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# **MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2002**

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*Fourchette Creek Reservoir Complex  
Phillips 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

February 2003

Project No: 130091.023



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## 1.0 INTRODUCTION

The Fourchette Creek Reservoir Complex was constructed in the Missouri River Breaks in 1997 and is considered the first attempted wetland mitigation bank in Montana (Urban pers. comm.). The project was enacted to mitigate wetland impacts associated with several Montana Department of Transportation (MDT) projects constructed between 1992 and 1995 that resulted in the cumulative loss of 9.84 wetland acres. These include Stanford East & West, Geyser-North, Eddies Corner-South, Ross Fork Creek – Judith Basin County, Judith River – 6 miles NW of Moore, and Ross Fork Creek – 5 Miles NW of Moore. Constructed in Watershed #9 (Middle Missouri) within the MDT Glendive District, the site is located approximately 15 miles southwest of Sun Prairie (50 miles south of Malta) in Phillips County (**Figure 1**). The site occurs on Bureau of Land Management (BLM) lands roughly 2 miles west and 1.5 miles north of the Charles M. Russell National Wildlife Refuge.

In conjunction with the BLM, MDT's intent was to construct five 2.6 to 6-acre shallow reservoirs at the mitigation site: Puffin, Albatross, Flashlight, Pintail, and Penguin (**Figure 1**). Spaced over approximately four linear miles, these structures were designed to maximize surface area with water depths less than 3 feet, maximizing the potential for establishment of emergent vegetation. The reservoirs were constructed in intermittent drainages to collect surface runoff during spring snowmelt and rainstorm events. No wetlands were present in these areas prior to construction (MDT undated).

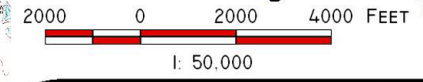
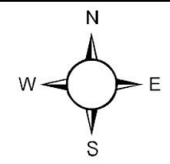
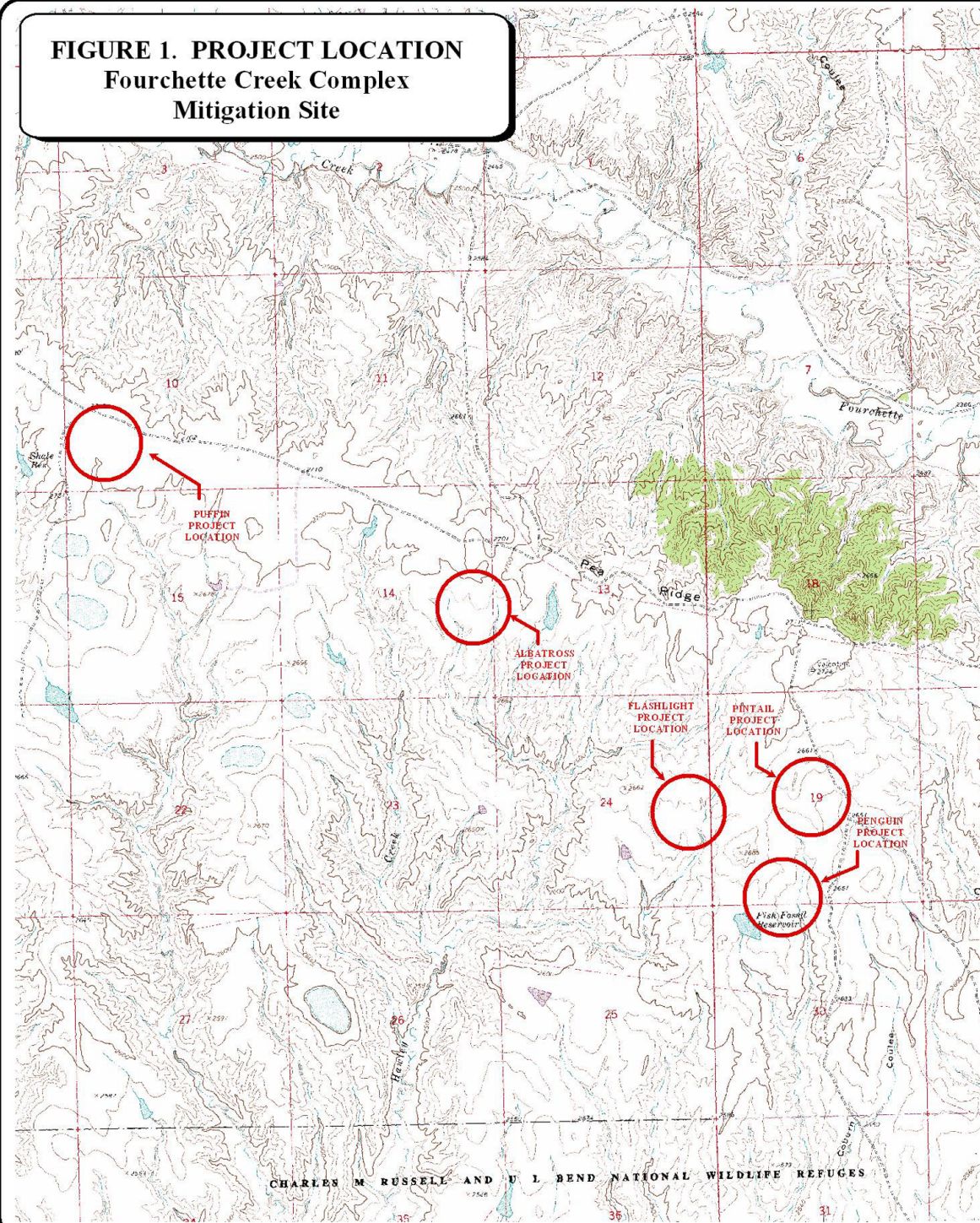
The primary objectives at the mitigation site are to provide waterfowl pair and brood habitat and promote greater distribution and use of available habitat for additional wildlife species by providing water sources, food, and cover. Specifically, MDT and BLM seek to provide approximately 10 to 22 acres of emergent wetlands with semi-permanent, fresh-mixosaline water regimes at the mitigation site. Primary wetland functions to be provided include streambank stabilization; nutrient detention/removal/transformation; sediment detention/reduction; intra/inter ecosystem integrity maintenance; and provision of a setting for recreational activities (MDT undated).

Final general success criteria at each reservoir include provision of: waterfowl pair and brood habitat (open water interspersed with emergent vegetation); a mosaic of emergent wetland vegetation communities; and adequate hydrology (maximization of areas three feet in depth) (MDT undated). Again, the goal was to create between 10 and 22 wetland acres between the five ponds.

Specific performance criteria identified in the monitoring plan contained within the project prospectus (MDT undated) address percent cover of emergent species and wetland functions. The plan states that the goal is to provide Type 3 and/or Type 4 wetlands according to the U.S. Fish & Wildlife Service (USFWS) Circular 39 definition of wetland types, with the provision of 10 to 20 percent emergent species cover within 5 years of construction. According to the monitoring plan, primary functions to be evaluated using the MDT method include wildlife use, enhanced biodiversity, water retention, silt retention, recreational opportunity, and erosion control.



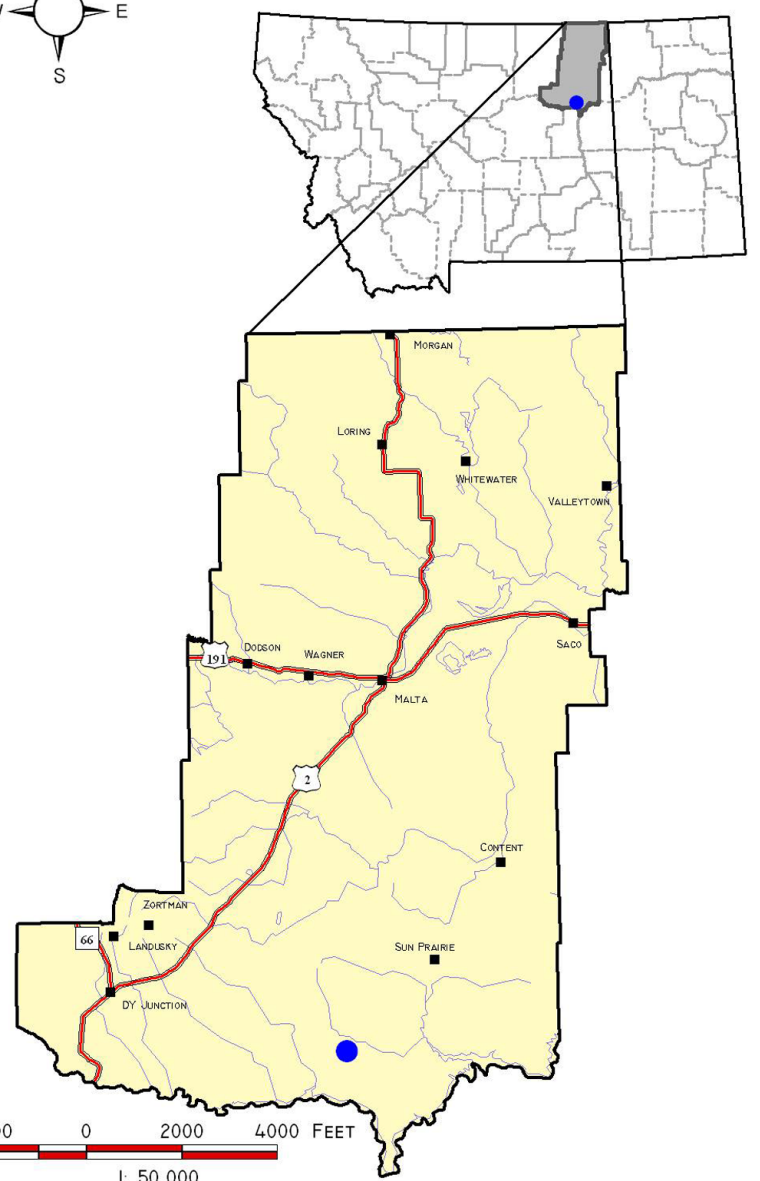
**FIGURE 1. PROJECT LOCATION**  
**Fourchette Creek Complex**  
**Mitigation Site**



PROJECT #: 130091.023  
 DATE: APRIL 2001  
 LOCATION:  
 PROJECT MANAGER: B. DUTTON  
 DRAWN BY: B. NOECKER



1120 CEDAR PO BOX 8254 MISSOULA, MT 59807





Monitoring methods outlined in the plan include: estimation of percent canopy cover of wetland vegetation; mapping of vegetation zones and open water; annual photograph points; water quality sampling; and macroinvertebrate sampling. With the exception of water quality sampling, which will be conducted separately by MDT (Urban pers. comm.), each of these methods was employed during 2002 monitoring.

The complex was first monitored in 2001. This report documents the results of the 2002 monitoring effort at the site. The specific monitoring areas for each of the five impoundments are illustrated in **Figure 2** for each site (**Appendix A**).

## 2.0 METHODS

### 2.1 Monitoring Dates and Activities

Each of the five reservoirs was visited on July 29<sup>th</sup>, 2002. 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; mapping of wetland/open water aquatic habitat boundaries; vegetation community mapping; soils data; hydrology data; bird and general wildlife use; photograph points; macroinvertebrate sampling; functional assessment; and (non-engineering) examination of dike structures. Vegetation transects were not required at this site (Urban pers. comm.).

