Montana Department of Transportation Wetland Mitigation Monitoring Report

SILICON MOUNTAIN MITIGATION SITE

Project Overview

MDT Project Number: STPX 47 (024) 56 UPN# 6044

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

Monitoring Year: 2024

Years Monitored: 10th year of monitoring

Corps Permit Number: NWO-2012-01822-MTH

Stream Protection Act (SPA) Number: MDT-R2-74-2012

Monitoring Conducted By: Confluence Consulting Inc

Dates Monitoring Was Conducted: June 23-24, 2024

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). The project was intended to provide MDT with 11.45 acres of compensatory wetland mitigation credits and 12,369 stream mitigation credits. The credits generated by the project will be used to offset wetland and stream impacts associated with Butte Silver Bow County's Silicon Tech Park, the 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 Silicon Mountain mitigation site was designed to: (a) create 7.84 acres of emergent and scrub/shrub wetland by excavating 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 Port bridge/road realignment project by seeding and planting 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. The project was anticipated to generate 11.45 wetland mitigation credit acres, 4.33 of which would be credited to BSBC, and the remaining 7.12 credits would be held in reserve by MDT for transportation projects in the Butte area.

Site Location:

Latitude: 45.998489 **Longitude:** –112.662948

County: Butte Silver Bow **Nearest Town:** Rocker, MT

Map Included: Figure 1 on page #13

Mitigation Site Construction Started: 2013 **Construction Ended:** 2015

Recent Corrective or Maintenance Activities (since previous report):

Activity: Weed Treatment **Date:** 8/12/2024

Spotted knapweed, Canada thistle, whitetop, common mullein & leafy spurge treatments.

Specific recommendations for any additional corrective actions:

There is a downed fence on the project boundary near XS-2 (see Figure A-2).

Anticipated Wetland Credit Acres: 11.45 total, 4.33 assigned to BSBC, 7.12 assigned to MDT

Wetland Credit Acres Generated to Date: 14.24 total, 4.33 assigned to BSBC, 9.91 assigned MDT

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.aspx

Monitoring Period: 5 years from construction completion or until concurrence by the US Army Corps of Engineers (USACE). As all success criteria have been achieved in 2024, future monitoring depends on approval by the USACE.

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

Performance Standards: A summary of performance standards, associated success criteria, and 2023 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	Criteria for the three wetland parameters (hydrology, vegetation, and soils) are met as outlined in the 1987 Wetland Manual and 2010 Regional Supplement.	Y	Areas that are identified as wetland within the mitigation site meet the criteria for all three parameters.
Wetland Hydrology	Soil saturation is present for at least 12.5 percent of the growing season.	Y	Areas identified as wetland within the mitigation site exhibit soil saturation for at least 12.5 percent of the growing season.
Hydric Soil	Hydric soil conditions are present or appear to be forming.	Y	Hydric soil characteristics have developed throughout all constructed wetlands.
	Soil is sufficiently stable to prevent erosion.	Y	Disturbed soil is stable and generally does not exhibit signs of erosion.
	Soil is able to support plant cover.	Y	Plant cover is establishing well within developed wetlands.
Hydrophytic Vegetation	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).
	State-listed noxious weeds do not exceed 10 percent absolute cover.	Y	Montana state-listed noxious weeds were estimated at <4 percent absolute cover within wetland areas in 2024.
Channel-Restoration Success	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.
	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 and channel evolution. The stream is dynamically stable with evidence of natural sediment redistribution.
Stream Bank Vegetation	Banks are vegetated with a majority of deep-rooting riparian plant species that have root-stability indexes ≥ 6.	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.

Performance Standards	Success Criteria	Criteria Achieved Y/N	Discussion
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.	Y	In 2024, wetland Cells 2, 3, and portions of cells 4, 5, and wetland 13 exhibited rooted hydrophytic vegetation in inundated areas and these areas were included in the wetland acreage. Wetland Cells 1, 5, wetland 13, and a small portion of cell 4 appear to support perennial inundation and exhibited open water and aquatic macrophytes. These areas were delineated as open water.
Upland Buffer	Noxious weeds do not exceed 10 percent cover within upland buffer area.	Y	In 2024, noxious weed cover is approximately 3 percent within the upland buffer.
	Any area that was disturbed within the creditable buffer zone must have at least 50 percent aerial cover of non-weed species by the end of the monitoring period.	Y	Disturbed areas have established greater than 50 percent cover by non-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 will be implemented by MDT to minimize and/or eliminate the intrusion of state-listed noxious weed species within the site.	Y	MDT has implemented weed-control efforts based upon annual monitoring efforts. Absolute cover from Montana state-listed noxious weeds was estimated at 7 percent across the entire site (wetlands & uplands).

Summary Data

Wetland Delineation – A total of 18.89 wetland acres were delineated within the Silicon Mountain project area in 2024 which is an increase of 0.26 acres since the 2023 monitoring event. Of the 18.89 wetland acres delineated, 9.86 acres are pre-existing wetlands that have been preserved and 9.03 acres are wetlands established since construction (Table 2; Appendix A). Open water, as defined by USACE guidance (N. Green - personal communication, May 6, 2020), accounted for 2.55 acres of the mitigation site in 2024, which is a decrease of 0.52 acres since 2023. Open water acreages naturally increase or decrease year-to-year with changes in precipitation and drought conditions. The decrease is attributed to a reduction of preservation open water in wetland cell 13, which was replaced with emergent wetland vegetation. Preservation wetlands increased from 2023 because of this reduction of preservation open water. Establishment open water increased by 0.08 acres.

Uplands accounted for approximately 27.19 acres of the mitigation site and 1.47 acres are represented by the restored Sand Creek channel (Figure A-3, Appendix A). No mudflats were observed at this site in 2024. Wetland delineation data forms can be found in Appendix B, and photos for data points in Appendix C.

Table 2. Upland, Wetland & Aquatic Habitat Acreage Delineated at the Silicon Mountain Site from 2016 to 2024.

Habitat Type	2016 Acreage	2017 Acreage	2018 Acreage	2019 Acreage	2020 Acreage	2021 Acreage	2022 Acreage	2023 Acreage	2024 Acreage
Uplands	31.80	31.30	30.50	30.10	28.95	26.84	26.95	26.92	27.19
Establishment (Creation) Wetland	6.30	6.30	7.10	7.50	6.04	8.42	8.62	9.28	9.03
Establishment Open Water[(a)]	NA	NA	NA	NA	2.92	2.65	2.86	2.41	2.49
Preservation Wetland	10.30	10.80	10.80	10.80	9.65	9.65	9.31	9.31	9.86
Preservation Open Water[(a)]	NA	NA	NA	NA	0.84	0.60	0.66	0.66	0.06
Mudflat[(a)]	NA	NA	NA	NA	0.00	0.24	0.00	0.00	0.00
Stream Channel	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.52	1.47
Total Wetland & Aquatic Habitat	**18.30**	**18.80**	**19.60**	**20.00**	**21.15**	**23.02**	**23.15**	**23.18**	**22.91**

[(a)] Open water and mudflats were only mapped separately from wetlands beginning in 2020.

Vegetation – A total of 187 plant species have been identified at the site from 2015 through 2024, with six new species reported at the site in 2024. The following 8 wetland and 7 upland community types were identified and mapped at the mitigation site in 2024 based on species composition and dominance:

- Upland Type 3 – *Bromus inermis* / *Poa pratensis*
- Upland Type 5 – *Elymus repens* / *Bromus inermis*
- Upland Type 9 – *Juncus balticus* / *Elymus repens*
- Upland Type 10 – *Artemisia tridentata* / *Poa* spp.
- Upland Type 13 – *Leymus cinereus* / *Elymus trachycaulus*
- Upland Type 15 – *Poa pratensis* / *Elymus repens*
- Upland Type 19 – *Bromus tectorum*
- Wetland Type 4 – *Carex* spp. / *Juncus balticus*
- Wetland Type 7 – Open Water / Aquatic Macrophytes
- Wetland Type 8 – *Salix exigua* / *Juncus balticus*
- Wetland Type 11 – *Typha latifolia*
- Wetland Type 14 – *Eleocharis palustris* / *Deschampsia caespitosa*
- Wetland Type 16 – *Juncus balticus* / *Eleocharis palustris*
- Wetland Type 17 – *Salix* spp.
- Wetland Type 18 – *Alopecurus arundinaceus / Juncus balticus*

Dominant vegetation community types and their boundaries remained similar to those mapped in 2023. UT 2 (*Descurainia sophia / Thlaspi arvense)* was changed to UT 19 (*Bromus tectorum)*, to better reflect cheatgrass as the dominant species within the community. WT 18, a new community type added in 2023, contracted approximately 60 ft on its northern edge from where it was mapped in 2023. UT 3 replaced the lost area. This transition signifies a shift in dominance to more facultative and upland species, which may indicate that the wetland hydrology in this cell has become somewhat diminished under drought conditions in the past two years. UT 13 also contracted slightly along the edge of wetland Cell 2 where wetland boundaries were shifted,

transitioning to WT 16 where Baltic rush became more dominant along the wetland fringe. Open water was significantly reduced in preservation Cell 13, with WT 4 replacing the lost area.

The plant composition for each dominant vegetation community type 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).

Vegetation cover was monitored along two belt transects (T-1 and T-2) in 2024 (Figure A-2, Appendix A). T-1 is 564 feet long and intersects UT3, WT11, UT13, WT16, and WT18. The total number of species observed decreased by one, with an additional upland species observed and two less hydrophytic species observed. Habitat type boundaries did not change within the transect from 2023. The estimated total vegetative cover along the transect remained consistent with observations since 2019 at 93%.

Table 3. Data Summary for T-1 From 2016 Through 2024 at the Silicon Mountain Site.

Monitoring Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vegetation Community Transitions Along Transect	6	6	6	6	6	6	6	6	6
Vegetation Communities Along Transect	4	4	5	5	4	4	4	5	5
Hydrophytic Vegetation Communities Along Transect	2	2	2	2	2	2	2	3	3
Total Vegetative Species	48	54	42	43	47	46	46	48	47
Total Hydrophytic Species	26	33	28	31	35	35	36	26	24
Total Upland Species	22	21	14	12	12	11	10	22	23
Estimated % Total Vegetative Cover	90	90	90	93	93	93	93	93	93
Estimated % Unvegetated	10	10	10	7	7	7	7	7	7
% Transect Length Comprising Hydrophytic Vegetation Communities	81.3	86	86	86	86	86	86	85	85
% Transect Length Comprising Upland Vegetation Communities	18.7	14	14	14	14	14	14	15	15
% Transect Length Comprising Open Water	0	0	0	0	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0	0	0	0	0

T-2 is 219 feet long and intersects vegetation communities UT15, WT14, WT11, and UT3. The proportion of the transect comprised of hydrophytic vegetation communities remains static at 90% (Table 4). In 2024, a total of 38 species were observed along the transect. The number of upland species increased by 1 and the number of hydrophytic species increased by 2, reflecting normal year-to-year differences in species composition. The estimated total vegetative cover remains consistent with observations in 2023 at 87%.

The site is currently achieving the success criteria established for noxious weed cover within both the wetland and upland buffer areas (Table 1). Priority 2B noxious weeds identified within the Silicon Mountain mitigation site included spotted knapweed (*Centaurea stoebe*), leafy spurge (*Euphorbia esula*), yellow toadflax (*Linaria vulgaris*), whitetop (*Cardaria draba*), and Canada thistle (*Cirsium arvense*) (See locations in Figure A-3 on page A-2).

- Canada thistle patches previously mapped throughout the central portion of the site remained mostly the same between 2023 and 2024, but new occurrences were recorded in the south and west sections of the site.
- New leafy spurge patches were recorded in the southernmost section of the site.
- Spotted knapweed patches remained consistent between 2022 and 2024: a new patch was mapped at the south edge of the site and west of wetland Cell 6.
- Yellow toadflax, observed only as isolated individuals in previous years, increased in density and distribution in 2024. There are several patches throughout the vicinity of

wetland Cells 1, 2, and 3 of various sizes, and three more patches at the east end of wetland cell 13.

- Whitetop (*Cardaria draba*) was mapped in the northwestern portion of the project area, just south of the bike path, and at several points along Sand Creek.
- Black henbane (*Hyoscyamus niger*) was mapped for the 1st time in 2023, to the east of wetland cell 4.

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. The willow cuttings and other woody species are healthy and are becoming increasingly dense to the point that individual cuttings can no longer be identified. An estimated 17 percent of the containerized woody plantings survived through the 2022 survey. About 85 percent of the installed willow cuttings were estimated to have survived in 2023; young shoots arising from the installed cuttings ranged from 12 to 96 inches in length. Volunteer willows continue to establish along the stream channel and total shrub cover from the willow-dominated community types increased again in 2024.

Table 4. Data Summary for T-2 From 2016 Through 2024 at the Silicon Mountain Site.

Monitoring Year	2016	2017	2018	2019	2020	2021	2022	2023	2024
Vegetation Community Transitions Along Transect	2	2	2	3	3	3	3	3	3
Vegetation Communities Along Transect	3	3	3	4	4	4	4	4	4
Hydrophytic Vegetation Communities Along Transect	1	1	1	2	2	2	2	2	2
Total Vegetative Species	21	47	27	35	37	35	34	35	38
Total Hydrophytic Species	10	24	17	19	26	26	26	19	21
Total Upland Species	11	23	10	16	11	9	8	16	17
Estimated % Total Vegetative Cover	45	55	72	87.5	85	87	89	87	87
Estimated % Unvegetated	55	45	28	12.5	15	13	11	13	13
% Transect Length Comprising Hydrophytic Vegetation Communities	88	88	91	90	90	90	90	90	90
% Transect Length Comprising Upland Vegetation Communities	12	12	9	10	10	10	10	10	10
% Transect Length Comprising Open Water	0	0	0	0	0	0	0	0	0
% Transect Length Comprising Mudflat	0	0	0	0	0	0	0	0	0

Hydrology – Wetland hydrology was observed in numerous places across the Silicon Mountain mitigation site in 2024. Approximately 2.55 acres of surface water were observed in constructed wetland Cells 1, 2, 4, and 5 and preservation wetland cell 13 (0.06 acres). The estimated average surface water depth was 1 foot with depths ranging 0.1-4 feet. Flowing water was present in the entire length of the Sand Creek channel, with a few areas that exhibited ponded water on the downstream end of the channel. Indicators of wetland hydrology observed at the various wetland data points included: surface water, high water table, saturation, algal mats, hydrogen sulfide odor, and drift deposits (Appendix B – Corps Data Forms). Preserved wetland Cell 13 showed a reduction in the extent of surface water in 2024 compared to 2023.

US Geological Survey (USGS) groundwater monitoring data indicates that groundwater levels at this site were lower in 2024 than in 2023. There are two MDT wells, that the USGS-monitors at the site at an elevation of 5,347 feet. Groundwater levels have fluctuated year to year but have generally declined. From 2016 to 2020, groundwater levels gradually increased with the highest water levels recorded in May 2019 and 2020 (0.63-ft and 0.85-ft below land surface respectively). Since 2021 groundwater elevations have slowly decreased, with the shallowest measurements having been 1.01 and 1.55 feet below ground surface in 2021 and 2022 respectively.

Groundwater monitoring data in 2023 indicates groundwater levels at the well varied between 1.5-2.8 feet below the land surface. In 2024, groundwater levels measured in May (3.27 ft), June (2.51 ft), and August (1.87) were lower than in 2023 (Table 5; USGS, 2024). This may be due to the long-term drought that southwestern Montana has been experiencing since late 2022.

Table 5. 2024 USGS Groundwater Well Data for the Silicon Mountain Mitigation Site.

Date	Water Table Depth (feet below land surface)
5/2/2024	3.27
6/27/2024	2.51
8/28/2024	1.87

Soils – Soil pits were excavated at 20 sample points (10 sets of paired points) in 2024 in compliance with US Army Corps of Engineers wetland delineation requirements to determine the extent of hydric and upland soil development across the site (Appendices A and B). Soil textures within wetland test pits were mostly various loams, with one sand-dominated profile. Hydric soil indicators were observed in all but one wetland test pit, and included depleted matrix, hydrogen sulfide odor, and/or redox dark surface. The problematic wetland test pit observed in Wetland Cell 6 (DP09w) lacked any hydric soil indicators, but did exhibit evidence of wetland hydrology and supported a hydrophytic plant community. Based on this evidence of a hydric plant community and moisture regime, the area was classified as a wetland.

Soil textures within upland test pits consisted of various loams. Test pit DP01u had sandy loam aggregates with relict redoximorphic features mixed throughout the profile, indicating that the soils in this portion of the site were disturbed during construction. This soil was loose and dry and was not classified as a hydric soil.

Comprehensive field observations for data points are provided in the USACE wetland determination data forms in Appendix B for both wetland and upland points.

Wildlife – Six bird species were identified in 2024 at the Silicon Mountain site and included several wetland-dependent species. In addition to avian observations, a vole (*Microtus* sp.), rabbit (*Sylvilagus nuttallii*), and 5 white tailed deer (*Odocoileus virginianus*), including a doe and three fawns, were also observed (Appendix B).

Stream Channel Monitoring – The annual survey of the reconstructed channel indicates that the Sand Creek channel is stable and continuing to evolve (Appendix D).

The majority of the changes within Sand Creek channel are related to the bed surface elevation, channel narrowing, and bank aggradation. This statement is especially applicable for cross sections 1-3, which have displayed very little evidence of lateral migration over the monitoring period. In 2024, cross section 1 (XS1) appeared to have very similar dimensions as it did in 2015, even though previous years' survey data indicated that it has both downcut and re-filled by approximately 1 foot throughout the monitoring period. The thalweg at cross section 2 (XS2) in 2024 was approximately 0.75 feet deeper than it was in 2015 and it has continued to shift toward the right bank, with some continued minor aggradation on the left bank. The streambed at cross section 3 (XS3) has simultaneously narrowed and become shallower by 1.5-2 feet since 2015.

Cross sections 4-7, all located in the middle of the project area, have displayed the most evidence of lateral migration and change over the monitoring period. The deepest part of the channel has become deeper at cross section 4 (XS4) and the thalweg has shifted slightly toward the left bank as the right side of the channel has aggraded by 1-2 feet. The deepest part of the channel at

cross section 5 (XS5) has also downcut by approximately 1 foot, while both the right and left sides of the channel have aggraded by approximately 0.5 feet. In 2024, the 2-3 foot migration observed in the upper portion of the right bank at XS5 in 2023 appeared to have returned to its previous position. Cross section 6 (XS6) continues to exhibit aggradation on the right side of the channel as nearly 0.8 ft of sediment deposited on the right side of the channel in 2022 and 2023 has gradually eroded in 2024. Channel form at cross section 7 (XS7) has been dynamic over the last several years, with the thalweg shifting from the center to the right side of the channel and sediment deposition having been observed in different locations in different monitoring years. In 2024, the main channel has widened on its left side by about 5 feet. Finally, the channel form at cross section 8 (XS8) has remained relatively stable across all monitoring years.

Although several of the monitored cross sections have exhibited changes in channel form over time, none of these observations are concerning. Almost all observed channel form evolution has occurred between the constructed streambanks, and the top of bank locations have remained mostly static. The re-distribution of sediment within the stream channel and migration of the thalweg are natural processes and indicate that the stream is functioning appropriately as designed.

Riparian Vegetation Monitoring - In 2024, all 16 belt transects monitored along Sand Creek exhibited riparian vegetation communities with stability ratings of 6 or greater, which meets the site's channel restoration performance criterion. Willow species, including yellow willow (*Salix lutea*), narrow-leaf willow (*Salix exigua*), and Pacific willow (*Salix lasiandra*), represent the dominant woody species identified along the stream bank transects. Dominant riparian herbaceous species observed within the transects included Basin wildrye (*Leymus cinereus*), Baltic rush (*Juncus balticus*), panicled bulrush (*Scirpus microcarpus*), woolly sedge (*Carex pellita*), fringed willowherb (*Epilobium ciliatum*), and Nebraska sedge (*Carex nebrascensis*). The willows continue to increase in height and abundance along the stream banks with minor shifts in species dominance.

Photographs – Seven wetland and ten stream annual photo points were 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 2024 and the first year of monitoring. The locations of these photographs are illustrated on Figure A-2 (Appendix A). Refer to previous years' monitoring reports for all previous annual photographs: https://www.mdt.mt.gov/publications/brochures/wetland-mitigation.aspx.

Functional Assessment – The 2008 Montana Wetland Assessment Method (MWAM; Berglund and McEldowney, 2008) was used to evaluate the functionality of the site in 2024. Five distinct Assessment Areas (AA) were evaluated at the site in 2024; AA1 – Established Wetland Cells 2, 3, and 4; AA2 – Established Wetland Cells 1 and 5; AA3 – Preservation Wetlands; AA4 – Established Wetland Cell 6; and AA5 – Establishment wetlands adjacent to Sand Creek and Preservation Wetlands (Table 6; Appendix B).

- AA1 – Established Wetland Cells 2, 3, and 4 are classified as Category II wetlands and received high ratings for General Wildlife Habitat, Sediment/Nutrient/Toxicant Removal, Production Export/Food Chain Support, and Recreation/Education Potential.

- AA2 – Established Wetland Cells 1 and 5 are classified as Category II wetlands and received a high rating for General Wildlife Habitat, Short- and Long-Term Surface Water Storage, Sediment/Shoreline Stabilization, Production Export/Food Chain Support, Groundwater Discharge/Recharge, and Recreation/Education Potential.

- AA3 – Preservation Wetlands are classified as Category II wetlands and received high ratings for General Wildlife Habitat, Short- and Long-Term Surface Water Storage, Sediment/Nutrient/Toxicant Removal, Sediment/Shoreline Stabilization, Production Export/Food Chain Support, Groundwater Discharge/Recharge, and Recreation/Education Potential.

- AA4 - The ecological function provided by Wetland Cell 6 is generally lower than the other cells due to its small size, the man-made nature of the site in the footprint of the old roadway/bridge fill, and its proximity to the railway. The wildlife and MNHP species of concern habitat scores were reduced in 2024, and the wetland is now rated as a Category IV wetland.
- AA5 encompasses a few different habitat types that were classified as Category II wetlands and received high ratings for General Wildlife Habitat, Flood Attenuation, Sediment/Nutrient/Toxicant Removal, Sediment/Shoreline Stabilization, Production Export/Food Chain Support, Groundwater Discharge/Recharge, and Recreation/Education Potential.

