium hybridum 1 **Ending Station** Eleocharis palustris / Deschampsia caespitosa 42 Community Type: **Species** Cover class Cover class Species Agrostis stolonifera 1 Alopecurus aequalis 0 Beckmannia syzigachne 0 Deschampsia caespitosa 2 Eleocharis palustris 3 Epilobium ciliatum 0 Hordeum jubatum Juncus balticus 4 Mentha arvensis 1 Open Water 0 Persicaria amphibia 0 Poa palustris 2 Potentilla anserina 2 Sonchus arvensis 1 Typha latifolia 0 206 Community Type: Typha latifolia / **Ending Station** Cover class **Cover class Species** Species Alopecurus aequalis Beckmannia syzigachne 0 2 Calamagrostis canadensis Carex nebrascensis 1 1 Deschampsia caespitosa Eleocharis palustris 4 Juncus balticus 2 Mentha arvensis 1 Mud Flats 1 Open Water 0 2 Potentilla anserina Ranunculus sceleratus 1 Salix lutea 1 1 Schoenoplectus tabernaem Typha latifolia 3 Bromus inermis / Poa pratensis **Ending Station** 219 Community Type: **Species** Cover class Species Cover class 2 Bare Ground 2 Agrostis stolonifera Bromus inermis 3 1 Centaurea stoebe 0 1 Cirsium arvense Deschampsia caespitosa 1 Elymus repens 1 Juncus balticus 2 Leymus cinereus Poa pratensis Poa secunda 1 Potentilla anserina 0 Sonchus arvensis 1 Thlaspi arvense 1

Compass Direction from Start: 288

Transect Number: 2

# **Transect Notes:**

Less OW observed within CT 11 along this transect than previously observed in 2020. No change in transect intervals, minimal change in species presence and cover since 2020. Increase in Juncus balticus observed within CT 14 and 11 along this transect.

# **PLANTED WOODY VEGETATION SURVIVAL**

# Silicon Mountain

Planting Type	#Planted	#Alive Notes	
Alnus incana		5	
Salix eriocephala		14	
Salix exigua		16	
Salix geyeriana		13	
Sheperdia argentea		10	

# **Comments**

An estimated 350 containerized trees and shrubs were part of the original planting. During the 2015 monitoring a total of 47 live shrubs were noted; in 2016, 2017 and 2018 a total of 44 live shrubs were identified. During the July 2019 through June 2021 monitoring events an additional 14 trees and shrubs were counted, increasing the total to 58 live containerized plants.

# Silicon Mountain

# **WILDLIFE**

Birds	
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Were man-made nesting structures installed?	No	
If yes, type of structure:		
How many?		
Are the nesting structures being used?	No	
Do the nesting structures need repairs?	No	-
Nesting Structure Comments:		

Species	#Observed	Behavior	Habitat
American Coot	4	L	
American Coot Chicks	8	L	
American Crow	1		
American Kestrel	1		
American White Pelican	6	FO	
Black-billed Magpie	3	FO, N	
Black-capped Chickade	e 2	L	
Blue-winged Teal	1	FO, L	
Cliff Swallow	20	F, FO, L	
Common Yellowthroat	2	L	
Great Blue Heron	2	FO	
Killdeer	16	F, L	
Mallard	2		
Mourning Dove	1	L	
Northern Pintail	1	L	
Red-winged Blackbird	23	F, FO, L, N	
Ruddy Duck	10	F, L	
Song Sparrow	1	L	
Yellow-headed Blackbird	d 15	FO, L	
Bird Comments			

American coots observed as mating pairs with chicks. Two young magpies observed in nest at site.

# **BEHAVIOR CODES**

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

# **HABITAT CODES**

 ${f AB}$  = Aquatic bed  ${f SS}$  = Scrub/Shrub  ${f FO}$  = Forested  ${f UP}$  = Upland buffer  ${f I}$  = Island

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

# **Mammals and Herptiles**

Species	# Observed Tracks Scat	<b>Burrows Comments</b>
•		

Common Gartersnake	1	No	No	No
Mountain Cottontail	1	No	No	No
White-tailed Deer	2	No	No	No

Wildlife Comments:
Site is used by a diversity of bird and wildlife species.

#### **PHOTOGRAPHS**

Take photographs of the following permanent reference points listed in the check list below. Record the direction of the photograph using a compass. When at the site for the first time, establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3 feet above ground. Survey the location with a resource grade GPS and mark the location on the aerial photograph.

#### **Photograph Checklist:**

	One photograph for each of the four cardinal directions surrounding the wetland.
	At least one photograph showing upland use surrounding the wetland. If more than one upland
exists	then take additional photographs.
	At least one photograph showing the buffer surrounding the wetland.
<b>✓</b>	One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
DP01u	45.997345	-112.661444		
DP01w	45.997448	-112.661383		
DP02u	45.997505	-112.662509		
DP02w	45.997543	-112.662431		
DP03u	45.99589	-112.661309		
DP03w	45.995897	-112.661236		
DP04u	46.00151	-112.662337		
DP04w	46.001489	-112.662318		
DP05u	46.001754	-112.661451		
DP05w	46.001778	-112.661345		
DP06u	45.998036	-112.664236		
DP06w	45.998041	-112.664075		
DP07u	46.002492	-112.658244		
DP07w	46.002602	-112.658063		
PP01				West side of wetland cell 1
PP02				Outside wetland cell 1
PP03				West side of wetland cell 4
PP04				East side of constructed wetland cell 5
PP05				North end of T-1, constructed wetland cell 3
PP06				South end of T-1, constructed wetland cell 3
PP07				Cell 6, west side of tracks, south of overpass
PP08				Southern edge of cell 6 - upstream end
PP09				Northern edge of cell 6 - downstream end
PP10				West side of wetland cell 3
PP11				Sand Creek
PP12				Sand Creek
			D 10	

PP13 Sand Creek Headcut PP14 PP15 Headcut PP16 Headcut PP17 Northern end of Sand Creek T-1-E West side of cell 2 T-1-S South end of wetland cell 2 T-2-E West side of cell 4 T-2-S East side of wetland cell 4

#### **Comments:**

## **ADDITIONAL ITEMS CHECKLIST**

	Hudrology
☐ ✓ lines,	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 vegetation staining, erosion, etc).
	Photos
	One photo from the wetland toward each of the four cardinal directions One photo showing upland use surrounding the wetland. One photo showing the buffer around the wetland One photo from each end of each vegetation transect, toward the transect
	Vegetation
<b>⊻</b> Ma <sub>l</sub>	p vegetation community boundaries
✓ Con	mplete Vegetation Transects
	Soils
✓ Ass	sess soils
	Wetland Delineations
	Delineate wetlands according to applicable USACE protocol (1987 form or ement)
: :	Delineate wetland – upland boundary onto aerial photograph.
Wetlar	nd Delineation Comments
The 2020	total wetland acreage delineated in 2021, including pre-existing wetland areas, was 18.1 acres, which is an increase of 2.4 acres since 0.
	Functional Assessments
<b>✓</b> forms.	Complete and attach full MDT Montana Wetland Assessment Method field
Functio	onal Assessment Comments:
	ated Wetland Cells 1 and 5; Cells 2, 3, and 4; and Preservation Wetlands were classified as Category II wetlands. Cell 6 rated as egory III wetland.

#### Maintenance

Were man-made nesting structure installed at this site?

If yes, do they need to be repaired?
If yes, describe the problems below and indicate if any actions were taken to remedy the problems
Were man-made structures built or installed to impound water or control water flow
into or out of the wetland? No
If yes, are the structures in need of repair?
If yes, describe the problems below.
N/A

Project/Site: Silicon Mountain Wetland Mitigation Site	Citv/C	ounty: Silver Bow	Sampling Date: 6/30/2021
Applicant/Owner: MDT		,	State: Montana Sampling Point: DP01u
Investigator(s): R Quire, S Weyant, R Jones	Sectio	n. Township. Rang	s 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Terrace  Subregion (LRR): LRR E La  Soil Map Unit Name: 12A: Riverrun, occasionaly flooded-M	 Local	relief (concave, co	nvex. none); flat Slope (%);
Subregion (LRR): LRR E	at:	45.997345	-112.661444 <sub>Datum:</sub> NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionaly flooded-M	lannixlee, fr	equently flooded	comple NWI classification:Not Mapped.
Are climatic / hydrologic conditions on the site typical for this time			
Are Vegetation, Soil, or Hydrology signifi	-		
Are Vegetation, Soil, or Hydrology natura			
SUMMARY OF FINDINGS – Attach site map sho	• •	,	,
Hydrophytic Vegetation Present? Yes No	<b>v</b>		
Hydric Soil Present? Yes No		Is the Sampled A within a Wetland	
Wetland Hydrology Present? Yes No	<u> </u>	within a vvetiand	: 165 <u> </u>
Remarks: Upland sample point located upslope of wetland bounda	ary and DP0	)1w	
Opiana sampio point issates apolope si metiana bounda	ary arra Dr o		
VEGETATION - Use scientific names of plant			
Absolute Di		dicator	Dominance Test worksheet
Piot size (30 Foot Radius) % Cover: Sp	pecies? St	tatus	Number of Dominant Species
			that are OBL, FACW or FAC:
			Total Number of Dominant Species Across All Strata: 4 (B)
Sanling/Shrub Stratum Diet size #E Feet Bedius)			Percent of Dominant Species That Are OBL, FACW, or FAC:  0 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)  Artemisia tridentata 2	✓ NL		Prevalence Index worksheet
Arternisia trideritata 2	<b>✓</b> NL		Total % Cover of: Multiply by:
			OBL species 0 X 1 0  FACW species 0 X 2 0
			FACW species 0 X 2 0 FAC species 0 X 3 0
			FACU species 15 X 4 60
Herbaceous Stratum Plot size ( 5 Foot Radius)			UPL species 45 X 5 225
Bromus inermis 5	UPL	<u>-                                      </u>	Column Totals 60 (A) 285 (B)
Centaurea stoebe 2	NL NL		Prevalence Index = B/A = 4.75
Elymus spicatus 20 Festuca ovina 15	✓ NL ✓ UPL		Hydrophytic Vegetation Indicators
Pascopyrum smithii 15	✓ UPL ✓ FAC	-	1 - Rapid Test for Hydrophytic Vegetation
Tragopogon dubius 1	□ NL		2 - Dominance Test is >50%
			3 - Prevalence Index is <= 3.0
			<ul> <li>4 - Morphological Adaptations (Provide supporting data in remarks or on separate</li> </ul>
			sheet.
			☐ 5 - Wetland Non-Vascular Plants
			☐ Problematic Hydrophytic Vegetation (Explain
Woody Vine Stratum Plot size ( 30 Foot Radius)			Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Paraent Para Cround 40			Hydrophytic Vegetation Yes □ NO ✓ Present?
Percent Bare Ground 40 Remarks:			
BG/litter=40%. Data point is dominated by upland veget	tation.		
US Army Corps of Engineers			Western Mountains, Valleys, and Coasts - Version 2.0
33) Gorpo di Enginodio			

SOIL											Sampling Point: DP01u
Profile Desc	ription: ([	Describe	to the de	oth neede	d to docum	ent the in	dicat	or or	confirm	the absence of	f indicators.)
Depth		Matrix				Features					
(inches)	Color (		%	Color	(moist)	%	Туре	e¹	Loc <sup>2</sup>	Texture	Remarks
0-02	10YR	4/2	100						Sar	ndy Clay Loam	
02-11	10YR	4/2	100						L	oamy Sand	
11-13	7.5YR	2.5/1	95	10YR	4/3	5	С	M		Loam	
13+									R	Rock bottom.	Rock bottom.
<sup>1</sup> Type: C=C								ated	Sand Gr		tion: PL=Pore Lining, M=Matrix.
Hydric Soil		: (Applica	able to all				d.)				for Problematic Hydric Soils <sup>3</sup> :
Histosol				_	dy Redox (S	,					Muck (A10)
	oipedon (A2	2)			oped Matrix (		/	4 8	U D A 4\		Parent Material (TF2)
	stic (A3) en Sulfide (/	۸۸۱			my Mucky M my Gleyed N		(exc	ept N	ILRA 1)		Shallow Dark Surface (TF12) (Explain in Remarks)
	d Below Da		e (A11)		leted Matrix					Other	(Explain in Nemarks)
	ark Surface		0 (/ (1 1)		ox Dark Sur	. ,				3Indicators	of hydrophytic vegetation and
_	lucky Mine			_	leted Dark S	` ,	)				d hydrology must be present,
Sandy G	Sleyed Matr	rix (S4)		Red	ox Depressi	ons (F8)				unless	disturbed or problematic.
Restrictive	Layer (if pı	resent):									
Туре:											
Depth (in	ches):									Hydric Soil P	resent? Yes 🔲 No 🗹
Remarks:										1	
HYDROLO	GY										
Wetland Hy											
Primary India	,		ne require	d; check a	1						ary Indicators (2 or more required)
_	Water (A1)				Water-Stair				ept		ter-Stained Leaves (B9) ( <b>MLRA 1, 2,</b>
	iter Table (	A2)				, 2, 4A, an	d 4B	)			4A, and 4B)
Saturation				<u> </u>	Salt Crust (						inage Patterns (B10)
	arks (B1)			Ļ	Aquatic Inv			•			-Season Water Table (C2)
	nt Deposits	(B2)		÷	Hydrogen S		•			_	uration Visible on Aerial Imagery (C9)
	oosits (B3)	(D.4)		<u> </u>	Oxidized RI	· · · · · · · · · · · · · · · · · · ·		-	ving Roo	_	omorphic Position (D2)
	at or Crust (	(B4)		-	Presence o				D-:I- (OC)		allow Aquitard (D3)
	osits (B5)	~ (DG)		+	Recent Iron Stunted or						C-Neutral Test (D5)
Surface			magan, (F	,, <del> </del>				. ,	(LKK A)		sed Ant Mounds (D6) (LRR A)
Inundati	visible o √Vegetateo				Other (Expl	am m Ren	iai KS,	)		F10:	st-Heave Hummocks (D7)
Field Obser		Concave	Gunace	(00)					1		
Surface Water		> V	es 🗆	No 🔽	Depth (inc	hes).					
Water Table			es $\square$	_	Depth (inc						
Saturation P					Depth (inc					ınd Hydrology I	Present? Yes 🔲 No 🔽
(includes cap Describe Re			gauge, m						 ections), i	f available:	
		,	5 0 /	3		. 1		,			
Remarks:											
No evidence	e ot wetlar	nd hydrol	logy obse	erved.							

Project/Site: Silicon Mountain Wetland Mitigation Site		City/Co	ounty: Silver Bow	Sampling Date: 6/30/2021
Applicant/Owner: MDT				State: Montana Sampling Point: DP01w
Investigator(s): R Quire, S Weyant, R Jones				
Landform (hillslope, terrace, etc.): Depression		Locali	relief (concave, co	unvex_none)· CONCAVE Slone (%)·
Subregion (LRR): LRR E	L at:		45.997448	Long:112.661383 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionaly floode	_ Lat d-Mannix	xlee, fre	equently flooded	comple NWI classification:PEM
Are climatic / hydrologic conditions on the site typical for this				
Are Vegetation, Soil, or Hydrologys				
Are Vegetation, Soil, or Hydrology n				
SUMMARY OF FINDINGS – Attach site map			,	,
Hydric Soil Present? Yes ✓ No	o o o		Is the Sampled A	
Remarks:				
PSS depressional wetland sample point.				
<b>VEGETATION</b> - Use scientific names of plan	t			
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover:			dicator atus	Dominance Test worksheet
, % Cover.	Species	5! Sla	atus	Number of Dominant Species that are OBL, FACW or FAC:  4 (A)
				Total Number of Dominant Species Across All Strata:  5 (B)
Oction/Object Otesture District #5 Foot Deliver				Percent of Dominant Species That Are OBL, FACW, or FAC:  80 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)				Prevalence Index worksheet
Salix exigua 30	✓	FAC	CVV	Total % Cover of: Multiply by:
				OBL species 40 X 1 40
				FACW species 43 X 2 86
				FAC species 5 X 3 15 FACU species 14 X 4 56
Herbaceous Stratum Plot size ( 5 Foot Radius)				UPL species 8 X 5 40
Carex pellita 10	<b>V</b>	OBL		
Elymus trachycaulus 2		FAC		Column Totals 110 (A) 237 (B
Euphorbia esula 5		NL		Prevalence Index = B/A = 2.15455
Juncus balticus 10	<b>V</b>	FAC	·W	Hydrophytic Vegetation Indicators
Lactuca serriola 10	<u> </u>	FAC	U	1 - Rapid Test for Hydrophytic Vegetation
Poa pratensis 3		FAC		✓ 2 - Dominance Test is >50%
Potentilla anserina 30	✓	OBL	·	✓ 3 - Prevalence Index is <= 3.0
Silene latifolia 3		NL		4 - Morphological Adaptations (Provide
Sisymbrium altissimum 2		FAC	U	supporting data in remarks or on separate sheet.
Symphyotrichum ciliatum 3		FAC	W	
Taraxacum officinale 2		FAC	U	☐ 5 - Wetland Non-Vascular Plants
				☐ Problematic Hydrophytic Vegetation (Explain
Woody Vine Stratum Plot 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 10				Present?
Remarks: BG/litter=10%. Salix exigua contributes approximate passing the dominance test and a prevalence index				. Evidence of hydrophytic vegetation includes
US Army Corps of Engineers				Western Mountains, Valleys, and Coasts - Version 2

SOIL											Samı	pling Point:	DP01w
Profile Des	cription: (I	Describe	to the de	pth neede	d to docum	ent the in	dicato	or or conf	firm the	absence of in			
Depth		Matrix				Features							
(inches)	Color (		%	Color	(moist)	%	Type	1 <u>Loc<sup>2</sup></u>		exture		Remarks	
0-04	10YR	4/2	100						Silty Cl	lay Loam			
04-08	10YR	4/2	91	7.5YR	2.5/1	7	С	M	Silty	/ Clay			
				7.5YR	3/4	2	С	М					
08-11	10YR	5/3	100						Coars	se Sand			
				> /-	440	_							
11-15	7.5YR	2.5/1	95	7.5YR	4/6	5	С	M	Clay	Loam			
	· -												
					d Matrix, CS=			ated Sand	d Grains.			e Lining, M	
		: (Applica	able to al		nless otherv		d.)			Indicators fo		natic Hydri	c Soils":
Histoso				$\overline{}$	dy Redox (S	•				2 cm Muc			
_	Epipedon (A	2)		$\overline{}$	ped Matrix (					Red Pare			
	listic (A3)	۸ ۸)			my Mucky Mi		(exce	pt MLRA	<b>\ 1</b> )	•		Surface (TI	F12)
	en Sulfide (/ ed Below Da		e (A11)		my Gleyed M leted Matrix (					Other (Ex	cpiain in R	(emarks)	
	ark Surface		. (, )		ox Dark Surf					<sup>3</sup> Indicators of	hydrophy	tic vegetatio	on and
	Mucky Mine				leted Dark S		<b>'</b> )			-		nust be pres	
	Gleyed Mati			Red	ox Depression	ons (F8)				unless dist	urbed or	problematic	
Restrictive		resent):											
Type:									ш	dric Soil Pres	ant2 V		No 🗆
Depth (ir Remarks:	iches)								Пу	unc son Fres	entr 1	es <u> </u>	NO <u></u>
HYDROLO													
Wetland Hy	==			ماد مام داد						Casandani	la dia atau	. (0	ai.a. al\
			ne require		all that apply)		- (DO)	/avaa:n4				s (2 or more	
	e Water (A1) /ater Table (				Water-Stain	ео Leave , 2, 4A, аг					Stained L and 4B)	eaves (B9)	(MLRA 1, 2,
_	ion (A3)	A2)			Salt Crust (I		IG 7D,				ge Patteri	ns (B10)	
_	Marks (B1)				Aquatic Inve		(B13)				_	ter Table (C	2)
_	nt Deposits	(B2)			Hydrogen S								Imagery (C9)
Drift De	posits (B3)				Oxidized Rh	nizosphere	es alon	g Living F	Roots (C	3) 🔽 Geomo	rphic Pos	sition (D2)	
Algal M	lat or Crust	(B4)			Presence of			,		Shallov			
	posits (B5)				Recent Iron				. ,	_ <b>✓</b> FAC-N	eutral Tes	st (D5)	
	Soil Cracks			_	Stunted or S			(D1) ( <b>LRR</b>	<b>R A</b> )			nds (D6) ( <b>L</b> l	
	tion Visible o				Other (Expla	ain in Ren	narks)			Frost-H	leave Hui	mmocks (D	7)
	ly Vegetated	Concave	Surface	(B8)									
Field Obse		2 V.	🗆	No 🗸	Danth (in al								
Surface Wa Water Table			es <u> </u>		Depth (inch			I					
Saturation F			es es	_	Depth (incl Depth (incl				<i>l</i> etland H	lydrology Pre	sent? Y	′es <u> </u>	No
	pillary fringe ecorded Dat		gauge, m		vell, aerial pl				ns), if ava	ilable:			
Remarks: Evidence o	of wetland h	nvdrology	/ include	s a nositi	ve FAC-Ne	utral test	and o	geomorn	hic nosi	tion. Distinct	redoxim	orphic cor	ncentrations
	Evidence of wetland hydrology includes a positive FAC-Neutral test and geomorphic position. Distinct redoximorphic concentrations common within the depleted matrix, indicating evidence of hydrology within the soil profile. Soil very moist.												
	ommon within the depleted matrix, indicating evidence of hydrology within the soil profile. Soil very moist.										oist.	•	
	ithin the de	epietea m	natrix, ind	dicating e	vidence of	hydrolog	y with	in the so	oil profile	e. Soil very m	ioist.	·	

Project/Site: Silicon Mountain Wetland Mitigation Site	City/C	County: Silver Bow	Sampling Date: 6/29/2021
Applicant/Owner: MDT	0.1,70		State: Montana Sampling Point: DP02u
Investigator(s): R Quire, S Weyant, R Jones	Section	on, Township, Rand	
Landform (hillslope, terrace, etc.): Hillside	— Local	I relief (concave, co	
Subregion (LRR): LRR E Lat:		45.997505	Long: -112.662509 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionaly flooded-Man	nixlee, fr	requently flooded	comple NWI classification: Not Mapped.
Are climatic / hydrologic conditions on the site typical for this time o			· · · · · · · · · · · · · · · · · · ·
Are Vegetation, Soil, or Hydrology significa	-		
Are Vegetation, Soil, or Hydrology naturally			ded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map show	ing san	npling point lo	cations, transects, important features, etc
Hydrophytic Vegetation Present? Yes No			
Hydric Soil Present? Yes No		Is the Sampled A	
Wetland Hydrology Present? Yes No		within a vvetiand	Tes No E
Remarks: Upland sample point located upslope of wetland boundary	and DP	02w.	
Sprana sample point to appropriate the same and appropriate the same an		<b></b>	
VEGETATION - Use scientific names of plant			
Tree Stratum Plot size (30 Foot Radius) Absolute Dom		ndicator	Dominance Test worksheet
<u>Iree Stratum</u> Plot size (30 Foot Radius) % Cover: Spec	cies? S	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 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)			Prevalence Index worksheet
			Total % Cover of: Multiply by:
			OBL species 0 X 1 0  FACW species 0 X 2 0
			FACW species 0 X 2 0 FAC species 20 X 3 60
			FACU species 0 X 4 0
Herbaceous Stratum Plot size ( 5 Foot Radius)			UPL species 32 X 5 160
Astragalus cicer 2	] NL		Column Totals 52 (A) 220 (B)
Festuca ovina 30	-		Prevalence Index = B/A = 4.23077
Leymus cinereus 20 🔽	] FAC	<u> </u>	Hydrophytic Vegetation Indicators
			1 - Rapid Test for Hydrophytic Vegetation
			2 - Dominance Test is >50%
			3 - Prevalence Index is <= 3.0
			4 - Morphological Adaptations (Provide supporting data in remarks or on separate
			sheet.  5 - Wetland Non-Vascular Plants
			Problematic Hydrophytic Vegetation (Explair
			Indicators of hydric sil and wetland hydrology must be
Woody Vine Stratum Plot size ( 30 Foot Radius)			present, unless disturbed or problematic for #3, 4, 5.
Percent Perc Cround 49			Hydrophytic Vegetation Present?  Ves □ NO ✓
Percent Bare Ground 48 Remarks:			
BG/litter=48%. Data point is dominated by upland vegetati	ion.		
US Army Corps of Engineers			Western Mountains, Valleys, and Coasts - Version 2.0

SOIL										Sampling Poir	nt: DP02u
Profile Desc	cription: ([	Describe	to the depth	needed to docur	nent the inc	dicator	or confir	m the abse	ence o		
Depth		Matrix			x Features	<b>-</b> 1	. 2				
(inches)	Color (		%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Textu		Remarks	<u> </u>
0-03	10YR	4/2	100		_		Sa	andy Clay		1	
03-09	10YR	4/3	100					Sandy C	lay		
09-13	10YR	5/3	100					Loamy S	and		
13+								Rock bot	tom	Rock bottom.	
1- 0.0									2.		
				Reduced Matrix, CS RRs, unless othe			d Sand G			tion: PL=Pore Lining, for Problematic Hyd	
Histosol		, (, (pp		☐ Sandy Redox (		,				Muck (A10)	
	pipedon (A2	2)	Ť	Stripped Matrix	•			一		Parent Material (TF2)	
	istic (A3)	-/	Ī	Loamy Mucky N		(excent	MIRA 1	, <u> </u>		Shallow Dark Surface	(TF12)
	en Sulfide (/	44)	Ī	Loamy Gleyed		(except		′	-	(Explain in Remarks)	( )
	d Below Da		ce (A11)	Depleted Matrix					0 11101	(Explain in Franke)	
	ark Surface			Redox Dark Su				<sup>3</sup> Inc	dicators	of hydrophytic vegeta	ition and
=	lucky Mine	,	Ī	Depleted Dark	` '	)				d hydrology must be p	
	Sleyed Matr			Redox Depress	, ,					disturbed or problema	
Restrictive					()						
Type:		,									
Depth (in				<del></del>				Uvdeia	e all D	resent? Yes	No <b>✓</b>
Remarks:				<del></del>				Tiyuno	00111	1e3eiit: 1e3 <u> </u>	_ 110
HYDROLO											
Wetland Hy	==							_			
Primary India	cators (mini	mum of	one required;	check all that appl						ary Indicators (2 or mo	• •
Surface	Water (A1)			Water-Sta	ined Leaves	(B9) ( <b>e</b> 2	xcept	_	l Wa	ter-Stained Leaves (B	9) ( <b>MLRA 1, 2</b> ,
	ater Table (	A2)		MLRA	1, 2, 4A, an	d 4B)			_ 4	4A, and 4B)	
Saturation	on (A3)			Salt Crust	(B11)			_	Dra	inage Patterns (B10)	
Water M	larks (B1)			Aquatic In	vertebrates (	(B13)		_	Dry	-Season Water Table	(C2)
Sedimer	nt Deposits	(B2)		Hydrogen	Sulfide Odo	r (C1)		_	🔲 Sati	uration Visible on Aeri	al Imagery (C9)
Drift Dep	posits (B3)			Oxidized F	Rhizosphere	s along l	Living Ro	ots (C3)	Geo	omorphic Position (D2	)
	at or Crust (	(B4)		Presence	of Reduced	Iron (C4	.)	` , _		allow Aquitard (D3)	
	oosits (B5)	,			n Reduction	,	,	- (6)	_	C-Neutral Test (D5)	
	Soil Cracks	: (B6)		_	Stressed P		,	-	_	sed Ant Mounds (D6)	(LRRA)
			Imagery (B7)		olain in Rem		·/ (LIXIX)		_	st-Heave Hummocks	` '
			e Surface (B		nain in ixem	ains)		_		st-i leave i lui i i i locks i	(07)
Field Obser		Concav	C Odridoc (Do	,							
Surface Wat		, ,	res 🗆 No	Depth (in	oboo):						
					ches):						
Water Table		`	∕es <u> </u>								
Saturation P (includes car	pillary fringe	e)		Depth (in						Present? Yes	No <u> </u>
Describe Re	corded Dat	a (strean	n gauge, mon	itoring well, aerial <sub>l</sub>	photos, prev	ious ins	pections)	, if availabl	e:		
Damariti											
Remarks: No evidence	e of wetler	nd hydr	ology obser	ved							
INO EVIUEITO	e oi wellal	ia riyurt	nogy observ	cu.							