### 2.2 Hydrology

Hydrologic indicators were evaluated at each impoundment during the mid-season visit. Predicted high-water lines for each impoundment are presented on plan sheets in **Appendix D**. Wetland hydrology indicators were recorded using procedures outlined in the Army Corps (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 present) was mapped on the aerial photograph and an estimate of the average water depth at this boundary was recorded.

No groundwater monitoring wells occur 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

At each impoundment, general dominant species-based vegetation community types (e.g., *Typha latifolia*/*Scirpus acutus*) were delineated on an aerial photograph during the mid-season visit. Standardized community mapping was not employed as many of these systems are geared towards climax vegetation and may not reflect yearly changes. Estimated percent cover of the

dominant species in each community type was listed on the site monitoring form (**Appendix B**). Establishment of permanent vegetation transects was not required at this mitigation site (Urban pers. comm.).

A comprehensive plant species list started in 2001 was updated as new species were encountered in 2002. Ultimately, observations from past years will be compared with new data to document vegetation changes over time. No woody species were planted at any of the impoundments. Consequently, no monitoring relative to the survival of such species was conducted.

## 2.4 Soils

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

## 2.5 Wetland Delineation

Wetland delineation was conducted at each impoundment according to the 1987 COE Wetland Delineation Manual. Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation and hydric soils. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: North Plains Region 4 (Reed 1988). The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary delineated and recorded with a resource grade GPS unit in 2001 was modified by hand as necessary on the 2001 aerial photo. The wetland/upland boundary in combination with the wetland/open water habitat boundary was used to calculate the jurisdictional wetland area developed at each impoundment.

## 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 mid-season visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. These observations were recorded as the observer traversed the site while conducting other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive species list for the entire site was compiled. Observations from past years will ultimately be compared with new data.

## 2.7 Birds

Bird observations were recorded during the mid-season visit. No formal census plots, spot mapping, point counts, or strip transects were conducted. Using the bird survey protocol (**Appendix E**) as general guidance, species were recorded as an observer traversed each impoundment during the mid-season visit. In general, bird observations were recorded incidental to other monitoring activities. Observations were categorized by species, activity code, and

general habitat association (see data forms in **Appendix B**). Observations from past years will be compared with new data.

## **2.8 Macroinvertebrates**

Macroinvertebrate samples were collected during the mid-season site visit and data recorded on the wetland mitigation monitoring form. Per MDT instruction, a single sample was collected at Puffin, Albatross, Flashlight, and Penguin reservoirs (Urban pers. comm.). Macroinvertebrate sampling procedures are included in **Appendix E**. The approximate locations of these sample points are shown on **Figure 2** for each site (**Appendix A**). Samples were preserved as outlined in the sampling procedure and sent to a laboratory for analysis.

## **2.9 Functional Assessment**

Functional assessments were completed at each wetland impoundment using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were collected during the mid-season site visit. An abbreviated field data sheet for the 1999 MDT Montana Wetland Assessment Method was compiled to facilitate rapid collection of field information. 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 macroinvertebrate sampling locations. Each photograph point location was recorded with a resource grade GPS in 2001. The approximate location of these photo points is shown on **Figure 2** for each site (**Appendix A**). All photographs were taken using a 50 mm lens. A description and compass direction for each photo was recorded on the wetland monitoring form.

## **2.11 GPS Data**

During the 2001 monitoring season, survey points were collected with a resource grade GPS unit at all photograph locations and along wetland boundaries. No GPS data were collected during 2002.

## **2.12 Maintenance Needs**

Dike structures were examined during the site visit for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented.

### 3.0 RESULTS

#### 3.1 Hydrology

According to the Western Regional Climate Center, Zortman (20 miles northwest of site) yearly precipitation total for 2001 (13.78 inches) was 74 percent of the total annual mean precipitation (18.87 inches) in this area. In 2002, the approximate precipitation total at Zortman was about 14 inches from January through July, which is comparable to the yearly mean of 13 inches for this period. Thus, precipitation was likely at or above average at the site in 2002.

Inundation was present at each of the five impoundments. Overall, water depths at open water/rooted vegetation interfaces ranged between approximately zero inches (the water's edge) and approximately three feet. However, all sites were inundated to lesser extents than were observed during 2001, despite increased precipitation during 2001. The reason for this is unknown, but could be related to increased evaporation. Open water areas are shown on **Figure 3** for each site (**Appendix A**). Specific recorded values are provided for each impoundment on the attached data forms.

Penguin and Flashlight were approximately 85 percent inundated (slightly less than observed during 2001), with average depths of one to two feet and a range of depths from zero to six+ feet. Deepest areas were located in the center of the impoundments, which were as yet unvegetated.

Pintail was approximately 35 percent inundated, with an average depth of one to two feet and a range of depths from zero to about three feet. Albatross was approximately 75 percent inundated, with an average depth of one to two feet and a range of depths from zero to about three feet. Both sites were inundated to a lesser extent than observed during 2001. Deepest areas were located in the center of the impoundments. Due to "drawdown" at these sites over that observed during 2001, wetland fringes were slightly expanded around impoundment edges. Little to no wetland vegetation was observed within the wetted basin of either site. Surface water may be of sufficient duration to kill upland plants, but of insufficient duration to support hydrophytes every year or throughout a given growing season. Consequently, these areas were classified as potential "problem areas" (seasonal wetlands) for purposes of delineation. Water was extremely turbid at these sites, which could be indicative of an upstream erosion problem, recent cattle use, or chemical or other problems.

The excavated portion of Puffin was only 20 percent inundated, and still supported no wetland plants. Excessive depths and steep slopes in the excavated area at the dike face likely contribute to this condition. Water needs to climb several feet from the bottom of the excavated area in order to back upstream (upgradient) as designed. Based on a lack of watermarks, driftlines, etc. upgradient of the excavated area, this has probably not occurred with any frequency, if at all, over the project life.

#### 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 in 2001

(Figure 3, Appendix A). These included Type 1: *Myriophyllum/Potamogeton*, Type 2: *Hordeum jubatum/Eleocharis*, and Type 3: *Hordeum jubatum/Agropyron*. Two additional wetland types were mapped in 2002 that had established in drawdown areas at Albatross. These were Type 4: *Scirpus maritimus/Typha latifolia* and Type 5: *Xanthium strumarium*. Dominant species within each of these communities are listed on the attached data form (Appendix B).

**Table 1: 2001, 2002 Fourchette Creek Vegetation Species List**

Species	Region 4 (North Plains) Wetland Indicator	Penguin	Pintail	Flashlight	Albatross	Puffin
<i>Agropyron dasystachyum</i>	FAC		x, #			
<i>Agropyron repens</i>	FAC		x, #		#	
<i>Agropyron smithii</i>	--	x, #				x, #
<i>Alisma plantago-aquatica</i>	OBL			x, #		
<i>Artemisia cana</i>	FACU					#
<i>Artemisia frigida</i>	--	x, #	x, #	x, #	#	x, #
<i>Artemisia tridentate</i>	--	x, #	#	x, #	x, #	x, #
<i>Atriplex argentea</i>	FACU			#		
<i>Beckmannia syzigachne</i>	OBL	x, #				
<i>Bouteloua gracilis</i>	--		x, #		x, #	x, #
<i>Chenopodium album</i>	FAC	#	#	#	#	
<i>Chrysothamnus nauseosus</i>	--			x, #		
<i>Cirsium arvense</i>	FACU	x, #	x, #	x, #	#	
<i>Distichlis spicata</i>	FACW		x	x, #	#	
<i>Echinochloa crusgalli</i>	FACW		x, #		#	
<i>Eleocharis acicularis</i>	OBL	x, #	#	x, #	#	
<i>Eleocharis palustris</i>	OBL	x, #	x, #	x, #	x, #	
<i>Elodea Canadensis</i>	OBL	x, #				
<i>Erodium cicutarium</i>	--		x, #	x, #		x, #
<i>Grindelia squarrosa</i>	--	x, #	x, #	x, #	x, #	x, #
<i>Gutierrezia sarothrae</i>	--	x, #				x, #
<i>Helianthus annuus</i>	FACU	x, #	x, #		#	
<i>Hordeum jubatum</i>	FAC+	x, #	x, #	x, #	x, #	
<i>Juncus balticus</i>	OBL	#			#	
<i>Koeleria pyramidata</i>	--			x, #		
<i>Marsilea vestita</i>	OBL				x, #	
<i>Medicago lupulina</i>	FACU					#
<i>Melilotus officinalis</i>	FACU-	#	#	#	#	
<i>Myriophyllum spicatum</i>	OBL	x, #		x, #		
<i>Nasturtium officinale</i>	OBL			x, #		
<i>Opuntia sp.</i>	--			x, #		x, #
<i>Polygonum lapathifolium</i>	OBL	x, #	#	x, #	#	
<i>Polygonum sp. (upland)</i>	?		x, #	x, #	x, #	
<i>Potamogeton foliosus</i>	OBL	x, #		x, #	#	
<i>Puccinellia nuttalliana</i>	OBL	x, #	#	x, #		
<i>Rumex crispus</i>	FACW	#	#	#	#	
<i>Sagittaria cuneata</i>	OBL	x, #		x, #	#	
<i>Salix exigua</i>	FACW+				x, #	
<i>Schizachyrium scoparium</i>	--	x, #				
<i>Scirpus acutus</i>	OBL			x, #		
<i>Scirpus americanus</i>	OBL		#	#		
<i>Scirpus maritimus</i>	NI			x, #	#	
<i>Spergularia rubra</i>	--			#		
<i>Thlaspi arvense</i>	NI				#	
<i>Typha latifolia</i>	OBL				#	
<i>Xanthium strumarium</i>	FAC	x, #	#	x, #	x, #	x

X – OBSERVED 2001 # – OBSERVED 2002

Type 1 occurs in aquatic bed habitats at Penguin and Flashlight. Type 2 occurs in emergent habitats surrounding impoundments at Penguin, Flashlight, and Albatross. Type 3 occurs primarily around the impoundment perimeter at Pintail. Types 4 and 5 occur in drawdown areas of Albatross.

Upland communities (Type 6) are dominated by upland grasslands and shrub-steppe habitats. Common species include big sage (*Artemisia tridentata*), fringed sage (*Artemisia frigida*), curlycup gumweed (*Grindelia squarrosa*), broom snakeweed (*Gutierrezia sarothrae*), prickly pear cactus (*Opuntia sp.*), rubber rabbitbrush (*Chrysothamnus nauseosus*), blue gramma (*Bouteloua gracilis*), quackgrass (*Agropyron repens*), prairie junegrass (*Koeleria pyramidata*), and western wheatgrass (*Agropyron smithii*).

No vegetation transects were required or conducted at these impoundments.

### 3.3 Soils

A published soil survey does not exist for Phillips County. However, soils have been mapped for the Penguin (Bascovey clay) and Albatross (Sunburst clay) sites. Generally, soils at all of the impoundments consist of poorly drained clays. Soils sampled in wetland areas at Penguin were consistently comprised of clays with a matrix color of 10YR4/2 and distinct, abundant mottles in the range of 10YR5/8, indicating a fluctuating water table. All were saturated within 12" of the surface.