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

Function and Value Parameters From the 2008 Montana Wetland Assessment Method	**2024 AA1 (Established Wetland Cells 2, 3, and 4)**	**2024 AA2 (Established Wetland Cells 1 and 5)**	**2024 AA3 (Preservation Wetlands: Preservation Wetland Cells 5, 7, 12, & 13)**	**2024 AA4 (Established Wetland Cell 6)**	**2024 AA5 (Wetlands Established along Sand Creek and adjacent to preservation wetlands)**
Listed/Proposed Threatened & Endangered (T&E) Species Habitat	L (0.1)	L (0.1)	L (0.1)	L (0.0)	L (0.0)
Montana Natural Heritage Program Species (MTNHP) Habitat	M (0.5)	M (0.5)	M (0.5)	L (0.1)	M (0.7)
General Wildlife Habitat	H (0.9)	E (1.0)	H (0.9)	L (0.2)	H (0.9)
General Fish/Aquatic Habitat	N/A	N/A	N/A	N/A	M (0.6)
Flood Attenuation	N/A	N/A	N/A	N/A	H (0.8)
Short- and Long-Term, Surface-Water Storage	M (0.6)	H (1.0)	H (0.9)	L (0.2)	M (0.7)
Sediment/Nutrient/Toxicant Removal	H (1.0)	M (0.7)	H (1.0)	M (0.5)	H (0.9)
Sediment/Shoreline Stabilization	M (0.6)	H (1.0)	H (1.0)	N/A	H (1.0)
Production Export/Food Chain Support	H (0.9)	H (1.0)	H (0.8)	L (0.2)	H (1.0)
Groundwater Discharge/Recharge	M (0.7)	H (1.0)	H (1.0)	M (0.7)	H (1.0)
Uniqueness	M (0.5)	M (0.6)	M (0.6)	L (0.2)	M (0.4)
Recreation/Education Potential (bonus points)	H (0.2)	H (0.2)	H (0.2)	N/A	H (0.2)
Actual Points/Possible Points	**6.0/9.0**	**7.1/9.0**	**7.0/9.0**	**2.1/8.0**	**8.2/11.0**
% of Possible Score Achieved	**67%**	**79%**	**78%**	**26%**	**75%**
Overall Category	**II**	**II**	**II**	**IV**	**II**

Credit Summary:

Stream Mitigation Credits

The stream mitigation component of the Silicon Mountain project included 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 (Table 7).

Table 7. Stream Mitigation Credits[a] for the Silicon Mountain Site.

Mitigation Reach	Linear Feet	Sum of Mitigation Factors[(a)]	Mitigation Credits
Reach 1	3,250	3.20	10,400.00
Reach 2	650	3.03	1,969.50
Total	**3,900**		**12,369.50**

(a) From *Silicon Mountain Aquatic Resource Mitigation Plan, Watershed #2 – Upper Clark Fork of the Columbia River, Butte-Silver Bow County, MT* (Confluence Consulting, Inc., 2013).

Wetland Mitigation Credits

In 2024, 18.89 acres of wetland were delineated at the Silicon Mountain site, all of which can be applied toward mitigation credits. The total wetland acreage delineated is comprised of 9.04 establishment wetland acres and 9.86 acres of preservation wetlands. Additionally, 2.55 acres of open water habitat were delineated across the mitigation site, and the 50-foot upland buffer surrounding the wetland habitats provided an additional 13.67 acres toward the mitigation crediting. Applying the USACE-approved ratios to this acreage results in a total of 14.24 wetland mitigation credit acres generated in 2024. The mitigation ratios for the 2.55 acres of open water have yet to be determined by the USACE (Tables 8 and 9). Of these 14.24 credit acres, 4.33 credits are allocated to Butte-Silver Bow County and the remaining 9.91 credit acres are allocated to MDT.

Functional Unit Credits

Silicon Mountain Mitigation site generated a total of 43.52 functional unit credits for MDT in 2024. (Table 9). Functional credits are based on the MWAM scores associated with specific wetland polygons (Table 6; Appendix B). Note that upland areas are not evaluated in MWAM assessments and thus the credit acres associated with the upland buffer do not contribute to the functional unit credits.

Table 8. Summary of Mitigation Credits at the Silicon Mountain Site from 2015 (1st year of monitoring) compared to monitoring from 2021 through 2024*

Compensatory Mitigation Type	Mitigation Area Description	Wetland Type[(b)]	Anticipated Mitigation Surface Area Acres	USACE-Approved Mitigation Ratios	Anticipated Mitigation Credit Acres	2015 Delineated Acres	2015 Mitigation Credit Acres	2021 Delineated Acres	2021 Mitigation Credit Acres	2022 Delineated Acres	2022 Mitigation Credit Acres	2023 Delineated Acres	2023 Mitigation Credit Acres	2024 Delineated Acres	2024 Mitigation Credit Acres
Establishment (Creation)	Wetland Cells 1, 2, 3, 4, 5 & 6	Palustrine Emergent, Aquatic Bed	7.84	1:1	7.84	6.19	6.19	8.42	8.42	6.36	6.36	6.84	6.84	6.60	6.60
Establishment (Creation)	Additional wetlands that have established surrounding preservation and riparian zones	Palustrine Emergent, Palustrine Scrub-shrub	0.00	1:1	0.00	-	-	-	-	2.26	2.26	2.44	2.44	2.44	2.44
Preservation	Existing Wetland Areas: Preservation Wetland Cells 5, 7, 12, and 13	Palustrine Emergent, Scrub-Shrub	10.06	4:1	2.52	10.24	2.56	9.65	2.41	9.31	2.33	9.31	2.33	9.86	2.47
Upland Buffer [(c)]	50-Foot-Wide Upland Buffer	N/A	10.80	5:1	2.16	10.80	2.16	10.80	2.16	16.72	3.34	13.74	2.75	13.67	2.73
Open Water[(a)]	Wetland Cells 1, 4, 5, & 13	Lacustrine/ Palustrine Aquatic Bed	TBD	TBD	TBD	N/A	N/A	3.24	TBD	3.51	TBD	3.07	TBD	2.55	TBD
Mudflat[(a)]	Preserved Wetland 13	Palustrine Aquatic Bed	TBD	TBD	TBD	N/A	N/A	0.24	TBD	0.00	N/A	0.00	N/A	0.00	N/A
Total Acreage			**28.70**	**NA**	**11.45**	**27.23**	**10.91**	**32.35**	**12.99**	**38.16**	**14.29**	**35.40**	**14.36**	**35.12**	**14.24**
Butte Silver Bow County Credit Acres			**2.16**	**2:1**	**4.33**		**4.33**		**4.33**		**4.33**		**4.33**		**4.33**
Credit Acres Assigned to MDT			**26.54**		**7.12**		**6.83**		**8.66**		**9.96**		**10.03**		**9.91**

(a) Mitigation ratios and crediting for Open Water and Mudflat are To Be Determined (TBD) by the US Army Corps of Engineers.
(b) FGDC, 2013
(c) In years prior to 2022, upland buffer credits have been reported for the anticipated delineated acres. In 2022, the reporting method switched to actual upland buffer acreages delineated.
* Additional year's monitoring reports can be found at the MDT website

Table 9. 2024 MDT Wetland Functional Credits at the Silicon Mountain site.

MDT Mitigation Credit Area	2024 Delineated Wetland Acres	Ratio	2024 MDT Mitigation Credit Acres*	MWAM Actual Points (see Table 6)	Functional Credits (Mitigation Credit Acres × Actual Points)
Wetland Cell 3 (Establishment)	0.56	1:1	0.56	6	3.36
Wetland Cell 4 (Establishment)	1.42	1:1	1.42	6	8.52
Wetland Cell 5 (Establishment)	0.43	1:1	0.43	7.1	3.05
Riparian Wetlands (Establishment)	1.96	1:1	1.96	8.2	16.07
Wetland Cells 12 and 13 (Preservation)	7.15	4:1	1.79	7.0	12.52
Total	**11.52**		6.16*	34.30	**43.52**

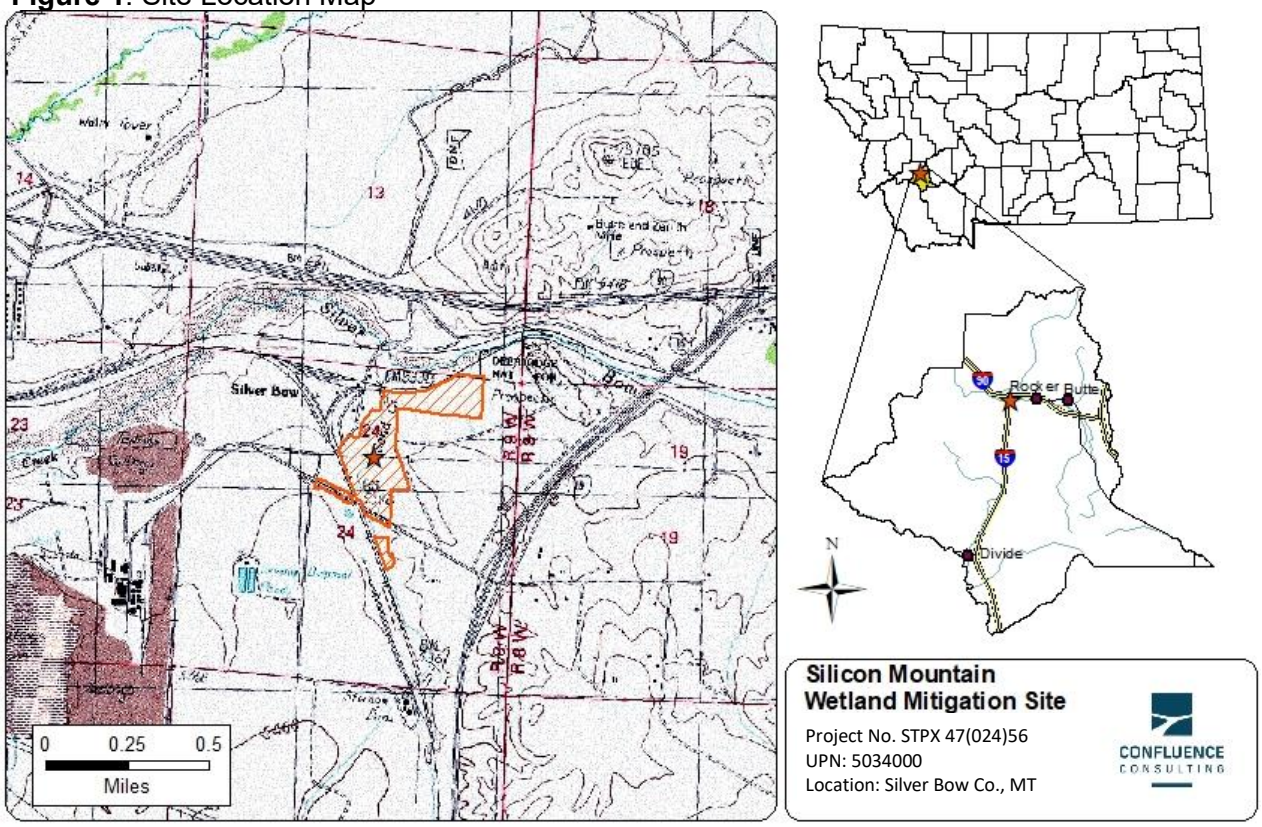
*Does not include BSBC credit areas, open water, or upland buffer,

Conclusions

The Silicon Mountain Mitigation site is continuing to develop into a diverse stream and wetland ecosystem. The site met all established performance criteria and has exceeded the planned mitigation credit acreage. All wetland cells, except Cell 6, are functioning as intended and wetland acreage continues to remain relatively stable with a few fluctuations. The Sand Creek channel morphology continues to evolve, though the location of the channel has remained static. Willow cuttings installed along the banks of Sand Creek continue to mature, and streambanks are stable with thriving woody vegetation communities. At this time, no remedial actions are necessary within the stream and wetland areas because the site has continued to develop as intended and the mitigation targets are being achieved. Weed control efforts will continue in 2025 to ensure that the site maintains the performance criteria related to noxious weed cover.

Maps, Plans, Photos

Figure 1. Site Location Map



Project Area Maps/Figures: See Appendix A (Figure A-2 – 2024 Monitoring Activity Locations; Figure A-3 – 2024 Mapped Site Features; Figure A-4 – 2024 Wetland Credit Areas; and Figure A-5 – 2024 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/publications/brochures/wetland-mitigation.aspx

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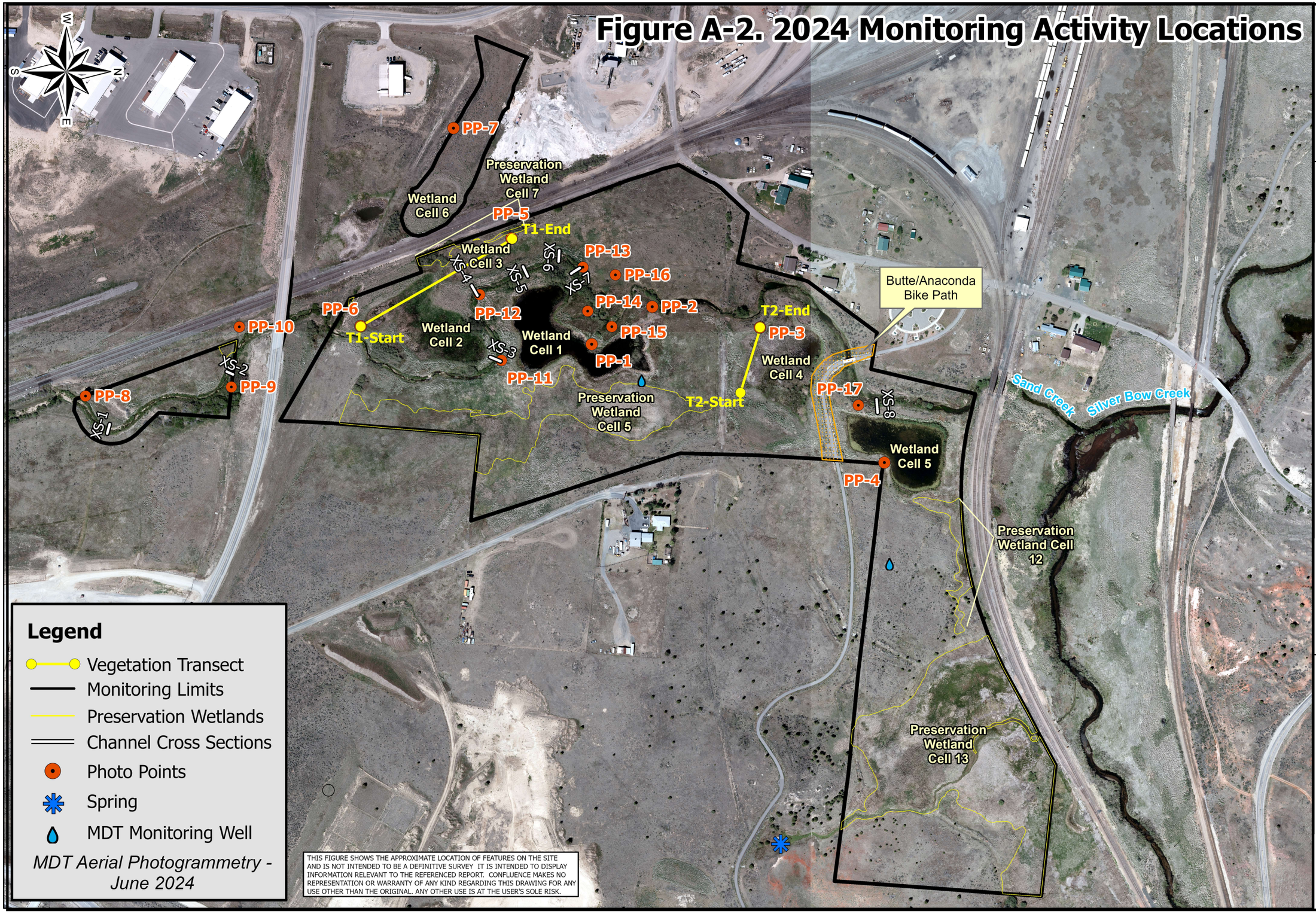
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APPENDIX A
PROJECT AREA MAPS

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

Figure A-2. 2024 Monitoring Activity Locations



Legend

- Vegetation Transect
- Monitoring Limits
- Preservation Wetlands
- Channel Cross Sections
- Photo Points
- Spring
- MDT Monitoring Well

MDT Aerial Photogrammetry - June 2024

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

CONFLUENCE CONSULTING

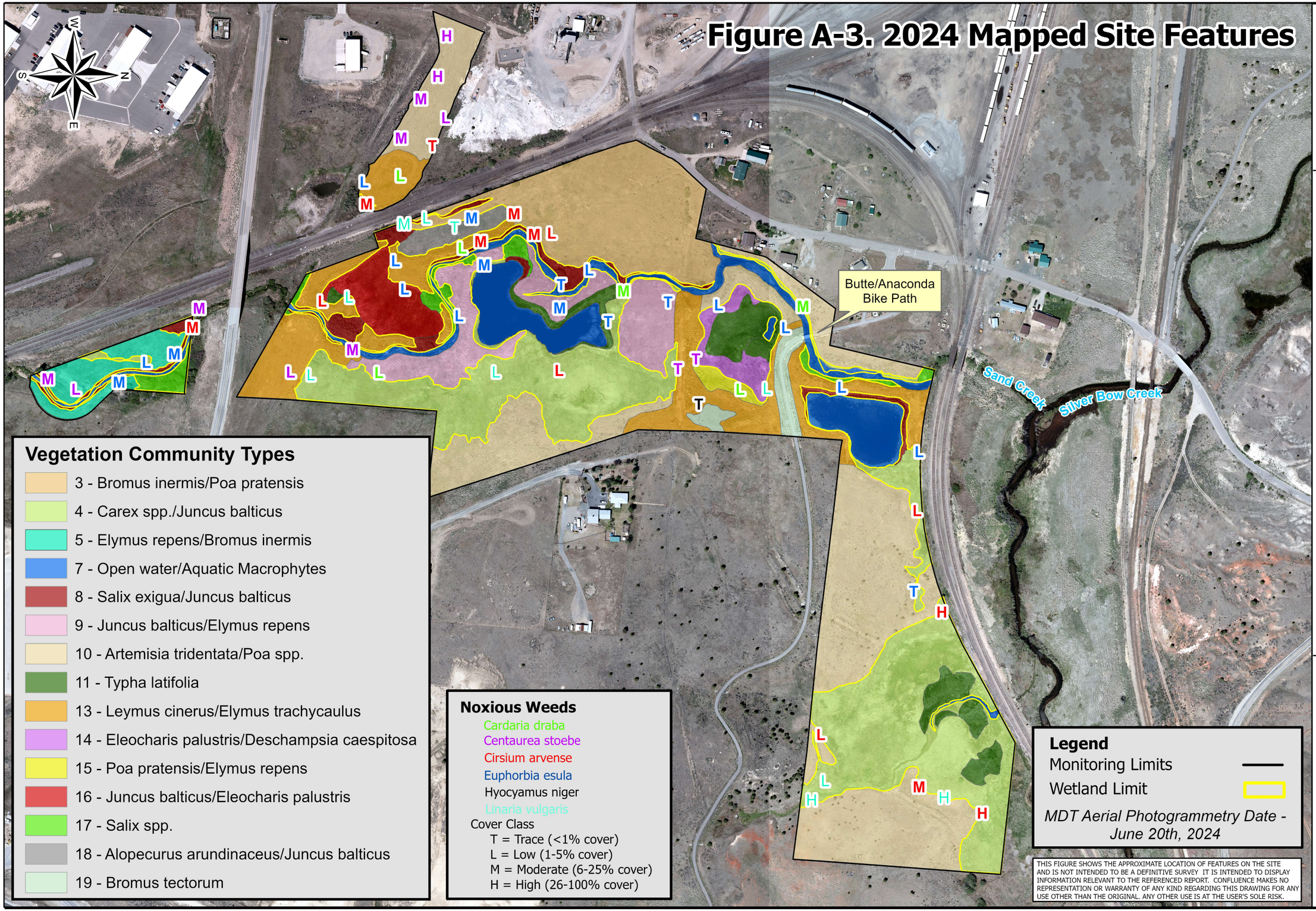
Silicon Mountain Mitigation Site
2024 Monitoring Activity Locations

0 125 250 500 750 1,000 1,250 Feet

Project:	STPX STWD (813)
Location:	Silver Bow Co., Montana
Map Creation Date:	09/05/2024
Project Manager:	R McEldowney
Drawn By:	B. Pease

File: X:\Project\MDT Wetland Mitigation 24\Arcgis Pro\SiliconMountain\SiliconMountain.aprx

Figure A-3. 2024 Mapped Site Features



Vegetation Community Types

- 3 - Bromus inermis/Poa pratensis
- 4 - Carex spp./Juncus balticus
- 5 - Elymus repens/Bromus inermis
- 7 - Open water/Aquatic Macrophytes
- 8 - Salix exigua/Juncus balticus
- 9 - Juncus balticus/Elymus repens
- 10 - Artemisia tridentata/Poa spp.
- 11 - Typha latifolia
- 13 - Leymus cinerus/Elymus trachycaulus
- 14 - Eleocharis palustris/Deschampsia caespitosa
- 15 - Poa pratensis/Elymus repens
- 16 - Juncus balticus/Eleocharis palustris
- 17 - Salix spp.
- 18 - Alopecurus arundinaceus/Juncus balticus
- 19 - Bromus tectorum

Noxious Weeds

- Cardaria draba
- Centaurea stoebe
- Cirsium arvense
- Euphorbia esula
- Hyocyamus niger
- Linaria vulgaris

