MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: 2003

Perry Ranch
Glacier County, Montana

Prepared for:
MONTANA DEPARTMENT OF TRANSPORTATION
2701 Prospect Avenue
Helena, MT 59620-1001

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

March 2004

Project No: 130091.020

LAND & WATER

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1.0 INTRODUCTION

The Perry Ranch wetland mitigation site was constructed during early summer 2001 to mitigate wetland impacts associated with Montana Department of Transportation (MDT) projects NH 1-3(12)225F (Browning-Meriwether) and F BRF 1-3(11)219 (Browning East & West). These two projects resulted in a combined projected wetland loss of approximately 14.7 acres. Constructed in Watershed #8 (Marias) within the MDT Great Falls District, the mitigation site is located approximately 13 miles west of Browning and 4 miles north of U.S. Highway 2 in Glacier County (**Figure 1**). The entire site occurs within the confines of the Tribally-owned Perry Ranch on the Blackfeet Indian Reservation.

The intent of the project was to create, via dike placement and shallow excavation, two wetland impoundments within historic oxbows located in the Cut Bank Creek floodplain (see plan sheets in **Appendix D**). The inner oxbow impoundment, located adjacent to Cut Bank Creek, was designed to provide approximately 6.1 wetland acres with a maximum depth of 2.6 feet. The outer oxbow impoundment, located immediately north of the inner oxbow and west of the creek, was designed to provide approximately 21.5 wetland acres with a maximum three-foot depth.

Wetland hydrology at the inner oxbow is to be provided via overbank flood flows, alluvial flow, and precipitation; flood flows and precipitation will source the outer oxbow. The site was designed to provide ephemeral surface water. It is anticipated that, over time, vegetation at the inner oxbow will be comprised of scrub/shrub and emergent communities with occasional cottonwoods scattered throughout. The outer oxbow will likely be dominated by emergent communities.

Approximately 2.3 acres of wetland occurred at the inner oxbow prior to construction, while approximately 1.1 acres occurred at the outer oxbow. The 27.6-acre target mitigation figure is inclusive of these 3.4 acres of existing wetlands.

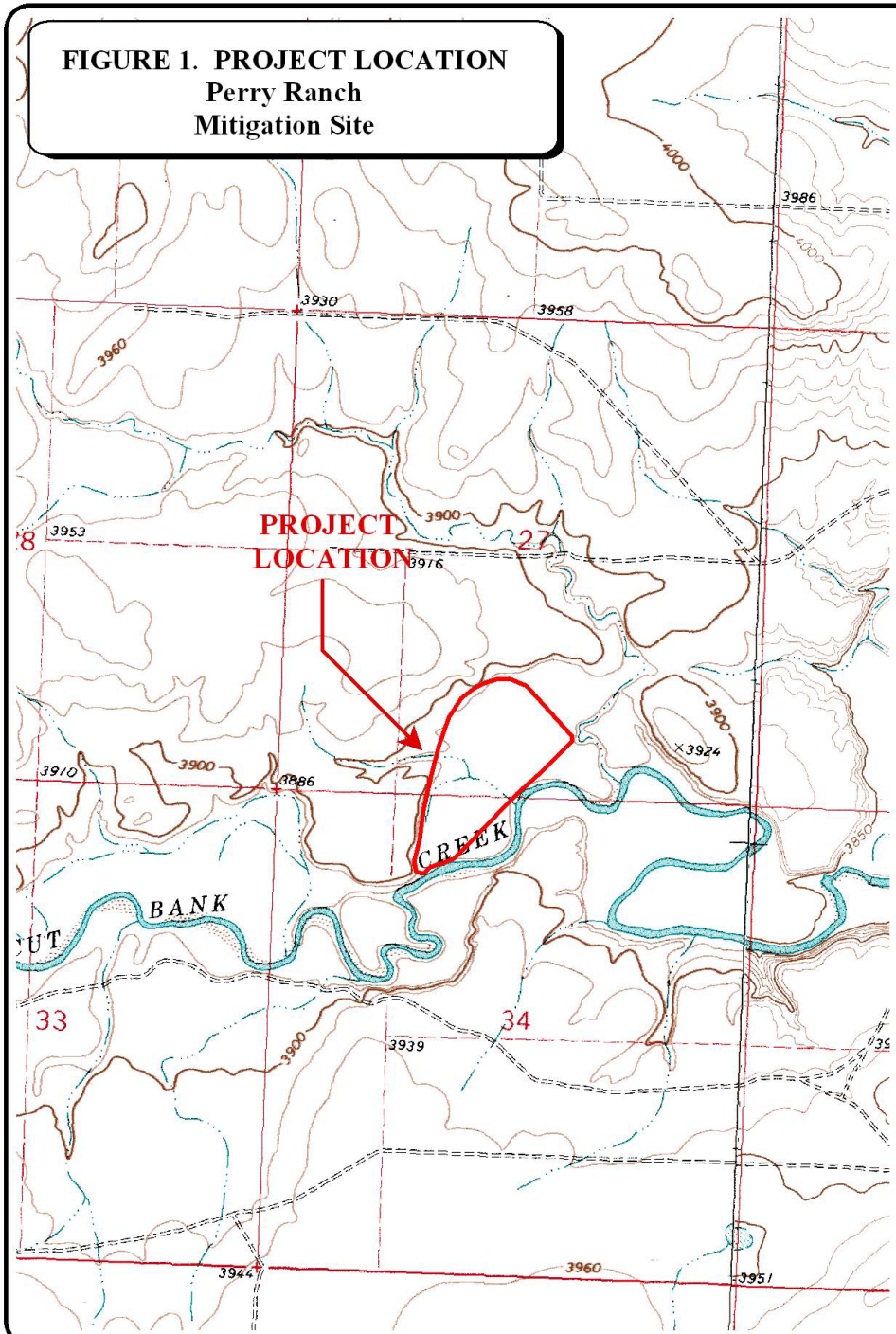
The 2003 monitoring episode was the second conducted at the site since its construction in 2001. This site will be monitored three times per year over the remainder of the contract period to document wetland and other biological attributes. No performance standards or success criteria were required by the U.S. Army Corps of Engineers (COE), MDT, Blackfeet Tribe, or other agencies. The monitoring area is illustrated in **Figure 2, Appendix B**.

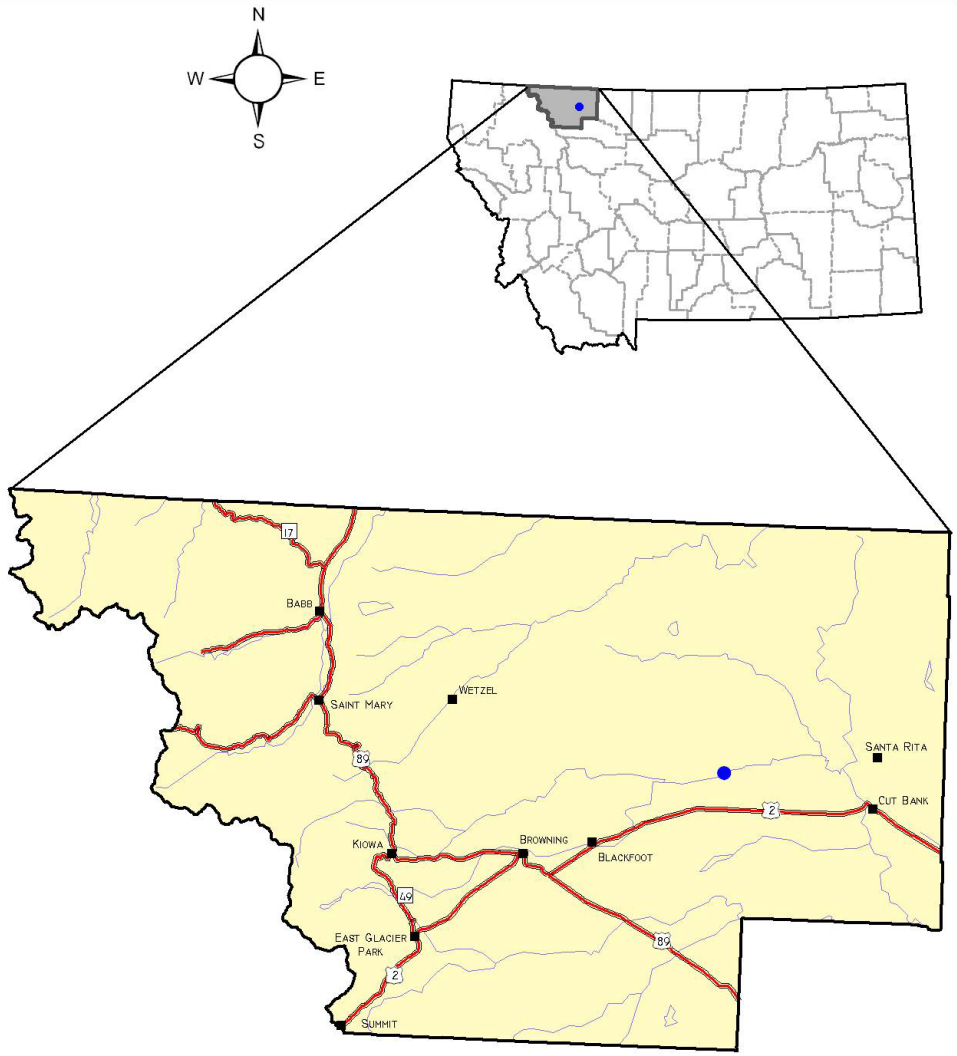
2.0 METHODS

2.1 Monitoring Dates and Activities

The site was visited on May 22 (spring), July 29 (mid-season), and October 17 (fall) 2003. The primary purpose of the spring and fall visits were to conduct a bird/general wildlife reconnaissance.

FIGURE 1. PROJECT LOCATION
Perry Ranch
Mitigation Site





PROJECT #: 130091.020
DATE: DEC 2002
LOCATION:
PROJECT MANAGER: J. BERGLUND
DRAWN BY: B. NOECKER

LAND & WATER CONSULTING, INC.
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The mid-season visit was conducted in July to document vegetation, soil, and hydrologic conditions used to map jurisdictional wetlands. All information contained on the Wetland Mitigation Site Monitoring Form (**Appendix B**) was collected at this time. Activities and information conducted/collected included: wetland delineation; wetland/open water aquatic habitat boundary mapping; vegetation community mapping; vegetation transect; soils data; hydrology data; bird and general wildlife use; photograph points; functional assessment; and (non-engineering) examination of dike structures.

2.2 Hydrology

Wetland hydrology at the inner oxbow (2.6-foot maximum depth) is to be provided via overbank flood flows, alluvial flow, and precipitation; flood flows and precipitation will be the source for the outer oxbow (3-foot maximum depth). Impoundment areas are indicated on the proposed project plan sheets in **Appendix D**.

Hydrologic indicators were primarily evaluated during the mid-season visit. Wetland hydrology indicators were recorded using procedures outlined in the COE 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data were 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 aquatic habitats (no rooted vegetation) was mapped on an aerial photograph and an estimate of the average water depth at this boundary was recorded.

There are no groundwater monitoring wells at the site. If located within 18 inches of the ground surface (soil pit depth for purposes of delineation), groundwater depths were documented on the routine wetland delineation data form at each data point.

2.3 Vegetation

General dominant species-based vegetation community types were delineated on a 2002 aerial photograph during the mid-season visit. Standardized community mapping was not employed as many of these systems are geared towards climax vegetation. Estimated percent cover of the dominant species in each community type was recorded on the site monitoring form (**Appendix B**).

A single 10-foot wide belt transect was sampled during the mid-season monitoring event to represent the range of current vegetation conditions. Percent cover was estimated for each vegetative species encountered within the "belt" within each community type using the following values: + (<1%); 1 (1-5%); 2 (6-10%); 3 (11-20%); 4 (21-50%); and 5 (>50%).

The transect location is depicted on **Figure 2** (**Appendix A**). All data were recorded on the mitigation site monitoring form. Photographs of the transect were taken from both ends during the mid-season visit. No monitoring of planted species was conducted as no woody species were planted at the site.

2.4 Soils

Soils were evaluated during the mid-season visit according to 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 NRCS terminology was used to describe hydric soils (USDA 1998). The 1980 Glacier Area soil survey was consulted relative to mapped soil units at the site.

2.5 Wetland Delineation

Wetland delineation was conducted during the mid-season visit according 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**). In 2002, the wetland/upland boundary was delineated using a GPS unit in conjunction with hand-mapping onto an aerial photograph. In 2003, wetland mapping revisions were accomplished by hand using the 2002 aerial photograph. The wetland/upland boundary in combination with any wetland/open water habitat boundary was used to calculate the wetland area developed on the site.

Wetland delineation data collected during 2003 was compared to this pre-construction estimate in an effort to calculate additional wetland development since project construction.

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 site visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. Observations were recorded during all visits 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 wildlife species observed was compiled.

2.7 Birds

Bird observations were recorded during all three visits. No formal census plots, spot mapping, point counts, or strip transects were conducted. During the spring and fall visits, observations were recorded in compliance with the bird survey protocol in **Appendix E**. During the mid-season visit, bird observations were recorded incidental to other monitoring activities. During all visits, observations were categorized by species, activity code, and general habitat association (see field data forms in **Appendix B**). A comprehensive bird list was compiled using these observations. No birdhouses are currently located on the site.

2.8 Macroinvertebrates

One macroinvertebrate sample was collected during the mid-season site visit at the outer oxbow in 2002. However, no surface water was present during the mid-season visit in 2003. Consequently, no macro-invertebrate sample was collected at the site in 2003.

2.9 Functional Assessment

Functional assessment was completed using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were primarily collected during the mid-season site visit. The remainder of the functional assessment was completed in the office.

2.10 Photographs

Photographs were taken showing the current land use surrounding the site, the upland buffer, the monitored area, and the vegetation transect. Three photograph points were established and shot during 2002 and 2003. The approximate locations of these photo points are 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 2002 monitoring season, a variety of survey points were collected with a resource grade GPS unit. These included vegetation transect beginning and ending locations, all photograph locations and the wetland boundary. No GPS data were collected during 2003 monitoring.

2.12 Maintenance Needs

The dike along the east edge of the site was examined during the 2002 site visits for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented.

3.0 RESULTS

3.1 Hydrology

Based on the period of record between 1903 and 2003, the mean annual precipitation in Cut Bank is 11.6 inches. The mean total precipitation from January through July is 8 inches. The precipitation totals for 2003 were substantially below these two means. The total (minus October, for which data was lacking) precipitation in 2003 was 4.7 inches, less than half of the annual mean. The total precipitation from January through July 2003 was 3.63 inches; again, less than half of the mean total for this period between 1903 and 2003. This lack of precipitation

was largely responsible for the decreased inundation extent at the site in 2003 compared to 2002. Precipitation data for 2002 are unavailable.

The outer oxbow and the area designated as OW/MF #2 on **Figure 3** (**Appendix A**) were inundated during the May 22 visit. Only the two small circular excavated depressions were inundated in the inner oxbow during this period.

During the mid-season visit, the site as a whole was estimated to be approximately 5 percent inundated (down from 40% in 2002), with an average depth of 3 inches and a range of depths from zero to an estimated 6 inches. Inundated areas included scattered portions of the pre-existing "channel" within the inner oxbow, and the northernmost excavated portion of the outer oxbow (the area designated as OW/MF #2).

During the fall visit, surface water only remained in a small portion of the Cut Bank Creek inlet ditch. The large excavated depression with the designed island in the north portion of the site was completely dewatered.

A groundwater component appears to contribute to this site in association with pre-existing wetland areas in the inner and possibly the outer oxbow.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. Three wetland community types were identified and mapped on the mitigation area (**Figure 3**, **Appendix A**) during 2003. These included Type 1: *Juncus balticus/Carex praegracilis*, Type 2: *Eleocharis palustris/Polygonum amphibium*, and Type 4: *Equisetum/Transitional Mudflat*. Type 3: *Upland Floodplain*, occurs on the valley floor between all wetland and open water areas on the site. Dominant species within each of these communities are listed on the attached data form (**Appendix B**).

Type 1 occurs primarily at the inner oxbow around the fringes of deeper wetland and open water areas. These areas flood, but surface water does not appear to remain in these areas as long as it does in Type 2 communities. Type 2 occurs in the deeper wetland areas of the inner oxbow and the "center" portion of the outer oxbow within and adjacent to pre-existing wetland areas. These areas may flood more frequently and for longer duration than the areas supporting Type 1 communities. Groundwater may also influence vegetation development in these areas.

The Type 4 community occurs primarily within excavated portions of the inner oxbow. This area, mapped as *Transitional Mudflat* in 2002, is beginning to fill in with wetland species, including horsetail, foxtail barley, curly dock, and meadow foxtail.

Open water/mudflat areas are those that were inundated during 2002 and 2003 visits and/or support very scattered, sparse wetland vegetation. These areas are considered transitional and will likely develop into wetlands if adequate hydrology continues to be provided. Some of the areas mapped as *Upland Floodplain* are also considered transitional, but were neither inundated for sufficient duration or supporting enough wetland vegetation to be mapped as aquatic habitats

during 2003. Such areas were generally disturbed by construction, and pioneering upland weedy vegetation in these areas appears to have been largely drowned out, leaving them largely unvegetated.

Adjacent upland communities are comprised of upland floodplain and foothills rangeland habitats. Common species include smooth brome (*Bromus inermis*), quackgrass (*Agropyron repens*), timothy (*Phleum pratense*), intermediate wheatgrass (*Agropyron intermedium*), yellow sweet clover (*Melilotus officinalis*), and kochia (*Kochia scoparia*).