Project/Site: Silicon Mountain Wetland Mitigation Site	City/County	: Silver Bow	Sampling Date: 6/29/2021
Applicant/Owner: MDT			State: Montana Sampling Point: DP02w
Investigator(s): R Quire, S Weyant, R Jones	Section, To	ownship, Range:	S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Depression	Local relie	f (concave, convex	x, none): concave Slope (%):2
Subregion (LRR): LRR E	_ Lat:	45.997543 Long	g:
Soil Map Unit Name: 12A: Riverrun, occasionaly floode	d-Mannixlee, freque	ently flooded com	nple NWI classification: Not Mapped.
Are climatic / hydrologic conditions on the site typical for this	time of year? Yes	<b>✓</b> No	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology si			
Are Vegetation, Soil, or Hydrology n.			
SUMMARY OF FINDINGS - Attach site map	showing samplin	ng point location	ons, transects, important features, etc.
Hydric Soil Present? Yes V	<u> </u>	ne Sampled Area nin a Wetland?	Yes ✓ No
	with	mi a vvenana:	
Remarks: PEM depressional wetland within constructed wetlar	nd cell 2.		
=			
VEGETATION - Use scientific names of plan	t		
Absolute	Domiant Indicat	טע ו	ominance Test worksheet
Tree Stratum Plot size (30 Poot Radius) % Cover:	Species? Status	Nui	umber of Dominant Species at are OBL, FACW or FAC:
			tal Number of Dominant ecies Across All Strata:
Sapling/Shrub Stratum Plot size (15 Foot Radius)			ercent of Dominant Species at Are OBL, FACW, or FAC: 100 % (A/B)
Sapinig/Siliub Stratum Flot size (15 Flot Radius)		Pre	evalence Index worksheet
		<del>-</del>	Total % Cover of: Multiply by:
			BL species 20 X 1 20 CW species 25 X 2 50
			C species 5 X3 15
		FA	CU species 5 X 4 20
Herbaceous Stratum Plot size ( 5 Foot Radius)		UP	PL species 0 X 5 0
Agrostis stolonifera 5	FAC	Col	olumn Totals 55 (A) 105 (B)
Eleocharis palustris 20	✓ OBL		Prevalence Index = B/A = 1.90909
Juncus balticus 25 Lactuca serriola 5	FACU FACU	Hye	drophytic Vegetation Indicators
Lactuca serriora 5	TACO	-	✓ 1 - Rapid Test for Hydrophytic Vegetation
			✓ 2 - Dominance Test is >50%
			✓ 3 - Prevalence Index is <= 3.0
			4 - Morphological Adaptations (Provide supporting data in remarks or on separate
			sheet.
			☐ 5 - Wetland Non-Vascular Plants
			☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)			cators of hydric sil and wetland hydrology must be sent, unless disturbed or problematic for #3, 4, 5.
		Ve	rdrophytic getation Yes ✔ NO
Percent Bare Ground 45		Pre	esent?
Remarks: BG/litter=45%. Vegetation dominated by hydrophytic passing the dominance test, and a prevalence index			egetation includes passing the rapid test,
US Army Corps of Engineers		\/\_	estern Mountains. Valleys. and Coasts - Version 2.0

SOIL											S	ampling Poin	t: DP02w
Profile Des	cription: (I	Describe	to the de	pth neede	d to docun	nent the i	ndicate	or or co	nfirm	the absence o			
Depth		Matrix				x Features							
(inches)	Color (		%	Color	(moist)	%	Type	1 <u>Lo</u>		<u>Texture</u>		Remarks	
0-05	7.5YR	2.5/1	100						San	dy Clay Loan	n		
05-13	7.5YR	4/3	92	7.5YR	2.5/2	8	С	M,PL	San	dy Clay Loan	n		
13+									R	ock bottom	Rock	bottom.	
			-	-									-
				-									
¹Type: C=C	`oncentratio	n D-Den	letion DN	/I-Peducec	Matrix CS		d or Co		nd Gra	uine <sup>2</sup> l occ	ation: DI-	Pore Lining,	M-Matrix
Hydric Soil								aleu Sai	iu Gia			olematic Hyd	
Histoso					dy Redox (S		,				Muck (A1	-	
_	pipedon (A	2)		$\overline{}$	ped Matrix	•					•	terial (TF2)	
Black H	listic (A3)			Loar	ny Mucky N	lineral (F1	l) (exce	ept MLR	RA 1)			ark Surface (	TF12)
	en Sulfide (				ny Gleyed N	-	)			<u></u> ✓ Othe	r (Explain	in Remarks)	
	ed Below Da		e (A11)	_ :	eted Matrix	` '				31 12 1		ala Carraga	Commend
	ark Surface Mucky Mine				ox Dark Sur eted Dark S	, ,	7)				-	phytic vegeta gy must be pr	
	Gleyed Mat			_ ·	ox Depressi	•	')					or problemat	
Restrictive						()						от ртоллотта.	<del></del>
Type:		•											
Depth (in	nches):									Hydric Soil F	Present?	Yes 🔽	_ No <u></u>
Remarks:													
(1987 COE										.CW, and the			•
HYDROLC	OGY												
Wetland Hy	==					`				_			
Primary Indi			ne requir									ators (2 or mo	
	· Water (A1)				Water-Stair				t				9) (MLRA 1, 2,
✓ High W	ater Table (	A2)				I, 2, 4A, a ⊕44\	na 4B)	)			4A, and 4	•	
	Marks (B1)			=	Salt Crust ( Aquatic Inv		e (B13)					tterns (B10) Water Table (	(C3)
	nt Deposits	(B2)			Hydrogen S								al Imagery (C9)
	posits (B3)	(02)			Oxidized R				Roots			Position (D2)	• • • •
	at or Crust	(B4)			Presence of	-		-	,		allow Aqu		
	posits (B5)				Recent Iron	n Reductio	on in Ti	lled Soil	s (C6)			Test (D5)	
Surface	Soil Crack	s (B6)			Stunted or	Stressed	Plants	(D1) ( <b>LF</b>	RR A)	Ra	ised Ant N	Nounds (D6) (	(LRR A)
Inundat	ion Visible	on Aerial I	magery (l	B7)	Other (Exp	lain in Re	marks)			Fro	st-Heave	Hummocks (	D7)
Sparsel	ly Vegetated	d Concave	e Surface	(B8)									
Field Obser	rvations:												
Surface Wa	ter Present	? Y	es _ <u></u>	No	Depth (inc	:hes):							
Water Table	Present?	Υ	es 🔽	No	Depth (inc	:hes):		11				_	
Saturation F			es 🔽	No	Depth (inc	:hes):		0	Wetlaı	nd Hydrology	Present?	Yes	No <u></u>
(includes ca Describe Re	piliary tringe ecorded Dat	e) ta (stream	gauge. n	nonitorina v	vell, aerial n	hotos, pre	evious	inspection	ons). if	available:			
		,	0 0 /	J	, ,	, ,			,,				
Remarks:													
Evidence of					turated to	surface,	high v	vater ta	ble, o	xidized rhizo	spheres	on living roc	ots, geomorphi
position, an	nd a positiv	ve FAC-N	Neutral te	est.									

Project/Site: Silicon Mountain Wetland Mitigation Site	City/C	County: Silver Bow	Sampling Date: 6/29/2021
Applicant/Owner: MDT			State: Montana Sampling Point: DP03u
Investigator(s): R Quire, S Weyant, R Jones	Secti	ion, Township, Rang	e: <b>S</b> 24 <b>T</b> 3N <b>R</b> 9W
Landform (hillslope, terrace, etc.): Terrace	Loca	al relief (concave, co	nvex, none): convex Slope (%): 3
Subregion (LRR): LRR E  Soil Map Unit Name: 12A: Riverrun, occasionaly flooded-M	at:	45.99589	Long:112.661309 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionaly flooded-M	lannixlee, f	requently flooded	comple NWI classification:PEM
Are climatic / hydrologic conditions on the site typical for this time	e of year? Y	Yes <u><b>▼</b></u> No	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology signifi	icantly distur	rbed? Are "No	ormal Circumstances" present? Yes 🗹 No 🔲
Are Vegetation, Soil, or Hydrology natura			
SUMMARY OF FINDINGS - Attach site map sho	wing san	npling point lo	cations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	<b>v</b>		
Hydric Soil Present? Yes No	<u> </u>	Is the Sampled A within a Wetland	
Wetland Hydrology Present? Yes No	<u> </u>	within a vvenano	r res <u> </u>
Remarks: Upland sample point located on terrace above DP03w a	and stream	channel	
opiana sample point issailed on terrade above Briden a	ara oa oa a	orial in lon	
VEGETATION - Use scientific names of plant			
Tree Streeture Plet size (20 Feet Pedius) Absolute D		ndicator	Dominance Test worksheet
<u>Iree Stratum</u> Plot size (30 Foot Radius) % Cover: S	pecies? S	Status	Number of Dominant Species that are OBL, FACW or FAC:
			Total Number of Dominant Species Across All Strata:  2 (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC:  50 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		-	Prevalence Index worksheet
			Total % Cover of: Multiply by:
			OBL species 0 X 1 0
			FACW species 3 X 2 6 FAC species 21 X 3 63
			FACU species 0 X 4 0
Herbaceous Stratum Plot size ( 5 Foot Radius)			UPL species 26 X 5 130
Bromus inermis 25	<b>✓</b> UP	PL	Column Totals 50 (A) 199 (B)
Elymus repens 20	<b>✓</b> FA	C	Prevalence Index = B/A = 3,98
Euphorbia esula 1	□ NL		Hydrophytic Vegetation Indicators
Juncus balticus 3		CW	1 - Rapid Test for Hydrophytic Vegetation
Leymus cinereus 1	FA		2 - Dominance Test is >50%
			3 - Prevalence Index is <= 3.0
			4 - Morphological Adaptations (Provide supporting data in remarks or on separate
			sheet.  5 - Wetland Non-Vascular Plants
			Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)			Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Porcent Porc Cround 50			Hydrophytic  Vegetation  Yes NO
Percent Bare Ground 50 Remarks:			
BG/litter=50%. Data point is dominated by upland veget	tation.		
US Army Corps of Engineers			Western Mountains, Valleys, and Coasts - Version 2.0

SOIL							Sampling Point: DP03u
Profile Desc	ription: (Describe	to the depth	needed to docur	ment the indica	tor or conf	irm the absence of	
Depth	Matrix			x Features	1 . 2		
(inches)	Color (moist)	%	Color (moist)	<u>% Typ</u>			Remarks
0-16	10YR 3/2	99 7.	5YR 4/6	1 C	M	Sandy Loam	
	-			- · - <u> </u>			
	-						
<sup>1</sup> Type: C=Co	oncentration, D=Dep	letion, RM=R	educed Matrix, CS	S=Covered or Co	ated Sand		tion: PL=Pore Lining, M=Matrix.
Hydric Soil	ndicators: (Applic	able to all LF	RRs, unless othe	rwise noted.)		Indicators	for Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy Redox (	S5)			Muck (A10)
	pipedon (A2)	Ļ	Stripped Matrix			_	arent Material (TF2)
Black Hi			_	/lineral (F1) (exc	ept MLRA		Shallow Dark Surface (TF12)
	n Sulfide (A4)	_ (444)	Loamy Gleyed	٠,		Other	(Explain in Remarks)
	l Below Dark Surfac ark Surface (A12)	e (A11) <u> </u>	☑ Depleted Matrix ☑ Redox Dark Su			3Indicators	of hydrophytic vegetation and
	lucky Mineral (S1)	<u> </u>	Depleted Dark				d hydrology must be present,
	eleyed Matrix (S4)	Ī	Redox Depress	, ,			disturbed or problematic.
	_ayer (if present):			(* -)			
	ches):					Hydric Soil P	resent? Yes No _ 🗹
Remarks:						,	
	or hydrophytic veg				,		hydric soil indicators, wetland
HYDROLO	GY						
Wetland Hyd	drology Indicators:						
Primary Indic	ators (minimum of o	ne required; o	heck all that appl	y)		Seconda	ary Indicators (2 or more required)
Surface	Water (A1)		Water-Sta	ined Leaves (B9	) (except	Wat	ter-Stained Leaves (B9) ( <b>MLRA 1, 2,</b>
High Wa	ter Table (A2)		MLRA	1, 2, 4A, and 4E	3)	4	4A, and 4B)
Saturatio	on (A3)		Salt Crust	(B11)		Dra	inage Patterns (B10)
Water M	arks (B1)		Aquatic In	vertebrates (B13	)	Dry-	-Season Water Table (C2)
Sedimer	it Deposits (B2)		Hydrogen	Sulfide Odor (C	1)	Sati	uration Visible on Aerial Imagery (C9)
Drift Dep	osits (B3)		Oxidized F	Rhizospheres ald	ng Living F	Roots (C3) 🔲 Ged	omorphic Position (D2)
Algal Ma	t or Crust (B4)		Presence	of Reduced Iron	(C4)	Sha	allow Aquitard (D3)
Iron Dep	osits (B5)		_	n Reduction in T			C-Neutral Test (D5)
Surface	Soil Cracks (B6)		Stunted or	Stressed Plants	(D1) ( <b>LRR</b>	t <b>A</b> ) <u> </u>	sed Ant Mounds (D6) ( <b>LRR A</b> )
_	on Visible on Aerial I	• • • •		olain in Remarks	)	Fros	st-Heave Hummocks (D7)
Sparsely	Vegetated Concave	Surface (B8)	)				
Field Observ	vations:						
Surface Wate	er Present? Y	es <u> </u>	_	ches):			
Water Table	Present? Y	es No	Depth (in	ches):			
Saturation Pr		es No	Depth (in	ches):	W	etland Hydrology F	Present? Yes 🔲 No 🔽
(includes cap Describe Red	corded Data (stream	gauge, monit	oring well, aerial	ohotos, previous	inspection	s), if available:	
Remarks: Soil slightly	moist. No evidenc	e of wetland	l hydrology obse	erved			
Jon Silginiy		o or wouldn't	yarology obse	J. VOG.			

Project/Site: Silicon Mountain Wetland Mitigation Site		City/Co	ounty: Silver Bow	/ Sampling Date:6/29/2021
Applicant/Owner: MDT		- •	,	State: Montana Sampling Point: DP03w
Investigator(s): R Quire, S Weyant, R Jones		0 1' -	. T	
Landform (hillslope, terrace, etc.): Floodplain				invex, none) Slope (70)
Subregion (LRR): LRR E				Long:112.661236 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionaly floode	d-Manni	xlee, fre	equently flooded	comple NWI classification:PEM
Are climatic / hydrologic conditions on the site typical for this	time of v	/ear? Ye	es 🗸 No 🗆	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology s	-			
Are Vegetation, Soil, or Hydrology n				ded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map :  Hydrophytic Vegetation Present?  Yes V	snowing	g sam	pling point lo	cations, transects, important features, etc.
		-	Is the Sampled A	Area
,			within a Wetland	
Remarks:		-		
PSS riverine wetland. Sample point located in active	floodpla	ain adja	cent to Sand Cre	eek channel.
VEGETATION - Use scientific names of plan				
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover:			dicator atus	Dominance Test worksheet
	Opecie	.s: Ou	atus	Number of Dominant Species that are OBL, FACW or FAC:  4 (A)
				Total Number of Dominant Species Across All Strata: 4 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)				Percent of Dominant Species That Are OBL, FACW, or FAC:  100 % (A/B)
,				Prevalence Index worksheet
Salix exigua 30	✓	FAC		Total % Cover of: Multiply by:
Salix lasiandra 10	✓	FAC	CW	OBL species 39 X 1 39
				FACW species 43 X 2 86
				FAC species 4 X 3 12
				FACU species 0 X 4 0
Herbaceous Stratum Plot size ( 5 Foot Radius)				UPL species 0 X 5 0
Agrostis stolonifera 3		FAC	;	Column Totals 86 (A) 137 (B)
Carex nebrascensis 1		OBL	·	Prevalence Index = B/A = 1.59302
Carex pellita 15	<b>✓</b>	OBL	<u>.                                    </u>	
Carex utriculata 10	<b>✓</b>	OBL	<u>.                                    </u>	Hydrophytic Vegetation Indicators  ✓ 1 - Rapid Test for Hydrophytic Vegetation
Cyrtorhyncha cymbalaria 2		OBL	<u> </u>	_
Epilobium ciliatum 2		FAC	:W	✓ 2 - Dominance Test is >50%
Geum macrophyllum 1		FAC	;	✓ 3 - Prevalence Index is <= 3.0
Glyceria striata 5		OBL	<u> </u>	4 - Morphological Adaptations (Provide
Mentha arvensis 1		FAC	:W	supporting data in remarks or on separate
Scirpus microcarpus 5		OBL	<u> </u>	sheet.
Veronica americana 1		OBL	<u>.                                    </u>	
				Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)				Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 29				Hydrophytic Vegetation Present?  Yes ✓ NO
Remarks: BG/shallow ponded water=29%. Salix exigua and S Evidence of hydrophytic vegetation includes passing equal to 3.0.				

B-33

OIL						Sampling Point: DP03w
Profile Description: (Desc	ribe to the depth	needed to docume	nt the indicator or	confirm the abs	ence of indicat	ors.)
Depth <u>Mar</u> (inches) Color (mois			F <u>eatures</u> % Type <sup>1</sup>	Loc <sup>2</sup> Textu	150	Domarko
		Color (moist)	% Type			Remarks
0-02 7.5YR 4/2				Loamy S		
02-12 10YR 5/3	3 100			Coarse S	Sand	
12+				Rock	Rock	bottom
Type: C=Concentration, Dividing Soil Indicators: (A						=Pore Lining, M=Matrix. blematic Hydric Soils <sup>3</sup> :
Histosol (A1)		Sandy Redox (S5			2 cm Muck (A	•
Histic Epipedon (A2)	÷	_ Sandy Redox (SS ☐ Stripped Matrix (S		÷	Red Parent M	
	÷	= ' ' '		# DA 4\	-	Dark Surface (TF12)
☐ Black Histic (A3) ☐ Hydrogen Sulfide (A4)		⊒ Loarny Mucky Min ⊒ Loarny Gleyed Ma	neral (F1) ( <b>except N</b> atrix (F2)	(ILKA I)	Other (Explain	
Depleted Below Dark S		Depleted Matrix (F		3		
Thick Dark Surface (A1		Redox Dark Surfa		³ln	•	phytic vegetation and
Sandy Mucky Mineral ( Sandy Gleyed Matrix (S	_	☑ Depleted Dark Su ☑ Redox Depressior				gy must be present, d or problematic.
estrictive Layer (if prese		_ Redox Depression	15 (1 0)		uniess disturbe	or problematic.
Type:	-					
Depth (inches):				Hydrid	Soil Present?	Yes 🔽 No 🗌
Remarks:				1		
YDROLOGY						
Vetland Hydrology Indica	tors:					
rimary Indicators (minimun	n of one required;	check all that apply)			Secondary Indic	ators (2 or more required)
<b>⊻</b> Surface Water (A1)			ed Leaves (B9) ( <b>exc</b>	ept		ed Leaves (B9) (MLRA 1,
High Water Table (A2)			2, 4A, and 4B)		4A, and	•
Saturation (A3)		Salt Crust (B	•	-		atterns (B10)
Water Marks (B1)			rtebrates (B13)	-		Water Table (C2)
Sediment Deposits (B2)	1		ılfide Odor (C1)	.ina Doote (C2)		isible on Aerial Imagery (C
Drift Deposits (B3)			zospheres along Li <sup>,</sup> Reduced Iron (C4)	ving Roots (C3)	_ <b>✓</b> Geomorphic	
☐ Algal Mat or Crust (B4)☐ Iron Deposits (B5)			Reduced Iron (C4) Reduction in Tilled (	Soile (C6)	Shallow Aqu ✓ FAC-Neutra	
Surface Soil Cracks (B6	;)	_	tressed Plants (D1)	, ,		Mounds (D6) (LRR A)
Inundation Visible on A			in in Remarks)	(LICITA)		Hummocks (D7)
Sparsely Vegetated Co			iii iii reomane)	-		Transmooko (B1)
ield Observations:	(20	,				
urface Water Present?	Yes 🗹 No	Depth (inche	es):1			
Vater Table Present?	Yes 🔽 No		es):4			
aturation Decrease			es):0	Wetland Hyd	rology Present	? Yes <u>✓</u> No <u>□</u>
	Yes 🔽 No	Bopan (mone				
includes capillary fringe)			otos, previous inspe	 ections), if availab	le:	
includes capillary fringe)			otos, previous inspe	 ections), if availab	le:	
includes capillary fringe) Describe Recorded Data (st Remarks:	ream gauge, moni	toring well, aerial pho		·		
includes capillary fringe) Describe Recorded Data (st Remarks: vidence of wetland hydr	ream gauge, moni	toring well, aerial pho		·		o surface, a high water
includes capillary fringe) Describe Recorded Data (st Remarks: Vidence of wetland hydr	ream gauge, moni	toring well, aerial pho		·		o surface, a high water
Saturation Present? (includes capillary fringe) Describe Recorded Data (st Remarks: Evidence of wetland hydr able, and 1" of surface w	ream gauge, moni	toring well, aerial pho		·		o surface, a high water
(includes capillary fringe) Describe Recorded Data (st Remarks: Evidence of wetland hydr	ream gauge, moni	toring well, aerial pho		·		o surface, a high water

Project/Site: Silicon Mountain Wetland Mitigation Site	City/County: Silver Boy	v Sampling Date: 6/29/2021
Applicant/Owner: MDT		State: Montana Sampling Point: DP04u
Investigator(s): R Quire, S Weyant, R Jones	Section, Township, Ran	ge: S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Mound	Local relief (concave, co	onvex, none): convex Slope (%):
Subregion (LRR): LRR E	Lat: 46.00151	Long: -112.662337 Datum: NAD 83
Subregion (LRR): LRR E Soil Map Unit Name: 58B: Varney-Anaconda loams, 0-	4% slopes, moderately impacte	d NWI classification:Not Mapped.
Are climatic / hydrologic conditions on the site typical for thi		
Are Vegetation, Soil, or Hydrology s	significantly disturbed? Are "N	lormal Circumstances" present? Yes <u>✔</u> No
Are Vegetation, Soil, or Hydrology r		
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
	o <u>V</u>	
Hydric Soil Present?  Yes N Wetland Hydrology Present?  Yes N	o Is the Sampled within a Wetland	
Wetland Hydrology Present? Yes N Remarks:	o within a Wetland	
Upland sample point located on mound above exca	vated wetland cell 4.	
<b>VEGETATION</b> - Use scientific names of plan	nt	
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover		Dominance Test worksheet
	. Openes: Claids	Number of Dominant Species that are OBL, FACW or FAC:
		Total Number of Dominant Species Across All Strata:  2 (B)
Continue Characterism Diet size #5 Foot Dodings		Percent of Dominant Species That Are OBL, FACW, or FAC:  50 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Prevalence Index worksheet
		Total % Cover of: Multiply by:
		OBL species 0 X1 0
		FACW species 0 X 2 0 FAC species 48 X 3 144
		FACU species 15 X 4 60
<u>Herbaceous Stratum</u> Plot size ( 5 Foot Radius)		UPL species 7 X 5 35
Bromus inermis 5	UPL	Column Totals 70 (A) 239 (B)
Bromus tectorum 2		Prevalence Index = B/A = 3,41429
Elymus trachycaulus 5		Hydrophytic Vegetation Indicators
Hordeum jubatum 3 Leymus cinereus 40		1 - Rapid Test for Hydrophytic Vegetation
Pascopyrum smithii 15		2 - Dominance Test is >50%
1 assopyrum simum	1700	☐ 3 - Prevalence Index is <= 3.0
		4 - Morphological Adaptations (Provide supporting data in remarks or on separate
		sheet.  5 - Wetland Non-Vascular Plants
		Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 30		Hydrophytic Vegetation Yes □ NO ✓ Present?
Remarks:		
BG/litter=30%. Data point is dominated by upland v	egetation.	
LIC Armon Course of Firefineses		Western Mountains Valleys and Oracle Vanis 22
US Army Corps of Engineers		Western Mountains, Valleys, and Coasts - Version 2.0

SOIL											Sampling Point: DP04u
Profile Desc	cription: (	Describe	to the de	oth neede	ed to docum	ent the in	dicat	or or o	confirm	the absence of ir	ndicators.)
Depth		Matrix				Features		4			
(inches)		(moist)	%	Color	(moist)	%	Туре	e <sup>1</sup> l	_oc <sup>2</sup>	<u>Texture</u>	Remarks
0-02	10YR	3/2	100						San	dy Clay Loam	
02-07	10YR	3/2	100						S	andy Loam	
07-11	10YR	3/2	97	10YR	4/4	3	С	М	San	dy Clay Loam	
11-16	10YR	4/1	100						L	oamy Sand	
				-							
											_
¹Type: C=C	oncentratio	n. D=Den	letion. RM	=Reduce	d Matrix. CS		or Co		and Gra	ins. <sup>2</sup> Location	n: PL=Pore Lining, M=Matrix.
Hydric Soil											or Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)			☐ San	dy Redox (S	5)				2 cm Mu	ck (A10)
_	pipedon (A	2)		☐ Strip	oped Matrix (	(S6)					ent Material (TF2)
Black H	istic (A3)			Loa	my Mucky M	ineral (F1)	(exc	ept MI	LRA 1)		allow Dark Surface (TF12)
	en Sulfide (			_	my Gleyed N	. ,				Other (E	xplain in Remarks)
_ :	d Below Da		e (A11)		leted Matrix	. ,					
	ark Surface				lox Dark Sur	, ,					hydrophytic vegetation and
	lucky Mine				leted Dark S	•	)				ydrology must be present,
	Sleyed Mat			<u> </u>	ox Depressi	ons (F8)				unless dis	turbed or problematic.
Restrictive	Layer (if p	resent):									
Туре:											
Depth (in	ches):									Hydric Soil Pres	sent? Yes No
Remarks: No evidenc											
HYDROLO	CV										
Wetland Hy		dicators:									
Primary India				d: check	all that apply	)				Secondary	Indicators (2 or more required)
Surface	Water (A1)	)			Water-Stair	ned Leaves	(B9)	(exce	ept		-Stained Leaves (B9) (MLRA 1, 2,
=	ater Table (	,				, 2, 4A, an			.p.		, and 4B)
Saturation		(1(2)			Salt Crust (		- TD	,			age Patterns (B10)
	larks (B1)				Aquatic Inv		(B13	١			eason Water Table (C2)
	nt Deposits	(R2)		一	Hydrogen S						ation Visible on Aerial Imagery (C9)
	oosits (B3)			一	Oxidized RI		,		ina Root	_	orphic Position (D2)
	at or Crust			F	Presence o	· · · · · · · · · · · · · · · · · · ·		-	ing reduc		w Aquitard (D3)
	osits (B5)	(04)		_	Recent Iron				oile (C6)		Veutral Test (D5)
Surface		c (P6)		十	Stunted or						d Ant Mounds (D6) (LRR A)
Inundati			magan, (E	.7)	Other (Expl				LKK A)	_	Heave Hummocks (D7)
					) Otrier (⊏xpi	alli ili Reli	iai KS,			FIOSI-	Heave Hummocks (D7)
Field Obser	y Vegetate	u Concave	Surface	(DO)							
Surface Wat		2 V	aa 🗆	No 🔽	Donth (inc	hos):					
					Depth (inc						
Water Table			es		Depth (inc						
Saturation P (includes car			es _L	No	Depth (inc	hes):			Wetla	nd Hydrology Pre	esent? Yes No <u>V</u>
Describe Re	corded Dat	ta (stream	gauge, m	onitoring	well, aerial p	hotos, prev	/ious	insped	ctions), if	available:	
Remarks:											
No evidence	e of wetla	nd hvdro	logy obse	erved. So	oil drv.						
57,401100		,			<del>.</del> j .						

