
MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2001

Batavia
Kalispell, Montana



Prepared for:

MONTANA DEPARTMENT OF TRANSPORTATION
2701 Prospect Ave
Helena, MT 59620-1001

Prepared by:

LAND & WATER CONSULTING, INC.
P.O. Box 8254
Missoula, MT 59807

July 2002

Project No: 130091.006



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1.0 INTRODUCTION

The Batavia Waterfowl Production Area (WPA) mitigation project is located in Smith Valley, approximately 5 miles southwest of Kalispell (**Figure 1**). The general property location is within Township 28 North, Range 22 West, Sections 20 and 21, Flathead County.

The Batavia WPA mitigation project was developed to mitigate wetland impacts associated with Montana Department of Transportation (MDT) roadway projects that have been, or will be constructed in Watershed No. 4. Specifically, the mitigation pertains to impacts on the Missoula County Line North, Somers to Whitefish, Swan River Bridge, and future projects.

The entire WPA is influenced by a high groundwater table and by surface water diverted out of nearby Ashley Creek. Over time, the existing dike structure and water delivery system became degraded to a point where the dike was no longer holding water at the desired elevation. The intent of the project was to raise the water level approximately 2 feet to increase the area of inundation. This was to be achieved by reconstructing the degraded dike system. Construction was completed in January 1998 with the goal of creating and enhancing wetlands. In addition to reconstructing the dike, several defunct culverts were removed, three new control devices were installed, and open water was restored in the vicinity of several small islands, essentially enhancing the site by creating habitat diversity.

According to MDT project files, mitigation credits were determined by assigning credit ratios for creation and enhancement across the entire site. A total of 28.72 acres of credit was agreed upon by MDT, the USFWS, and COE, with the potential for an additional 6.8 acres to be credited following post-project monitoring. Credits were broken down as follows:

Wetland Creation minus impacts from new dike:	18.2 acres credited at 2:1 =	9.10 acres
North Cell enhancement:	76.8 acres credited at 8:1 =	9.60 acres
South Cell enhancement:	60.0 acres credited at 6:1 =	<u>10.0 acres</u>
		Total = 28.72 acres

The WPA encompasses two primary hydrologic areas referred to as the North Cell (76.8 acres) and South Cell (60.3 acres). Due to the immense size of the WPA and the enormous effort required to monitor the entire site, three monitoring areas were selected to serve as representations of the larger site. The three monitoring areas are located: 1) at the southwest corner of the South Cell (Wetland D); 2) between the North Cell and South Cell on the western end (Wetland C and B); and 3) on the northwest side of the North Cell (Wetland A) (**Figure 2, Appendix A**). Borrow material was removed from each of these areas for construction of the new dike and wetland creation was expected at each location.

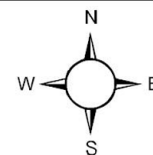
2.0 METHODS

2.1 Monitoring Dates and Activities

The site was visited on July 12th and August 25th (mid-season) 2001. The mid-season visit was conducted between mid-July and August to document vegetation, soil, and hydrologic conditions

FIGURE 1. PROJECT LOCATION
Batavia
Mitigation Site

A topographic map of the Batavia Mitigation Site. The map features a network of roads, including a main road labeled 'ROAD 3222' and a road labeled 'ROAD 3174'. A red arrow points to the 'PROJECT LOCATION' on a road labeled 'ROAD 3136'. The map shows contour lines with elevations such as 3100, 3120, 3140, 3160, 3180, 3200, 3220, 3240, 3260, 3280, 3300, 3320, 3340, 3360, 3380, 3400, 3420, 3440, 3460, 3480, 3500, 3520, 3540, 3560, 3580, 3600, 3620, 3640, 3660, 3680, 3700, 3720, 3740, 3760, 3780, 3800, 3820, 3840, 3860, 3880, 3900, 3920, 3940, 3960, 3980, 4000. The map also shows several water bodies, including 'Creek', 'Ashley', and 'Spring'. A red circle highlights a specific area on the map. The map is divided into sections labeled 16, 20, 21, 28, and 29. A red dashed line indicates a boundary. A red arrow points to the 'PROJECT LOCATION' on a road labeled 'ROAD 3136'. The map shows a network of roads, including a main road labeled 'ROAD 3222' and a road labeled 'ROAD 3174'. A red arrow points to the 'PROJECT LOCATION' on a road labeled 'ROAD 3136'. The map shows contour lines with elevations such as 3100, 3120, 3140, 3160, 3180, 3200, 3220, 3240, 3260, 3280, 3300, 3320, 3340, 3360, 3380, 3400, 3420, 3440, 3460, 3480, 3500, 3520, 3540, 3560, 3580, 3600, 3620, 3640, 3660, 3680, 3700, 3720, 3740, 3760, 3780, 3800, 3820, 3840, 3860, 3880, 3900, 3920, 3940, 3960, 3980, 4000. The map also shows several water bodies, including 'Creek', 'Ashley', and 'Spring'. A red circle highlights a specific area on the map. The map is divided into sections labeled 16, 20, 21, 28, and 29. A red dashed line indicates a boundary. A red arrow points to the 'PROJECT LOCATION' on a road labeled 'ROAD 3136'.



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used to map jurisdictional wetlands. Most of the information contained on the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at Wetland D. Activities and information conducted/collected included: wetland delineation; wetland/open water boundary mapping; vegetation community mapping; vegetation transect; soils data; hydrology data; bird and general wildlife use; photograph points; GPS data points; functional assessment; and (non-engineering) examination of dike structures. Wetlands A, B, and C were visited in August and delineated based on vegetation, hydrology and soil characteristics.

2.2 Hydrology

Hydrologic indicators were evaluated at the site during the mid-season visit. Wetland hydrology indicators were recorded using procedures outlined in the Army Corps 1987 Wetland Delineation Manual. Hydrology data was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**).

All additional hydrologic data were recorded on the mitigation site monitoring form (**Appendix B**). The boundary between wetlands and open water (no rooted vegetation) aquatic habitats was mapped on the aerial photograph and an estimate of the average water depth at this boundary was recorded. Groundwater located within 18 inches of the ground surface (soil pit depth for purposes of delineation), was documented on the routine wetland delineation data form at each data point.

2.3 Vegetation

General dominant species-based vegetation community types (e.g., *Juncus balticus*/*Phalaris arundinacea*) were delineated on an aerial photograph during the mid-season visit. Standardized community mapping was not employed as many of these systems are geared towards climax vegetation and may not reflect yearly changes. Estimated percent cover of the dominant species in each community type was listed on the site monitoring form (**Appendix B**).

One 10-foot wide belt transect was established in Wetland D during the mid-season monitoring event to represent the range of current vegetation conditions **Figure 2 (Appendix A)**. Percent cover was estimated for each vegetative species encountered within the “belt” using the following values: + (<1%); 1 (1-5%); 2 (6-10%); 3 (11-20%); 4 (21-50%); and 5 (>50%). The transect will be used to evaluate changes over time, especially the establishment and increase of hydrophytic vegetation. The transect location was marked on the air photo and all data recorded on the mitigation site monitoring form. Transect endpoint locations were recorded with the GPS unit. Photos along the transect were taken from both ends during the mid-season visit.

A comprehensive plant species list for the site was compiled and will be updated as new species are encountered. Ultimately, observations from past years will be compared with new data to document vegetation changes over time.

Woody species were not planted at this mitigation site and therefore, monitoring relative to the survival of planted species was not conducted.

2.4 Soils

Soils were evaluated during the mid-season visit according to hydric soils determination procedures outlined in the COE 1987 Wetland Delineation Manual. Soil data were recorded for each wetland determination point on the COE Routine Wetland Delineation Data Form (**Appendix B**). The most current terminology used by NRCS was used to describe hydric soils (USDA 1998).

2.5 Wetland Delineation

Prior to initiating monitoring efforts at this site, it was agreed upon by MDT and Land & Water that a full wetland delineation of the entire WPA was not warranted at this time. Therefore, wetland delineation was conducted at Wetlands A, B, C, and D only according to the 1987 COE Wetland Delineation Manual. Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation and hydric soils. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary was delineated on the air photo and recorded with a resource grade GPS unit. The wetland/upland boundary in combination with the wetland/open water habitat boundary was used to calculate the developed wetland area.

2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations and other positive indicators of use, such as vocalizations, were recorded on the wetland monitoring form during each visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. Observations were recorded as the observer traversed the site while conducting other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive list of observed species was compiled. Observations from past years will ultimately be compared with new data.

2.7 Birds

Bird observations were recorded during each visit. No formal census plots, spot mapping, point counts, or strip transects were conducted. During the mid-season visit, bird observations were recorded according to the established protocol while conducting the other monitoring activities and are shown in **Appendix E**. Observations were categorized by species, activity code, and general habitat association (see field and office data forms in **Appendix B**). Observations from past years will be compared with new data.

2.8 Macroinvertebrates

Macroinvertebrate sampling was not conducted at the Batavia site.

2.9 Functional Assessment

A functional assessment form was completed for all wetlands encompassed by the WPA using the 1999 MDT Montana Wetland Assessment Method. The entire site was included for functional assessment in order to compare with the pre-project functional assessment, which was completed using the 1996 MDT Montana Wetland Field Evaluation Form. Field data necessary for this assessment were generally collected during each mid-season site visit. An abbreviated field data sheet for the 1999 MDT Montana Wetland Assessment Method was compiled to facilitate rapid collection of field information (**Appendix B**). The remainder of the functional assessment was completed in the office.

2.10 Photographs

Photographs were taken during the mid-season visit showing the current land use surrounding the site, the monitored area, and the vegetation transect. Each photograph point location was recorded with a resource grade GPS. The approximate location of photo points is shown on **Figure 2, Appendix A**. All photographs were taken using a 50 mm lens. A description and compass direction for each photograph was recorded on the wetland monitoring form.

2.11 GPS Data

During the 2001 monitoring season, survey points were collected with a resource grade GPS unit at the vegetation transect beginning and ending locations, and at all photograph locations. Wetland boundaries were also surveyed with a resource grade GPS unit.

2.12 Maintenance Needs

The dike and water control structures were examined during each site visit for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination.

3.0 RESULTS

3.1 Hydrology

The Batavia WPA is influenced by a high groundwater table and also receives water that is diverted out of Ashley Creek. Pre-project notes found in MDT files indicate that maximum water elevations prior to construction of the new dike were 3126.2, with wetland habitat delineated up to elevation 3127. The newly proposed dike and water delivery system was designed to bring water levels within both the north and south cells to elevation 3128.5.

For various reasons, it appears as though the desired full pool elevation of 3128.5 has never been met at this site. Possible reasons include extended drought conditions in the Flathead Valley, water control structures originally set at the wrong elevations, and possible interruption of water delivery from Ashley Creek by local landowners. Drought conditions in the Flathead Valley are

likely having the greatest influence on water levels at Batavia. According to the Western Regional Climate Center, Kalispell yearly precipitation totals for 2000 (10.5 inches) and 2001 (12.47 inches) were 66 and 79 percent, respectively, of the total annual mean precipitation (15.81 inches) in this area. Lower than average groundwater levels and the inability of the U.S. Fish & Wildlife Service (USFWS) to divert water from Ashley Creek while still maintaining minimum in-stream flows are thought to be the primary reasons for the site not reaching its full potential.