Table 1: ***2002, 2003 Perry Ranch Vegetation Species List***

Species[1]	Region 9 (Northwest) Wetland Indicator
Achillea millefolium	FACU
Agropyron intermedium	--
Agropyron repens	FACU
Agropyron smithii	--
Agrostis alba	FACW
Alopecurus pratensis	FACW
Amaranthus retroflexus	FACU+
Artemisia frigida	--
Aster spp.	--
Bouteloua gracilis	--
Brassica kaber	--
Bromus inermis	--
Cardaria draba	--
Carex lanuginosa	OBL
Carex praegracilis	FACW
Chenopodium album	FAC
Cirsium arvense	FAC-
Dactylis glomerata	**FACU**
Descurainia pinnata	--
Distichlis spicata	FAC+
Eleocharis palustris	OBL
Epilobium ciliatum	FACW-
Equisetum arvense	FAC
Equisetum hyemale	FACW
Glyceria elata	**FACW+**
Glycyrrhiza lepidota	FAC+
Grindelia squarrosa	--
Hordeum jubatum	FAC+
Juncus balticus	OBL
Kochia scoparia	FAC
Koeleria pyramidata	--
Medicago sativa	--
Melilotus alba	FACU
Melilotus officinalis	FACU
Opuntia sp.	--
Phalaris arundinacea	FACW
Phleum pretense	FAC-
Poa annua	FAC-
Poa pratensis	FACU+
Polygonum amphibium	OBL
Potentilla anserine	OBL
Rosa arkansana	NI
Rumex crispus	FACW
Salix exigua	OBL
Salix lutea	OBL

Species[1]	Region 9 (Northwest) Wetland Indicator
Solidago Canadensis	FACU
Spartina pectinata	OBL
Stipa viridula	--
Symphoricarpos occidentalis	--
Taraxacum officinale	FACU
Thlaspi arvense	--
Triglochin maritimum	OBL
Typha latifolia	OBL

[1] **Bolded** species indicate those documented in the analysis area for the first time in 2003.

Vegetation transect results are detailed in the attached data form (**Appendix B**), and are summarized in the 2002 and 2003 transect maps, **Table 2**, and **Chart 1** below. As of 2003, the transect still traverses no wetlands. However, it does traverse two currently "bare" transitional upland floodplain areas, in which upland vegetation has been drowned out and sparse wetland vegetation is starting to colonize. It also traverses one vegetated transitional area in which the cover of hydrophytic species is starting to increase (see discussion above). These areas are likely to transition to wetlands, given adequate hydrology. Although no wetlands yet occur along the transect, the number of hydrophytic species along the transect more than doubled between 2002 and 2003, while the number of upland species slightly decreased (**Table 2**).

2002 Transect Map

Start (east)	*Up. (17')*	*Transitional Bare Ground(115')*	*Upland Floodplain (185')*	*Transitional Bare Ground (205')*	*Up. (10')*	Total: 532'	End (west)

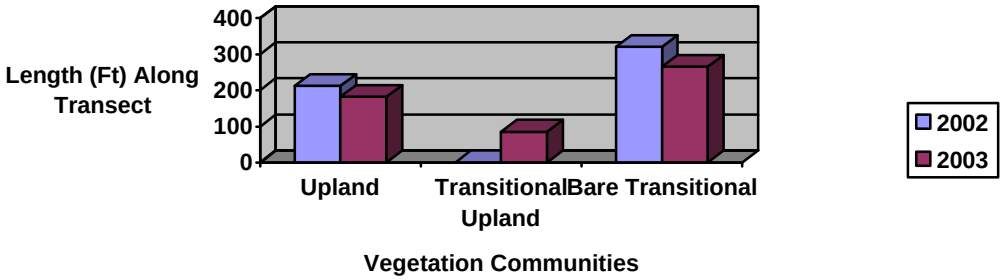
2003 Transect Map

Start (east)	*Up. (17')*	*Transitional Bare Ground (115')*	*Upland Floodplain (155')*	*Transitional Upland Floodplain (85')*	*Transitional Bare Ground (150')*	*Up. (10')*	Total: 532'	End (west)

Table 2: ***Transect 1 Data Summary***

Monitoring Year	2002	2003
Transect Length	532 feet	532 feet
# Vegetation Community Transitions along Transect	4	5
# Vegetation Communities along Transect	3	3
# Hydrophytic Vegetation Communities along Transect	0	0
Total Vegetative Species	18	25
Total Hydrophytic Species	6	14
Total Upland Species	12	11
Estimated % Total Vegetative Cover	35%	45%
% Transect Length Comprised of Hydrophytic Vegetation Communities	0%	0%
% Transect Length Comprised of Upland Vegetation Communities	40%	50%
% Transect Length Comprised of Unvegetated Open Water	0%	0%
% Transect Length Comprised of Bare Substrate	60%	50%

Chart 1 - Length of Vegetation Communities along Transect 1



3.3 Soils

Soils on the vast majority of the site are mapped as Kiwanis fine sandy loam, 0-2 percent slopes. This well drained soil typically occurs on terraces and is subject to flooding as a result of winter ice jams. This soil is generally considered as non-hydric by the NRCS.

B Horizon soils in wetland portions of the site consisted of silty or sandy clay loam with a matrix color ranging from 2.5Y3/1 to 10YR2/1 and no mottles. These soils may have been hydric historically, and are again receiving water as a result of the project. Soils near the beginning of the transect through the area between the inner and outer oxbows were apparently inundated during spring, and were slightly darker in 2003 (2.5Y4/1) than was observed in 2002 (2.5Y4/2). These soils are considered to be developing hydric characteristics.

Most soils on the site occurring within wetlands were moist within 12 inches of the surface at the time of the mid-season survey.

3.4 Wetland Delineation

Delineated wetland boundaries are illustrated on **Figure 3** (**Appendix A**). Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Delineation results are as follows:

	2002	2003
Delineated Emergent Wetlands:	10.09 acres	12.41 acres
Open Water / Mudflat areas:	7.83 acres	6.2 acres
Total Aquatic Habitats:	17.92 acres	18.61 acres

Approximately 12.41 acres of wetlands presently occur on the site (**Figure 3**, **Appendix A**). Wetland acreage at the site increased by approximately 2.32 acres in 2003, while mudflat areas decreased by 1.63 acres. Although some wetland had reverted to upland southeast of the inner oxbow, wetland at the outer oxbow had expanded. Additionally, vegetation Type 4, *Equisetum / Transitional Mud Flat*, located in the inner oxbow, was mapped as wetland in 2003. This area exhibited relatively sparse vegetation, but contained enough (>30% coverage) to be considered vegetated and is dominated by hydrophytic species, contains hydric soils, and exhibits indicators of wetland hydrology. This area was therefore considered marginal wetland in 2003.

Shallow open water/mudflat areas were mapped in association with wetlands at the inner oxbow and as a discrete habitat unit in the north portion of the property. It remains to be seen whether the mudflats are inundated and productive during "normal" precipitation and peak flow years, or whether they will transition to wetlands and/or open water areas. Mudflats are considered "special aquatic sites" under COE regulations. As defined in 40 CFR (230.3[q-1]), "special aquatic sites" are areas possessing special characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle/pool complexes.

Approximately 3.4 acres of wetland occurred at the site prior to construction. The 27.6-acre mitigation goal is inclusive of these 3.4 acres of pre-existing wetlands. Consequently, the goal for net wetland gain at the site is 27.6 – 3.4 = 24.2 acres. To date, the site has netted 12.41 – 3.4 = 9.01 wetland acres and 6.2 open water/mudflat acres, for a total of 15.21 acres of aquatic habitats.

3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2002 and 2003 monitoring efforts are listed in **Table 3**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. The site provides habitat for several wildlife species, particularly shorebirds, waterfowl, and amphibians.

Four mammal, one amphibian, and 21 bird species were noted using the mitigation site during the course of 2003 monitoring activities. No birdhouses were installed at this site.

Northern leopard frogs (*Rana pipiens*) (approximately 6-8) were observed in the outer oxbow during the mid-season visit in 2002, but none in 2003. Leopard frogs are considered "species of special concern" by the Montana Natural Heritage Program (MNHP) due largely to their apparent extirpation from the portion of their historic distribution west of the Continental Divide. This species has been assigned a rank of S1 west of the Continental Divide and S3 east of the Divide by the MNHP. The outer oxbow is considered documented secondary habitat for this species due to the few individuals observed during 2002 and apparent intermittent nature of surface water. Over 100 western chorus frogs (*Pseudacris triseriata*) were observed in the outer oxbow during the 2003 spring visit.

3.6 Macroinvertebrates

No surface water was present during the mid-season visit in 2003. Consequently, no macro-invertebrate sample was collected at the site in 2003.

3.7 Functional Assessment

Completed functional assessment forms are presented in **Appendix B**. Functional assessment results are summarized in **Table 4**. Forms were prepared for the inner and outer oxbows.

Table 3: ***Fish and Wildlife Species Observed on the Perry Ranch Mitigation Site: 2002-2003***

FISH	
None	
AMPHIBIANS	
Northern Leopard Frog (*Rana pipiens*) **Western Chorus Frog (*Pseudacris triseriata*)**	
REPTILES	
None	
BIRDS	
American Avocet (*Recurvirostra americana*) **American Robin (*Turdus migratorius*)** **American White Pelican (*Pelecanus erythrorhynchos*)** **Blue-winged Teal (*Anas discors*)** **Brewer's Blackbird (*Euphagus cyanocephalus*)** **Canada Goose (*Branta Canadensis*)** **Cinnamon Teal (*Anas cyanoptera*)** Cliff Swallow (*Petrochelidon pyrrhonota*) **Common Snipe (*Gallinago gallinago*)** Franklin's Gull (*Larus pipixcan*) Great Blue Heron (*Ardea herodias*) **Gray Partridge (*Perdix perdix*)** **Horned Lark (*Eremophila alpestris*)** **Killdeer (*Charadrius vociferous*)** **Lesser Scaup (*Aythya affinis*)**	**Long-billed Dowitcher (*Limnodromus scolopaceus*)** **Mallard (*Anas platyrhynchos*)** **Northern Harrier (*Circus cyaneus*)** **Northern Shoveler (*Anas clypeata*)** **Red-winged Blackbird (*Agelaius phoeniceus)*** Semipalmated Plover (*Charadrius semipalmatus*) Solitary Sandpiper (*Tringa solitaria*) **Spotted Sandpiper (*Actitis macularia*)** **Vesper Sparrow (*Pooecetes gramineus*)** Western Kingbird (*Tyrannus verticalis*) **Western Meadowlark (*Sturnella neglecta*)** Western Sandpiper (*Calidris mauri*) Willet (*Catoptrophorus semipalmatus*) **Wilson's Phalarope (*Phalaropus tricolor*)** Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)
MAMMALS	
American Badger (*Taxidea taxus*) **Coyote (*Canis latrans*)** **Deer (*Odocoileus sp.*)** **Raccoon *(Procyon lotor)***	
Bolded species were observed during 2003 monitoring. All other species were observed during one or more of the previous monitoring years, but not during 2003.	

No functional assessment was conducted at the stand-alone open water/mudflat area at the north end of the site due to the absence of wetlands in this area.

Results in 2003 were identical to 2002 results. The inner oxbow of the mitigation site rated as Category III site, while the outer oxbow rated as a Category II site using the 1999 MDT functional assessment method. Both are developing, and it is anticipated that both will receive higher wildlife habitat and other functional ratings as wetland communities continue to grow and establish. Baseline functional conditions were determined by MDT using a modified 1997 MDT functional assessment method; thus, results between the two assessments are not directly comparable, but do provide a sense of where functions have improved. Prior to construction, the inner oxbow rated as a Category III site, and the outer oxbow rated as a Category IV site.

Based on functional assessment results (**Table 4)**, approximately 71 functional units have been gained thus far at the Perry Ranch mitigation site, a gain of 6 functional units since 2002.

Table 4: ***Summary of 2003 Wetland Function/Value Ratings and Functional Points [1] at the Perry Ranch Mitigation Project***

Function and Value Parameters from the 1999 MDT Montana Wetland Assessment Method[1]	Wetland Sites			
	Inner Oxbow Pre-construction (1997 method)	Outer Oxbow Pre-construction (1997 method)	2003 Inner Oxbow Post-construction (1999 method)	2003 Outer Oxbow Post-construction (1999 method)
Listed/Proposed T&E Species Habitat	Low (0.1)	Low (0.1)	Low (0.3)	Low (0.3)
MNHP Species Habitat	None (0.0)	None (0.0)	Mod (0.6)	Mod (0.7)
General Wildlife Habitat	Mod (0.4)	Low (0.1)	Mod (0.7)	High (0.9)
General Fish/Aquatic Habitat	NA	NA	NA	NA
Flood Attenuation	Mod (0.5)	Low (0.2)	Mod (0.5)	Mod (0.5)
Short and Long Term Surface Water Storage	--	--	Mod (0.6)	High (0.9)
Sediment, Nutrient, Toxicant Removal	Mod (0.5)	Mod (0.5)	Mod (0.7)	High (1)
Sediment/Shoreline Stabilization	NA	NA	NA	NA
Production Export/Food Chain Support	Mod (0.7)	Mod (0.6)	Mod (0.6)	Mod (0.7)
Groundwater Discharge/Recharge	High (1.0)	Low (0.1)	High (1.0)	High (1.0)
Uniqueness	Low (0.3)	Low (0.2)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential	Low (0.1)	Low (0.1)	Mod (0.7)	Mod (0.7)
Actual Points/Possible Points	4.4 / 10	2.7 /10	6.1 / 10	7.1 / 10
% of Possible Score Achieved	44%	27%	61%	71%
Overall Category	III	IV	III	II
Total Acreage of Assessed Wetlands and Other Aquatic Habitats within Site Boundaries	2.3 ac	1.1 ac	6.28 ac*	6.36 ac
Functional Units (acreage x actual points)	10.12 fu	2.97 fu	38.31 fu	45.16 fu
Net Acreage Gain	NA	NA	6.28 – 2.3 = 3.98 ac*	6.36 – 1.1 = 5.26 ac
Net Functional Unit Gain	NA	NA	38.31 - 10.12 = 28.19 fu	45.16 – 2.97 = 42.9 fu
Total Functional Unit "Gain"	71.09 Total Functional Units			

[1] See completed MDT functional assessment forms in Appendix B for further detail.

* Includes 0.23 acre of adjacent open water / mudflat

3.8 Photographs

Representative panoramic and single frame photographs taken from photo-points are provided in **Appendix C**. A 2003 aerial photograph is also included in **Appendix C**.

3.9 Maintenance Needs/Recommendations

Several dike problems were noted during the 2002 summer visit, but these were repaired during 2003. An approximate 150-foot long section of fence was down during the May and July 2003 visits, allowing cattle free access to the site. The fence was repaired by the time the October visit was conducted.

3.10 Current Credit Summary

No specific performance criteria were required to be met at this site in order to document its success. However, the site appears to be developing as designed.

Approximately 3.4 acres of wetland occurred at the site prior to construction. The 27.6-acre mitigation goal is inclusive of these 3.4 acres of pre-existing wetlands. Consequently, the goal for net wetland gain at the site is 27.6 – 3.4 = 24.2 acres. To date, the site has netted 12.41 – 3.4 = 9.01 wetland acres and 6.2 open water/mudflat acres, for a total of 15.21 acres of aquatic habitats, a gain of 0.69 acre since 2002. This is presently the maximum assignable credit at this site as of 2003.

Approximately 71 functional units have been gained at this site, a gain of 5 functional units since 2002.

4.0 REFERENCES

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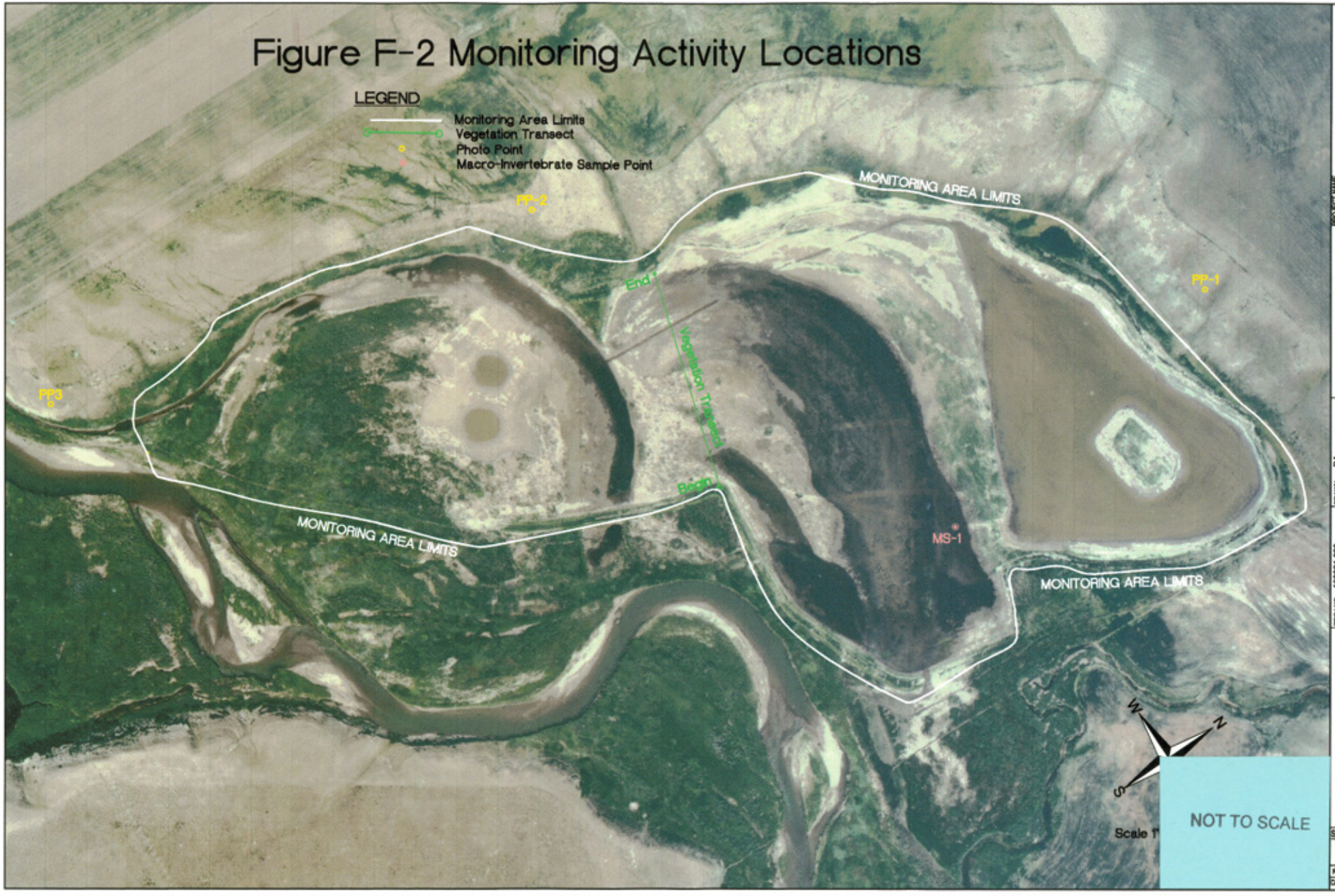
Appendix A