Soils at Flashlight were comprised of clays with a matrix color of 2.5Y4/2 to 2.5Y or 10YR 4/3 and often contained faint mottles at 2.5Y5/6. These soils were saturated to the surface throughout the site. Because the soils support dominant vegetation species that have an indicator status of OBL or FACW and the wetland/upland border is abrupt, hydric soils are assumed to be present under application of the 1987 delineation manual (Environmental Laboratory 1987).

Soils at both Pintail and Albatross were comprised of clays with a matrix color of 10YR4/2 and faint to distinct mottles at 10YR5/6 to 10YR5/8. Gleyed 5GY4/1 soils were observed in drawdown areas of Pintail towards the center of the impoundment. Darker soils (2.5Y4/1) were observed in drawdown areas of Albatross. These soils were saturated to within 12 inches of the surface at both sites. Soils adjacent to the impoundment at Puffin were saturated within 12 inches of the surface, and were comprised of clays with a matrix color of 10YR4/1 and faint mottles at 10YR4/6. As was observed during 2001, soils at Puffin supported no wetland vegetation.

### 3.4 Wetland Delineation

Delineated wetland boundaries are illustrated for each site on **Figure 3 (Appendix A)**. Completed wetland delineation forms are included in **Appendix B**. Soils, vegetation, and hydrology are discussed in preceding sections. Borders did not change substantially, but 2001 borders recorded with the GPS unit were adjusted and using aerial photographs. 2002 delineation results are as follows:

Penguin:        0 wetland acres pre-existing.  
                  1.11 wetland acres created (emergent, aquatic bed).  
                  0.27 acre open water.



Flashlight:	0 wetland acres pre-existing. 1.09 wetland acres created (emergent, aquatic bed). 0.28 acre open water.
Pintail:	0 wetland acres pre-existing. 0.60 wetland acre created (emergent). 0.80 acre open water (at max pool).
Albatross:	0 wetland acres pre-existing. 0.37 wetland acre created (emergent). 0.50 acre open water.
Puffin:	0 wetland acres pre-existing. 0 wetland acres created. 0.20 acre open water.

Inclusive of open water areas, approximately 5.22 acres of aquatic habitat have been created on the Fourchette Creek mitigation site to date. This is a slight decrease from the 5.25 acres delineated during 2001, perhaps due to slightly less inundation at Pintail and Puffin, but possibly due to inherent mapping error between the two years.

### 3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001 and 2002 monitoring efforts are listed in **Table 2**. Specific evidence observed, as well as activity codes pertaining to birds, is provided on the completed monitoring form in **Appendix B**. Two mammal, two amphibian, one reptile, and five bird species were noted using portions of the mitigation site during the July 2002 visit. Greatest use appeared to occur at Penguin and Flashlight reservoirs, which both support large frog populations and also support painted turtles (*Chrysemys picta*).

Very few avian species were observed in the project area, which may have been a function of season (post-nesting), weather (hot, dry), time of day, or a combination. However, it should be noted that few bird signs (tracks, scat, etc.) were observed at any of the impoundments. The degree of seasonal use that these impoundments receive likely varies from year to year in proportion to water availability, and is largely unknown at this time. Birding results were similar to 2001.

Of special interest were observations of northern leopard frogs (*Rana pipiens*) at Penguin Reservoir; none were observed at Flashlight as they were during 2001. 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 S3 east of the Divide by the MNHP. Due to the hundreds of leopard frogs observed at Penguin and Flashlight reservoirs during 2001 and obvious breeding habitat, these sites were again classified as a Category II wetlands (using the 1999 MDT Wetland Assessment Method) based on sensitive species habitat during 2002.

**Table 2: Fish and Wildlife Species Observed on the Fourchette Creek Mitigation Complex during 2001 and 2002**

	Penguin	Flashlight	Pintail	Albatross	Puffin
<b>FISH</b>					
Unidentified Minnow Species ( <i>Hybognathus</i> sp.)		x			
<b>AMPHIBIANS</b>					
Western Chorus Frog ( <i>Pseudacris triseriata</i> )	x, #	x, #		x	
Northern Leopard Frog ( <i>Rana pipiens</i> )	x, #	x	x		
<b>REPTILES</b>					
Painted Turtle ( <i>Chrysemys picta</i> )	x, #	#			
Plains Garter Snake ( <i>Thamnophis radix</i> )		x			
<b>BIRDS</b>					
Eastern Kingbird ( <i>Tyrannus tyrannus</i> )	x	x	x	x	
Northern Harrier ( <i>Circus cyaneus</i> )		x			
Killdeer ( <i>Charadrius vociferous</i> )	x, #	x, #	x, #	x	
Spotted Sandpiper ( <i>Actitis macularia</i> )	x	x	x	x	
Gadwall ( <i>Anas strepera</i> )		#			
American Avocet ( <i>Recurvirostra americana</i> )				#	
Savannah Sparrow ( <i>Passerculus sandwichensis</i> )				#	
Willet ( <i>Catoptrophorus semipalmatus</i> )		#	#		
<b>MAMMALS</b>					
Elk ( <i>Cervus elaphus</i> )					x
Coyote ( <i>Canis latrans</i> )	#				
Mule Deer ( <i>Odocoileus hemionus</i> )		#	#	#	
x observed in 2001					
# observed in 2002					

### 3.6 Macroinvertebrates

Macroinvertebrate sampling results are provided in **Appendix B** and summarized below.

**Puffin.** Sampling yielded few organisms in both years, rendering bioassessment results unreliable. The dearth of organisms suggested that poor water quality and/or limited habitats affected invertebrate assemblages, assuming adequate sampling effort. In 2002, colonization of benthic substrates (e.g. *Chironomus* sp.) as well as the water column (e.g. *Chaoborus* sp.) appeared to have taken place, whereas the water surface was the only habitat to yield animals in the previous year. Since *Chironomus* sp. is a hemoglobin-bearing taxon, it would appear that warm water temperatures, nutrient enrichment and/or other factors have created hypoxic conditions in the substrates.

**Flashlight.** Sampling yielded few organisms in both years, rendering bioassessment results unreliable. The dearth of organisms suggested that poor water quality and/or limited habitats affected invertebrate assemblages, assuming adequate sampling effort. Diversity of sampled taxa increased between the two years, however, suggesting that some slight improvement in conditions may have taken place. The fauna in both years suggested that macrophytes contributed to habitat complexity, and an increase in the richness and numbers of midges suggested improved colonization of substrates in 2002.

**Penguin.** The hemoglobin-bearing midge taxa that were so abundant in the 2001 sample were largely replaced by a less tolerant fauna in 2002, suggesting that benthic substrate hypoxia may

have been alleviated by the latter year. Improvement in the biotic index value reflected an apparent improvement in water quality, either by mitigation of warm temperatures or lessened nutrient enrichment, or both. The other components of the invertebrate assemblage remained remarkably similar between the two years. The bioassessment method employed here implied optimal biologic conditions at this site in both years.

Albatross. Sampling yielded few organisms in both years, rendering bioassessment results unreliable. The dearth of organisms suggested that poor water quality and/or limited habitats affected invertebrate assemblages, assuming adequate sampling effort. Changes in the taxonomic composition of the depauperate fauna between the two years, however, suggested that some improvement of habitat complexity may have occurred in the interim.

Pintail: Macroinvertebrates were not sampled at Pintail Reservoir.

### 3.7 Functional Assessment

Completed functional assessment forms are presented in **Appendix B**. Functional assessment results are summarized in **Table 3** and are identical to 2001 results. Penguin and Flashlight rated as Category II wetlands, primarily due to high sensitive species habitat (northern leopard frog) ratings (see discussion under **Section 3.5**). These sites would have achieved higher scores, but for the high disturbance associated with grazing. Each of these sites provides habitat for a variety of wildlife species, particularly amphibians. Penguin and Flashlight both support emergent and aquatic bed communities, and, based on MDT observations (Urban pers. comm.), Flashlight provides a degree of fish habitat. Wildlife habitat, surface water storage, sediment/nutrient/toxicant removal, shoreline stabilization, and food chain support are prominent functions at these sites.

Pintail and Albatross rated as Category IV wetlands. This was primarily due to low vegetative diversity, high disturbance (grazing), and low acreage of actual wetlands present within these assessment areas. Surface water storage is a prominent function at these sites. It should be noted that sediment/nutrient/toxicant removal received a low rating due to the extreme turbidity (impairment) and lack of wetland vegetation at these sites.

A wetland functional assessment was not conducted at Puffin due to the absence of wetlands at this site. According to MDT (Urban pers. comm.) the site is periodically used as an elk wallow, but contained a dozen cattle during 2002 monitoring.

Based on functional assessment results (**Table 3**), approximately 20.98 functional units have been gained thus far at the Fourchette Creek mitigation site.

### 3.8 Photographs

Representative photographs taken from photo-points are provided in **Appendix C**. 2002 Aerial photographs are also provided in **Appendix C**.

**Table 3: Summary of 2002 Wetland Function/Value Ratings and Functional Points <sup>1</sup> at the Fourchette Creek Mitigation Project**

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Method	Wetland Sites				
	Penguin Reservoir	Flashlight Reservoir	Pintail Reservoir	Albatross Reservoir	Puffin Reservoir
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	NA (no wetlands)
MNHP Species Habitat	High (1.0)	High (1.0)	Low (0.2)	Low (0.1)	NA (no wetlands)
General Wildlife Habitat	High (0.8)	High (0.8)	Low (0.3)	Low (0.3)	NA (no wetlands)
General Fish/Aquatic Habitat	NA	Mod (0.5)	NA	NA	NA (no wetlands)
Flood Attenuation	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	NA (no wetlands)
Short and Long Term Surface Water Storage	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.6)	NA (no wetlands)
Sediment, Nutrient, Toxicant Removal	Mod (0.5)	Mod (0.5)	Low (0.3)	Low (0.3)	NA (no wetlands)
Sediment/Shoreline Stabilization	Mod (0.6)	Mod (0.6)	Low (0.2)	Low (0.2)	NA (no wetlands)
Production Export/Food Chain Support	Mod (0.7)	Mod (0.7)	Low (0.3)	Low (0.3)	NA (no wetlands)
Groundwater Discharge/Recharge	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	NA (no wetlands)
Uniqueness	Low (0.2)	Low (0.2)	Low (0.2)	Low (0.2)	NA (no wetlands)
Recreation/Education Potential	Low (0.1)	Low (0.1)	Low (0.1)	Low (0.1)	NA (no wetlands)
Actual Points/Possible Points	5.1 / 11	5.6 / 12	2.8 / 11	2.7 / 11	NA (no wetlands)
% of Possible Score Achieved	46%	47%	25%	25%	NA (no wetlands)
Overall Category	II	II	IV	IV	NA (no wetlands)
Total Acreage of Assessed Aquatic Habitats within Easement	1.38 ac	1.37 ac	1.40 ac	0.87 ac	0.20 ac (OW only)
Functional Units (acreage x actual points)	7.04 fu	7.67 fu	3.92 fu	2.35 fu	NA (no wetlands)
Net Acreage Gain	1.38 ac	1.37 ac	1.40 ac	0.87 ac	0.20 ac (OW only)
Net Functional Unit Gain	7.04 fu	7.67 fu	3.92 fu	2.35 fu	NA (no wetlands)
Total Functional Unit "Gain"	20.98 Total Functional Units				

<sup>1</sup> See completed MDT functional assessment forms in Appendix B for further detail.