Cover Class

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

Legend

- Monitoring Limits
- Wetland Limit

MDT Aerial Photogrammetry Date - June 20th, 2024

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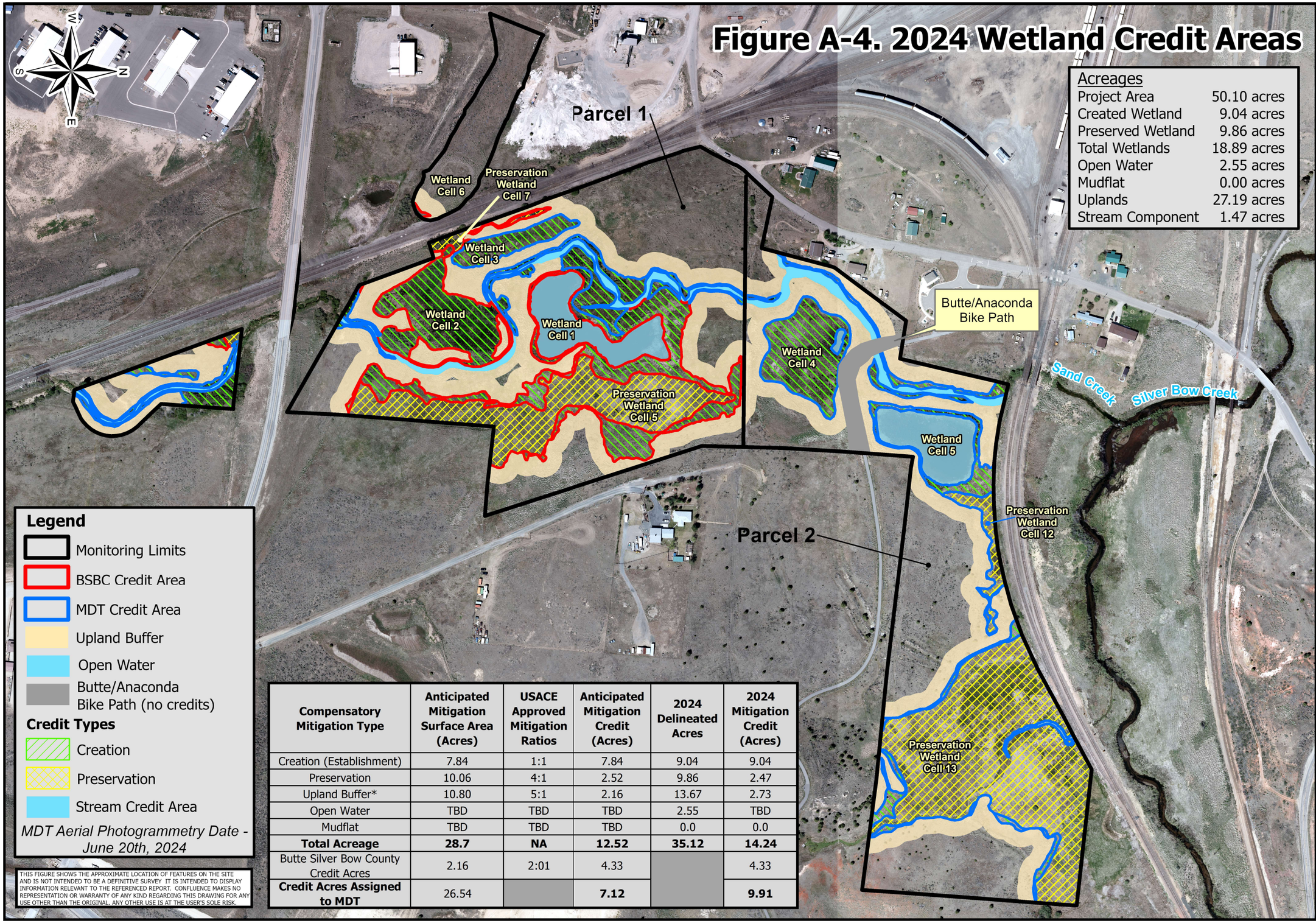
Silicon Mountain Mitigation Site
2024 Mapped Site Features

0 125 250 500 750 1,000 1,250 Feet

Project: STPX STWD (813)
Location: Silver Bow Co., Montana
Map Creation Date: 9/23/2024
Project Manager: R McEldowney
Drawn By: B Pease

File: X:\Project\MDT Wetland Mitigation 2\ArcGIS Pro\SiliconMountain\SiliconMountain.aprx

Figure A-4. 2024 Wetland Credit Areas



Acreages	
Project Area	50.10 acres
Created Wetland	9.04 acres
Preserved Wetland	9.86 acres
Total Wetlands	18.89 acres
Open Water	2.55 acres
Mudflat	0.00 acres
Uplands	27.19 acres
Stream Component	1.47 acres

Legend

- Monitoring Limits
- BSBC Credit Area
- MDT Credit Area
- Upland Buffer
- Open Water
- Butte/Anaconda Bike Path (no credits)

Credit Types

- Creation
- Preservation
- Stream Credit Area

MDT Aerial Photogrammetry Date - June 20th, 2024

Compensatory Mitigation Type	Anticipated Mitigation Surface Area (Acres)	USACE Approved Mitigation Ratios	Anticipated Mitigation Credit (Acres)	2024 Delineated Acres	2024 Mitigation Credit (Acres)
Creation (Establishment)	7.84	1:1	7.84	9.04	9.04
Preservation	10.06	4:1	2.52	9.86	2.47
Upland Buffer*	10.80	5:1	2.16	13.67	2.73
Open Water	TBD	TBD	TBD	2.55	TBD
Mudflat	TBD	TBD	TBD	0.0	0.0
Total Acreage	**28.7**	**NA**	**12.52**	**35.12**	**14.24**
Butte Silver Bow County Credit Acres	2.16	2:01	4.33		4.33
Credit Acres Assigned to MDT	26.54		**7.12**		**9.91**

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

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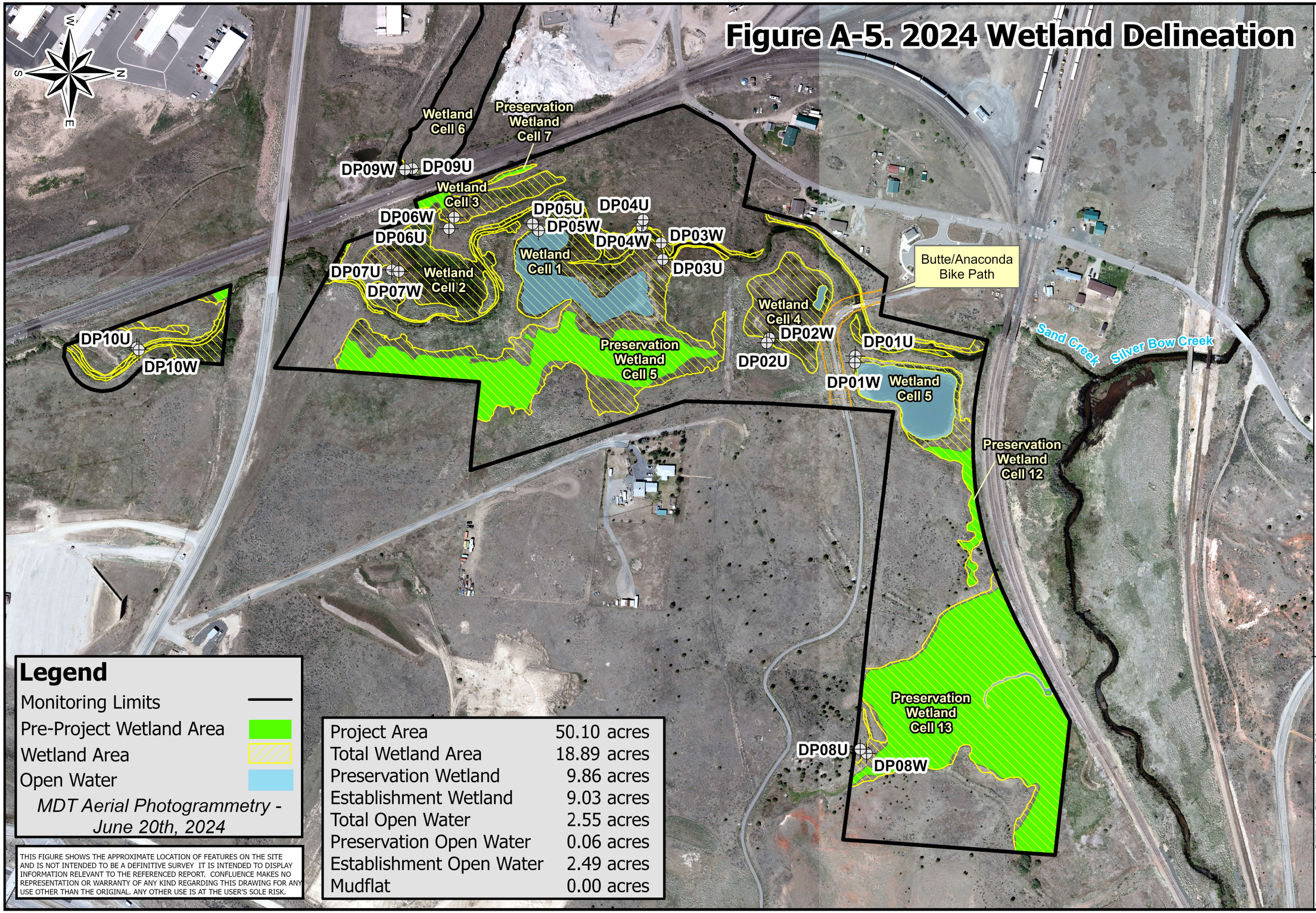
Silicon Mountain Mitigation Site
2024 Wetland Credit Areas

0 125 250 500 750 1,000 1,250 Feet

Project: STPX-STWD (813)
Location: Silver Bow Co., Montana
Map Creation Date: 9/24/2024
Project Manager: R McEldowney
Drawn By: B Pease

File: X:\Project\MDT Wetland Mitigation 2\ArcGIS Pro\SiliconMountain\SiliconMountain.aprx

Figure A-5. 2024 Wetland Delineation



Legend

- Monitoring Limits
- Pre-Project Wetland Area
- Wetland Area
- Open Water

MDT Aerial Photogrammetry - June 20th, 2024

Project Area	50.10 acres
Total Wetland Area	18.89 acres
Preservation Wetland	9.86 acres
Establishment Wetland	9.03 acres
Total Open Water	2.55 acres
Preservation Open Water	0.06 acres
Establishment Open Water	2.49 acres
Mudflat	0.00 acres

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CONFLUENCE CONSULTING

Silicon Mountain Mitigation Site
2024 Wetland Delineation

0 125 250 500 750 1,000 1,250 Feet

Project:	STPX STWD (813)
Location:	Silver Bow Co., Montana
Date:	9/23/2024
Project Manager:	R McEldowney
Drawn By:	B Pease

APPENDIX B
MONITORING FORMS

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

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Silicon Mountain Assessment Date/Time 7/23/2024

Person(s) conducting the assessment: R McEldowney, RJ Baumgarten, E Reynaud

Weather: 80 degrees, sunny Location: 5 miles west of Butte

MDT District: Butte Milepost: MP 119 on I-15

Legal Description: T 3N R 9E Section(s) 24

Initial Evaluation Date: 6/23/2015 Monitoring Year: 10 #Visits in Year: 1

Size of Evaluation Area: 50.1 (acres)

Land use surrounding wetland:

Mix of commercial (railroad), residential, and parkland (bike path).

HYDROLOGY

Surface Water Source: Sand Creek and a well-defined spring.

Inundation: ☑ Average Depth: 1 **(ft)** Range of Depths: 0.1-4 **(ft)**

Percent of assessment area under inundation: 8 %

Depth at emergent vegetation-open water boundary: 0.5 **(ft)**

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

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

Evidence of wetland hydrology across the mitigation site includes high water table, saturation to the soil surface, inundation, a positive FAC-Neutral test, geomorphic position, inundation on aerial imagery and saturation on aerial imagery.

Groundwater Monitoring Wells

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

Well ID	Water Surface Depth (ft)
*Separate dates	
45595911239420	2.63
45595911239420	3.27
45595911239420	2.51
45595911239420	1.87
46000511239190	7.54
46000511239190	7.65
46000511239190	6.96
46000511239190	6.46

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 groundwater monitoring wells remained on site after construction and are monitored by USGS. Well depths were recorded four times in 2024 on 5/2, 6/27, 8/28, and 9/20.

Open water covered ~80% of wetland cells 1 and 5. Shallow ponded water was present in ~3% of Cell 4, and ~1% of wetland 13. Open water dramatically reduced in Cell 13 with the narrowing of the stream bank. Flowing water was present in the entire length of the Sand Creek channel.

VEGETATION COMMUNITIES

Site Silicon Mountain

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

Community # 3 **Community Type:** Bromus inermis / Poa pratensis **Acres:** 5.14

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	1	Deschampsia caespitosa	0
Elymus repens	3	Elymus trachycaulus	2
Euphorbia esula	3	Juncus balticus	0
Koeleria macrantha	1	Lactuca serriola	0
Leymus cinereus	1	Linaria vulgaris	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. Increase in acreage of this CT (0.22 ac) in 2024 due to wetland contraction along the western portion of the project area.

Community # 4 **Community Type:** Carex spp. / Juncus balticus **Acres:** 11.72

Species	Cover class	Species	Cover class
Calamagrostis canadensis	1	Carex aquatilis	1
Carex nebrascensis	2	Carex praegracilis	1
Carex praticola	1	Carex utriculata	2
Cirsium arvense	1	Deschampsia caespitosa	2
Euphorbia esula	1	Juncus balticus	4
Leymus cinereus	0	Mentha arvensis	1
Poa palustris	1	Poa pratensis	2
Potentilla anserina	2	Sisymbrium altissimum	1
Typha latifolia	1		

Comments:

PEM wetland community. This community type expanded in the north east of the project site by 0.33 acres with the open water boundaries of the spring creek contracting since 2023.

Community # 5 **Community Type:** Elymus repens / Bromus inermis **Acres:** 1.28

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	0	Pascopyrum smithii	2
Poa pratensis	1	Potentilla anserina	0
Salix exigua	1		

Comments:

Upland community south of the road alignment and overpass. No significant changes were observed in this CT in 2024.

Community # 7 **Community Type:** Open Water / Aquatic macrophytes **Acres:** 4.06

Species	Cover class	Species	Cover class
Algae, green	3	Beckmannia syzigachne	1
Eleocharis palustris	1	Glyceria grandis	0
Juncus balticus	1	Lemna minor	1
Mudflat	1	Open Water	5
Typha latifolia	2		

Comments:

Open water areas within created wetland cells 1, 4, 5, preserved wetland cell 13, Sand Creek, and the small stream channel coming from the spring adjacent to the site. In 2024, open water areas decreased by 0.55 acres due to lower water levels and growth of vegetation along water edges. The most dramatic change in acreage was due to the narrowing of the spring creek channel in the north east part of the site.

Community # 8 **Community Type:** Salix exigua / Juncus balticus **Acres:** 1.44

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	2
Calamagrostis canadensis	2	Carex aquatilis	1
Carex nebrascensis	1	Carex pellita	2
Carex utriculata	2	Cicuta douglasii	1
Eleocharis palustris	2	Glyceria striata	1
Hordeum jubatum	1	Juncus balticus	3
Mentha arvensis	1	Salix exigua	5
Salix geyeriana	1	Salix lasiandra	1
Salix lutea	1	Scirpus microcarpus	1

Comments:

Existing wetland east and west of wetland cell 2, along the restored Sand Creek stream channel, and surrounding cell 5. Acreage of this community type increased slightly in 2024 (.17 acres) with changes in open water boundaries in cell 5 due to changed water levels and a slight modification to the wetland boundary east of cell 2.

Community # 9 **Community Type:** Juncus balticus / Elymus repens **Acres:** 2.97

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	1
Bromus inermis	1	Calamagrostis canadensis	0
Cirsium arvense	1	Elymus repens	3
Elymus trachycaulus	1	Epilobium ciliatum	0
Euphorbia esula	1	Geum macrophyllum	0
Hordeum jubatum	1	Juncus balticus	3
Leymus cinereus	1	Poa palustris	1
Poa pratensis	3	Potentilla anserina	0
Rumex crispus	0	Salix exigua	1
Solidago gigantea	1	Symphyotrichum lanceolatum	1
Thlaspi arvense	1		

Comments:

The acreage of this wetland community increased by approximately 0.15 acres between 2023 and 2024 due to the decrease in sedge cover north of wetland cell 1, replacing parts of community type 4.

Community # 10 **Community Type:** Artemisia tridentata / Poa spp. **Acres:** 11.85

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

Comments:

Upland shrubland. No changes to this community type observed between 2023 and 2024.

Community # 11 **Community Type:** Typha latifolia / **Acres:** 1.99

Species	Cover class	Species	Cover class
Alisma plantago-aquatica	0	Alopecurus aequalis	0
Bare Ground	0	Beckmannia syzigachne	0
Calamagrostis canadensis	0	Carex athrostachya	1
Carex nebrascensis	1	Carex pellita	1
Carex rosea	0	Carex utriculata	2
Cyrtorhyncha cymbalaria	1	Deschampsia caespitosa	0
Eleocharis palustris	2	Epilobium ciliatum	1
Glyceria grandis	1	Juncus balticus	1
Juncus bufonius	0	Juncus effusus	0
Mentha arvensis	1	Mud Flats	0
Open Water	2	Poa palustris	0
Potentilla anserina	1	Ranunculus sceleratus	0
Salix lasiandra	0	Salix lutea	1
Schoenoplectus tabernaemonta	1	Scirpus acutus	1
Scirpus microcarpus	2	Typha latifolia	5

Comments:

Typha latifolia expanded slightly (0.2 acres) in wetland cell 2 in 2024.

Community # 13 **Community Type:** Leymus cinereus / Elymus trachycaulus **Acres:** 5.6

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

Comments:

Community dominated by FAC graminoids, located in upland areas around wetland cells 2, 4, and 5. The acreage of this CT decreased slightly by 0.06 between 2023 and 2024 due to a CT border shift east of wetland cell 2.

Community # 14 **Community Type:** Eleocharis palustris / Deschampsia caespitosa **Acres:** 0.63

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus aequalis	1
Bare Ground	1	Beckmannia syzigachne	1
Carex nebrascensis	1	Carex pellita	1
Carex rosea	0	Carex utriculata	1
Deschampsia caespitosa	2	Eleocharis palustris	3
Epilobium ciliatum	1	Hordeum jubatum	1
Juncus balticus	3	Mentha arvensis	1
Open Water	1	Persicaria amphibia	1
Poa palustris	1	Potentilla anserina	2
Sonchus arvensis	0	Typha latifolia	1

Comments:

Located along the eastern, southern, and western edges of wetland cell 4. No acreage changes were observed in this community type in 2024.

Community # 15 **Community Type:** Poa pratensis / Elymus repens **Acres:** 0.25

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Astragalus cicer	1
Bare Ground	2	Bromus inermis	2
Cirsium arvense	0	Elymus repens	3
Elymus trachycaulus	2	Epilobium ciliatum	0
Euphorbia esula	0	Festuca ovina	1
Hordeum jubatum	0	Leymus cinereus	2
Linum lewisii	1	Poa palustris	1
Poa pratensis	4	Potentilla anserina	1
Puccinellia nuttalliana	1	Thlaspi arvense	1
Trifolium hybridum	1		

Comments:

Located east of wetland cell 4, on the upland slope above the cell. No changes were observed in this community type in 2024.

Community # 16 **Community Type:** Juncus balticus / Eleocharis palustris **Acres:** 1.26

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

Comments:

Located in wetland cell 2 and cell 3. The total cover for this CT slightly increased by 0.05 acres in 2024 due to a shift in the wetland cell 2 boundaries.

Community # 17 **Community Type:** Salix spp. / **Acres:** 0.77

Species	Cover class	Species	Cover class
Alnus incana	1	Carex pellita	1
Carex utriculata	1	Juncus balticus	2
Salix bebbiana	2	Salix boothii	2
Salix exigua	5	Salix geyeriana	2
Salix lutea	2	Veronica americana	1

Comments:

No acreage changes were observed for this community type in 2024.

Community # 18 **Community Type:** Alopecurus arundinaceus / Juncus balticus **Acres:** 0.53

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	5
Bare Ground	0	Bromus inermis	1
Carex aquatilis	0	Carex nebrascensis	2
Carex utriculata	1	Cicuta douglasii	2
Cirsium arvense	2	Cyrtorhyncha cymbalaria	1
Deschampsia caespitosa	1	Eleocharis palustris	0
Elymus repens	1	Epilobium ciliatum	0
Euphorbia esula	1	Glyceria striata	0
Hordeum jubatum	0	Iris missouriensis	0
Juncus balticus	4	Leymus cinereus	0
Linaria vulgaris	1	Mentha arvensis	0
Phalaris arundinacea	1	Poa palustris	0
Poa pratensis	3	Potentilla anserina	3
Salix bebbiana	0	Salix exigua	2
Salix lutea	0	Scirpus microcarpus	0
Sonchus arvensis	1	Symphyotrichum ciliatum	0
Thlaspi arvense	0	Typha latifolia	0

Comments:

New wetland community type created in 2023 to document the encroachment of creeping meadow foxtail into wetland cell 3, previously documented as WT16. This community type, along with the wetland cell 3, contracted by .12 acres (approximately 60 ft) in 2024 on the northern boundary.

Community # 19 **Community Type:** Bromus tectorum / **Acres:** 0.61

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Artemisia tridentata	1
Bare Ground	2	Bassia scoparia	1
Bromus tectorum	4	Camelina microcarpa	2
Descurainia sophia	1	Elymus trachycaulus	1
Lepidium perfoliatum	1	Leymus cinereus	1
Pascopyrum smithii	1	Thlaspi arvense	2

Comments:

Upland community composed of mostly early successional, non-native species commonly found on disturbed landscapes. In 2021 this community type was mapped as CT 2 (Descurainia sophia/Thlaspi arvense) along the Butte/Anaconda bike path. A second patch of was added in 2023 in the central portion of the site along the eastern boundary of the project area. In 2024 it was changed to CT 19 (Bromus tectorum) to better reflect the species composition.