Another possible reason for the site not reaching full pool is due to interruption of water delivery from Ashley Creek by local landowners. Though not confirmed, it is thought that one or more landowners are responsible for pulling boards out of the instream flow diversion on Ashley Creek. Adjacent landowners are motivated to do so by fears that their own property will be flooded by raising the water table on the WPA and for fear that they will not receive their full water right allotment from Ashley Creek.

During field investigations, the pond area in Wetland D was inundated, although below drift lines observed on the mud flat. The depressional area at Wetlands B and C was dry, and Wetland A displayed saturated soil conditions, but was not inundated (see **Figure 3, Appendix A**). Designed open water areas surrounding the numerous small islands in both cells contained water, but at very low levels.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. Six community types were identified and mapped on the mitigation area (**Figure 3, Appendix A**). These included Type 1: *Agropyron smithii*/mixed grass upland Type 2: *Hordeum jubatum*/*Eleocharis palustris* Type 3: *Juncus balticus*/*Phalaris arundinacea*, Type 4: *Scirpus acutus*, Type 5: *Agropyron smithii*/*Potentilla anserina*, and Type 6: *Ceratophyllum demersum*. Dominant species within each of these communities are listed on the attached data form (**Appendix B**).

Type 1 occurs in the upland southeast of the mudflat and consists of upland grasses dominated by *Agropyron smithii*, and accompanied by *Elymus cinereus*, *Koeleria cristata*, *Spartina gracilis*, and *Agropyron repens*. Type 2 is present on the mud flat and consists primarily of *Hordeum jubatum*, *Eleocharis palustris* and *Puccinellia nuttalliana*. Type 3 is present west of the mudflat and consists of *Juncus balticus* and *Phalaris arundinacea*. Type 4 is dominated by *Scirpus acutus* and is present throughout the South Cell. Type 5 is a disturbed upland community present on the island, and is dominated by *Potentilla anserina*, *Agropyron smithii*, and bare ground. Type 6 is an aquatic community dominated by *Ceratophyllum demersum*.

The vegetation transect results are detailed in the attached data form, and are summarized graphically below. The transect begins in the upland above the mudflat and extends to the water crossing four vegetation communities.

VT Start	Type 1 (68')	Type 2 (171')	Type 3 (110')	Type 4 (10')	Total: 318'	VT End
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Table 1: 2001 Batavia Vegetation Species List

Species	Region 9 (Northwest) Wetland Indicator
<i>Achillea millefolium</i>	FACU
<i>Agropyron smithii</i>	FACU
<i>Agropyron repens</i>	FAC-
<i>Agrostis alba</i>	FAC
<i>Alisma plantago-aquatica</i>	OBL
<i>Alopecurus pratensis</i>	FACW
<i>Antennaria spp.</i>	--
<i>Aster hesperius</i>	OBL
<i>Carex diandra</i>	OBL
<i>Carex parryana</i>	FAC+
<i>Carduus nutans</i>	(Status NX)
<i>Ceratophyllum demersum</i>	OBL
<i>Chenopodium album</i>	FAC
<i>Cirsium arvense</i>	FACU+
<i>Cirsium vulgare</i>	FACU
<i>Cynoglossum officinale</i>	FACU
<i>Deschampsia cespitosa</i>	FACW
<i>Distichlis stricta</i>	FAC+
<i>Eleocharis acicularis</i>	OBL
<i>Eleocharis palustris</i>	OBL
<i>Elymus cinereus</i>	FAC
<i>Epilobium watsonii</i>	FACW
<i>Erigeron lonchophyllus</i>	FACW
<i>Gnaphalium palustre</i>	FAC+
<i>Hippuris vulgaris</i>	OBL
<i>Hordeum jubatum</i>	FAC
<i>Juncus balticus</i>	FACW+
<i>Juncus bufonius</i>	FACW
<i>Juncus castaneus</i>	FACW
<i>Juncus nevadensis</i>	FACW
<i>Koeleria cristata</i>	--
<i>Lotus corniculatus</i>	FAC
<i>Melilotus alba</i>	FACU
<i>Melilotus officinalis</i>	FACU
<i>Mentha arvensis</i>	FACW-
<i>Monolepis nuttalliana</i>	FAC-
<i>Muhlenbergia asperifolia</i>	FACW
<i>Phalaris arundinacea</i>	FACW
<i>Phleum pratense</i>	FAC-
<i>Poa juncifolia</i>	FACU+
<i>Poa pratensis</i>	FAC
<i>Polygonum amphibium</i>	OBL
<i>Polypogon monspeliensis</i>	FACW
<i>Potamogeton natans</i>	OBL
<i>Potentilla anserine</i>	OBL
<i>Puccinellia nuttalliana</i>	OBL
<i>Ranunculus cymbalaria</i>	OBL
<i>Rumex crispus</i>	FAC+
<i>Scirpus acutus</i>	OBL
<i>Sisymbrium altissimum</i>	--
<i>Sisyrinchium angustifolium</i>	FACW-
<i>Smilacina stellata</i>	--
<i>Spartina gracilis</i>	FACW
<i>Stachys palustris</i>	FACW+
<i>Taraxacum officinale</i>	FACU
<i>Tragopogon dubius</i>	--
<i>Triglochin maritimum</i>	OBL
<i>Typha latifolia</i>	OBL

3.3 Soils

According to the Upper Flathead Valley Area soil survey (Soil Conservation Service 1960), soils in the mitigation site are classified as Muck and Peat. The mapping unit consists of mosses, rushes, grasses, sedges, cattails, trees and other woody vegetation in various stages of decomposition. Organic accumulations typically range from one-foot to four-feet thick. The soil remains moist or saturated most or all of the year unless artificially drained.

The muck and peat characteristics are present in the main cells but were not found within the 2001 monitoring area. Three observation points were located on the shoulder of the main cell along the vegetation transect and displayed drier characteristics. The test pits (TP) were excavated and described using the COE routine wetland monitoring form. TP1 located along the vegetation transect in the upland consisted of a silt loam (10YR 3/2) in the A Horizon overlying a silty clay loam (10YR 7/1) in the B Horizon. No hydric characteristics were observed. TP2 was located in the mudflat along the vegetation transect. Hydric soil characteristics are marginally developed. A low-chroma (10YR 3/1) silt loam A-horizon is present from 1 to 2-inches and overlies a B-Horizon consisting of a mottled silty clay loam. These soil characteristics indicate an oxygen-depleted environment with a fluctuating water table. TP3 was located near the water and showed hydric characteristics well developed in a remnant upland soil. The A-Horizon consisted of a silty loam (10YR 2/1). The B-Horizon consisted of a silty clay loam (10YR 7/1) with many highly contrasting mottles (2.5YR 5/6).

3.4 Wetland Delineation

As discussed in the Methods Section of this report, wetland delineation was not completed for the entire WPA, but rather focused on the three borrow areas where wetland creation was anticipated. Delineated wetland boundaries are illustrated on **Figure 3**. Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections.

In order to determine the acreage of wetland creation in the three monitoring areas, the original pre-project wetland delineation was overlaid onto the 2001 delineation for direct comparison. When comparing the two, delineation boundaries at Wetland A were nearly identical, with a very slight gain of 0.06 acres. It should be noted that this is likely attributed to mapping/scale error, and is not the result of wetland expansion in the area. The borrow area in this monitoring site has clearly not established any wetland characteristics. Further comparison of the pre and post-project delineations show a gain of 0.12 acres at Wetland B, 0.46 acres at Wetland C, and 0.54 acres at Wetland D. Total wetland creation for the four wetlands is 1.18 acres. Due to the very low water elevations on the site, the results of the delineation were to be expected.

The original goal of the project was to create approximately three acres of wetland in the borrow areas and 5.9 acres up to the designed full pool elevation in the north and south cells combined. It was also anticipated that an additional 13.6 acres of wetland would develop beyond the full pool elevation through capillary action in the soil. When added together, a gross total of 22.5 acres of creation was expected across the site. Subtract from this the 4.3 acres of impact from the new dike structure and the net wetland gain was to be 18.2 acres. A full delineation of the

north and south cells would need to be conducted in order to determine if the anticipated periphery wetlands have developed.

3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001 monitoring efforts are listed in **Table 2**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. Two mammal and numerous bird species have been noted using the mitigation site.

Table 2: Fish and Wildlife Species Observed at the Batavia Mitigation Site

FISH None
AMPHIBIANS None
REPTILES None
BIRDS* Great Blue Heron (<i>Ardea herodias</i>) Killdeer (<i>Charadrius vociferous</i>) Sandhill Crane (<i>Grus canadensis</i>)
MAMMALS Coyote (<i>Canis latrans</i>) Weasel. (<i>Mustela spp.</i>) Deer (<i>Odocoileus spp.</i>)
* The bird list consists of species observed during the 2001 monitoring season and is not conclusive of birds observed at the WPA and documented by the USFWS (136 species). A complete bird list is provided in Appendix B with the field data forms.

3.6 Macroinvertebrates

Macroinvertebrate sampling was not conducted at the Batavia site.

3.7 Functional Assessment

The completed functional assessment form is presented in **Appendix B**. Functional assessment results are summarized in **Table 3**. In order to compare pre and post project functional assessment, the entire site was considered including the active Ashley Creek channel. Although direct comparisons cannot be made between the two assessments because different versions of the form were used, general comparisons can be made. A comparison of the two assessments shows similarities, although the most recent functional assessment produced higher ratings based on MNHP species habitat (Forster's and black terns), groundwater discharge/recharge, and recreation/education potential. The original functional assessment rated the wetland as a Category II with 65% of possible points, while the current assessment rated the wetland as a Category II with 80% of possible points.

Incorrect ratings on the original functional assessment for MNHP species habitat and groundwater recharge/discharge likely resulted in a lower percent of possible points attributed to the site at that time. Overall, the site has changed little in the way of functional assessment since completion of the project.

3.8 Photographs

Representative photos taken from photo-points and transect ends are provided in **Appendix C**.

3.9 Maintenance Needs/Recommendations

The berm and associated water control structures were in good condition during the mid-season visits.

In order for this site to reach its full potential, it is critical that the designed water elevation of 3128.5 be attained, especially during the spring and early growing season. During years of average or above average runoff, enough water should be available to successfully recharge the site through diversion out of Ashley Creek. As managers of the Batavia WPA, it would seem that the USFWS would be responsible for this management activity. It is recommended that MDT discuss this issue with the USFWS. Discussions with adjacent landowners who might have water concerns with respect to this site should also be conducted by MDT and/or the USFWS.

After documenting two consecutive years of full recharge into the site (water level to 3128.5), it is recommended that the entire site be delineated to determine overall success of the project. An alternative approach to assessing the wetland area may be to conduct a topographic survey of the WPA in order to tie the pre-construction wetland boundary to an elevation for comparison to existing and future water-table elevations. This method would provide a means to determine if the dike reconstruction has effectively raised the water level across the site. A staff gauge installed near the Ashley Creek diversion could serve as a measuring point to determine water table elevation.