### 3.9 Maintenance Needs/Recommendations

All dikes were in good condition during the mid-season visit.

Puffin Reservoir has developed no wetlands, presumably due to the depth of excavation and steep gradient of side slopes. As discussed in the 2001 report, it is our recommendation that MDT/BLM re-visit the design of this site, which could involve filling in a portion of the pit excavated along the dike face and minor upstream excavation. This may allow water to back further upgradient, reduce water depths & side slope gradients, and increase surface area of the reservoir. This would also likely result in a more undulating shoreline, as opposed to the largely rectangular shoreline that currently exists.

It may also benefit MDT to investigate water quality at Puffin, Pintail, and Albatross for conditions that would preclude aquatic plant growth. Limited planting may also benefit these three impoundments, although water availability and quality may limit success.

All sites were impacted by grazing, primarily through trampling. MDT/BLM may want to consider fencing these areas and providing water gaps to deeper areas in order to allow cattle access while confining associated impacts.

### 3.10 Current Credit Summary

Target performance criteria included provision of 10 to 20 percent emergent species cover within 5 years of construction. This appears to have been achieved at Penguin, Flashlight, and possibly Pintail and Albatross reservoirs (during drawdown periods), but not at Puffin.

Primary target wetland functions included wildlife use, enhanced biodiversity, water retention, silt retention, recreational opportunity, and erosion control. Highest quality wildlife habitat is provided at Penguin and Flashlight, as are biodiversity, silt retention, and erosion control. Other reservoirs provide silt retention, but in excessive quantities that impair them. A degree of erosion control is also provided at these sites, but is limited by scant vegetation. All sites provide water retention, and none of the sites were perceived to provide substantial recreational opportunities.

As the project stands, approximately 5.22 acres of aquatic habitats have been created, inclusive of all open water components. Approx. 3.72 acres of “wetlands” have been created, inclusive of minor open water components associated with Penguin and Flashlight reservoirs. Approximately 20.98 functional units have been created at the site to date. The maximum assignable credit at this site as of 2002, inclusive of all open water areas, is approximately 5.22 acres.

## 4.0 REFERENCES

- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. US Army Corps of Engineers. Washington, DC.
- Montana Department of Transportation. Undated. *Prospectus – Fourchette Creek Reservoir Complex as a wetland mitigation bank*. Helena, MT.
- Ralph, C.J., Geupel, G.R., Pyle, P., Martin, T.E., and D.F. DeSante. 1993. *Handbook of field methods for monitoring landbirds*. Gen. Tech. Rep. PSW-GTR-144. Albany, CA: Pacific Southwest Research Station, Forest Service, U.S. Dept. of Agriculture. 41 p.
- Reed, P.B. 1988. National list of plant species that occur in wetlands: North Plains (Region 4). Biological Report 88(26.4), May 1988. U.S. Fish and Wildlife Service. Washington, D.C.
- Urban, L. Wetland Mitigation Specialist, Montana Department of Transportation. Helena, MT. March 2001 and January 2003 meetings; January 2002 telephone conversations.
- USDA Natural Resources Conservation Service. 1998. *Field Indicators of Hydric Soils in the United States*, Version 4. G. Hurt, P. Whited and R. Pringle (eds.). USDA, NRCS Fort Worth, TX.

## Appendix A

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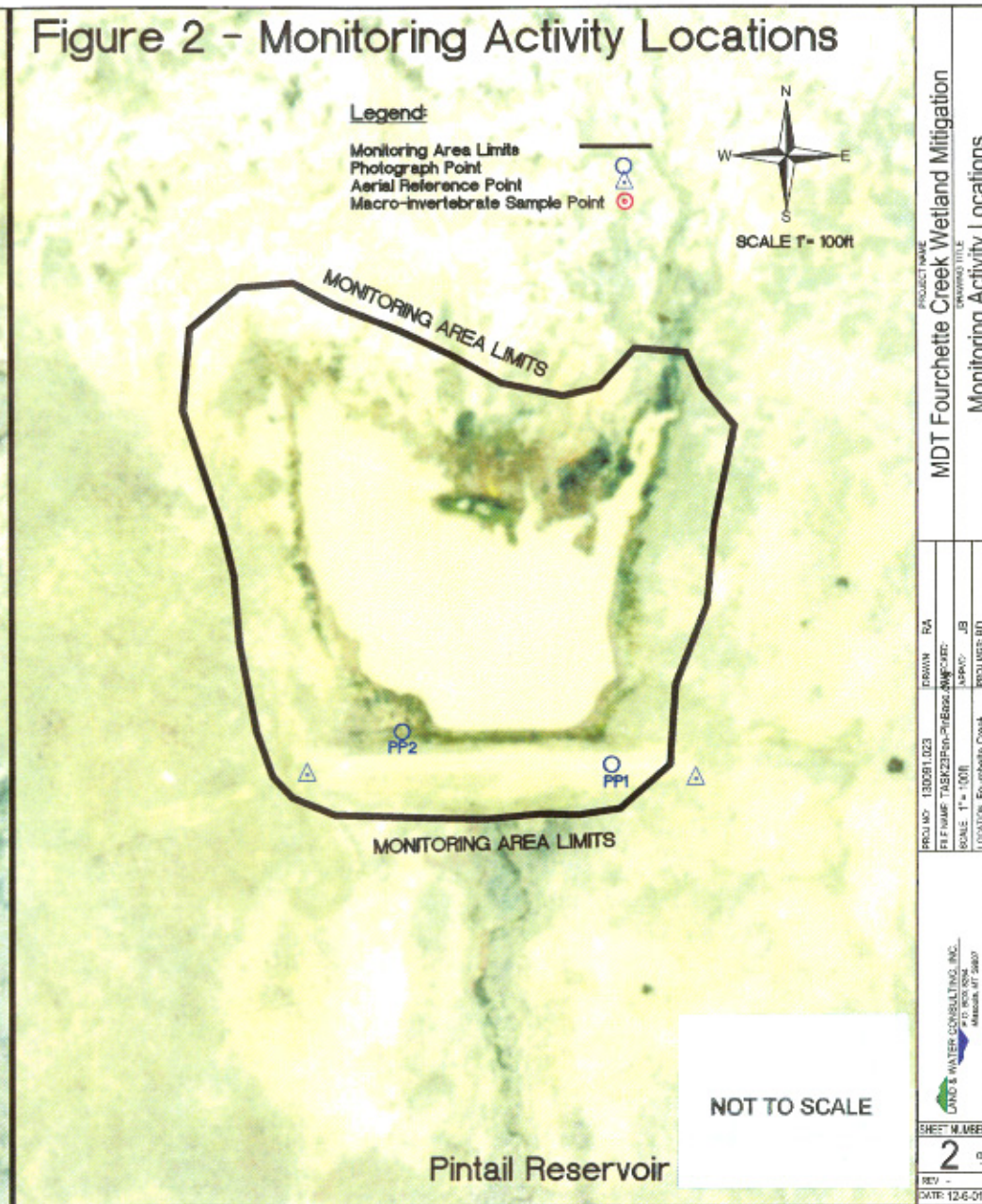
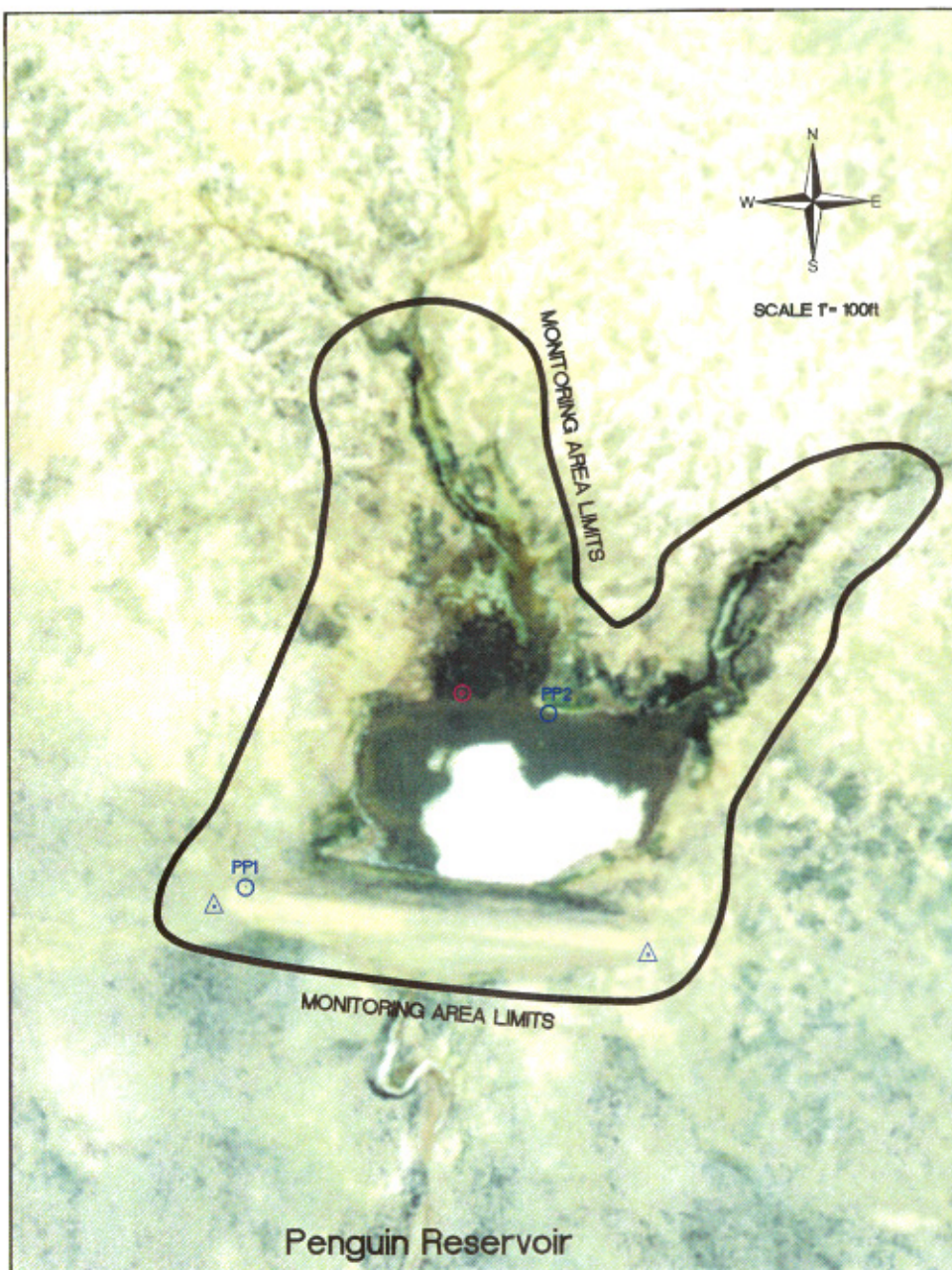
### FIGURES 2 - 3