Total Vegetation Community Acreage **50.1**

VEGETATION TRANSECTS

Site: Silicon Mountain Date: 7/23/2024

Transect Number: 1 **Compass Direction from Start:** 322

Interval Data:

Ending Station 13 Community Type: Leymus cinereus / Elymus trachycaulus

Species	Cover class	Species	Cover class
Astragalus cicer	3	Bare Ground	1
Cirsium arvense	2	Elymus repens	1
Elymus trachycaulus	2	Festuca ovina	3
Juncus balticus	1	Leymus cinereus	4
Linaria vulgaris	1	Poa pratensis	2
Poa secunda	2	Silene latifolia	0
Sonchus arvensis	3	Thlaspi arvense	1

Ending Station 35 Community Type: Juncus balticus / Eleocharis palustris

Species	Cover class	Species	Cover class
Bare Ground	1	Cicuta douglasii	0
Cirsium arvense	0	Deschampsia caespitosa	0
Eleocharis palustris	3	Juncus balticus	5
Juncus bufonius	0	Juncus effusus	0
Mentha arvensis	0	Poa palustris	1
Potentilla anserina	3	Salix bebbiana	0
Sonchus arvensis	2	Typha latifolia	0

Ending Station 59 Community Type: Typha latifolia /

Species	Cover class	Species	Cover class
Beckmannia syzigachne	0	Carex utriculata	2
Deschampsia caespitosa	0	Eleocharis palustris	1
Glyceria grandis	0	Juncus balticus	2
Juncus bufonius	0	Juncus effusus	1
Open Water	0	Poa palustris	1
Salix lasiandra	0	Scirpus microcarpus	1
Typha latifolia	5		

Ending Station 264 Community Type: Juncus balticus / Eleocharis palustris

Species	Cover class	Species	Cover class
Alopecurus arundinaceus	1	Alopecurus pratensis	1
Bare Ground	1	Beckmannia syzigachne	0
Carex nebrascensis	0	Carex pellita	0
Carex utriculata	0	Cirsium arvense	0
Deschampsia caespitosa	0	Eleocharis palustris	1
Elymus repens	1	Glyceria grandis	1
Hordeum jubatum	2	Juncus balticus	5
Juncus effusus	0	Phalaris arundinacea	1
Plantago major	0	Poa palustris	1
Potentilla anserina	3	Salix bebbiana	0
Salix lasiandra	0	Thlaspi arvense	0
Typha latifolia	1		

Ending Station 306 Community Type: Leymus cinereus / Elymus trachycaulus

Species	Cover class	Species	Cover class
Astragalus cicer	2	Bare Ground	0
Bromus inermis	3	Camelina microcarpa	0
Elymus repens	2	Elymus trachycaulus	1
Euphorbia esula	0	Juncus balticus	2
Lepidium draba	0	Leymus cinereus	4
Linaria vulgaris	1	Poa pratensis	2
Sonchus arvensis	0	Thlaspi arvense	1
Trifolium longipes	0		

Ending Station 537 Community Type: Alopecurus arundinaceus / Juncus balticus

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Alopecurus arundinaceus	5
Bare Ground	0	Carex aquatilis	2
Carex nebrascensis	1	Cicuta douglasii	2
Cirsium arvense	2	Deschampsia caespitosa	1
Eleocharis palustris	2	Epilobium ciliatum	0
Glyceria striata	1	Hordeum jubatum	1
Juncus balticus	3	Linaria vulgaris	1
Mentha arvensis	0	Phalaris arundinacea	1
Poa palustris	1	Poa pratensis	1
Potentilla anserina	3	Salix exigua	0
Scirpus microcarpus	1	Symphyotrichum ciliatum	0
Thlaspi arvense	0	Typha latifolia	0

Ending Station 564 Community Type: Bromus inermis / Poa pratensis

Species	Cover class	Species	Cover class
Agrostis stolonifera	2	Alopecurus arundinaceus	1
Bare Ground	1	Bromus inermis	4
Cirsium arvense	1	Elymus repens	1
Elymus trachycaulus	1	Euphorbia esula	3
Juncus balticus	1	Leymus cinereus	1
Linaria vulgaris	2	Phalaris arundinacea	0
Poa palustris	1	Poa pratensis	2
Potentilla anserina	1	Sonchus arvensis	1
Thlaspi arvense	0	Trifolium hybridum	1

Transect Notes:

Very little standing water along the transect in 2024. Baltic rush (Juncus balticus) cover increased significantly in both Juncus balticus/Eleocharis palustris community types. Minimal change in species presence since 2023 other than introduction of some noxious and non-noxious weedy species.

Transect Number: 2 **Compass Direction from Start:** 288

Interval Data:

Ending Station 8 Community Type: Poa pratensis / Elymus repens

Species	Cover class	Species	Cover class
Agrostis stolonifera	2	Astragalus cicer	1
Bare Ground	2	Bromus inermis	1
Cirsium arvense	1	Elymus repens	1
Elymus trachycaulus	1	Euphorbia esula	1
Festuca ovina	2	Hordeum jubatum	0
Leymus cinereus	0	Poa palustris	2
Poa pratensis	2	Potentilla anserina	1
Puccinellia nuttalliana	0	Trifolium hybridum	1

Ending Station 42 Community Type: Eleocharis palustris / Deschampsia caespitosa

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alopecurus aequalis	0
Bare Ground	1	Beckmannia syzigachne	0
Carex rosea	0	Deschampsia caespitosa	0
Eleocharis palustris	1	Epilobium ciliatum	1
Hordeum jubatum	1	Juncus balticus	5
Mentha arvensis	1	Persicaria amphibia	0
Poa palustris	1	Potentilla anserina	2
Sonchus arvensis	0	Typha latifolia	1

Ending Station 206 Community Type: Typha latifolia /

Species	Cover class	Species	Cover class
Alopecurus aequalis	1	Bare Ground	1
Calamagrostis canadensis	0	Carex athrostachya	1
Carex nebrascensis	0	Carex pellita	1
Carex rosea	0	Deschampsia caespitosa	0
Eleocharis palustris	3	Epilobium ciliatum	1
Juncus balticus	3	Mentha arvensis	1
Potentilla anserina	1	Ranunculus sceleratus	0
Salix lutea	1	Schoenoplectus tabernaemontani	1
Scirpus acutus	1	Scirpus microcarpus	2
Typha latifolia	3		

Ending Station 219 Community Type: Bromus inermis / Poa pratensis

Species	Cover class	Species	Cover class
Agrostis stolonifera	2	Alopecurus arundinaceus	1
Bare Ground	2	Bromus inermis	1
Cirsium arvense	1	Deschampsia caespitosa	0
Elymus repens	1	Elymus trachycaulus	1
Euphorbia esula	1	Juncus balticus	1
Lactuca serriola	1	Leymus cinereus	0
Phalaris arundinacea	1	Poa pratensis	2
Poa secunda	1	Potentilla anserina	1
Sonchus arvensis	3	Thlaspi arvense	1
Trifolium hybridum	1		

Transect Notes:

No open water observed along the transect in 2024. Several new species were observed in CT 3 and 11 along the transect. Species added to CT 3 included weedy or disturbance-loving species Canada thistle, reed canarygrass, and slender wheatgrass. Species added to CT 11 included native wetland species hardstem bulrush, panicled bulrush, and slender-leaved sedge.

Otherwise, there were minimal changes in species presence and cover since 2023.

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 2022 monitoring events an additional 14 trees and shrubs were counted, increasing the total to 58 live containerized plants. Volunteer willows and alders were observed in and around excavated wetland cells across the site. In 2023 and 2024 woody plant density had increased enough that it was difficult to identify and document survival of planted individuals.

WILDLIFE

Silicon Mountain

Birds

Were man-made nesting structures installed? Yes

If yes, type of structure: Cylinder

How many? 3

Are the nesting structures being used? Yes

Do the nesting structures need repairs? No

Nesting Structure Comments:

Nesting structures at the migitation site were installed by the local conservation group Montana Wetland and Waterfowl.

Species	#Observed	Behavior	Habitat
American Coot	6		
Canada Goose	28	F	
Killdeer	3	L,	
Red-winged Blackbird	3	FF	
Sandhill Crane	5	FO	
Yellow-headed Blackbird	1		
Swallow	20	F, N, FO	
Great Blue Heron	2	FO	
Mallard	14	BP, F	
Common Yellowthroat	3	FO	

Bird Comments

Unidentified duck with 5 ducklings observed within the site. Many swallows nesting under the overpass.

BEHAVIOR CODES

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

HABITAT CODES

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

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

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Vole	1	No	No	No	
White-tailed Deer	5	No	Yes	Yes	Observed grazing. A doe and 3 fawns, one solitary.
Rabbit	1	No	No	No	Observed under willows.

Wildlife Comments:

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

Silicon Mountain

PHOTOGRAPHS

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

Photograph Checklist:

☐ One photograph for each of the four cardinal directions surrounding the wetland.

☐ At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.

☐ At least one photograph showing the buffer surrounding the wetland.

☑ One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
DP01u	46.001755	-112.661405		Outside S side of wetland cell 5
DP01w	46.001754	-112.661323		Inside S side of wetland cell 5
DP02u	46.000989	-112.661525		Outside E side of wetland cell 4
DP02w	46.00101	-112.661582		Inside E side of wetland cell 4
DP03u	46.000066	-112.662502		N of wetland cell 1
DP03w	46.000047	-112.662707		N of wetland cell 1
DP04u	45.999884	-112.662982		Above Sand Creek corridor near W3
DP04w	45.999875	-112.662905		Sand Creek corridor near W3
DP05u	45.998931	-112.662877		W of wetland cell 1
DP05w	45.998985	-112.662796		W side of wetland cell 1
DP06u	45.998213	-112.662776		Outside S side of wetland cell 3
DP06w	45.998254	-112.662919		S side wetland cell 3
DP07u	45.997735	-112.662239		Outside S side wetland cell 2
DP07w	45.997797	-112.662223		S side wetland cell 2
DP08u	46.001934	-112.656551		Outside preservation wetland cell 13
DP08w	46.00199	-112.656502		S side of preservation wetland cell 13
DP09u	45.997879	-112.663499		Outside W6
DP09w	45.997813	-112.663482		Inside W6, W of RR tracks
DP10u	45.99557	-112.661151		South end of project area
DP10w	45.995589	-112.661124		South end of project area wetland
PP01	45.999491	-112.662103		West side of wetland cell 1
PP02	46.000011	-112.662608		Outside wetland cell 1
PP03	46.000968	-112.662401		West side of wetland cell 4
PP04	46.002112	-112.660756		East side of constructed wetland cell 5

PP05	45.998744	-112.663401	North end of T-1, constructed wetland cell 3
PP06	45.997443	-112.662213	South end of T-1, constructed wetland cell 3
PP07	45.998191	-112.664766	Cell 6, west side of tracks, south of overpass
PP08	45.995042	-112.661188	Southern edge of cell 6 - upstream end
PP09	45.996325	-112.661378	Northern edge of cell 6 - downstream end
PP10	45.996374	-112.662142	West side of wetland cell 3
PP11	45.998698	-112.661852	Sand Creek
PP12	45.998482	-112.662672	Sand Creek
PP13	45.999387	-112.663073	Sand Creek
PP14	45.999444	-112.662519	Headcut
PP15	45.999663	-112.662335	Headcut
PP16	45.999676	-112.662992	Headcut
PP17	46.001863	-112.661467	Northern end of Sand Creek

Comments:

Silicon Mountain

ADDITIONAL ITEMS CHECKLIST

Hydrology

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

Photos

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

Vegetation

☑ Map vegetation community boundaries

☑ Complete Vegetation Transects

Soils

☑ Assess soils

Wetland Delineations

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

Wetland Delineation Comments

The total wetland acreage delineated in 2024, including pre-existing wetland areas, was 18.89 acres.

Functional Assessments

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

Functional Assessment Comments:

Created Wetland Cells 1 and 5; Cells 2, 3, and 4; Sand Creek; and Preservation Wetlands were classified as Category II wetlands. Wetland Cell 6 is classified as a Category III wetland. Functional assessment completed on created cells and preservation wetlands. Open water areas contributed to AA acreage.

Maintenance

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

If yes, do they need to be repaired? No

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.

There is a fence that is partially down on the boundary of the small, southmost parcel. Fence is adjacent to the railroad in the northwest corner of the parcel.

In 2023, it was noted that the outlet to wetland cell 1 might be experiencing some erosion. No note of this issue was made in 2024.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP01u

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): E 43B Lat: 46.0017543 Long: -112.6614074 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point on south side of cell 5.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 5 ft)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Leymus cinereus	20	✔	FAC
2. Bromus inermis	10	✔	UPL
3. Juncus balticus	10	✔	FACW
4. Thlaspi arvense	3		UPL
5. Sisymbrium altissimum	2		FACU
6. Unidentified forb	1		
7.			
8.			
9.			
10.			
11.			
	46 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 54

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	20	x 3 =	60
FACU species	2	x 4 =	8
UPL species	13	x 5 =	65
Column Totals:	45 (A)		153 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Upland data point dominated by UPL, FAC, and FACW species.

SOIL

Sampling Point: DP01u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 18	10YR 3/2	95					Loamy Sand	Mixed profile. See remarks.
0 - 18		5					Sandy Loam	Mixed profile. See remarks.
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

Soil has some chunks of sandy loam containing redoximorphic features, suggesting that this area was disturbed during construction. Otherwise the soil is loose and dry. No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP01w

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 46.0017541 Long: -112.6613247 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

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

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

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

Remarks:

PSS, depressional wetland fringe of cell 5 at the north end of the site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix lasiandra	20	✔	FACW
2. Salix exigua	15	✔	FACW
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	40	✔	FACW
2. Mentha arvensis	15	✔	FACW
3. Potentilla anserina	7		OBL
4. Alopecurus arundinaceus	5		FAC
5. Poa pratensis	5		FAC
6. Eleocharis palustris	2		OBL
7. Carex nebrascensis	1		OBL
8.			
9.			
10.			
11.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		220 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Willow- and Baltic rush-dominated fringe around cell 5.

SOIL

Sampling Point: DP01w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 4/2						Sandy Loam	Sulfidic odor.
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Sulfidic odor. Roots to about 12 inches.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ✔ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ✔ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ✔ No ___ Depth (inches): 12

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Algal mat observed 6 ft to north. Surface water observed in cell 5, 12 ft to north. Saturated to the surface and a high water table.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP02u

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 46.0009872 Long: -112.6615252 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point on a sideslope east of cell 4.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Festuca idahoensis	10	✔	FACU
2. Bromus inermis	5	✔	UPL
3. Pascopyrum smithii	5	✔	FACU
4. Poa secunda	5	✔	FACU
5. Agrostis stolonifera	1		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	26 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 74

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	1	x 3 =	3
FACU species	20	x 4 =	80
UPL species	5	x 5 =	25
Column Totals:	26 (A)		108 (B)

Prevalence Index = B/A = 4.15

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Upland plant community.

SOIL

Sampling Point: DP02u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 3/2	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP02w

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Closed Depression Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): E 43B Lat: 46.0010114 Long: -112.6615939 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

PEM, depressional wetland data point on east side of cell 4.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix bebbiana	2		FACW
2. Salix lasiandra	2		FACW
3.			
4.			
5.			
	4 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Eleocharis palustris	55	✔	OBL
2. Potentilla anserina	10		OBL
3. Mentha arvensis	7		FACW
4. Alopecurus arundinaceus	5		FAC
5. Sonchus arvensis	5		FACU
6. Hordeum jubatum	2		FAC
7. Elymus repens	1		FAC
8.			
9.			
10.			
11.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	65	x 1 =	65
FACW species	11	x 2 =	22
FAC species	8	x 3 =	24
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	89 (A)		131 (B)

Prevalence Index = B/A = 1.47

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

PEM wetland dominated by spikerush in this location.

SOIL

Sampling Point: DP02w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 4/1	98	N 4/0	2	D	M	Loam	Sulfidic odor at 8 inches.
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Sulfidic odor at 8 inches.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ✔ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 8

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Saturated and sulfidic odor at 8 inches.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP03u

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 43B Lat: 46.0000645 Long: -112.6625031 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point at north end of cell 1.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	25	✔	UPL
2. Juncus balticus	25	✔	FACW
3. Pascopyrum smithii	5		FACU
4. Alyssum alyssoides	1		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	56 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 44

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	26	x 5 =	130
Column Totals:	56 (A)		200 (B)

Prevalence Index = B/A = 3.57

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Upland data point dominated by smooth brome and Baltic rush.

SOIL

Sampling Point: DP03u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 3/2	100					Silt Loam	Dry.
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed. Soil is dry.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP03w

Investigator(s): Richard Baumgarten Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 46.000045 Long: -112.6627147 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Wetland data point located near right bank of creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix lasiandra	10	✔	FACW
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	40	✔	FACW
2. Carex nebrascensis	20	✔	OBL
3. Carex pellita	10		OBL
4. Cardaria Draba	5		UPL
5. Mentha arvensis	5		FACW
6. Poa pratensis	5		FAC
7. Scirpus microcarpus	3		OBL
8. Cirsium arvense	1		FAC
9. Sonchus arvensis	1		FACU
10.			
11.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	33	x 1 =	33
FACW species	55	x 2 =	110
FAC species	6	x 3 =	18
FACU species	1	x 4 =	4
UPL species	5	x 5 =	25
Column Totals:	100 (A)		190 (B)

Prevalence Index = B/A = 1.90

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Vegetation dominated by Baltic rush.

SOIL

Sampling Point: DP03w

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

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Depleted matrix observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 4

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Data point on bank above flowing water in creek.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP04u

Investigator(s): Richard Baumgarten Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Terrace/floodplain Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 43B Lat: 45.9998826 Long: -112.6629858 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Data point on terrace above old bank cut.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Dasiphora fruticosa	5	✔	FAC
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	60	✔	UPL
2. Poa pratensis	30	✔	FAC
3. Nassella viridula	1		
4. Equisetum arvense	1		FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	92 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 8

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	36	x 3 =	108
FACU species	0	x 4 =	0
UPL species	60	x 5 =	300
Column Totals:	96 (A)		408 (B)

Prevalence Index = B/A = 4.25

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Vegetation dominated by smooth brome and Kentucky bluegrass.

SOIL

Sampling Point: DP04u

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

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No evidence of hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP04w

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Alluvial Flat Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): E 43B Lat: 45.9998721 Long: -112.6628991 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Wetland data point on a bankfull bench adjacent to the creek channel.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix exigua	25	✔	FACW
2. Salix lutea	3		OBL
3.			
4.			
5.			
	28 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Carex nebrascensis	40	✔	OBL
2. Juncus balticus	15	✔	FACW
3. Poa pratensis	5		FAC
4. Typha latifolia	2		OBL
5. Unidentified forb	2		
6.			
7.			
8.			
9.			
10.			
11.			
	64 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 36

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	45	x 1 =	45
FACW species	40	x 2 =	80
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		140 (B)

Prevalence Index = B/A = 1.55

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

PEM data point with some willow, dominated by Nebraska sedge.

SOIL

Sampling Point: DP04w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 4/2	95	10YR 4/6	5	C	M	Sandy Loam	Sulfidic odor at 6 inches.
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✔ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Sulfidic odor and depleted matrix observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ✔ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ✔ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 1

Water Table Present? Yes ✔ No ___ Depth (inches): 6

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Flowing water in channel 2 ft west of data point. Saturated to the surface, high water table and a sulfidic odor at 6 inches also observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP05u

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 43B Lat: 45.9989285 Long: -112.6628764 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point between cell 1 and creek.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	45	✔	UPL
2. Leymus cinereus	15	✔	FAC
3. Thlaspi arvense	2		UPL
4. Alyssum alyssoides	1		UPL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	63 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 37

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	48	x 5 =	240
Column Totals:	63 (A)		285 (B)

Prevalence Index = B/A = 4.52

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Upland data point dominated by smooth brome.

SOIL

Sampling Point: DP05u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 2/2	100					Loam	
2 - 16	10YR 3/3	100					Loam	Soil is dry.
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP05w

Investigator(s): Richard Baumgarten Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 45.9989837 Long: -112.6627993 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Wetland data point near pond edge.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix lasiandra	1		FACW
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	60	✔	FACW
2. Epilobium ciliatum	10		FACW
3. Potentilla anserina	10		OBL
4. Leymus cinereus	5		FAC
5. Euphorbia esula	5		UPL
6. Typha latifolia	1		OBL
7. Agrostis gigantea	1		FAC
8. Cirsium arvense	1		FAC
9. Thlaspi arvense	1		UPL
10.			
11.			
	94 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 6

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	11	x 1 =	11
FACW species	71	x 2 =	142
FAC species	7	x 3 =	21
FACU species	0	x 4 =	0
UPL species	6	x 5 =	30
Column Totals:	95 (A)		204 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Data point met multiple indicators for hydrophytic vegetation.

SOIL

Sampling Point: DP05w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 3/1	100					Loam	Lots of roots.
3 - 10	10YR 3/1	96	N 3/0	2	D	M	Clay Loam	Greasy organic matter observed.
3 - 10			10YR 4/4	2	C	PL	Clay Loam	Greasy organic matter observed.
10 - 16	10YR 5/1	96	10YR 4/4	2	C		Sandy Loam	Large grain sand or small grain gravel in layer.
10 - 16			N 2.5/0	2	D		Sandy Loam	Large grain sand or small grain gravel in layer.
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Depleted matrix indicator met for hydric soil.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ✔ No ___ Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 10

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Data point 8ft from surface water of pond.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP06u

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): Convex Slope (%): 3

Subregion (LRR): E 43B Lat: 45.998211 Long: -112.6627781 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point at the south end of cell 3, north of cell 2, roughly 4 ft higher than its wetland pair.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Leymus cinereus	25	✔	FAC
2. Festuca ovina	20	✔	UPL
3. Polemonium pulcherrimum	2		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	47 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 53

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	22	x 5 =	110
Column Totals:	47 (A)		185 (B)

Prevalence Index = B/A = 3.93

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Upland data point dominated by sheep fescue and basin wildrye.