FIGURES 2 - 3

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

LAND & WATER

Figure F-2 Monitoring Activity Locations



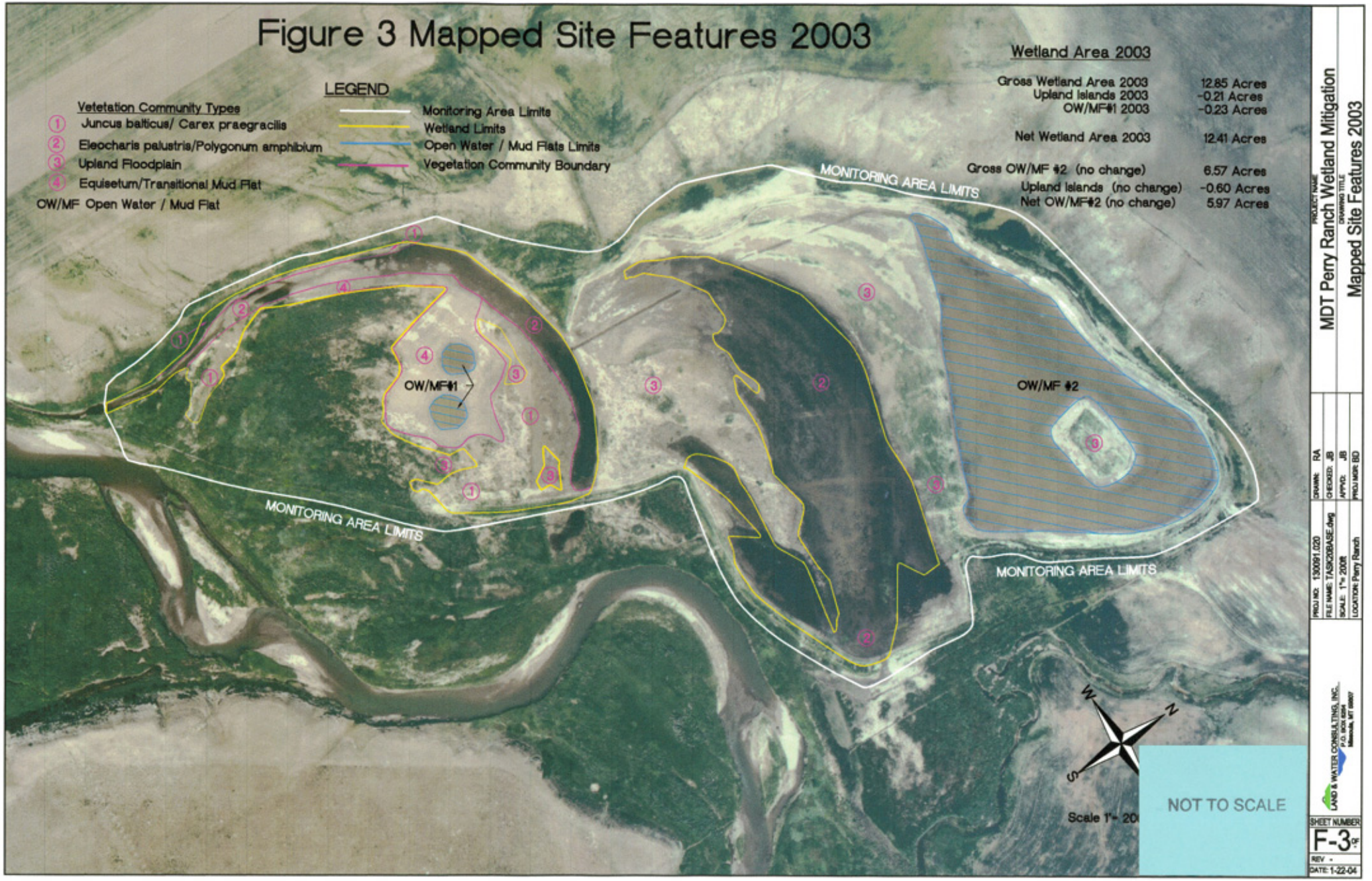
PROJECT NAME
MDT Perry Ranch Wetland Mitigation
DRAWING TITLE
Monitoring Activity Locations

PROJ NO: 130091.020
FILE NAME: TASK20BASE.dwg
SCALE: 1" = 200ft
LOCATION: Perry Ranch
DRAWN: RA
CHECKED:
APPVD: BD
PROJ MGR: BD

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

SHEET NUMBER
F-2
REV -
DATE:

Figure 3 Mapped Site Features 2003



PROJECT NAME: MDT Perry Ranch Wetland Mitigation
DRAWING TITLE: Mapped Site Features 2003

PROJ NO.: 130091.020
FILE NAME: TASK02BASE.dwg
SCALE: 1"= 200ft
LOCATION: Perry Ranch

DRAWN: RA
CHECKED: JB
APPVD.: JB
PROJ MGR: BD

LAND & WATER CONSULTING, INC.
P.O. BOX 6594
Missoula, MT 59807

SHEET NUMBER: F-3
REV: -
DATE: 1-22-04

Appendix B

COMPLETED 2003 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2003 BIRD SURVEY FORMS
COMPLETED 2003 WETLAND DELINEATION FORMS
COMPLETED 2003 FUNCTIONAL ASSESSMENT FORMS

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

LAND & WATER

LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name:__Perry Ranch_____ Project Number:____--_____ Assessment Date:__7_/_29_/_03_
Location:____Cut Bank Creek_____ MDT District:Great Falls Milepost:_--_____
Legal description: T_34N R_8W_ Section_27/34___ Time of Day:0700 - 1030
Weather Conditions:_overcast, dry, windy Person(s) conducting the assessment:_JB_____
Initial Evaluation Date:__5_/____/_02_ Visit #:__5___ Monitoring Year:_2 (2003)__
Size of evaluation area:____30_acres Land use surrounding wetland:___Rangeland and Cut Bank Creek

HYDROLOGY

Surface Water Source:__Seasonal flooding via Cut Bank Creek_____
Inundation**:** Present__X_ Absent____ Average depths:_3"_in Range of depths:_0__-__6_in
Assessment area under inundation:__5_%
Depth at emergent vegetation-open water boundary:_NA_ft
If assessment area is not inundated are the soils saturated w/in 12" of surface**:** Yes__X_No_____
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): _Sediment deposits, drift lines in inner and outer oxbows

_____

_____

Groundwater
Monitoring wells: Present_____ Absent X
Record depth of water below ground surface

Well #	Depth	Well #	Depth	Well #	Depth

Additional Activities Checklist:
_X___Map emergent vegetation-open water boundary on air photo
_X___Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining etc.)
_NA__GPS survey groundwater monitoring wells locations if present

COMMENTS/PROBLEMS: Only about 5% of the site is currently inundated. The site is much drier than in 2002 at this time of year, although flooding appears to have occurred during spring. The creek level is currently 6 inches to 1 foot below the site inlet channel. There is sparse surface water in the inner oxbow channel, some remnant surface water also remains in OW/MF#2 – the rest of the site is dry.

The OW/MF#2 and outer oxbow were inundated during the May bird survey – only the two small depressions in the inner oxbow were inundated during the May survey.

VEGETATION COMMUNITIES

Community No.:_1__ Community Title (main species):_Juncus balticus / Carex praegracilis

Dominant Species	% Cover	Dominant Species	% Cover
JUN BAL	>50	GLY LEP	1-5
CAR PRA	>50	SPA PEC	1-5
POT ANS	21-50	AGR REP	1-5
TRI MAR	<1	CAR LAN	1-5
EQU ARV	11-20	ELE PAL	1-5

COMMENTS/PROBLEMS: ___Same as 2002_____

Community No.:_2__ Community Title (main species):_Eleocharis palustris / Polygonum amphibium

Dominant Species	% Cover	Dominant Species	% Cover
ELE PAL	21-50	EQU ARV	6-10
POL AMP	21-50	EQU HYA	6-10
ALO PRA	6-10	CAR LAN	<1
SPA PEC	1-5	RUM CRI	1-5
PHA ARU	<1		

COMMENTS/PROBLEMS: ___Same as 2002_____

Community No.:_3__ Community Title (main species):_Upland Floodplain_____

Dominant Species	% Cover	Dominant Species	% Cover
KOC SCO	21-50	SYM OCC	1-5
AGR INT	21-50	ROS ARK	1-5
AGR REP	21-50	HOR JUB	>50
AMA RET	6-10	ALO PRA	1-5
CAR PRA	6-10	RUM CRI	1-5

COMMENTS/PROBLEMS: __Consists of upland areas within flooded perimeter – species composition varies across the site. HOR JUB is starting to vastly dominate some areas, which may transition to wetlands.

Additional Activities Checklist:
_X__Record and map vegetative communities on air photo

VEGETATION COMMUNITIES (continued)

Community No.:_4__ Community Title (main species):_Equisetum / Transitional Mudflat

Dominant Species	% Cover	Dominant Species	% Cover
EQU ARV	21-50		
HOR JUB	21-50		
ALO PRA	1-5		
RUM CRI	1-5		

COMMENTS/PROBLEMS: __ This community primarily occurs in transitional areas of the inner oxbow. Vegetation, although still relatively sparse, increased in these areas over 2002.

Community No.:__5_ Community Title (main species):_Hillside Upland_____

Dominant Species	% Cover	Dominant Species	% Cover
STI VIR	>50	OPU sp.	6-10
AGR SMI	21-50	KOL CRI	6-10
AGR INT	21-50	SYM OCC	11-20
ART FRI	11-20	ROS ARK	11-20
GRI SQU	11-20	BRO INE	1-5

COMMENTS/PROBLEMS: __ Consists of upland areas on hillsides outside of the floodplain.

Community No.:____ Community Title (main species):_____

Dominant Species	% Cover	Dominant Species	% Cover

COMMENTS/PROBLEMS: _____

COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
Achillea millefolium	3, 5	*Phalaris arundinacea*	1
Agropyron intermedium	3, 5	*Phleum pratense*	3, 5
Agropyron repens	3, 5	*Poa annua*	3
Agropyron smithii	5	*Poa pratensis*	5
Agrostis alba	3	*Polygonum amphibium*	2
Alopecurus pratensis	2, 4	*Potentilla anserina*	1
Amaranthus retroflexus	3, 5	*Rosa arkansana*	5
Artemisia frigida	5	*Rumex crispus*	2, 3, 4
Aster spp.	5	*Salix exigua*	3
Bouteloua gracilis	5	*Salix lutea*	3
Brassica kaber	5	*Solidago canadensis*	3
Bromus inermis	5	*Spartina pectinata*	2
Cardaria draba	5	*Stipa viridula*	5
Carex lanuginosa	1, 2	*Symphoricarpos occidentalis*	5
Carex praegracilis	1, 3	*Taraxacum officinale*	3, 5
Chenopodium album	3	*Thlaspi arvense*	3, 5
Cirsium arvense	3, 5	*Triglochin maritimum*	1
Dactylis glomerata	3	*Typha latifolia*	2
Descurainia pinnata	5		
Distichlis spicata	1		
Eleocharis palustris	1, 2		
Epilobium ciliatum	1		
Equisetum arvense	1, 2, 4		
Equisetum hyemale	2		
Glyceria elata	2		
Glycyrrhiza lepidota	1		
Grindelia squarrosa	5		
Hordeum jubatum	3, 4		
Juncus balticus	1		
Kochia scoparia	3,5		
Koeleria pyramidata	5		
Medicago sativa	3, 5		
Melilotus alba	3, 5		
Melilotus officinalis	3, 5		
Opuntia sp.	5		

COMMENTS/PROBLEMS: _____

_____

_____

_____

_____

PLANTED WOODY VEGETATION SURVIVAL

Species	Number Originally Planted	Number Observed	Mortality Causes
No species planted – NA			

COMMENTS/PROBLEMS: _____

WILDLIFE

BIRDS

(Attach Bird Survey Field Forms)

Were man made nesting structures installed? Yes____ No_X___Type:_____ How many?_NA_____ Are the nesting structures being utilized? Yes____ No____ Do the nesting structures need repairs? Yes____ No____

MAMMALS AND HERPTILES

Species	Number Observed	Indirect indication of use			
		Tracks	Scat	Burrows	Other
Deer	0	X	X		
Badger	0			X	
Raccoon	0	X			
Coyote	0	X	X		
Ground Squirrel	0			X	
Western Chorus Frog	100+				Vocal.

Additional Activities Checklist:
_____Macroinvertebrate sampling (if required)

COMMENTS/PROBLEMS: ___Could not obtain macro-invertebrate sample due to lack of surface water during July visit. Over one hundred western chorus frogs were vocalizing in the outer oxbow during the spring visit.

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:

X____ One photo for each of the 4 cardinal directions surrounding wetland
X____ At least one photo showing upland use surrounding wetland – if more than one upland use exists, take additional photos
X____ At least one photo showing buffer surrounding wetland
X____ One photo from each end of vegetation transect showing transect

Location	Photo Frame #	Photograph Description	Compass Reading
A		See Photo Sheets	
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: GPS unit not used in 2003 – wetland mapping modified by hand using aerial photographs in 2003.

WETLAND DELINEATION

(Attach Corps of Engineers delineation forms)

At each site conduct the items on the checklist below:
_X____Delineate wetlands according to the 1987 Army Corps manual.
X___ Delineate wetland-upland boundary on the air photo
_NA_ Survey wetland-upland boundary with a resource grade GPS survey

COMMENTS/PROBLEMS: _ GPS unit not used in 2003 – wetland mapping modified by hand using aerial photographs in 2003.

FUNCTIONAL ASSESSMENT

(Complete and attach full MDT Montana Wetland Assessment Method field forms; also attach abbreviated field forms, if used)

COMMENTS/PROBLEMS: _____

MAINTENANCE

Were man-made nesting structures installed at this site? YES___ NO__X_
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.
NA
Were man-made structures build or installed to impound water or control water flow into or out of the wetland? YES__X_ NO____
If yes, are the structures working properly and in good working order? YES_X__ NO___
If no, describe the problems below.

COMMENTS/PROBLEMS: __ An approximate 12'-wide section of the dike had washed out in 2002, but was repaired in 2003. Also, an approximate 150'-long section of fencing was down in early 2003, allowing cattle into the site. The fence was repaired in fall of 2003.

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Perry Ranch Date: 7/29/03 Examiner: JB Transect # 1 of 1

Approx. transect length: 532 feet Compass Direction from Start (Upland): 288 degrees

Vegetation type A:	Type 3 – Upland Floodplain
Length of transect in this type:	17 feet
Species:	Cover:
HOR JUB	>50
POA PRA	11-20
ALO PRA	1-5
MED SAT	<1
AMA RET	<1
CHE ALB	<1
AGR INT	11-20
Total Vegetative Cover:	100%

Vegetation type B:	Type 3 – Upland Floodplain (bare transitional)
Length of transect in this type:	115 feet
Species:	Cover:
AGR INT	11-20
HOR JUB	<1
ALO PRA	<1
POT ANS	<1
RUM CRI	<1
This community still is mapped as Type 3, but is	
transitional and starting to pick up some wetter species.	
However, the site is considered unvegetated at this time as	
it is not yet at least 30% vegetated.	
Total Vegetative Cover:	20%

Vegetation type C:	Type 3 – Upland Floodplain
Length of transect in this type:	155 feet
Species:	Cover:
AMA RET	11-20
AGR REP	>50
AGR INT	>50
KOC SCO	21-50
DES PIN	1-5
CAR PRA	6-10
THL ARV	1-5
CHE ALB	11-20
CAR DRA	1-5
HOR JUB	11-20
POA PRA (also CIR ARV at 1-5%)	11-20
Total Vegetative Cover:	100%

Vegetation type D:	Type 3– Upland Floodplain (vegetated transitional)
Length of transect in this type:	85 feet
Species:	Cover:
HOR JUB	>50
AGR INT	>50
RUM CRI	1-5
ALO PRA	1-5
SAL AMY	<1
SAL EXI	<1
DAC GLO	<1
GLY ELA	<1
AGR ALB	<1
This community still is mapped as Type 3, but is	
transitional and starting to pick up some wetter species.	
Total Vegetative Cover:	90%

LAND & WATER

MDT WETLAND MONITORING – VEGETATION TRANSECT (continued)

Site: Perry Ranch Date: 7/29/03 Examiner: JB Transect # 1 of 1 continued

Approx. transect length: 532 feet Compass Direction from Start (Upland): 288 degrees

Vegetation type E:	Type 3 – Upland Floodplain (bare transitional)	
Length of transect in this type:	150	feet
Species:		Cover:
RUM CRI (1 plant)		<1
EQU ARV (1 plant)		<1
POL AMP (1 plant)		<1
ELE PAL (1 plant)		<1
This community still is mapped as Type 3, but is		
transitional and starting to pick up some wet		
species. However, the site is considered		
unvegetated at this time. The previous vegetation		
was apparently flooded out and killed, leaving		
this area virtually bare in 2003.		
Total Vegetative Cover:		<1%

Vegetation type F:	Type 5, Hillside Upland	
Length of transect in this type:	10	feet
Species:		Cover:
KOC SCO		21-50
GRI SQU		1-5
RUM CRI		1-5
Total Vegetative Cover:		60%

Vegetation type G:		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

Vegetation type H:		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form)

Cover Estimate

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

Indicator Class:

+ = Obligate
- = Facultative/Wet
0 = Facultative

Source:

P = Planted
V = Volunteer

Percent of perimeter 30 % 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 food 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:

Most of this transect occurred within the same general vegetation type – Type 3 – upland floodplain. Some areas along
the transect were, however, transitional, with one such area being vegetated and two consisting of essentially bare soil
with a few individual plants. These latter areas have been flooded, and previous vegetation communities have been
flooded out. These are likely to transition into wetland areas with additional years of inundation – that is why they were
called out separately on the transect data form. This will lay the groundwork and call attention to these areas in future
monitoring years.

3/01 rev

LAND & WATER

BIRD SURVEY – FIELD DATA SHEET

Page_1__of_1__
Date:5/22/03

SITE: Perry Ranch

Survey Time:0630-0830

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
American avocet	6	F	OW, MA				
American robin	2	L	UP				
American white pelican	3	L	OW, MA				
blue-winged teal	4	F	OW, MA				
Brewer's blackbird	6	L	UP				
cinnamon teal	2	F	OW				
common snipe	3	F	MA				
killdeer	55	F, N	MF				
lesser scaup	1	F	OW, MA				
long-billed dowitcher	10	F	MF				
mallard	35	F, L	OW, MA				
northern harrier	1	F	UP				
northern shoveler	4	F	OW, MA				
red-winged blackbird	2	F	MA				
spotted sandpiper	1	F	MF				
vesper sparrow	2	L	UP				
western meadowlark	6	L	UP				
Wilson's phalarope	6	F	MA				

Notes: badger holes, deer tracks, ground squirrels, raccoon tracks, coyote tracks
Numerous western chorus frogs vocalizing in outer oxbow.
OW area with island is all inundated
Outer oxbow with spillway is all inundated
Inner oxbow – only the two small depressions are inundated
Gate is open, cows have been inside site, approx. 150-foot section of fence is missing in SE corner of site.