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*MDT Wetland Mitigation Monitoring  
Fourchette Creek  
Phillips County, Montana*



Figure 2 - Monitoring Activity Locations



PROJECT NAME		MDT Fourchette Creek Wetland Mitigation		DRAWING TITLE		Monitoring Activity Locations	
PROJECT NO.	130081.023	DRAWN BY	RA	DATE	03/10/11	PROJECT NO.	130081.023
FILE NAME	TASK23P00-01E000	APPROVED BY	JB	DATE	03/10/11	PROJECT NO.	130081.023
SCALE	1" = 100ft	DATE	03/10/11	DATE	03/10/11	PROJECT NO.	130081.023
LOCATION	Fourchette Creek	DATE	03/10/11	DATE	03/10/11	PROJECT NO.	130081.023
LAND & WATER CONSULTING, INC.		SHEET NUMBER		2		REV	
1000 Main Street, Suite 100		DATE		12-6-01		DATE	
MAINE, ME 04002		DATE		12-6-01		DATE	



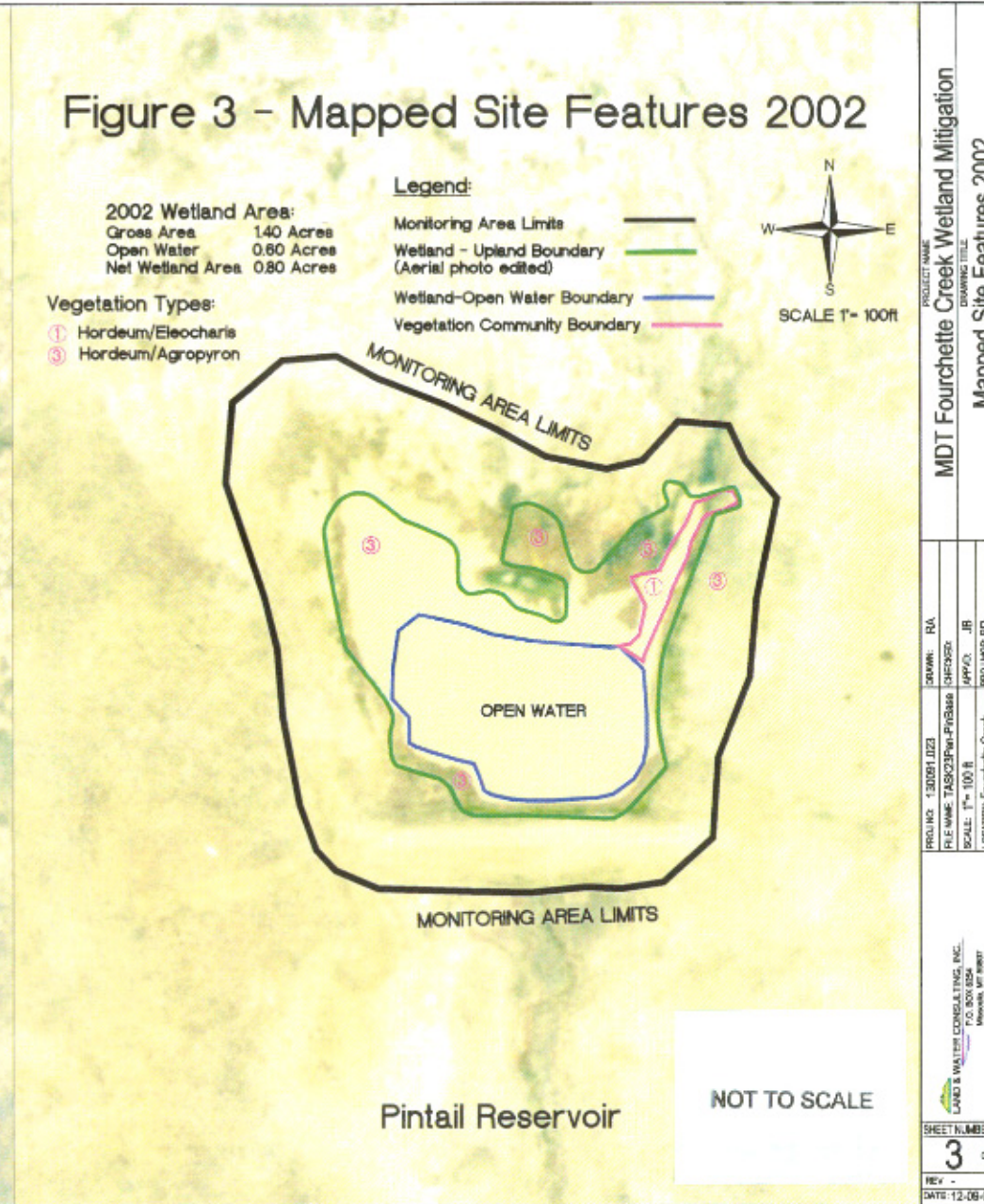
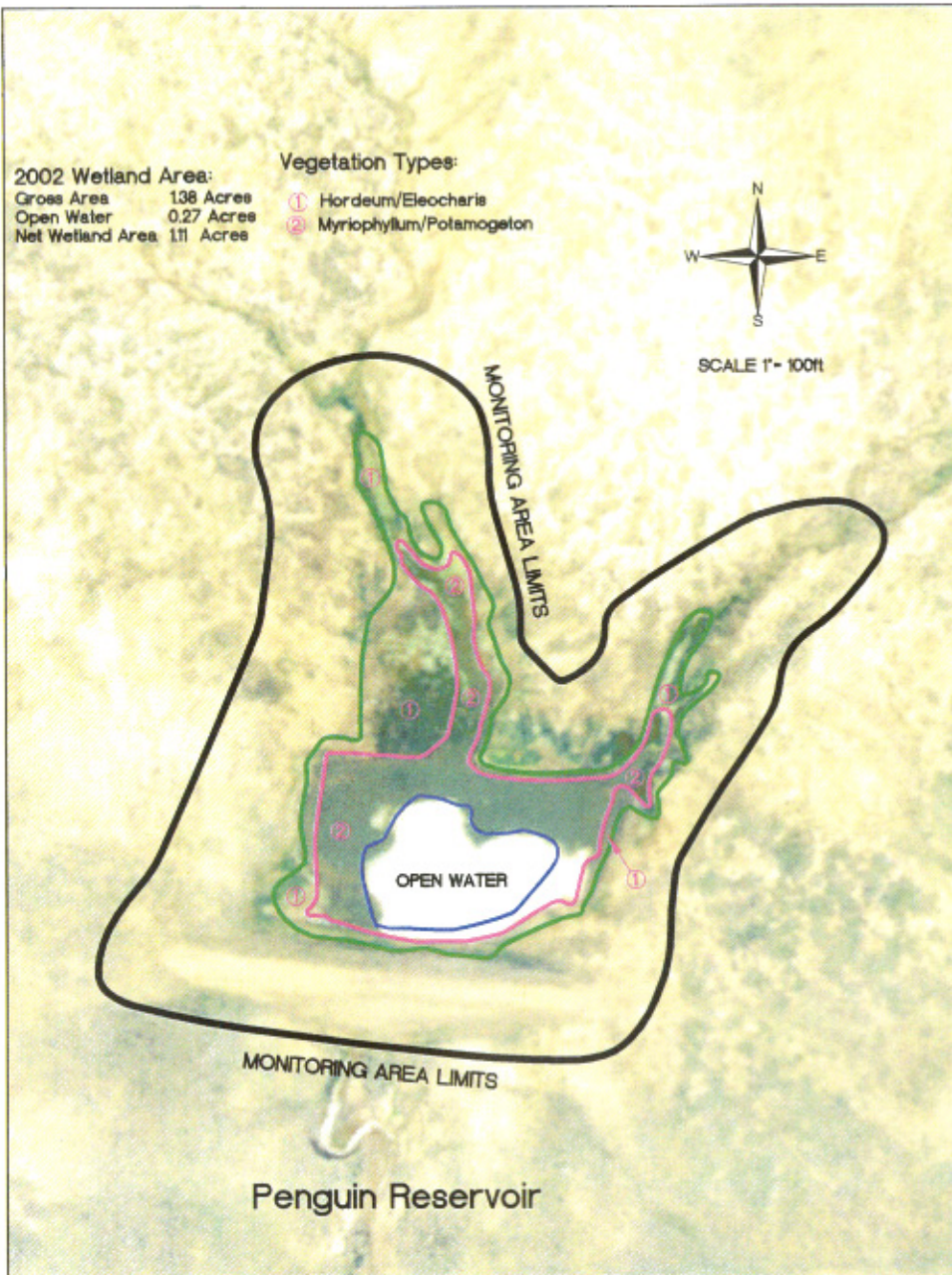
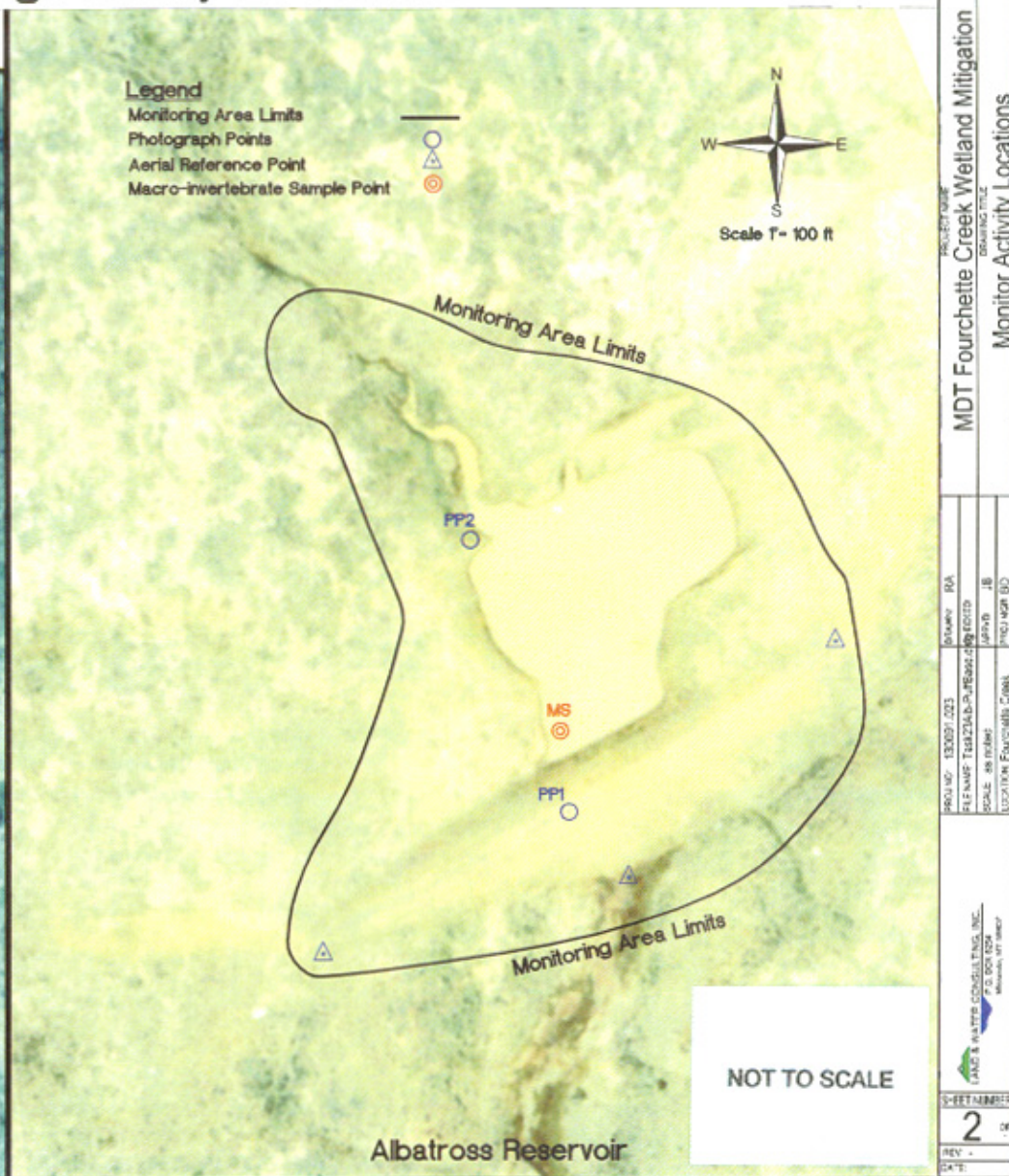
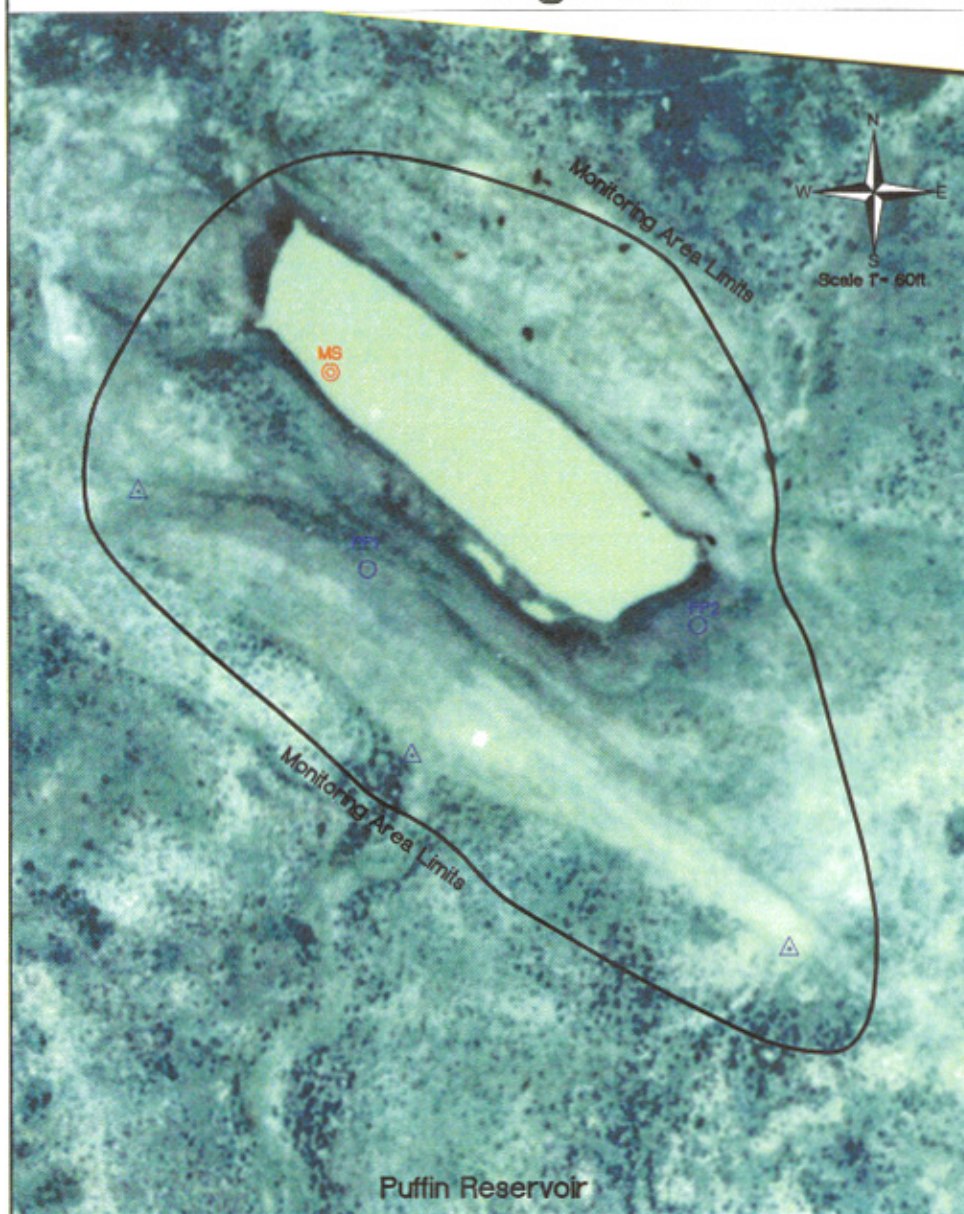