Project/Site: Silicon Mountain Wetland Mitigation Site		_ City/C	ounty: Silver Bov	/ Sampling Date: 6/29/2021
Applicant/Owner: MDT				State: Montana Sampling Point: DP04w
Investigator(s): R Quire, S Weyant, R Jones		_ Section	on, Township, Ran	ge: <b>S</b> 24 <b>T</b> 3N <b>R</b> 9W
Landform (hillslope, terrace, etc.): Depression		_ Local	relief (concave, co	onvex, none): concave Slope (%):2
Subregion (LRR): LRR E	_ Lat:		46.001489	Long:112.662318 Datum: NAD 83
Subregion (LRR): LRR E Soil Map Unit Name: 58B: Varney-Anaconda loams, 0-	4% slope	es, mod	derately impacte	d NWI classification:Not Mapped.
Are climatic / hydrologic conditions on the site typical for this				
Are Vegetation, Soil, or Hydrology s	ignificant	ly disturl	bed? Are "N	lormal Circumstances" present? Yes 🔽 No 🔲
Are Vegetation, Soil, or Hydrology n				
SUMMARY OF FINDINGS – Attach site map				
Hydric Soil Present? Yes V	o	- - -	Is the Sampled A	
Remarks:	constru	oto d wa	stland call 4	
PEM depressional wetland. Sample point located in	construc	clea we	eliano celi 4.	
VEGETATION - Use scientific names of plan				
Absolute		ınt In	ndicator	Dominance Test worksheet
Tree Stratum Plot size (30 Foot Radius) % Cover:	Specie	es? S	tatus	Number of Dominant Species
				that are OBL, FACW or FAC:
				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 % (A/B)
<u> </u>				Prevalence Index worksheet
				Total % Cover of: Multiply by:
				OBL species         78         X 1         78           FACW species         0         X 2         0
				FAC species 2 X3 6
				FACU species 5 X 4 20
Herbaceous Stratum Plot size ( 5 Foot Radius)				UPL species 0 X 5 0
Beckmannia syzigachne 2		OBI		Column Totals 85 (A) 104 (B)
Carex pellita 2 Eleocharis palustris 73		OBI OBI		Prevalence Index = B/A = 1.22353
Hordeum jubatum 2	<u> </u>	FAC		Hydrophytic Vegetation Indicators
Potentilla anserina 1		OBI		<ul><li>1 - Rapid Test for Hydrophytic Vegetation</li></ul>
Sonchus arvensis 5		FAC	CU	✓ 2 - Dominance Test is >50%
				✓ 3 - Prevalence Index is <= 3.0
				<ul> <li>4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.</li> </ul>
				5 - Wetland Non-Vascular Plants
				☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot 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 15				Present?
Remarks: BG/litter=15%. Evidence of hydrophytic vegetation i index less than or equal to 3.0.	ncludes	passin	g the rapid test,	passing the dominance test, and a prevalence
US Army Corps of Engineers				Western Mountains. Valleys. and Coasts - Version 2.0

SOIL											Sar	npling Point:	DP04w
Profile Descr	iption: (De	escribe to	the de	oth need	led to docum	ent the i	ndicat	or or co	nfirm the a	bsence o			
Depth		<u>Matrix</u>				<u>Feature</u>		1 .	<b>_</b>			<b>D</b>	
(inches)	Color (m		%		or (moist)	%	Туре			xture		Remarks	
0-08	7.5YR	2/1	83	7.5YR	2.5/2	10	С	M	Sandy	/ Loam	_		
				N	2.5/0	7	С	M			Gleyed	concentra	itions.
08-12	2.5Y	3/2	100						Sandy	/ Loam			
							-						
Type: C=Coi	ncentration,	 , D=Depleti	on, RM	=Reduce	ed Matrix, CS	=Covered	d or Co	ated Sa	nd Grains.	Loca	tion: PL=Po	ore Lining, N	1=Matrix.
lydric Soil Ir	ndicators:	(Applicabl	e to all	I LRRs,	unless other	wise note	ed.)					matic Hydr	
Histosol (	A1)			Sa	ndy Redox (S	55)				2 cm	Muck (A10)		
Histic Epi	pedon (A2)			☐ Str	ripped Matrix (	(S6)			,	Red F	Parent Mate	rial (TF2)	
Black His	tic (A3)			Lo	amy Mucky M	lineral (F	1) (exc	ept MLF	RA 1)	☐ Very	Shallow Dar	k Surface (T	F12)
	Sulfide (A4	4)		_	amy Gleyed N	•	, ,	•	,		(Explain in		,
Depleted	Below Dark	Surface (/	A11)		pleted Matrix		•					,	
	k Surface (		,		dox Dark Sur					<sup>3</sup> Indicators	of hydroph	ytic vegetati	on and
_	ucky Minera				pleted Dark S	, ,	7)					must be pre	
	eyed Matrix				dox Depressi		,					r problematio	
Restrictive La													
Type:													
Depth (incl									Hve	tric Soil P	resent?	Vac 🗸	No $\square$
Remarks:									1,				
YDROLOG	SY												
Wetland Hyd	= =					`						(0	
	· ·	num of one	require	_	all that apply							rs (2 or more	
	Vater (A1)	2)			_ Water-Stair				t			Leaves (B9)	(MLRA 1, :
✓ High Wate ✓ Seturation		2)			_	, 2, 4A, a	ina 46	')			4A, and 4B	•	
Saturation					⊒ Salt Crust (		(D.40)				inage Patte		20)
<u> </u> Water Ma	. ,			Ļ	Aquatic Inv							ater Table (0	
	Deposits (	B2)		<u> </u>	Hydrogen S		,					ble on Aerial	Imagery (C
Drift Depo					Oxidized R				g Roots (C3		omorphic Po	, ,	
Algal Mat	or Crust (B	4)			Presence o	f Reduce	d Iron	(C4)			allow Aquita		
Iron Depo	sits (B5)				Recent Iron	n Reduction	on in T	illed Soi	s (C6)	_ <b>✓</b> FA	C-Neutral Te	est (D5)	
Surface S	oil Cracks (	(B6)			Stunted or	Stressed	Plants	(D1) (LI	RR A)	Rai	sed Ant Mo	unds (D6) ( <b>L</b>	RR A)
Inundatio	n Visible on	Aerial Ima	gery (E	37)	Other (Expl	lain in Re	marks)	)		Fro	st-Heave H	ummocks (D	07)
Sparsely '	Vegetated (	Concave S	urface (	(B8)									
ield Observa								T					
Surface Water	r Present?	Yes		No 🖪	Depth (inc	hes)							
Vater Table F			<b>✓</b>	_	Depth (inc			_					
Saturation Pre	esent?			No				_	Wetland H	ydrology	Present?	Yes 🔽	No
includes capi Describe Rec		(stream ga	uge, m	onitoring	well, aerial p	hotos, pr	evious	inspecti	ons), if avai	lable:			
Remarks:	نظ احمادت	ıdrala : !::	عاجياهم		orobio ===!4!	on cail-		otod t-	ourfees !-	iah+	rtable =:=:	d a na = :+:. : -	LAC Na
Evidence of v	wetiand hy	arology ir	iciude	s geom	orpnic positi	on, soils	satur	ated to	surrace, h	ign watei	r table, and	a positive	FAC-Neu
est.													

Project/Site: Silicon Mountain Wetland Mitigation Site	City/County: Silver Boy	v Sampling Date: 6/29/2021
Applicant/Owner: MDT		State: Montana Sampling Point: DP05u
Investigator(s): R Quire, S Weyant, R Jones		
Landform (hillslope, terrace, etc.): Mound	Local relief (concave, co	onvex, none): convex Slope (%): 2
Subregion (LRR): LRR E	Lat: 46.001754	Long:112.661451 Datum: NAD 83
Subregion (LRR): LRR E Soil Map Unit Name: 58B: Varney-Anaconda loams, 0-	4% slopes, moderately impacte	d NWI classification. Not Mapped.
Are climatic / hydrologic conditions on the site typical for thi		
Are Vegetation, Soil, or Hydrology s	significantly disturbed? Are "N	Jormal Circumstances" present? Yes <u>✔</u> No
Are Vegetation, Soil, or Hydrology r		
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes N	o <u>V</u>	
Hydric Soil Present? Yes N		
Wetland Hydrology Present? Yes N	o Within a vvettand	Tes No
Remarks: Upland sample point located on mound above wetla	and cell 5.	
VEGETATION - Use scientific names of plan	nt	
Tree Stratum Plot size (30 Foot Radius) % Cover		Dominance Test worksheet
<u>Iree Stratum</u> Plot size (30 Foot Radius) % Cover	: Species? Status	Number of Dominant Species that are OBL, FACW or FAC:
		Total Number of Dominant Species Across All Strata:  2 (B)
		Percent of Dominant Species That Are OBL, FACW, or FAC:  0 % (A/B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Prevalence Index worksheet
Artemisia tridentata 5	<b>✓</b> NL	Total % Cover of: Multiply by:
		OBL species 0 X 1 0
		FACW species 5 X 2 10 FAC species 10 X 3 30
		FACU species 0 X4 0
Herbaceous Stratum Plot size ( 5 Foot Radius)		UPL species 40 X 5 200
Bromus inermis 30	<b>✓</b> UPL	Column Totals 55 (A) 240 (B)
Elymus repens 5		Prevalence Index = B/A = 4.36364
Euphorbia esula 2		Hydrophytic Vegetation Indicators
Juncus balticus 5 Levmus cinereus 5		1 - Rapid Test for Hydrophytic Vegetation
Leymus cinereus 5 Thlaspi arvense 3		2 - Dominance Test is >50%
Thiaspi ai verise	OI L	☐ 3 - Prevalence Index is <= 3.0
		4 - Morphological Adaptations (Provide supporting data in remarks or on separate
		sheet.  5 - Wetland Non-Vascular Plants
		Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 45		Hydrophytic Vegetation Present?  NO ✓
Remarks:		<u> </u>
BG/litter=45%. Data point is dominated by upland v	egetation.	
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SOIL							Sampling Point: DP05u
Profile Desc	cription: (Des	scribe to the de	pth needed to docu	ment the indicator	or confir	m the absence o	
Depth		atrix		x Features	12	T	Danada
(inches)	Color (mo		Color (moist)	% Type <sup>1</sup>	_Loc <sup>2</sup>	Texture	Remarks
0-03	7.5YR 3	5/2 100				Sandy Loam	2" duff on surface
03-15	10YR 3	100				Loamy Sand	
				- —— ——		·	
<sup>1</sup> Type: C=C	oncentration, l	D=Depletion, RM	л=Reduced Matrix, С	S=Covered or Coate	ed Sand G		ation: PL=Pore Lining, M=Matrix.
Hydric Soil	Indicators: (	Applicable to a	II LRRs, unless othe	rwise noted.)		Indicator	s for Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy Redox (	•			Muck (A10)
	pipedon (A2)		Stripped Matrix	` '		_	Parent Material (TF2)
	istic (A3) en Sulfide (A4)	<b>,</b>	Loamy Mucky I	Mineral (F1) (excep	t MLRA 1		Shallow Dark Surface (TF12) · (Explain in Remarks)
		) Surface (A11)	Depleted Matrix				(Explain in Remarks)
	ark Surface (A		Redox Dark Su			<sup>3</sup> Indicators	s of hydrophytic vegetation and
Sandy N	Mucky Mineral	(S1)	Depleted Dark	Surface (F7)		wetlan	d hydrology must be present,
	Gleyed Matrix		Redox Depress	sions (F8)		unless	disturbed or problematic.
	Layer (if pres	ent):					
Type:							
Depth (in	ches):		<del></del>			Hydric Soil F	Present? Yes No <u>V</u>
HYDROLO		-4					
=	drology Indic		ed; check all that appl	v4)		Sagand	dary Indicators (2 or more required)
		am or one requir					<del>,</del> , , ,
	Water (A1) ater Table (A2)	`		ined Leaves (B9) ( <b>e</b> <b>1, 2, 4A, and 4B)</b>	xcept		ater-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
Saturation		)	Salt Crust	•			ainage Patterns (B10)
$\overline{}$	larks (B1)			vertebrates (B13)			y-Season Water Table (C2)
	nt Deposits (B	2)		Sulfide Odor (C1)			turation Visible on Aerial Imagery (C9)
	posits (B3)	-,	= ' '	Rhizospheres along	Living Ro		omorphic Position (D2)
Algal Ma	at or Crust (B4	·)	Presence	of Reduced Iron (C	4)	Sha	allow Aquitard (D3)
Iron Dep	oosits (B5)		Recent Iro	n Reduction in Tille	d Soils (C	6) <u> </u>	C-Neutral Test (D5)
Surface	Soil Cracks (E	36)	Stunted or	Stressed Plants (D	1) (LRR A	A) Rai	ised Ant Mounds (D6) (LRR A)
Inundati	on Visible on A	Aerial Imagery (	B7) Other (Exp	olain in Remarks)		Fro	ost-Heave Hummocks (D7)
Sparsely	y Vegetated C	oncave Surface	(B8)				
Field Obser							
Surface Wat		Yes		ches):			
Water Table		Yes	_	ches):	- 1		
Saturation P	resent? pillary fringe)	Yes	No Depth (in	ches):	_ Wet	land Hydrology	Present? Yes No _
Describe Re	corded Data (:	stream gauge, n	nonitoring well, aerial	photos, previous ins	pections)	, if available:	
	,	'			,		
Remarks:							
No evidence	e of wetland	hydrology obs	erved.				

Project/Site: Silicon Mountain Wetland Mitigation Site			Sampling Date: 6/29/2021
Applicant/Owner: MDT			State: MontanaSampling Point: DP05w
Investigator(s): R Quire, S Weyant, R Jones	Secti	ion, Township, Range:	S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Depression	Loca	al relief (concave, conve	ex, none): concave Slope (%): 3
Subregion (LRR): LRR E	_ Lat:	46.001778 <sub>Lor</sub>	ng:NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionaly floode	d-Mannixlee, f	frequently flooded co	omple NWI classification: Not Mapped.
Are climatic / hydrologic conditions on the site typical for this	time of year?	Yes 🔽 No 🔲	_ (If no, explain in Remarks.)
Are Vegetation $\overline{\square}$ , Soil $\overline{\square}$ , or Hydrology $\overline{\square}$ si	gnificantly distu	rbed? Are "Norn	nal Circumstances" present? Yes 🗹 No 🔲
Are Vegetation, Soil, or Hydrology na			
SUMMARY OF FINDINGS – Attach site map s		mpling point loca	tions, transects, important features, etc.
Hydrophytic Vegetation Present? Yes Ves No		Is the Sampled Area	a
Wetland Hydrology Present? Yes V		within a Wetland?	Yes No
Remarks:			
PEM/PSS depressional wetland. Sample point locate	ed within wetla	and cell 5.	
VEGETATION - Use scientific names of plan			
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover:		Indicator Status	Dominance Test worksheet
	·		Number of Dominant Species hat are OBL, FACW or FAC:  4 (A)
			otal Number of Dominant Species Across All Strata:  4 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)			Percent of Dominant Species That Are OBL, FACW, or FAC:  100 % (A/B)
Salix exigua 10	<b>✓</b> FA	Λ C\Λ/	Prevalence Index worksheet
Salix lutea 3		DI _	Total % Cover of: Multiply by:
Gailletia	<u> </u>		DBL species 41 X 1 41
			FAC species 0 X3 0
			FACU species 0 X 4 0
<u>Herbaceous Stratum</u> Plot size ( 5 Foot Radius)		U	JPL species 0 X 5 0
Calamagrostis stricta 1	FA	VCM C	Column Totals 68 (A) 95 (B)
Carex nebrascensis 2	ОВ		Prevalence Index = B/A = 1.39706
Carex pellita 3	OB		Hydrophytic Vegetation Indicators
Eleocharis palustris 30	✓ OB		1 - Rapid Test for Hydrophytic Vegetation
Juncus balticus 15		CW	✓ 2 - Dominance Test is >50%
Mentha arvensis 1 Potentilla anserina 3	☐ OB	ACW	✓ 3 - Prevalence Index is <= 3.0
1 otentina arisemia		<u> </u>	4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
			5 - Wetland Non-Vascular Plants
			Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)			dicators of hydric sil and wetland hydrology must be
1 lot 5/26 ( 50 1 oot (Addius)		pr	resent, unless disturbed or problematic for #3, 4, 5.
Boroont Pore Cround 45		V	Hydrophytic /egetation Yes ✓ NO ☐  Present?
Percent Bare Ground 45 Remarks:		<u></u>	
BG/litter=45%. Evidence of hydrophytic vegetation in index less than or equal to 3.0.	ncludes passir	ng the rapid test, pas	ssing the dominance test, and a prevalence
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SOIL									Sampling Point: DP05w
Profile Desc	cription: (D	escribe	to the de	oth need	ed to docum	ent the indic	ator or c	onfirm tl	he absence of indicators.)
Depth		Matrix				Features	1 .		
(inches)	Color (r		%	Colo	r (moist)	<u> % Ty</u>	ype <sup>1</sup> L	oc <sup>2</sup>	Texture Remarks
0-05	N	2.5/0	100						dy Clay Loam
05-09	10YR	3/1	100					Lo	pamy Sand
09-12	2.5Y	3/2	100					Sand	dy Clay Loam
1									2
					d Matrix, CS= inless otherv		Coated Sa	and Grair	ns. <sup>2</sup> Location: PL=Pore Lining, M=Matrix. Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol		(Applic	able to al		ndy Redox (S	-			2 cm Muck (A10)
	pipedon (A2	1		_	pped Matrix (				Red Parent Material (TF2)
	istic (A3)	)		_	imy Mucky Mi	,	vcent MI	<b>ΒΛ 1</b> )	☐ Very Shallow Dark Surface (TF12)
	en Sulfide (A	<b>(4)</b>		$\overline{}$	imy Gleyed M	, , ,	xcept wit	INA I)	Other (Explain in Remarks)
	d Below Dai		e (A11)		oleted Matrix				
_	ark Surface			_	dox Dark Surf	` '			<sup>3</sup> Indicators of hydrophytic vegetation and
	Mucky Miner				oleted Dark S				wetland hydrology must be present,
Restrictive	Gleyed Matri			<u></u> Red	dox Depression	ons (F8)			unless disturbed or problematic.
	Layer (II pro	1-1							
Depth (in									Hydric Soil Present? Yes <u>✓</u> No
Remarks:									
HYDROLO	GY								
Wetland Hy									
			ne require	d; check	all that apply				Secondary Indicators (2 or more required)
_	Water (A1)					ed Leaves (E		pt	Water-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (A	<del>(</del> 2)			7	, 2, 4A, and 4	4B)		4A, and 4B)
Saturation Notes M					Salt Crust (I	ertebrates (B	12)		Drainage Patterns (B10) Dry-Season Water Table (C2)
	larks (B1) nt Deposits	(B2)			Hydrogen S				Saturation Visible on Aerial Imagery (C9)
	posits (B3)	(62)		Ť	-	nizospheres a		na Roots	_
	at or Crust (I	B4)		Ī	_	Reduced Iro	_	ig rtooto	Shallow Aquitard (D3)
	posits (B5)	/			_	Reduction in	, ,	oils (C6)	FAC-Neutral Test (D5)
	Soil Cracks	(B6)			_	Stressed Plar		, ,	Raised Ant Mounds (D6) (LRR A)
	ion Visible o		magery (E	(7)	-	ain in Remar		,	Frost-Heave Hummocks (D7)
Sparsely	y Vegetated	Concave	Surface	(B8)					
Field Obser	vations:			_					
Surface Wat	er Present?	Υ	es	No	🙎 Depth (incl	nes):			
Water Table	Present?	Υ	es 🔽	No	Depth (incl	nes):			
Saturation P (includes car			es 🔽	No	Depth (incl	nes):	0	Wetlan	d Hydrology Present? Yes 🔽 No 🔲
			gauge, m	onitoring	well, aerial pl	notos, previo	us inspect	tions), if a	available:
Remarks:									
	f wetland h	ydroloav	/ include	sulfidic	odor, high w	ater table.	soils satı	urated to	o surface, geomorphic position, and a positive
FAC-Neutra		9.			, 3	,		- •	7.0 1 1

US Army Corps of Engineers

Project/Site: Silicon Mountain Wetland Mitigation Site	City/County: Silver Bow Sampling Date: 6/29/2021
Applicant/Owner: MDT	State: Montana Sampling Point: DP06u
Investigator(s): R Quire, S Weyant, R Jones	Section, Township, Range: S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Hillside	Local relief (concave, convex, none): flat Slope (%): 5  45.998036 Long:112.664236 Datum: NAD 83  ixlee, frequently flooded comple NWI classification: Not Mapped.
Subregion (LRR): LRR E	45.998036 Long:112.664236 Datum: NAD 83
Soil Map Unit Name: 12A: Riverrun, occasionaly flooded-Man	ixlee, frequently flooded comple NWI classification. Not Mapped.
Are climatic / hydrologic conditions on the site typical for this time o	
Are Vegetation, Soil, or Hydrology significal	ly disturbed? Are "Normal Circumstances" present? Yes 🗹 No 🗌
Are Vegetation, Soil, or Hydrology naturally	problematic? (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map show	ng sampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present?  Hydric Soil Present?  Wetland Hydrology Present?  Remarks:  Yes No  No  Remarks:	Is the Sampled Area within a Wetland? Yes No
Upland sample point located on hillside above DP06w.	
VEGETATION - Use scientific names of plant	
<u>Tree Stratum</u> Plot size (30 Foot Radius) Absolute Dom % Cover: Spec	
	Number of Dominant Species that are OBL, FACW or FAC:  (A)
	Total Number of Dominant Species Across All Strata:  4 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)	Percent of Dominant Species That Are OBL, FACW, or FAC:  (A/B)
Artemisia tridentata 10	NL Prevalence Index worksheet
Ericameria nauseosa 5	Total % Cover of: Multiply by:
Herbaceous Stratum Plot size ( 5 Foot Radius)	OBL species 0 X 1 0 FACW species 0 X 2 0 FAC species 5 X 3 15 FACU species 10 X 4 40 UPL species 30 X 5 150
Elymus spicatus 5	All .
Festuca ovina 10	UPI Solution 15td 45 (1) 203 (5)
Leymus cinereus 5	FAC Prevalence Index = B/A = 4.55556
Pascopyrum smithii 10  Woody Vine Stratum Plot size ( 30 Foot Radius)	FACU  Hydrophytic Vegetation Indicators  1 - Rapid Test for Hydrophytic Vegetation  2 - Dominance Test is >50%  3 - Prevalence Index is <= 3.0  4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.  5 - Wetland Non-Vascular Plants  Problematic Hydrophytic Vegetation (Explain)  Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
	Hydrophytic Vegetation Yes □ NO ✓ Present?
Percent Bare Ground 60 Remarks:	riesent?
	sa contribute 10% of cover within herb stratum. Data point is dominated by
US Army Corps of Engineers	Western Mountains, Valleys, and Coasts - Version 2.0

SOIL								Sampling Point: DP06u
Profile Desc	cription: (I	Describe	to the dep	th needed to docur	nent the indicator	or confi	rm the absence o	
Depth		Matrix			x Features	2	_	
(inches)	Color (		%	Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup> _	Texture	Remarks
0-03	7.5YR	2.5/1	100				Loamy Sand	
03-09	2.5Y	4/2	100				Loamy Sand	Gravelly, hard.
09+							Gravels	Gravel bottom
	,							
						-		
<sup>1</sup> Type: C=C	oncentratio	n D=Den	letion RM=		S=Covered or Coat	ed Sand (		tion: PL=Pore Lining, M=Matrix.
				LRRs, unless other		<u> </u>		s for Problematic Hydric Soils <sup>3</sup> :
Histosol	(A1)			Sandy Redox (S	S5)			Muck (A10)
	pipedon (A	2)		Stripped Matrix			_	Parent Material (TF2)
	istic (A3)	۸ ۸)			Mineral (F1) (excep	ot MLRA 1		Shallow Dark Surface (TF12)
	en Sulfide (/ d Below Da		e (A11)	Loamy Gleyed Depleted Matrix			Other	(Explain in Remarks)
	ark Surface		<i>(</i> ( ( ) )	Redox Dark Su			<sup>3</sup> Indicators	s of hydrophytic vegetation and
	/lucky Mine			Depleted Dark				d hydrology must be present,
	Sleyed Mati			Redox Depress	ions (F8)		unless	disturbed or problematic.
Restrictive		resent):						
Type:							Usalaia Cail D	resent? Yes 🔲 No 🔽
Depth (in Remarks:							Hydric Soil P	resent? res No _ <del></del>
LIVEROLO	OV							
HYDROLO Wetland Hy		dicators:						
_	==		ne required	d; check all that apply	v)		Second	ary Indicators (2 or more required)
	Water (A1)		no roquiroc		ned Leaves (B9) (	except		ter-Stained Leaves (B9) (MLRA 1, 2,
	ater Table (				1, 2, 4A, and 4B)	жосрі		4A, and 4B)
Saturation		,		Salt Crust				ninage Patterns (B10)
Water M	larks (B1)			Aquatic Inv	vertebrates (B13)			-Season Water Table (C2)
	nt Deposits	(B2)		— · ·	Sulfide Odor (C1)			uration Visible on Aerial Imagery (C9)
	posits (B3)				Rhizospheres along	_	` ' —	omorphic Position (D2)
	at or Crust (	(B4)		=	of Reduced Iron (C	,		allow Aquitard (D3) C-Neutral Test (D5)
	oosits (B5) Soil Cracks	s (B6)			n Reduction in Tille Stressed Plants ([	-	_	sed Ant Mounds (D6) (LRR A)
	on Visible o		magery (B7	_	plain in Remarks)	) (Litt		st-Heave Hummocks (D7)
_	y Vegetated			. —	,			,
Field Obser	vations:							
Surface Wat	er Present?	? Y	es I	No <u> </u>	ches):			
Water Table	Present?	Y	es 🔲 📗	No <u> </u>	ches):	- 1		
Saturation P (includes car	oillary fringe	e)			ches):			Present? Yes No
Describe Re	corded Dat	a (stream	gauge, mo	nitoring well, aerial p	photos, previous in	spections	), if available:	
Remarks:								
No evidence	e of wetlar	nd hydrol	ogy obse	rved.				

Project/Site: Silicon Mounta	ain Wetland Mitigation Site	City/County: Silver Bov	N Sampling Date: 6/29/2021
Applicant/Owner: MDT			State: Montana_ Sampling Point: DP06w
Investigator(s): R Quire, S V	Weyant, R Jones	Section, Township, Ran	ge: <b>S</b> 24 <b>T</b> 3N <b>R</b> 9W
Landform (hillslope, terrace, e	<sub>etc.):</sub> Depression	Local relief (concave, c	onvex, none): concave Slope (%): 3
Subregion (LRR): LRR E		Lat: 45.998041	Long:112.664075 Datum: NAD 83  d comple NWI classification: Not Mapped.
Soil Map Unit Name: 12A: R	tiverrun, occasionaly flooded-	Mannixlee, frequently flooded	d comple NWI classification: Not Mapped.
Are climatic / hydrologic cond	litions on the site typical for this ti	me of year? Yes 🔽 No _[	(If no, explain in Remarks.)
Are Vegetation, Soil _	$\overline{\square}$ , or Hydrology $\overline{\square}$ sigr	nificantly disturbed? Are "N	Normal Circumstances" present? Yes 🗹 No 🔲
Are Vegetation, Soil _	, or Hydrology nat	urally problematic? (If nea	eded, explain any answers in Remarks.)
SUMMARY OF FINDIN	GS – Attach site map sh	nowing sampling point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Pre	sent? Yes <u> V</u> No _		
Hydric Soil Present?	Yes No _	within a Wetland	
Wetland Hydrology Present	? Yes <u>V</u> No _	within a vvetiant	ur res <u>u</u> No <u>u</u>
Remarks: PEM depressional wetlar	nd. Sample point located withi	in constructed wetland cell 6	
1 EW depressional wettar	ia. Campie point located with	in constructed wettand cen c.	
VEGETATION - Use s	scientific names of plant		
	Absolute	Domiant Indicator	Dominance Test worksheet
<u>Tree Stratum</u> Plot size (	30 Foot Radius) % Cover:	Species? Status	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 FAC:  100 % (A/B)
Sapinig/Siliub Stratum	Flot Size (15 Foot Radius)		Prevalence Index worksheet
			Total % Cover of: Multiply by:
			OBL species 0 X 1 0
			FACW species 20 X 2 40 FAC species 35 X 3 105
			FACU species 0 X4 0
Herbaceous Stratum	Plot size ( 5 Foot Radius)		UPL species 0 X 5 0
Elymus trachycaulus	5	FAC	Column Totals 55 (A) 145 (B)
Hordeum jubatum	10	FAC	Prevalence Index = B/A = 2.63636
Poa palustris	5	FAC	Hydrophytic Vegetation Indicators
Polygonum aviculare	15	FAC FAC	1 - Rapid Test for Hydrophytic Vegetation
Rumex salicifolius	20	<b>✓</b> FACW	✓ 2 - Dominance Test is >50%
			✓ 3 - Prevalence Index is <= 3.0
			<ul> <li>4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.</li> </ul>
			5 - Wetland Non-Vascular Plants
			Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum	Plot 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 Gro	ound 45		Vegetation Yes ✓ NO ☐ Present?
Remarks:			
BG/litter=45%. Evidence 3.0.	of hydrophytic vegetation inc	andes passing the dominance	e test and a prevalence index less than or equal to
LIC Army: Comes of Figure	<u></u>		Western Mountains Valleur and Occasio Vand. Co.
US Army Corps of Enginee	18		Western Mountains, Valleys, and Coasts - Version 2.0