Behavior: BP – one of a breeding pair; BD – breeding display; F – foraging; FO – flyover; L – loafing; N – nesting

Habitat: AB – aquatic bed; FO – forested; I – island; MA – marsh; MF – mud flat; OW – open water; SS – scrub/shrub; UP – upland buffer; WM – wet meadow, US – unconsolidated shoreline

BIRD SURVEY – FIELD DATA SHEET

Page_1__of_1__
Date:7/29/03
Survey Time:0630-0930

SITE: Perry Ranch

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Hungarian partridge	6	F	UP				
Mallard	3	F	MA				
Wilson's phalarope	4	F	MA				
Killdeer	8	F	MF				
American avocet	3	F	OW				
Canada goose	6	F	MA				

Notes: badger holes, deer tracks, ground squirrels, raccoon tracks, coyote tracks
Approx. 150-foot section of fence is missing in SE corner of site.

Behavior: BP – one of a breeding pair; BD – breeding display; F – foraging; FO – flyover; L – loafing; N – nesting

Habitat: AB – aquatic bed; FO – forested; I – island; MA – marsh; MF – mud flat; OW – open water; SS – scrub/shrub; UP – upland buffer; WM – wet meadow, US – unconsolidated shoreline

BIRD SURVEY – FIELD DATA SHEET

Page_1__of_1__
Date:10/17/03
Survey Time:0930-1030

SITE: Perry Ranch

Bird Species	#	Behavior	Habitat	Bird Species	#	Behavior	Habitat
Horned Lark	12	F	MF				
Northern Harrier	2	F	UP				

Notes: badger holes, deer tracks & scat, raccoon tracks, coyote tracks & scat
Impoundments all dry – spotty surface water in inlet channel near creek.
Windy, dry, partly sunny

Behavior: BP – one of a breeding pair; BD – breeding display; F – foraging; FO – flyover; L – loafing; N – nesting

Habitat: AB – aquatic bed; FO – forested; I – island; MA – marsh; MF – mud flat; OW – open water; SS – scrub/shrub; UP – upland buffer; WM – wet meadow, US – unconsolidated shoreline

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

Project/Site: Perry Ranch Mitigation Site	Project No: Task 20	Date: 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		County: Glacier
Investigators: Berglund		State: Montana
		Plot ID: 1

Do Normal Circumstances exist on the site?	(Yes) No	Community ID: Transitional
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	Transect ID: T-1
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	Field Location: 25' from transect start

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Agropyron intermedium	Herb	NI	*Potentilla anserina*	Herb	OBL
Wheatgrass, intermediate			Silverweed		
Alopecurus pratensis	Herb	FACW			
Foxtail, Meadow					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/2 = 100.00%

FAC Neutral: 2/2 = 100.00%
Numeric Index: 3/2 = 1.50

Remarks:
These were "dominant" species, but coverage only ranged between 1 and 5%. Site was not 30% vegetated. Area is transitional.

HYDROLOGY

YES Recorded Data(Describe in Remarks):
- NO Stream, Lake or Tide Gauge
- YES Aerial Photographs
- NO Other

NO No Recorded Data

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	N/A *(in.)*

Wetland Hydrology Indicators
Primary Indicators
- NO Inundated
- NO Saturated in Upper 12 Inches
- NO Water Marks
- YES Drift Lines
- YES Sediment Deposits
- NO Drainage Patterns in Wetlands

Secondary Indicators
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- YES FAC-Neutral Test
- NO Other(Explain in Remarks)

Remarks:
Was inundated earlier in the year based on deposits.

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

Project/Site: Perry Ranch Mitigation Site	Project No: Task 20	Date: 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		County: Glacier
Investigators: Berglund		State: Montana
		Plot ID: 1

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS Drainage Class: wd — Mapped Hydric Inclusion?
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents — Field Observations Confirm Mapped Type? Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	A/B	2.5Y4/1	N/A	N/A	N/A	Clay loam

Hydric Soil Indicators:
- NO Histosol
- NO Histic Epipedon
- NO Sulfidic Odor
- NO Aquic Moisture Regime
- NO Reducing Conditions
- YES Gleyed or Low Chroma Colors
- NO Concretions
- NO High Organic Content in Surface Layer in Sandy Soils
- NO Organic Streaking in Sandy Soils
- NO Listed on Local Hydric Soils List
- NO Listed on National Hydric Soils List
- NO Other (Explain in Remarks)

Remarks:
Soils are developing and may end up satisfying NRCS hydric soils criterian #4.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:
Plot was taken near transect start. Area is largely unvegetated and transitional. This area will likely develop stronger wetland characteristics if hydrology continues.

LAND & WATER

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

Project/Site: Perry Ranch Mitigation Site	Project No: Task 20	Date: 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		County: Glacier
Investigators: Berglund		State: Montana
		Plot ID: 2

Do Normal Circumstances exist on the site?	(Yes) No	Community ID: Emergent
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	Transect ID: WET #2
Is the area a potential Problem Area?	Yes (No)	Field Location:
(If needed, explain on the reverse side)		WL #2, outer oxbow, near macro sample pt

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Eleocharis palustris	Herb	OBL	*Rumex crispus*	Herb	FACW
Spikerush,Creeping			Dock,Curly		
Polygonum amphibium	Herb	OBL			
Smartweed,Water					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 3/3 = 100.00%

FAC Neutral: 3/3 = 100.00%
Numeric Index: 4/3 = 1.33

Remarks:
Fewer species than observed in 2002.

HYDROLOGY

YES Recorded Data(Describe in Remarks):
- NO Stream, Lake or Tide Gauge
- YES Aerial Photographs
- NO Other

NO No Recorded Data

Field Observations

Depth of Surface Water:	None *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	= 10 *(in.)*

Wetland Hydrology Indicators
Primary Indicators
- NO Inundated
- YES Saturated in Upper 12 Inches
- YES Water Marks
- YES Drift Lines
- YES Sediment Deposits
- NO Drainage Patterns in Wetlands

Secondary Indicators
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- YES FAC-Neutral Test
- NO Other(Explain in Remarks)

Remarks:
Previously inundated by flooding.

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

Project/Site: Perry Ranch Mitigation Site	Project No: Task 20	Date: 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		County: Glacier
Investigators: Berglund		State: Montana
		Plot ID: 2

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS Drainage Class: wd — Mapped Hydric Inclusion?
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents — Field Observations Confirm Mapped Type? Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	A/B	10YR3/1	10YR3/6	Few	Faint	Clay loam
10	B	2.5Y4/1	N/A	N/A	N/A	Silty clay loam

Hydric Soil Indicators:
- NO Histosol
- NO Histic Epipedon
- YES Sulfidic Odor
- NO Aquic Moisture Regime
- NO Reducing Conditions
- YES Gleyed or Low Chroma Colors
- NO Concretions
- NO High Organic Content in Surface Layer in Sandy Soils
- NO Organic Streaking in Sandy Soils
- NO Listed on Local Hydric Soils List
- NO Listed on National Hydric Soils List
- NO Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:
Plot taken in Wetland 2 (outer oxbow) within formerly inundated area. Strong wetland characteristics are developing here.

LAND & WATER

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

Project/Site: Perry Ranch Mitigation Site	Project No: Task 20	Date: 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		County: Glacier
Investigators: Berglund		State: Montana
		Plot ID: 3

Do Normal Circumstances exist on the site?	(Yes) No	Community ID: Emergent
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	Transect ID: W-1
Is the area a potential Problem Area? (If needed, explain on the reverse side)	Yes (No)	Field Location: WL#1 @ lobe of inlet channel @ s. end

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Potentilla anserina	Herb	OBL	*Distichlis spicata*	Herb	FAC+
Silverweed			Saltgrass,Inland		
Carex praegracilis	Herb	FACW	*Agrostis alba*	Herb	FACW
Sedge,Clustered Field			Redtop		
Juncus balticus	Herb	OBL	*Hordeum jubatum*	Herb	FAC+
Rush,Baltic			Barley,Fox-Tail		
Phalaris arundinacea	Herb	FACW	*Agropyron repens*	Herb	FACU
Grass,Reed Canary			Quackgrass		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 7/8 = 87.50%

FAC Neutral: 5/6 = 83.33%

Numeric Index: 18/8 = 2.25

Remarks:

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	N/A *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO Inundated
- NO Saturated in Upper 12 Inches
- YES Water Marks
- YES Drift Lines
- YES Sediment Deposits
- YES Drainage Patterns in Wetlands

Secondary Indicators
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- YES FAC-Neutral Test
- NO Other(Explain in Remarks)

Remarks:
Obviously flooded in 2003. Moist at 10" depth.

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

Project/Site: Perry Ranch Mitigation Site	Project No: Task 20	Date: 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		County: Glacier
Investigators: Berglund		State: Montana
		Plot ID: 3

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam

Map Symbol: KS Drainage Class: wd

Mapped Hydric Inclusion?

Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents

Field Observations Confirm Mapped Type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	A/B	2.5Y4/1	2.5Y5/6	Few	Faint	Sandy clay loam

Hydric Soil Indicators:

NO Histosol	NO Concretions
NO Histic Epipedon	NO High Organic Content in Surface Layer in Sandy Soils
NO Sulfidic Odor	NO Organic Streaking in Sandy Soils
NO Aquic Moisture Regime	NO Listed on Local Hydric Soils List
NO Reducing Conditions	NO Listed on National Hydric Soils List
YES Gleyed or Low Chroma Colors	NO Other (Explain in Remarks)

Remarks:
Dark streaking present as well.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland?	(Yes) No
Wetland Hydrology Present?	(Yes) No		
Hydric Soils Present?	(Yes) No		

Remarks:
Plot taken in excavated lobe of inlet channel near the south end of the monitoring area. Area is developing strong wetland characteristics.

LAND & WATER

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

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 20	**Date:** 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		**County:** Glacier
Investigators: Berglund		**State:** Montana
		Plot ID: 4

Do Normal Circumstances exist on the site?	(Yes) No	**Community ID:** Emergent/Mud Flat
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	**Transect ID:** W-4
Is the area a potential Problem Area?	Yes (No)	**Field Location:**
(If needed, explain on the reverse side)		Inner oxbow near excavated ponds

VEGETATION (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Hordeum jubatum	Herb	FAC+	*Chenopodium album*	Herb	FAC
Barley,Fox-Tail			Goosefoot,White		
Equisetum arvense	Herb	FAC	*Glyceria elata*	Herb	FACW+
Horsetail,Field			Grass,Tall Manna		
Potentilla anserina	Herb	OBL	*Salix amygdaloides*	Herb	FACW
Silverweed			Willow,Peach-Leaf		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 6/6 = 100.00%

FAC Neutral: 3/3 = 100.00%
Numeric Index: 14/6 = 2.33

Remarks:
Only 1 SAL AMY seeding observed. Site is supporting wetland vegetation, although coverage is barely 30%.

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	N/A *(in.)*

Wetland Hydrology Indicators

Primary Indicators
- NO Inundated
- NO Saturated in Upper 12 Inches
- NO Water Marks
- NO Drift Lines
- YES Sediment Deposits
- YES Drainage Patterns in Wetlands

Secondary Indicators
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- YES FAC-Neutral Test
- NO Other(Explain in Remarks)

Remarks:
Soil is moist at 10", but not currently saturated. Floods from Cut Bank Creek.

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

Project/Site: Perry Ranch Mitigation Site	**Project No:** Task 20	**Date:** 29-Jul-2003
Applicant/Owner: Montana Department of Transportation		**County:** Glacier
Investigators: Berglund		**State:** Montana
		Plot ID: 4

SOILS

Map Unit Name (Series and Phase): Kiwanis fine sandy loam
Map Symbol: KS **Drainage Class:** wd **Mapped Hydric Inclusion?**
Taxonomy (Subgroup): Mixed Frigid Typic Ustifluvents **Field Observations Confirm Mapped Type?** Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	A/B	10YR4/2	N/A	N/A	N/A	Sandy loam

Hydric Soil Indicators:
- NO Histosol
- NO Histic Epipedon
- NO Sulfidic Odor
- NO Aquic Moisture Regime
- NO Reducing Conditions
- NO Gleyed or Low Chroma Colors
- NO Concretions
- NO High Organic Content in Surface Layer in Sandy Soils
- NO Organic Streaking in Sandy Soils
- NO Listed on Local Hydric Soils List
- NO Listed on National Hydric Soils List
- YES Other (Explain in Remarks)

Remarks:
Soils are developing in this area; likely inundated for sufficient duration to satisfy NRCS hydric soils criterion #4.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes) No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes) No	
Hydric Soils Present?	(Yes) No	

Remarks:
This site was mapped as marginal wetland, and is in the process of converting from mud flat. Hydrophytic vegetation is colonizing, and hydrology appears to be present. Soils are developing.

LAND & WATER

MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

1. Project Name: Perry Ranch Wetland Mitigation **2. Project #:** 130091-020 **Control #:** NA

3. Evaluation Date: 7/29/2003 **4. Evaluator(s):** Berglund **5. Wetland / Site #(s):** Inner Oxbow

6. Wetland Location(s) i. T: 34 N **R:** 8 W **S:** 27, 34 **T:** __ N **R:** __ E **S:** _____

ii. Approx. Stationing / Mileposts: NA

iii. Watershed: 10030202 **GPS Reference No. (if applies):** NA

Other Location Information: Immediately west of Cut Bank Creek, between Browning and Cut Bank, Blackfeet Indian Reservation

7. A. Evaluating Agency MDT

B. Purpose of Evaluation:

- ☐ Wetlands potentially affected by MDT project
- ☐ Mitigation wetlands; pre-construction
- ☒ Mitigation wetlands; post-construction
- ☐ Other

8. Wetland Size (total acres): 6 ac (visually estimated)
_____ (measured, e.g. GPS)

9. Assessment Area (total acres): 6 ac (visually estimated)
_____ (measured, e.g. GPS)

Comments: _____

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA

HGM CLASS [1]	SYSTEM [2]	SUBSYSTEM [2]	CLASS [2]	WATER REGIME [2]	*MODIFIER* [2]	% OF AA
Riverine	Palustrine	None	Emergent Wetland	Seasonally Flooded	Excavated/Impounded	90
Riverine	Palustrine	None	Unconsolidated Bottom	Seasonally Flooded	Excavated/Impounded	10
---	---	---	---	---	---	
---	---	---	---	---	---	

[1] = Smith et al. 1995. [2] = Cowardin et al. 1979.

Comments: _____

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin)
Common **Comments:** _____

12. GENERAL CONDITION OF AA

i. Regarding Disturbance: (Use matrix below to select appropriate response.)

	Predominant Conditions Adjacent (within 500 Feet) To AA		
Conditions Within 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 a natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	---	low disturbance	---
AA not cultivated, but moderately grazed or hayed or selectively logged or has been subject to relatively minor clearing, or fill placement, or hydrological alteration; contains few roads or buildings.	---	---	---
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.	---	---	---

Comments: (types of disturbance, intensity, season, etc.) Adjacent cultivation and grazing, but not substantive.

ii. Prominent weedy, alien, & introduced species: CIR ARV, KOC SCO, BRO INE, CHE ALB, MEL OFF, MEL ALB

iii. Briefly describe AA and surrounding land use / habitat: Wetland/Mud Flat area within Cut Bank Creek floodplain, restored "inner oxbow", adjacent to rangeland and cropland.

13. STRUCTURAL DIVERSITY (Based on 'Class' column of #10 above.)

Number of 'Cowardin' Vegetated Classes Present in AA	≥3 Vegetated Classes or ≥ 2 if one class is forested	2 Vegetated Classes or 1 if forested	= 1 Vegetated Class
Select Rating	---	---	Low

Comments: _____

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14A. HABITAT FOR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED PLANTS AND ANIMALS

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D ☐ S	_____
Secondary habitat **(list species)**	☐ D ☐ S	_____
Incidental habitat **(list species)**	☐ D ☒ S	Bald Eagle, Piping Plover
No usable habitat	☐ D ☐ S	_____

ii. Rating **(Based on the strongest habitat chosen in 14A(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.**

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	---	---	**.3 (L)**	---

If documented, list the source **(e.g., observations, records, etc.)**: _____

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM. Do not include species listed in 14A(i).

i. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D ☐ S	_____
Secondary habitat **(list species)**	☐ D ☒ S	Northern Leopard Frog
Incidental habitat **(list species)**	☐ D ☐ S	_____
No usable habitat	☐ D ☐ S	_____

iii. Rating **(Based on the strongest habitat chosen in 14B(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.**

Highest Habitat Level:	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	**.6 (M)**	---	---	---

If documented, list the source **(e.g., observations, records, etc.)**: **Leopard frogs observed at Outer oxbow in 2002, but not 2003.**

14C. General Wildlife Habitat Rating

i. **Evidence of overall wildlife use in the AA:** (Check either substantial, moderate, or low)

☐ **Substantial** (based on any of the following)
- ☐ 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)
- ☐ 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 AA

☐ **Moderate** (based on any of the following)
- ☒ 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, select appropriate AA attributes to determine the 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 in the AA (see #10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.**

Structural Diversity (from #13)	☐High								☐Moderate								☒Low			
Class Cover Distribution (all vegetated classes)	☐Even				☐Uneven				☐Even				☐Uneven				☒Even			
Duration of Surface Water in = 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	H	--	--
Moderate disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

iii. **Rating** (Using 14C(i) and 14C(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L) for this function.)

Evidence of Wildlife Use from 14C(i)	**Wildlife Habitat Features Rating** from 14C(ii)			
	☐ Exceptional	☐ High	☐ Moderate	☐ Low
Substantial	--	--	--	--
Moderate	--	.7 (M)	--	--
Low	--	--	--	--

Comments: Scattered waterfowl and shorebird use observed in 2003.