Figure 2 - Monitoring Activity Locations



PROJECT NAME		MDT Fourchette Creek Wetland Mitigation	
DRAWING TITLE		Monitor Activity Locations	
PROJECT NO.	130001.023	DATE	04/04/13
CLIENT	TECHNICAL SERVICES, INC.	DESIGNED BY	JB
SCALE	AS SHOWN	DRAWN BY	JB
LOCATION	Fourchette Creek	PROJECT NO.	130001.023
DRAWN BY		LAND & WATER CONSULTING, INC.	
P.O. BOX 804		BIRMINGHAM, AL 35202	
REV		SHEET NUMBER	
DATE		2 OF 2	



# Figure 3 - Mapped Site Features 2002

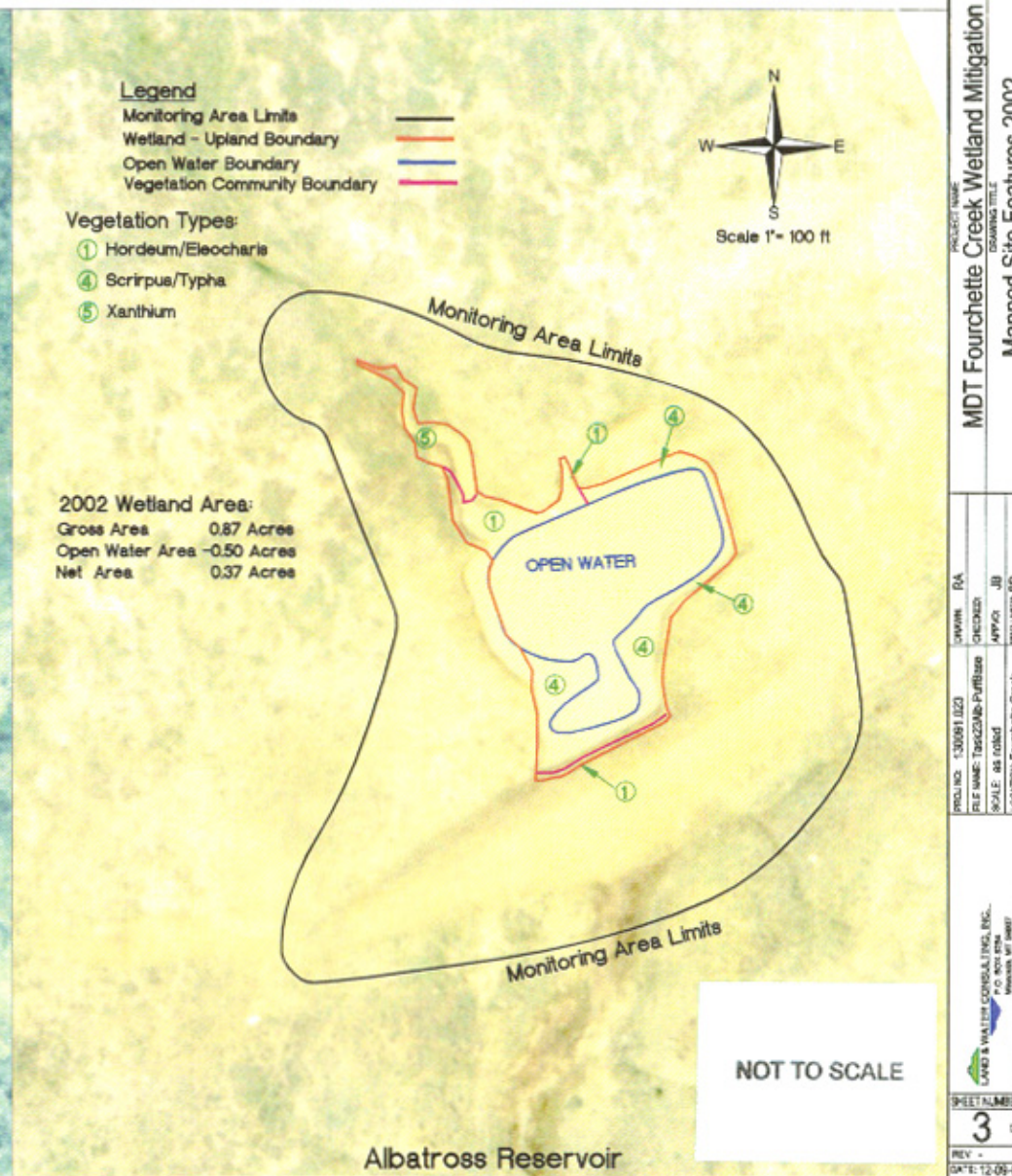
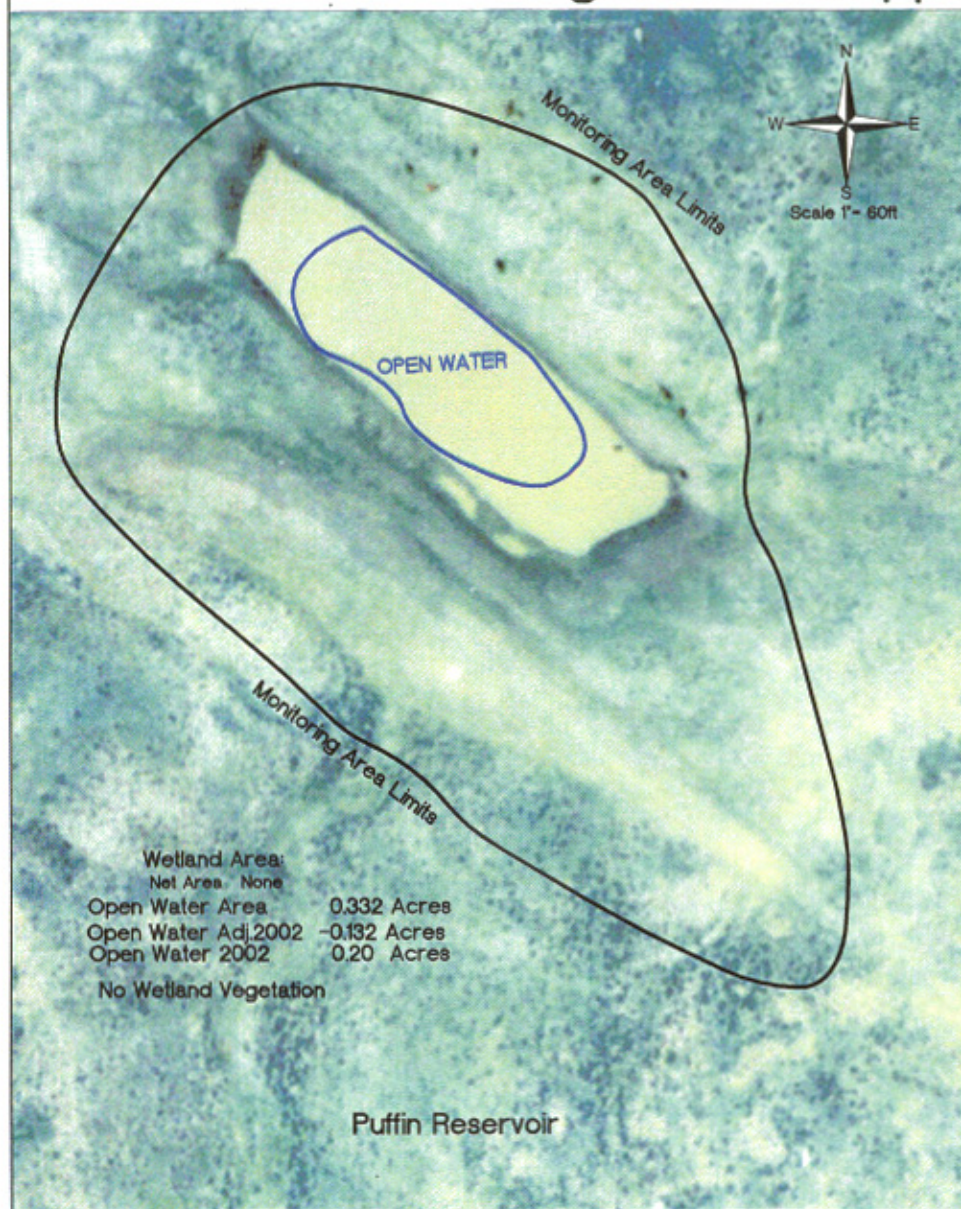
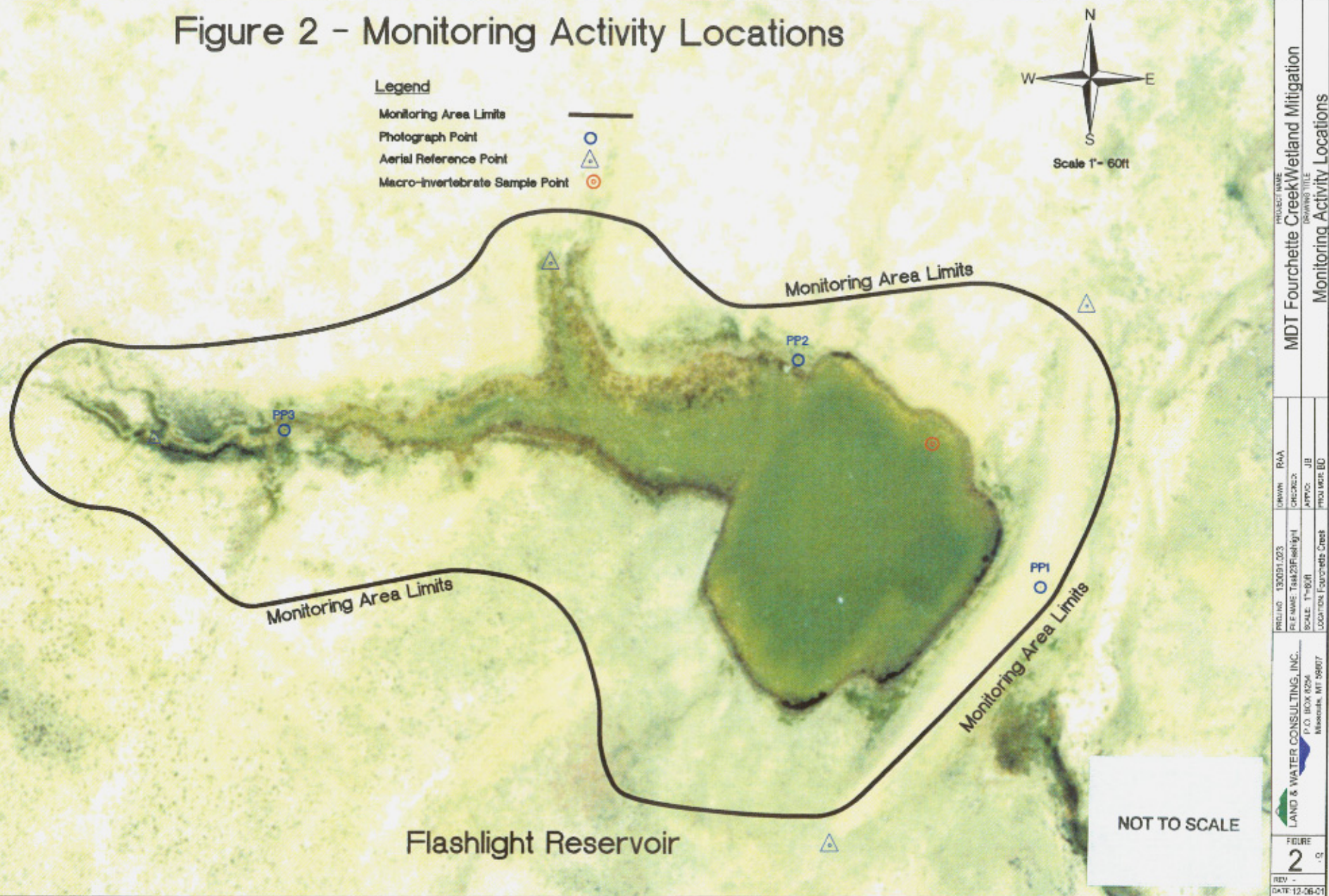




Figure 2 - Monitoring Activity Locations



PROJECT NAME		MDT Fourchette Creek Wetland Mitigation	