SOIL

Sampling Point: DP06u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	10YR 4/3	100					Sandy Loam	
2 - 16	10YR 3/2	100					Sandy Loam	
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP06w

Investigator(s): E Reynaud Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 45.9982541 Long: -112.6629237 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: PEM1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Data point taken within Transect 1.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	70	✔	FACW
2. Cicuta douglasii	10		OBL
3. Typha latifolia	10		OBL
4. Alopecurus arundinaceus	4		FAC
5. Carex aquatilis	2		OBL
6. Poa pratensis	2		FAC
7. Glyceria striata	1		OBL
8. Trifolium longipes	1		FAC
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	23	x 1 =	23
FACW species	70	x 2 =	140
FAC species	7	x 3 =	21
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		184 (B)

Prevalence Index = B/A = 1.84

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

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

SOIL

Sampling Point: DP06w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 2/1	100					Sandy Loam	
3 - 10	10YR 3/1	98	10YR 4/6	2	C	M	Sandy Clay Loam	
10 - 16	2.5Y 6/3	100					Sandy Clay Loam	
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✔ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within dark surface.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ✔ No ___ Depth (inches): 15

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes soil saturation, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP07u

Investigator(s): Richard Baumgarten Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 45.997735 Long: -112.6622415 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: PEM1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point on terrace summit, 5-10 ft above wetland data point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix lasiandra	1		FACW
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Leymus cinereus	75	✔	FAC
2. Festuca ovina	5		UPL
3. Juncus balticus	5		FACW
4. Descurainia incana	1		FACU
5. Thlaspi arvense	1		UPL
6.			
7.			
8.			
9.			
10.			
11.			
	87 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 13

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	6	x 2 =	12
FAC species	75	x 3 =	225
FACU species	1	x 4 =	4
UPL species	6	x 5 =	30
Column Totals:	88 (A)		271 (B)

Prevalence Index = B/A = 3.07

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

Positive dominance test is not representative of hydrophytic vegetation. Dominant vegetation was FAC basin wildrye, which has deep root systems capable of reaching much lower water tables.

SOIL

Sampling Point: DP07u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 15	10YR 3/3	100					Loam	
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed. Overall profile was very dry.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of hydrologic indicators observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-23

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP07w

Investigator(s): E Reynaud Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 45.9977967 Long: -112.6622238 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: PEM1A

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Data point taken near south border of site.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix geyeriana	1		FACW
2.			
3.			
4.			
5.			
	1 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	55	✔	FACW
2. Scirpus microcarpus	15		OBL
3. Alopecurus arundinaceus	10		FAC
4. Carex nebrascensis	5		OBL
5. Cicuta douglasii	5		OBL
6. Potentilla anserina	5		OBL
7. Mentha arvensis	4		FACW
8. Cirsium arvense	1		FAC
9.			
10.			
11.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	60	x 2 =	120
FAC species	11	x 3 =	33
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	101 (A)		183 (B)

Prevalence Index = B/A = 1.81

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

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

SOIL

Sampling Point: DP07w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 6	10YR 3/2	100					Loam	
6 - 16	10YR 5/1	100					Sandy Clay Loam	
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Presence of a depleted matrix indicates hydric soils.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ✔ No ___ Depth (inches): 14

Saturation Present? (includes capillary fringe) Yes ✔ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Evidence of wetland hydrology includes soil saturation, geomorphic position, and a positive FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-24

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP08u

Investigator(s): E Reynaud Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 46.0019343 Long: -112.6565517 Datum: NAD 83

Soil Map Unit Name: 11A - Mannixlee-Bonebasin complex, 0 to 4 percent slopes, frequently flooded NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point taken 25 feet upgradient of wetland data point.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Poa pratensis	60	✔	FAC
2. Pascopyrum smithii	25	✔	FACU
3. Ericameria nauseosa	8		UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	93 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 7

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	60	x 3 =	180
FACU species	25	x 4 =	100
UPL species	8	x 5 =	40
Column Totals:	93 (A)		320 (B)

Prevalence Index = B/A = 3.44

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

No evidence of hydrophytic vegetation observed.

SOIL

Sampling Point: DP08u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 8	10YR 3/3	100					Loam	
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** ✔

Remarks:

No evidence of hydric soils observed. Cobbles encountered at 8 inches.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? **Yes** _____ **No** ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-24

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP08w

Investigator(s): E Reynaud Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 46.0019897 Long: -112.6565024 Datum: NAD 83

Soil Map Unit Name: 11A - Mannixlee-Bonebasin complex, 0 to 4 percent slopes, frequently flooded NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Data point taken in expanding wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Juniperus scopulorum	5	✔	UPL
2.			
3.			
4.			
	5	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	90	✔	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	90	= Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	95 (A)		205 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

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

SOIL

Sampling Point: DP08w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 2	5Y 3/3	100					Loam	Many roots.
2 - 10	10YR 4/2	98	7.5YR 4/6	2	C	M	Clay Loam	
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ✔ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: Cobbles

Depth (inches): 10

Hydric Soil Present? Yes ✔ No ___

Remarks:

Prominent redoximorphic concentrations common within depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): ___

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

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

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-24

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP09u

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Closed Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): E 43B Lat: 45.9978776 Long: -112.6635011 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point in cell 6 near the railroad tracks.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Melilotus officinalis	20	✔	FACU
2. Pascopyrum smithii	15	✔	FACU
3. Leymus cinereus	10		FAC
4. Sonchus arvensis	10		FACU
5. Alopecurus arundinaceus	3		FAC
6.			
7.			
8.			
9.			
10.			
11.			
	58 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 42

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	13	x 3 =	39
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	58 (A)		219 (B)

Prevalence Index = B/A = 3.77

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Upland data point dominated by western wheatgrass and yellow sweetclover.

SOIL

Sampling Point: DP09u

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 12	10YR 4/3						Sandy Loam	Dry.
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed. Rocks at 12".

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-24

Applicant/Owner: Montana Dept. of Transportation State: Montana Sampling Point: DP09w

Investigator(s): Richard Baumgarten Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 45.9978126 Long: -112.6634828 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

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

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

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

Remarks:

Wetland data point located 40 feet from train tracks. Problematic soil observed, vegetation is clearly dominated by Baltic rush. Wetland appears to be struggling to remain wet and is very small.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Salix lasiandra	5	✔	FACW
2.			
3.			
4.			
5.			
	5 = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Juncus balticus	75	✔	FACW
2. Cirsium arvense	1		FAC
3. Potentilla anserina	1		OBL
4. Descurainia incana	1		FACU
5. Thlaspi arvense	1		UPL
6.			
7.			
8.			
9.			
10.			
11.			
	79 = Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 21

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	1	x 1 =	1
FACW species	80	x 2 =	160
FAC species	1	x 3 =	3
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	84 (A)		173 (B)

Prevalence Index = B/A = 2.05

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Dominance indicator met for hydrophytic vegetation.

SOIL

Sampling Point: DP09w

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 14	10YR 3/2	100					Sandy Loam	
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ✔ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ **No** ✔

Remarks:

Problematic soil, no hydric soil indicators observed. Soil is not moist but not bone dry, somewhere in the middle. Rocks at 14 inches. Vegetation and hydrology support wetland determination.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): _____

Water Table Present? Yes ____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ **No** ____

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

Remarks:

Wetland hydrology met through geomorphic position and FAC neutral test.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-24

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP10u

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

Landform (hillslope, terrace, etc.): Stream Terrace Local relief (concave, convex, none): Linear Slope (%): 0

Subregion (LRR): E 43B Lat: 45.9955681 Long: -112.6611533 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

Upland data point on a terrace at the southern end of the project area. It is roughly 4 ft higher than its wetland pair.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Bromus inermis	35	✔	UPL
2. Leymus cinereus	5		FAC
3. Alyssum alyssoides	1		UPL
4. Centaurs stoebe	1		UPL
5. Cirsium arvense	1		FAC
6. Euphorbia esula	1		UPL
7. Thlaspi arvense	1		UPL
8.			
9.			
10.			
11.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum 55

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	6	x 3 =	18
FACU species	0	x 4 =	0
UPL species	39	x 5 =	195
Column Totals:	45 (A)		213 (B)

Prevalence Index = B/A = 4.73

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

Upland data point dominated by smooth brome.

SOIL

Sampling Point: DP10u

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 4/2	100					Loam	Dry.
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

No hydric soil indicators observed.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

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

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

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

No evidence of wetland hydrology observed.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Silicon Mountain City/County: Silver Bow County Sampling Date: 2024-07-24

Applicant/Owner: Montana Dept. Of Transportation State: Montana Sampling Point: DP10w

Investigator(s): McEldowney Section, Township, Range: S24 T3N R9W

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

Subregion (LRR): E 43B Lat: 45.9955882 Long: -112.6611231 Datum: NAD 83

Soil Map Unit Name: 12A - Riverrun, occasionally flooded-Mannixlee, frequently flooded complex, 0 to 4 percent slopes NWI classification: Not mapped

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

PSS, riverine data point at south end of project area.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	= Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft)			
1. Salix lutea	70	✔	OBL
2. Salix lasiandra	10		FACW
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Carex pellita	45	✔	OBL
2. Mentha arvensis	2		FACW
3. Centaurs stoebe	1		UPL
4. Taraxacum officinale	1		FACU
5. Unidentified forb	1		
6.			
7.			
8.			
9.			
10.			
11.			
	50 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	= Total Cover		

% Bare Ground in Herb Stratum 50

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	115	x 1 =	115
FACW species	12	x 2 =	24
FAC species	0	x 3 =	0
FACU species	1	x 4 =	4
UPL species	1	x 5 =	5
Column Totals:	129 (A)		148 (B)

Prevalence Index = B/A = 1.14

Hydrophytic Vegetation Indicators:

✔ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

PSS wetland. Yellow willow overstory with a woolly sedge understory.

SOIL

Sampling Point: DP10w

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0 - 16	10YR 4/2	98	10YR 4/6	2	C	M	Sand	
-								
-								
-								
-								
-								
-								
-								

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ✔ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

Redox in the sandy soils fulfills the Sandy Redox indicator requirement.

HYDROLOGY

Wetland Hydrology Indicators:

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

- ✔ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ✔ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) (**LRR A**)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ✔ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) (**LRR A**)
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ✔ No ___ Depth (inches): 3

Water Table Present? Yes ___ No ✔ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): ___

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Water flowing south to north in stream channel.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Silicon Mountain Wetland Mitigation Site **2. MDT Project #:** STPX 47(024)56 **Control #:** 50340000

3. Evaluation Date: 09/23/2024 **4. Evaluator(s):** R. McEldowney **5. Wetlands/Site #(s):** AA1 - Created Cells 2,3,4

6. Wetland Location(s): i. Legal: T3N,R9W,24 **Latitude/Longitude:** 45.998062, -112.662144 : Centroid of Cell 2
45.998721, -112.663225 : Centroid of Cell 3
46.001174, -112.661948 : Centroid of Cell 4

ii. Approx. Stationing or Mileposts: NA

iii. Watershed: 2

Watershed Name, County: Upper Clark Fork, Silver Bow

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. ___ Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. X Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 3.740 acres (measured)

9. Assessment area (AA): 3.740 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	AB	E	PP	3.00
D	EM	E	SI	92.00
D	SS	E	SI	4.00
D	UB	E	PP	1.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

ABUNDANT

12. General condition of AA:

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

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	**low disturbance**	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): The site is stable since construction in 2015. Wetland habitat is well developed and continues to expand. The area surrounding the site is primarily rural with railroad tracks adjacent to cells 2 and 3. Cell 4 is adjacent to the bike path, a home, and a public access parking area.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Euphorbia esula, Centaurea stoebe, Cirsium arvense, and Linaria vulgaris.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA consists of three constructed wetland cells that are supported by groundwater. Cell 4 contained 0.04-acre of perennial open water/aquatic bed habitat in 2024. Sand Creek is excluded from this AA due to the berms surrounding the wetland cells prohibiting the creek from accessing the wetlands. The surrounding area is comprised of low rolling hills dominated by a sagebrush ecosystem.

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

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

Comments: 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 (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
		Monarch Butterfly(S)

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

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	**.1L**	0L

Sources for documented use (e.g. observations, records, etc): No threatened or endangered species have been reported in the assessment area or the mitigation site (USFWS 2024; MTNHP 2024). However, the wetland habitat may be used occasionally by the Monarch Butterfly.

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 (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
	Hoary bat (S3), Preble's shrew (S3),	

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

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

Sources for documented use (e.g. observations, records, etc): Observation of the Preble's shrew was confirmed in the vicinity of the mitigation site in 2018. Observations of the additional S3 species have been confirmed in the vicinity of the mitigation site in 2024 (MTNHP 2024).

14C. General Wildlife Habitat Rating:

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

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

Minimal (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- ___ little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- ___ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- X adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

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

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

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

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	**.9H**	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: The site demonstrates moderate wildlife use and exceptional wildlife habitat features ratings.

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

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ If yes, reduce score in i above by 0.1.

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

iii. Final Score and Rating: NA **Comments:** No fish habitat within AA. Cell 4 has open water but no inlet or outlet.

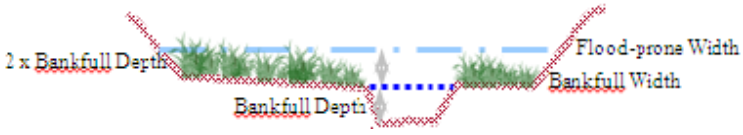
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **X NA** and proceed to 14F.)

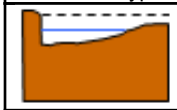
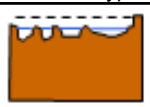
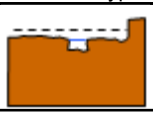
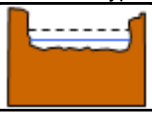
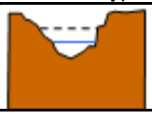
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** The AA is less than 10 acres and berms act as barriers around the wetland cells preventing flooding via in-channel or overbank flow.

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

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

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

Comments: The wetland cells intercept groundwater seasonally and demonstrate between 1.1 and 5 acres of periodic flooding. Additionally, wetland cell 4 contains 0.04-acre of perennial ponded water.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	**1H**	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Cells have the potential to receive compounds from the adjacent railroad, roads, and residential area through groundwater and overland flow.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, ___ **NA** and proceed to 14I.)

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

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	1H	.9H	.7M
35-64%	.7M	**.6M**	.5M
35%	.3L	.2L	.1L

Comments: Wave action is possible during seasonal flooding events and in the perennial open water habitat in cell 4. Shoreline vegetation includes species with root stability ratings of 6 or greater. Dominant species includes Juncus balticus, Typha latifolia, Eleocharis palustris, and Salix spp.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	**H**	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	**.8H**	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? ___**X**___ *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: 0.90H **Comments:** Wetland cells contain a subsurface outlet and have vegetated buffers.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

_____ The AA is a slope wetland
_____ Springs or seeps are known or observed
_____ Vegetation growing during dormant season/drought
_____ Wetland occurs at the toe of a natural slope
_____ AA permanently flooded during drought periods
_____ Wetland contains an outlet, but no inlet
__X__ Shallow water table and the site is saturated to the surface
_____ Other:

ii. Recharge Indicators

_____ Permeable substrate present without underlying impeding layer
_____ Wetland contains inlet but no outlet
_____ Stream is a known 'losing' stream; discharge volume decreases
_____ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

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

Comments: Mitigation cells are designed to intercept a shallow groundwater aquifer.

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	**.5M**	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: The relative abundance of these wetland types in the watershed basin is abundant (>50%). Structural diversity at the site 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: (circle) **X** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: **X** Educational/scientific study; ___ Consumptive rec.; **X** Non-consumptive rec.; ___ Other :

iii. 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: This AA is at a mitigation site that is known to be used for educational purposes, has public ownership, and allows general public access. The site is used for educational studies by students at Montana State University and Montana Tech.

General Site Notes
AA-1 includes 3.99 acres of wetland habitat and 0.04 acre of aquatic bed/open water habitat in 2024.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): AA1 - Created Cells 2,3,4

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.10	1	0.37	
B. MT Natural Heritage Program Species Habitat	M	0.50	1	1.87	
C. General Wildlife Habitat	H	0.90	1	3.37	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	M	0.60	1	2.24	
G. Sediment/Nutrient/Toxicant Removal	H	1.00	1	3.74	*
H. Sediment/Shoreline Stabilization	M	0.60	1	2.24	
I. Production Export/Food Chain Support	H	0.90	1	3.37	*
J. Groundwater Discharge/Recharge	M	0.70	1	2.62	*
K. Uniqueness	M	0.50	1	1.87	
L. Recreation/Education Potential (bonus points)	H	0.20	1	0.75	
Totals:		6.00	9.00	22.31	
Percent of Possible Score			67%		

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**
__X__ 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**
__X__ 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: II

Summary Comments: AA-1 is comprised of excavated wetland cells which rate as Category II.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Silicon Mountain Wetland Mitigation Site **2. MDT Project #:** STPX 47(024)56 **Control #:** 50340000

3. Evaluation Date: 09/23/2024 **4. Evaluator(s):** R. McEldowney **5. Wetlands/Site #(s):** AA2 - Created Cells 1 and 5

6. Wetland Location(s): i. Legal: T3N,R9W,24 **Latitude/Longitude:** 45.999417, -112.661816 : Centroid of Cell 1
46.00231, -112.660885 : Centroid of Cell 5

ii. Approx. Stationing or Mileposts: NA

iii. Watershed: 2

Watershed Name, County: Upper Clark Fork, Silver Bow

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. ___ Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. X Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 5.340 acres (measured)

9. Assessment area (AA): 5.340 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	AB	E	PP	5.00
D	EM	E	SI	15.00
D	SS	E	SI	5.00
D	UB	E	PP	75.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

COMMON

12. General condition of AA:

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

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	**low disturbance**	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): In year 10 post-construction, wetland cells 1 and 5 have established desirable perennial grass, forb, and shrub cover with minimal weeds present. The level of disturbance has declined and the site has stabilized with increasing cover provided by perennial species.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Linaria vulgaris, Euphorbia esula, Cirsium arvense, and Centaurea stoebe.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA is composed of wetland cells 1 and 5 which are designed to intercept groundwater and include 2.45 acres of open water habitat. The cells have no surface connection to one another. Cell 1 drains into Sand Creek, but is upslope/outside of Sand Creek's active floodplain area. Neither cell is subject to overbank flooding. The AA also includes the emergent and scrub-shrub wetland that has developed around the excavated cells.

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

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

Comments: 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 (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
		Monarch Butterfly(S)

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

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	**.1L**	0L

Sources for documented use (e.g. observations, records, etc): No threatened or endangered species have been reported in the assessment area or the mitigation site (USFWS 2024; MTNHP 2024). However, the Monarch Butterfly could occasionally use the wetland habitat.

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 (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
	Hoary bat (S3), Preble's shrew (S3),	

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

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

Sources for documented use (e.g. observations, records, etc): Observation of the Preble's shrew was confirmed in the vicinity of the mitigation site in 2018. Observations of the additional species have been confirmed in the vicinity of the mitigation site in 2024 (MTNHP 2024).

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

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

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

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	**1E**	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: The site demonstrates substantial wildlife use, especially during migration periods, has substantial open water features that are a limiting habitat feature in this part of the valley, and has other exceptional wildlife habitat features.

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

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ If yes, reduce score in i above by 0.1.

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

iii. Final Score and Rating: NA **Comments:** Fish have not been observed in and are not suspected in the AA; Cell 1 drains to Sand Creek, but is upslope and outside of Sand Creek's active floodplain.

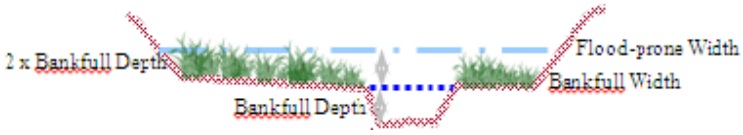
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **X NA** and proceed to 14F.)

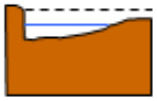
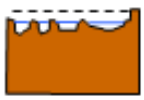
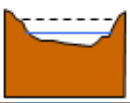
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** Cells 1 and 5 are upslope/outside of Sand Creek's active floodplain area and not subject to overbank flooding. Cell 1 allows groundwater to outlet to Sand Creek and perpetuate flows in the stream during low water years.

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, ___ **NA** and proceed to 14G.)

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

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

Comments: Cell 1 and cell 5 support 2.45 acres of open water habitat with an estimated average depth of 2.5 feet. (2.45-acres x 2.5 ft = 6.13 acre feet).

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	**.7M**	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Does not achieve 70% wetland vegetation threshold due to the majority of the AA comprising of aquatic bed/open water habitat.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, ___ **NA** and proceed to 14I.)

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

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	**1H**	.9H	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: Vegetation with a rating of 6 or greater include Typha latifolia, Juncus balticus, Carex nebrascensis, and Salix spp., which surrounds aquatic beds as emergent/scrub-shrub wetland.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	**H**	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	**.9H**	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? **X** *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: 1.00H **Comments:** The vegetated wetland component is 3.28 acres in 2024. The AA is surrounded by a 50 foot-wide vegetated upland buffer.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

_____	The AA is a slope wetland
_____	Springs or seeps are known or observed
_____	Vegetation growing during dormant season/drought
_____	Wetland occurs at the toe of a natural slope
X	AA permanently flooded during drought periods
_____	Wetland contains an outlet, but no inlet
X	Shallow water table and the site is saturated to the surface
_____	Other:

ii. Recharge Indicators

_____	Permeable substrate present without underlying impeding layer
_____	Wetland contains inlet but no outlet
_____	Stream is a known 'losing' stream; discharge volume decreases
_____	Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

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

Comments: Wetland cells 1 and 5 are designed to intercept groundwater.

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	**.6M**	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: The relative abundance of these wetland types in the watershed basin is common 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: (circle) **X** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: **X** Educational/scientific study; ___ Consumptive rec.; **X** Non-consumptive rec.; ___ Other :

iii. 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: This AA is at a mitigation site that is used for educational purposed, has public ownership, and allows general public access. The site is used for educational studies by students at Montana State University and Montana Tech. The open water habitat attracts a variety of waterfowl and other bird species valuable for non-consumptive recreational activities (i.e. bird watching).