OIL											ampling Point:	
Profile Descrip	tion: (Descri	be to the de	pth neede	d to docur	nent the i	ndicat	or or conf	irm the abs	ence of			
Depth	Matri:				x Feature		e <sup>1</sup> Loc <sup>2</sup>				Danasadas	
(inches)	Color (moist)			(moist)	%	Туре					Remarks	
0-10	10YR 4/2	97	7.5YR	4/6	3	С	PL,M	Sandy L	oam			
10+								Rock	(	Rock	oottom	
			-		_							
			_									
			-		-							
	antrotion D-F			d Matrix, CC						tion. DI -	Dana Linina M	_ N / a taix
Гуре: C=Cond lydric Soil Ind							ated Sand				Pore Lining, N Iematic Hydr	
☐ Histosol (A				dy Redox (S		,		Г	_	Muck (A10	_	
Histic Epipe	,		_	ped Matrix	,						erial (TF2)	
Black Histic	(A3)			ny Mucky N		1) (exc	ept MLRA	1)	Very S	Shallow Da	ark Surface (T	F12)
Hydrogen S				my Gleyed	-	!)			Other	(Explain i	n Remarks)	
	elow Dark Sur		_ :	leted Matrix	. ,			3.				
=	Surface (A12)		_	ox Dark Su leted Dark \$	, ,						hytic vegetati	
	ky Mineral (S1 ved Matrix (S4)			ox Depress	,	-7)					y must be pre or problematio	
estrictive Lay				OX Depiess	10113 (1 0)				unicoo	distarbed	or problematic	·.
	es):							Hvdrid	Soil P	resent?	Yes 🔽	No 🔲
	morphic con	centrations	common	along por	e linings	and w	vithin the o	depleted m	natrix.			
istinct redoxi		centrations	common	along por	e linings	and w	vithin the o	depleted m	natrix.			
istinct redoxi	/ logy Indicato	rs:				and w	vithin the o					
/DROLOGY	<b>/</b> logy Indicato ors (minimum d	rs:		all that apply	у)				Second	•	ors (2 or more	
/DROLOGY /etland Hydro rimary Indicate Surface Wa	/ logy Indicato ors (minimum dater (A1)	rs:		all that appl Water-Stai	y) ined Leav	es (B9)	(except		Second	ter-Staine	d Leaves (B9)	
/DROLOGY /etland Hydro rimary Indicate Surface Wa	logy Indicato ors (minimum o ater (A1) Table (A2)	rs:		all that appl Water-Stai MLRA	y) ined Leav 1, 2, 4A, a	es (B9)	(except		Second Wa	ter-Stained 4A, and 4l	d Leaves (B9)	
/DROLOGY /etland Hydro rimary Indicate Surface Wa	logy Indicato ors (minimum o ater (A1) Table (A2)	rs:		all that appl Water-Stai <b>MLRA</b> Salt Crust	y) ined Leav <b>1, 2, 4A</b> , <i>a</i> (B11)	es (B9)	(except		Second Wa	ter-Stained 1A, and 4I inage Patt	d Leaves (B9) B) erns (B10)	(MLRA 1,
/DROLOGY /etland Hydro rimary Indicate Surface Wa High Water Saturation of	logy Indicato ors (minimum o ater (A1) Table (A2) (A3) (s (B1)	rs:		all that apple Water-Stai MLRA Salt Crust Aquatic Inv	y) ined Leav <b>1, 2, 4A</b> , a (B11) vertebrate	es (B9) and <b>4B</b> s (B13)	(except )		Second War Dra Dry	ter-Stained  A, and 4  inage Patt  -Season V	d Leaves (B9)  B)  erms (B10)  Vater Table (C	(MLRA 1,
/DROLOGY /etland Hydro rimary Indicate Surface Wa High Water Saturation ( Water Mark	rology Indicato ors (minimum of ater (A1) Table (A2) (A3) (s (B1) Deposits (B2)	rs:	ed; check a	all that apply Water-Stai MLRA Salt Crust Aquatic Inv	y) ined Leav 1, <b>2, 4A</b> , a (B11) vertebrate Sulfide Od	es (B9) and <b>4B</b> s (B13) dor (C1	(except )		Second.  Wa Dra  Dry Sati	ter-Stained  A, and 4  inage Patt -Season Visuration Vis	d Leaves (B9)  B)  erns (B10)  Vater Table (Coulon Sible on Aerial	(MLRA 1,
/DROLOGY /etland Hydro rimary Indicate Surface Wa High Water Saturation ( Water Mark Sediment D Drift Depos	rology Indicato ors (minimum of ater (A1) Table (A2) (A3) as (B1) deposits (B2) its (B3)	rs:	ed; check a	all that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oo Rhizosphe	es (B9) and 4B s (B13) dor (C1 res alo	(except ) ) ) ) ng Living F		Second.  War  Dra  Dry  Satt	ter-Stained  1A, and 4I  inage Patt -Season V  uration Vis	d Leaves (B9)  B)  Terns (B10)  Vater Table (Colored)  Sible on Aerial  Position (D2)	(MLRA 1,
/DROLOGY /etland Hydro rimary Indicate Surface Wa High Water Saturation ( Water Mark Sediment D Drift Depos	r Crust (B4)	rs:	ed; check a	wall that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oo Rhizosphe of Reduce	es (B9) and 4B s (B13) dor (C1 res alored from the	(except ) ) ) ) ng Living F		Second War Dra Dry Satt Gec Sha	ter-Stained  4A, and 4I  inage Patt  -Season V  uration Vis  omorphic I  illow Aquit	d Leaves (B9) B) erns (B10) Vater Table (C sible on Aerial Position (D2) ard (D3)	(MLRA 1,
VEROLOGY Vetland Hydro Surface Wa High Water Saturation of Water Mark Sediment D Drift Depos Algal Mat o	rology Indicato ors (minimum of ater (A1) Table (A2) (A3) as (B1) Deposits (B2) its (B3) r Crust (B4)	rs:	ed; check a	wall that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti	es (B9) and 4B s (B13) dor (C1 res alor dor in T	(except ) ) ) ng Living F (C4) illed Soils (	Roots (C3)	Second War Dra Dry Sati	ter-Stained  4A, and 4I  inage Pati -Season V  uration Vis  omorphic I  clow Aquit	d Leaves (B9) B) erns (B10) Vater Table (Cosible on Aerial Position (D2) ard (D3) Fest (D5)	(MLRA 1,
/DROLOGY /etland Hydro rimary Indicate Surface Wa High Water Saturation of Water Mark Sediment □ Drift Depos Algal Mat o Iron Deposi	rology Indicato ors (minimum of ater (A1) Table (A2) (A3) (s (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6)	rs: of one require	ed; check a	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti	es (B9) and 4B s (B13) dor (C1 res alor ed Iron on in Ti	(except ) ) ) ng Living F (C4) illed Soils (	Roots (C3)	Second.  Wa Dra Dry Sati Geo Sha FAC	ter-Stained  1A, and 4I  inage Patt  -Season V  uration Vis  pmorphic I  tillow Aquit  C-Neutral  sed Ant M	d Leaves (B9) B) erns (B10) Vater Table (Colliber on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L	(MLRA 1,
/DROLOGY /etland Hydro rimary Indicate Surface Wa High Water Saturation of Water Mark Sediment D Drift Depos Algal Mat o Iron Deposi Surface So Inundation	rology Indicato ors (minimum of ater (A1) Table (A2) (A3) (S (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) ill Cracks (B6) Visible on Aeri	rs: of one require	ed; check a	wall that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti	es (B9) and 4B s (B13) dor (C1 res alor ed Iron on in Ti	(except ) ) ) ng Living F (C4) illed Soils (	Roots (C3)	Second.  Wa Dra Dry Sati Geo Sha FAC	ter-Stained  1A, and 4I  inage Patt  -Season V  uration Vis  pmorphic I  tillow Aquit  C-Neutral  sed Ant M	d Leaves (B9) B) erns (B10) Vater Table (Cosible on Aerial Position (D2) ard (D3) Fest (D5)	(MLRA 1,
/DROLOGY /etland Hydro rimary Indicate Surface Wa High Water Saturation Water Mark Sediment D Drift Depos Algal Mat o Iron Deposi Surface So Inundation Sparsely Ve	logy Indicato ors (minimum of ater (A1) Table (A2) (A3) is (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6) Visible on Aeriegetated Conce	rs: of one require	ed; check a	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti	es (B9) and 4B s (B13) dor (C1 res alor ed Iron on in Ti	(except ) ) ) ng Living F (C4) illed Soils (	Roots (C3)	Second.  Wa Dra Dry Sati Geo Sha FAC	ter-Stained  1A, and 4I  inage Patt  -Season V  uration Vis  pmorphic I  tillow Aquit  C-Neutral  sed Ant M	d Leaves (B9) B) erns (B10) Vater Table (Colliber on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L	(MLRA 1,
Vetland Hydro Vetland Hydro Vetland Hydro Vetland Hydro Vetland Hydro Vetland High Water Vetland Water Mark Vetland Mark Vetland High Water Vetla	rology Indicato ors (minimum of ater (A1) Table (A2) (A3) as (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6) Visible on Aeri egetated Condi	rs: of one require	ed; check a	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti Stressed	es (B9) and 4B s (B13) dor (C1 res aloued Iron to on in The Plants emarks)	(except ) ) ) ng Living F (C4) illed Soils ( (D1) (LRF	Roots (C3)	Second.  Wa Dra Dry Sati Geo Sha FAC	ter-Stained  1A, and 4I  inage Patt  -Season V  uration Vis  pmorphic I  tillow Aquit  C-Neutral  sed Ant M	d Leaves (B9) B) erns (B10) Vater Table (Colliber on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L	(MLRA 1,
YDROLOGY Vetland Hydro Vetland Hydro Vimary Indicate Surface Water Saturation Water Mark Sediment D Drift Depos Algal Mat o Iron Deposi Verificate So Inundation Sparsely Verificate Water F	Ilogy Indicato ors (minimum of ater (A1) Table (A2) (A3) as (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6) Visible on Aeri egetated Conc ions:	rs: of one require al Imagery (I ave Surface	ed; check a	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti Stressed blain in Re	es (B9) and 4B s (B13) dor (C1 res alor od Iron on in Ti Plants	(except ) ) ) ng Living F (C4) illed Soils (	Roots (C3)	Second.  Wa Dra Dry Sati Geo Sha FAC	ter-Stained  1A, and 4I  inage Patt  -Season V  uration Vis  pmorphic I  tillow Aquit  C-Neutral  sed Ant M	d Leaves (B9) B) erns (B10) Vater Table (Colliber on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L	(MLRA 1,
YDROLOGY Vetland Hydro Vetland Hydro Vetland Hydro Surface Wa High Water Saturation Water Mark Sediment D Drift Depos Algal Mat o Iron Deposi Y Surface So Inundation Sparsely Water Fetale Observat	Ilogy Indicato ors (minimum of ater (A1) Table (A2) (A3) is (B1) Deposits (B2) its (B3) ir Crust (B4) its (B5) ill Cracks (B6) Visible on Aeri egetated Conc ions:	rs: of one require al Imagery (I ave Surface	ed; check a	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence Recent Iro Stunted or Other (Exp	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Or Rhizosphe of Reduce n Reducti Stressed blain in Re ches):	es (B9) and 4B s (B13) dor (C1 res alor do Iron on in Ti Plants emarks)	(except ) ) ng Living F (C4) illed Soils ( (D1) (LRF	C(C6)	Second.  Wa Dra Dry Sat Geo Sha FAO Rai	ter-Stained  4A, and 4I  inage Patt  Season V  uration Visionorphic I  illow Aquit  C-Neutral  sed Ant M  st-Heave I	d Leaves (B9) B) erns (B10) Vater Table (Colliber on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L	(MLRA 1, C2) Imagery (C RR A) 7)
YDROLOGY Vetland Hydro Vetland Hydro Surface Wa High Water Saturation of Orift Depose Algal Mat of Iron Depose Surface So Inundation Sparsely Veter Gurface Water F Vater Table Present Caturation Present	rology Indicators (minimum of ater (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3	al Imagery (Iave Surface  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye	B7)	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oo Rhizosphe of Reduce n Reducti : Stressed blain in Re ches): ches):	es (B9) and 4B s (B13) dor (C1 res alor dor in Ti Plants emarks)	(except ) ) ng Living F (C4) illed Soils ( (D1) (LRF	Roots (C3)	Second.  Wa Dra Dry Satt Geo Sha FAO Raii Fro:	ter-Stained  4A, and 4I  inage Patt  Season V  uration Visionorphic I  illow Aquit  C-Neutral  sed Ant M  st-Heave I	d Leaves (B9) B) erns (B10) Vater Table (C sible on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L Hummocks (D	(MLRA 1, C2) Imagery (C RR A) 7)
YDROLOGY Vetland Hydro Vetland Hydro Surface Wa High Water Saturation of Orift Depose Algal Mat of Iron Depose Surface So Inundation Sparsely Veter Gurface Water F Vater Table Present Caturation Present	rology Indicators (minimum of ater (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3	al Imagery (Iave Surface  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye	B7)	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oo Rhizosphe of Reduce n Reducti : Stressed blain in Re ches): ches):	es (B9) and 4B s (B13) dor (C1 res alor dor in Ti Plants emarks)	(except ) ) ng Living F (C4) illed Soils ( (D1) (LRF	Roots (C3)	Second.  Wa Dra Dry Satt Geo Sha FAO Raii Fro:	ter-Stained  4A, and 4I  inage Patt  Season V  uration Visionorphic I  illow Aquit  C-Neutral  sed Ant M  st-Heave I	d Leaves (B9) B) erns (B10) Vater Table (C sible on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L Hummocks (D	(MLRA 1, C2) Imagery (C RR A) 7)
High Water Saturation of Sediment Depose Algal Mat of Iron Depose Surface So Inundation Sparsely Vericle Observat Surface Water F Water Table Presentuation Presentudes capilla Describe Record	rology Indicators (minimum of ater (A1) Table (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3	al Imagery (Iave Surface  Yes  Yes  Yes  Yes  Yes  Yes  Yes  Ye	B7)	Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oo Rhizosphe of Reduce n Reducti : Stressed blain in Re ches): ches):	es (B9) and 4B s (B13) dor (C1 res alor dor in Ti Plants emarks)	(except ) ) ng Living F (C4) illed Soils ( (D1) (LRF	Roots (C3)	Second.  Wa Dra Dry Satt Geo Sha FAO Raii Fro:	ter-Stained  4A, and 4I  inage Patt  Season V  uration Visionorphic I  illow Aquit  C-Neutral  sed Ant M  st-Heave I	d Leaves (B9) B) erns (B10) Vater Table (C sible on Aerial Position (D2) ard (D3) Test (D5) ounds (D6) (L Hummocks (D	(MLRA 1, C2) Imagery (C RR A) 7)
YDROLOGY Vetland Hydro Vetland Hydro Surface Wa High Water Saturation of Orift Depose Algal Mat of Iron Depose Surface So Inundation Sparsely Veter Gurface Water F Vater Table Present Caturation Present	Ilogy Indicato pres (minimum of ater (A1) Table (A2) (A3) is (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6) Visible on Aeric egetated Conc ions: Present? esent? ent? ary fringe) ded Data (stre	al Imagery (Iave Surface  Yes Yes am gauge, m	ed; check a	All that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti Stressed blain in Re ches): ches): photos, pr	es (B9) and 4B s (B13) dor (C1 res alor dor in Ti Plants emarks)	(except ) ) ng Living F (C4) illed Soils (D1) (LRF	Roots (C3)	Second War Dra Dra Satt Second Factor Second Factor Second Factor	ter-Stained  4A, and 4I inage Pati -Season V uration Vis pmorphic I illow Aquit C-Neutral sed Ant M st-Heave I	d Leaves (B9) B) lerns (B10) Vater Table (Cosible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L Hummocks (D	(MLRA 1, (MLRA 1, (MLRA 1, (C) (C) (C) (RR A) (T) (No
YDROLOGY Vetland Hydro Primary Indicate Surface Water High Water Saturation Water Mark Sediment D Drift Depos Algal Mat o Iron Deposi Surface So Inundation Sparsely Veter Gutface Water F Vater Table Presincludes capilla Describe Recon	Ilogy Indicato pres (minimum of ater (A1) Table (A2) (A3) Is (B1) Deposits (B2) Its (B3) Ir Crust (B4) Its (B5) Its (B5) Its (B5) Its (B6) Visible on Aericegetated Concions: Present? Present.	al Imagery (Iave Surface  Yes Yes am gauge, mogy include	ed; check a	All that apply Water-Stai MLRA Salt Crust Aquatic Inv Hydrogen Oxidized F Presence of Recent Iro Stunted or Other (Exp	y) ined Leav 1, 2, 4A, a (B11) vertebrate Sulfide Oc Rhizosphe of Reduce n Reducti Stressed blain in Re ches): ches): photos, pr	es (B9) and 4B s (B13) dor (C1 res alor dor in Ti Plants emarks)	(except ) ) ng Living F (C4) illed Soils (D1) (LRF	Roots (C3)	Second War Dra Dra Satt Second Factor Second Factor Second Factor	ter-Stained  4A, and 4I inage Pati -Season V uration Vis pmorphic I illow Aquit C-Neutral sed Ant M st-Heave I	d Leaves (B9) B) lerns (B10) Vater Table (Cosible on Aerial Position (D2) ard (D3) Fest (D5) ounds (D6) (L Hummocks (D	(MLRA 1, (MLRA 1, (MLRA 1, (C) (C) (C) (RR A) (T) (No

Project/Site: Silicon Mountain Wetland Mitigation Site		ilver Bow Sampling Date: 6/29/2021
Applicant/Owner: MDT		State: Montana_ Sampling Point: DP07u
Investigator(s): R Quire, S Weyant, R Jones		
Landform (hillslope, terrace, etc.): Terrace	Local relief (co	oncave, convex, none): undulating Slope (%): 9
Subregion (LRR): LRR E	Lat:46.0	D02492 Long:         -112.658244 Datum:         NAD 83           impacted         NWI classification:         Not Mapped.
Soil Map Unit Name: 58B: Varney-Anaconda loams, 0-4	% slopes, moderately	impacted NWI classification: Not Mapped.
Are climatic / hydrologic conditions on the site typical for this		
Are Vegetation, Soil, or Hydrology sig	nificantly disturbed?	Are "Normal Circumstances" present? Yes 🔽 No 🗌
Are Vegetation, Soil, or Hydrology na		
SUMMARY OF FINDINGS – Attach site map s	howing sampling p	point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes  No Hydric Soil Present? Yes  No Wetland Hydrology Present? Yes  No	✓ Is the S	ampled Area a Wetland? Yes No
Remarks:		
Upland sample point located on terrace upslope of w	etland boundary and D	DP07w.
VEGETATION Has a security and the second		
VEGETATION - Use scientific names of plant  Absolute	Domiant Indicator	
Tree Stratum Plot size (30 Foot Radius) % Cover:		Dominance Test worksheet
		Number of Dominant Species that are OBL, FACW or FAC:
		Total Number of Dominant Species Across All Strata:  4 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC:  0 % (A/B)
,	□ NII	Prevalence Index worksheet
Artemisia tridentata 1 Ericameria nauseosa 5	□ NL ✓ NL	Total % Cover of: Multiply by:
Juniperus scopulorum 10	▼ NL	OBL species 0 X 1 0 FACW species 10 X 2 20
	<u> </u>	FACW species 10 X 2 20 FAC species 5 X 3 15
		FACU species 30 X 4 120
Herbaceous Stratum Plot size ( 5 Foot Radius)		UPL species 31 X 5 155
Carex praegracilis 5	FACW	Column Totals 76 (A) 310 (B)
Elymus trachycaulus 5	FAC	Prevalence Index = B/A = 4.07895
Juncus balticus 5	FACW	Hydrophytic Vegetation Indicators
Linum lewisii 3	□ NL	1 - Rapid Test for Hydrophytic Vegetation
Pascopyrum smithii 20 Poa compressa 10	FACU FACU	2 - Dominance Test is >50%
Poa compressa 10 Stipa viridula 12	✓ NL	3 - Prevalence Index is <= 3.0
- Stipa Miladia		4 - Morphological Adaptations (Provide supporting data in remarks or on separate sheet.
		5 - Wetland Non-Vascular Plants
		Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 35		Hydrophytic Vegetation Present?  NO ✓
Remarks: BG/litter=35%. Juniperus scopulrum contributes 5% of US Army Corps of Engineers	cover within herb strat	um. Data point is dominated by upland vegetation.  Western Mountains, Valleys, and Coasts - Version 2.0

SOIL							Sampling Point: DP07u
Profile Des	cription: (Desci	ibe to the dep	th needed to docur	nent the indicator	or confirn	n the absence of i	
Depth	Mati			x Features	12	Taratana	Danada
(inches)	Color (moist		Color (moist)	% Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
0-03	10YR 3/1	100				Clay Loam	
03-14	7.5YR 5/2	100				Clay Loam	
				. <u> </u>			
<sup>1</sup> Type: C=C	oncentration, D=	Depletion, RM=	Reduced Matrix, CS	S=Covered or Coate	ed Sand G	rains. <sup>2</sup> Locatio	on: PL=Pore Lining, M=Matrix.
			LRRs, unless other				or Problematic Hydric Soils <sup>3</sup> :
Histosol			Sandy Redox (	•			uck (A10)
	pipedon (A2)		Stripped Matrix	, ,		_	rent Material (TF2)
	istic (A3)			Mineral (F1) ( <b>excep</b>	t MLRA 1)		allow Dark Surface (TF12) Explain in Remarks)
	en Sulfide (A4) d Below Dark Su	rface (A11)	Loamy Gleyed Depleted Matrix				explain in Remarks)
	ark Surface (A12		Redox Dark Su			<sup>3</sup> Indicators o	f hydrophytic vegetation and
Sandy N	Mucky Mineral (S	1)	Depleted Dark	Surface (F7)		wetland h	nydrology must be present,
	Gleyed Matrix (S		Redox Depress	ions (F8)		unless di	sturbed or problematic.
	Layer (if presen	t):					
• • • • • • • • • • • • • • • • • • • •							
Depth (in Remarks:	cnes):					Hydric Soil Pre	esent? Yes No <u></u>
HYDROLO							
=	drology Indicat			۸		Casandan	. In diantara (O an manna manuimad)
	·	of one required	l; check all that apply				y Indicators (2 or more required)
	Water (A1) ater Table (A2)			ned Leaves (B9) (e 1, 2, 4A, and 4B)	xcept		r-Stained Leaves (B9) (MLRA 1, 2, A, and 4B)
Saturati			Salt Crust				age Patterns (B10)
_	flarks (B1)			vertebrates (B13)			Season Water Table (C2)
	nt Deposits (B2)			Sulfide Odor (C1)			ation Visible on Aerial Imagery (C9)
	posits (B3)		<u> </u>	Rhizospheres along	Living Roo		norphic Position (D2)
Algal Ma	at or Crust (B4)		Presence	of Reduced Iron (C	4)	Shall	ow Aquitard (D3)
Iron Dep	posits (B5)		Recent Iro	n Reduction in Tille	d Soils (C6	5) <u> </u>	Neutral Test (D5)
Surface	Soil Cracks (B6)	1	Stunted or	Stressed Plants (D	1) (LRR A	) Raise	ed Ant Mounds (D6) (LRR A)
	ion Visible on Ae		. —	olain in Remarks)		Frost	-Heave Hummocks (D7)
	y Vegetated Con	cave Surface (E	38)				
Field Obser		, n					
Surface Wat			_	ches):			
Water Table			_	ches):			
Saturation P (includes ca	pillary fringe)			ches):			resent? Yes No <u></u>
Describe Re	corded Data (str	eam gauge, mo	nitoring well, aerial į	photos, previous ins	spections),	if available:	
Remarks:	\$ 41 1   1						
ino evidenc	e of wetland hy	urology obsel	vea.				

Project/Site: Silicon Mountain Wetland Mitigation Site	City/County: Silver Boy	Sampling Date: 6/29/2021
Applicant/Owner: MDT		State: Montana Sampling Point: DP07w
Investigator(s): R Quire, S Weyant, R Jones	Section, Township, Ran	ge: S 24 T 3N R 9W
Landform (hillslope, terrace, etc.): Floodplain	Local relief (concave, co	onvex, none): concave Slope (%): 2
Subregion (LRR): LRR E	_ Lat:46.002602	Long:112.658063 Datum: NAD 83
Soil Map Unit Name: 11A: Mannixlee-Bonebasin comp	ex, 0-4% slopes, frequently floo	ded NWI classification:PEM
Are climatic / hydrologic conditions on the site typical for this	s time of year? Yes 🗹 No 🔟	(If no, explain in Remarks.)
Are Vegetation $\square$ , Soil $\square$ , or Hydrology $\square$ s	ignificantly disturbed? Are "N	ormal Circumstances" present? Yes 🔽 No 🔲
Are Vegetation, Soil, or Hydrology r	aturally problematic? (If nee	ded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map	showing sampling point lo	cations, transects, important features, etc.
	o	
	Is the Sampled A	
Wetland Hydrology Present?  Yes   N  Remarks:	o within a Wetland	··· ··· ··· ··· ··· ··· ··· ··· ··· ··
PEM depressional wetland. Sample point located wi	thin preserved wetland cell 13.	
VEGETATION - Use scientific names of plan		
Tree Stratum Plot size (30 Foot Radius) Absolute % Cover		Dominance Test worksheet
		Number of Dominant Species that are OBL, FACW or FAC: 3 (A)
		Total Number of Dominant Species Across All Strata: 3 (B)
Sapling/Shrub Stratum Plot size (15 Foot Radius)		Percent of Dominant Species That Are OBL, FACW, or FAC:  100 % (A/B)
Supringionial Crutain		Prevalence Index worksheet
		Total % Cover of: Multiply by:  OBL species 30 X 1 30
		FACW species 20 X 2 40
		FAC species 25 X 3 75
Herbaceous Stratum Plot size ( 5 Foot Radius)		FACU species 0 X 4 0  UPL species 0 X 5 0
Alopecurus arundinaceus 25	<b>✓</b> FAC	
Calamagrostis canadensis 5	FAC FACW	Column Totals 75 (A) 145 (B)
Carex pellita 10	OBL	Prevalence Index = B/A = 1.93333
Carex utriculata 20	<b>✓</b> OBL	Hydrophytic Vegetation Indicators  1 - Rapid Test for Hydrophytic Vegetation
Juncus balticus 15	<b>✓</b> FACW	✓ 2 - Dominance Test is >50%
		✓ 3 - Prevalence Index is <= 3.0
		4 - Morphological Adaptations (Provide
		supporting data in remarks or on separate sheet.
		☐ 5 - Wetland Non-Vascular Plants
		☐ Problematic Hydrophytic Vegetation (Explain)
Woody Vine Stratum Plot size ( 30 Foot Radius)		Indicators of hydric sil and wetland hydrology must be present, unless disturbed or problematic for #3, 4, 5.
Percent Bare Ground 25		Hydrophytic Vegetation Present?  Ves ✓ NO
Remarks:		
BG/litter=25%. Evidence of hydrophytic vegetation i 3.0.	ncludes passing the dominance	test and a prevalence index less than or equal to
US Army Corps of Engineers		Western Mountains, Valleys, and Coasts - Version 2.0

SOIL												San	npling Poin	ıt: DP0	)7w
Profile Des	cription: (De	scribe 1	o the de	oth nee	ded to do	ocument th	e indicato	r or c	onfirr	m the absen	ce of ir				
Depth		/latrix				edox Featu									
(inches)	Color (m	oist)	%	Co	lor (moist)	%	Type <sup>1</sup>	L	oc <sup>2</sup>	Texture			Remarks		
0-05	7.5YR	2.5/1	100							Mucky Pea	at				
05-17	N :	2.5/0	30							Clay Loan	n	Mixed n	natrix. G	leyed.	
05-17	5GY	2.5/1	70							Clay Loan	n	Mixed n	natrix. G	leyed.	_
							_								
1 <sub>T. (200.)</sub>		D-Dani			and Matrix							DI -Da	wa Linina	N/N/+	
	oncentration, Indicators:							itea Sa	and G				ore Lining, matic Hyd		
Histosol					andy Red		,					ck (A10)			
_	pipedon (A2)				tripped Ma							ent Mater	ial (TF2)		
	istic (A3)			=		ky Mineral	(F1) (exce	nt MI	RA 1)				k Surface (	(TF12)	
	en Sulfide (A4	<b>1</b> )			-	yed Matrix (		P	,		•		Remarks)	(,	
	d Below Dark		(A11)		epleted M					3					
	ark Surface (			=		(Surface (F	,					-	ytic vegeta		d
	Mucky Minera Gleyed Matrix			_	•	ark Surface ressions (F	. ,						must be pr problema		
	Layer (if pre						- /						J		
Туре:															
Depth (in	ches):									Hydric S	oil Pres	sent? '	Yes <u> </u>	_ No	
Remarks:															
HYDROLO															
_	drology Indi														
	cators (minim	<u>ium of or</u>	ne require	d; chec									rs (2 or mo		
	Water (A1)	2)		-		Stained Le			ot				Leaves (B	9) ( <b>MLF</b>	RA 1, 2,
_ <u>✓</u> High vva	ater Table (A2	2)				<b>RA 1, 2, 4A</b> rust (B11)	i, and 4B)				, '	and 4B)	) rns (B10)		
	farks (B1)			-		c Invertebra	ites (B13)			÷		-	ater Table	(C2)	
_	nt Deposits (E	32)		_		gen Sulfide	, ,				-		ole on Aeri		ierv (C9)
	posits (B3)	/		_		ed Rhizospl	. ,		ıg Rod	ots (C3)	-		osition (D2)	_	,, ()
Algal Ma	at or Crust (B	4)		_	Preser	nce of Redu	ced Iron (0	C4)			Shallo	w Aquita	rd (D3)		
	posits (B5)			_		t Iron Redu				_	_	leutral Te	, ,		
	Soil Cracks (			_		d or Stresse		D1) (L	.RR A	A) <u> </u>			unds (D6)		<b>N</b> )
	on Visible on			-	Other	(Explain in l	Remarks)				∫ Frost-I	Heave Hu	ummocks (	(D7)	
Field Obser	y Vegetated (	Joncave	Surface	(88)											
Surface Wat		٧	es 🗌	No	<b>✓</b> Depth	n (inches): _									
Water Table			es 🔽			i (inches): _ i (inches): _		12							
Saturation P			es 🔽			i (inches): _ i (inches): _		0	Wetl	land Hydrol	oav Pre	sent?	Yes 🗸	No	. 🗆
(includes ca	pillary fringe)										3, 7.0				
Describe Re	corded Data	(stream	gauge, m	onitorir	ıg well, ae	rial photos,	previous ir	nspect	ions),	, if available:					
Remarks:															
Evidence of						pheres on	living roo	ots, hi	gh w	ater table,	soils sa	aturated	to surfac	e, sulf	idic odor,
geomorphic	position, a	nd a po	sitive FA	C-Neu	ıtral test.										
1															

# **MDT Montana Wetland Assessment Form (revised March 2008**

	n Mountain Wetland ation Site		2. MDT pro	ject#	ST	PX 47(024)56		Contro	ol# 503	34000	
3. Evaluation Date 10/1/2			e, R Jones,		Wetl	and/Site# (s)	Created	Cell 6			
6. Wetland Location(s): T		vveyan W	t, B Trudged		Т	R		Sec2			
Approx Stationing or Milep											
Watershed 2 - Upper Cl		atershe	ed/County	Silver	Bow						
	CCI for MDT										
7. Evaluating Agency	CCI IOI WIDT					8. Wetland				0.44	
Purpose of Evaluation						How assess		Measured	e.g. by G		
	fected by MDT project					9. Assesssr (AA) size (ac				0.44	
Mitigation Wetlands: p	re-construction					How assess	•	Measured	e.g. by G	PS	
✓ Mitigation Wetlands: p	ost construction										
Other											
10. Classification of Wetla	ınd and Δαμatic Hahitats	in ΔΔ									
HGM Class (Brinson)	Class (Cowardin)	, , .	Modifier (0	Coward	in\	Water Re	naima	0/	of AA		
Depressional	Aquatic Bed		Excavated	Jowaiu	111)	Seasonal/In		70	O OI AA	5	
	1										
Depressional	Emergent Wetland		Excavated			Seasonal/In	termittent			95	
	1										
	- 										
	1										
<ul><li>11. Estimated Relative Abus</li><li>12. General Condition of A</li><li>i. Disturbance: (use matrix aquatic nuisance vegetation</li></ul>	<b>A</b> below to determine [circle] a	ppropria	ate response -	- see ins	truction	ns for Montana-li	isted noxiou	ıs weed and			
		Manage				conditions adjacent			-41		
Conditions w	ithin AA	natura hayed, conver roads	ged in predomina I state; is not gra , logged, or othe rted; does not co or buildings; and or ANVS cover is	azed, rwise intain I noxious	mode select subject few r	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <=30%.			Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >=30%.		
AA occurs and is managed in predom grazed, hayed, logged, or otherwise c roads or occupied buildings; and noxic <=15%.	converted; does not contain	lov	w disturbar	nce		low disturba	ince	modera	moderate disturbance		
AA not cultivated, but may be moderal selectively logged; or has been subject placement, or hydrological alteration; noxious weed or ANVS cover is <=30°	ct to relatively minor clearing, fill contains few roads or buildings;		moderate disturbance	e	mo	oderate distu	high	ı disturba	ance		
AA cultivated or heavily grazed or log- substantial fill placement, grading, cle high road or building density; or noxio >=30%.	earing, or hydrological alteration;	hig	ıh disturbar	nce		high disturba	ance	high	disturba	ance	
Comments: (types of disturence 2018 was the first year that years and forbs, along with it. Prominent noxious, aquate Cirsium arvense and Euphort	ater was observed within terved during the 2020 mor g and revegetation. The si an expansion of native, e tic nuisance, other exoti	the exc nitoring urround xisting	g event. Wetl ding upland/ desirable sp	land Ce wetland	ll 6 is	within the old r	oad alignr	nent, the co	onstructio	n in the cell	
iii. Provide brief descriptive		rround	ding land us	se/habit	tat						
The AA consists of a depress commercial developments an	ional wetland and upland	buffer	at the botton	n of a g		nillslope. Land	use surro	unding the A	AA include	es	