DRAWING TITLE		Monitoring Activity Locations	
PROJECT NO.	130091.023	DRAWN BY	RAA
FILE NAME	T4429Fishing1	CHECKED BY	JB
SCALE	1"=60'	APPROVED BY	JB
LOCATION	Fourchette Creek	PROJECT NO.	130091.023
LAND & WATER CONSULTING, INC.		P.O. BOX 4024	
Massena, NY 13662		DATE	12-06-11
FIGURE		2	
REV		DATE	



# Figure 3 - Mapped Site Features 2002

## Wetland Area:

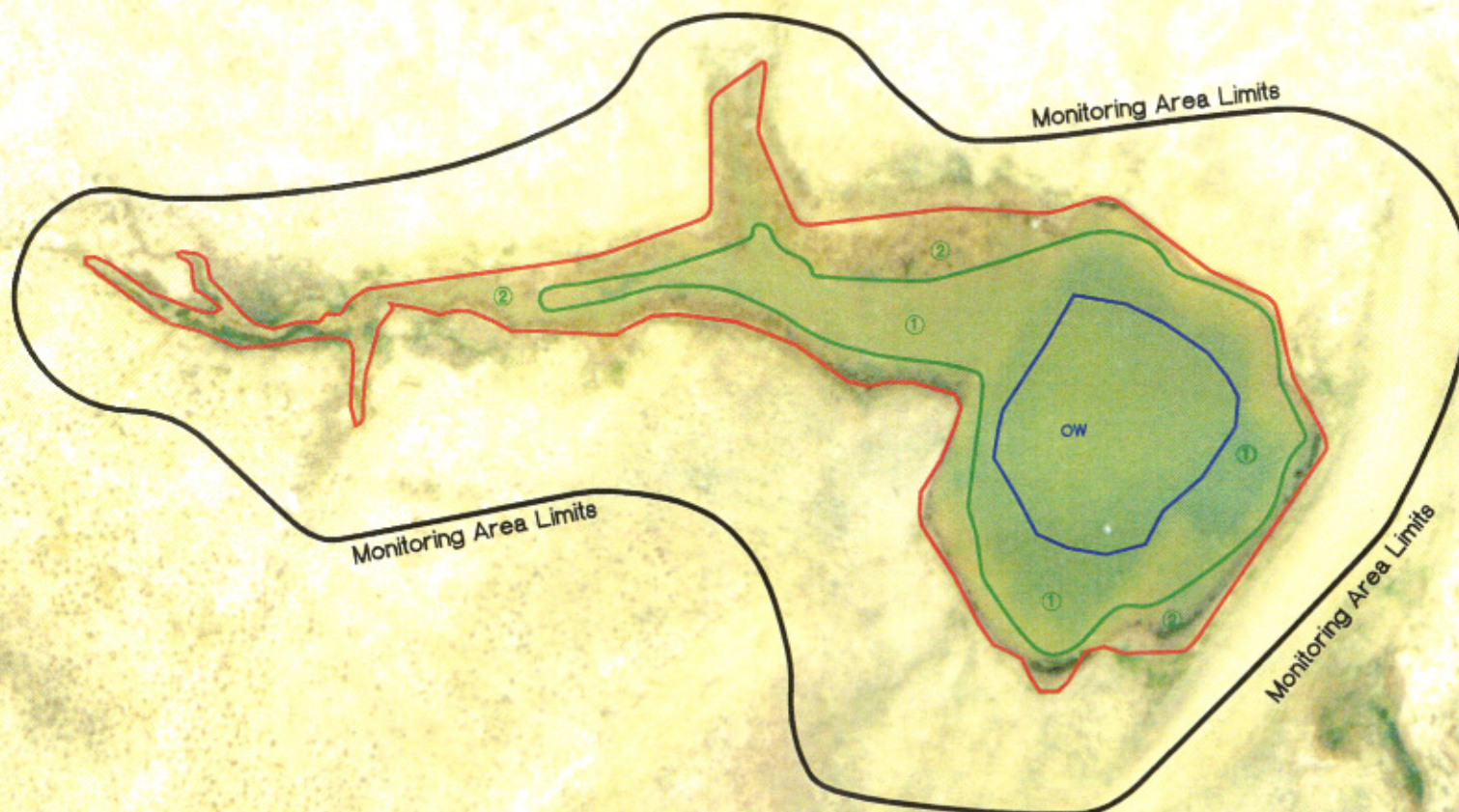
Gross Area 1367 Acres  
Open Water 0.279 Acres  
Net Area 1087 Acres  
Gross Area Adj. -0.052 Acres  
2002 Net Area 1035 Acres

## Legend

Monitoring Area Limits ———  
Wetland-Upland Boundary ———  
Wetland-Open Water Boundary ———  
Vegetation Community Boundary ———