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14D. GENERAL FISH/AQUATIC HABITAT RATING ☒ **NA** (proceed to 14E)

If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, then check the NA box above.
Assess if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [*e.g.* fish use is precluded by perched culvert or other barrier, etc.]. If fish use occurs in the AA but is not desired from a resource management perspective (*e.g.* fish use within an irrigation canal], then Habitat Quality [14D(i)] below should be marked as "Low", applied accordingly in 14D(ii) below, and noted in the comments.

i. **Habitat Quality** (Pick the appropriate AA attributes in matrix to pick the 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 (*e.g.* submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading – 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--

ii. **Modified Habitat Quality:** Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity **or** is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support**?**
☐ **Y** ☐ **N** If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: ☐ E ☐ H ☐ M ☐ L

iii. **Rating** (Use the conclusions from 14D(i) and 14D(ii) above and the matrix below to pick the functional point and rating of exceptional (E), high (H), moderate (M), or low (L).)

Types of Fish Known or Suspected Within AA	**Modified Habitat Quality** from 14D(ii)			
	☐ Exceptional	☐ High	☐ Moderate	☐ Low
Native game fish	--	--	--	--
Introduced game fish	--	--	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: NA

14E. FLOOD ATTENUATION ☐ **NA** (proceed to 14G)
Applies only to wetlands subject to flooding via in-channel or overbank flow.
If wetlands in AA do not flooded from in-channel or overbank flow, check NA above.

i. **Rating** (Working from top to bottom, mark the appropriate attributes to arrive at the functional point and rating of high (H), moderate (M), or low (L) 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**	--	--	--	--	--	.5 (M)	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--	--

ii. **Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA?** (check)
☐**Y** ☒**N** **Comments:** Floods from Cut Bank Creek.

14F. SHORT AND LONG TERM SURFACE WATER STORAGE ☐ **NA** (proceed to 14G)
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, check NA above.

i. Rating (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.)
Abbreviations: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

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 [3] **5 out of 10 years**	--	--	--	--	.6 (M)	--	--	--	--
Wetlands in AA flood or pond **< 5 out of 10 years**	--	--	--	--	--	--	--	--	--

Comments: Assumed that floods every year.

14G. SEDIMENT/NUTRIENT/TOXICANT RETENTION AND REMOVAL ☐ **NA** (proceed to 14H)
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, check NA above.

i. **Rating** (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.)

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has 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 has 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**	--	--	.7 (M)	--	--	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--

Comments: Sediments and nutrients inflow from Cut Bank Creek.

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14H. SEDIMENT/SHORELINE STABILIZATION ☒ **NA** (proceed to 14I)

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 that is subject to wave action. If this does not apply, check NA above.

i. **Rating** (Working from top to bottom, use the matrix below to arrive at the functional point and rating exceptional (E), high (H), moderate (M), or low (L) 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
[3] **65 %**	--	--	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments: Not applicable at this stage.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. **Rating** (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.
A = acreage of vegetated component in the AA. **B** = structural diversity rating from #13. **C** = Yes (Y) or No (N) as to whether or not the AA contains a surface or subsurface outlet; **P/P** = permanent/perennial; **S/I** = seasonal/intermittent; **T/E/A**= temporary/ephemeral/absent.

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	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☒Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N
P/P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	--	--	--	--	--	--	.6M	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Comments: _____

14J. GROUNDWATER DISCHARGE/RECHARGE (D/R) (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 Some alluvial flow likely.

ii. ☐ **Recharge Indicators**
- ☐ Permeable substrate presents without underlying impeding layer.
- ☐ Wetland contains inlet but not outlet.
- ☐ Other _____

iii. **Rating:** Use the information from 14J(i) and 14j(ii) above and the table below to arrive at the functional point and rating of high (H) or low (L) for this function.

Criteria	Functional Point and Rating
AA has known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	--
Available Discharge/Recharge information inadequate to rate AA D/R potential	--

Comments: _____

14K. UNIQUENESS

i. Rating (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) 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 MTNHP.			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP.			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate.		
Estimated Relative Abundance from #11	☐rare	☐common	☐abundant	☐rare	☐common	☐abundant	☐rare	☒common	☐abundant
Low disturbance at AA (#12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--

Comments: _____

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? ☐ **Yes (Rate** ☐ **High (1.0)**, then proceed to 14L(ii) only] ☒ **No** [Proceed to 14L(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 a strong potential for recreational or educational use?
☒ **Yes** [Proceed to 14L (ii) and then 14L(iv).] ☐ **No** [Rate as low in 14L(iv)]

iv. Rating (Use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Ownership	Disturbance at AA from #12(i)		
	☒ Low	☐ Moderate	☐ High
Public ownership	--	--	--
Private ownership	.7(M)	--	--

Comments: Tribal ownership restricts access.

LAND & WATER

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.30	1	
B. MT Natural Heritage Program Species Habitat	Moderate	0.60	1	
C. General Wildlife Habitat	Moderate	0.70	1	
D. General Fish/Aquatic Habitat	NA	0.00	--	
E. Flood Attenuation	Moderate	0.50	1	
F. Short and Long Term Surface Water Storage	Moderate	0.60	1	
G. Sediment/Nutrient/Toxicant Removal	Moderate	0.7	1	
H. Sediment/Shoreline Stabilization	NA	0.00	--	
I. Production Export/Food Chain Support	Moderate	0.60	1	
J. Groundwater Discharge/Recharge	High	1.00	1	
K. Uniqueness	Moderate	0.40	1	
L. Recreation/Education Potential	Moderate	0.70	1	
	Totals:	**6.10**	**10.00**	
	Percent of Total Possible Points:		**61%** (Actual / Possible) x 100 [rd to nearest whole #]	

Category I Wetland: (Must satisfy **one** of the following criteria. If not proceed to Category II.)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E(ii) is "yes"; **or**
- ☐ Percent of total Possible Points is > 80%.

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following Category II criteria. If not satisfied, proceed 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**
- ☐ Percent of total possible points is > 65%.

☒ **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 not satisfied, proceed to Category III.)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export / Food Chain Support; **and**
- ☐ Percent of total possible points is < 30%.

OVERALL ANALYSIS AREA (AA) RATING: (Check appropriate category based on the criteria outlined above.)

☐ **I** ☐ **II** ☒ **III** ☐ **IV**

MDT MONTANA WETLAND ASSESSMENT FORM (revised May 25, 1999)

1. Project Name: Perry Ranch Wetland Mitigation **2. Project #:** 130091-020 **Control #:** NA

3. Evaluation Date: 7/29/2003 **4. Evaluator(s):** Berglund **5. Wetland / Site #(s):** Outer Oxbow

6. Wetland Location(s) i. T: 34 N **R:** 8 W **S:** 27, 34 **T:** __ N **R:** __ E **S:** _____

ii. Approx. Stationing / Mileposts: NA

iii. Watershed: 10030202 **GPS Reference No. (if applies):** NA

Other Location Information: Immediately west of Cut Bank Creek, between Browning and Cut Bank, Blackfeet Indian Reservation

7. A. Evaluating Agency MDT

B. Purpose of Evaluation:

- ☐ Wetlands potentially affected by MDT project
- ☐ Mitigation wetlands; pre-construction
- ☒ Mitigation wetlands; post-construction
- ☐ Other

8. Wetland Size (total acres): 7 ac (visually estimated)
_____ (measured, e.g. GPS)

9. Assessment Area (total acres): 7 ac (visually estimated)
_____ (measured, e.g. GPS)

Comments: _____

10. CLASSIFICATION OF WETLAND AND AQUATIC HABITATS IN AA

HGM CLASS [1]	SYSTEM [2]	SUBSYSTEM [2]	CLASS [2]	WATER REGIME [2]	*MODIFIER* [2]	% OF AA
Riverine	Palustrine	None	Emergent Wetland	Seasonally Flooded	Excavated/Impounded	100
---	---	---	---	---	---	
---	---	---	---	---	---	
---	---	---	---	---	---	

[1] = Smith et al. 1995. [2] = Cowardin et al. 1979.

Comments: _____

11. ESTIMATED RELATIVE ABUNDANCE (of similarly classified sites within the same Major Montana Watershed Basin)
Common **Comments:** _____

12. GENERAL CONDITION OF AA

i. Regarding Disturbance: (Use matrix below to select appropriate response.)

	Predominant Conditions Adjacent (within 500 Feet) To AA		
Conditions Within 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 a natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings.	---	low disturbance	---
AA not cultivated, but moderately grazed or hayed or selectively logged or has been subject to relatively minor clearing, or fill placement, or hydrological alteration; contains few roads or buildings.	---	---	---
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density.	---	---	---

Comments: (types of disturbance, intensity, season, etc.) Adjacent cultivation and grazing, but not substantive.

ii. Prominent weedy, alien, & introduced species: CIR ARV, KOC SCO, BRO INE, CHE ALB, MEL OFF, MEL ALB

iii. Briefly describe AA and surrounding land use / habitat: Wetland/Mud Flat area within Cut Bank Creek floodplain, restored "outer oxbow", adjacent to rangeland and cropland.

13. STRUCTURAL DIVERSITY (Based on 'Class' column of #10 above.)

Number of 'Cowardin' Vegetated Classes Present in AA	≥3 Vegetated Classes or ≥ 2 if one class is forested	2 Vegetated Classes or 1 if forested	= 1 Vegetated Class
Select Rating	---	---	Low

Comments: _____

LAND & WATER

14A. HABITAT FOR FEDERALLY LISTED OR PROPOSED THREATENED OR ENDANGERED PLANTS AND ANIMALS

iv. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D	☐ S	_____
Secondary habitat **(list species)**	☐ D	☐ S	_____
Incidental habitat **(list species)**	☐ D	☒ S	Bald Eagle, Piping Plover
No usable habitat	☐ D	☐ S	_____

v. Rating **(Based on the strongest habitat chosen in 14A(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.**

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	---	---	**.3 (L)**	---

If documented, list the source **(e.g., observations, records, etc.)**: _____

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM. Do not include species listed in 14A(i).

ii. AA is Documented (D) or Suspected (S) to contain (check box):

Primary or Critical habitat **(list species)**	☐ D	☐ S	_____
Secondary habitat **(list species)**	☒ D	☐ S	Northern Leopard Frog
Incidental habitat **(list species)**	☐ D	☐ S	_____
No usable habitat	☐ D	☐ S	_____

vi. Rating **(Based on the strongest habitat chosen in 14B(i) above, find the corresponding rating of High (H), Moderate (M), or Low (L) for this function.**

Highest Habitat Level:	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	**.7 (M)**	---	---	---	---

If documented, list the source **(e.g., observations, records, etc.)**: **Leopard frogs observed at Outer oxbow in 2002, but not 2003. Few individuals observed.**

14C. General Wildlife Habitat Rating

ii. **Evidence of overall wildlife use in the AA:** (Check either substantial, moderate, or low)

☐ **Substantial** (based on any of the following)
- ☒ 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)
- ☐ 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 AA

☐ **Moderate** (based on any of the following)
- ☐ 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, select appropriate AA attributes to determine the 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 in the AA (see #10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.**

Structural Diversity (from #13)	☐High								☐Moderate								☒Low			
Class Cover Distribution (all vegetated classes)	☐Even				☐Uneven				☐Even				☐Uneven				☒Even			
Duration of Surface Water in = 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	H	--	--
Moderate disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

iii. **Rating** (Using 14C(i) and 14C(ii) above and the matrix below to arrive at the functional point and rating of exceptional (E), high (H), moderate (M), or low (L) for this function.)

Evidence of Wildlife Use from 14C(i)	**Wildlife Habitat Features Rating** from 14C(ii)			
	☐ Exceptional	☐ High	☐ Moderate	☐ Low
Substantial	--	.9 (H)	--	--
Moderate	--	--	--	--
Low	--	--	--	--

Comments: Numerous waterfowl and shorebird pairs, as well as over 100 western chorus frogs, observed in 2003.

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14D. GENERAL FISH/AQUATIC HABITAT RATING ☒ **NA** (proceed to 14E)

If the AA is not or was not historically used by fish due to lack of habitat, excessive gradient, then check the NA box above.

Assess if the AA is used by fish or the existing situation is "correctable" such that the AA could be used by fish [*e.g.* fish use is precluded by perched culvert or other barrier, etc.]. If fish use occurs in the AA but is not desired from a resource management perspective (*e.g.* fish use within an irrigation canal], then Habitat Quality [14D(i)] below should be marked as "Low", applied accordingly in 14D(ii) below, and noted in the comments.

i. **Habitat Quality** (Pick the appropriate AA attributes in matrix to pick the 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 (*e.g.* submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading – 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--

ii. **Modified Habitat Quality:** Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity **or** is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support**?**
☐ **Y** ☐ **N** If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: ☐ E ☐ H ☐ M ☐ L

iii. **Rating** (Use the conclusions from 14D(i) and 14D(ii) above and the matrix below to pick the functional point and rating of exceptional (E), high (H), moderate (M), or low (L).)

Types of Fish Known or Suspected Within AA	**Modified Habitat Quality** from 14D(ii)			
	☐ Exceptional	☐ High	☐ Moderate	☐ Low
Native game fish	--	--	--	--
Introduced game fish	--	--	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: NA

14E. FLOOD ATTENUATION ☐ **NA** (proceed to 14G)

Applies only to wetlands subject to flooding via in-channel or overbank flow.
If wetlands in AA do not flooded from in-channel or overbank flow, check NA above.

i. **Rating** (Working from top to bottom, mark the appropriate attributes to arrive at the functional point and rating of high (H), moderate (M), or low (L) 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**	--	--	--	--	--	.5 (M)	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--	--

ii. **Are residences, businesses, or other features which may be significantly damaged by floods located within 0.5 miles downstream of the AA?** (check)
☐**Y** ☒**N** **Comments:** Floods from Cut Bank Creek.

14F. SHORT AND LONG TERM SURFACE WATER STORAGE ☐ **NA** (proceed to 14G)

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, check NA above.

i. Rating (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.)
Abbreviations: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

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 [3] **5 out of 10 years**	--	.9 (H)	--	--	--	--	--	--	--
Wetlands in AA flood or pond **< 5 out of 10 years**	--	--	--	--	--	--	--	--	--

Comments: Assumed that floods every year.

14G. SEDIMENT/NUTRIENT/TOXICANT RETENTION AND REMOVAL ☐ **NA** (proceed to 14H)

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, check NA above.

i. **Rating** (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.)

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has 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 has 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)	--	--	--	--	--	--	--
AA contains **unrestricted outlet**	--	--	--	--	--	--	--	--

Comments: Sediments and nutrients inflow from Cut Bank Creek.

14H. SEDIMENT/SHORELINE STABILIZATION ☒ **NA** (proceed to 14I)

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 that is subject to wave action. If this does not apply, check NA above.

i. **Rating** (Working from top to bottom, use the matrix below to arrive at the functional point and rating exceptional (E), high (H), moderate (M), or low (L) 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
[3] **65 %**	--	--	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments: Not applicable at this stage.

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

i. **Rating** (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.
A = acreage of vegetated component in the AA. **B** = structural diversity rating from #13. **C** = Yes (Y) or No (N) as to whether or not the AA contains a surface or subsurface outlet; **P/P** = permanent/perennial; **S/I** = seasonal/intermittent; **T/E/A**= temporary/ephemeral/absent.

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	☐Y	☐N	☐Y	☐N	☒Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N	☐Y	☐N
P/P	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	.7M	--	--	--	--	--	--	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Comments: "Outlet" is exit over dike spillway.

14J. GROUNDWATER DISCHARGE/RECHARGE (D/R) (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 Some alluvial flow likely.

ii. ☐ **Recharge Indicators**
- ☐ Permeable substrate presents without underlying impeding layer.
- ☐ Wetland contains inlet but not outlet.
- ☐ Other _____

iii. **Rating:** Use the information from 14J(i) and 14j(ii) above and the table below to arrive at the functional point and rating of high (H) or low (L) for this function.

Criteria	Functional Point and Rating
AA has known Discharge/Recharge area or one or more indicators of D/R present	1 (H)
No Discharge/Recharge indicators present	--
Available Discharge/Recharge information inadequate to rate AA D/R potential	--

Comments: _____

14K. UNIQUENESS

i. Rating (Working from top to bottom, use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) 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 MTNHP.			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP.			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate.		
Estimated Relative Abundance from #11	☐rare	☐common	☐abundant	☐rare	☐common	☐abundant	☐rare	☒common	☐abundant
Low disturbance at AA (#12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--

Comments: _____

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? ☐ **Yes (Rate** ☐ **High (1.0)**, then proceed to 14L(ii) only] ☒ **No** [Proceed to 14L(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 a strong potential for recreational or educational use?
☒ **Yes** [Proceed to 14L (ii) and then 14L(iv).] ☐ **No** [Rate as low in 14L(iv)]

iv. Rating (Use the matrix below to arrive at the functional point and rating of high (H), moderate (M), or low (L) for this function.

Ownership	Disturbance at AA from #12(i)		
	☒ Low	☐ Moderate	☐ High
Public ownership	--	--	--
Private ownership	.7(M)	--	--

Comments: Tribal ownership restricts access.

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.30	1	
B. MT Natural Heritage Program Species Habitat	Moderate	0.70	1	
C. General Wildlife Habitat	High	0.90	1	
D. General Fish/Aquatic Habitat	NA	0.00	--	
E. Flood Attenuation	Moderate	0.50	1	
F. Short and Long Term Surface Water Storage	High	0.90	1	
G. Sediment/Nutrient/Toxicant Removal	High	1.00	1	
H. Sediment/Shoreline Stabilization	NA	0.00	--	
I. Production Export/Food Chain Support	Moderate	0.70	1	
J. Groundwater Discharge/Recharge	High	1.00	1	
K. Uniqueness	Moderate	0.40	1	
L. Recreation/Education Potential	Moderate	0.70	1	
	Totals:	**7.10**	**10.00**	
	Percent of Total Possible Points:		**71%** (Actual / Possible) x 100 [rd to nearest whole #]	

Category I Wetland: (Must satisfy **one** of the following criteria. If not proceed to Category II.)
- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ☐ Score of 1 functional point for Uniqueness; **or**
- ☐ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E(ii) is "yes"; **or**
- ☐ Percent of total Possible Points is > 80%.

Category II Wetland: (Criteria for Category I not satisfied **and** meets any **one** of the following Category II criteria. If not satisfied, proceed 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**
- ☒ Percent of total possible points is > 65%.

☐ **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 not satisfied, proceed to Category III.)
- ☐ "Low" rating for Uniqueness; **and**
- ☐ "Low" rating for Production Export / Food Chain Support; **and**
- ☐ Percent of total possible points is < 30%.

OVERALL ANALYSIS AREA (AA) RATING: (Check appropriate category based on the criteria outlined above.)