General Site Notes
AA-2 includes 3.28 acres of wetland habitat and 2.45 acres of aquatic bed/open water habitat in 2024.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): AA2 - Created Cells 1 and 5

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.10	1	0.53	
B. MT Natural Heritage Program Species Habitat	M	0.50	1	2.67	
C. General Wildlife Habitat	E	1.00	1	5.34	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	H	1.00	1	5.34	
G. Sediment/Nutrient/Toxicant Removal	M	0.70	1	3.74	
H. Sediment/Shoreline Stabilization	H	1.00	1	5.34	*
I. Production Export/Food Chain Support	H	1.00	1	5.34	*
J. Groundwater Discharge/Recharge	H	1.00	1	5.34	*
K. Uniqueness	M	0.60	1	3.20	
L. Recreation/Education Potential (bonus points)	H	0.20	1	1.07	
Totals:		7.10	9.00	40.69	
Percent of Possible Score			79%		

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**
__X__ 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**
__X__ 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: II

Summary Comments: AA-2 is comprised of excavated wetland cells which rate as Category II.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Silicon Mountain Wetland Mitigation Site **2. MDT Project #:** STPX 47(024)56 **Control #:** 50340000

3. Evaluation Date: 09/23/2024 **4. Evaluator(s):** R. McEldowney **5. Wetlands/Site #(s):** AA3 - Preservation

6. Wetland Location(s): i. Legal: T3N,R9W,24 **Latitude/Longitude:** 45.999026, -112.661162 : Centroid of 45.998304, -112.663249 : Centroid of 46.002752, -112.659714 : Centroid of 46.002921, -112.657097 : Centroid of

ii. Approx. Stationing or Mileposts: NA

iii. Watershed: 2

Watershed Name, County: Upper Clark Fork, Silver Bow

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. ___ Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. X Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 10.400 acres (measured)

9. Assessment area (AA): 10.400 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	AB	NA	PP	0.60
D	EM	NA	SI	44.00
D	EM	NA	PP	52.00
D	SS	NA	SI	3.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

COMMON

12. General condition of AA:

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

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	**low disturbance**	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Construction of the wetland mitigation site in 2014 included substantial excavation to create new wetlands as well as channel realignment/restoration. In 2016, the area surrounding the preserved wetlands was disturbed as a result of the new trail and bridge. Disturbed areas surrounding the preserved wetland areas are stable and well vegetated with desirable species in 2024.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Cirsium arvense, Centaurea stoebe, Linaria vulgaris, and Euphorbia esula.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA includes pre-existing depressional wetlands adjacent to Sand Creek and south of Silver Bow Creek, and 0.068 acre of open water habitat. Land use surrounding the AA includes commercial developments, agriculture (grazing/pasture), transportation (railroad and highway) and private residences.

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

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

Comments: 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 (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
		Monarch Butterfly(S)

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

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	**.1L**	0L

Sources for documented use (e.g. observations, records, etc): No threatened or endangered species have been reported in the assessment area or the mitigation site (USFWS 2024; MTNHP 2024). However, the wetland habitat may occasionally be used by the Monarch Butterfly.

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 (circle one based on definitions contained in instructions):

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
	Hoary bat (S3), Preble's shrew (S3),	

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

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

Sources for documented use (e.g. observations, records, etc): Observation of the Preble's shrew was confirmed in the vicinity of the mitigation site in 2018. Observations of the additional S3 species have been confirmed in the vicinity of the mitigation site in 2024 (MTNHP 2024).

14C. General Wildlife Habitat Rating:

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

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

Minimal (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- ___ little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- X observations of scattered wildlife groups or individuals or relatively few species during peak periods
- X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- X adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

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

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

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

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	**.9H**	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: The site demonstrates moderate use by wildlife.

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

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ *If yes, reduce score in i above by 0.1.*

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

iii. Final Score and Rating: NA **Comments:** No fish habitat within AA.

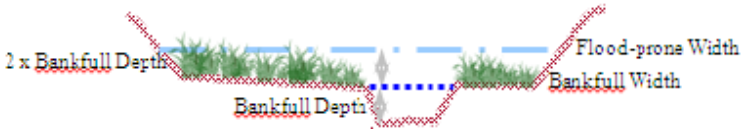
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **X NA** and proceed to 14F.)

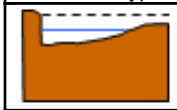
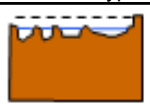
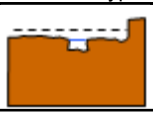
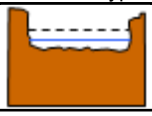
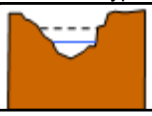
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** The AA is not subject to flooding via in-channel or overbank flow.

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

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

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

Comments: Some of the preservation wetlands in this AA have a permanent/perennial water regime and demonstrate an estimated average depth of 0.75 feet of water during high water events.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, ___**NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	**1H**	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Evidence of flooding and ponding is present in the preservation wetlands.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, ___**NA** and proceed to 14I.)

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

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	**1H**	.9H	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: Preservation wetlands in the far eastern portion of the site include a shoreline with standing water. Vegetation includes a mix of Typha latifolia, Carex utriculata and Juncus balticus.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	**H**	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	**.7M**	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? **X** *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: 0.80H **Comments:** Well-vegetated upland buffer around greater than 75 percent of the AA's perimeter.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

	The AA is a slope wetland
X	Springs or seeps are known or observed
X	Vegetation growing during dormant season/drought
	Wetland occurs at the toe of a natural slope
X	AA permanently flooded during drought periods
	Wetland contains an outlet, but no inlet
X	Shallow water table and the site is saturated to the surface
	Other:

ii. Recharge Indicators

	Permeable substrate present without underlying impeding layer
	Wetland contains inlet but no outlet
	Stream is a known 'losing' stream; discharge volume decreases
	Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

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

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 [circle] the functional points and rating)

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	**.6M**	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: The relative abundance of these wetland types in the watershed basin is common. Structural diversity at the site 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: (circle) **X** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: **X** Educational/scientific study; ___ Consumptive rec.; **X** Non-consumptive rec.; ___ Other :

iii. 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: This AA is at a mitigation site that is used for educational purposes, has public ownership, and allows general public access. The site is used for educational studies by students at Montana State University and Montana Tech.

General Site Notes
AA-3 includes 10.39 acres of wetland habitat and 0.068 acre of aquatic bed/open water habitat in 2024.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): AA3 - Preservation

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.10	1	1.04	
B. MT Natural Heritage Program Species Habitat	M	0.50	1	5.20	
C. General Wildlife Habitat	H	0.90	1	9.36	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	H	0.90	1	9.36	*
G. Sediment/Nutrient/Toxicant Removal	H	1.00	1	10.40	
H. Sediment/Shoreline Stabilization	H	1.00	1	10.40	
I. Production Export/Food Chain Support	H	0.80	1	8.32	*
J. Groundwater Discharge/Recharge	H	1.00	1	10.40	
K. Uniqueness	M	0.60	1	6.24	*
L. Recreation/Education Potential (bonus points)	H	0.20	1	2.08	
Totals:		7.00	9.00	72.73	
Percent of Possible Score			78%		

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**
__X__ 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**
__X__ 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: II

Summary Comments: AA-3 is comprised of preservation wetlands across the mitigation site.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Silicon Mountain Wetland Mitigation Site **2. MDT Project #:** STPX 47(024)56 **Control #:** 50340000

3. Evaluation Date: 09/23/2024 **4. Evaluator(s):** R. McEldowney **5. Wetlands/Site #(s):** AA4 - Created Cell 6

6. Wetland Location(s): i. Legal: T3N,R9W,24 **Latitude/Longitude:** 45.997832, -112.66348 : Centroid of Wetland

ii. Approx. Stationing or Mileposts: NA

iii. Watershed: 2

Watershed Name, County: Upper Clark Fork, Silver Bow

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. ___ Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. X Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 0.020 acres (measured)

9. Assessment area (AA): 0.020 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	EM	E	SI	100

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

ABUNDANT

12. General condition of AA:

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

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	low disturbance	**moderate disturbance**
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Wetland Cell 6 is within the old road alignment. Construction of the wetland included excavation, regrading, and revegetation. Water has not been observed in the excavated portion of the wetland cell during monitoring events since 2020.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Cirsium arvense, Euphorbia esula, and Centaurea stoebe.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: The AA consists of a depressional wetland and upland buffer at the bottom of a gentle hillslope. Land use surrounding the AA includes commercial developments and transportation (railroad tracks and highway).

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

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

Comments: Palustrine emergent wetland.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

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

i. AA is Documented (D) or Suspected (S) to contain (circle one based on definitions contained in instructions): No usable habitat

Primary or critical habitat (list species) **Secondary habitat (list species)** **Incidental habitat (list species)**

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

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	.1L	**0L**

Sources for documented use (e.g. observations, records, etc): No threatened or endangered species have been reported in the assessment area or the mitigation area (USFWS 2023; MTNHP 2023).

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 (circle one based on definitions contained in instructions):

Primary or critical habitat (list species) **Secondary habitat (list species)** **Incidental habitat (list species)**

Preble's shrew (S3), Hoary bat (S3),

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

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

Sources for documented use (e.g. observations, records, etc): Observation of the Preble's shrew was confirmed in the vicinity of the mitigation site in 2018. Observations of the additional S3 species have been confirmed in the vicinity of the mitigation site in 2023 (MTNHP 2023).

14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

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

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

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	.9H	.7M	.5M	.3L
Minimal	.6M	.4M	**.2L**	.1L

Comments: Small wetland with limited value to wildlife. Surface water may be present temporarily during precipitation events.

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

Type of Fishery: Cold Water **(CW)** ___ Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ If yes, reduce score in i above by 0.1.

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

iii. Final Score and Rating: NA **Comments:** No fish habitat within AA.

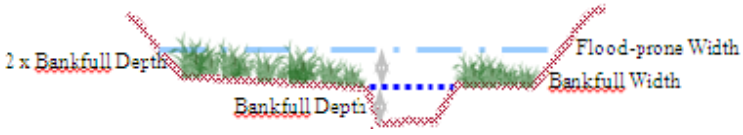
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark **X NA** and proceed to 14F.)

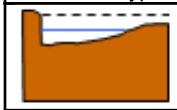
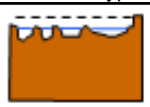
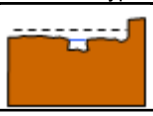
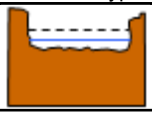
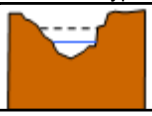
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

/	=	
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** Depressional wetland restricts discharge or drainage to the east toward the railroad tracks.

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, ___ **NA** and proceed to 14G.)

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

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

Comments: This wetland is subject to ephemeral ponding from precipitation, and overland surface flow.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	**.5M**	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: No evidence of flooding or ponding was observed in the wetland cell during the monitoring event.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, **X** **NA** and proceed to 14I.)

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

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: This section is no longer applicable due to the lack of evidence or observations of surface water retention.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	**L**

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	**.1L**

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? **X** *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: 0.20L **Comments:** There is a 50-foot buffer around the wetland.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

___	The AA is a slope wetland
___	Springs or seeps are known or observed
___	Vegetation growing during dormant season/drought
X	Wetland occurs at the toe of a natural slope
___	AA permanently flooded during drought periods
___	Wetland contains an outlet, but no inlet
___	Shallow water table and the site is saturated to the surface
X	Other: Seasonally high groundwater

ii. Recharge Indicators

___	Permeable substrate present without underlying impeding layer
___	Wetland contains inlet but no outlet
___	Stream is a known 'losing' stream; discharge volume decreases
___	Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

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

Comments: Wetland with seasonal surface water supported by groundwater, as well as runoff and precipitation.

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	.4M	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	**.2L**
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: Wetlands of this type are abundant in the area.

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: (circle) ___ (if 'Yes' continue with the evaluation; if 'No' then mark **X** **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: ___Educational/scientific study; ___Consumptive rec.; ___Non-consumptive rec.; ___Other :

iii. Rating:

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: The site is very close to active railroad tracks and difficult to access. This site has limited potential to be used for recreation or education.

General Site Notes
The hydrologic source for this cell appears to have been disrupted and the wetland size has significantly decreased. This observation is consistent with reports in 2022 and 2023, and is trending toward being eliminated from the site.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): AA4 - Created Cell 6

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.00	1	0.00	
B. MT Natural Heritage Program Species Habitat	L	0.10	1	0.00	*
C. General Wildlife Habitat	L	0.20	1	0.00	*
D. General Fish Habitat	NA				
E. Flood Attenuation	NA				
F. Short and Long Term Surface Water Storage	L	0.20	1	0.00	
G. Sediment/Nutrient/Toxicant Removal	M	0.50	1	0.01	*
H. Sediment/Shoreline Stabilization	NA				
I. Production Export/Food Chain Support	L	0.20	1	0.00	
J. Groundwater Discharge/Recharge	M	0.70	1	0.01	*
K. Uniqueness	L	0.20	1	0.00	
L. Recreation/Education Potential (bonus points)	NA				
Totals:		2.10	8.00	0.02	
Percent of Possible Score			26%		

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)
X "Low" rating for Uniqueness; **and**
X Vegetated wetland component 1 acre (do not include upland vegetated buffer); **and**
X Percent of possible score 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: IV

Summary Comments: AA-4 is comprised of a small excavated wetland cell.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Silicon Mountain Wetland Mitigation Site **2. MDT Project #:** STPX 47(024)56 **Control #:** 50340000

3. Evaluation Date: 09/23/2024 **4. Evaluator(s):** R. McEldowney **5. Wetlands/Site #(s):** AA5 - Establishment along Sand Creek

6. Wetland Location(s): i. Legal: T3N,R9W,24 **Latitude/Longitude:** 45.994964, -112.661128 : Upstream Sand
45.996343, -112.661762 : Downstream Sand
45.997197, -112.662137 : Upstream Sand
46.002869, -112.661537 : Downstream Sand

ii. Approx. Stationing or Mileposts: NA

iii. Watershed: 2

Watershed Name, County: Upper Clark Fork, Silver Bow

7. a. Evaluating Agency: CCI for MDT

b. Purpose of Evaluation:

1. ___ Wetlands potentially affected by MDT project
2. ___ Mitigation wetlands; pre-construction
3. X Mitigation wetlands; post-construction
4. ___ Other:

8. Wetland size: 3.430 acres (measured)

9. Assessment area (AA): 3.430 acres (measured)

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	NA	SI	2.00
R	SS	NA	SI	50.00
R	UB	NA	PP	48.00

Abbreviations: *(see manual for definitions)*

HGM Classes: Riverine (**R**), Depressional (**D**), Slope (**S**), Mineral Soil Flats (**MSF**), Organic Soil Flats (**OSF**), Lacustrine Fringe (**LF**);

Cowardin Classes: Rock Bottom (**RB**), Unconsolidated bottom (**UB**), Aquatic Bed (**AB**), Unconsolidated Shore (**US**), Moss-lichen Wetland (**ML**), Emergent Wetland (**EM**), Scrub-Shrub Wetland (**SS**), Forested Wetland (**FO**)

Modifiers: Excavated (**E**), Impounded (**I**), Diked (**D**), Partly Drained (**PD**), Farmed (**F**), Artificial (**A**)

Water Regimes: Permanent / Perennial (**PP**), Seasonal / Intermittent (**SI**), Temporary / Ephemeral (**TE**)

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

COMMON

12. General condition of AA:

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

Conditions within AA	*Predominant conditions adjacent to (within 500 feet of) AA*		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is >=15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is <= 30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is <= 15%.	low disturbance	**low disturbance**	moderate disturbance
AA not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to relatively minor clearing, fill placement, or hydrological alteration; contains few roads or buildings; noxious weed or ANVS cover is <=	moderate disturbance	moderate disturbance	high disturbance
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is > 30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Railroad, bike path, roadways and driveways, parking area. Sand Creek comprises approximately 48% of the AA (1.47 acres).

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Centaurea stoebe

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Land use surrounding the AA includes commercial developments, agriculture (grazing/pasture), transportation (railroad and highway) and private residences.

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

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

Comments: AA includes Sand Creek, PEM, and scrub-shrub (willow dominated) wetlands

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 (circle one based on definitions contained in instructions): No usable habitat

Primary or critical habitat (list species) **Secondary habitat (list species)** **Incidental habitat (list species)**

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

Highest Habitat Level	*doc/primary*	*sus/primary*	*doc/secondary*	*sus/secondary*	*doc/incidental*	*sus/incidental*	*None*
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	.1L	**0L**

Sources for documented use (e.g. observations, records, etc): USFWS IPaC

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

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

Primary or critical habitat (list species)	**Secondary habitat (list species)**	**Incidental habitat (list species)**
Westslope cuthroat trout (S2)(S) - S2S3	Hoary bat (S3)(S) - S2S3	Hoary bat (S3)(S) - S2S3
		Large flowered beardtongue (S1)(S) - S1

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

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

Sources for documented use (e.g. observations, records, etc): MTNHP Montana Species of Concern Report

14C. General Wildlife Habitat Rating:

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

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

Minimal (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- ___ little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- X observations of scattered wildlife groups or individuals or relatively few species during peak periods
- X common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- X adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

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

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

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

Evidence of wildlife use (i)	*Wildlife habitat features rating (ii)*			
	Exceptional	High	Moderate	Moderate
Substantial	1E	.9H	.8H	.7M
Moderate	**.9H**	.7M	.5M	.3L
Minimal	.6M	.4M	.2L	.1L

Comments: Excellent neotropical migrant habitat.

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

Type of Fishery: Cold Water **(CW)** **X** Warm Water **(WW)** ___ **Use the CW or WW guidelines in the user manual to complete the matrix**

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	**.6M**	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.2L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA: MTNHP 2024.

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? ___ If yes, reduce score in i above by 0.1.

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

iii. Final Score and Rating: 0.6M **Comments:** Potential habitat for Westslope Cutthroat Trout. Channel is very well shaded by willows, however the depth of water in the channel limits aquatic habitat for fish species.

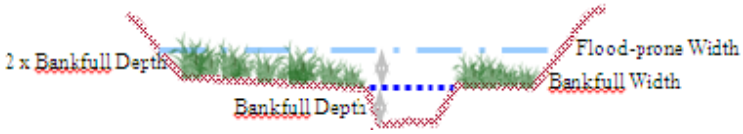
14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, mark ___ **NA** and proceed to 14F.)

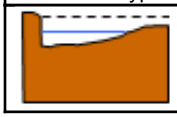
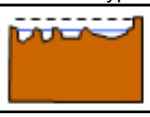
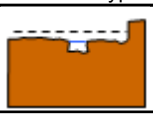
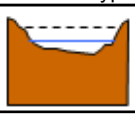
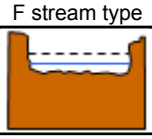
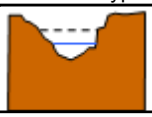
i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched – B stream type			Entrenched-A, F, G stream types		
% of flooded wetland classified as forested and/or scrub/shrub	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains **no outlet or restricted outlet**	1H	.9H	.6M	**.8H**	.7M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width) Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

17 /	12 =	**1.42**
Flood-prone width	*Bankfull width*	*Entrenchment ratio (ER)*



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

ii. Are ≥10 acres of wetland in the AA subject to flooding **AND** are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? ___ **Comments:** The Sand Creek channel is more entrenched in some places than in others and is dominated by scrub-shrub habitat.

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, ___ **NA** and proceed to 14G.)

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

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

Comments: Overbank flow is more likely in the middle section of the Sand Creek channel, where water overtops the bank and inundates a broad floodplain to the west of the channel.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, ___ **NA** and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H=high, M=moderate, or L=low])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>= 70%		< 70%		>= 70%		< 70%	
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains **no or restricted outlet**	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains **unrestricted outlet**	**.9H**	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: Railroad and roadways have high potential to contribute contaminants.

14H Sediment/Shoreline Stabilization: (Applies only if AA occurs on or within the banks or a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If 14H does not apply, ___ **NA** and proceed to 14I.)

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

*% Cover of **wetland** streambank or shoreline by species with stability ratings of >=6 (see **Appendix F**).*	*Duration of surface water adjacent to rooted vegetation*		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
>= 65%	**1H**	.9H	.7M
35-64%	.7M	.6M	.5M
35%	.3L	.2L	.1L

Comments: AA dominated by Salix, Juncus, and Carex species with high stability index ratings.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	**General Wildlife Habitat Rating (14C.iii.)**		
	E/H	M	L
E/H	H	H	M
M	**H**	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component < 1 acre					
B	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.7M	.8H	.5M	.6M	.4M	**.9H**	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with >= 30% plant cover, = 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average >= 50 foot-wide vegetated upland buffer around >= 75% of the AA circumference? **X** *If yes, add 0.1 to the score in ii above.*

iv. Final Score and Rating: 1.00H **Comments:** AA contains surface outlet, and the upland buffer contains high amounts of non-noxious weed vegetation cover.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

	The AA is a slope wetland
	Springs or seeps are known or observed
	Vegetation growing during dormant season/drought
	Wetland occurs at the toe of a natural slope
X	AA permanently flooded during drought periods
X	Wetland contains an outlet, but no inlet
X	Shallow water table and the site is saturated to the surface
	Other:

ii. Recharge Indicators

	Permeable substrate present without underlying impeding layer
	Wetland contains inlet but no outlet
	Stream is a known 'losing' stream; discharge volume decreases
	Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

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

Comments: High water table present.

14K. Uniqueness:

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland **or** plant association listed as "S1" by the MTNHP			AA does not contain previously cited rare types **and** structural diversity (#13) is high **or** contains plant association listed as "S2" by the MTNHP			AA does not contain previously cited rare types or associations **and** structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1H	.9H	.8H	.8H	.6M	.5M	.5M	**.4M**	.3L
Moderate disturbance at AA (#12i)	.9H	.8H	.7M	.7M	.5M	.4M	.4M	.3L	.2L
High disturbance at AA (#12i)	.8H	.7M	.6M	.6M	.4M	.3L	.3L	.2L	.1L

Comments: Habitat types range from a perennial riverine system to emergent wetlands to shrub-dominated wetlands.

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: (circle) **X** (if 'Yes' continue with the evaluation; if 'No' then mark ___ **NA** and proceed to the overall summary and rating page)

ii. Check categories that apply to the AA: **X** Educational/scientific study; ___ Consumptive rec.; **X** Non-consumptive rec.; ___ Other :

iii. 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: 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
This AA was added in 2022 to capture several wetland areas delineated adjacent to the stream channel and in areas where pre-project wetlands have expanded (creation wetlands).