In order to document a better representation of wildlife use of the Batavia WPA, it is recommended that the site be monitored during the springtime at least once over the course of the monitoring contract. At this time, no spring visits are proposed for the site.

3.10 Current Credit Summary

According to MDT project files, mitigation credits were determined by assigning credit ratios for creation and enhancement across the entire site. A total of 28.72 acres of credit was agreed upon by MDT, the USFWS, and COE, with the potential for an additional 6.8 acres to be credited following post-project monitoring. Credits were broken down as follows:

Batavia Wetland Mitigation 2001 Monitoring Report

Wetland Creation minus impacts from new dike: 18.2 acres credited at 2:1 = 9.10 acres
 North Cell enhancement: 76.8 acres credited at 8:1 = 9.60 acres
 South Cell enhancement: 60.0 acres credited at 6:1 = 10.0 acres
 Total = 28.72 acres

To date, it appears as though little wetland habitat has been created either in the borrow areas (1.18 acres) or around the periphery of the site. Lack of water is the primary influencing factor. The site was constructed in 1998 and the area has received normal or below normal precipitation since that time. According to the USNRCS surface water supply index (SWSI) published by NRIS for the year 2001, the Stillwater/Whitefish Rivers had an SWSI Value of -4.0, which corresponds to extremely dry conditions. SWSI Values in 2000 and 1999 were -2.9 (moderately dry) and 0.5 (near average), respectively. Water for the Batavia site is dependent upon surface water from Ashley Creek and groundwater recharge. It is to be expected that developing wetland area may be delayed due to the low water-table conditions.

To a certain extent, minor enhancement of the existing wetlands in the north and south cells has likely occurred through the creation of more open water habitat around the many small islands. Creating habitat diversity by adding open water areas has likely attracted more wildlife species and potentially encouraged the establishment different emergent and submergent plant communities. These areas would be further enhanced with increased water levels across the site, and would also provide a stronger basis for documentation/quantification of enhancement credit.

Table 3: Summary of 2001 Wetland Function/Value Ratings and Functional Points ¹ at the Batavia Mitigation Project

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Method	Evaluation Year	
	1996 Baseline Assessment ²	2001 Assessment
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)
MNHP Species Habitat	Low (0.1)	High (1)
General Wildlife Habitat	High (1.0)	Exceptional (1.0)
General Fish/Aquatic Habitat	Mod (0.7)	Low (0.3)
Flood Attenuation	Mod (0.5)	Mod (0.6)
Short and Long Term Surface Water Storage	High (1.0)	High (01.0)
Sediment, Nutrient, Toxicant Removal	High (1.0)	High (01.0)
Sediment/Shoreline Stabilization	High (1.0)	High (0.9)
Production Export/Food Chain Support	High (0.9)	High (0.9)
Groundwater Discharge/ Recharge	Low (0.1)	High (1.0)
Uniqueness	Mod (0.5)	Mod (0.6)
Recreation/Education Potential	Mod (0.7)	High (1.0)
Actual Points/Possible Points	7.8/12	9.6 / 12
% of Possible Score Achieved	65 %	80 %
Overall Category	II	II
Total Acreage of Assessed Wetlands within Easement	137 ac (north and south cells)	138.18 ac (north and south cells)
Functional Units (acreage x actual points)	1069	1327
Net Acreage Gain	NA	1.18 ac
Net Functional Unit Gain	NA	258
Total Functional Unit "Gain"	NA	258

¹ See completed MDT functional assessment forms in Appendix B for further detail
² Baseline assessment was performed by MDT using the Montana Field Evaluation Form (Revised 7/1/96)

4.0 REFERENCES

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Appendix A

FIGURES 2 & 3

MDT Wetland Mitigation Monitoring
Batavia
Kalispell, Montana

FF1.0 EC 0 SP1 v/h.08600 60% dt813.6 ds087 26.9V -59mb ER001

Figure 2 - Monitoring Activity Locations



PROJECT NAME		MDT Batavia Wetland Mitigation	
DRAWING TITLE		Monitoring Activity Locations	
PROJECT NO.	130051.006	DRAWN BY	RA
FILE NAME	TASKBASE.dwg	CHECKED BY	BD
SCALE	1" = 300'	APPROVED BY	BD
LOCATION	Batavia	PROJECT MGR	BD
SHEET NUMBER		2	
REV		DATE	

Figure 3 - Mapped Site Features

LEGEND

Monitoring Area Limits

Wetland Boundary

Vegetation Community Boundary

Net Wetland Area Within Monitoring Limits

Wetland 'A' 0.925 Acres

Wetland 'B' 0.198 Acres

Wetland 'C' 0.966 Acres

Wetland 'D' 3.030 Acres

Vegetation Types:

- ① Agropyron Smithii
- ② Hordeum jubatum/Eleocharis palustris
- ③ Juncus alticus/Phalaris arundinacea
- ④ Scirpus arutus
- ⑤ Agropyron smithii/Potentilla anserina
- ⑥ Ceratophyllum demersum



Scale 1"=300ft



NOT TO SCALE

PROJECT NAME
MDT Batavia Wetland Mitigation

DRAWING TITLE
Mapped Site Features

PROJ NO: 130091.005
FILE NAME: TASK03CASE.dwg
SCALE: 1"= 300ft
LOCATION: Batavia

DRAWN: RA
CHECKED: AMYD
PROJ MGR: BJ

LAND & WATER CONSULTING, INC.
P.O. BOX 8034
Methuen, MA 01844

SHEET NUMBER
3
REV: -
DATE:

Appendix B

**COMPLETED 2001 WETLAND MITIGATION SITE MONITORING
FORM**

COMPLETED 2001 BIRD SURVEY FORMS

COMPLETED 2001 WETLAND DELINEATION FORMS

**COMPLETED 2001 FIELD AND FULL FUNCTIONAL
ASSESSMENT FORMS**

MDT Wetland Mitigation Monitoring

Batavia

Kalispell, Montana



COMMENTS/PROBLEMS:

VEGETATION COMMUNITIES



Community No.: 1 Community Title (main species): mixed grass upland
Cell A

Dominant Species	% Cover	Dominant Species	% Cover
Western Wheatgrass Agropyrum	40-50	SPAGRA	10
Great Basin Wild Rye ELMUN	5-10	CARPRA	3
Prairie June Grass KOECRI	2-3%	PUCNUT	2
Baltic Rush JUNBAL	2-3%	AGRREP	10
Kentucky Bluegrass POPPRA	3-5%		

COMMENTS/PROBLEMS: _____

Community No.: 2 Community Title (main species): HORJUB/ELEPAL

Dominant Species	% Cover	Dominant Species	% Cover
Horchium JUB	60	Typha TYPLAT	trace
Eleocharis moist grass PUCNUT	10-15	Canada Thistle CIRARN	trace
Eleocharis PAL	25-35	Potans Potentilla Ans (S. Veris)	trace
Phalaris ARU	1-2	DESCES	5
Scirpus ACU	5		

COMMENTS/PROBLEMS: _____

Community No.: 3 Community Title (main species): JUNBAL/PHAARU

Dominant Species	% Cover	Dominant Species	% Cover
Bull Thistle CIRVUL	Tr	POTANS	Tr
Musk Thistle CARNUT	Tr		
Phalaris PHAARU	40		
Baltic Rush JUNBAL	50		
Bull Rush SCIACU	trace		

COMMENTS/PROBLEMS: _____

Additional Activities Checklist:

Record and map vegetative communities on air photo

VEGETATION COMMUNITIES

Community No.: 4 Community Title (main species): SCIACU

Dominant Species	% Cover	Dominant Species	% Cover
Polygonum POLAMP	100		
Phalaris PHARU	95-100		
Bulrush SCIACO	5		
Eleocharis ELEPAL	10		
Silverweed POTANS	1-2		

COMMENTS/PROBLEMS: _____

Community No.: 5 Disturbance comm. on island
Community Title (main species): AGRSMI/POTANS disturbed

Dominant Species	% Cover	Dominant Species	% Cover
Silverweed POTANS	25	Bare ground	20
Bridalwreath LAFOR	5	Bull thistle CIRVUL	
Musk thistle CARNUT		Melalotus - on way out	
Western wheatgrass AGRSMI	25	Green fxtail ALO	
Canada Thistle CIRARV	15		

COMMENTS/PROBLEMS: _____

Community No.: 6 Aquatic Veg
Community Title (main species): water

Dominant Species	% Cover	Dominant Species	% Cover
Ceratophyllum demersum	90%		
Potnat	5%		
Sciaku	5%		

COMMENTS/PROBLEMS: _____

Additional Activities Checklist:

☐ Record and map vegetative communities on air photo

COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
POAPRA	1	EPIWAT *	5,4
ELMCIN	1	TAROFF ✓	5,1
ACHMIL	1	GNAPAL ✓	5
* KOECRI	1	POTNAT ✓	6
JUNBAL	1,3	MENARN ✓	5
AGREP	1	CHEALB ✓	5
TRPDUB	1	SISALT ✓	5
HORJUB	1,2,5	DISSTR *	1,5
PHLPRA	1	CYNOFF ✓	5
SMISTE	1	CERDEM ✓	6
ELEPAL	2,4,5	ANTENNARIA SPP. *	1
* PUCNUT	1,2,3	ERILON ✓	2
* SPAGRA	1,2	RUMCRI ✓	2,3
TYPLAT	2	CARPRA ✓	1
AGRSMI	1	MUHASP ✓	2
ASTHES	1	DESCES ✓	3
POTANS	2,4,3	POAJUN ✓	1
PHARU	2,3,4,5	RANCYM ✓	2
SCIACU	2,4,5,6	ELEACI ✓	2
ALIPLA	2	POLMON ✓	2
HIPVUL	2	MONNUT ✓	2
AGRALB	2	JUNCAS ✓	2
CIRVUL	3,4	JUNBUF ✓	3
CARNUT	3,5,1		
* SISANG	3		
JUNNEV	3		
TRIMAR	3,4,2		
CARDIA	3		
POLAMP	4		
CIRARV	5		
LOTOR	5		
MELAB	5		
* STAPAL	5,3		
ALORRA	5,1		
MELOFF	5		

COMMENTS/PROBLEMS: _____

[Handwritten signature]

COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
POAPPA	1	EPIWAT	5, 4
ELYCIN	1	TAROFF	5, 1
ACHMIL	1	GNAPAL	5
KOECRI	1	POTNAT	6
JUNBAL	1, 3	MENARN	5
AGRREP	1	CHEALB	5
TRADUB	1	SISALT	5
HORJUB	1, 2, 5	DISSTR	1, 5
PHLPRA	1	CYNOFF	5
SMISTE	1	CERDEM	6
ELEPAL	2, 4, 5	ANTENNARIA SPP.	1
PUCNUT	1, 2, 3	ERILON	2
SPAGRA	1, 2	RUMCRI	2, 3
TYPLAT	2	CARPRA	1
AGRSMI	1	MUHASP	2
ASTHES	1	DESCES	3
POTANS	2, 4, 3	POAJUN	1
PHAARU	2, 3, 4, 5	RANCYM	2
SCIACU	2, 4, 5, 6	ELEACI	2
ALIPLA	2	POLMON	2
HIPVUL	2	MONNUT	2
AGRALB	2	JUNCAS	2
CIRVUL	3, 4	JUNBUF	3
CARNUT	3, 5, 1		
SISANG	3		
JUNNEV	3		
TRIMAR	3, 4, 2		
CARDIA	3		
POLAMP	4		
CIRARV	5		
LOTCOR	5		
MELALB	5		
STAPAL	5, 3		
ALOPRA	5, 1		
MELOFF	5		

COMMENTS/PROBLEMS: _____

[illegible]

COMMENTS/PROBLEMS: _____

Bird list for Batavia from USFWS

Underlined species have not been observed
This list was originally developed for the Swan River
Wildlife Refuge and has been adapted for Batavia WPA

EXPLANATION OF SYMBOLS:

Seasons:

- S— March-May
S— June-August
F— September-November
W— December-February

Birds nesting on the Refuge are preceded by a •.