☐ **I** ☒ **II** ☐ **III** ☐ **IV**

Appendix C

REPRESENTATIVE PHOTOGRAPHS
2003 AERIAL PHOTOGRAPH

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

LAND & WATER

2003 Perry Ranch Photo Sheet 1

Photo Point 1: Panoramic view of northernmost excavated area on July 29, 2003. General photo aspect is south from adjacent hillside to north.

Photo Point 2: Panoramic view of “outer” (photo left) and “inner” (photo right) oxbows on July 29, 2003. General photo aspect is east / southeast from adjacent hillside to west.

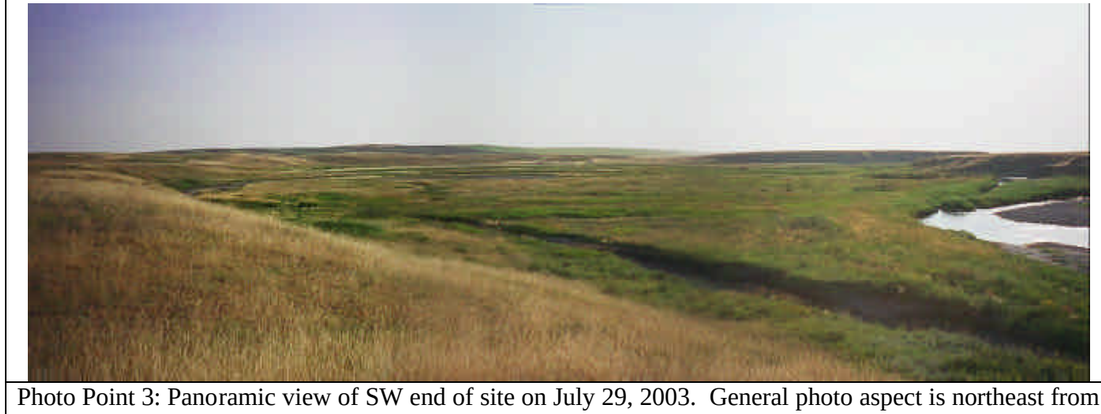


Photo Point 3: Panoramic view of SW end of site on July 29, 2003. General photo aspect is northeast from adjacent hillside to southwest. Delivery ditch is in foreground.

	
Photo from transect start facing 288 degrees W/NW.	Photo from transect end facing 100 degrees E/SE.
	
Photo from within inner oxbow, from dike at east end of oxbow, facing west.	Photo from within center of outer oxbow, near west end, facing east.
	
Photo from dike, facing west through center of outer oxbow.	Photo of upland floodplain between OW/MF #2 and the outer oxbow. Transitional, dense *Hordeum jubatum* community.

2003 Perry Ranch Sheet 2


27-07-03 14:10:51 P=2.4 R=0.8 Y=3.
0135
7-27-03 Perry Ranch Wetland
1:6000 Horizons, Inc.

Appendix D

MDT Proposed Project Layout

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

LAND & WATER

LAND & WATER D-1

~ FT. PECK

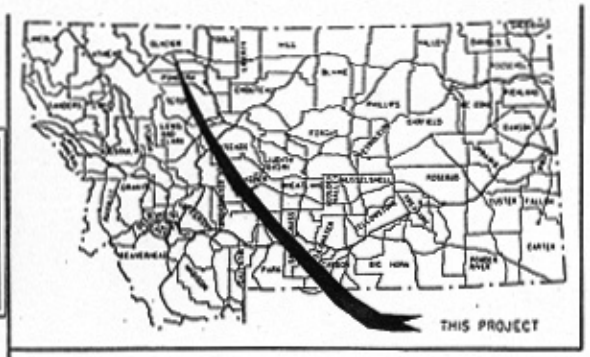
MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. NH 0002(232)

WETLAND MITIGATION

PERRY RANCH

GLACIER COUNTY



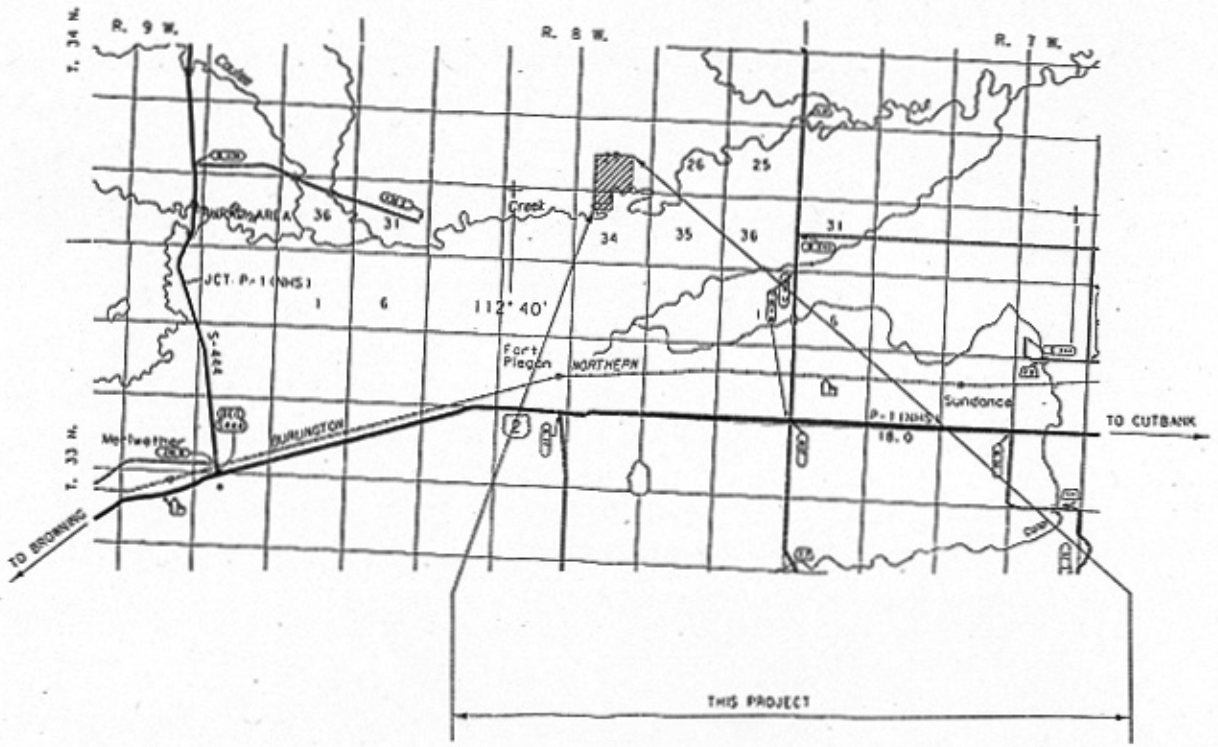
DESIGN DATA

A.D.T. =
A.D.T. =
D.H.V. =
D. =
T. =
V. =
ALL TRUCKS =
ESAL'S =
GROWTH RATE =

LETTING DATE = _____

LENGTH **kilometers**

SCALES
VERTICAL: 1 :
HORIZONTAL: 1 :
CROSS SECTION – HORIZONTAL & VERTICAL: 1 :
REDUCED PRINTS APPROXIMATELY 1/2 ORIGINAL SCALE



PRELIMINARY
FOR PLAN IN HAND ONLY

MONTANA DEPARTMENT OF TRANSPORTATION
APPROVED :
DIRECTOR OF TRANSPORTATION
BY _____
ADMINISTRATOR HIGHWAY DIVISION – ENGINEERING
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION
APPROVED :
DIVISION ADMINISTRATOR — DATE

RELATED PROJECTS

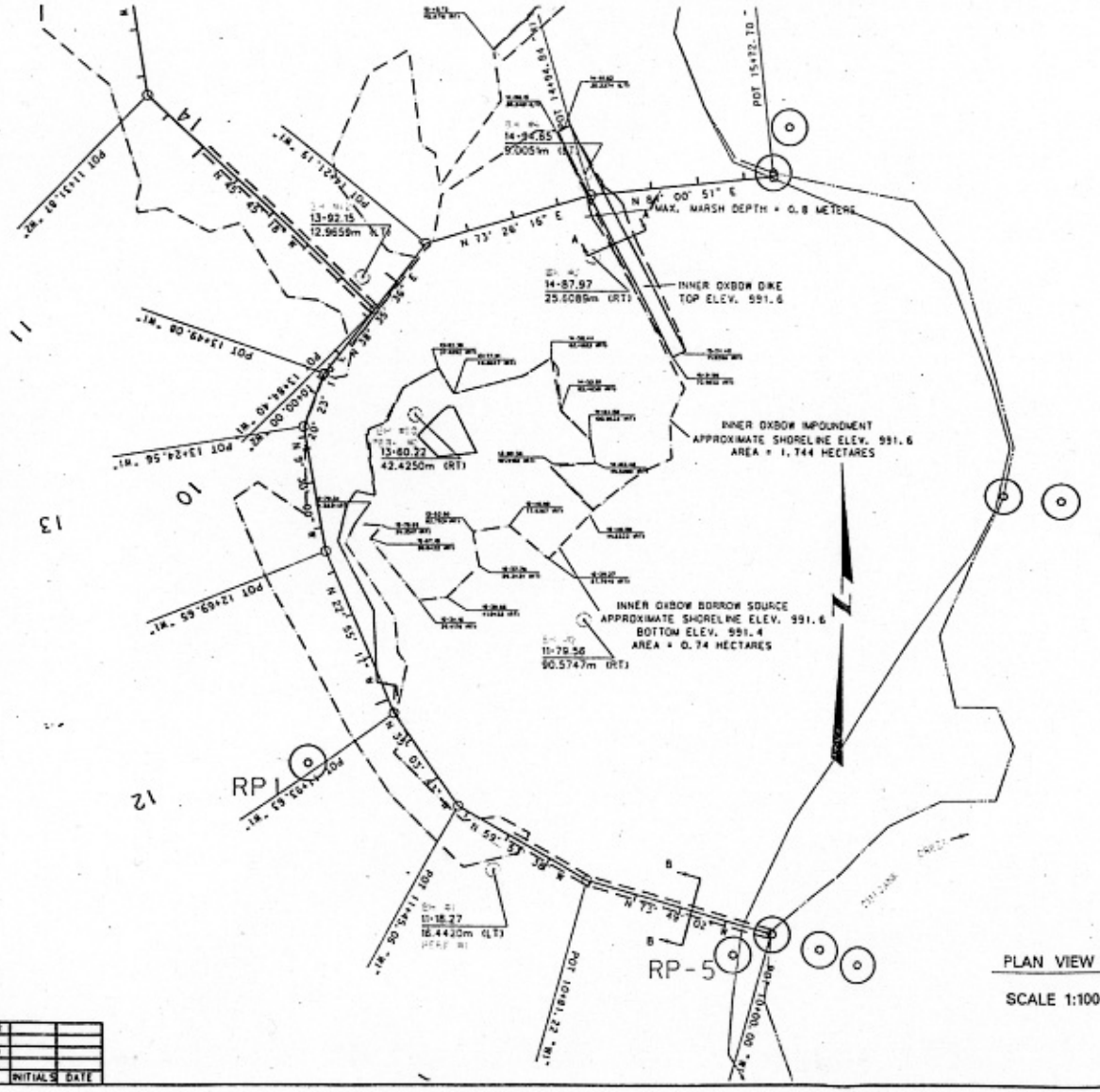
ASSOCIATED PROJECT AGREEMENT NUMBERS

R/W & UC	
P.E.	

CONTROL NO.

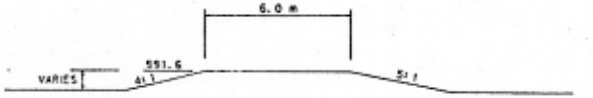
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	NH 0002(232)	6

INNER OXBOW LAYOUT



PLAN VIEW

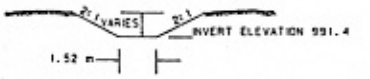
SCALE 1:100



SECTION A–A–SPREDER DIKE TYPICAL SECTION

SCALE 1:10

STA. 10+00 TO STA. 11+20



SECTION B–B–INTAKE WEIR TYPICAL SECTION

SCALE 1:10

DESIGNED		
DRAWN		
CHECKED		
REVISED		
	INITIALS	DATE

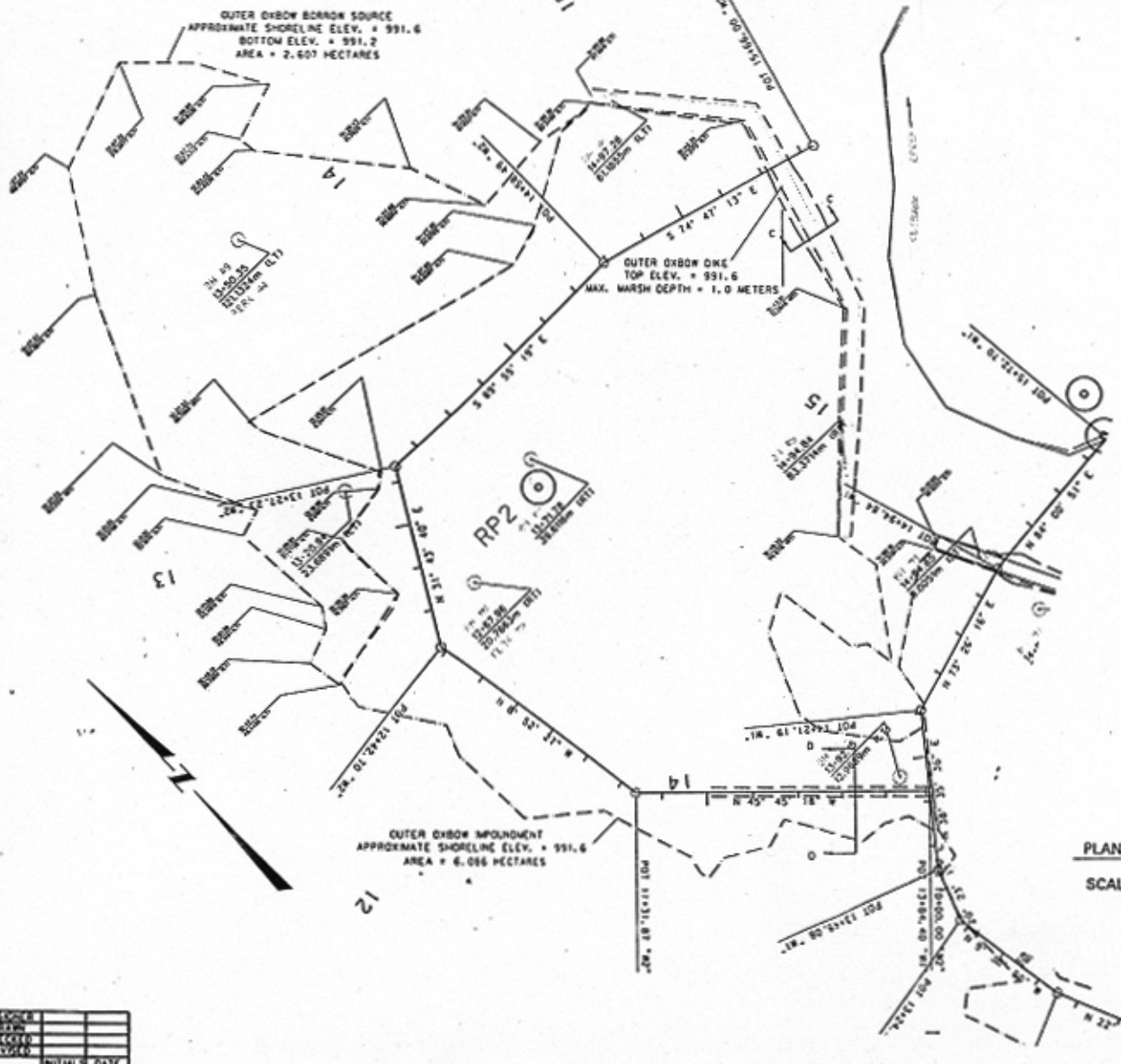
INNER OXBOW
LAYOUT DETAIL
ALIGNMENT "W1"