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): AA5 - Establishment along Sand Creek

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Wetland Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0.00	1	0.00	
B. MT Natural Heritage Program Species Habitat	M	0.70	1	2.40	
C. General Wildlife Habitat	H	0.90	1	3.09	*
D. General Fish Habitat	M	0.60	1	2.06	
E. Flood Attenuation	H	0.80	1	2.74	*
F. Short and Long Term Surface Water Storage	M	0.70	1	2.40	
G. Sediment/Nutrient/Toxicant Removal	H	0.90	1	3.09	
H. Sediment/Shoreline Stabilization	H	1.00	1	3.43	
I. Production Export/Food Chain Support	H	1.00	1	3.43	*
J. Groundwater Discharge/Recharge	H	1.00	1	3.43	*
K. Uniqueness	M	0.40	1	1.37	
L. Recreation/Education Potential (bonus points)	H	0.20	1	0.69	
Totals:		8.20	11.00	24.76	
Percent of Possible Score			75%		

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**
__X__ 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**
__X__ 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: II

Summary Comments: Healthy, robust riparian zone with dense willow cover for much of its length. The AA includes 1.55 acres of wetland habitat and 1.47 acres of the active Sand Creek channel.

Table B1. Silicon Mountain Wetland Mitigation Site. Comprehensive vegetation species list 2015-2024.

Scientific Name	Common Name	WMVC Indicator Status[(1)]
Achillea millefolium	Common Yarrow	FACU
Agoseria glauca	Pale Goat Chicory	FAC
Agropyron cristatum	Crested Wheatgrass	UPL
Agrostis gigantea	**Black Bent**	**FAC**
Agrostis stolonifera	Spreading Bent	FAC
Algae, green	Algae, green	N/A
Alisma plantago-aquatica	Eurpean 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 athrostachya	**Slender-Beak Sedge**	**FACW**
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
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
Chrysothamnus viscidiflorus	**Yellow Rabbitbrush**	**UPL**

Table B1. Silicon Mountain Wetland Mitigation Site. Comprehensive vegetation species list 2015-2024.

Scientific Name	Common Name	WMVC Indicator Status[(1)]
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 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	FACU
Elymus repens	Creeping Wild Rye	FAC
Elymus trachycaulus	Slender Wild Rye	FAC
Epilobium ciliatum	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	UPL
Euphorbia esula	Leafy Spurge	UPL
Festuca ovina	Sheep Fescue	UPL
Filago arvenvis	Field Cudweed	UPL
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria grandis	American Manna Grass	OBL
Glyceria striata	Fowl Manna Grass	OBL
Grindelia squarrosa	Curly-Cup Gumweed	FACU
Gutierrezia sarothrae	Matchbrush	UPL
Hesperostipa comata	Needle-and-Thread	UPL
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

Table B1. Silicon Mountain Wetland Mitigation Site. Comprehensive vegetation species list 2015-2024.

Scientific Name	Common Name	WMVC Indicator Status[(1)]
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
Nassella viridula	**Green Needle Grass**	**UPL**
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
Phlox longifolia	Longleaf Phlox	UPL
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

Table B1. Silicon Mountain Wetland Mitigation Site. Comprehensive vegetation species list 2015-2024.

Scientific Name	Common Name	WMVC Indicator Status[(1)]
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 pungens	Three-Square	OBL
Schoenoplectus tabernaernaemontani	Soft-Stem Club-Rush	OBL
Schoenoplectus acutus	**Hard-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
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 aureum	Golden Clover	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

Table B1. Silicon Mountain Wetland Mitigation Site. Comprehensive vegetation species list 2015-2024.

Scientific Name	Common Name	WMVC Indicator Status[(1)]
Veronica arvensis	Corm Speedwell	FACU
Veronica scutellata	**Marsh Speedwell**	**OBL**

[1] 2020 NWPL (USACE 2020)

New species identified in 2024 are bolded. NL indicator changed to UPL for species.

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: 2024



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: 2024



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: 2024

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: 2024



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: 2024



Photo Point: 2. Photo 1: View of Sand Creek channel looking NE. Bearing: 40 degrees Year: 2015



Photo Point: 2. Photo 1: View of Sand Creek channel looking NE. Bearing: 40 degrees Year: 2024

Silicon Mountain: Photo Point Photographs



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



Photo Point: 2. Photo 2: View outside cell 1 looking east. Bearing: 86 degrees Year: 2024



Photo Point: 2. Photo 3: View of eastern portion of cell 1 looking SE. Bearing: 113 degrees Year: 2015



Photo Point: 2. Photo 3: View of eastern portion of cell 1 looking SE. Bearing: 113 degrees Year: 2024



Photo Point: 3. Photo 1: View of western edge of cell 4 looking NW. Bearing: 314 degrees Year: 2015



Photo Point: 3. Photo 1: View of western edge of cell 4 looking NW. Bearing: 314 degrees Year: 2024

Silicon Mountain: Photo Point Photographs



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: 2024



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: 2024



Photo Point: 3. Photo 4: View of southern side of cell 4 looking SE. Bearing: 114 degrees Year: 2015



Photo Point: 3. Photo 4: View of southern side of cell 4 looking SE. Bearing: 114 degrees Year: 2024

Silicon Mountain: Photo Point Photographs



Photo Point: 4. Photo 1: View of southern side of cell 5 looking SW. Bearing: 220 degrees Year: 2015



Photo Point: 4. Photo 1: View of southern side of cell 5 looking SW. Bearing: 220 degrees Year: 2024



Photo Point: 4. Photo 2: View across SE portion of cell 5 looking W. Bearing: 268 degrees Year: 2015



Photo Point: 4. Photo 2: View across SE portion of cell 5 looking W. Bearing: 268 degrees Year: 2024



Photo Point: 4. Photo 3: View across center of cell 5 looking NW. Bearing: 321 degrees Year: 2015



Photo Point: 4. Photo 3: View across center of cell 5 looking NW. Bearing: 321 degrees Year: 2024

Silicon Mountain: Photo Point Photographs



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: 2024



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: 2024



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: 2024

Silicon Mountain: Photo Point Photographs



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: 2024



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: 2024



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: 2024

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: 2024



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: 2024



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: 2024

Silicon Mountain: Stream Point Photographs



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: 2024



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: 2024



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: 2024

Silicon Mountain: Stream Point Photographs



Photo Point: 10. Photo 2: View of Sand Creek looking NE Bearing: 66 degrees Year: 2015



Photo Point: 10. Photo 2: View of Sand Creek looking NE Bearing: 66 degrees Year: 2024



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: 2024



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: 2024

Silicon Mountain: Stream Point Photographs



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: 2024



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: 2024



Photo Point: 12. Photo 2: View W across stream x-section 4. Bearing: 284 degrees Year: 2015



Photo Point: 12. Photo 2: View W across stream x-section 4 Bearing: 284 degrees Year: 2024

Silicon Mountain: Stream Point Photographs



Photo Point: 12. Photo 3: View west across Sand Creek channel. Bearing: 270 degrees Year: 2015



Photo Point: 12. Photo 3: View west across Sand Creek channel. Bearing: 270 degrees Year: 2024



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: 2024



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: 2024

Silicon Mountain: Stream Point Photographs



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. Bearing: 341 degrees Year: 2024



Photo Point: 14. Photo 1: View of middle headcut looking south. Bearing: 178 degrees Year: 2015



Photo Point: 14. Photo 1: View of middle headcut looking south. Bearing: 178 degrees Year: 2024



Photo Point: 15. Photo 1: View of the eastern headcut looking S. Bearing: 189 degrees Year: 2015



Photo Point: 15. Photo 1: View of the eastern headcut looking S. Bearing: 189 degrees Year: 2024

Silicon Mountain: Stream Point Photographs



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: 2024



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: 2024



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: 2024

Silicon Mountain: Transect Photographs



Transect 1: Start
Bearing: 305 degrees
Location: South end cell 2
Year: 2015



Transect 1: Start
Bearing: 305 degrees
Location: South end cell 2
Year: 2024



Transect 1: End
3 looking S/SE
Year: 2015
Location: North end of cell
Bearing: 177 degrees



Transect 1: End
3 looking S/SE
Year: 2024
Location: North end of cell
Bearing: 177 degrees

Silicon Mountain: Transect Photographs



Transect 2: Start west
Location: E side of cell 4, looking
Bearing: 285 degrees
Year: 2015



Transect 2: Start looking west
Location: East side of cell 4,
Bearing: 285 degrees
Year: 2024



Transect 2: End looking east/southeast
Location: W/NW side of cell 4,
Bearing:106 degrees
Year: 2015



Transect 2: End 4, looking east/southeast
Location: W/NW side of cell
Bearing: 106 degrees
Year: 2024

Silicon Mountain: Data Points



Data Point: DP01w
in Wetland Cell 5

Location: Veg Comm. 8
Year: 2024



Data Point: DP01u
near Wetland Cell 5

Location: Veg Comm. 13
Year: 2024



Data Point: DP02w
Year: 2024

Location: Wetland cell 4



Data Point: DP02u
Year: 2024

Location: Veg Comm. 15



Data Point: DP03w
corridor near Wetland Cell 1

Location: Sandy Creek
Year: 2024



Data Point: DP03u
Year: 2024

Location: Veg Comm. 11

Silicon Mountain: Data Points



Data Point: DP04w Location: Sandy Creek channel, Veg Comm. 8 Year: 2024



Data Point: DP04u Location: Veg Comm. 3 Year: 2024



Data Point: DP05w Location: Wetland Cell 1 Year: 2024



Data Point: DP05u Location: Veg Comm. 9 Year: 2024



Data Point: DP06w Location: Constructed wetland Cell 3 Year: 2024



Data Point: DP06u Location: Veg Comm. 13. Year: 2024

Silicon Mountain: Data Points



Data Point: DP07w Location: Wetland Cell 2
Year: 2024



Data Point: DP07u Location: Veg Comm. 13
Year: 2024



Data Point: DP08w Location: Constructed
wetland cell 13. Year: 2024



Data Point: DP08u Location: Veg Comm.
10. Year: 2024



Data Point: DP09w Location: Eastern edge of
wetland cell 6 Year: 2024



Data Point: DP09u Location: Veg Comm
13 Year: 2024

Silicon Mountain: Data Points



Data Point: DP10w Location: Along Sand Creek Channel, at south end of project area Year: 2024



Data Point: DP10u Location: Veg Comm. 5 Year: 2024

Silicon Mountain: Cross-Section Photographs



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



Cross-section 1: Left bank
Year: 2024



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



Cross-section 1: Right Bank
Year: 2024



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



Cross-section 2: At center looking upstream.
Year: 2024

Silicon Mountain: Cross-Section Photographs



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



Cross-section 2: At center looking downstream.
Year: 2024



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



Cross-section 3: At center looking upstream.
Year: 2024



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



Cross-section 3: At center looking downstream.
Year: 2024

Silicon Mountain: Cross-Section Photographs



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



Cross-section 4: At center looking upstream.
Year: 2024



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



Cross-section 4: At center looking downstream.
Year: 2024



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



Cross-section 5: At center looking upstream.
Year: 2024

Silicon Mountain: Cross-Section Photographs



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



Cross-section 5: At center looking downstream.
Year: 2024



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



Cross-section 6: At center looking upstream.
Year: 2024



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



Cross-section 6: At center looking downstream.
Year: 2024

Silicon Mountain: Cross-Section Photographs



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



Cross-section 7: At center looking upstream.
Year: 2024



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



Cross-section 7: At center looking downstream.
Year: 2024



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



Cross-section 8: At center looking upstream.
Year: 2024

Silicon Mountain: Cross-Section Photographs



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

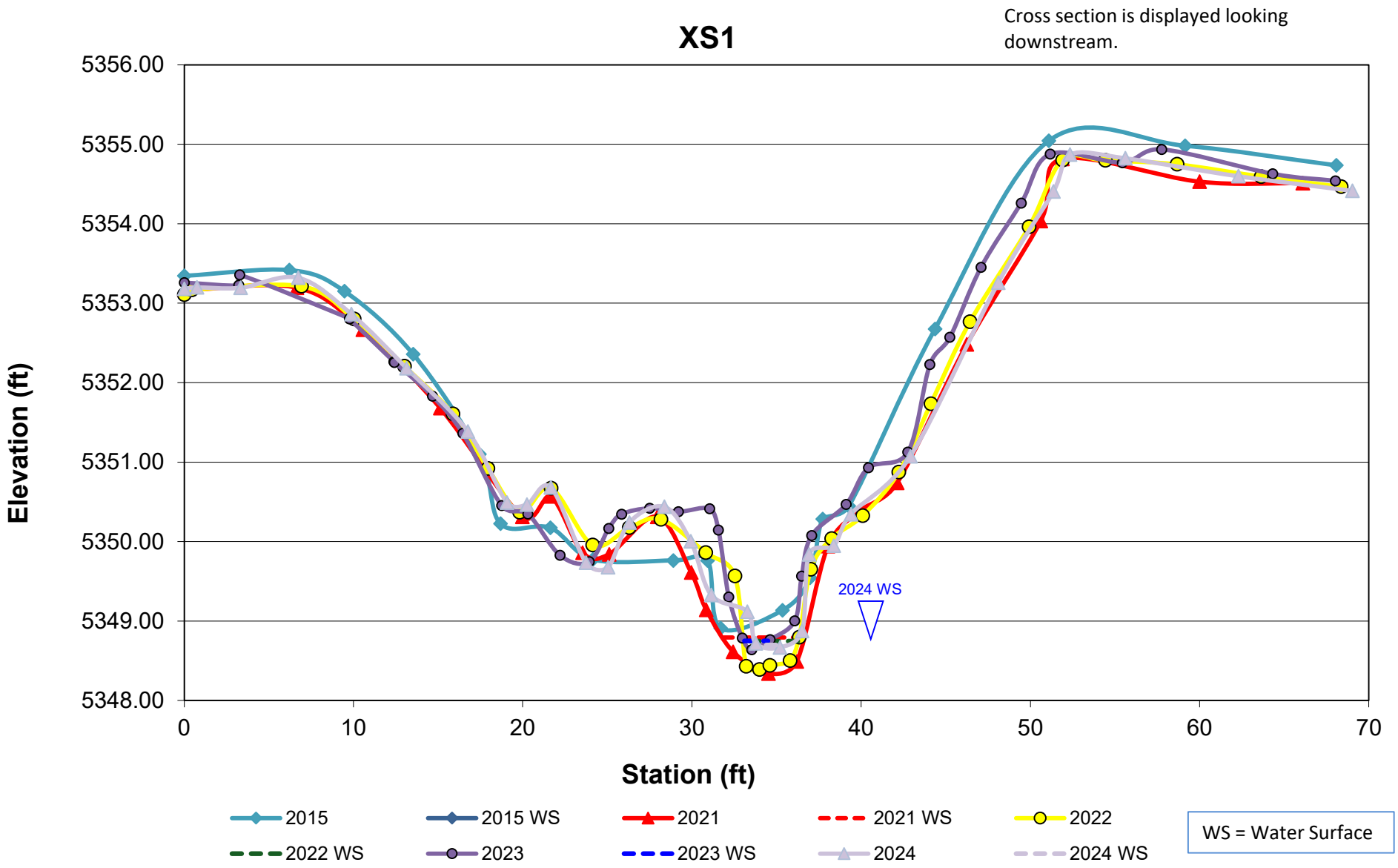


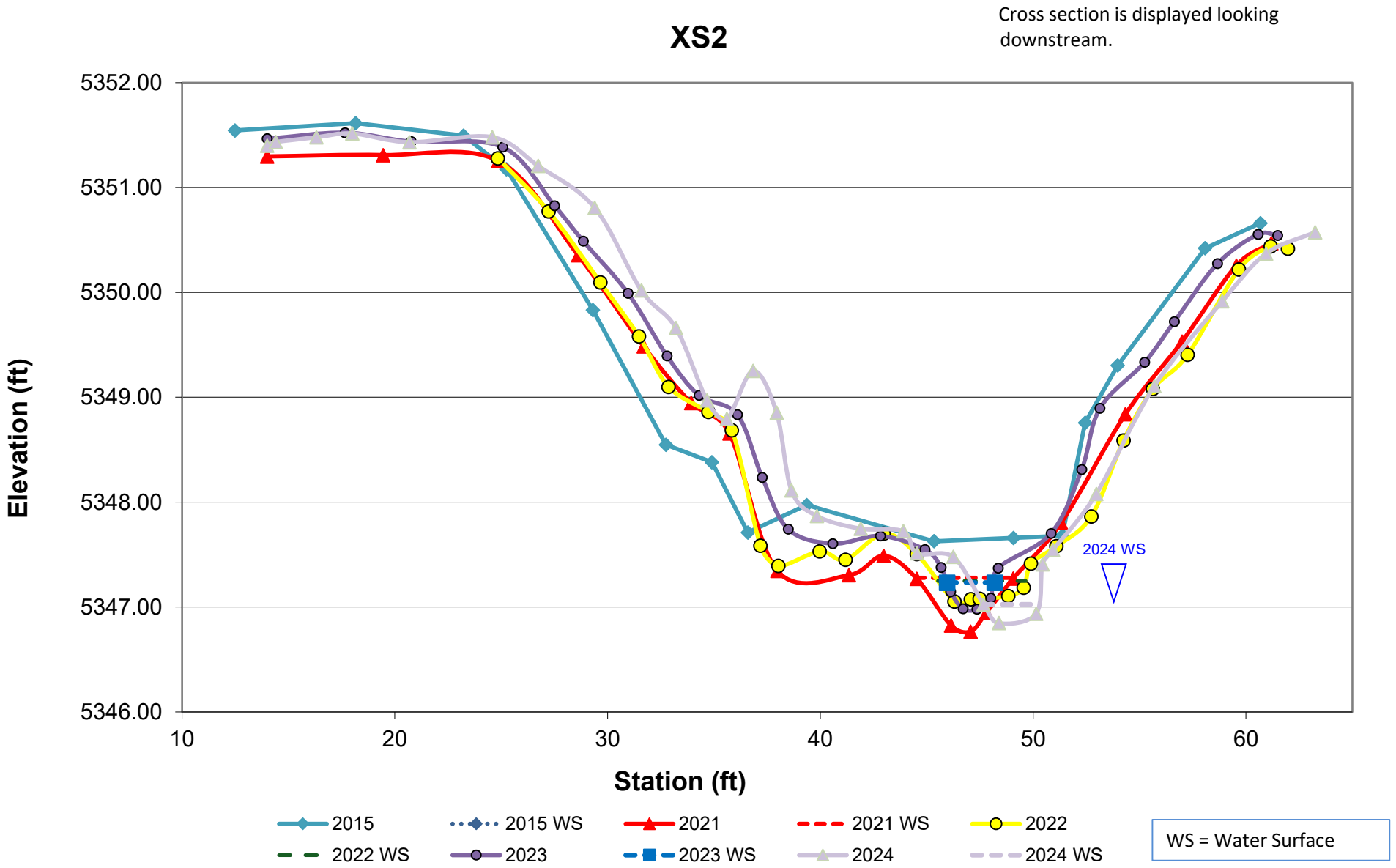
Cross-section 8: At center looking downstream.
Year: 2024