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Modified Is current management preventing (passive) existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture М <NO YES> 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA L Comments: Palustrine emergent, Palustrine Aquatic Bed SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS, MTNHP Sources for documented use 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 Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating **MTNHP** Sources for documented use

<i>ubstantial</i> (based																		Low				
<b>7</b>	on any	of the	followin	ng [che	ck]):						Minima	(based	on any of	the foll	owing [	check])	):					
observations o	of abund	dant wil	dlife #s	or higl	h specie	es dive	rsity (dui	ring ar	ny period	i)	<b>✓</b> few	or no wild	life obser	vations	during	peak u	ise per	iods				
abundant wildl	ife sign	such a	s scat,	tracks	, nest st	ructure	es, game	trails	, etc.		<b>✓</b> little	to no wild	life sign									
presence of ex	tremel	/ limitin	g habita	at featu	ıres not	availal	ble in the	e surro	ounding	area	spa	se adjace	nt upland	food s	ources							
interviews with	local b	iologist	s with I	knowle	dge of t	he AA					inte	views with	n local bio	ologists	with kr	nowledg	ge of th	ne AA				
oderate (based or observations of common occur adequate adjar interviews with	of scatte rrence cent up	ered wild of wildlit	dlife gro fe sign od sour	oups or such a	r individ s scat,	tracks,		•	•	0.	•	ods										
ii. Wildlife habit from #13. For cother in terms o permanent/pere terms])	lass c f their	over to percer	be control	onside ipositi	ered ev	enly o	distribut (see #	ted, th ‡10).	ne mos Abbrev	t and le ⁄iations	ast prev for surf	valent <b>ve</b> ace wate	<b>getateo</b> er durati	<b>l</b> class ons ar	es mu e as fo	ist be v	within P/P	20% o =	f each			
diversity (see #13)				Hi	gh							Moderate					L	OW				
Class cover distribution (all vegetated classes)		Even Uneven							Even	ı		Une	ven			Ev	/en					
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	А	P/P	S/I	T/E	А	P/P	S/I	T/E	A P/P	S/I	T/E	А	P/P	S/I	T/E	А			
L <b>ow</b> disturbance at AA (see #12i)	Е	Е	Е	Н	Е	Е	Н	н	Е	Н	н	м Е	Н	М	М	Е	Н	М	М			
Moderate disturbance at AA (see #12i)	Н	Н	н	н	Н	Н	Н	М	Н	н	М	м н	М	М	L	Н	М	L	L			
High disturbance at AA (see #12i)	М	М	М	L	М	М	L	L	М	М	L	∟ М	L	L	L	L	L	L	L			
			_					and t	the ma	W		arrive a		ratin	g (ii)		point	s and ı	rating)			
Evidence of w			_		Except	ional		and t	the ma	Wi High	ildlife h			rating Mod	g (ii) derate		point	s and ı	rating)	Low	1	
Evidence of w  Substantial			_			ional		and f	the ma	W	ildlife l			rating Mod	g (ii)		point	s and ı	rating)			
Evidence of w Substantial Moderate			_		Except	ional		and t	the ma	High .9H	ildlife h			Mod	g (ii) derate 8H		point	s and ı	rating)	Low .7M		
iii. Rating (u Evidence of w Substantial Moderate Minimal	vil dlife	use (	(1)	E	1E .9H	ional				High .9H	ildlife h			Mod	g (ii) derate 8H 5M		point	s and I	rating)	.7M .3L		
Evidence of w Substantial Moderate Minimal	Sma	use (	t Rati	with li	1E .9I .6M imited (Asses precli	value value value ded	e to wi	Idlife	the Ad culve	High .9H .7M .4M A is usert or oth	ed by ther bar	ish or the spective	ne exis	Moo	g (ii) 8H 5M 2L tuatio	on is "t used	corred by the different section and the sectio	ctable	" such	.7M .3L .1L		
Substantial Moderate Minimal omments  4D. General Fould be used bestorable due to NA here a Habitat Qua	Sma Sma Sma Sma Sma Sma Sma Sma Sma Sma	use (	t Rati	with ling: (ing: (ise is sints, 4E.)	1E .9I .6M imited (Asses precli	value value ish S <sub>1</sub>	e to wi	Idlife	the Ad culve	High .9H .7M .4M A is usert or oth	ed by ther bar arrive a	ish or the spective	ne exis	rating Model   ting significant significan	g (ii) 8H 5M 2L tuatio	on is "t used	corred by the different section and the sectio	ctable is a cana	" such th use	.7M .3L .1L	Κ	
Evidence of w  Substantial  Moderate  Minimal  Comments  4D. General Fould be used bestorable due to the second of surface in AA  Aquatic hiding / res	Sma Sma Sma Sma Sish H Sylvania Sish Sish H	use (	t Rati	with ling: (ing: (seints, 14E.)	1E .9H .6M .6M .Asses precile or is r	value value ish S <sub>1</sub>	e to wi	Idlife	f the Ad culve a mar	High .9H .7M .4M A is usert or oth	ed by her ba	rish or the rier, etc.	ne exis	rating Model   ting since AA as fis	g (ii) 8H 5M 2L tuatio	on is "t used	corred by the different section and the sectio	ctable fish, fis a cana	" such th use	.7M .3L .1L	c eral	poor
Substantial Moderate Minimal  Comments  4D. General Fould be used be estorable due to the storable due to the storable due to the second of surface in AA Aquatic hiding / resescape cover Thermal cover opti	Sma Sma Sish H Sy fish o hab and pr	use (	tt Ratium tt Rat	with ling: (ing: (seints, 14E.)	1E .9H .6M .6M .Asses precile or is r	value value tish Sp  tt / Pere	e to wi	Idlife	f the Ad culve a mar	High .9H .7M .4M A is usert or other agementations to	ed by her ba	rish or the rier, etc.	ne exis	rating Model   ting since AA as fis	g (ii) derate 8H 5M 2L tuation is not hent	on is "o	∞rre d by f d in a ating)	ctable fish, fis a cana	" such th use	.7M .3L .1L .1that the is not in check	c eral	ī
Evidence of w  Substantial  Moderate  Minimal  Comments  4D. General Fould be used be estorable due to estor	Sma Sma Sma Sish H Oy fish oo hab and pr siting / pecies	use (	tt Rati	with ling: (ing: (ise is sints, 4E.)	1E .9H .6M .Asses precluor is r	value  value  tish Sp  tit / Per  tit / Per	e to wi	Idlife	f the Ad culve a mar	High .9H .7M .4M A is usert or other agementatrix to	ed by ther bacent per	Fish or the spective t [check easonal /	ne existal e [such the function intermitte quate	rating si	g (ii) 8H 5M 2L tuatic is no h ent	on is "i	corred by 1 doin a string)	ctable is in the ctable is in the ctable is in the ctable in the ctable is in the ctable in the ctable in the ctable in the ctable is in the ctable in the ctable in the ctable in the ctable is in the ctable in th	" such th use I], thei	.7M .3L .1L .1that the is not n check	eral Pr	
Evidence of w  Substantial  Moderate  Minimal  Comments  4D. General Fould be used be used be used be used be used be used to a storable due to a large of the substantial of surface in AA  Aquatic hiding / resescape cover  Thermal cover optisuboptimal	Sma Sma Sish H Sy fish to hab and pr Sishing / Simal / Simal / Simal /	use (	t Ratium I to 14	with ling: (ise is saints, 4E.)	1E .9h .6N .imited	value	e to wi	Idlife  Idlife  Idlife  Idlife  Idlife  Idlife	f the Ad culve a mar	High .9H .7M .4M .4M .4M .4M .4M .4M .4M .4M .4M .4	ed by her ba ent per	ish or the rier, etcspective technique of the characteristic association of the characteristic of the characte	ne exisc.]. If the [such	rating sime AA as fis	g (ii) 8H 5M 2L tuation is no shent	on is "or t used rappe	corred by 1 ded in a optimized on the control of th	ctable: ish, fisa cana	" such huse I], their Ade	.7M .3L .1L .1that the is not n check	eral Pr	oor

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$\mathbf{R}_{-}$	ムス
ם-	JJ

.4M

.4M

.4M

.3L

.3L

.2L

.2L

.2L

.2L

.1L

.1L

.1L

.5M

FWP Non-Game Tier IV

or No fish species

.5M

.5M

.4M

.4M

.3L

Sources used for identifying fish sp. potentially for	ound in A	A:									
ii. Modified Rating (NOTE: Modified score ca a) Is fish use of the AA significantly reduced by a current final MDEQ list of waterbodies in need of fishery or aquatic life support, or do aquatic nuis- yes, reduce score in i above by 0.1: Modified	culvert, TMDL de ance plar	dike, or other r evelopment wit	man-made s th listed "Pr	obable Imp	paired Úses'	" including	g cold or w	varm water	he If		
b) Does the AA contain a documented spawning comments) for native fish or introduced game fish	_	other critical ha			the adjusted				1		
iii. Final Score and Rating: 0 NA	Comm	ents: No fish	n habitat v	vithin AA	<b>1</b> .						
14E. Flood Attenuation: (Applies only to wetle channel or overbank flow, click  NA here		ect to flooding ceed to 14F.)	via in-chan	nel or over	bank flow. I	lf wetland	s in AA ar	e not floode	ed from in-		
i. Rating (working from top to bottom, use the							1				
Estimated or Calculated Entrenchment (Rosger 1994, 1996)	Sligh	tly entrenched stream type			tely entrench stream type	ned – B	Entrenc	hed-A, F, G types	stream		
% of flooded wetland classified as forested and/or scrub/shrub	75%	6 25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%		
AA contains no outlet or restricted outlet	1⊦	.9Н	.6M	.8H	.7M	.5M	.4M	.3L	.2L		
AA contains unrestricted outlet	.91	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L		
										_	
Slightly Entrenched ER = >2.2			Entrenched .41 – 2.2		Entrenched ER = 1.0 – 1.4						
C stream type	type	B stream	am type	A	stream type		oe G	e G stream type			
	=5					ţ		<b>—</b>			
Floodprone width  ii. Are ≥10 acres of wetland in the AA subject to within 0.5 mile downstream of the AA (check)?  Comments:  AA subject to flooding is let toward the railroad tracks.	/ Bar wic flooding Y	Bankfull Dankfull  Ith  AND are man-  N	Depth Depth Depth	res which i	Bank  Bank	Entreno ratio ificantly c	h <b>chment</b> lamaged b			ast	
14F. Short and Long Term Surface War upland surface flow, or groundwater flow. 14G.)	If no we	tlands in the	AA are su	bject to fl	ooding or p	onding,	dick [	NA here	e and proce	ed to	
<ul> <li>i. Rating (Working from top to bottom, us water durations are as follows: P/P = pern further definitions of these terms].)</li> </ul>											
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic											
flooding or ponding		>5 acre feet			1.1 to 5	acre feet			≤1 acre foot		

lurther definitions of these terms].)									
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet	≤1 acre foot						
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8Н	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:** This wetland is subject to ponding from precipitation, upland surface flow, and potentially seasonally high groundwater.

= low])	itom, use th	ie matrix b	elow to arriv	e at [check] the		nts and rating [H				
Sediment, nutrient, and toxicant input levels within AA	to de compour not sub:	eliver levels on the nds at levels stantially im ses of nutrier	of sediments, research that other paired. Minor sonts or toxicants	er functions are sedimentation, s, or signs of	developme nutrients, or to with potential compounds su	on MDEQ list of wa ent for "probable car oxicants <b>or</b> AA rece to deliver high leve ch that other function tation, sources of n	uses" related to sives or surrour els of sediments ons are substan nutrients or toxio	sediment, ding land use , nutrients, or tially impaired.		
% cover of wetland vegetation in AA	≥ 7		nication presen	nt. : 70%	≥ '	of eutrophication		70%		
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No		
AA contains <b>no or restricted outlet</b>	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L		
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L		
Comments: Minimal sedimentat										
<ul> <li>4H Sediment/Shoreline Stabilization</li> <li>Irainage, or on the shoreline of a standard to 14I.)</li> <li>Rating (working from top to bottom.</li> </ul>	ding water bo	ody which is	subject to wa	ve action. If 14H	I does not apply,	click NA he				
% Cover of wetland streambank or shoreline by species with stability ratings				face water adjacent						
shoreline by species with stability ratings of ≥6 (see Appendix F).	Permane	nt / Perennial		Seasonal / Intermit	tent	Temporary / Epheme	ral			
: 65%		1H		.9H		.7M				
5-64%		.7M		.6M		.5M				
: 35%		.3L		.2L		.1L				
14I. Production Export/Food Chai  i. Level of Biological Activity (syn General Fish Habitat	thesis of wild		n habitat rating t Rating (14C.							
Rating (14D.iii.) E/H	1	M		L						
E/H H		H M		M						
н										
M H		M								
L M		M		L						
L M  N/A  i. Rating (Working from top to botton wetland component in the AA; Factor Esubsurface outlet; the final three rows pasee instructions for further definitions of	B = level of bi pertain to dur of these term	M atrix below to iological actration of sur	tivity rating from	L neck] the function m above (14l.i.); the AA, where P/	Factor C = wheth	ner or not the AA co re as previously de	ontains a surfa- fined, and A =	ce or		
L M  N/A  Rating (Working from top to bottom vetland component in the AA; Factor E ubsurface outlet; the final three rows page instructions for further definitions of Vegetated component >5  High Moderate	B = level of bi pertain to dur of these term acres	atrix below to iological act ration of sur ins].)	tivity rating from	neck] the function m above (14I.i.); the AA, where P/	Factor C = wheth P, S/I, and T/E a	ner or not the AA core as previously de  Vegetated com High Mode	ontains a surfatined, and A =	ce or "absent"		
L M  N/A  i. Rating (Working from top to botton wetland component in the AA; Factor Esubsurface outlet; the final three rows posee instructions for further definitions of the see instructions of the	B = level of bi pertain to dur of these term acres Low Yes N	atrix below to iological actration of sures.)	tivity rating from	neck] the function m above (14I.i.); the AA, where P/component 1-5 acres Moderate s No Yes	Factor C = wheth P, S/I, and T/E a	vegetated com No Yes	ontains a surfarfined, and A =  ponent <1 acre erate  No Yes	ce or "absent"		
L M  N/A  i. Rating (Working from top to botton vetland component in the AA; Factor E subsurface outlet; the final three rows posee instructions for further definitions of the see instructions of th	B = level of bi pertain to dur of these term acres Low Yes N .6M .4I	atrix below to iological actration of sures.)  However, which is a sure of the sures.  However, which is a sure of the sures.	Vegetated of No Yes	neck] the function m above (14I.i.); the AA, where P/component 1-5 acres Moderate s No Yes	Factor C = wheth P, S/I, and T/E a	Vegetated com High Model No Yes  1 .6M .6M	ontains a surfa fined, and A =  ponent <1 acre erate No Yes  .4M .3L	ce or "absent"		
L M  N/A  I. Rating (Working from top to bottom vetland component in the AA; Factor E subsurface outlet; the final three rows pee instructions for further definitions of the second of	B = level of bi pertain to dur of these term acres Low Yes N	M atrix below to loogical act ration of sur iss].)  How Yes  M .9H  .8H	tivity rating from	neck] the function m above (14l.i.); the AA, where P/component 1-5 acres Moderate is No Yes	Factor C = wheth P, S/I, and T/E a  Low S No Yes M 3L 8H	Vegetated com High Model No Yes  1 .6M .6M .5M	ontains a surfarfined, and A =  ponent <1 acre erate  No Yes	ce or "absent"		
II. Rating (Working from top to botton wetland component in the AA; Factor Esubsurface outlet; the final three rows (see instructions for further definitions of A Vegetated component >5 High Moderate C Yes No Yes No Yes No	B = level of bi pertain to dur of these term acres Low Yes N .6M .4I	atrix below to iological actration of sures.)  However, which is a sure of the sures.  However, which is a sure of the sures.	Vegetated of No Yes	neck] the function m above (14I.i.); the AA, where P/component 1-5 acres Moderate s No Yes	Factor C = wheth P, S/I, and T/E a	Vegetated com High Model No Yes  1 .6M .6M	ontains a surfa fined, and A =  ponent <1 acre erate No Yes  .4M .3L	Low No .2L		

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 domant 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: Seasonally high groundwater 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 .1L .4M .7M Insufficient Data/Information Comments: Wetland with seasonal surface water supported by runoff and precipitation, and likely seasonally high groundwater. 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 plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative abundant abundant common abundant commo rare common rare rare abundance (#11) Low disturbance at AA 1H .9H .8H .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: Wetlands of this type are abundant in the area but have low disturbance in comparison to others impacted by land manageme 14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity) i. Is the AA a known or potential rec./ed. site: (check) Y N 💿 (if 'Yes' continue with the evaluation; if 'No' then click **V** 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) 2H 15H Private ownership with general public access (no permission required) .15H .1M Private or public ownership without general public access, or requiring permission for public access .1M .05L Comments: Site is very close to active railroad tracks and currently difficult to access unless you walk in from the west side. Unlikely this site will be used for recreation or education. **General Site Notes** It will be interesting to see the continued development of created cell 6 with time and the continued improvement of wildlife and wetland habitat.

## FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Created Cell 6

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	.5	1	0.22	<b>✓</b>
C. General Wildlife Habitat	М	.4	1	0.18	<b>✓</b>
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	L	.3	1	0.13	
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	0.31	<b>V</b>
H. Sediment/Shoreline Stabilization	L	.2	1	0.09	
Production Export/Food Chain Support	М	.4	1	0.18	
J. Groundwater Discharge/Recharge	М	.7	1	0.31	<b>✓</b>
K. Uniqueness	L	.3	1	0.13	
L. Recreation/Education Potential (bonus points)	NA	0	NA	0.00	
Totals:		3.5	9	1.54	
Percent of Possible Score			38.89 %		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or  Score of 1 functional point for Uniqueness; or  Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or  Percent of possible score > 80% (round to nearest whole #).
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  Score of 1 functional point for MT Natural Heritage Program Species Habitat; or  Score of .9 or 1 functional point for General Wildlife Habitat; or  Score of .9 or 1 functional point for General Fish Habitat; or  "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or  Score of .9 functional point for Uniqueness; or  Percent of possible score > 65% (round to nearest whole #).
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
✓         Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)         ☐ "Low" rating for Uniqueness; and         ☐ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and

## **OVERALL ANALYSIS AREA RATING:** (check appropriate category based on the criteria outlined

I II III IV
-------------

#### **MDT Montana Wetland Assessment Form (revised March 2008**

1. Project name	Silicon Mou		nd		2. MD	T proj	ject#		STI	PX 47(024	1)56		Cor	Control# 50340		
3. Evaluation Date	10/1/2021	4. Evalua	ators		re, R Jo nt, B Trı	,		. V	Vetla	and/Site#	(s)	Created	Cells 1 a	ind 5		
6. Wetland Location	(s): T	3N	R	9W	Sec				T		R		Sec2			
Approx Stationing of	r Mileposts	N/A														
Watershed 2 - U	pper Clark Fo	rk	W	atersh	ed/Cou	nty	Silver	В	wc							
7. Evaluating Agency	CCI	for MDT								8. Wetla	and s	size acres	,		6.	
Purpose of Evaluati	ion									How ass	sess	ed:	Measur	ed e.g.	by GPS	
☐ Wetlands potent	tially affected	by MDT pr	roject									nent area			6.	
☐ Mitigation Wetla							(AA) size	•	•	Moosur	od o a	by GPS				
✓ Mitigation Wetla	nds: post co	nstruction								now ass	633	eu.	ivicasui	eu e.g.	by GF3	
Other																
40. 01161			1 - 1- 14 - 4													
10. Classification of		•		is in Av				_			_					
	HGM Class (Brinson) Class (Cowardin)						Modifier (Cowardin)					Water Regime Permanent/Perennial			AA	
Depressional	Aqua	atic Bed		Excavated										39		
Depressional	Eme	rgent Wetla	nd		Excavated					Season	al/In	termittent			56	
Depressional	Scru	b-Shrub We	etland		Excavated					Season	al/In	termittent			5	
<ol> <li>Estimated Relative</li> <li>General Condition</li> <li>Disturbance: (use aquatic nuisance ve</li> </ol>	on of AA e matrix below t	o determine			iate resp	onse –	- see ins	stru	ıction	ns for Monta	ana-li	sted noxiou	ıs weed a	nd		
				Mana	aged in pro	domina		lom				to (within 50)			or beavily graze	
Cor	natur hayed conve roads	natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious few roa					and not cultivated, but may be oderately grazed or hayed or electively logged; or has been ubject to minor clearing; contains w roads or buildings; noxious eed or ANVS cover is <=30%.				Land cultivated or heavily graze or logged; subject to substantial placement, grading, clearing, or hydrological alteration; high roa building density; or noxious wee or ANVS cover is >=30%.					
AA occurs and is managed i grazed, hayed, logged, or ot roads or occupied buildings; <=15%.	herwise converted	; does not conta	ain	lo	low disturbance					low disturbance			moderate disturbanc			
AA not cultivated, but may b selectively logged; or has be placement, or hydrological a noxious weed or ANVS cover	een subject to relat lteration; contains er is <=30%.	ively minor clea few roads or bu	uildings;		moderate disturbance moderate disturbance						high disturbance					
AA cultivated or heavily graz substantial fill placement, gr high road or building densit	hi	high disturbance high disturbance high dist							n disturbance							

#### Comments: (types of disturbance, intensity, season, etc)

This is year 7 (2021) following construction; wetland cells 1 and 5 have established desirable perennial grass, forb, and shrub cover, with minimal annual and perennial weeds present. The level of disturbance has declined, the site has stabilized with increasing cover by perennial species. Rills and gullies noted in 2019-2020 between the bike path and wetland cell 5 are still present but perennial grasses are establishing on these erosive features.

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

Linaria vulgaris and Euphorbia esula

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

The mitigation site is composed of two separate wetland cells (1 & 5) that are designed to intercept groundwater, and appear to have a more perennial water source. They have no surface connection to one another. Cell 1 drains into Sand Creek, but is upslope/outside of Sand Creek's active floodplain area, and so is not subject to overbank flooding. The AA also includes the emergent and scrub-shrub wetland that has developed surrounding constructed cells 1 and 5.

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture М <NO YES> 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA Comments: Palustrine Aquatic Bed (w/ less than 5% emergent vegetation), Palustrine emergent, Palustrine scrub-shrub SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M 31 .1L 0L Rating USFWS, MTNHP Sources for documented use 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 Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) sus/primary Highest Habitat Level doc/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

**MTNHP** 

Sources for documented use

				iic u.		ic AA	(checl	N JUD	Juliu	ui, iiio	iciato,	0	, , , , , , , , , , , , , , , , , , ,	ocu on	Зирр	OI tilliş	goviac	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Mode	erate		
ı <b>bstantial</b> (base	d on any	of the t	followin	g [che	ck]):						Minim	<b>al</b> (ba	ased or	any of	the follo	owing	[check])	:	Mode	orato		
observations	of abund	ant wile	dlife #s	or hig	h specie	es diver	sity (dur	ing ar	ny period	d)	fev	v or no	o wildlif	e obser	vations	during	peak u	se per	iods			
abundant wild	llife sign	such a	s scat, t	tracks	, nest st	ructure	s, game	trails,	etc.		litt	e to n	o wildli	fe sign								
presence of e	_						-			area	$\equiv$				l food s	ources						
interviews wit	-		-										-				nowledg	e of th	_ ΔΔ			
_ IIIIeIVIews wit	ii local b	lologist	5 WILLIN	HOWIE	age or t	IIC AA						CIVICV	vs with	local bit	Diogists	WILLI KI	lowledg	je or u	C AA			
oderate (based of observations common occil adequate adjustments)	of scatte urrence of acent up	red wild of wildlif land foo	dlife gro fe sign s	oups or such a ces	r individ	tracks,		-				iods										
ii. Wildlife hab from #13. For other in terms o permanent/per terms])	class co	over to percer	be con	onside positi	ered ev ion of t	enly d	listribut (see #	ed, th	ne mos Abbre	t and le	east pro for su	evale rface	nt <b>veg</b> water	<b>etateo</b> duratio	l class ons are	es mu e as fo	ust be vollows:	within P/P =	20% of	f each	e	
Structural diversity (see #13)		High										Mode	erate					Lo	ow			
Class cover distribution (all vegetated classes)		Eve	Even Uneven						Eve	n			Une	ven			Εν	ren				
Duration of surface water in ≥ 10% of AA Low disturbance	P/P	S/I	T/E	Α	P/P	P/P S/I T/E A				S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	А		
at AA (see #12i)	Е	Е	Е	Н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М		
Moderate disturbance at AA (see #12i)	Н	н	н	н	н	н	Н	М	Н	Н	М	М	Н	М	М	L	н	М	L	L		
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		
								and t	the ma	И	elow to				rating	g (ii)		ooint	s and r	rating)	Low	
Evidence of v					Except	ional		and t	the ma	И High	/ildlife				rating Mod	g <i>(ii)</i> derat		ooint	s and r	rating)	Low 7M	_
Evidence of v Substantial					Except 1E	ional		and t	the ma	И High .9l	/ildlife				Mod Mod	g (ii) derat 8H		ooints	s and r	rating)	Low .7M	
Evidence of v					Except	ional		and t	the ma	И High	/ildlife				Mod	g <i>(ii)</i> derat		point	s and r	rating)	.7M	
Evidence of v Substantial Moderate Minimal	vil dlife	use (		E	Except 1E .9I	ional				High .9F .7N	ildlife	habi	tat fea	atures	Mod	g (ii) derate 8H 5M		points	s and r	rating)	.7M .3L	
Substantial Moderate Minimal omments  4D. General lould be used estorable due NA here	Mode Fish H by fish to hab	abita [i.e., itat coceeo	wildlife  t Rati fish u	ng: (sse is ints, 4E.)	1E .9H .6M e but e	H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tional a	ion if	the Ad culve	.4N .4N .A is usert or conagem	fidlife  If the habitation of	r fish erspe	featur or the	ees. e exis	Model	deration (ii) deration (iii) deration (iii) 8H 5M 2L tuation is no henti	on is "o	∞rre d by f d in a	ctable'	' such	.7M .3L .1L	
Substantial Moderate Minimal omments  D. General   Duld be used   NA here	Mode Fish H by fish to hab and pro	abita [i.e., itat coceeo	wildlife  t Rati fish u	ng: (sse is ints, 4E.)	1E .9H .6M e but e	H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tional a	ion if	the Ad culve	.4N .4N .A is usert or conagem	fidlife  If the habitation of	r fish erspe	featur or the	ees. e exis	Model	deration (ii) deration (iii) deration (iii) 8H 5M 2L tuation is no henti	on is "o	∞rre d by f d in a	ctable'	' such	.7M .3L .1L	
Substantial Moderate Minimal  omments  Duld be used storable due NA here  Habitat Qu  Duration of surface in AA  Aquatic hiding / re	Mode Fish H by fish to hab and pri ality an	abita [i.e., itat coceeo	wildlife	e use  ng: (see is sints, ints, ints	1E .9H .6M e but e	H	tional as funct by peresired to pecies	ion if	i the Ad culve a mar	High .9I .7N .4N e wildli what is useful or conagement	fiddlife	nitat 1	or the	es. e exis	rating Mod	g (ii) derate 8H 5M 2L tuation is not hent	on is "o	corre	ctable' ish, fis a cana	' such h use	.7M .3L .1L	ral
Evidence of v Substantial Moderate Minimal omments  4D. General I ould be used storable due NA here Habitat Qu Duration of surface in AA Aquatic hiding / reescape cover	Mode Fish H by fish to hab and pro ality and e water sting /	abita [i.e., itat cocceed	wildlife  t Rati fish u  onstra i to 14	e uses ng: ( sse is ints, 14E.)	1E .9H .6M e but e	H 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	tional as funct by peresired to be be become seemial to be be be become seeming the best best become seeming the best best best become seeming the best best best best best best best bes	and dion ifficience from	f the A d culve a man	High .9I .7N .4N e wildli what is usert or conagem	fiddlife	nitat 1	or the or the children of the	es. e exis l If the	rating si	g (ii) derate 8H 5M 2L tuation is not hent	on is "o	correctly the strength of the	ctable'sish, fisa cana	' such h use I], thei	.7M .3L .1L .that the is not a checked	ral Po
Substantial Moderate Minimal  Comments  4D. General Substantial  AD. General Substantial  AD. General Substantial  Comments  4D. General Substantial	Mode Fish H by fish to hab and pro ality and e water sting /	abita [i.e., occeed d Kno	wildlife  t Rati fish u  onstra i to 14	e use  ng: ( se is sints, 4E.)	1E .9h .6M e but e	tional  H  I  I  I  I  I  I  I  I  I  I  I  I	tional as funct by peresired to becies	ion if	if the Ad culver a man	A is usert or conagem	fiddlife  H  I  I  I  I  I  I  I  I  I  I  I  I	r fish r fish arrier at [c	or the or	es. e exis	rating sime AA as fisher that as fisher that as fisher that as fisher that a simple th	g (ii) derate 8H 5M 2L tuation is not hent	on is "o	correct domination of the correct of	ctable'sish, fisa cana	' such h use	.7M .3L .1L	ral Po
4D. General I ould be used estorable due V	Mode Fish H by fish to hab and pro ality an e water string / timal/	abita [i.e., itat cocceed	wildlife  t Rati fish u  onstra i to 14	e uses ng: ( sse is ints, 14E.)	1E .9H .6M e but e	tional  H  I  I  I  I  I  I  I  I  I  I  I  I	tional as funct by peresired to becies	and dion ifficience from	f the A d culve a man	High .9I .7N .4N e wildli what is usert or conagem	fiddlife	r fish r fish arrier at [c	or the or the children of the	es. e exis l If the	rating si	g (ii) derate 8H 5M 2L tuation is not hent	on is "o	correctly the strength of the	ctable'sish, fisa cana	' such h use I], thei	.7M .3L .1L .that the is not a checked	ral Po