PRELIMINARY

LAND & WATER D-3

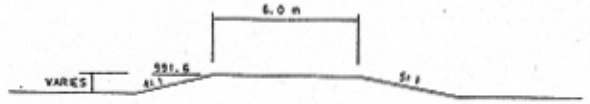
OUTER OXBOW LAYOUT

STATE	PROJECT NUMBER	SHEET
MONTANA	NH 0002(232)	7



PLAN VIEW

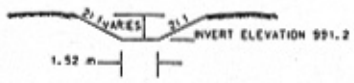
SCALE 1:100



SECTION C-C-SPREDER DIKE TYPICAL SECTION

SCALE 1:10

STA. 10+00 TO STA. 11+00



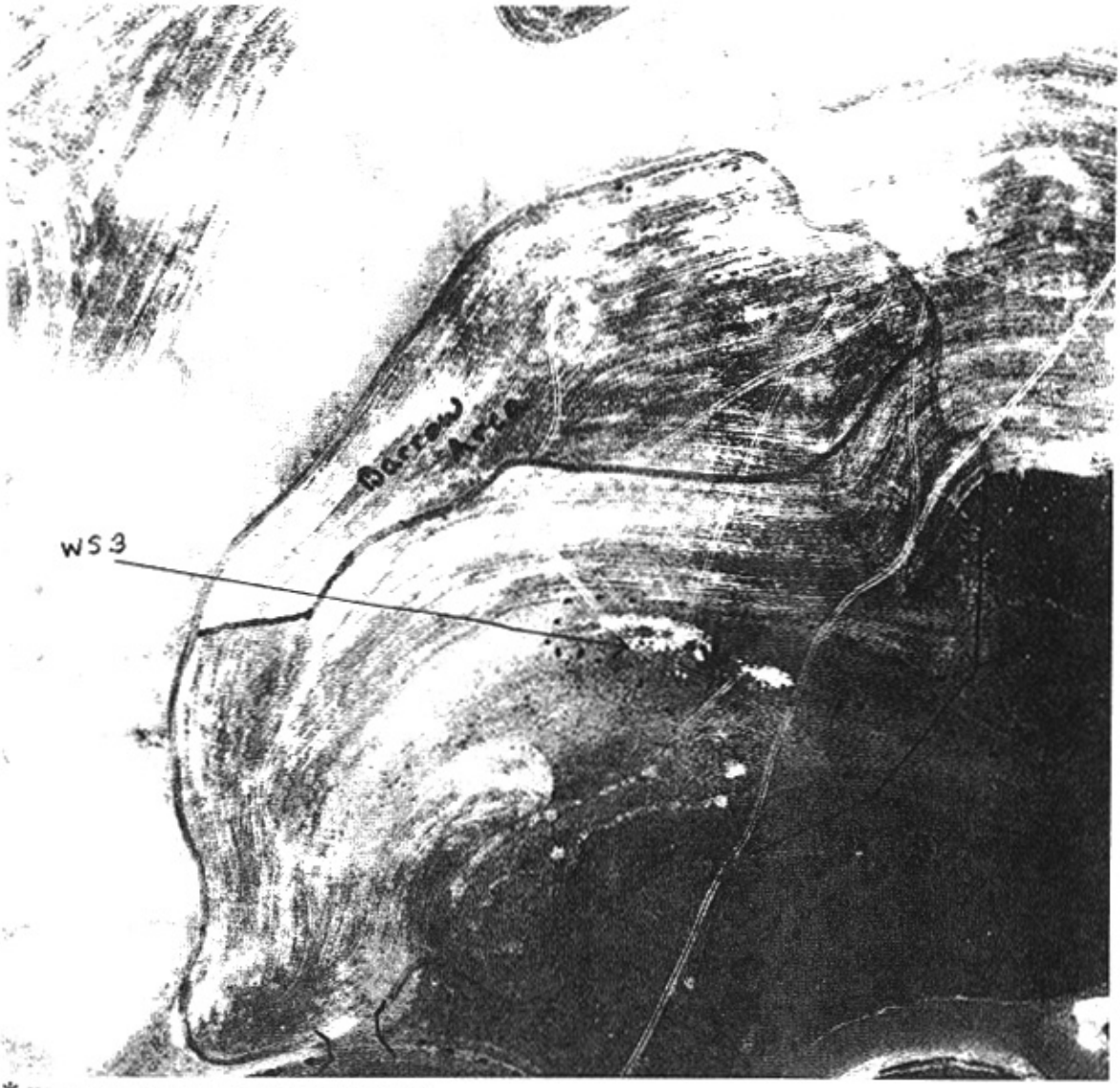
SECTION D-D-INTAKE WEIR TYPICAL SECTION

SCALE 1:10

DESIGNED		
DRAWN		
CHECKED		
RECOMMD		
	INITIALS	DATE

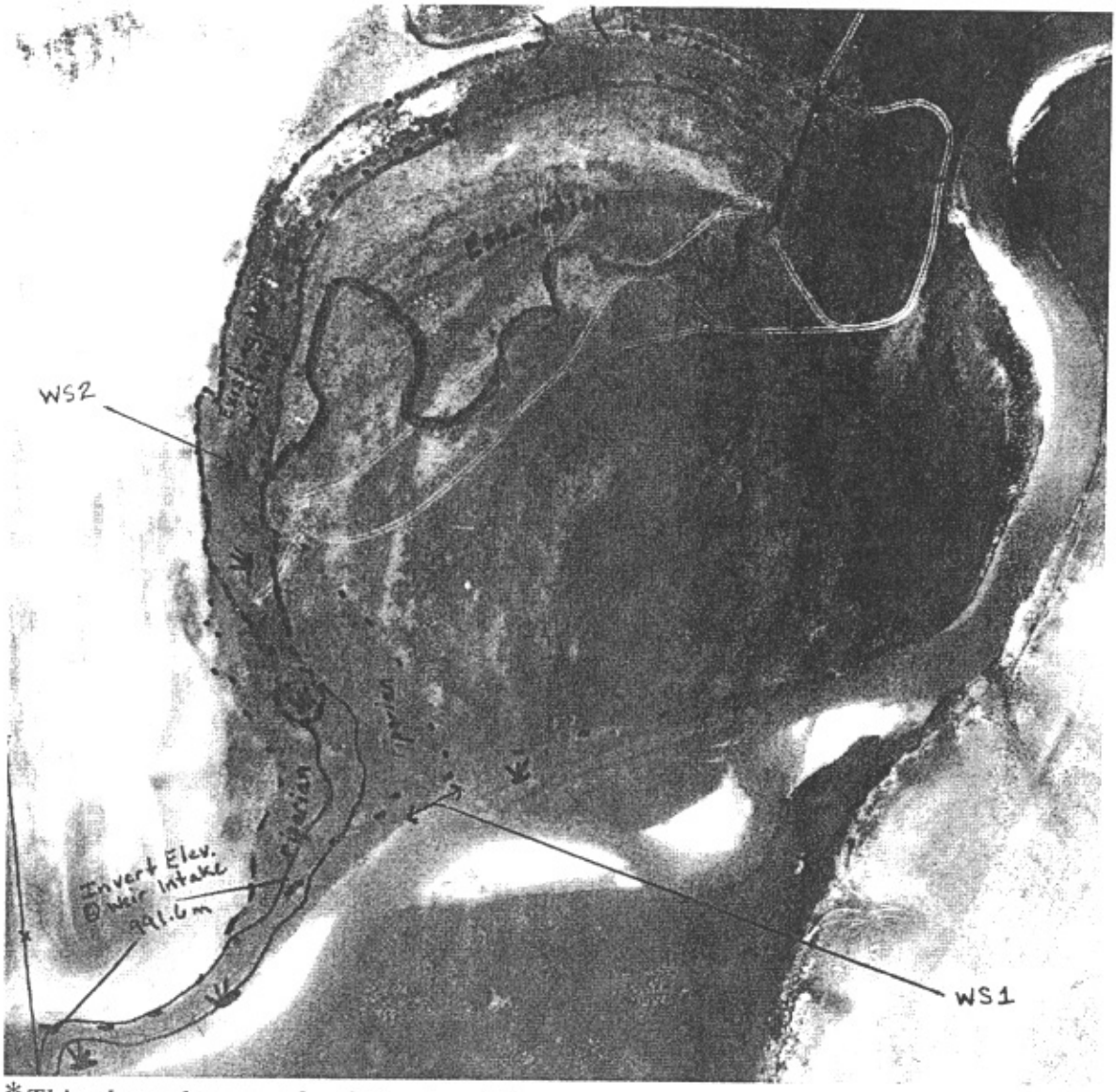
OUTER OXBOW
LAYOUT DETAIL
ALIGNMENT "W2"

PRELIMINARY



This photo shows wetland site 3

It is anticipated that with the construction of the low head dikes, and the placing and grading of the invert and its associated channel along CutBank Creek, the project will directly impact a maximum of approximately 0.2 acres of existing wetlands (category II, III, and IV). Monitoring will be required for a substantial amount of time (minimum 5 years) to determine any changes in functional capacity of existing (pre-construction) wetlands and what the functional capacity of the whole system is post-construction. It is anticipated that the proposed project total wetland size should be approximately 26 – 28 acres, note that these acreages include the existing 3.4 acres of the inner and outer oxbow wetlands prior to project construction.



This photo shows wetland sites 1 and 2

Montana Wetland Field Evaluation Form (revised 9/23/1997, DRAFT)

1. Project Name: Ferry Ranch **2.** Project #: 0002(232) & Control #: 0703

3. Evaluation Date: Mo. 7 Day 30 Yr. 98 **4.** Evaluator(s): P. Basting **5.** Wetlands/Site #(s) # 3 (lake oxbow)

6. Wetland Location(s): i. Legal: Twnshp. 34 (N) or S; Range 8 E or (W) Section 27/35 ; ¼ S. ____ ; ¼¼S. ____ ; ¼¼¼S. ____
ii. Geographic: Latitude: Degrees ____ ; Min. ____ ; Sec. ____ ; Longitude: Degrees ____ Min. ____ ; Sec. ____
iii. UTM: _ _ _ _ _ _ _ iv. Watershed: _ _ _ _ _ _ _ _ _ GPS Reference No.: ____
Access Description: ____

7. a. Evaluating Agency: MDT ;
b. Purpose of Evaluation:
1. ____ Wetlands potentially affected by MDT project
2. X Mitigation wetlands; pre-construction
3. ____ Mitigation wetlands; post-construction
4. ____ Other

8. Wetland size: (total acres) ___.___ (visually estimated) 1.1 (measured, e.g. by GPS) Field [illegible]

9. Assessment area: (AA,tot., ac., see instructions on determining AA) 3.0 (visually estimated) ___.___ (measured, e.g. by GPS)

10. Classification of AA (HGM according to Brinson, first column; USFWS according to Cowardin[1979], remaining columns)

HGM Class	System	Subsyst.	Class	Water Regime	Modifier	Dominance Type	% of AA
Riverine Lower Perennial	Palustrine	–	EM	Temporarily Flooded		Emergent - (Heju, Elpa, Rucr)	100

(Abbreviations; System: Palustrine(P)/ Subsyst.: 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)/ Subsyst.: Limnetic (2)/ Classes: RB, UB, AB/ Subsystem: Littoral (4)/ Classes: RB, UB, AB, US, EM/ System: Riverine (R)/ Subsyst.: Lower Perennial (2)/ Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3)/ Classes: RB, UB, AB, US/ Water Regimes: Intermittently Exposed (G), Semipermanently Flooded (F), Seasonally Flooded (C), Temporarily Flooded (A), Intermittently Flooded (J)

11. Estimate relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
(Circle one) Unknown Rare Common (Abundant)
Comments: Original area in an old [illegible] oxbow, subject to sporadic flood flows (overbank) from Cut Bank Crk and receives [illegible] from surrounding

12. General condition of AA: cropland.
i. Regarding disturbance: (circle one, see definitions) Undisturbed Encroached Upon (Directly Disturbed)
Comments: (types of disturbance, intensity, season, etc.): Cultivation & farming
ii. Weedy, alien, & introduced species (including those not domesticated, feral): (list) 0

13. Habitat Diversity: (count only the number of different "Cowardin" types occurring at level of water regime [equal NWI classes, #10 above])
i. Number of NWI classes w/ persistent vegetation: (circle points) ≥3 classes = 5 pts. 2 classes = 3 pts. ≤ 1class = (1 pt.)
ii. Open water in the AA: (circle one) present = 2 pts. absent = (1 pt.)
Score is: (i 1) x (ii 1) = 1

Score	10	5-6	2-3	1
Rating	Exceptional	High	Moderate	(Low)
Functional Points	NA	NA	NA	NA

Comments: ____

14. Provide brief descriptive summary of AA & surrounding land use and habitat: Assessment area and surrounding land use primarily agriculture small grain production under crop/fallow rotation), subject to cattle grazing primarily in early spring & fall

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

15A. Habitat for Federally Listed, Proposed, or Candidate Threatened or Endangered Plants or Animals:

AA is Documented (D) or Suspected (S) to receive (circle one):

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) General Migrant Bald Eagle (Spring/Fall)

No use D S

Highest Level Use:	doc./reg.	doc./occ.	sus./reg.	sus./occ.	doc./incid.	sus./incid.	None
Rating	High	High	Moderate	Moderate	Low	Low	None
Functional Points	1.0	0.8	0.7	0.6	0.2	0.1	0.0

Sources for documented use (e.g. observations, records, etc.) MNHP, USFWS, D County

15B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in15A above)

AA is Documented (D) or Suspected (S) to receive (circle one):

Regular use (list species) D S _____

Occasional (infrequent, sporadic) use (list species) D S _____

Incidental (chance, inconsequential) use (list species) D S _____

No use D (S)

Highest Level Use:	doc./reg.	doc./occ.	sus./reg.	sus./occ.	doc./incid.	sus./incid.	None
Rating	High	High	Moderate	Moderate	Low	Low	None
Functional Points	1.0	0.8	0.7	0.6	0.2	0.1	0.0

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

15C. General Wildlife Habitat Rating: (Circle appropriate response; AA is verified [V] or suspected [S] to receive substantial [S] moderate [M], or negligible to no use [N]; [see definitions for these terms] by the listed wildlife groups (see definitions for aquatic/semi-aquatic & non-aquatic wildlife)

Aquatic/semi-aquatic birds (list examples) V or S S, (M), or N waterfowl, waterbirds, seagulls

Non-aquatic birds (list examples) V or S S, (M), or N killdeer, meadowlark, hawks

Aquatic/semi-aquatic mammals (list ex.) V or S S, M, or (N) muskrat

Non-aquatic mammals (list ex.) V or S S, M, or (N) ground squirrels, white tail deer

Aquatic/semi aquatic reptiles (list ex.) V or (S) S, M, or N painted turtle

Non-aquatic reptiles (list ex.) V or (S) S, M, or N garter snake

Amphibians (list examples) V or S S, M, or N pl. leopard frog

Invertebrates (list examples) (V) or S S, M, or N grasshoppers, honeybees

i. Assessed Wildlife Use (circle points):

≥3 s's or ≥5 m's + s's = 7 pts.

1-2 s's or 2-4 m's = 3 pts.

No s's and < 2 m's = (1 pt.)

ii. Habitat Diversity from # 13 (circle points)

High to exceptional rating = 3 pts.

Moderate rating = 2 pts.

Low rating = (1 pt.)

Score is: (i 1) x (ii 1) = 1

Score	21	14	9	7	6	3	2	(1)
Rating	High	High	High	High	Mod.	Mod.	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.5	0.4	0.3	0.1

Comments: _____

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

i. AA is verified (V) or suspected (S) to support listed groups for portions of their life cycle (circle points)

Native fish V or S = 5 pts.

Introduced game fish V or S = 3 pts.

Introduced non-game fish V or S = 2 pts.

No fish V or S = 1 pt.

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

Permanent/perennial = 3 pts.

Seasonal/intermittent = 2 pts.

Temporary/ephemeral = 1 pt.

Score is: (i ____) x (ii ____) = _____

Score	15	10	9	6	5	3,4	2	1
Rating	High	High	High	Mod.	Mod.	Mod.	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.6	0.5	0.2	0.1

Comments: N/A

15E. Flood Attenuation and Storage: (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. (see 15L for Dynamic Surface Water Storage)

i. Estimated acreage of jurisdictional wetland I the AA that is subject to periodic flooding (circle points)
Flooded wetlands ≥ 10 acres = 7 pts.
Flooded wetland <10 ac.,>2ac.= 5 pts.
Flooded wetlands ≤ 2ac. (= 1 pt.)

ii. Estimated % of flooded wetland classified as forested (fo), scrub-shrub (ss) or both
> 75% fo/ss = 3 pts.
25-75% fo/ss = 2 pts.
<25% fo/ss (= 1 pt.)

iii. AA contains no outlet or restricted outlet (= 1 pt.)
AA contains unrestricted outlet = 0 pts.

LAND & WATER D-8

Score is: ([i 1] x [ii 1]) +(iii 1) = 2

Score	22	16-21	14-15	11	8-10	6-7	5-4	3	2	1
Rating	High	High	High	High	Mod.	Mod.	Mod.	Low	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1

Comments: Depressional low point in landscape. Thus outlet somewhat restricted to a point.

15F. 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, 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 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 retarded.
iv. (T) F Percent cover of emergent and/or dense woody vegetation in the AA exceeds 50%

Rating of Category: (i) is true and at least two of (ii), (iii), or (iv) are true = High Rating
Rating is neither High nor Low (= Moderate Rating)
(I) is false and at least two of (ii), (iii), or (iv) are false = Low Rating

Score	NA	NA	NA
Rating	High	Mod.	Low
Functional Points	1.0	0.5	0.1

Comments:

15G 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 has a maximum depth exceeding 6.6 ft. at low water (e.g. subject to wave action). If does not apply, circle NA here and proceed to next function; in items I-iv below, circle choice)

i. Estimated % cover of rooted vegetated component in AA
>30% rooted vegetation = 3 points
10-30% rooted vegetation = 2 points
<10% rooted vegetation = 1 point

ii. Water body adjacent to rooted vegetation is
Permanent/Perennial = 5 points
Seasonal/ Intermittent = 3 points
Temporary/Ephemeral = 2 points

Score is: (i____) x (ii____) = ____

Score	15	10	9	6	4	5	3	2
Rating	High	High	High	Mod.	Mod.	Mod.	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.5	0.4	0.2	0.1

Comments: N/A

15H. Production Export/Food Chain Support: (Circle appropriate choice in i-iv below)

i. Acreage of vegetated component in AA:
>5 acres = 10 points
1-5 acres = (5 points)
<1 acre = 1 point

ii. Habitat Diversity Rating: (from #13)
High-Exceptional = 3 points
Moderate = 2 points
Low = (1 point)

iii. Outlet presence:
AA contains an outlet = (3 points)
AA contains no outlet = 1 point

iv. Surface water in AA is:
Permanently/Perennial = 3 points
Seasonal/Intermittent = 2 points
Temporary/Ephemeral = (1 point)

Score is: [(i 5) x (ii 1)] + [(iii 3) x (iv 1)] = 8.

Score	39	21-36	16-19	10-14	8-9	7	5-6	4	3	2
Rating	High	High	High	Mod.	Mod.	Mod.	Low	Low	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1

Comments:

15I. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)

i. ___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. ___Permeable substrate present without underlying impeding laye.
___Wetland contains inlet but no outlet
___Other

LAND & WATER D.9

Rating for Discharge(D)/Recharge(R) Properties:
AA is known D/R area or one or more indicators of D/R present = High
No D/R indicators present = Low
Available D/R information inadequate to rate AA D/R potential = Unkn

Score	NA	NA	NA
Rating	High	Low	Unknown
Functional Points	1.0	0.1	NA

Comments: _____

15J. Uniqueness:

i. **Estimated relative abundance of similarly classified sites within the Major Watershed Basin** (#11, circle)
Rare = 3 points
Common = 2 points
Abundant = 1 point

ii. **Replacement potential/habitat diversity** (#12, circle points)
AA is/contains fen, bog, warm springs or mature (>80 yr)forested wetland = 10 points
AA does not contain above cited types but diversity is high-exceptional = 3 points
AA does not contain above types and habitat diversity is low-moderate = 1 point

iii. **Condition of AA:** (from #12, circle) Undisturbed = 3 pts. Encroached = 2 pts. Directly Disturbed = 1 pt.
Score is [(i ___) x (ii ___)] + (iii) = 2

Score	33	31-32	22-23	12-21	10-11	8-9	5,6,7	4	2-3	1
Rating	High	High	High	High	Mod.	Mod.	Mod.	Low	Low	Low
Functional Points	1.0	.9	.8	.7	.6	.5	.4	.3	.2	.1

Comments: _____

15K. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y (N) (If yes, rate as High 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 Low [0.1])
iv. Condition of AA: (from #12, circle points) Undisturbed = 3 pts; Encroached upon = 2 pts.; Directly Disturbed = 1 pt.
v. Ownership of AA: (circle points) Public = 2 points; Private = 1 point
Score is: (iv ___) x (v ___) = ___

Score	6	4	3	2	1
Rating	High	Mod.	Mod.	Low	Low
Functional Points	1.0	0.7	0.5	0.3	0.1

Comments: _____

15L. Dynamic Surface Water Storage: (Applies to wetlands that do not flood from overbank or in-channel flow, but flood via precipitation, 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 subject to periodic flooding** (circle points)
Flooded wetlands ≥ 5 acres = 3 points
5 acres > flooded wetland > 1 acre = 2 points
Flooded wetlands < 1 acre = 1 point

ii. **Estimated flood frequency** (circle points)
Wetland floods ≥ 5/10 years = 2 points
Wetland floods < 5/10 years = 1 point

Score is (i 2) x (ii 2) = 4

Score	6	4	2,3	1	0.5
Rating	High	High	Mod.	Low	Low
Functional Points	1.0	0.8	0.5	0.3	0.1

Comments: Some flooding may be a result of upland surface runoff during snowmelt or early spring rains.