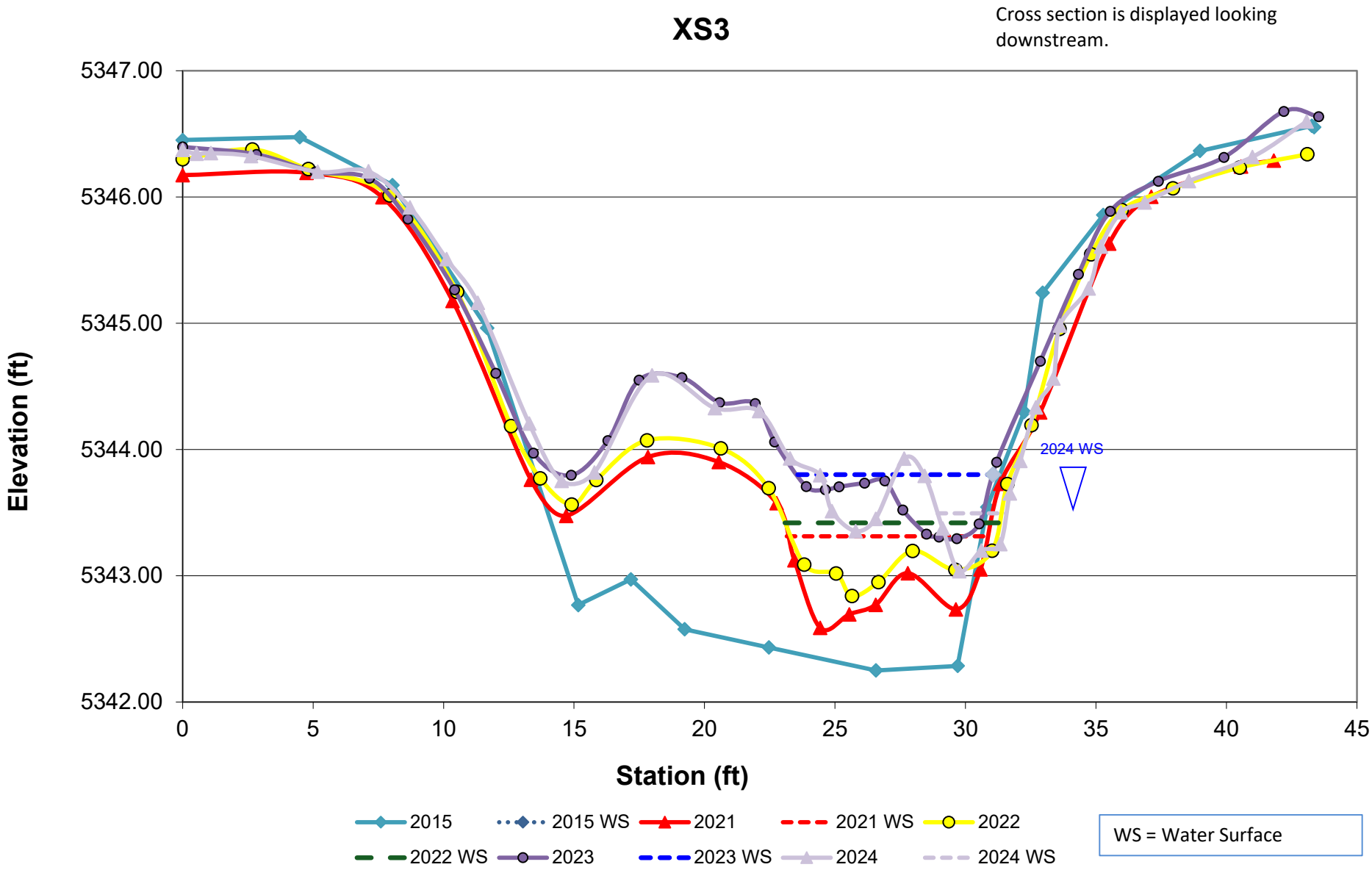
APPENDIX D

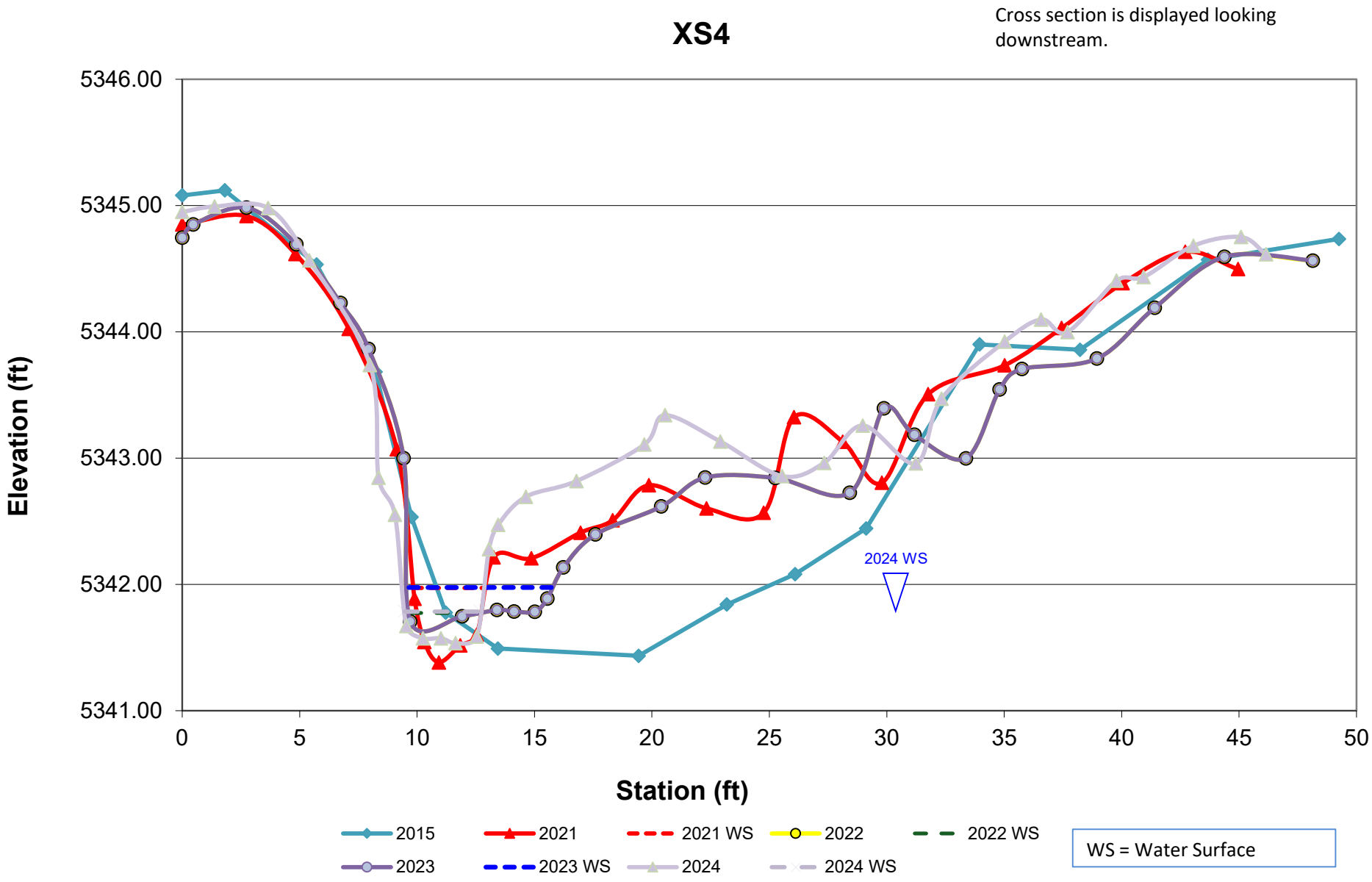
Surveyed Stream Cross Sections

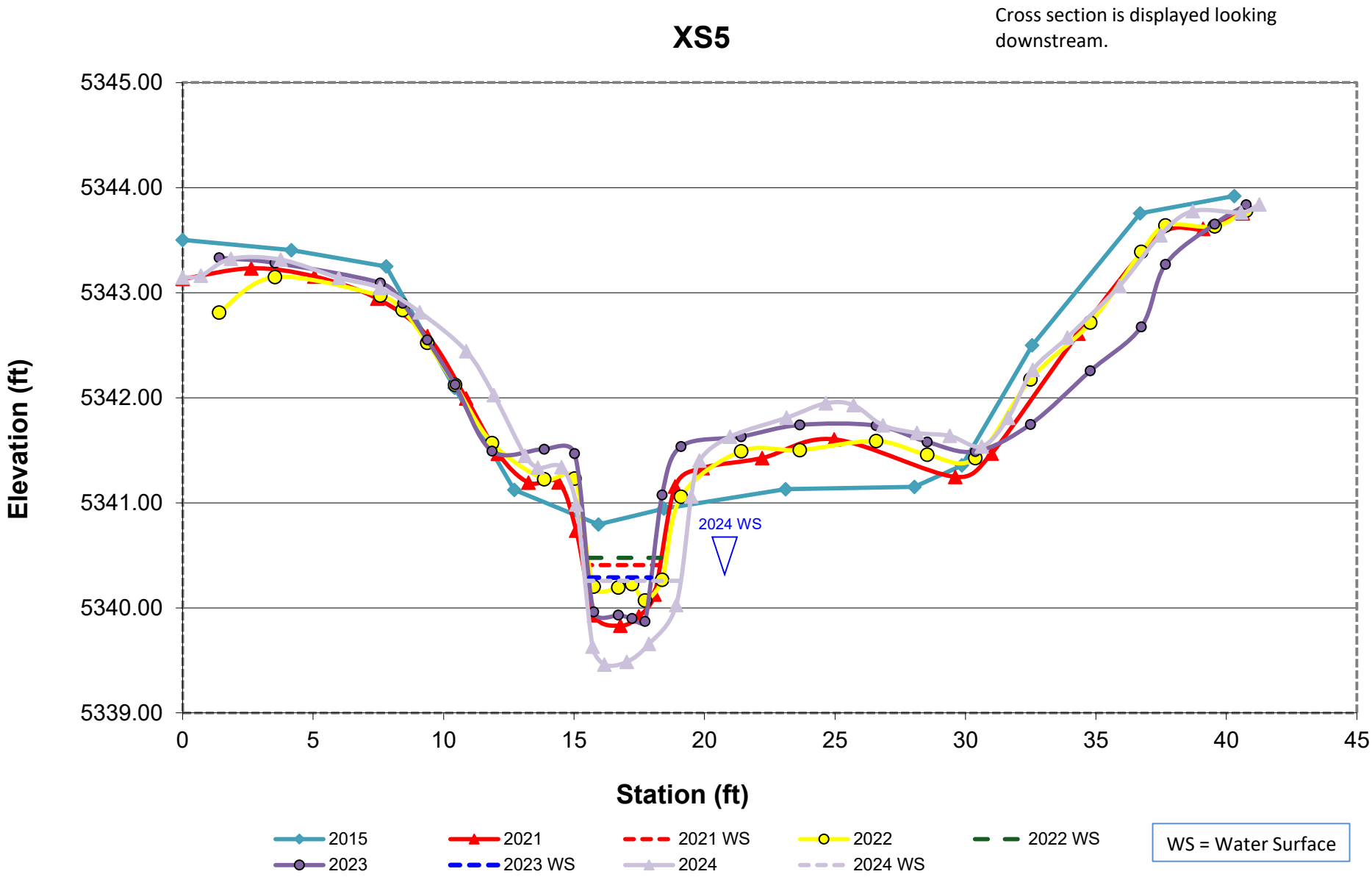
MDT Wetland Mitigation Monitoring
Silicon Mountain
Butte Silver Bow County, Montana

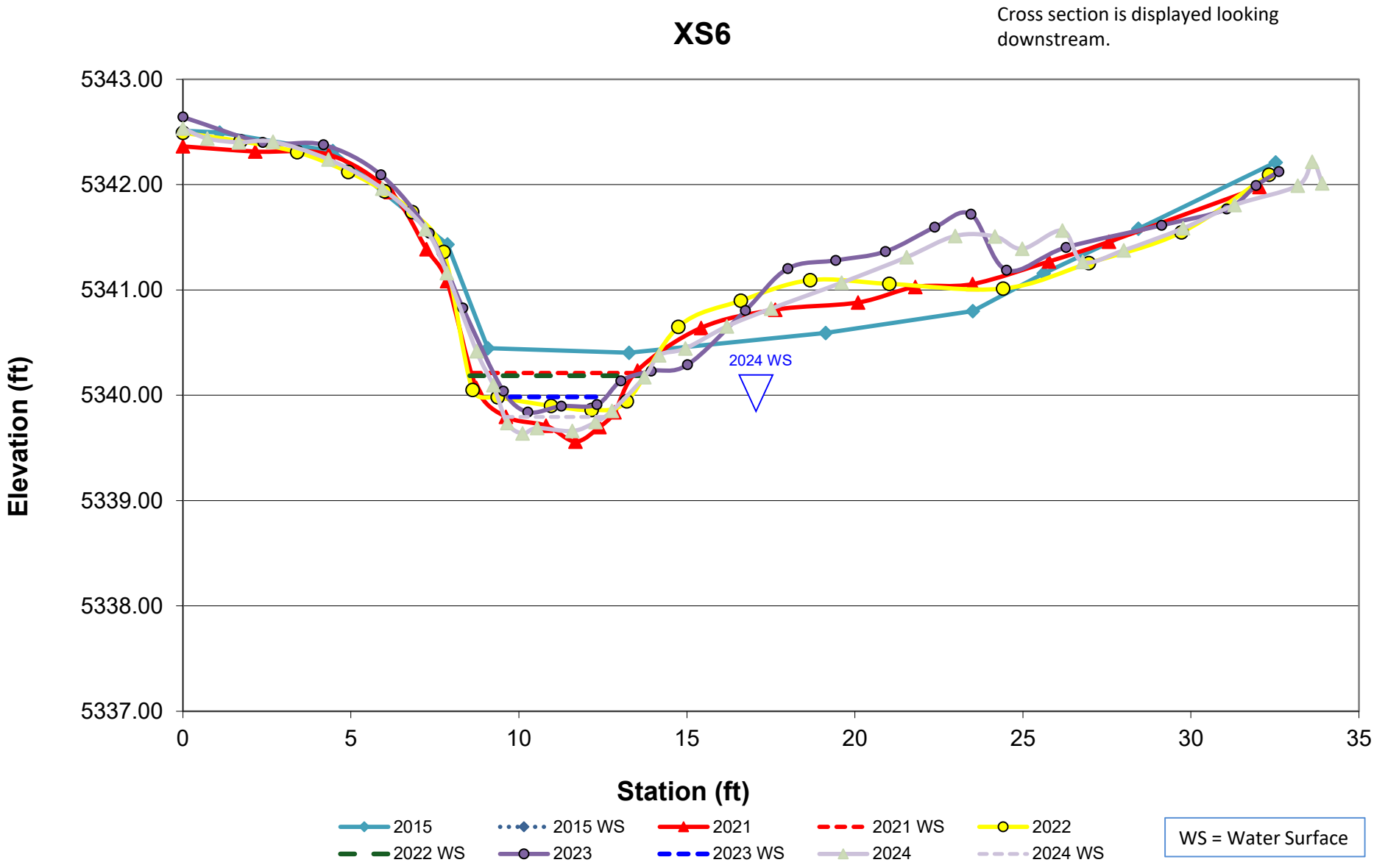

XS1
Cross section is displayed looking downstream.
Elevation (ft)
5356.00
5355.00
5354.00
5353.00
5352.00
5351.00
5350.00
5349.00
5348.00
0
10
20
30
40
50
60
70
Station (ft)
2024 WS
2015
2015 WS
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
2024 WS
WS = Water Surface

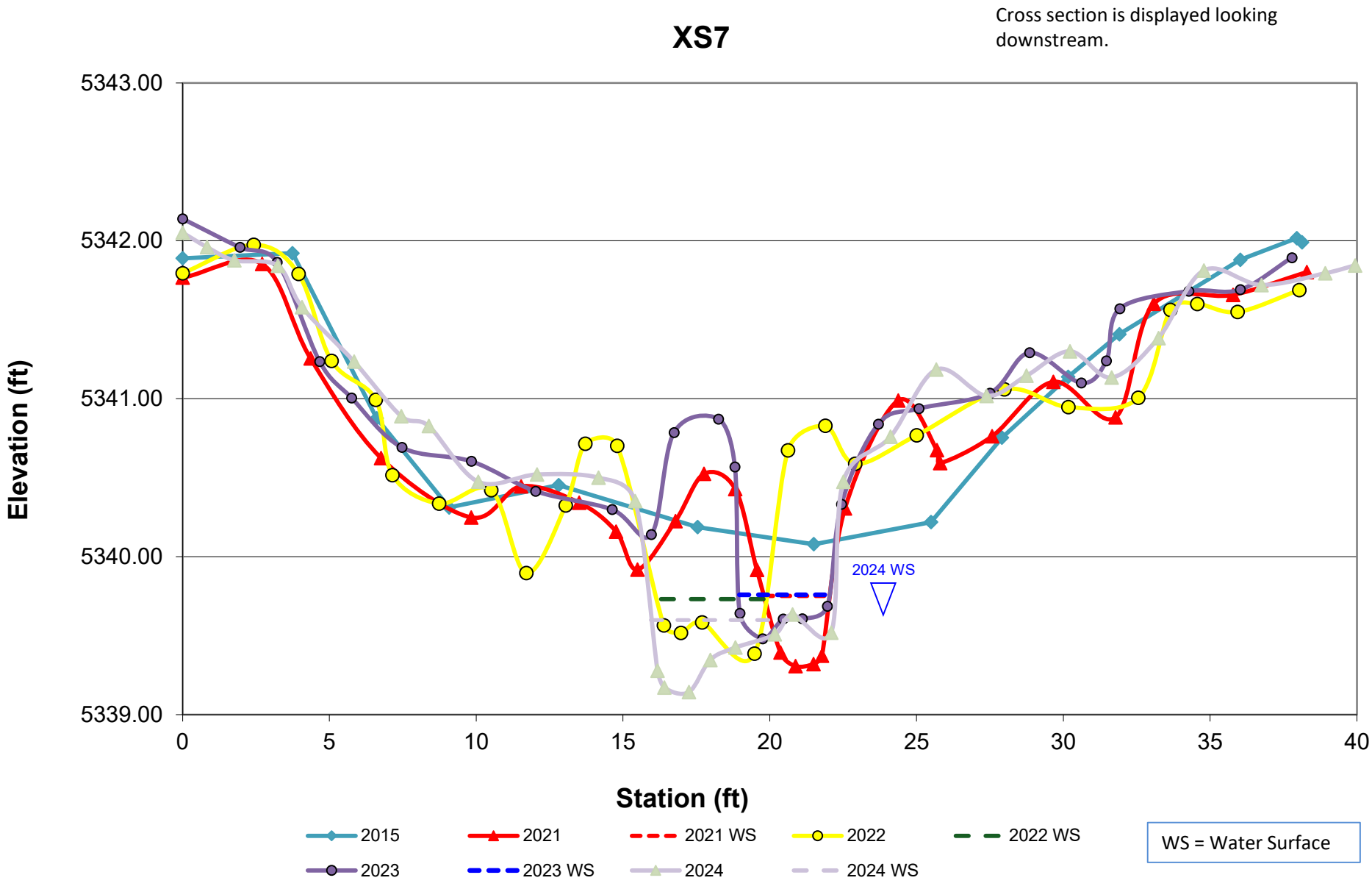

XS2
Cross section is displayed looking downstream.
Elevation (ft)
5352.00
5351.00
5350.00
5349.00
5348.00
5347.00
5346.00
10
20
30
40
50
60
Station (ft)
2024 WS
2015
2015 WS
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
2024 WS
WS = Water Surface

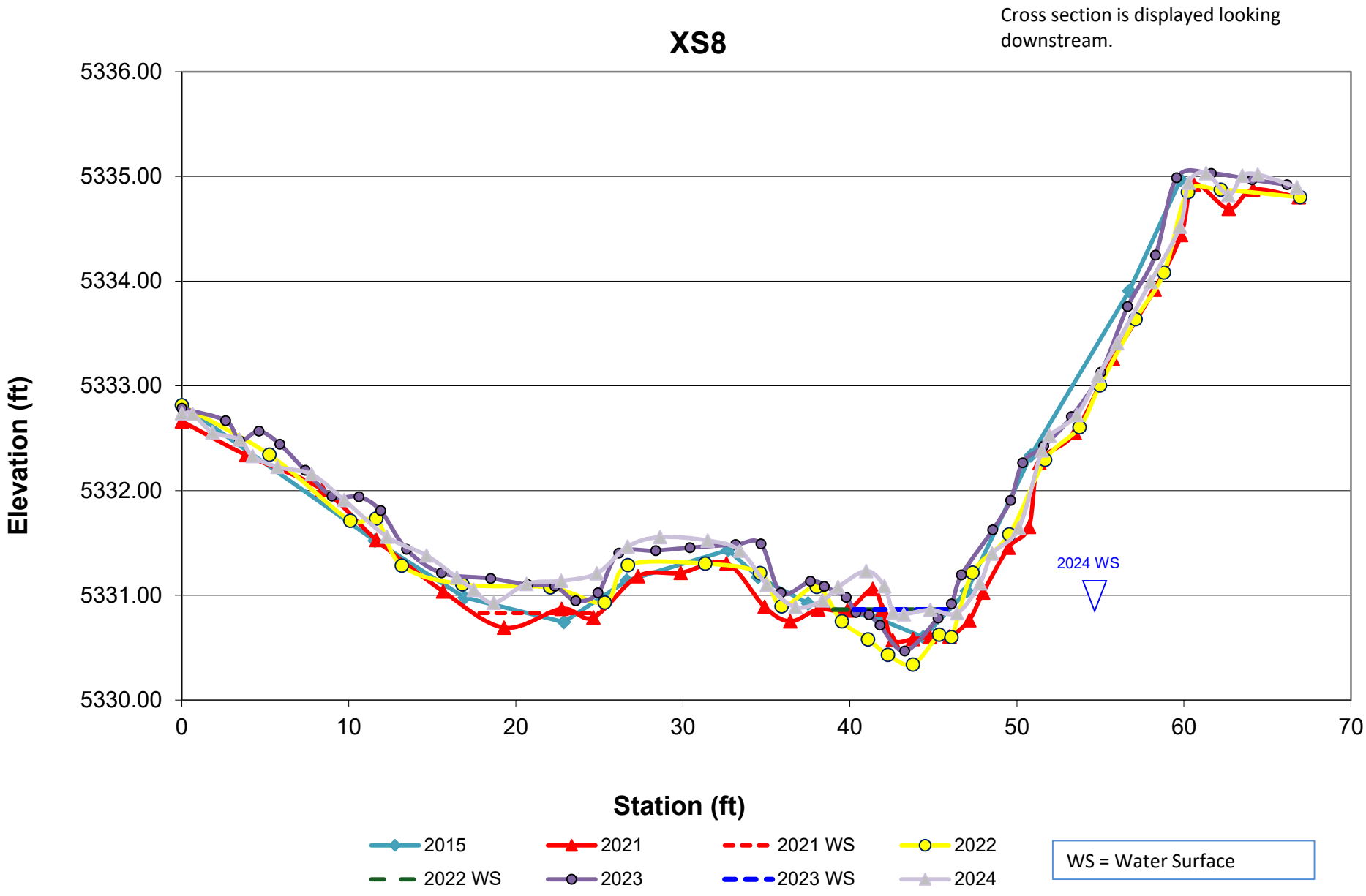

XS3
Cross section is displayed looking downstream.
Elevation (ft)
5347.00
5346.00
5345.00
5344.00
5343.00
5342.00
0
5
10
15
20
25
30
35
40
45
Station (ft)
2024 WS
2015
2015 WS
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
2024 WS
WS = Water Surface


XS4
Cross section is displayed looking downstream.
Elevation (ft)
5346.00
5345.00
5344.00
5343.00
5342.00
5341.00
0
5
10
15
20
25
30
35
40
45
50
Station (ft)
2024 WS
2015
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
2024 WS
WS = Water Surface


XS5
Cross section is displayed looking downstream.
Elevation (ft)
5345.00
5344.00
5343.00
5342.00
5341.00
5340.00
5339.00
0
5
10
15
20
25
30
35
40
45
Station (ft)
2024 WS
2015
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
2024 WS
WS = Water Surface


XS6
Cross section is displayed looking downstream.
Elevation (ft)
5343.00
5342.00
5341.00
5340.00
5339.00
5338.00
5337.00
0
5
10
15
20
25
30
35
Station (ft)
2024 WS
2015
2015 WS
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
2024 WS
WS = Water Surface


XS7
Cross section is displayed looking downstream.
Elevation (ft)
5343.00
5342.00
5341.00
5340.00
5339.00
0
5
10
15
20
25
30
35
40
Station (ft)
2024 WS
2015
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
2024 WS
WS = Water Surface


XS8
Cross section is displayed looking downstream.
Elevation (ft)
5336.00
5335.00
5334.00
5333.00
5332.00
5331.00
5330.00
0
10
20
30
40
50
60
70
Station (ft)
2024 WS
2015
2021
2021 WS
2022
2022 WS
2023
2023 WS
2024
WS = Water Surface