D	60
<b>D</b> -	บบ

.7M

.4M

.6M

.4M

.5M

.4M

.4M

.3L

.4M

.3L

.3L

.2L

.5M

.2L

.4M

.2L

.3L

.2L .1L

.2L

.2L

.1L

.1L

.1L

.5M

.4M

.4M

.3L

.5M

.4M

Game fish species FWP Tier III or Introduced Game fish

FWP Non-Game Tier IV

or No fish species

.7M

.5M

.6M

.5M

.8H

.5M

Sources used for identifying fish sp. potentially found in AA:	
	or other man-made structure or activity <b>or</b> is the waterbody included on the amount of the structure or activity or is the waterbody included on the structure of the structure
,	ritical habitat feature (i.e., sanctuary pool, upwelling area, etc specify in  N If yes, add 0.1 to the adjusted score in i or iia above:  Modifed Rating
	Cell 1 drains into Sand Creek, but is upslope/outside of Sand Creek's active floodplain area; no fish have been observed and are not suspected

**14E. Flood Attenuation:** (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from inchannel or overbank flow, click 

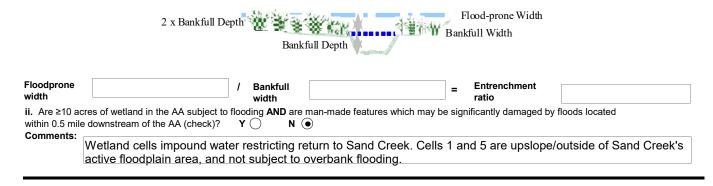
NA here and proceed to 14F.)

in AA.

i. Rating (working from top to bottom, use the matrix below to arrive at [check] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen	Slightly e	entrenched -	· C, D, E	Moderate	ely entrench	ied – B	Entrenc	hed-A, F, G	stream
1994, 1996)	s	stream types	3	s	tream type			types	
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
	1H	01.1	1		1		1	1	1
AA contains no outlet or restricted outlet	10	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L

	Slightly Entrench ER = >2.2	ed	Moderately Entrenched ER = 1.41 – 2.2		Entrenched ER = 1.0 – 1.4							
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type						
	*****											



**14F. Short and Long Term Surface Water Storage:** (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, dick NA here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet		1.1	1 to 5 acre feet				
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7М	.7M	.5M	.4M	.3L	.2L	.1L

Comments

(2.47 created acres of perennial depressional aquatic bed) x (average 1 ft. ponding/flow at high water) = 2.47 acre feet

14G. Sedim through influt to 14H.)																	
i. Rating (w = low])	orking f	rom top to	bottom,	use the	matrix b	elow to	arrive	at [chec	k] the f	unctiona	ıl points	s and ra	ting [H	= high,	M = m	oderate,	or L
Sediment, nutri levels within Az		toxicant inpu	A/	mpounds ot substa	er levels of at levels ntially important	of sedime such that paired. M	ents, nut at othert Inorsec icants, c	rients, or functions limentatio	are n,	deve nutrient with po- compour	lopment s, or toxi tential to ids such	for "prob cants <b>or</b> deliver b that othe tion, sou	oable can AA rece nigh leve er function rces of r	uses" relatives or so Is of sed ons are s	ated to s surround iments, ubstanti or toxica	d of TMDL ediment, ing land us nutrients, ally impair nts, or sig	se or red.
% cover of wet				≥ 70%	)		< 70	)%			≥ 70	%			< 70	%	
			Y	es	No	Yes	s	No		Yes		No	)	Yes		No	
AA contains no				1H	.8H	.71	л	.5M		.5N	1	.41	И	.3L		.2L	
AA contains <b>ur</b>	irestricte	d outlet		9H	.7M	.6N	1	.4M		.4N	1	.3		.2L		.1L	
Comments	The su	urrounding	land use	has the	potenti	al to de	liver se	ediments	and n	utrients	through	n influx	of surfa	ce or g	roundw	ater.	
14H Sediment drainage, or or proceed to 14I i. Rating (wo	the shor .) rking fron	reline of a st	anding w	ater body	which is	subject arrive a	to wave t [check	action. I	f 14H d tional p	oes not a	ipply, cli I rating)		ural or r <b>NA</b> he		de		
% Cover of wetla shoreline by spec			_			Duration		e water ad									
of ≥6 (see Apper ≥ 65%	ndix F).		Р	ermanent /			Se	asonal / In	1	t	Те	emporary 7	Epheme	ral			
35-64%				.71	_			.61	_				5M				
< 35%				.3				.21					1L				
14I. Production Level of General Fis	ction Exp	al Activity (	thain Supsynthesis	port:	e and fish	habitat	ratings	[check])	b-snru	b wettar	la.						
Rating (1	I4D.iii.)	E	/H		М	J		Ĺ									
E/I	1		н		н			М									
М			н		М			М									
L			м		м			L									
N//	4		н		М			L									
ii. Rating (Wowetland composubsurface out	onent in the let; the finds and the finds	ne AA; Facto nal three rov her definition	or B = lev vs pertain ns of thes	el of biolo to durati	ogical acti on of sur	vity ratir face wat	ng from er in the	above (14 e AA, whe	4I.i.); Fa ere P/P,	ctor C =	whether	or not the	ne AA co ously de	ontains a fined, ar	surface nd A = "a	or	
	gh	Moderate		Low		igh	Mod	ponent 1-5 derate	L	ow		gh	Mode	ponent <1	Lo	ow	
C Yes	No No	Yes No		No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No I	
9/P   1E	.7H	.8H .5	M .6N	1-	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L	
T/E/A .8H	.5M	.6M .3	-1-	1-	.8H	.5M .4M	.6M	.3L .2L	.4M	.2L .1L	.7H	.5M	.5M	.3L	.3L	.2L .1L	
iii. Modified Ra plant cover, ≤ 15 control). a) Is there an av to the score in i	5% noxiou	us weed or A 50 foot-wide	NVS cov	er, and th	nat is not buffer are	subjecte	ed to per	riodic me	chanica	I mowing		ring (unle	ess for w		1		
Comments:	Vegeta	ted compo	nent inc	reased b	y 1.4 ac	res in 2	2021.										

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 domant 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 .1L 1H .7M .4M Insufficient Data/Information Comments: Wetland mitigation cells with perennial water that intercept groundwater. 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 plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative commo abundant abundant common abundant rare common rare rare abundance (#11) n Low disturbance at AA 1H .9H .8H .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: AA does not contain rare types and structural diversity is considered high following 2021 site visit. 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: Mitigation site with public ownership, public access, and potential for educational use. Site is being used for educational studies by students at MSU and Montana Tech. **General Site Notes** The open water attracts a variety of waterfowl and other bird species, and adds habitat complexity promoting an increase in plant and animal diversity. This increased diversity represents a valuable educational resource for scientists, teachers, students, and conservation groups.

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	.5	1	3.15	
C. General Wildlife Habitat	Н	.9	1	5.67	<b>✓</b>
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	Н	.8	1	5.04	<b>✓</b>
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	4.41	
H. Sediment/Shoreline Stabilization	Н	1	1	6.30	
Production Export/Food Chain Support	Е	1	1	6.30	<b>✓</b>
J. Groundwater Discharge/Recharge	Н	1	1	6.30	<b>✓</b>
K. Uniqueness	М	.6	1	3.78	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	1.26	
Totals:		6.7	9	42.21	
Percent of Possible Score			74.44 %		

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or  Score of 1 functional point for Uniqueness; or  Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or  Percent of possible score > 80% (round to nearest whole #).	
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  Score of 1 functional point for MT Natural Heritage Program Species Habitat; or  Score of .9 or 1 functional point for General Wildlife Habitat; or  Score of .9 or 1 functional point for General Fish Habitat; or  "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or  Score of .9 functional point for Uniqueness; or  Percent of possible score > 65% (round to nearest whole #).	
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)	
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)  "Low" rating for Uniqueness; and Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and Percent of possible score < 35% (round to nearest whole #).	

## **OVERALL ANALYSIS AREA RATING:** (check appropriate category based on the criteria outlined

|--|

#### MDT Montana Wetland Assessment Form (revised March 2008

1. Project name	Silicon Mour Mitigation Si	ntain Wetland te		2. MDT	project#	ST	PX 47(024)56	}	Con	trol#	5034	1000
	10/1/2021	4. Evaluators		e, R Jone it, B Truc		Wetl	and/Site# (s)	Created (	Cells 2, 3	, 4		
. Wetland Location(s	): T		W	Sec1	_	Т	R		Sec2			
Approx Stationing or	Mileposts	N/A										
Vatershed 2 - Up	per Clark Fo	rk Wa	atershe	ed/Coun	ty Silver	Bow						
. Evaluating Agency	CCI f	or MDT					8. Wetland	size acres				3.9
Purpose of Evaluation	n						How assess	sed:	Measure	ed e.g.	by GF	PS
☐ Wetlands potentia	ally affected	by MDT project					9. Assesss					3.9
☐ Mitigation Wetlan	ds: pre-con	struction					(AA) size (a	•	Measure	n a h	hy GP	15
Mitigation Wetlan	ds: post co	nstruction					11011 033030	ocu.	MCasurc	u c.g.	Dy Oi	
Other												
10. Classification of V	Wetland and	I Aquatic Habitats	s in AA									
HGM Class (Brinson)	Cla	ss (Cowardin)		Modifie	er (Coward	lin)	Water R	egime		% of A	<b>AA</b>	
epressional	Eme	rgent Wetland		Excava	ted		Seasonal/Ir	ntermittent			(	92
epressional	Aqua	atic Bed		Excava	ted		Permanent/	/Perennial				5
Depressional	Scru	b-Shrub Wetland		Excava	ted		Seasonal/Ir	ntermittent				3
Estimated Relative     General Condition     i. Disturbance: (use aquatic nuisance veg.)	n of AA matrix below to	o determine [circle] a		ate respor						ıd		
			Manag	jed in predo			conditions adjacer d not cultivated, bu		_	tivated or	r heavily	grazed
Cond	litions within AA		natura hayed, conver roads	I state; is no , logged, or ted; does n or buildings	ot grazed, otherwise	seled subje few i	erately grazed or h ctively logged; or h ect to minor clearin roads or buildings; d or ANVS cover is	nas been ng; contains noxious	or logged placeme hydrolog building	d; subject nt, gradir ical altera density; d cover is	t to subsing, clear ation; his or noxion	stantial fil ing, or gh road o us weed
AA occurs and is managed in grazed, hayed, logged, or other roads or occupied buildings; a <=15%.	erwise converted;	does not contain	lov	w distur	bance	Г	low disturba	ance	mode	erate d	disturl	bance
AA not cultivated, but may be selectively logged; or has bee placement, or hydrological alte noxious weed or ANVS cover it	n subject to relati eration; contains	vely minor clearing, fill		modera disturba		me	oderate distu	urbance	hiç	gh dist	turbar	nce
AA cultivated or heavily graze substantial fill placement, grachigh road or building density; >=30%.	ling, clearing, or	hydrological alteration;	hig	ıh distur	rbance		high disturb	ance	hiç	gh dist	turbar	nce
selectively logged; or has bee placement, or hydrological alte noxious weed or ANVS cover in AA cultivated or heavily graze substantial fill placement, grac high road or building density;	n subject to relati eration; contains is <=30%. d or logged; subjecting, clearing, or or noxious weed disturbance. evel of distur	vely minor clearing, fill few roads or buildings; ect to relatively hydrological alteration; or ANVS cover is	hig	disturba  th distur	rbance	bridge	high disturb	ance	hiç 5. The si	gh dist	turbar	nce
i. Prominent noxious,	aquatic nui	sance other evot	ic sne	cies:								
Euphorbia esula, Centa												
i. Provide brief desci	riptive sumn	nary of AA and su	ırround	ding lan	d use/habi	tat						

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Is current management preventing (passive) Modified existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture М <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA Comments: Palustrine Emergent, Palustrine Scrub-Shrub, Palustrine Aquatic Bed (less than 5% vegetation cover) SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M 31 .1L 0L Rating USFWS, MTNHP Sources for documented use 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 Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) sus/primary Highest Habitat Level doc/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

**MTNHP** 

Sources for documented use

<i>ı<b>bstantial</b> (</i> base																			Mode	erate		
	d on any	of the f	ollowin	ıg [che	ck]):						Minin	nal (b	ased or	n any of	the follo	owing	[check])	:				
observations							• •	•	• .	i)					vations	during	j peak u	se peri	ods			
abundant wild	_						-				$\equiv$		no wildli	•								
presence of e	extremely	limiting	) habita	at featu	ires not	availab	le in the	surro	unding	area	sp	arse a	adjacen	t upland	food s	ources	5					
interviews wit	th local bid	ologists	s with k	nowle	dge of t	he AA					in	terviev	vs with	local bio	ologists	with k	nowledg	je of th	e AA			
derate (based observations common occuradequate adjunterviews with	of scatter urrence of acent upla	ed wild wildlife and foo	llife gro e sign s	oups or such a	individ	tracks,		-				eriods										
. Wildlife hab rom #13. For ther in terms of ermanent/per	oitat feato class co of their p	ures (\ ver to ercen	Working be contacted to the contacted to	ng fro onside positi	m top ered ev	to bott enly d he AA	istribut (see #	ed, th	ne mos Abbrev	t and le	east pr s for su	evale ırface	ent <b>veg</b> water	<b>etateo</b> durati	l class ons are	es mi e as f	ust be ollows:	within P/P =	20% o	f each	e	
tructural iversity (see 13)				Hi	gh							Mode	erate					Lo	ow .			
class cover istribution (all egetated lasses)		Eve	n			Une	ven			Eve	n			Une	ven			Ev	en			
uration of urface water in ≥ 0% of AA	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	Α	P/P	S/I	T/E	А		
ow disturbance t AA (see #12i)	Е	Е	Е	н	Е	Е	Н	н	Е	Н	Н	М	Е	Н	М	м	Е	Н	М	м		
isturbance at AA see #12i) ligh disturbance	Н	н	Н	н	Н	н	Н	М	Н	Н	М	М	н	М	М	L	н	М	L	L		
t AA (see #12i)	М	М	М	L	М	М	L	L	M	М	L	L	М	L	L	L	L	L	L	L		
			_				bove a	and t	the ma	И	/ildlife				rating	g (ii)		ooints	and r	rating)		
Evidence of v			_		Except	ional	ibove a	and t	the ma	И High	/ildlife				rating	g (ii) derat		ooints	and r	rating)	Low	1
Evidence of v			_		Except	ional	bove a	and t	the ma	И High .9I	/ildlife				rating Mod	g (ii) derat 8H		ooints	s and r	rating)	Low .7M	
iii. Rating ( Evidence of v Substantial Moderate Minimal			_		Except	ional	bove a	and t	the ma	И High	/ildlife				Mod	g (ii) derat		ooints	s and r	rating)	Low	
Evidence of v Substantial Moderate Minimal		use (i		E	1E .9H	ional				High .9F .7N	/ildlife	habi	tat fe		Mod	g (ii) derat 8H 5M		points	s and r	rating)	Low .7M .3L	
Substantial Moderate Minimal Domments D. General uld be used storable due	Mode Fish Ha by fish to habi and pro	rate v	wildlife	ng: (sse is ints, 14E.)	1Except 1E .9H .6N e and d Assess precilion is r	excep	tional s funct by per sired	wildl ion if	ife hal	High .9I .7N .4N pitat fe	H M M M M M M M M M M M M M M M M M M M	s rati	ings.	e exis	Moderating since AA as fiss	g (ii) derat 8H 5M 2L tuati is no	e on is " ot used	correct 1 by f	ctable'	" such	Low .7M .3L .1L	
Substantial Moderate Minimal Dumments  D. General uld be used storable due NA here Habitat Qu	Mode Fish Ha by fish to habi and pro	rate v	wildlife	ng: (see is ints, its.)	1E .9H .6M .Asses precluder or is r	H L L L L L L L L L L L L L L L L L L L	tional funct by per sired	wildl ion if	ife hal	High .9I .7N .4N pitat fe	H M M M M M M M M M M M M M M M M M M M	s rati	or the r, etc.	e exis ]. If the	Modern Mo	g (ii) derat 8H 5M 2L tuati is no	e on is " ot used	correct 1 by f	ctable'ish, fisa cana	" such	.7M .3L .1L	
Substantial Moderate Minimal D. General ould be used storable due NA here	Mode Fish Haby fish to habi and production and prod	rate v	wildlife	ng: (see isseints, ints, 14E.)	1E .9h .6M Assess precilion or is r	H L L L L L L L L L L L L L L L L L L L	tional funct funct funct funct funct funct funct funct functions for the function fu	wildl ion if	ife hal	High 99 70 40 A is used an activate to a consequent of the consequence	H M M M M M M M M M M M M M M M M M M M	s rati	ings.	e exis	Model    ting sine AA as fis	g (ii) derat 8H 5M 2L tuati is no	e on is " ot used	correct 1 by f	ctable'ish, fis	" such	Low .7M .3L .1L	

Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Opti	mal	Aded	quate	Po	or
Thermal cover optimal/ suboptimal	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S	0	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9Н	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6М	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially	found in A	A:									
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 nuryes, reduce score in i above by 0.1: Modifie	a culvert, of TMDL di isance plai	dike, or evelopn nt or ani	other i nent wi	man-made : th listed "Pr	structure or obable Imp	paired Ús	es" includir	g cold or	warm water		
b) Does the AA contain a documented spawnin comments) for native fish or introduced game fi		other cri	_		•	he adjus	ted score in	-		n	
iii. Final Score and Rating: O NA	Comm	ents: N	lo fish	n habitat v	within AA	١.					
<b>14E. Flood Attenuation:</b> (Applies only to we channel or overbank flow, click <b>✓ NA</b> he	tlands subj ere and pro			via in-chan	nel or over	bank flov	v. If wetland	ds in AA a	re not flood	ed from in-	
i. Rating (working from top to bottom, use the Estimated or Calculated Entrenchment (Rosa	-			t [check] the				Cntron	abad A F C	atroom	
1994, 1996)	Sligi	•	am type		l	stream ty	nched – B pe	Entrend	ched-A, F, C	Sireaiii	
% of flooded wetland classified as forested and/or scrub/shrub	75%	% 2	25-75%	<25%	75%	25-75	% <25%	75%	25-75%	<25%	
AA contains no outlet or restricted outlet	_1⊦ ——	1	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L	
AA contains unrestricted outlet	.91	<del> </del>	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L	
Slightly Entrenched ER = >2.2		Мо		/ Entrenched				intrenched			
C stream type D stream type E stream	ım type		B stre	am type	A	stream typ	ре	F stream ty	/pe C	3 stream type	
	===		\ <u></u>								
2 x Bankfull I	Depth W		akfull I	ACTION CONTRACTOR OF THE PERSON OF THE PERSO	14	Ва	Flood-pro ankfull Wid	ne Width th			
Floodprone width	1 -	nkfull				=	-	chment			
ii. Are ≥10 acres of wetland in the AA subject within 0.5 mile downstream of the AA (check)?	to flooding		re man-	-made featu	res which	may be s	<b>ratio</b> ignificantly	damaged	by floods lo	cated	
Comments:  AA is less than 10 acres a				ect to flo	oding via	in-cha	nnel or o	verbank	flow.		
14F. Short and Long Term Surface W upland surface flow, or groundwater flow 14G.)	ater Stor . If no we	<b>age:</b> (A etlands	Applies in the	s to wetlan AA are su	ds that flo bject to fl	ood or po ooding o	ond from c or ponding	verbank , dick	or in-chanı NA her	nel flow, pr e and proc	ecipitation eed to
<ul> <li>i. Rating (Working from top to bottom, water durations are as follows: P/P = per further definitions of these terms].)</li> </ul>											
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 a	cre feet			1.1 t	o 5 acre feet			≤1 acre foo	t
Duration of surface water at wetlands within the AA	P/P		S/I	T/E	P/I	o	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H		.9H	.8H	.8	н	.6M	.5M	.4M	.3L	.2L
	611		a. 1	71.4	_	, i	- F.,	41.4			J. 1

Comments: Wetland cells intercept groundwater seasonally and are less than 5 acres.

14G. throughto 14h	gh influ	<b>ent/Nu</b> x of sur	<b>trient/</b> face or	<b>Toxican</b> ground	t Rete water	<b>ntion a</b> or direc	<b>nd Rem</b> t input.	i <b>oval:</b> If no w	(Applies vetlands	s to wetl s in the A	ands w \A are	vith pote subject	ntial to to such	receive n input,	sedime click	ents, nu <b>N</b>	utrients, <b>A</b> here a	ortoxic and prod	ants eed
i. Ra	iting (v	vorking	from to	p to bot	tom, u	se the n	natrix b	elow to	arrive a	at [chec	k] the f	unctiona	al points	s and ra	ting [H	= high,	M = m	oderate,	or L
		ient, and A	l toxican	tinput	com	to delive pounds substar	r levels o at levels ntially imp	f sedime such the paired. No ts or tox	ents, nutr at other f linor sed icants, o	vith poter ients, or unctions imentations r signs of	are on,	deve nutrient with po compour	lopment s, or toxi tential to nds such	for "prol cants <b>or</b> deliver l that othe tion, sou	bable ca AA rece high leve er function rces of r	uses" releives or sels of sed ons are s	ated to s surround liments, substanti or toxica	d of TMDI ediment, ing land u nutrients, ally impai unts, or sign	ise or red.
		land veg				≥ 70%			< 70	%			≥ 70	%			< 70	%	
AA co.	ntaine <b>n</b> a	or rest	ricted o	utlot	Yes		No	Ye	s	No		Yes		No	)	Yes	3	No	al
701 001	itams in	7 01 1030	no tou o	utiet	1	Η	8H	.71	1	.5M		.5N	1	.41	М	.3L	-	.2L	
AA coı	ntains <b>u</b> i	nrestrict	ed outl	et	.91	┥ .	7М	.6N	л I	.4M		.4N	1	.3	ᅵᅵ	.2L		.1L	1
Comi	ments	: Cells	have t	he poter	ntial to	receive	compo	unds th	nrough (	groundw	ater in	puts.							
drainag procee i. Rat	ge, or or ed to 141 <b>ting</b> (wo er of <u>wetl</u>	n the sho .) <u>rking fro</u> <u>and</u> strear	m top to mbank o		ing wat	er body	which is below to	subject arrive a	to wave t [check]	action. I	f 14H d	oes not a	ipply, cli d rating)		NA he		]		
	ie by spe ee <b>Appe</b> i	cies with s ndix F).	stability r	atings	Per	manent / I	Perennial		Sea	asonal / In	termitten	t	Te	emporary	/ Epheme	ral			
≥ 65%						1H				.9H	1			.7	и				
35-64%						.71	1			.61	И				5М				
< 35%						.3L				.21	- [				1L				
<u>i. L</u>	Produ	Eleoc ction Ex	charis property for the contract of the contra	n is likely palustris, pod Chai vity (synt	and S  n Supp  hesis o	alix spport:  f wildlife	o. with ra	atings of	of 6 or g	greater.	imes. \	/egetati	on inclu	ides Ju	ncus ba	alticus, <sup>°</sup>	Typha I	latifolia,	
	neral Fis Rating (*	sh Habit 14D.iii.)	at	G E/H	eneral	Wildlife	Habitat M	Rating	(14C.iii.	)									
	E/			Н			н			м									
	N			Н			М			м									
	L			М			М			_									
	N/.	A		Н			М			L									
wetlan subsur [see in	ting (W d compo face ou	orking fronent in tlet; the the	the AA; final thro ther de	to bottom Factor B ee rows p finitions o	= level ertain t f these	of biolog duration	gical acti on of surf	vity ratir ace wat	ng from a ter in the	Above (14 AA, whe	4I.i.); Fa ere P/P,	ctor C =	whether	or not tl as previ	he AA co ously de	ontains a fined, ar	a surface nd A = "a	e or	
A B C	H Yes	igh No		nponent >5 a derate No		ow No	H Yes	yeg igh No		ponent 1-5 lerate No		.ow No	Hi Yes	gh No		ponent <1 erate No		ow No	
P/P	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L	
S/I T/E/A	.9H .8H	.6M	.7H	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L .1L	.7H	.5M .4M	.5M	.3L	.3L .2L	.1L	
plant corcontrol).  a) Is the to the so	ver, ≤ 18 re an av core in 1	5% noxid verage ≥ ii above	ous wee 50 foot and adj	Modified d or ANV -wide veg ust rating	S cove letated accord	r, and the	at is not ouffer arc	subjecte ound ≥ 7 d Ratin	ed to per 75% of th	iodic me e AA ciro	chanica	I mowing			ess for w		.1		
Comm	ents:	Cells	contain	a subst	ırface	outlet; h	nave ve	getated	buffers	S									

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below) i. Discharge Indicators ii. Recharge Indicators The AA is a slope wetland Permeable substrate present without underlying impeding layer Springs or seeps are known or observed Wetland contains inlet but no outlet Vegetation growing during domant 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: Mitigation cells designed to intercept shallow groundwater aquifer. 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 plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative commo abundant abundant common abundant rare rare common rare abundance (#11) Low disturbance at AA .6M 1H .9H .8H .8H .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: AA doesn't contain rare types and structural diversity is high. 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 is a mitigation area that could be used for education purposes, has general public access and public ownership. Used for educational studies by students at MSU and Montana Tech. **General Site Notes** Wetland acreage increased in 2021 by 0.5-acre.

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	.5	1	1.95	
C. General Wildlife Habitat	Н	.9	1	3.51	<b>✓</b>
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	М	.6	1	2.34	
G. Sediment/Nutrient/Toxicant Removal	Н	1	1	3.90	<b>✓</b>
H. Sediment/Shoreline Stabilization	М	.6	1	2.34	
Production Export/Food Chain Support	Н	.9	1	3.51	<b>✓</b>
J. Groundwater Discharge/Recharge	М	.7	1	2.73	<b>✓</b>
K. Uniqueness	М	.5	1	1.95	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	0.78	
Totals:		5.9	9	23.01	
Percent of Possible Score			65.56 %		U

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or  Score of 1 functional point for Uniqueness; or  Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or  Percent of possible score > 80% (round to nearest whole #).
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  Score of 1 functional point for MT Natural Heritage Program Species Habitat; or  Score of .9 or 1 functional point for General Wildlife Habitat; or  Score of .9 or 1 functional point for General Fish Habitat; or  "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or  Score of .9 functional point for Uniqueness; or  Percent of possible score > 65% (round to nearest whole #).
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)  "Low" rating for Uniqueness; and Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and Percent of possible score < 35% (round to nearest whole #).