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/Candidate T&E Species Habitat	Low	0.1	1	
B. MT Natural Heritage Program Species Habitat	None	0.0	1	
C. General Wildlife Habitat	Low	0.1	1	
D. General Fish/Aquatic Habitat	N/A	–	–	
E. Flood Attenuation and Storage	Low	0.2	1	
F. Sediment/Nutrient/Toxicant Removal	Med.	0.5	1	
G. Sediment/Shoreline Stabilization	N/A	–	–	
H. Production Export/Food Chain Support	mod.	0.6	1	
I. Groundwater Discharge/Recharge	Low	0.1	1	
J. Uniqueness	Low	0.2	1	
K. Recreation/Education Potential	Low	0.1	1	
L. Dynamic Surface Water Storage	High	0.8	1	
Totals:		2.7	10	

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 0.9 or 1 functional point for Listed/Proposed/Candidate Threatened or Endangered Species; or
- ___ Score of 0.9 or 1 functional point 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 whole #) of total possible functional points.

Category II Wetland: (Criteria for Category I not satisfied but meets any one of the following criteria; if not satisfied, go to Cat. IV)
- ___ Score of 1 functional point for Species Rated S1, S2, or S3 by the MT 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 whole #) of total possible functional points.

Category III Wetland: (Criteria for Categories I, II or IV not satisfied; if doe not meet criteria go to Category IV)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and any one of the following criteria; if does not satisfy criteria go to Category III)
- X "Low" rating for Uniqueness; and (should this be "or"?)
- ___ "Low" rating for Production Export/Food Chain Support; and
- X Total actual functional points < 30% (round to nearest whole #) of total possible functional points

Montana Wetland Field Evaluation Form (revised 9/23/1997, DRAFT)

1. Project Name: Berry Ranch 2. Project #: 2002(232) & Control #: 0703

3. Evaluation Date: Mo. 7 Day 30 Yr. 98 4. Evaluator(s): Eastburg, Hill, Woodrich, Sickerson 5. Wetlands/Site #(s) 2 (Lower Oxbow)

6. Wetland Location(s): i. Legal: Twnshp. 34 (N) or S; Range 8 E (W) Section 27/35 : ¼ S. ____ ; ¼¼S. ____ ; ¼¼¼S. ____
ii. Geographic: Latitude: Degrees ____ ; Min. ____ ; Sec. ____ ; Longitude: Degrees ____ Min. ____ ; Sec. ____
iii. UTM: _____ iv. Watershed: _____ GPS Reference No.: ____
Access Description: ____

7. a. Evaluating Agency: MDT
b. Purpose of Evaluation:
1. ____ Wetlands potentially affected by MDT project
2. X Mitigation wetlands; pre-construction
3. ____ Mitigation wetlands; post-construction
4. ____ Other

8. Wetland size: (total acres) ____ . ____ (visually estimated)
2 . 3 (measured, e.g. by GPS) planimetered & full acre

9. Assessment area: (AA,tot., ac., see instructions on determining AA) ____ . ____ (visually estimated)
2 . 3 (measured, e.g. by GPS) same as above

10. Classification of AA (HGM according to Brinson, first column; USFWS according to Cowardin[1979], remaining columns)

HGM Class	System	Subsyst.	Class	Water Regime	Modifier	Dominance Type	% of AA
Riverine Lower Perennial	Palustrine	—	Emergent	Seasonally Flooded		Emergent (Elpa, Elte, Poly-)	100%

(Abbreviations: System: Palustrine(P)/ Subsyst.: 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)/ Subsyst.: Limnetic (2)/ Classes: RB, UB, AB/ Subsystem: Littoral (4)/ Classes: RB, UB, AB, US, EM/ System: Riverine (R)/ Subsyst.: Lower Perennial (2)/ Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3)/ Classes: RB, UB, AB, US/ Water Regimes: Intermittently Exposed (G), Semipermanently Flooded (F), Seasonally Flooded (C), Temporarily Flooded (A), Intermittently Flooded (J))

11. Estimate relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)
(Circle one) Unknown Rare (Common) Abundant
Comments: Old oxbow wetland, ground water driven system w/ fairly frequent flooding 5/10 yrs. from overbank flows of Big Blackfoot Rv.

12. General condition of AA:
i. Regarding disturbance: (circle one, see definitions) Undisturbed (Encroached Upon) Directly Disturbed
Comments: (types of disturbance, intensity, season, etc.): Spring/Fall Cattle Grazing
ii. Weedy, alien, & introduced species (including those not domesticated, feral): (list) adjacent uplands do have Leafy Spurge (Eves) & Canada Thistle (Ciar)

13. Habitat Diversity: (count only the number of different "Cowardin" types occurring at level of water regime [equal NWI classes, #10 above])
i. Number of NWI classes w/ persistent vegetation: (circle points) ≥3 classes = 5 pts. 2 classes = 3 pts. ≤ 1 class = 1 pt.
ii. Open water in the AA: (circle one) present = 2 pts. (absent = 1 pt.)
Score Is: (i 1) x (ii 1) = 1

Score	10	5-6	2-3	1
Rating	Exceptional	High	Moderate	Low
Functional Points	NA	NA	NA	NA

Comments: Wetland confined w/in old channel - emergent vegetation only

14. Provide brief descriptive summary of AA & surrounding land use and habitat: Adjacent landuse is spring/fall pasture for grazing and there is a slight small grain production in the general area. Channelled wetland dominated by Polygonum, Eleocharis, Triglochin etc.

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

15A. Habitat for Federally Listed, Proposed, or Candidate Threatened or Endangered Plants or Animals:

AA is Documented (D) or Suspected (S) to receive (circle one):

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 Migratory – Bald Eagle (Spring/Fall)

No use D S

Highest Level Use:	doc./reg.	doc./occ.	sus./reg.	sus./occ.	doc./incid.	sus./incid.	None
Rating	High	High	Moderate	Moderate	Low	Low	None
Functional Points	1.0	0.8	0.7	0.6	0.2	0.1	0.0

Sources for documented use (e.g. observations, records, etc.) MNHP, USFWS, D. Casey, Blackfeet Tribe

15B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in 15A above)

AA is Documented (D) or Suspected (S) to receive (circle one):

Regular use (list species) D S

Occasional (infrequent, sporadic) use (list species) D S

Incidental (chance, inconsequential) use (list species) D S

No use D S – MNHP – NO SENSITIVE SPP. OCCURRENCE IN PROJ. AREA

Highest Level Use:	doc./reg.	doc./occ.	sus./reg.	sus./occ.	doc./incid.	sus./incid.	None
Rating	High	High	Moderate	Moderate	Low	Low	None
Functional Points	1.0	0.8	0.7	0.6	0.2	0.1	0.0

Sources for documented use (e.g. observations, records, etc.) MNHP [illegible]

15C. General Wildlife Habitat Rating: (Circle appropriate response: AA is verified [V] or suspected [S] to receive substantial [S] moderate [M], or negligible to no use [N]; [see definitions for these terms] by the listed wildlife groups (see definitions for aquatic/semi-aquatic & non-aquatic wildlife)

Aquatic/semi-aquatic birds (list examples) V or S S, M, or N Canada Goose, Mallard [illegible], Mallard, Blue-Wing Teal

Non-aquatic birds (list examples) V or S S, M, or N [illegible] Cliff swallow

Aquatic/semi-aquatic mammals (list ex.) V or S S, M, or N Muskrat, mink

Non-aquatic mammals (list ex.) V or S S, M, or N [illegible], Fox, Coyote

Aquatic/semi aquatic reptiles (list ex.) V or S S, M, or N Painted Turtle

Non-aquatic reptiles (list ex.) V or S S, M, or N [illegible] Snake

Amphibians (list examples) V or S S, M or N N. Leopard frog

Invertebrates (list examples) V or S S, M, or N damselflies, dragonflies, [illegible], Mosquitoes [illegible]

i. Assessed Wildlife Use (circle points):

≥3 s's or ≥5 m's + s's = 7 pts.

1-2 s's or 2-4 m's = 3 pts.

No s's and < 2 m's = 1 pt.

ii. Habitat Diversity from # 13 (circle points)

High to exceptional rating = 3 pts.

Moderate rating = 2 pts.

Low rating = 1 pt.

Score is: (i 3) x (ii 1) = 3

Score	21	14	9	7	6	3	2	1
Rating	High	High	High	High	Mod.	Mod.	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.5	0.4	0.3	0.1

Comments: 90% of the wildlife I have observed while in the field at this site (many, many times) have been directly associated w/ at Bank Ck. I have seen relatively little [illegible] use of the [illegible].

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

i. AA is verified (V) or suspected (S) to support listed groups for portions of their life cycle (circle points)

Native fish V or S = 5 pts.

Introduced game fish V or S = 3 pts.

Introduced non-game fish V or S = 2 pts.

No fish V or S = 1 pt.

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

Permanent/perennial = 3 pts.

Seasonal/intermittent = 2 pts.

Temporary/ephemeral = 1 pt.

Score is: (i —) x (ii —) = N/A

Score	15	10	9	6	5	3,4	2	1
Rating	High	High	High	Mod.	Mod.	Mod.	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.6	0.5	0.2	0.1

Comments: N/A – although site receives overbank flow in spring flood situations it is not surficially connected to cut Bank Ck, this wetland is primarily a ground water driven system.

15E. Flood Attenuation and Storage: (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. (see 15L for Dynamic Surface Water Stor.

I. Estimated acreage of jurisdictional wetland I the AA that is subject to periodic flooding (circle points)
Flooded wetlands ≥ 10 acres = 7 pts.
Flooded wetland <10 ac.,>2ac. = 5 pts.
Flooded wetlands ≤ 2ac. = 1 pt.

II. Estimated % of flooded wetland classified as forested (fo), scrub-shrub (ss) or both
> 75% fo/ss = 3 pts.
25-75% fo/ss = 2 pts.
<25% fo/ss = 1 pt.

iii. AA contains no outlet or restricted outlet = 1 pt.
AA contains unrestricted outlet = 0 pt.

Score is: ([i 2] x [ii 1]) +(iii 1) = 6

Score	22	16-21	14-15	11	8-10	6-7	5-4	3	2	1
Rating	High	High	High	High	Mod.	Mod.	Mod.	Low	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1

Comments:

15F. 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, agricultural drainage, industrial/municipal wastewater) or accumulation of sediment/excess nutrients evident (deposits on vegetation, algal ma or other signs of eutrophication present) or immediate upstream land use potential to deliver significant sediment/nutrien 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 retarded.
iv. T F Percent cover of emergent and/or dense woody vegetation in the AA exceeds 50%

Rating of Category: (i) is true and at least two of (ii), (iii), or (iv) are true = High Rating
Rating is neither High nor Low = Moderate Rating
(I) is false and at least two of (ii), (iii), or (iv) are false = Low Rating

Score	NA	NA	NA
Rating	High	Mod.	Low
Functional Points	1.0	0.5	0.1

Comments:

15G 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 has a maximum depth exceeding 6.6 ft. at low water (e.g. subject to wave action). If does not apply, circle NA here and proceed to next function; in items I-iv below, circle choice)

i. Estimated % cover of rooted vegetated component in AA
>30% rooted vegetation = 3 points
10-30% rooted vegetation = 2 points
<10% rooted vegetation = 1 point

ii. Water body adjacent to rooted vegetation is
Permanent/Perennial = 5 points
Seasonal/ Intermittent = 3 points
Temporary/Ephemeral = 2 points

Score is: (i____) x (ii____) = ____

Score	15	10	9	6	4	5	3	2
Rating	High	High	High	Mod.	Mod.	Mod.	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.5	0.4	0.2	0.1

Comments: N/A

15H. Production Export/Food Chain Support: (Circle appropriate choice in i-iv below)

i. Acreage of vegetated component in AA:
>5 acres = 10 points
1-5 acres = 5 points
<1 acre = 1 point

ii. Habitat Diversity Rating: (from #13)
High-Exceptional = 3 points
Moderate = 2 points
Low = 1 point

iii. Outlet presence:
AA contains an outlet = 3 points
AA contains no outlet = 1 point

iv. Surface water in AA is:
Permanently/Perennial = 3 points
Seasonal/Intermittent = 2 points
Temporary/Ephemeral = 1 point

Score is: [(i 5) x (ii 1)] + [(iii 3) x (iv 2)] = 11

Score	39	21-36	16-19	10-14	8-9	7	5-6	4	3	2
Rating	High	High	High	Mod.	Mod.	Mod.	Low	Low	Low	Low
Functional Points	1.0	0.9	0.8	0.7	0.6	0.5	0.4	0.3	0.2	0.1

Comments:

15I. Groundwater Discharge/Recharge: (Check the indicators in i & ii below that apply to the AA)

i.
- __/ Springs are known or observed
- ___ Vegetation growing during dormant season/drought
- _x_ 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.
- _X_ Permeable substrate present without underlying impeding
- ___ Wetland contains inlet but no outlet
- ___ Other

Rating for Discharge(D)/Recharge(R) Properties:
AA is known D/R area or one or more indicators of D/R present = High
No D/R indicators present = Low
Available D/R information inadequate to rate AA D/R potential = Unkn

Score	NA	NA	NA
Rating	High	Low	Unknown
Functional Points	1.0	0.1	NA

Comments: _____

15J. Uniqueness:

i. **Estimated relative abundance of similarly classified sites within the Major Watershed Basin (#11, circle)**
Rare = 3 points
Common = 2 points
Abundant = 1 point

ii. **Replacement potential/habitat diversity (#12, circle points)**
AA is/contains fen, bog, warm springs or mature (>30 yr)forested wetland = 10 points
AA does not contain above cited types but diversity is high-exceptional = 3 points
AA does not contain above types and habitat diversity is low-moderate = 1 point

iii. **Condition of AA:** (from #12, circle) Undisturbed = 3 pts. Encroached = 2 pts. Directly Disturbed = 1 pt.
Score is [(i 2) x (ii 1)] + (iii) = 4

Score	33	31-32	22-23	12-21	10-11	8-9	5.6.7	4	2-3	1
Rating	High	High	High	High	Mod.	Mod.	Mod.	Low	Low	Low
Functional Points	1.0	.9	.8	.7	.6	.5	.4	.3	.2	.1

Comments: _____

15K. Recreation/Education Potential: i. Is the AA a known rec./ed. site: (circle) Y (N) (If yes, rate as High 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 Low [0.1])
iv. Condition of AA: (from #12, circle points) Undisturbed = 3 pts; Encroached upon = 2 pts.; Directly Disturbed = 1 pt.
v. Ownership of AA: (circle points) Public = 2 points; Private = 1 point
Score is: (iv____) x (v____) = _____

Score	6	4	3	2	1
Rating	High	Mod.	Mod.	Low	Low
Functional Points	1.0	0.7	0.5	0.3	0.1

Comments: _____

15L. Dynamic Surface Water Storage: (Applies to wetlands that do not flood from overbank or in-channel flow, but flood via precipitation, 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 subject to periodic flooding** (circle points)
Flooded wetlands ≥ 5 acres = 3 points
5 acres > flooded wetland > 1 acre = 2 points
Flooded wetlands < 1 acre = 1 point

ii. **Estimated flood frequency** (circle points)
Wetland floods ≥ 5/10 years = 2 points
Wetland floods < 5/10 years = 1 point

Score is (i 2) x (ii 2) = 4

Score	6	4	2,3	1	0.5
Rating	High	High	Mod.	Low	Low
Functional Points	1.0	0.8	0.5	0.3	0.1

Comments: I have been to this site during times when overbank flooding has not occurred yet observed standing water from ground water flooding.

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Function al Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed/Candidate T&E Species Habitat	LOW	0.1	1	
B. MT Natural Heritage Program Species Habitat	NONE	0.1	1	
C. General Wildlife Habitat	MOD.	0.4	1	
D. General Fish/Aquatic Habitat	N/A	—	—	
E. Flood Attenuation and Storage	MOD.	0.5	1	
F. Sediment/Nutrient/Toxicant Removal	MOD	0.5	1	
G. Sediment/Shoreline Stabilization	N/A	—	—	
H. Production Export/Food Chain Support	MOD	0.7	1	
I. Groundwater Discharge/Recharge	HIGH	1.0	1	
J. Uniqueness	LOW	0.3	1	
K. Recreation/Education Potential	LOW	0.1	1	
L. Dynamic Surface Water Storage	HIGH	0.8	1	
Totals:		4.4	10	

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 0.9 or 1 functional point for Listed/Proposed/Candidate Threatened or Endangered Species; or
- ___ Score of 0.9 or 1 functional point 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 whole #) of total possible functional points.

Category II Wetland: (Criteria for Category I not satisfied but meets any one of the following criteria; if not satisfied, go to Cat. IV)
- ___ Score of 1 functional point for Species Rated S1, S2, or S3 by the MT 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 whole #) of total possible functional points.

Category III Wetland: (Criteria for Categories I, II or IV not satisfied; if doe not meet criteria go to Category IV)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and any one of the following criteria; if does not satisfy criteria go to Category III)
- ___ "Low" rating for Uniqueness; and (should this be "or" ?)
- ___ "Low" rating for Production Export/Food Chain Support; and
- ___ Total actual functional points < 30% (round to nearest whole #) of total possible functional points

Appendix E

BIRD SURVEY PROTOCOL
GPS PROTOCOL

MDT Wetland Mitigation Monitoring
Perry Ranch
Glacier County, Montana

LAND & WATER

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.