Symbols indicating seasonal abundance of each species are as follows:

- c—common should see in suitable habitat.
u—uncommon might see in suitable habitat
o—occasional seen only a few times during a season
r—rare seen at intervals of 2 to 5 years

The following bird list is in accordance with the 5th A.O.U. Check-list as amended. New names are used in all cases.

LOONS

- Common Loon c c u

GREBES

- Red-necked Grebe c c c
• Horned Grebe c c c
• Eared Grebe c c c o
• Western Grebe u c
• Pied-billed Grebe c c

CORMORANTS

- Double-crested Cormorant o

HERONS AND BITTERNS

- Great Blue Heron c c c c
• American Bittern u u o

SWANS, GEESE, DUCKS

- Whistling Swan u f c u
• Canada Goose c c c c
• Snow Goose o o f
• Ross' Goose f f
• Mallard c c c c
• Gadwall c c u
• Pintail c u c o
• Green-winged Teal u u u f
• Blue-winged Teal c c c
• Cinnamon Teal c c u
• American Wigeon c c c

- Northern Shoveler u d u
• Wood Duck c c u
• Redhead u u u o
• Ring-necked Duck u u u o
• Canvasback u u u o
• Lesser Scaup o o o o
• Common Goldeneye c c c c
• Barrow's Goldeneye c u u o
• Bufflehead c c u o
• White-winged Scoter f f
• Harlequin Duck f f
• Ruddy Duck u o
• Hooded Merganser u u
• Common Merganser c c c u
• Red-breasted Merganser f f

EAGLES, HAWKS, AND FALCONS

- Goshawk u u u u
• Sharp-shinned Hawk u u u u
• Red-tailed Hawk u u u
• Swainson's Hawk u
• Rough-legged Hawk c
• Golden Eagle f c c c
• Bald Eagle c c c c
• Marsh Hawk u c
• Osprey c
• Prairie Falcon o o o
• Merlin o f o
• American Kestrel o c o

GROUSE, PHEASANTS

- Blue Grouse o b o o
• Ruffed Grouse c c c c
• Ring-necked Pheasant o o o o

RAILS *HUNGARIAN PARTIALS*

- Sora u c
• American Coot c c c

PLOVERS

- Killdeer c c c

SHOREBIRDS, GULLS, TERNS

- Common Snipe c c o u
• Spotted Sandpiper o c u
• Solitary Sandpiper o f
• Greater Yellowlegs o o
• Lesser Yellowlegs o u
• Least Sandpiper o u
• Long-billed Dowitcher u u
• Marbled Godwit o
• American Avocet o
• Black-necked Stilt o
• Wilson's Phalarope u u
• California Gull o u u
• Ring-billed Gull o c
• Forster's Tern o o o
• Black Tern c c u

DOVES

- Mourning dove o o o

OWLS

- Screech Owl f o f
• Great Horned Owl u o u u
• Pygmy Owl o o o o
• Barred Owl o o u

GOATSUCKERS, SWIFTS, HUMMINGBIRDS

- Common Nighthawk u f
• Vaux's Swift o u o
• White-throated Swift o f
• Rufous Hummingbird u u
• Calliope Hummingbird u u u
• Black-chinned Hummingbird f u u

KINGFISHERS, WOODPECKERS

- Belted Kingfisher o o o o
• Common Flicker u c c u
• Pileated Woodpecker u u o o
• Lewis' Woodpecker o o
• Yellow-bellied Sapsucker u u u
• Hairy Woodpecker u u u f
• Downy Woodpecker u u u f

FLYCATCHERS

- Eastern Kingbird o u o
• Western Kingbird o f u
• Willow Flycatcher c f
• Hammond's Flycatcher u u
• Dusky Flycatcher u u
• Western Flycatcher o u
• Western Wood Pewee u u

LARKS, SWALLOWS

- Horned Lark o o f f
• Violet-green Swallow c c
• Tree Swallow c c
• Rough-winged Swallow c c
• Barn Swallow u c
• Cliff Swallow u u

JAYS, MAGPIES, CROWS

- Gray Jay o o f u
• Steller's Jay f f o f
• Black-billed Magpie c c u
• Common Raven c c c u
• Common Crow c u u
• Clark's Nutcracker f o o

CHICKADEES, NUTHATCHES, CREEPERS

- Black-capped Chickadee c c f c
• Mountain Chickadee u o u o
• Chestnut-backed Chickadee o o u u
• White-breasted Nuthatch u u u u
• Red-breasted Nuthatch u u u u
• Brown Creeper u u o o

	S	S	F	W
DIPPERS				
— Dipper	0	0	U	U
WRENS				
— Winter Wren	0	0	0	0
— Long-billed Marsh Wren	U	C	C	0
MOCKINGBIRDS				
— Gray Catbird	U	U	C	
THRUSHES, BLUEBIRDS				
— American Robin	U	C	C	U
— Varied Thrush	C	C	U	I
— Swainson's Thrush	U	U	U	
— Veery	0	U	0	
— Mountain Bluebird	C	U	0	
— Townsend's Solitaire	0		0	
KINGLETS, PIPITS				
— Golden-crowned Kinglet	U	U	U	U
— Ruby-crowned Kinglet	U	U	U	U
— Water Pipit	U		0	0
WAXWINGS, SHRIKES, STARUNGS				
— Bohemian Waxwing	U		C	
— Cedar Waxwing	U	U	U	
— Northern Shrike	U		U	U
— Starling	C	C	U	
VIREOS, WOOD WARBLERS, WEAVER FINCHES				
— Red-eyed Vireo	U	U		
— Warbling Vireo	0	U		
— Orange-crowned Warbler	U	U	U	
— Nashville Warbler	U	U	U	
— Yellow Warbler	C	C	U	
— Yellow-rumped Warbler	C	C	U	
— Townsend's Warbler	0	C	U	
— Northern Waterthrush	0	C	U	
— MacGillivray's Warbler	0	U	U	
— Common Yellowthroat	U	U	U	
— Wilson's Warbler	0	U	0	
— American Redstart	0	U	U	
— House Sparrow	0	0		
BLACKBIRDS AND ORIOLES				
— Bobolink	U	U		
— Western Meadowlark	U	U	U	
— Yellow-headed Blackbird	C	C	U	
— Red-winged Blackbird	C	C	U	
— Brewer's Blackbird	U	C		
— Brown-headed Cowbird	U	C		
TANAGERS				
— Western Tanager	0	0		
GROSBEAKS, SPARROWS, AND FINCHES				
— Black-headed Grosbeak	U	U		
— Lazuli Bunting	0	U		
— Evening Grosbeak	0	U	U	U
— Cassin's Finch	0	U	0	0

	S	S	F	W
— House Finch	0			
— Gray-crowned Rosy Finch	0			
— Common Redpoll				U
— Pine Siskin	C	C	C	U
— American Goldfinch	0	0	U	0
— Red Crossbill	U	U	U	U
— White-winged Crossbill				0
— Rufous-sided Towhee	U	0	0	
— Savannah Sparrow	U	U	U	
— Grasshopper Sparrow	U	0	U	
— Vesper Sparrow	U	C	U	
— Lark Sparrow	0			
— Dark-eyed Junco	C	C	C	C
— Tree Sparrow				0
— Chipping Sparrow	0	U	U	
— Harris Sparrow				U
— White-crowned Sparrow	U	U	0	0
— Fox Sparrow	0	0	0	
— Song Sparrow	C	C	U	U
— Snow Bunting				U

PLEASE NOTE:

We would appreciate your help if you observe birds that are listed as rare to the Swan River National Wildlife Refuge or if you notice unusual concentrations or activities of birds on the Refuge. Please report the following information by letter or telephone to the Refuge Manager:

Your name, address _____

date, weather, exact location _____

species, number of birds _____

distinguishing features and/or _____

activities _____

PHOTOGRAPHS

Using a camera with a 50 mm lenses and color film take photographs of the following permanent reference points listed in the checklist below. Record the direction of the photograph using a compass. (The first time at each site establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3' above ground, survey the location with a resource grade GPS and mark the location on the air photo.)

Checklist:

- _____ One photo for each of the 4 cardinal directions surrounding wetland
- _____ At least one photo showing upland use surrounding wetland – if more than one upland use exists take additional photos
- _____ At least one photo showing buffer surrounding wetland

Location	Photo Frame #	Photograph Description	Compass Reading
A		see next page	
B			
C			
D			
E			
F			
G			
H			

COMMENTS/PROBLEMS: _____

GPS SURVEYING

Using a resource grade GPS survey the items on the checklist below. Collect at least 3 location points with the GPS unit set at 5 second recording rate. Record file numbers fore site in designated GPS field notebook

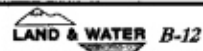
Checklist:

- _____ Jurisdictional wetland boundary
- _____ 4-6 landmarks recognizable on the air photo
- _____ Start and end points of vegetation transect(s)
- _____ Photo reference points
- _____ Groundwater monitoring well locations

COMMENTS/PROBLEMS: _____

PROJECT #: 130091.006

NAME: Photo Points



TITLE: Batavia

DATE: 8-25-01

Batavia

Photographs

#2 Roll 1/23

~~#1~~ Ridgetop Roll 1/24 - looking North
 (#11) 1/25 looking South
 2/1 looking South
 2/2 looking East
 2/3 looking West

#3 ~~R~~ 2/9 - looking NW
 2/10 SE

Veg transect - ^{along transect}
 South end - 2/5 + 2/6

North end 2/7 + 2/8 - toward H2O

#4 2/11 NE on dike road
 2/12 SW

#5 2/13 NE

#6 2/14
 2/15

#7 2/16 45° ~~SW~~
 2/17 NE

#8 2/18 E

#10 2/19 W
 2/20 E

#8 2/21 NE
 2/22 SW



LAND & WATER CONSULTING, INC.