## **OVERALL ANALYSIS AREA RATING:** (check appropriate category based on the criteria outlined

ı	II	Ш	IV

# **MDT Montana Wetland Assessment Form (revised March 2008**

	n Mountain Wetland		2. MDT p	oroject#		STI	PX 47(024)56		Cor	Control#		00
	4. Evaluators		e, R Jone		j. \	Wetla	and/Site# (s)	Preserva	ation			
6. Wetland Location(s): T		Weyar W	nt, B Trudo Sec1	geon 24		т	R		Sec2			
Approx Stationing or Milep			Occi	24		•	K		OCCZ			
Watershed 2 - Upper C		atersh	ed/Count	y Silve	r B	ow						
7. Evaluating Agency	CCI for MDT						8. Wetland	size acres	<b>,</b>			11
Purpose of Evaluation							How assess	ed:	Measur	ed e.g.	by GPS	
☐ Wetlands potentially at	fected by MDT project						9. Assesssr	nent area				11
☐ Mitigation Wetlands: p	re-construction						(AA) size (ac	•				
✓ Mitigation Wetlands: p							How assess	ed:	Measur	ed e.g.	by GPS	
Other												
10. Classification of Wetla	nd and Aquatic Habitats	in AA	4									
HGM Class (Brinson)	Class (Cowardin)		Modifie	r (Cowar	din	1)	Water Re	egime		% of A	<b>AA</b>	
Depressional	Aquatic Bed						Permanent/l	Perennial			8	
Depressional	Emergent Wetland						Seasonal/In	termittent			35	
Depressional	Scrub-Shrub Wetland						Seasonal/In	termittent			2	
Depressional	Emergent Wetland						Permanent/I	Perennial			55	
Estimated Relative Abu     General Condition of A     i. Disturbance: (use matrix aquatic nuisance vegetation	A below to determine [circle] a	ppropri	ate respons				s for Montana-li					
Conditions w	ithin AA	natura hayed conve roads	ged in predor al state; is not d, logged, or certed; does no or buildings; or ANVS cove	t grazed, otherwise ot contain and noxious		mode select subject few re	not cultivated, but erately grazed or ha tively logged; or ha ct to minor clearing pads or buildings; or ANVS cover is	ayed or as been g; contains noxious	or logge placeme hydrolo building	ed; subject ent, gradir gical alter	r heavily gr to substar ng, clearing ation; high or noxious >=30%.	ntial fill I, or road or
AA occurs and is managed in predom grazed, hayed, logged, or otherwise of roads or occupied buildings; and noxi <=15%.	onverted; does not contain	lo	w disturb	oance			low disturba	ance	mod	lerate d	disturba	nce
AA not cultivated, but may be modera selectively logged; or has been subject placement, or hydrological alteration; noxious weed or ANVS cover is <=30°	et to relatively minor clearing, fill contains few roads or buildings;		modera disturbar			mo	oderate distu	rbance	hi	igh dist	turbanc	e
AA cultivated or heavily grazed or log substantial fill placement, grading, cle high road or building density; or noxid >=30%.	aring, or hydrological alteration;	hiç	gh disturt	bance			high disturba	ance	hi	igh dist	urbanc	е
Comments: (types of distur The wetland mitigation site w alignment/restoration. In 2016 disturbed areas surrounding t the expansion of native, desir- ii. Prominent noxious, aqua	as constructed in 2014 was the area surrounding the preserved wetland are able species.	hich co prese as wer	onsisted o ereved wet re stable a	tlands wa	s d	istur	oed as a resul	t of the ne	w trail ar	nd bridg	e. In 202	
Cirsium arvense and Linaria		ic spe	cies.									
iii. Provide brief descriptive		rroun	ding land	l use/hab	ita	t						
The AA consists of pre-existir the AA includes commercial c	g depressional wetlands	locate	d adjacent	t to Sand	Cr	eek a						nding

13. Structural Diversity: (based on number of "Cowardin" vegetated classes present [do not include unvegetated classes], see #10 Initial Modified Is current management preventing (passive) existence of additional vegetated classes? Existing # of "Cowardin" Vegetated Classes in AA Ratino Rating >= 3 (or 2 if 1 is forested) classes NA NΑ NA Н 2 (or 1 if forested) classes NA NΑ NA Μ 1 dass, but not a monoculture М <NO YES> L 1 class, monoculture (1 species comprises>=90% of total cover) NA NΑ NA Comments: Palustrine Emergent, Palustrine Scrub-Shrub, Palustrine Aquatic Bed (less than 5% vegetation cover) SECTION PERTAINING to FUNCTIONS VALUES ASSESSMENT 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals: i. AA is Documented (D) or Suspected (S) to contain (check one based on definitions contained in instructions): Primary or critical habitat (list species) D S D S Secondary habitat (list Species) Incidental habitat (list species) D S **√** S No usable habitat ii. Rating (use the condusions from i above and the matrix below to arrive at [check] the functional points and rating) Highest Habitat Level doc/primary sus/primary doc/secondary sus/secondary doc/incidental sus/incidental None Functional Points and 1H .9H .8H .7M .3L .1L 0L Rating USFWS, MTNHP Sources for documented use 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 Hoary bat (S3), Preble's shrew (S3) Secondary habitat (list Species) ○ D • S Incidental habitat (list species) D S S No usable habitat ii. Rating (use the conclusions from i above and the matrix below to arrive at [check] the functional points and rating) sus/primary Highest Habitat Level doc/primary doc/secondary sus/secondary doc/incidental sus/incidental None S1 Species: Functional Points and .7M .2L 0L 1H .8H .6M .1L Rating S2 and S3 Species: Functional Points and .9H .7M .6M .5M .2L .1L 0L Rating

**MTNHP** 

Sources for documented use

																			Mod	erate	!		
<i>ı<b>bstantial</b> (</i> base∈	d on any	y of the	followin	g [che	ck]):							•		•	the follo								
observations					•		• •	•	• .	i)					vations	during	j peak u	ise pei	riods				
abundant wild	-						-				$\equiv$		no wildli										
presence of e							ble in the	e surro	unding	area	= .		•		d food s								
interviews wit	h local b	oiologist	s with k	inowle	dge of t	he AA					int	tervie	ws with	local bi	ologists	with k	nowledo	ge of th	ne AA				
oderate (based of	-		_	-		uals or	relative	lv few	species	durina i	oeak pe	riods											
common occu			-					-															
adequate adja	acent up	oland fo	od sour	ces																			
interviews wit	h local b	oiologist	s with k	nowle	dge of t	he AA																	
i. Wildlife hab from #13. For other in terms o permanent/pere terms])	class c of their	over to perce	be control	onside ipositi	ered ever	enly on the AA	distribut (see #	ted, th ‡10).	ne mos Abbrev	t and le	east pr for su	evale ırface	ent <b>veg</b> water	<b>jetateo</b> durati	<b>l</b> class ons are	es m	ust be ollows:	within P/P	20% c =	f each			
Structural liversity (see ±13)				Hi	gh							Mod	erate					L	ow				
Class cover distribution (all vegetated classes)		Eve	en			Une	even			Eve	n			Une	ven			E	ven				
Duration of surface water in ≥ 10% of AA  Low disturbance	P/P	S/I	T/E	A	P/P	S/I	T/E	Α	P/P	S/I	T/E	Α	P/P	S/I	T/E	А	P/P	S/I	T/E	Α			
at AA (see #12i)	Е	Е	Е	н	Е	Е	Н	Н	Е	Н	Н	М	Е	Н	М	М	Е	Н	М	М			
Moderate listurbance at AA	Н	н	н	н	н	н	н	м	Н	Н	M M H M M L H M				1 .	L							
See # IZI)			_												М	L	I	IVI					
ligh disturbance	М	М	М	L	М	M	L	L	М	М	L	L	М	L	L	L	L	L	L	L			
High disturbance at AA (see #12i)	use th	e cond	clusio		om ia	nd ii a	above	L	M	м atrix be	elow to	L arri	M ive at	L [chec	k] the	L func	L	L	L	L			
High disturbance at AA (see #12i)  iii. Rating (u	use th	e cond	clusio			nd ii a	above	L	M	M atrix be V High	elow to	L arri	M ive at	L [chec	k] the	L func	L	L	L	L	) Low	1	
High disturbance at AA (see #12i)  III. Rating (u  Evidence of v  Substantial	use th	e cond	clusio		om ia	nd ii a	above	L	M	м atrix be	elow to	L arri	M ive at	L [chec	k] the	L func	L	L	L	L			
High disturbance at AA (see #12i)  High disturbance at AA (see #12i)  High disturbance of value at AA (see #12i)  Evidence of value at AA (see #12i)	use th	e cond	clusio		om i a	nd ii a	above	L	M	M atrix be V High	elow to	L arri	M ive at	L [chec	k] the	func g (ii)	L	L	L	L	Low		
High disturbance at AA (see #12i)  iii. Rating (the Evidence of value of the Substantial Moderate	use th	e cond	clusio		om i a Except	nd ii a	above	L	M	M Atrix be W High .9F	elow to	L arri	M ive at	L [chec	k] the	funci g (ii) derat	L	L	L	L	Low .7M		
High disturbance at AA (see #12i)  Hiii. Rating (use Evidence of vsee Winimal Moderate  Minimal Comments  HD. General I	use the	e conde use (	clusion	e use	Exception 1a 15 15 15 15 15 15 15 15 15 15 15 15 15	nd ii a	rsity o	and f	M hithe ma	M  A is us	elow to	o arri	M ive at	[checi	k] the rating Mod	func func g (ii) derat 8H 5M 2L	e e on is "	point	s and	rating)	Low .7M .3L .1L		
iii. Rating ( Evidence of v Substantial Moderate Minimal omments  D. General I ould be used storable due NA here	Mod Fish Hoby fish to hak and properties ality are	e cond use (	wildlife  t Rati fish u  ponstra d to 14	ing: (ase issints,	1E .94 .6M	nd ii a tional tional d d dive	rsity o	and f	M the ma	M High .9I .7N .4N A is usert or chagem	elow to	o armin habi	m or the	checle checked at the control of the	tting si	func g (ii) 8H 5M 2L tuati is no	e e pon is " ot used	point correct do y	s and	" such	Low .7M .3L .1L		
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iii. Rating ( Evidence of v  Substantial  Moderate  Minimal  omments  4D. General I  ould be used estorable due NA here service in AA  Aquatic hiding / re	Mod Fish Hoby fish to hak and programme water	e cond use (	wildlife  t Rati fish u  ponstra d to 14	e use  ling: ( linse is  sinints,  4E.)	1E .9i .6N .6N .e but a	nd ii a tional tional d d dive	rsity o	and f	M life ha	M High .9h .7N .4N white to conage m	elow to	D arri hab	n or the	e exis	L Moo	func g (ii) 8H 5M 2L tuati is no	e e pon is " ot used	point correct do y	s and sectable fish, fish a cana	" such	Low .7M .3L .1L .1that the is not on checo	k eral	
	Mod Fish Hoby fish to hak and programme water asting /	e conde use (	wildlife  tt Rati fish u  ponstra	e use  ling: ( linse is  sinints,  4E.)	1E .9i .6N .6N .e but a	nd ii a tional ii a tional ii a dive	rsity o	and f	M life ha	M High .9h .7N .4N white to conage m	eature	D arri hab	n or the	e exis	L Moo	func g (ii) derat 8H 5M 2L tuati is no	e e pon is " ot used	corred by ed in a	s and sectable fish, fish a cana	" such	Low .7M .3L .1L .1L .1that the is not on checo	k eral	
iii. Rating ( Evidence of v  Substantial  Moderate  Minimal  Omments  4D. General I  ould be used below to be a sed out of surface in AA  Aquatic hiding / reescape cover	Mod Fish Hoby fish to hak and programme water string /	e conde use (	wildlife  t Rati fish u  postra d to 14	ing: (ase is ints, 4E.)	1E .9l .6M .Asses precloor is 1	nd ii a tional tional dive	rsity or s functiby per esired esired s	and f	M lilife ha	M  A is usert or conagement at the conagement of	elow to the seature seed by the beautiest per	es.	n or the heck till had a like the heck till ha	e exis	k] the rating Mod	func g (ii) derat 8H 5M 2L tuati is no h en	e  on is " ot used trappe	corred by the din atting)	s and sectable fish, fish a cana	" such huse l], the	Low .7M .3L .1L .1L .1that the is not on checo	k eral	

R	-7	4
$\boldsymbol{L}$	•	7

.7M

.4M

.6M

.4M

.5M

.4M

.4M

.3L

.4M

.3L

.3L

.2L

.5M

.2L

.4M

.2L

.3L

.2L

.2L

.1L

.2L

.1L

.1L

.1L

Game fish species
FWP Tier III or

Introduced Game fish
FWP Non-Game Tier IV

or No fish species

.8H

.5M

.7M

.5M

.6M

.5M

.5M

.4M

.5M

.4M

.4M

.3L

. Modified Rating (NOTE: Modified score cannows) Is fish use of the AA significantly reduced by a current final MDEQ list of waterbodies in need of The Shery or aquatic life support, or do aquatic nuisances, reduce score in I above by 0.1:  Modified R	ulvert, dike MDL devel ce plant or	, or other m	an-made s In listed "Pr	structure or obable Impa	aired Úses'	including	cold or w	varm water	ne If
Does the AA contain a documented spawning aromments) for native fish or introduced game fish?	<b>○</b> Y	● N	If yes, a	Modifed	e adjusted Rating				1
i. Final Score and Rating:	Comments	s: No fish	habitat v	Within AA					
14E. Flood Attenuation: (Applies only to wetland channel or overbank flow, click NA here at i. Rating (working from top to bottom, use the matestimated or Calculated Entrenchment (Rosgen 1994, 1996)	atrix below Slightly e	d to 14F.)	[check] the	e functional Moderate		rating)		re not floode hed-A, F, G types	
% of flooded wetland classified as forested						<25%			
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L
Slightly Entrenched		Moderately I					ntrenched		
C stream type D stream type E stream ty	ре	B stream		As	stream type		= 1.0 – 1.4 stream typ		stream type
		Bankfull Do	Indiana.	<b>三</b>	Fl W Bank	∞d-pron full Widt	ne Width h		
2 x Bankfull Dept									
	/ Bankfu width	ıll			=	Entrenc ratio	hment		

14F. Short and Long Term Surface Water Storage: (Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow. If no wetlands in the AA are subject to flooding or ponding, dick NA here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] the functional points and rating. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

diffice definitions of these terms.)									
Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding		>5 acre feet		1.:	1 to 5 acre feet	≤1 acre foot			
Duration of surface water at wetlands within the AA	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Wetlands in AA flood or pond ≥ 5 out of 10 years	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7М	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

~65% of preservation wetlands have permanent/perennial water regime (10.8 acre x 0.65=7.02 acres), average 1 foot standing/flowing water during high water events (7.02 acresx 1 foot= 7.02 acre feet).

	gh influ			<b>Toxicant</b> r ground v															
i. Ra	•	vorking	from t	op to bott	tom, us	se the n	natrix b	elow to	o arrive a	at [chec	k] the f	unctiona	al points	s and ra	ting [H	I = high,	M = m	oderate,	or L
Sedim		ient, and A	toxicar	nt input	com	to delive pounds substar	r levels of at levels ntially imp of nutrien	of sedim such th paired. I	ients, nut iat otherf Minorsed	with poter rients, or functions limentation or signs of	are on,	nutrient with po compour	elopments, or toxitential to	t for "problicants <b>or</b> deliver be that other that other that on, sou	bable ca AA rec high lev er funct irces of	auses" releives or sels of sedions are s	ated to surround liments, substant or toxica	d of TMDL sediment, ling land us nutrients, ially impair ants, or sig	se or ed.
		land veg oding/p				≥ 70%			< 70	)%			≥ 70			<u> </u>	< 70	)%	=
		or rest			Yes	4	No	Ye	es	No	4	Yes		No	) 	Yes	3	No	_
741 00	ntanis in	01 1030	no tou (	Juliot	11	1 .	8H	.7	М	.5M		.5N	1	.41	М	.3L		.2L	
AA co	ntains <b>u</b> ı	nrestrict	ed outl	et	.91	1 .	7М	.61	и	.4M		.4N	1	.3	L	.2L		.1L	
Com	ments	: Evide	nce of	f flooding	or por	nding in	the pre	eservat	tion wetl	ands.									
draina procee	ige, or or ed to 14	n the sho	oreline	abilization of a standi	ing wat	er body '	which is	subject	to wave	action. I	f 14H d	oes not a	apply, cli			man-madere and	de		
% Cov	er of <u>wetl</u>	and stream	nbank o	or						e water ad									
	see Appe				Pen	manent / I	Perennial I		Se	asonal / In	1	nt	Te	emporary	/ Ephem	eral	1		
≥ 65%						1H				.91	1				'M				
35-64%	6					.71	1			.6N	1				5M				
< 35%						.3L				.2l					1L				
<u>i. L</u>	. Produ	mix o	f Typh	n wetland na latifolia  ood Chair  ivity (synth	n Supp	x utricu  ort: f wildlife	lata and	d Junc	us baltio	cus.			with Ste	anding (	water.	vegetati			
	neral Fis Rating (	sh Habit 14D.iii.)	at	E/H	eneral		Mabitat M	Rating	(14C.iii.	L L									
	E/	Н		Н			н			М									
	N	l		Н			М			М									
	L			М			М			L									
	N/	A		Н			М			L									
wetlar subsu	nd compo rface ou	onent in the firms for fur	the AA inal thr ther de	to bottom; Factor B ee rows pe	= level ertain to f these	of biologo duration	gical acti	ivity rati face wa	ing from a ter in the	above (14 AA, whe	4I.i.); Fa ere P/P,	ctor C =	whether	or not th	he AA d	contains a	a surfac	e or	
A B		igh	Мо	mponent >5 a	L	OW No.		igh	Mod	ponent 1-5 derate	L	OW No		igh	Мо	mponent <1 derate	L	ow	
C P/P	Yes 1E	No .7H	Yes .8H	No	Yes .6M	No 4M	Yes .9H	.6M	Yes	No .4M	Yes .5M	No	Yes .8H	No .6M	Yes .6M	No .4M	Yes	No No	
S/I				.5M		.4M			.7H			.3L					.3L	.2L	
T/E/A	.9H .8H	.6M	.7H .6M	.4M	.5M	.3L .2L	.8H	.5M .4M	.6M	.3L	.4M	.2L .1L	.7H	.5M .4M	.5M .4M	.3L	.3L .2L	.2L .1L	
plant co control) a) Is the to the s	over, ≤ 15 ere an av core in	5% noxid verage ≥ ii above	50 foot and ad	Modified sed or ANVS t-wide veg just rating	S cover etated accord	r, and the	at is not ouffer arc	subject ound ≥ d Ratii	red to per 75% of th ng .6	riodic me ne AA ciro	chanica cumfere	il mowing	or clear		ess for		.1		
Comm	ents:	Well-v	egeta	ted uplan	d buffe	er arour	nd great	ter thai	n 75 per	cent of	he AA	's perim	eter.						

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 domant 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 .4M .1L 1H .7M Insufficient Data/Information Comments: Most of the preserved wetlands intercept shallow subsurface groundwater; the large wetland in the NE corner intercepts shallow groundwater and is fed by surface water from a spring that flows out of a subsurface aquifer. 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 plant association listed as "S2" by and structural diversity (#13) is as "S1" by the MTNHP the MTNHP low-moderate Estimated relative commo abundant abundant common abundant rare rare common rare abundance (#11) n Low disturbance at AA 1H .9H .8H .8H .6M .5M .5M .4M .3L (#12i) Moderate disturbance at .9H H8. .7M .2L .7M .5M .4M .4M .3L AA (#12i) High disturbance at AA .8H .7H .6M .6M .4M .3L .3L .2L .1L (#12i) Comments: Wetlands common in the area, low disturbance in comparison to others impacted by land mgmt; structural diversity high. 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: Mitigation site with public ownership, public access, and potential for educational use. Site is being used for educational studies by students at MSU and Montana Tech. **General Site Notes** Inundation and saturation levels were lower across the preservation wetlands in 2021 as compared to 2020 due to the severe drought conditions experienced across the region during the late spring and summer seasons.

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

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	.5	1	5.50	
C. General Wildlife Habitat	Н	.9	1	9.90	✓
D. General Fish Habitat	NA	0	0	0.00	
E. Flood Attenuation	NA	0	0	0.00	
F. Short and Long Term Surface Water Storage	Н	1	1	11.00	<b>~</b>
G. Sediment/Nutrient/Toxicant Removal	М	.7	1	7.70	<b>✓</b>
H. Sediment/Shoreline Stabilization	М	.7	1	7.70	
Production Export/Food Chain Support	М	.6	1	6.60	
J. Groundwater Discharge/Recharge	Н	1	1	11.00	<b>✓</b>
K. Uniqueness	М	.6	1	6.60	
L. Recreation/Education Potential (bonus points)	Н	.2	NA	2.20	
Totals:		6.2	9	68.20	
Percent of Possible Score			68.89 %		U

Category I Wetland: (must satisfy one of the following criteria; otherwise go to Category II)  Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or  Score of 1 functional point for Uniqueness; or  Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or  Percent of possible score > 80% (round to nearest whole #).
Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; otherwise go to Category IV)  Score of 1 functional point for MT Natural Heritage Program Species Habitat; or  Score of .9 or 1 functional point for General Wildlife Habitat; or  Score of .9 or 1 functional point for General Fish Habitat; or  "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or  Score of .9 functional point for Uniqueness; or  Percent of possible score > 65% (round to nearest whole #).
Category III Wetland: (Criteria for Categories I, II, or IV not satisfied)
Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; otherwise go to Category III)  "Low" rating for Uniqueness; and Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and Percent of possible score < 35% (round to nearest whole #).

## **OVERALL ANALYSIS AREA RATING:** (check appropriate category based on the criteria outlined

ı	II	Ш	IV

**Table B-1.** Silicon Mountain Wetland Mitigation Site. Comprehensive Vegetation Species List 2015-2021

Scientific Name	Common Name	WMVC Indicator Status <sup>(1)</sup>	
Achillea millefolium	Common Yarrow	FACU	
Agoseris glauca	Pale Goat Chicory	FAC	
Agropyron cristatum	Crested Wheatgrass	UPL	
Agrostis stolonifera	Spreading Bent	FAC	
Algae, green	Algae, green	N/A	
Alisma plantago-aquatica	European Water-Plantain	OBL	
Alllium cernuum	Nodding Onion	FACU	
Alnus incana	Speckled Alder	FACW	
Alopecurus aequalis	Short-Awn Meadow-Foxtail	OBL	
Alopecurus arundinaceus	Creeping Meadow-Foxtail	FAC	
Alopecurus pratensis	Field Meadow Foxtail	FAC	
Alyssum alyssoides	Pale or Yellow Alyssum	UPL	
Alyssum desestorum	Dwarf Alyssum	UPL	
Antennaria neglecta	Field Pussytoes	FACU	
Artemisia campestris	Pacific Wormwood	FACU	
Artemisia frigida	Fringed Sage	UPL	
Artemisia ludovicinana	White Sagebrush	FACU	
Artemisia tridentata	Big Sagebrush	UPL	
Astragalus agrestis	Cock's-Head/Purple Milkvetch	FACW	
Astragalus bisulcatus	Two-Grooved Milkvetch	UPL	
Astragalus cicer	Chickpea Milkvetch	UPL	
Astragalus miser	Milkvetch	UPL	
Bassia scoparia	Mexican-Fireweed	FAC	
Beckmannia syzigachne	American Slough Grass	OBL	
Bidens cernua	Nodding Burr-Marigold	OBL	
Bromus inermis	Smooth Brome	UPL	
Bromus japonicus	Japanese Brome	UPL	
Bromus tectorum	Cheatgrass	UPL	
Calamagrostis canadensis	Bluejoint	FACW	
Camelina microcarpa	Little-Pod False Flax	FACU	
Cardaria draba	Whitetop	UPL	
Carex aquatilis	Leafy Tussock Sedge	OBL	
Carex filifolia	Thread-leaved Sedge	UPL	
Carex nebrascensis	Nebraska Sedge	OBL	
Carex pellita	Woolly Sedge	OBL	
Carex praegracilis	Clustered Field Sedge	FACW	
Carex praticola	Northern Meadow Sedge	FACW	
Carex simulata	Analogue Sedge	OBL	

**Table B-1.** Silicon Mountain Wetland Mitigation Site. Comprehensive Vegetation Species List 2015-2021

Carex utriculata         Northwest Territory Sedge         OBL           Catabrosa aquatica         Water Whorl Grass         OBL           Centaurea stoebe         Spotted Knapweed         UPL           Chaenactis douglasii         Douglas's Dustymaiden         UPL           Chenopodium album         Lamb's-Quarters         FACU           Circuta douglasii         Western Water-Hemlock         OBL           Cirsium arvense         Canadian Thistle         FAC           Cirsium foliosum         Elk Thistle         FAC           Cirsium scariosum         Meadow Thistle         FAC           Collomia linearis         Narrow-Leaf Mountain-Trumpet         FAC           Collomia linearis         Narrow-Leaf Mountain-Trumpet         FAC           Collomia linearis         Narrow-Leaf Mountain-Trumpet         FACU           Crepis vucchaid         FACU         UPL           Crepis vucchaid         UPL         Crepis dealer Hawk's Beard         FACU           Crepis vucchaid         Restue Hawk's Beard         FACW	Scientific Name Common Name		WMVC Indicator Status <sup>(1)</sup>	
Centaurea stoebe         Spotted Knapweed         UPL           Chaenactis douglasii         Douglas's Dustymaiden         UPL           Chenopodium album         Lamb's-Quarters         FACU           Cicuta douglasii         Western Water-Hemlock         OBL           Cirsium arvense         Canadian Thistle         FAC           Cirsium foliosum         Elk Thistle         FAC           Cirsium scariosum         Meadow Thistle         FAC           Collomia linearis         Narrow-Leaf Mountain-Trumpet         FACU           Crepis runcinata         Fiddleleaf Hawk's Beard         FACU           Crepis runcinata         Fiddleleaf Hawk's Beard         FACU           Crepis tectorum         Narrow-Leaf Mountain-Trumpet         FAC           Deschain         UPL         Deschain Seard	Carex utriculata	Northwest Territory Sedge	OBL	
Chaenactis douglasii         Douglas's Dustymaiden         UPL           Chenopodium album         Lamb's-Quarters         FACU           Cicuta douglasii         Western Water-Hemlock         OBL           Cirsium arvense         Canadian Thistle         FAC           Cirsium foliosum         Elk Thistle         FAC           Cirsium scariosum         Meadow Thistle         FAC           Collomia linearis         Narrow-Leaf Mountain-Trumpet         FACU           Crepis runcinata         Fiddleleaf Hawk's Beard         FACU           Crepis runcinata         Fiddleleaf Hawk's Beard         FACU           Crepis tectorum         Narrow-Leaf Mountain-Trumpet         FACU           Crepis decidentic         FACU         PAC           Dastach         India         Ball Bluttercup         OBL           Deschadia         UPL         Deschadia	Catabrosa aquatica	Water Whorl Grass	OBL	
Chenopodium album         Lamb's-Quarters         FACU           Cicuta douglasii         Western Water-Hemlock         OBL           Cirsium arvense         Canadian Thistle         FAC           Cirsium foliosum         Elk Thistle         FAC           Cirsium scariosum         Meadow Thistle         FAC           Collomia linearis         Narrow-Leaf Mountain-Trumpet         FACU           Crepis runcinata         Fiddleleaf Hawk's Beard         FACU           Crepis tectorum         Narrow-Leaf Mountain-Trumpet         FACU           Crepis tectorum         Narrowleaf Hawksbeard         UPL           Cyrtorhyncha cymbalaria         Alkali Buttercup         OBL           Dasiphora fruticosa         Golden-Hardhack         FAC           Deschampsia caespitosa         Tufted Hair Grass         FACW           Deschampsia caespitosa         Tufted Hair Grass         FACW           Descurainia sophia         Herb Sophia         UPL           Descurainia sophia         Herb Sophia         UPL           Distichlis spicata         Coastal/Inland Saltgrass         FACW           Eleocharis palustris         Common Spike-Rush         OBL           Elymus canadensis         Nodding Wild Rye         FAC           Elymus	Centaurea stoebe	Spotted Knapweed	UPL	
Cicuta douglasii         Western Water-Hemlock         OBL           Cirsium arvense         Canadian Thistle         FAC           Cirsium foliosum         Elk Thistle         FAC           Cirsium scariosum         Meadow Thistle         FAC           Collomia linearis         Narrow-Leaf Mountain- Trumpet         FACU           Crepis runcinata         Fiddleleaf Hawk's Beard         FACU           Crepis tectorum         Narrowleaf Hawksbeard         UPL           Cyrtorhyncha cymbalaria         Alkali Buttercup         OBL           Dasiphora fruticosa         Golden-Hardhack         FAC           Deschampsia caespitosa         Tufted Hair Grass         FACW           Descurainia richardsonii         Western Tansy Mustard         UPL           Descurainia richardsonii         Western Tansy Mustard         UPL           Descurainia sophia         UPL         UPL           Descurainia sophia         UPL         UPL           Distichlis spicata         Coastal/Inland Saltgrass         FACW           Eleocharis palustris         Common Spike-Rush         OBL           Elymus canadensis         Nodding Wild Rye         FAC           Elymus lanceolatus         Streamside Wild Rye         FAC           Elymus repe	Chaenactis douglasii	Douglas's Dustymaiden	UPL	
Cirsium arvense       Canadian Thistle       FAC         Cirsium foliosum       Elk Thistle       FAC         Cirsium scariosum       Meadow Thistle       FAC         Collomia linearis       Narrow-Leaf Mountain-Trumpet       FACU         Crepis runcinata       Fiddleleaf Hawk's Beard       FACU         Crepis tectorum       Narrowleaf Hawksbeard       UPL         Cyrtorhyncha cymbalaria       Alkali Buttercup       OBL         Dasiphora fruticosa       Golden-Hardhack       FAC         Deschampsia caespitosa       Tufted Hair Grass       FACW         Deschampsia caespitosa       Tufted Hair Grass       FACW         Descurainia richardsonli       Western Tansy Mustard       UPL         Descurainia sophia       UPL       UPL         Distichlis spicata       Coastal/Inland Saltgrass       FACW         Eleocharis palustris       Common Spike-Rush       OBL         Elymus canadensis       Nodding Wild Rye       FAC         Elymus lanceolatus       Streamside Wild Rye	Chenopodium album	Lamb's-Quarters	FACU	
Cirsium foliosum       Elk Thistle       FAC         Cirsium scariosum       Meadow Thistle       FAC         Collomia linearis       Narrow-Leaf Mountain-Trumpet       FACU         Crepis runcinata       Fiddleleaf Hawk's Beard       FACU         Crepis tectorum       Narrowleaf Hawksbeard       UPL         Cyrtorhyncha cymbalaria       Alkali Buttercup       OBL         Dasiphora fruticosa       Golden-Hardhack       FAC         Deschampsia caespitosa       Tufted Hair Grass       FACW         Descurainia richardsonii       Western Tansy Mustard       UPL         Descurainia sophia       Herb Sophia       UPL         Distichlis spicata       Coastal/Inland Saltgrass       FACW         Eleocharis palustris       Common Spike-Rush       OBL         Elymus canadensis       Nodding Wild Rye       FAC         Elymus lanceolatus       Streamside Wild Rye       FAC         Elymus lanceolatus       Streamside Wild Rye       FAC         Elymus trachycaulus       Slender Wild Rye       FAC         Elymus trachycaulus       Slender Wild Rye       FAC         Elymus trachycaulus       Slender Wild Rye       FAC         Equisetum arvense       Field Horsetail       FAC	Cicuta douglasii	Western Water-Hemlock	OBL	
Cirsium scariosum       Meadow Thistle       FAC         Collomia linearis       Narrow-Leaf Mountain-Trumpet       FACU         Crepis runcinata       Fiddleleaf Hawk's Beard       FACU         Crepis tectorum       Narrowleaf Hawksbeard       UPL         Cyrtorhyncha cymbalaria       Alkali Buttercup       OBL         Dasiphora fruticosa       Golden-Hardhack       FAC         Deschampsia caespitosa       Tufted Hair Grass       FACW         Descurainia richardsonii       Western Tansy Mustard       UPL         Descurainia sophia       Herb Sophia       UPL         Distichlis spicata       Coastal/Inland Saltgrass       FACW         Eleocharis palustris       Common Spike-Rush       OBL         Elymus canadensis       Nodding Wild Rye       FAC         Elymus lanceolatus       Streamside Wild Rye       FAC         Elymus lanceolatus       Streamside Wild Rye       FAC         Elymus trachycaulus       Slender Wild Rye       FAC         Elymus trachycaulus       Shelder Wild Hye       FAC	Cirsium arvense	Canadian Thistle	FAC	
Collomia linearis  Narrow-Leaf Mountain-Trumpet  FACU  Crepis runcinata  Fiddleleaf Hawk's Beard  Crepis tectorum  Narrowleaf Hawksbeard  UPL  Cyrtorhyncha cymbalaria  Alkali Buttercup  OBL  Dasiphora fruticosa  Golden-Hardhack  FAC  Deschampsia caespitosa  Tufted Hair Grass  FACW  Descurainia richardsonii  Western Tansy Mustard  UPL  Distichlis spicata  Coastal/Inland Saltgrass  FACW  Eleocharis palustris  Common Spike-Rush  OBL  Elymus canadensis  Nodding Wild Rye  FAC  Elymus Ianceolatus  Streamside Wild Rye  FAC  Elymus trachycaulus  Slender Wild Rye  FAC  Elymus trachycaulus  Fringed Willowherb  FACW  Equisetum arvense  Field Horsetail  FAC  Equisetum laevigatum  Smooth Scouring-Rush  FACW  Ericameria nauseosa  Rubber Rabbitbrush  UPL  Erigeron sp.  Fleabane  N/A  Erysimum inconspicuum  Sheep Fescue  UPL  Filago arvenvis  Field Cudweed  UPL  Geum macrophyllum  Large-Leaf Avens  FACU  Guiveria striata  Fowl Manna Grass  OBL  Grindelia squarrosa  Curly-Cup Gumweed  FACU  Guiveria sarothrae  Matchbrush  UPL  Guiveria sarothrae  Matchbrush  UPL  Guiveria sarothrae	Cirsium foliosum	Elk Thistle	FAC	
Trumpet  Crepis runcinata Fiddleleaf Hawk's Beard FACU Crepis tectorum Narrowleaf Hawksbeard UPL Cyrtorhyncha cymbalaria Alkali Buttercup OBL Dasiphora fruticosa Golden-Hardhack FAC Deschampsia caespitosa Tufted Hair Grass FACW Descurainia richardsonii Western Tansy Mustard UPL Distichlis spicata Coastal/Inland Saltgrass FACW Eleocharis palustris Common Spike-Rush OBL Elymus canadensis Nodding Wild Rye FAC Elymus lanceolatus Streamside Wild Rye FAC Elymus trachycaulus Slender Wild Rye FAC Elymus trachycaulus Fringed Willowherb FACW Equisetum arvense Field Horsetail FAC Equisetum laevigatum Smooth Scouring-Rush FACW Ericameria nauseosa Rubber Rabbitbrush UPL Erigeron sp. Fleabane N/A Erysimum inconspicuum Small-flowered Wallflower Euphorbia esula Leafy Spurge UPL Festuca ovina Field Cudweed UPL Geum macrophyllum Large-Leaf Avens FAC Glyceria grandis American Manna Grass OBL Grindelia squarrosa Curly-Cup Gumweed FACU Gutierrezia sarothrae Matchbrush UPL	Cirsium scariosum	Meadow Thistle	FAC	
Crepis tectorumNarrowleaf HawksbeardUPLCyrtorhyncha cymbalariaAlkali ButtercupOBLDasiphora fruticosaGolden-HardhackFACDeschampsia caespitosaTufted Hair GrassFACWDescurainia richardsoniiWestern Tansy MustardUPLDescurainia sophiaHerb SophiaUPLDistichlis spicataCoastal/Inland SaltgrassFACWEleocharis palustrisCommon Spike-RushOBLElymus canadensisNodding Wild RyeFACElymus lanceolatusStreamside Wild RyeFACElymus rachycaulusSlender Wild RyeFACElymus trachycaulusSlender Wild RyeFACEpilobium ciliatumFringed WillowherbFACWEquisetum avenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Collomia linearis		FACU	
Cyrtorhyncha cymbalariaAlkali ButtercupOBLDasiphora fruticosaGolden-HardhackFACDeschampsia caespitosaTufted Hair GrassFACWDescurainia richardsoniiWestern Tansy MustardUPLDescurainia sophiaHerb SophiaUPLDistichlis spicataCoastal/Inland SaltgrassFACWEleocharis palustrisCommon Spike-RushOBLElymus canadensisNodding Wild RyeFACElymus lanceolatusStreamside Wild RyeFACElymus repensCreeping Wild RyeFACElymus trachycaulusSlender Wild RyeFACElymus trachycaulusSlender Wild RyeFACEquisetum arvenseField HorsetailFACEquisetum arvenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Crepis runcinata	Fiddleleaf Hawk's Beard	FACU	
Dasiphora fruticosaGolden-HardhackFACDeschampsia caespitosaTufted Hair GrassFACWDescurainia richardsoniiWestern Tansy MustardUPLDescurainia sophiaHerb SophiaUPLDistichlis spicataCoastal/Inland SaltgrassFACWEleocharis palustrisCommon Spike-RushOBLElymus canadensisNodding Wild RyeFACElymus lanceolatusStreamside Wild RyeFACElymus repensCreeping Wild RyeFACElymus trachycaulusSlender Wild RyeFACEpilobium ciliatumFringed WillowherbFACWEquisetum arvenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Crepis tectorum	Narrowleaf Hawksbeard	UPL	
Deschampsia caespitosaTufted Hair GrassFACWDescurainia richardsoniiWestern Tansy MustardUPLDescurainia sophiaHerb SophiaUPLDistichlis spicataCoastal/Inland SaltgrassFACWEleocharis palustrisCommon Spike-RushOBLElymus canadensisNodding Wild RyeFACElymus lanceolatusStreamside Wild RyeFACUElymus repensCreeping Wild RyeFACElymus trachycaulusSlender Wild RyeFACElymus trachycaulusSlender Wild RyeFACEquisetum arvenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Cyrtorhyncha cymbalaria	Alkali Buttercup	OBL	
Descurainia richardsoniiWestern Tansy MustardUPLDescurainia sophiaHerb SophiaUPLDistichlis spicataCoastal/Inland SaltgrassFACWEleocharis palustrisCommon Spike-RushOBLElymus canadensisNodding Wild RyeFACElymus lanceolatusStreamside Wild RyeFACUElymus repensCreeping Wild RyeFACElymus trachycaulusSlender Wild RyeFACEpilobium ciliatumFringed WillowherbFACWEquisetum arvenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Dasiphora fruticosa	Golden-Hardhack	FAC	
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Elymus lanceolatusStreamside Wild RyeFACUElymus repensCreeping Wild RyeFACElymus trachycaulusSlender Wild RyeFACEpilobium ciliatumFringed WillowherbFACWEquisetum arvenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Eleocharis palustris	Common Spike-Rush	OBL	
Elymus repensCreeping Wild RyeFACElymus trachycaulusSlender Wild RyeFACEpilobium ciliatumFringed WillowherbFACWEquisetum arvenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Elymus canadensis	Nodding Wild Rye	FAC	
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Epilobium ciliatumFringed WillowherbFACWEquisetum arvenseField HorsetailFACEquisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Elymus repens	Creeping Wild Rye	FAC	
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Equisetum laevigatumSmooth Scouring-RushFACWEricameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Epilobium ciliatum	Fringed Willowherb	FACW	
Ericameria nauseosaRubber RabbitbrushUPLErigeron sp.FleabaneN/AErysimum inconspicuumSmall-flowered WallflowerUPLEuphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Equisetum arvense	Field Horsetail	FAC	
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Euphorbia esulaLeafy SpurgeUPLFestuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Erigeron sp.	Fleabane	N/A	
Festuca ovinaSheep FescueUPLFilago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Erysimum inconspicuum	Small-flowered Wallflower	UPL	
Filago arvenvisField CudweedUPLGeum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Euphorbia esula	Leafy Spurge	UPL	
Geum macrophyllumLarge-Leaf AvensFACGlyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Festuca ovina	Sheep Fescue	UPL	
Glyceria grandisAmerican Manna GrassOBLGlyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Filago arvenvis	Field Cudweed	UPL	
Glyceria striataFowl Manna GrassOBLGrindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Geum macrophyllum	Large-Leaf Avens	FAC	
Grindelia squarrosaCurly-Cup GumweedFACUGutierrezia sarothraeMatchbrushUPL	Glyceria grandis	American Manna Grass	OBL	
Gutierrezia sarothrae Matchbrush UPL	Glyceria striata	Fowl Manna Grass	OBL	
	Grindelia squarrosa	Curly-Cup Gumweed	FACU	
Hesperostipa comata Needle-and-Thread UPL	Gutierrezia sarothrae	Matchbrush	UPL	
	Hesperostipa comata	Needle-and-Thread	UPL	

**Table B-1.** Silicon Mountain Wetland Mitigation Site. Comprehensive Vegetation Species List 2015-2021

Scientific Name	Common Name	WMVC Indicator Status <sup>(1)</sup>	
Heterotheca villosa	Hairy Golden Aster	UPL	
Hordeum brachyantherum	Meadow Barley	FACW	
Hordeum jubatum	Fox-Tail Barley	FAC	
Hyoscyamus niger	Black Henbane	UPL	
Ionactis alpina	Crag Aster	UPL	
Iris missouriensis	Rocky Mountain Iris	FACW	
Juncus balticus	Baltic Rush	FACW	
Juncus bufonius	Toad Rush	FACW	
Juncus effusus	Lamp Rush	FACW	
Juncus longistylis	Long-Style Rush	FACW	
Juncus mertensianus	Mertens' Rush	OBL	
Juniperus scopulorum	Rocky Mountain Juniper	UPL	
Koeleria macrantha	Prairie Junegrass	UPL	
Lemna minor	Common Duckweed	OBL	
Lepidium campestre	Field Pepper-grass	UPL	
Lepidium perfoliatum	Clasping Pepperwort	FACU	
Leymus cinereus	Great Basin Wild Rye	FAC	
Linaria vulgaris	Butter-and-Eggs	UPL	
Linum lewisii	Prairie Flax	UPL	
Lupinus sericeus	Silky Lupine	UPL	
Madia glomerata	Mountain Tarplant	FACU	
Medicago lupulina	Black Medic	FACU	
Melilotus officinalis	Yellow Sweet-Clover	FACU	
Mentha arvensis	American Wild Mint	FACW	
Mimulus guttatus	Seep Monkey-Flower	OBL	
Myosotis laxa	Bay Forget-Me-Not	OBL	
Nasturtium officinale	Watercress	OBL	
Orthocarpus tenuifolius	Thin-leaved Owl's-clover	UPL	
Oxytropis deflexa	Pendant-pod Locoweed	FACU	
Pascopyrum smithii	Western-Wheat Grass	FACU	
Penstemon eriantherus	Fuzzy-Tongue Penstemon	UPL	
Penstemon nitidus	Wax-leaf Beardtongue	UPL	
Penstemon procerus	Pincushion Beardtongue	FAC	
Penstemon strictus	Rocky Mountain Penstemon	UPL	
Peritoma serrulata	Rocky Mountain Beeplant	FACU	
Persicaria amphibia	Water Smartweed	OBL	
Phacelia hastata	Silverleaf Scorpion-weed	UPL	
Phalaris arundinacea	Reed Canary Grass	FACW	
Phleum pratense	Common Timothy	FAC	

**Table B-1.** Silicon Mountain Wetland Mitigation Site. Comprehensive Vegetation Species List 2015-2021

Scientific Name	Common Name	WMVC Indicator Status <sup>(1)</sup>	
Phlox muscoides	Moss Phlox	UPL	
Plantago eriopoda	Red-Wooly or Redwool Plantain	FACW	
Plantago major	Great Plantain	FAC	
Poa ampla (= P. secunda, P. junicifolia)	Big Bluegrass	FACU	
Poa compressa	Flat-stem Bluegrass	FACU	
Poa palustris	Fowl Blue Grass	FAC	
Poa pratensis	Kentucky Blue Grass	FAC	
Poa secunda	Curly Blue Grass	FACU	
Polemonium pulcherrimum	Showy Jacob's-ladder	UPL	
Polygonum aviculare	Yard Knotweed	FAC	
Polypogon monspeliensis	Annual Rabbit's Foot Grass	FACW	
Potentilla anserina	Silverweed	OBL	
Potentilla gracilis	Graceful Cinquefoil	FAC	
Pseudoroegneria spicata	Bluebunch Wheatgrass	UPL	
Puccinellia distans	Spreading Alkali Grass	FACW	
Puccinellia nuttalliana	Nuttall's Alkali Grass	FACW	
Pyrrocoma integrifolia	Goldenweed	UPL	
Ranunculus sceleratus	Cursed Buttercup	OBL	
Ranunculus sp.	Buttercup	N/A	
Ribes aureum	Golden Currant	FAC	
Ribes irriguum	Idaho Gooseberry	UPL	
Rorippa palustris	Bog Yellow Cress	OBL	
Rumex crispus	Curly Dock	FAC	
Rumex salicifolius	Willow Dock	FACW	
Salix bebbiana	Gray Willow	FACW	
Salix boothii	Booth's Willow	FACW	
Salix exigua	Narrow-Leaf Willow	FACW	
Salix geyerianna	Geyer Willow	FACW	
Salix lasiandra	Pacific Willow	FACW	
Salix lutea (=S. eriocephala)	Yellow Willow	OBL	
Schedonorus pratensis	Meadow False Rye Grass	FACU	
Schoenocrambe linifolia	Plains Mustard	UPL	
Schoenoplectus tabernaernaemontani	Soft-Stem Club-Rush	OBL	
Scirpus microcarpus	Red-Tinge Bulrush	OBL	
Shephardia argentea	Silver Buffalo-Berry	FACU	
Silene latifolia	White Cockle/Campion	UPL	
Sisymbrium altissimum	Tall Hedge-Mustard	FACU	

**Table B-1**. Silicon Mountain Wetland Mitigation Site. Comprehensive Vegetation Species List 2015-2021

Scientific Name	Common Name	WMVC Indicator Status <sup>(1)</sup>
Sisymbrium loeselii	Smallpod Tumble Mustard	UPL
Sisyrinchium montanum	Strict Blue-eyed Grass	FAC
Solidago canadensis	Canadian Goldenrod	FACU
Solidago gigantea	Late Goldenrod	FACW
Sonchus arvensis	Field Sow-Thistle	FACU
Sphaeralcea coccinea	Scarlet Globemallow	UPL
Stachys pilosa	Hairy Hedge-Nettle	FACW
Stellaria longipes	Long-Stalk Starwort	FACW
Symphyotrichum ascendens	Western American-Aster	FACU
Symphyotrichum ciliatum	Alkali American-Aster	FACW
Symphyotrichum falcatum	Rough White Prairie American-Aster	FACU
Symphyotrichum lanceolatum	White Panicled American- Aster	OBL
Tanacetum vulgare	Common Tansy	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Pennycress	UPL
Tragopogon dubius	Meadow Goat's-beard	UPL
Trifolium hybridum	Alsike Clover	FAC
Trifolium longipes	Long-Stalk Clover	FAC
Trifolium pratense	Red Clover	FACU
Trifolium repens	White Clover	FAC
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Valeriana edulis	Tobacco-Root	FAC
Verbascum thapsus	Great Mullein	FACU
Veronica americana	American Brooklime or Speedwell	OBL
Veronica anagallis-aquatica	Blue Water Speedwell	OBL
Veronica arvensis	Corm Speedwell	FACU

<sup>&</sup>lt;sup>1</sup> 2018 NWPL (USACE 2018)

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

# APPENDIX C PROJECT AREA PHOTOGRAPHS

MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana

#### Silicon Mountain: Photo Point Photographs



Photo Point: 1. Photo 1: View of western edge of cell 1 looking NW. Bearing: 333 degrees Year: 2015



Photo Point: 1. Photo 1: View of western edge of cell 1 looking NW. Bearing: 333 degrees Year: 2021



Photo Point: 1. Photo 2: View of central portion of cell 1 looking NE. Bearing: 26 degrees Year: 2015



Photo Point: 1. Photo 2: View of central portion of cell 1 looking NE. Bearing: 26 degrees Year: 2021



Photo Point: 1. Photo 3: View of central portion of cell 1 looking E. Bearing: 86 degrees Year: 2015



Photo Point: 1. Photo 3: View of central portion of cell 1 looking E. Bearing: 86 degrees Year: 2021

#### Silicon Mountain: Photo Point Photographs



Photo Point: 1. Photo 4: View of southern end of cell 1 looking SE. Bearing: 166 degrees Year: 2015



Photo Point: 1. Photo 4: View of southern end of cell 1 looking SE. Bearing: 166 degrees Year: 2021



Photo Point: 1. Photo 5: View of western side of cell 1 looking SW. Bearing: 202 degrees Year: 2015



Photo Point: 1. Photo 5: View of western side of cell 1 looking SW. Bearing: 202 degrees Year: 2021



Photo Point: 2. looking NE.

Photo 1: View of Sand Creek channel Bearing: 40 degrees Year: 2015



Photo Point: 2. looking NE.

Photo 1: View of Sand Creek channel Bearing: 40 degrees Year: 2021



Photo Point: 2. east.

Photo 2: View outside cell 1 looking Year: 2015 Bearing: 86 degrees



Photo Point: 2. Photo 2: View outside cell 1 looking Bearing: 86 degrees Year: 2021 east.



Photo Point: 2. 1 looking SE.

Photo 3: View of eastern portion of cell Bearing: 113 degrees Year: 2015



Photo Point: 2. 1 looking SE.

Photo 3: View of eastern portion of cell Bearing: 113 degrees Year: 2021



Photo Point: 3. looking NW.

Photo 1: View of western edge of cell 4 Bearing: 314 degrees Year: 2015



Photo Point: 3. looking NW.

Photo 1: View of western edge of cell 4 Bearing: 314 degrees Year: 2021



Photo Point: 3. Photo 2: View of western side of cell 4 looking N. Bearing: 343 degrees Year: 2015



Photo Point: 3. Photo 2: View of western side of cell 4 looking N. Bearing: 343 degrees Year: 2021



Photo Point: 3. Photo 3: View across center of cell 4 looking NW. Bearing: 66 degrees Year: 2015



Photo Point: 3. Photo 3: View across center of cell 4 looking NW. Bearing: 66 degrees Year: 2021



Photo Point: 3. looking SE.

Photo 4: View of southern side of cell 4
Bearing: 114 degrees Year: 2015



Photo Point: 3. looking SE.

Photo 4: View of southern side of cell 4 Bearing: 114 degrees Year: 2021



Photo Point: 4. looking SW.

Photo 1: View of southern side of cell 5 Bearing: 220 degrees Year: 2015



Photo Point: 4. looking SW.

nt: 4. Photo 1: View of southern side of cell 5

N. Bearing: 220 degrees Year: 2021



Photo Point: 4. 5 looking W.

Photo 2: View across SE portion of cell Bearing: 268 degrees Year: 2015



Photo Point: 4. 5 looking W.

Photo 2: View across SE portion of cell Bearing: 268 degrees Year: 2021



Photo Point: 4. looking NW.

Photo 3: View across center of cell 5 Bearing: 321 degrees Year: 2015



Photo Point: 4. looking NW.

Photo 3: View across center of cell 5 Bearing: 321 degrees Year: 2021



Photo Point: 4. Photo 4: View of eastern side of cell 5 looking N. Bearing: 24 degrees Year: 2015



Photo Point: 4. Photo 4: View of eastern side of cell 5 looking N. Bearing: 24 degrees Year: 2021



Photo Point: 4. Photo 5: View of eastern side of cell 5 looking NE. Bearing: 56 degrees Year: 2015



Photo Point: 4. Photo 5: View of eastern side of cell 5 looking NE. Bearing: 56 degrees Year: 2021



Photo Point: 5. Photo 1: View of north end of cell 3 looking SE. Bearing: 145 degrees Year: 2015



Photo Point: 5. Photo 1: View of north end of cell 3 looking SE. Bearing: 145 degrees Year: 2021



Photo Point: 5. Photo 2: View of north end of cell 3 looking NW. Bearing: 345 degrees Year: 2015



Photo Point: 5. Photo 2: View of north end of cell 3 looking NW. Bearing: 345 degrees Year: 2021



Photo Point: 6. Photo 1: View of south end of cell 2 looking NW. Bearing: 326 degrees Year: 2015



Photo Point: 6. Photo 1: View of south end of cell 2 looking NW. Bearing: 326 degrees Year: 2021



Photo Point: 6. Photo 2: View of southeast side of cell 2 looking N. Bearing: 352 degrees Year: 2015



Photo Point: 6. Photo 2: View of southeast side of cell 2 looking N. Bearing: 352 degrees Year: 2021

# Silicon Mountain: Photo Point and Stream Photographs



Photo Point: 7. Photo 1: View of cell 6 looking east. Bearing: 95 degrees Year: 2015



Photo Point: 7. Photo 1: View of cell 6 looking east. Bearing: 95 degrees Year: 2021



Photo Point: 8. Photo 1: View of the south end of Sand Creek looking SW. Bearing: 213 degrees Year: 2015



Photo Point: 8. Photo 1: View of the south end of Sand Creek looking SW. Bearing: 213 degrees Year: 2021



Photo Point: 8. Photo 2: View across southern portion of Sand Creek looking NE. Bearing: 28 degrees Year: 2015



Photo Point: 8. Photo 2: View across southern portion of Sand Creek looking NE. Bearing: 28 degrees Year: 2021



Photo Point: 9. Photo 1: View of Sand Creek downstream of PP-8 looking SE. Bearing: 148 degrees Year: 2015



Photo Point: 9. Photo 1: View of Sand Creek downstream of PP-8 looking SE. Bearing: 148 degrees Year: 2021

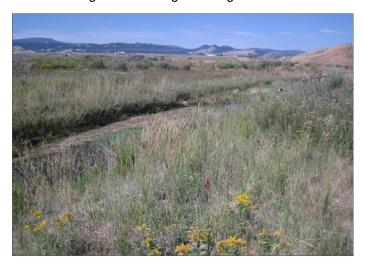


Photo Point: 9. Photo 2: View of Sand Creek downstream of PP-9 looking N. Bearing: 220 degrees Year: 2015



Photo Point: 9. Photo 2: View of Sand Creek downstream of PP-9 looking N. Bearing: 220 degrees Year: 2021



Photo Point: 10. Photo 1: View of the channel/slopes under overpass looking NW. Bearing: 312 degrees Year: 2015



Photo Point: 10. Photo 1: View of the channel/slopes under overpass looking NW. Bearing: 312 degrees Year: 2021



Photo Point: 10. NE

Photo 2: View of Sand Creek looking Bearing: 66 degrees Year: 2015



Photo Point: 10. Photo 2: View of Sand Creek looking NE Bearing: 66 degrees Year: 2021



Photo Point: 11. Photo 1: View of Sand Creek looking SE. Bearing: 144 degrees Year: 2015



Photo Point: 11. Photo 1: View of Sand Creek looking SE. Bearing: 144 degrees Year: 2021



Photo Point: 11. Photo 2: View of stream x-section 3 looking S. Bearing: 178 degrees Year: 2015



Photo Point: 11. Photo 2: View of stream x-section 3 looking S. Bearing: 178 degrees Year: 2021



Photo Point: 11. Photo 3: View downstream of stream x-section 3 looking NW. Bearing: 300 degrees Year: 2015



Photo Point: 11. Photo 3: View downstream of stream x-section 3 looking NW. Bearing: 300 degrees Year: 2021



Photo Point: 12. Photo 1: View SW across stream x-section 4. Bearing: 216 degrees Year: 2015



Photo Point: 12. Photo 1: View SW across stream x-section 4. Bearing: 216 degrees Year: 2021



Photo Point: 12. section 4.

Photo 2: View W across stream x-Bearing: 284 degrees Year: 2015



Photo Point: 12. section 4

Photo 2: View W across stream x-Bearing: 284 degrees Year: 2021



Photo Point: 12. Creek channel.

Photo 3: View west across Sand Bearing: 270 degrees Year: 2015



Photo Point: 12. channel.

Photo 3: View west across Sand Creek Bearing: 270 degrees Year: 2021



Photo Point: 12. Photo 4: View NW of stream x-section 4. Bearing: 348 degrees Year: 2015



Photo Point: 12. Photo 4: View NW of stream x-section 4. Bearing: 348 degrees Year: 2021



Photo Point: 13. Photo 1: View SE of stream x-section 7. Bearing: 153 degrees Year: 2015



Photo Point: 13. Photo 1: View SE of stream x-section 7. Bearing: 153 degrees Year: 2021



Photo Point: 13. Photo 2: View NE of stream x-section 7. Bearing: 341 degrees Year: 2015



Photo Point: 13. Photo 2: View NE of stream x-section 7. Year: 2021 Bearing: 341 degrees



Photo Point: 14. looking south.

Photo 1: View of middle headcut Bearing: 178 degrees Year: 2015



looking south.

Photo Point: 14. Photo 1: View of middle headcut Bearing: 178 degrees Year: 2021



Photo Point: 15. looking S.

Photo 1: View of the eastern headcut Bearing: 189 degrees Year: 2015



Photo Point: 15. looking S.

Photo 1: View of the eastern headcut Bearing: 189 degrees Year: 2021



Photo Point: 16. Photo 1: View of western headcut looking west. Bearing: 210 degrees Year: 2015



Photo Point: 16. Photo 1: View of western headcut looking west. Bearing: 210 degrees Year: 2021



Photo Point: 17. Photo 1: View of Sand Creek channel looking W. Bearing: 157 degrees Year: 2015



Photo Point: 17. Photo 1: View of Sand Creek channel looking W. Bearing: 157 degrees Year: 2021



Photo Point: 17. Photo 2: View of Sand Creek channel looking N. Bearing: 356 degrees Year: 2015



Photo Point: 17. Photo 2: View of Sand Creek channel looking N. Bearing: 356 degrees Year: 2021

# **Silicon Mountain: Transect Photographs**



Transect 1: Start Bearing: 305 degrees



Location: South end cell 2 T Year: 2015 B

Transect 1: Start Bearing: 305 degrees

Location: South end cell 2 Year: 2021



Transect 1: End Bearing: 177 degrees

Location: West end of cell 2 Year: 2015



Transect 1: End Bearing: 177 degrees

Location: West end of cell 2 Year: 2021

# **Silicon Mountain: Transect Photographs**



Transect 2: Start Bearing: 285 degrees

Location: E side of cell 4, look west Year: 2015



Transect 2: Start Location: East side of cell 4, look west Bearing: 285 degrees Year: 2021



Transect 2: End Bearing:106 degrees

Location: SW side of cell 4, look east Year: 2015



Transect 2: End Bearing: 106 degrees

Location: SW side of cell 4, look E Year: 2021

#### Silicon Mountain: Data Points



Data Point: DP01w corner of project area.

Location: Veg Comm 4 in SE Year: 2021



Data Point: DP01u corner of project area.

Location: Veg Comm 13 in SE Year 2021



Data Point: DP02w Year: 2021

Location: Wetland cell 2



Data Point: DP02u Year: 2021

2u Location: Veg Comm 13



Data Point: DP03w Sand Creek.

Location: Floodplain along Year: 2021



Data Point: DP03u Creek.

Location: Terrace above Sand Year: 2021

# Silicon Mountain: Data Points



Data Point: DP04w cell 4.



Location: Constructed wetland Data Point: DP04u Year: 2021

Location: Veg Comm 10.



Data Point: DP05w cell 5.



Year: 2021

Location: Constructed wetland Year: 2021



Year: 2021

Data Point: DP05u Location: Veg Comm 13



Data Point: DP06w cell 6.

Location: Constructed wetland Year: 2021



Data Point: DP06u Year: 2021

Location: Veg Comm 10.

# **Silicon Mountain: Data Points**



Data Point: DP07w 13.

Location: Preserved wetland cell Year: 2021



Data Point: DP07u Year: 2021

Location: Veg Comm 10.



Cross-section 1: At center looking upstream. Year: 2017



Cross-section 1: At center looking upstream. Year: 2021



Cross-section 1: At center looking downstream. Year: 2017



Cross-section 1: At center looking downstream. Year: 2021



Cross-section 2: At center looking upstream. Year: 2017



Cross-section 2: At center looking upstream. Year: 2021



Cross-section 2: At center looking downstream. Year: 2017



Cross-section 2: At center looking downstream. Year: 2021



Cross-section 3: At center looking upstream. Year: 2017



Cross-section 3: At center looking upstream. Year: 2021



Cross-section 3: At center looking downstream. Year: 2017



Cross-section 3: At center looking downstream. Year: 2021



Cross-section 4: At center looking upstream. Year: 2017



Cross-section 4: At center looking upstream. Year: 2021



Cross-section 4: At center looking downstream. Year: 2017



Cross-section 4: At center looking downstream. Year: 2021



Cross-section 5: At center looking upstream. Year: 2017



Cross-section 5: At center looking upstream. Year: 2021



Cross-section 5: At center looking downstream. Year: 2017



Cross-section 6: At center looking upstream. Year: 2017



Cross-section 6: At center looking downstream. Year: 2017



Cross-section 5: At center looking downstream. Year: 2021



Cross-section 6: At center looking upstream. Year: 2021



Cross-section 6: At center looking downstream. Year: 2021



Cross-section 7: At center looking upstream. Year: 2017



Cross-section 7: At center looking upstream. Year: 2021



Cross-section 7: At center looking downstream. Year: 2017



Cross-section 7: At center looking downstream. Year: 2021



Cross-section 8: At center looking upstream. Year: 2017



Cross-section 8: At center looking upstream. Year: 2021



Cross-section 8: At center looking downstream. Year: 2017



Cross-section 8: At center looking downstream. Year: 2021

# APPENDIX D Surveyed Stream Cross Sections

MDT Wetland Mitigation Monitoring Silicon Mountain Butte Silver Bow County, Montana