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E-mail: moble@landandwater.net • Fax (406) 257-7205

WETLAND DELINEATION

At each site conduct the items on the checklist below:

- ☒ Delineate wetlands according to the 1987 Army Corps manual.
- ☒ Delineate wetland-upland boundary on the air photo
- ☒ Survey wetland-upland boundary with a resource grade GPS survey

COMMENTS/PROBLEMS: _____

FUNCTIONAL ASSESSMENT

Collect information to complete MDT Function and Values Assessment in the office.

COMMENTS/PROBLEMS: _____

MAINTENANCE

Were man-made nesting structures installed at this site? YES ☒ NO _____

If yes, do they need to be repaired? YES _____ NO ☒

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

Were man-made structures build or installed to impound water or control water flow into or out of the wetland?

YES ☒ NO _____

If yes, are the structures working properly and in good working order? YES ☒ NO _____

If no, describe the problems below.

COMMENTS/PROBLEMS: _____

Draft Field Data Collection Sheet for MDT Montana Wetland Assessment Form

1. CLASSIFICATION

Cowardin Class	Estimated % of AA	Predominant Water Regime (CIRCLE)						
Emergent		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Aquatic Bed		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Moss-Lichen		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Scrub-Shrub		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Forested		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Unconsolidated Bottom		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Other:		Perm Flood	Int Exp	Sem Perm Flood	Seas Flood	Sat	Tem Flood	Int Flood
Total Estimated % Vegetated								

2. DISTURBANCE is: High Moderate Low

3. HYDROLOGY: Do wetlands on site pond or flood? Y N (if no, skip to groundwater discharge/recharge portion of this section)

Does AA contain surface or subsurface outlet? Y N If outlet presents, is it restricted (subsurface will always be "yes") Y N

Longest duration of surface water:		Surface Water Duration and other attributes (circle)		
at any wetlands with AA		<u>Perm</u> / Peren	Seas / Entermitt	Temp / Ephem
in at least 10% of AA (both wetlands and nonwetlands [deepwater, streambed...])		<u>Perm</u> / Peren	Seas / Entermitt	Temp / Ephem
Where fish are or historically were present (cross out if not applicable)		<u>Perm</u> / Peren	Seas / Entermitt	Temp / Ephem
% of waterbody containing cover objects	>25%	10-25%	<10%	
% bank or shore with riparian or wetland shrub or forested communities	>75%	50-74%	<50%	
adjacent to rooted wetland vegetation along a defined watercourse or shoreline subject to wave action (cross out if not applicable)		Perm / Peren	Seas / Entermitt	Temp / Ephem
% cover of wetland bank or shore by sp. with binding rootmasses	>65%	35-64%	<35%	

Flood Attenuation: Do any wetlands on site flood as a result of in-channel or overbank flow? Y N (if no, go to groundwater section below)

Estimated wetland area subject to periodic flooding (acres): ≥ 10 2-10 <2
Estimated % of flooded wetland classified SS, FO or both: ≥ 75 25-74 <25

Evidence of groundwater discharge or recharge? Y N List: No obvious surface-water input

4. VERTEBRATES

Habitat for listed or proposed threatened, Endangered, or Montana Natural Heritage Program S1, S2, or S3 Plants or Animals:

AA is Documented (D) or Suspected (S) t contain (circle one based on definitions contained in instructions):

Primary or critical habitat (list species) D S _____
Secondary habitat (list species) D S _____
Incidental habitat (list species) D S _____
No usable habitat D S _____

(For general wildlife use, see separate form.)

Fish observations? No

5. OTHERS

Do wetlands have potential to receive excess sediments, nutrients, or toxicants? Y N From: _____
Potential to receive: low to moderate levels high levels

Does site contain bog, fen, warm springs, >80 year-old forested wetlands, or MNHP "S1" or "S2" plant association? Y N
List: _____

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Batavia Cell A Date: 7/12/01 Examiner: JA, GH Transect # 1

Approx. transect length: 320 ft Compass Direction from Start (Upland): _____

Vegetation type 1:		UPLAND	
Length of transect in this type:		68	feet
Species:			Cover:
AGRREP			5
HORJUB			+
DISSTR			+
CARNUT			+
ACHMIL			+
PUCNUT			+
AGRSMI			+
CARPRA			+
Total Vegetative Cover:			

Vegetation type 2: HORJUB/ELEPAL			
Length of transect in this type:		171	feet
Species:	Cover:		
HORJUB	5	ALIPAL	+
PUCNUT	3	DESCES	+
ARGALB	+	CARNUT	+
PHAARU	1	POTANS	+
DISSTR	1	TRIMAR	+
ERILON	+		
RUMCRI	+		
AGRSMI	+		
Melilotus spp.	+		
ELEPAL	3		
JUNBAL	+		
Total Vegetative Cover:			

Vegetation type 3: ELEPAL			
Length of transect in this type:		69	feet
Species:	Cover:	Species:	Cover:
HORJUB	+	ELEACI	2
ELEPAL	5		
SCIACU	+		
PHAARU	+		
TRIMAR	+		
POLMON	+		
HIPVUL	+		
JUNNEV	+		
MONNUT	+		
CIRARV	+		
RANCYM	+		
Total Vegetative Cover:			

Vegetation type 4:		WATER	
Length of transect in this type:		10	feet
Species:			Cover:
CERDEM			5
SCIACU			+
ELEPAL			1
POTNAT			+
Total Vegetative Cover:			

MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form)

Cover Estimate

+= <1%	3 = 11-20%
1 = 1-5%	4 = 21-50%
2 = 6-10%	5 = >50%

Indicator Class:

+ = Obligate
- = Facultative/Wet
0 = Facultative

Source:

P = Planted
V = Volunteer

Percent of perimeter _____ % developing wetland vegetation -- excluding dam/berm structures.

Establish transects perpendicular to the shoreline (or saturated perimeter). The transect should begin in the upland area. Permanently mark this location with a standard metal fencepost. Extend the imaginary transect line towards the center of the wetland, ending at the 3 foot depth (in open water), or at a point where water depths or saturation are maximized. Mark this location with another metal fencepost.

Estimate cover within a 10 ft wide "belt" along the transect length. At a minimum, establish a transect at the windward and leeward sides of the wetland. Remember that the purpose of this sampling is to monitor, not inventory, representative portions of the wetland site.

Notes:

[illegible]

DATA FORM **ROUTINE WETLAND DETERMINATION** (1987 COE Wetlands Delineation Manual)

Project/Site: <u>BATAVIA WETLAND</u> Applicant/Owner: <u>MOT</u> Investigator: <u>BO / AK / JA / GH</u>	Date: <u>7</u> County: <u>FLATHEAD</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the area a potential Problem Area?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Community ID: <u>1</u> Transect ID: <u>1</u> Plot ID: <u>1</u>

VEGETATION

#	Dominant Plant Species	Stratum	Indicator	#	Dominant Plant Species	Stratum	Indicator
1	AGR REP	H	FAC-	9			
2	HORJUB	H	FAC	10			
3	AGRSMI	H	FACW	11			
4	DYCSTR	H	FAC+	12			
5	(Mystery grass)	H		13			
6				14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 25%

Remarks: Dominated by upland veg, no wetland indicators

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>20 0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>24</u> (in.)</p> <p>Depth to Saturated Soil: <u>24</u> (in.)</p>	
<p>Remarks: <u>No hydrology indicators</u></p>	

SOILS

Map Unit Name (Series and Phase): _____			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations _____		
			Confirm Mapped Type? <input type="checkbox"/> Yes <input type="checkbox"/> No		

Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-11	A	10YR 3/2	none		silt loam
11-17	B	10YR 7/1	none		silty clay loam

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
--	--

Remarks:

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Batavia</u> Applicant/Owner: _____ Investigator: <u>BD, AK, JA, GH</u>	Date: <u>7-12-01</u> County: <u>Flathead</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: _____ Yes _____ No Is the site significantly disturbed (Atypical Situation)? _____ Yes _____ No Is the area a potential Problem Area?: _____ Yes _____ No (If needed, explain on reverse.)	Community ID: <u>2</u> Transect ID: <u>1</u> Plot ID: <u>2</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 <u>Hortia</u> <u>HORTUB</u> <u>H</u>		<u>FAC</u>	9		
2 <u>Eleocharis</u> <u>ELEPAH</u> <u>H</u>		<u>OBL</u>	10		
3 <u>DESCES</u> <u>H</u>		<u>FACW</u>	11		
4 <u>succulent</u> <u>TRIMAR</u> <u>H</u>		<u>OBL</u>	12		
5 <u>Bulrush</u> <u>SCIACU</u> <u>H</u>		<u>OBL</u>	13		
6 <u>CERDEM</u> <u>H</u>		<u>OBL</u>	14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>_____ Stream, Lake, or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><u>X</u> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 Inches</p> <p><u>X</u> Water Marks</p> <p><u>X</u> Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>_____ Oxidized Root Channels in Upper 12 Inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p><u>X</u> FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>0</u> (in.)</p> <p>Depth to Free Water in Pit: <u>718</u> (in.)</p> <p>Depth to Saturated Soil: <u>718</u> (in.)</p>	
<p>Remarks: <u>Gravel is mud cracked, & CERDEM(?) is present, but designated</u></p>	

SOILS

Map Unit Name (Series and Phase): _____		Drainage Class: _____	
Taxonomy (Subgroup): _____		Field Observations _____	
		Confirm Mapped Type? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	10YR 3/1			silt loam
2-18	B	10YR 6/1	10YR 6/6	Many, highly contrasting	silty clay loam

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input checked="" type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks: Marginal to hydric soil. → No clear gleying	Uppermost surface appears to be due to recent sedimentation
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WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

Remarks: Wetland is marginal and shows signs of development.
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DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>Batavia</u> Applicant/Owner: _____ Investigator: <u>BD, AK, JA, GH</u>	Date: <u>7-12-01</u> County: <u>Flathead</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the area a potential Problem Area?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Community ID: <u>2A</u> Transect ID: <u>1</u> Plot ID: <u>263</u>

VEGETATION

#	Dominant Plant Species	Stratum	Indicator	#	Dominant Plant Species	Stratum	Indicator
1	<u>Eleocharis palustris</u>	<u>F</u>	<u>Obl</u>	9			
2	<u>Bulrush</u>	<u>F</u>	<u>FAW+</u>	10			
3	<u>Hardstem juncus</u>	<u>F</u>	<u>FAC</u>	11			
4	<u>Mari's Tail</u>	<u>F</u>	<u>OBL</u>	12			
5	<u>MASS? - CERDEM</u>	<u>F</u>	<u>OBL</u>	13			
6				14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 100%

Remarks:

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>_____ Stream, Lake, or Tide Gauge</p> <p>_____ Aerial Photographs</p> <p>_____ Other</p> <p><input checked="" type="checkbox"/> No Recorded Data Available</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>_____ Inundated</p> <p>_____ Saturated in Upper 12 Inches</p> <p><input checked="" type="checkbox"/> Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p>_____ Sediment Deposits</p> <p>_____ Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>_____ Oxidized Root Channels in Upper 12 Inches</p> <p>_____ Water-Stained Leaves</p> <p>_____ Local Soil Survey Data</p> <p>_____ FAC-Neutral Test</p> <p>_____ Other (Explain in Remarks)</p>
<p>Field Observations:</p> <p>Depth of Surface Water: <u>718</u> (in.)</p> <p>Depth to Free Water in Pit: <u>0</u> (in.)</p> <p>Depth to Saturated Soil: <u>718</u> (in.)</p>	
<p>Remarks: - mud cracks observed on surface</p>	

SOILS

Map Unit Name (Series and Phase): _____			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type? <input type="checkbox"/> Yes <input type="checkbox"/> No		

Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-11	A	10YR 2/1			Silty loam, surface is mixed w/ less humic soil
11-13	B	10YR 7/1	2.5YR 5/6	many, highly contrasting	Silty clay loam

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks: Pockets of higher chroma soil 10YR 3/2. Remnant of
~~upland soil~~ upland soil

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	
Hydric Soils Present?	<input checked="" type="checkbox"/>	Yes	<input type="checkbox"/>	No	

Remarks:

MDT Montana Wetland Assessment Form (revised 5/25/1999)

1. Project Name: Batavia Wetland Production Area 2. Project #: 130091.006 Control #: —3. Evaluation Date: Mo. 7 Day 12 Yr. 91 4. Evaluator(s): BD, AK, SA, GH 5. Wetlands/Site #(s) Batavia A6. Wetland Location(s): I. Legal: T 24N or S; R 22E or W; S 20, 21; T — N or S; R — E or W; S —; II. Approx. Stationing or Mileposts: —III. Watershed: — GPS Reference No. (if applies): —Other Location Information: Smith Valley, 5 mi SW of Kalispell7. a. Evaluating Agency: LWC 8. Wetland size: (total acres) 138.18 (visually estimated)b. Purpose of Evaluation: — (measured, e.g. by GPS [if applies])1. — Wetlands potentially affected by MDT project2. — Mitigation wetlands; pre-construction3. X Mitigation wetlands; post-construction4. — Other9. Assessment area: (AA, tot., ac., — (visually estimated)see instructions on determining AA) — (measured, e.g. by GPS [if applies])

10. Classification of Wetland and Aquatic Habitats in AA (HGM according to Brinson, first col.; USFWS according to Cowardin [1979], remaining cols.)

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Riverine	Palustrine	N/A	EM	H		25
"	"	N/A	EM	F	E	50
"	"	N/A	SS	F		20
"	"	N/A	AB	A		5

(Abbreviations: System: Palustrine (P) Subsystem: none/ 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) System: Lacustrine (L), Subsystem: Limnetic (2) Classes: RB, UB, AB/ Subsystem: Littoral (4) Classes: RB, UB, AB, US, EM/ System: Riverine (R) Subsystem: Lower Perennial (2) Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3) Classes: RB, UB, AB, US/ Water Regimes: Permanently Flooded (H), Intermittently Flooded (F), Seasonally Flooded (C), Saturated (B), Temporarily Flooded (A), Intermittently Flooded (J) Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A) HGM Classes: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)

(Circle one) Unknown Rare Common Abundant

Comments: Common

12. General condition of AA:

I. Regarding disturbance: (use matrix below to determine [circle] appropriate response)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Land managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings.	Land not cultivated, but moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but 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.	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.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Site is relatively undisturbedII. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) musk thistleIII. Provide brief descriptive summary of AA and surrounding land use/habitat: AA is within a wetland production area and is closed to public use much of the year.

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

# of "Cowardin" vegetated classes present in AA (see #10)	≥ 3 vegetated classes (or ≥ 2 if one is forested)	2 vegetated classes (or 1 if forested)	≤ 1 vegetated class
Rating (circle)	High	Moderate	Low

Comments: —

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) D S _____
 Secondary habitat (list species) D S _____
 Incidental habitat (list species) D S Swainson's hawk, Bald eagle
 No usable habitat D S _____

II. Rating (use the conclusions from I above and the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

Highest Habitat Level	doc./primary	sus./primary	doc./secondary	sus./secondary	doc./incidental	sus./incidental	None
Functional Points and Rating	1 (H)	.9 (H)	.8 (M)	.7 (M)	.5 (L)	<u>.3 (L)</u>	0 (L)

Sources for documented use (e.g. observations, records, etc.):

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

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

Primary or critical habitat (list species) D S black tern, forsters tern, screech owl
 Secondary habitat (list species) D S hunting
 Incidental habitat (list species) D S _____
 No usable habitat D S _____

II. Rating (use the conclusions from I above and the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function)

Highest Habitat Level	doc./primary	sus./primary	doc./secondary	sus./secondary	doc./incidental	sus./incidental	None
Functional Points and Rating	<u>1 (H)</u>	.8 (H)	.7 (M)	.6 (M)	.2 (L)	.1 (L)	0 (L)

Sources for documented use (e.g. observations, records, etc.):

USFWS records (Ray Washlat)

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

Low (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 exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from #13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms].)

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
	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
Class cover distribution (all vegetated classes)																				
Duration of surface water in ≥ 10% of AA																				
Low disturbance at AA (see #12i)	E	E	E	H	<u>E</u>	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 [E = exceptional, H = high, M = moderate, or L = low] for this function)

Evidence of wildlife use (i)	Wildlife habitat features rating (ii)			
	Exceptional	High	Moderate	Low
Substantial	<u>1 (E)</u>	.9 (H)	.8 (H)	.7 (M)
Moderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)

Comments:

14D. General Fish/Aquatic 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 or was not historically used by fish due to lack of habitat, excessive gradient, etc., circle NA here and proceed to the next function. If fish use occurs in the AA but is not desired from a resource management perspective [such as fish use within an irrigation canal], then Habitat Quality [i below] should be marked as "Low", applied accordingly in ii below, and noted in the comments.)

i. **Habitat Quality** (circle appropriate AA attributes in matrix to arrive at exceptional (E), high (H), moderate (M), or low (L) quality rating.)

Duration of surface water in AA	Permanent / Perennial			Seasonal / Intermittent			Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation, etc.	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline within AA contains riparian or wetland scrub-shrub or forested communities	E	E	H	H	H	M	M	M	M
Shading - 50 to 75% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	H	H	M	M	M	M	M	L	L
Shading - < 50% of streambank or shoreline within AA contains rip. or wetland scrub-shrub or forested communities	H	M	M	M	L	L	L	L	L

ii. **Modified Habitat Quality** (Circle the appropriate response to the following question. If answer is Y, then reduce rating in i above by one level [E = H, H = M, M = L, L = NA]). Is fish use of the AA precluded or significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support? **Y** N Modified habitat quality rating = (circle) E H M **L**

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function)

Types of fish known or suspected within AA	Modified Habitat Quality (ii)			
	Exceptional	High	Moderate	Low
Native game fish	1 (E)	.9 (H)	.7 (M)	.5 (M)
Introduced game fish	.9 (H)	.8 (H)	.6 (M)	.4 (M)
Non-game fish	.7 (M)	.6 (M)	.5 (M)	.3 (L)
No fish	.5 (M)	.3 (L)	.2 (L)	.1 (L)

Comments: Info. based on previous (preconstruction) EA. The Ashley Creek reach near the WPA supports primarily introduced nongame sp. The WPA cells were not designed to support fish.

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, circle NA here and proceed to next function.)

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] for this function)

Estimated wetland area in AA subject to periodic flooding	≥ 10 acres			<10, ≥2 acres			<2 acres		
% of flooded wetland classified as forested, scrub/shrub, or both	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1(H)	.9(H)	.6(M)	.8(H)	.7(H)	.5(M)	.4(M)	.3(L)	.2(L)
AA contains unrestricted outlet	.9(H)	.8(H)	.5(M)	.7(H)	.6(M)	.4(M)	.3(L)	.2(L)	.1(L)

ii. Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA (circle)? **Y** N

Comments: Homes downstream

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, circle NA here and proceed with the evaluation.)

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] for this function. 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			<5, ≥1 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	1(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	.3(L)	.2(L)
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)

Comments: Site has received less water than planned. Assuming normal precip conditions

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive excess 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, circle NA here and proceed with the evaluation.)

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] for this function.)

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds 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 or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Comments: Ashley Creek is on MDEQ List, but most of WPA does not experience high nutrient/sediment load due to diversion.

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 does not apply, circle NA here and proceed to next function)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [E = exceptional, H = high, M = moderate, or L = low] for this function.

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses	Duration of surface water adjacent to rooted vegetation		
	permanent / perennial	seasonal / intermittent	Temporary / ephemeral
≥ 65%	1 (H)	.9 (H)	.7 (M)
35-64%	.7 (M)	.6 (M)	.5 (M)
< 35%	.3 (L)	.2 (L)	.1 (L)

Comments:

14I. Production Export/Food Chain Support:

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] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; 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 = permanent/perennial; S/I = seasonal/intermittent; T/E/A = temporary/ephemeral or 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	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.5M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L

Comments:

14J. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)

I. Discharge Indicators

- ☐ Springs are known or observed
☒ Vegetation growing during dormant season/drought
☐ Wetland occurs at the toe of a natural slope
☒ Seeps are present at the wetland edge
☐ AA permanently flooded during drought periods
☐ Wetland contains an outlet, but no inlet
☐ Other

II. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
☒ Wetland contains inlet but no outlet
☐ Other

III. Rating: Use the information from i and ii above and the table below to arrive at [circle] the functional points and rating [H = high, L = low] for this function.

Criteria	Functional Points and Rating
AA is known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments: Groundwater recharge occurs in the two cells

14K. Uniqueness:

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] for this function.

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			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)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

Comments:

14L. Recreation/Education Potential: I. Is the AA a known rec./ed. site: (circle) Y N (If yes, rate as [circle] High [1] and go to ii; if no go to iii)

II. Check categories that apply to the AA: ☒ Educational/scientific study; ☐ Consumptive rec.; ☐ Non-consumptive rec.; ☐ Other

III. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Y N

(If yes, go to ii, then proceed to iv, if no, then rate as [circle] Low [0.1])

IV. Rating (use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function.

Ownership	Disturbance at AA (#12i)		
	low	moderate	high
public ownership	1 (H)	.5 (M)	.2 (L)
private ownership	.7 (M)	.3 (L)	.1 (L)

Comments:

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	.3	1	
B. MT Natural Heritage Program Species Habitat	H	1	1	
C. General Wildlife Habitat	E	1	1	
D. General Fish/Aquatic Habitat	L	.3	1	
E. Flood Attenuation	M	.6	1	
F. Short and Long Term Surface Water Storage	H	1	1	
G. Sediment/Nutrient/Toxicant Removal	H	1	1	
H. Sediment/Shoreline Stabilization	H	.9	1	
I. Production Export/Food Chain Support	H	.9	1	
J. Groundwater Discharge/Recharge	H	1	1	
K. Uniqueness	M	.6	1	
L. Recreation/Education Potential	H	1	1	
Totals:		9.6	12	$9.6 \times 138.18 = 1327 \text{ FU}$

80%.

 OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below) I **II** III IV

Category I Wetland: (Must satisfy one of the following criteria; If does not meet criteria, 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
- ☐ Total actual functional points > 80% (round to nearest whole #) of total possible functional points.

Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following criteria; if not satisfied, go to Category IV)

- ☒ Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or
- ☒ Score of .9 or 1 functional point for General Wildlife Habitat; or
- ☐ Score of .9 or 1 functional point for General Fish/Aquatic 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
- ☒ Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.

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; if does not satisfy criteria go to Category III)

- ☐ "Low" rating for Uniqueness; and
- ☐ "Low" rating for Production Export/Food Chain Support; and
- ☐ Total actual functional points < 30% (round to nearest whole #) of total possible functional points

Appendix C

REPRESENTATIVE PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Batavia
Kalispell, Montana



Photo Point No. 1: View looking southwest



Photo Point No. 2: View looking southwest



Photo Point No. 3: View looking southwest into Cell A.



Photo Point No. 4: View looking northeast into Cell A. The vegetation transect was conducted in the foreground.



Photo Point No. 5: View looking northeast between Cell A and Cell B.



Photo Point No. 6: View looking northeast into Cell B.



Photo Point No. 7: View looking southwest toward a depression present in Cell B.



Photo Point No. 9: View looking east into Cell C.



Photo Point No. 10: View looking west into Cell C.



Vegetation Transect: North (wetland) end looking away from transect



Vegetation Transect: North (wetland) end looking along transect.



Vegetation Transect: South (upland) end looking along transect.

Appendix D

CONCEPTUAL SITE LAYOUT COMPLETED PRE-PROJECT FUNCTIONAL ASSESSMENT FORMS

*MDT Wetland Mitigation Monitoring
Batavia
Kalispell, Montana*



BATAVIA WPA

WETLANDS

MITIGATION SITE

Sample Locations

- DRY
- WET

Wetland Boundary

- GPS Points

SCALE 1" = 350'
1:4200



14. Brief descriptive summary of AA and surrounding land use and habitat: *Batavia WPA provides excellent wetland habitat for numerous plant + animal species. Emergent wetlands of Carex, Scirpus + Typha dominate w/ large areas of Phalaris and some shrub/scrub. Ashley Creek flows through AA*

15. Functions and Values Assessment

15.a) Habitat for Federally Listed, Proposed, or Candidate Threatened or Endangered Plants or Animals
AA is documented or suspected (circle D or S) to receive:
 D S Regular use or is designated critical habitat (list species):
 D S Occasional (infrequent, sporadic) use (list species):
 D S Incidental (chance, inconsequential) use (list species):
 D S No use

Source(s) for documented use (e.g., observation, records, etc.):
 Comments:

Highest Level Use:	Rating	Functional Points
doc/reg	High	1
doc/occ	High	.9
sus/reg	Mod	.8
sus/occ	Mod	.7
doc/incid	Low	.5
sus/incid	Low	<u>.3</u>
none	None	0

15.b) Habitat for Plants or Animals Rated S1, S2, or S3 by the Montana Natural Heritage Program
 (Not including species listed in 15.a) above.)
AA is documented or suspected (circle D or S) to receive:
 D S Regular use (list species):
 D S Occasional (infrequent, sporadic) use (list species):
 D S Incidental (chance, inconsequential) use (list species):
 D S No use

Source(s) for documented use (e.g., observation, records, etc.):
 Comments:
The project area contains suitable habitat for sensitive plant + animal species although none have been documented

Highest Level Use:	Rating	Functional Points
doc/reg	High	1
doc/occ	High	.8
sus/reg	Mod	.7
sus/occ	Mod	.6
doc/incid	Low	.2
sus/incid	Low	<u>.1</u>
none	None	0

15.c) General Wildlife Habitat

AA is known or suspected (circle K or S) to receive (fill in blank) substantial (s), moderate (m), or little to no (l) use (see definitions for these terms) by the listed wildlife groups (see definitions for aquatic/semi-aquatic and non-aquatic wildlife)

- (K) S S Aquatic/semi-aquatic birds (list examples): waterfowl, terns, snipe.
 (K) S M Non-aquatic birds (list examples): Hawks, owls
 (K) S S Aquatic/semi-aquatic mammals (list examples): muskrat, beaver
 (K) S M Non-aquatic mammals (list examples): W-T deer, skunks, coyotes
 (K) S M Aquatic/semi-aquatic reptiles (list examples): Garter snakes
 (K) S M Non-aquatic reptiles (list examples):
 (K) S M Amphibians (list examples):
 (K) S M Invertebrates (list examples):

i. Assessed wildlife use (circle points):

- ≥ 3 s's or ≥ 5 m's + s's = 7 points
 1-2 s's or 2-4 m's = 3 points
 No s's and < 2 m's = 1 point

ii. Habitat diversity from #13 (circle points)

- High to exceptional rating = 3 points
 Moderate rating = 2 points
 Low rating = 1 point

Comments: Although no amphibians were seen during survey - the AA likely supports several frog species and other aquatic amphibians & reptiles

Score	Rating	Functional Points
21	High	<u>1</u>
14	High	.9
7	High	.8
9	High	.7
6	Mod	.5
3	Mod	.4
2	Low	.3
1	Low	.1

Score is (i) x (ii) = 21

15.d) General Fish Habitat (If AA does not contain or is not surficially connected to a fish-bearing stream or standing water body [e.g., pond or lake], circle NA here and proceed to next function)

i. AA is known or suspected (circle K or S) to support listed groups for portion of their life cycle (circle points)

- (K) S Native fish = 5 points
 (K) S Introduced game fish = 3 points
 (K) S Introduced non-game fish = 2 points
 K S No fish = 1 point

ii. Surface water in AA is (circle points):

- Permanent/perennial = 3 points
 Seasonal/intermittent = 2 points
 Temporary/ephemeral = 1 point

Comments: Ashley Creek supports native fish in upper reaches but supports mainly non-game species in the vicinity of Babovia
 ex. longnose & largescale suckers, reidside shiner, northern squawfish

Score	Rating	Functional Points
15	High	1
10	High	.9
9	High	.8
6	Mod	<u>.7</u>
5	Mod	.6
3,4	Mod	.5
2	Low	.2
1	Low	.1

Score is (i) x (ii) = 6

15.e) Flood Attenuation and Storage (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in the AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function. See 15.i) Dynamic Surface Water Storage for wetlands that flood, but not from in-channel or overbank flow.)

i. Estimated acreage of jurisdictional wetland in the AA that is subject to periodic flooding (circle points):

- Flooded wetlands ≥ 10 acres = 7 points
 10 acres > Flooded wetlands > 2 acres = 5 points
 Flooded wetlands ≤ 2 acres = 1 point

ii. Estimated % of flooded wetland area classified as forested (fo), scrub-shrub (ss), or both (circle points):

- > 75% fo/ss = 3 points
 25-75% fo/ss = 2 points
 < 25% fo/ss = 1 point

- iii. AA contains no outlet or restricted outlet = 1 point
 AA contains unrestricted outlet = 0 points

iv. Are residences, businesses, or other features which may be damaged by floods located within 0.5 miles downstream of AA? YES If so, list here: homes

Comments: The massive size of this wetland allows it to store a large amount of water - score should be higher in my opinion
 Score is [(i) x (ii)] + (iii) = 7

Score	Rating	Functional Points
22	High	1
16, 21	High	.9
14, 15	High	.8
11	High	.7
8, 10	Mod	.6
6, 7	Mod	<u>.5</u>
5, 4	Mod	.4
3	Low	.3
2	Low	.2
1	Low	.1

15.f) Sediment/Nutrient/Toxicant Retention and Removal

Circle true (T) or false (F) for each of the following statements:

- i. T F AA receives direct discharge of managed water (municipal or road stormwater drainage, agricultural drainage, industrial/municipal wastewater) or accumulation of sediment/excess nutrients evident (deposits on vegetation, algal mats or other signs of eutrophication present) or immediate upstream land use has potential to deliver significant sediment/nutrient loads to AA.
 ii. T F Evidence of flooding or ponding occurs in AA.
 iii. T F AA contains restricted outlet or no outlet such that flow is slowed or detained.
 iv. T F Percent cover or emergent and/or dense woody vegetation in the AA exceeds 50%.

- (i) is true and at least two of (ii), (iii), or (iv) are true = High rating
 Rating is neither High or Low = Moderate rating
 (i) is false and at least two of (ii), (iii), or (iv) are false = Low rating

Comments: water is diverted from Ashley Creek into adjacent wetland habitat

Score	Rating	Functional Points
NA	High	<u>1</u>
NA	Mod	.5
NA	Low	.1

15.g) Sediment/Shoreline Stabilization (applies only if AA occurs on or within the banks of a river, stream, or other natural or manmade drainage, or on the shoreline of a standing water body which has a maximum depth exceeding 6.6 feet at low water (e.g., subject to wave action). If does not apply, circle NA here and proceed to next function.

i. Estimated % cover of rooted vegetated component in AA (circle points):

> 30% rooted vegetation = 3 points
10-30% rooted vegetation = 2 points
< 10% rooted vegetation = 1 point

ii. Water body adjacent to rooted vegetation is (circle points):

Permanent/perennial = 5 points
Seasonal/intermittent = 3 points
Temporary/ephemeral = 2 points

Comments:

Score is (i) x (ii) = 15

Score	Rating	Functional Points
15	High	.9
9	High	.9
10	High	.8
6	Mod	.7
4	Mod	.5
5	Mod	.4
3	Low	.2
2	Low	.1

15.h) Production Export/Food Chain Support

i. Acreage of vegetated component in AA (circle points):

> 5 acres = 10 points
1-5 acres = 5 points
< 1 acre = 1 point

ii. Habitat diversity rating (from #13: circle points):

High - Exceptional = 3 points
Moderate = 2 points
Low = 1 point

iii. Outlet presence (circle points):

AA contains an outlet = 3 points
AA contains no outlet = 1 point

iv. Surface water in AA is (circle points):

Permanent/perennial = 3 points
Seasonal/intermittent = 2 points
Temporary/ephemeral or absent = 1 point

Comments:

Score is [(i) x (ii)] + [(iii) x (iv)] = 36

Score	Rating	Functional Points
39	High	1
21-36	High	.9
16-19	High	.8
10-14	Mod	.7
8-9	Mod	.6
7	Mod	.5
5,6	Low	.4
4	Low	.3
3	Low	.2
2	Low	.1

15.i) Groundwater Discharge/Recharge

i. Check the discharge indicators listed below that apply to the AA:

____ Springs are known or observed in the AA. ____ Seeps are present at the wetland edge.
____ Vegetation is growing during dormant season or drought. ____ AA permanently flooded during drought periods.
☒ Wetland occurs at the toe of a natural slope. ____ Wetland contains an outlet, but no inlet.
____ Other:

ii. Check the recharge indicators listed below that apply to the AA:

____ Permeable substrate present without underlying impeding layer.
____ Wetland contains inlet, but no outlet.
____ Other:

AA is known discharge or recharge area or one

or more indicators of discharge or recharge present =

No discharge or recharge indicators present =

Available information pertaining to AA is

inadequate to judge discharge/recharge potential =

High rating

Low rating

Unknown

Comments:

Score	Rating	Functional Points
NA	High	1
NA	Low	.1
NA	Unkn	NA

15.j) Uniqueness

i. Estimated relative abundance of similarly classified sites within the

Major Watershed Basin (#11: circle points):

Rare = 3 points
Common = 2 points
Abundant = 1 point

ii. Replacement potential/habitat diversity (#12: circle points):

AA is/contains bog, fen, warm springs or mature (>80 years) forested wetland = 10 points
AA does not contain above but habitat diversity is high - exceptional = 3 points
AA does not contain above and habitat diversity is low - moderate = 1 point

iii. Condition of AA (from #12: circle points):

Undisturbed = 3 points
Encroached Upon = 2 points
Directly Disturbed = 1 point

Comments:

Score is [(i) x (ii)] + (iii) = 8

Score	Rating	Functional Points
33	High	1
31,32	High	.9
22,23	High	.8
12-21	High	.7
10,11	Mod	.6
8,9	Mod	.5
5,6,7	Mod	.4
4	Low	.3
2,3	Low	.2
1	Low	.1

15.k) Recreation/Education Potential

i. Is the AA a known rec'd site (circle)? ☒ N (If yes, rate as High and go to ii. If no, go to iii.)

ii. Check the categories listed below that apply to the AA:

☒ education/scientific study
☒ consumptive recreation
☒ non-consumptive recreation
____ others:

iii. Based on the location, diversity, size, and other attributes of the site, is there strong potential for recreational/educational use (circle)? ☒ N (If yes, go to ii, then proceed to iv. If no, rate as Low [1].)

iv. Condition of AA (from #12: circle points):

Undisturbed = 3 points
Encroached Upon = 2 points
Directly Disturbed = 1 point

v. Ownership of AA (circle points):

Public = 2 points
Private = 1 point

Comments:

Score is (iv) x (v) = 4

Score	Rating	Functional Points
6	High	1
3	Mod	.7
4	Mod	.5
2	Low	.2
1	Low	.1

15.1) Dynamic Surface Water Storage (applies to wetlands that do not flood from overbank or in-channel flow, but flood via ppt., upland surface flow, or groundwater flow. If no jurisdictional wetlands in the AA are subject to flooding, circle NA here and proceed with the evaluation.)

i. Estimated acreage of jurisdictional wetland in the AA that is subject to periodic flooding (circle points):

Flooded wetlands ≥ 5 acres = 3 points
 5 acres > Flooded wetlands > 1 acre = 2 points
 Flooded wetlands < 1 acre = .5 point

Comments:

ii. Estimated flood

frequency (circle points)

Wetland floods $\geq 5/10$ years = 2 points
 Wetland floods < 5/10 years = 1 point

Score	Rating	Functional Points
6	High	1
4	High	.8
2,3	Mod	.5
1	Low	.3
.5	Low	.1

Score is (i) x (ii) = 6

Function & Value Summary and Overall Rating

Function & Value Parameters	Rating	Actual functional points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed/Candidate T&E Species Habitat	low	.3	1	63
B. MNHP Species Habitat	low	.1	1	21
C. General Wildlife Habitat	High	1	1	210
D. General Fish/Aquatic Habitat	mod	.7	1	147
E. Flood Attenuation and Storage	mod	.5	1	105
F. Sediment/Nutrient/Toxicant Removal	High	1	1	210
G. Sediment/Shoreline Stabilization	High	1	1	210
H. Production Export/Food Chain Support	high	.9	1	189
I. Groundwater Discharge/Recharge	low	.1	1	21
J. Uniqueness	mod	.5	1	105
K. Recreation/Education Potential	mod	.7	1	147
L. Dynamic Surface Water Storage	high	1	1	210
Totals		7.8	12	

Overall AA Rating (Circle appropriate category based on the criteria outlined below):

I II III IV

Category I Wetland - Must satisfy one of the following criteria:

- Score of .9 or 1 functional point for Listed/Proposed/Candidate Threatened or Endangered Species; or
- Score of .9 or 1 functional points for Uniqueness or "High" rating for Uniqueness and Condition (#12) is "Undisturbed"; or
- Score of 1 functional point for Flood Attenuation and Storage and answer to Question 14.E.3 is "yes"; or
- Total actual functional points > 80% (round to nearest tenth) of total possible functional points.

Category II Wetland - Does not satisfy criteria for Category I and:

- Score of 1 functional point for Species Rated S1, S2, or S3 by the Montana Natural Heritage Program; or
- Score of 1 functional point for General Wildlife Habitat; or
- "High" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or
- "High" rating for Uniqueness or
- Total actual functional points > 65% (round to nearest tenth) of total possible functional points.

Category III Wetland - Does not satisfy criteria for Category I, Category II, or Category IV.

Category IV Wetland - Does not satisfy criteria for Category I, Category II, or Category III and:

- "Low" rating for Uniqueness; and
- "Low" rating for Production Export/Food Chain Support; and
- Total actual functional points < 30% (round to nearest tenth) of total possible functional points.

Appendix E

BIRD SURVEY PROTOCOL GPS PROTOCOL

*MDT Wetland Mitigation Monitoring
Batavia
Kalispell, Montana*

BIRD SURVEY PROTOCOL

The following is an outline of the MDT Wetland Mitigation Site Monitoring Bird Survey Protocol. Though each site is vastly different, the bird survey data collection methods must be standardized to a certain degree to increase repeatability. An Area Search within a restricted time frame will be used to collect the following data: a bird species list, density, behavior, and habitat-type use. There will be some decisions that team members must make to fit the protocol to their particular site. Each of the following sections and the desired result describes the protocol established to reflect bird species use over time.

Species Use within the Mitigation Wetland: Survey Method

Result: To conduct a bird survey of the wetland mitigation site within a restricted period of time and the budget allotment.

Sites that can be circumambulated or walked throughout.

These types of sites will include ponds, enhanced historic river channels, wet meadows, and any area that can be surveyed from the entirety of its perimeter or walked throughout. If the wetland is not uncomfortably inundated, conduct several “meandering” transects through the site in an orderly fashion (record the number and approximate location/direction of the transects in the field notebook; they do not have to be formalized or staked). If a very small portion of the site cannot be crossed due to inundation, this method will also apply. Though the sizes of the site vary, each site will require surveying to the fullest extent possible within a set time limit. The optimum times to conduct the survey are in the morning hours. Conduct the survey from sunrise to no later than 11:00 AM. (Note: some sites may have to be surveyed in the late afternoon or evening due to time constraints or weather; if this is the case, record the time of day and include this information in your report discussion.) If the survey is completed before 11:00 AM and no additions are being made to the list, then the task is complete. The overall limiting factor regarding the number of hours that are spent conducting this survey is the number of budgeted hours; this determination must be made by site by each individual.

In many cases, binoculars will be the only instrument that is needed to identify and count the birds using the wetland. If the wetland includes deep water habitat that can not be assessed with binoculars, then a scope and tripod are necessary. If this is the case, establish as many lookout posts as necessary from key vantage points to collect the data. Depending on the size of the open water, more time may be spent viewing the mitigation area from these vantage points than is spent walking the peripheries of more shallow-water wetlands.

Sites that cannot be circumambulated.

These types of sites will include large-bodied waters, such as reservoirs, particularly those with deep water habitat (>6 ft) close to the shore and no wetland development in that area of the shoreline. If one area of the reservoir was graded in such a way to create or enhance the development of a wetland, then that will be the area in which the ambulatory bird survey is conducted. The team member must then determine the length of the shoreline that will be surveyed during each visit.

As stated above in the ambulatory site section, these large sites most likely will have to be surveyed from established vantage points.

Species Use within the Mitigation Wetland: Data Recording

Result: A complete list of bird species using the site, an estimate of bird densities and associated behaviors, and identification of habitat use.

1. Bird Species List

Record the bird species on the Bird Survey - Field Data Sheet using the appropriate 4-letter code of the common name. The coding uses the first two letters of the first two words of the birds' common name or if one name, the first four (4) letters. For example, mourning dove is coded MODO and mallard is MALL. If an unknown individual is observed, use the following protocol and define your abbreviation at the bottom of the field data sheet: unknown shorebird: UNSB; unknown brown bird (UNBR); unknown warbler (UNWA); unknown waterfowl (UNWF). For a flyover of a flock of unknown species, use a term that describes the birds' general characteristics and include the approximate flock size in parentheses; do not fill in the habitat column. For example, a flock of black, medium-sized birds could be coded: UNBB / FO (25). You may also note on the data sheet if that particular individual is using a constructed nest box.

2. Bird Density

In the office, sum the Bird Survey – Field Data Sheet data by species and by behavior. Record this data in the Bird Summary Table.

3. Bird Behavior

Bird behavior must be identified by what is known. When a species is simply observed, the behavior that it is immediately exhibiting is what is recorded. Only behaviors that have discreet descriptive terms should be used. The following terms are recommended: breeding pair individual (BP); foraging (F); flyover (FO); loafing (L; e.g. sleeping, roosting, floating with head tucked under wing are loafing behaviors); and, nesting (N). If more behaviors are observed that do have a specific descriptive word, use them and we will add it to the protocol; descriptive words or phrases such as “migrating” or “living on site” are unknown behaviors.

4. Bird Species Habitat Use

We are interested in what bird species are using which particular habitat within the mitigation wetlands. This data is easily collected by simply recording what habitat the species was initially observed. Use the following broad category habitat classifications: aquatic bed (AB - rooted floating, floating-leaved, or submergent vegetation); forested (FO); marsh (MA – cattail, bulrush, emergent vegetation, etc. with surface water); open water (OW – primarily unvegetated); scrub-shrub (SS); and upland buffer (UP); wet meadow (WM – sedges, rushes, grasses with little to no surface water). If other categories are observed onsite that are not suggested here, we will make a new category next year.

GPS Mapping and Aerial Photo Referencing Procedure

The wetland boundaries, photograph location points and sampling locations were field located with mapping grade Trimble Geo III GPS units. The data was collected with a minimum of three positions per feature using Course/Acquisition code. The collected data was then transferred to a PC and differentially corrected to the nearest operating Community Base Station. The corrected data was then exported to ACAD drawings in Montana State Plain Coordinates NAD 83 international feet.

The GPS positions collected and processed had a 68% accuracy of 7 feet except in isolated areas of Tasks .008 and .011, where it went to 12 feet. This is within the 1 to 5 meter range listed as the expected accuracy of the mapping grade Trimble GPS.

Aerial reference points were used to position the aerial photographs. This positioning did not remove the distortion inherent in all photos; this imagery is to be used as a visual aide only. The located wetland boundaries were given a final review by the wetland biologist and adjustments were made if necessary.

Any relationship of features located to easement or property lines are not to be construed from these figures. These relationships can only be determined with a survey by a licensed surveyor.