## Vegetation Types:

① Potamogeton  
② Hordeum/Eleocharis



Flashlight Reservoir

NOT TO SCALE

PROJECT NAME  
MDT Fourchette Creek Wetland Mitigation  
DRAWING TITLE  
Mapped Site Features 2002

PROJ. NO. 130091.023  
FILE NAME: Tbd23Flashlight  
SCALE: 1" = 60ft  
LOCKMAN-Fourchette Creek

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

FIGURE  
3  
REV. 11-19-02

## **Appendix B**

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**COMPLETED 2002 WETLAND MITIGATION SITE MONITORING  
FORM**

**COMPLETED 2002 BIRD SURVEY FORMS**

**COMPLETED 2002 WETLAND DELINEATION FORMS**

**COMPLETED 2002 FIELD AND FULL FUNCTIONAL  
ASSESSMENT FORMS**

**MACROINVERTEBRATE DATA**

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*MDT Wetland Mitigation Monitoring*

*Fourchette Creek*

*Phillips County, Montana*



# LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Fourchette Creek Project Number: Task 23 Assessment Date: 7 / 29 / 02  
Location: **PENGUIN RESERVOIR** MDT District: Glendive Milepost: NA  
Legal description: T 22NR 30E Section 19 Time of Day: 0700-0800  
Weather Conditions: dry, cloudy Person(s) conducting the assessment: Berglund  
Initial Evaluation Date: 8 / 30 / 01 Visit #: 2 Monitoring Year: 2 (2002)  
Size of evaluation area: 2 acres Land use surrounding wetland: Rangeland

## HYDROLOGY

**Surface Water** Source: Precipitation  
Inundation: Present ☒ Absent ☐ Average depths: 1.5FT Range of depths: 2" - 5 ft  
Assessment area under inundation: 85%  
Depth at emergent vegetation-open water boundary: 2 ft  
If assessment area is not inundated are the soils saturated w/in 12" of surface: Yes ☒ No ☐  
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): water marks and drift lines

## Groundwater

Monitoring wells: Present ☐ Absent ☒

Record depth of water below ground surface

Well #	Depth	Well #	Depth	Well #	Depth

## Additional Activities Checklist:

☒ Map emergent vegetation-open water boundary on air photo  
☒ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining etc.)  
☐ GPS survey groundwater monitoring wells locations if present

**COMMENTS/PROBLEMS:** Heavily grazed site. Surface water level slightly lower than in 2001.



# LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Fourchette Creek Project Number: Task 23 Assessment Date: 7 / 29 / 02  
Location: FLASHLIGHT RESERVOIR MDT District: Glendive Milepost: NA  
Legal description: T22N R29E Section 24 Time of Day: 8:00-9:00  
Weather Conditions: dry, cloudy Person(s) conducting the assessment: Berglund  
Initial Evaluation Date: 8 / 30 / 01 Visit #: 2 Monitoring Year: 2 (2002)  
Size of evaluation area: 2-3 acres Land use surrounding wetland: Rangeland

## HYDROLOGY

**Surface Water** Source: Precipitation  
Inundation: Present X Absent      Average depths: 2 ft Range of depths: 0 - 6 ft  
Assessment area under inundation: 85 %  
Depth at emergent vegetation-open water boundary: 3 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.): water marks, drift lines

### 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:** Heavily grazed site. Surface water level slightly lower than in 2001.

# LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Fourchette Creek Project Number: Task 23 Assessment Date: 7 / 29 / 02  
Location: **PINTAIL RESERVOIR** MDT District: Glendive Milepost: NA  
Legal description: T22N R30E Section 19 Time of Day: 9:00-10:00  
Weather Conditions: dry, cloudy Person(s) conducting the assessment: Berglund  
Initial Evaluation Date: 8 / 30 / 01 Visit #: 2 Monitoring Year: 2 (2002)  
Size of evaluation area: 2-3 acres Land use surrounding wetland: Rangeland

## HYDROLOGY

**Surface Water** Source: Precipitation  
Inundation: Present X Absent      Average depths: 1-2 ft Range of depths: 0 - 3 ft  
Assessment area under inundation: 35 %  
Depth at emergent vegetation-open water boundary: 6 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.): DRIFT LINES

## 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:** Heavily grazed site. Surface water levels much lower than observed on 2001 aerial photographs – this is reflected on Figure 3 in the report. Estimated that surface water is 1-2 feet lower than observed at “max” inundation on 2001 aerial photo.



# LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Fourchette Creek Project Number: Task 23 Assessment Date: 7 / 29 / 02  
Location: **ALBATROSS RESERVOIR** MDT District: Glendive Milepost: NA  
Legal description: T22N R29E Section 14 Time of Day: 10:00-11:00  
Weather Conditions: dry, cloudy Person(s) conducting the assessment: Berglund  
Initial Evaluation Date: 8 / 30 / 01 Visit #: 2 Monitoring Year: 2 (2002)  
Size of evaluation area: 2 acres Land use surrounding wetland: Rangeland

## HYDROLOGY

**Surface Water** Source: Precipitation  
Inundation: Present X Absent      Average depths: 1.5 ft Range of depths: 0-3 ft  
Assessment area under inundation: 75 %  
Depth at emergent vegetation-open water boundary: 6 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.): water marks, drift lines

## 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:** Heavily grazed site. Water levels about two feet lower than observed in 2001, which allowed for development of emergent wetland areas.

# LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Fourchette Creek Project Number: Task 23 Assessment Date: 7 / 29 / 02  
 Location: **PUFFIN RESERVOIR** MDT District: Glendive Milepost: NA  
 Legal description: T22N\_ R29E\_ Section 10\_ Time of Day: 11:00-12:00  
 Weather Conditions: dry, cloudy Person(s) conducting the assessment: Berglund  
 Initial Evaluation Date: 8 / 30 / 01 Visit #: 2 Monitoring Year: 2 (2002)  
 Size of evaluation area: 2 acres Land use surrounding wetland: Rangeland

## HYDROLOGY

**Surface Water** Source: Precipitation

Inundation: Present X Absent      Average depths: 1 ft Range of depths: 0 - 2 ft

Assessment area under inundation: 20 %

Depth at emergent vegetation-open water boundary: 2ft

If assessment area is not inundated are the soils saturated w/in 12" of surface: Yes ☐ No ☒

Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): \_\_\_\_\_

## 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:** \_Heavily grazed site; virtually no emergent wetland developing; no vegetation establishment adjacent to pond. As noted in 2001, site was over-excavated and would need to flood to about 10 feet or more in depth to flood uplands to the north.

## VEGETATION COMMUNITIES

Community No.:\_1\_\_ Community Title (main species):\_MYR SPI / POT FOL\_\_\_\_\_

Dominant Species	% Cover	Dominant Species	% Cover
MYR SPI	>50		
POT FOL	>50		
ELO CAN	11-20		
SAG CUN	1-5		

**COMMENTS/PROBLEMS:** \_Similar to 2001\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Community No.:\_2\_\_ Community Title (main species):\_HOR JUB / ELE PAL\_\_\_\_\_

Dominant Species	% Cover	Dominant Species	% Cover
HOR JUB	21-50	<b>RUM CRI</b>	1-5
ELE PAL	21-50	<b>JUN BAL</b>	1-5
ELE ACI	11-20		
XAN STR	1-5		

**COMMENTS/PROBLEMS:** \_Rumex and Juncus new in 2002.\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Community No.:\_3\_\_ Community Title (main species):\_HOR JUB / AGR \_\_\_\_\_

Dominant Species	% Cover	Dominant Species	% Cover
HOR JUB	>50		
AGR DAS	>50		
AGR REP	21-50		

**COMMENTS/PROBLEMS:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

### Additional Activities Checklist:

\_X\_\_Record and map vegetative communities on air photo

## VEGETATION COMMUNITIES (continued)

Community No.:\_4\_ Community Title (main species):\_SCI MAR / TYP LAT\_\_\_\_\_

Dominant Species	% Cover	Dominant Species	% Cover
SCI MAR	21-50		
TYP LAT	11-20		
ELE ACI	11-20		
XAN STR	6-10		

**COMMENTS/PROBLEMS:** \_\_\_New in 2002 - at Albatross only\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Community No.:\_5\_ Community Title (main species):\_XAN STR\_\_\_\_\_

Dominant Species	% Cover	Dominant Species	% Cover
XAN STR	>50		
CHE ALB	21-50		
RUM CRI	6-10		
HOR JUB	6-10		
AGR REP	6-10		

**COMMENTS/PROBLEMS:** \_\_\_New in 2002 - at Albatross only\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Community No.:\_6\_ Community Title (main species):\_UPLAND\_\_\_\_\_

Dominant Species	% Cover	Dominant Species	% Cover
ART TRI	21-50	BOU GRA	11-20
HEL ANN	6-10	MEL OFF	11-20
GRI SQU	11-20		
AGR SMI	11-20		
AGR REP	11-20		

**COMMENTS/PROBLEMS:** \_\_\_varies site to site.\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
<i>Agropyron dasystachyum</i>	3, 6	<i>Juncus balticus</i>	2,
<i>Agropyron repens</i>	3, 5, 6	<i>Rumex crispus</i>	2, 3, 5,
<i>Agropyron smithii</i>	6,	<i>Melilotus officinalis</i>	6
<i>Alisma plantago-aquatica</i>	1,	<i>Chenopodium album</i>	5, 6
<i>Artemisia frigida</i>	6	<i>Scirpus americanus</i>	2, 4
<i>Artemisia tridentata</i>	6,	<i>Thlaspi arvense</i>	6
<i>Beckmannia syzigachne</i>	2	<i>Typha latifolia</i>	4,
<i>Bouteloua gracilis</i>	6,	<i>Atriplex argentea</i>	6
<i>Chrysothamnus nauseosus</i>	6	<i>Sperugularia rubra</i>	2
<i>Cirsium arvense</i>	6	<i>Artemisia cana</i>	6
<i>Distichlis spicata</i>	2, 6	<i>Medicago lupulina</i>	6
<i>Echinochloa crusgalli</i>	2		
<i>Eleocharis acicularis</i>	2, 4,		
<i>Eleocharis palustris</i>	2,		
<i>Elodea canadensis</i>	1,		
<i>Erodium cicutarium</i>	6		
<i>Grindelia squarrosa</i>	6,		
<i>Gutierrezia sarothrae</i>	6		
<i>Helianthus annuus</i>	6,		
<i>Hordeum jubatum</i>	2, 3, 5,		
<i>Koeleria pyramidata</i>	6		
<i>Marsilea vestita</i>	2		
<i>Myriophyllum spicatum</i>	1,		
<i>Nasturtium officinale</i>	1		
<i>Opuntia sp.</i>	6		
<i>Polygonum lapathifolium</i>	2, 3		
<i>Polygonum sp. (upland)</i>	3		
<i>Potamogeton foliosus</i>	1,		
<i>Puccinellia nuttalliana</i>	2, 3		
<i>Sagittaria cuneata</i>	1,		
<i>Salix exigua</i>	2		
<i>Schizachyrium scoparium</i>	6		
<i>Scirpus acutus</i>	4		
<i>Scirpus maritimus</i>	4,		
<i>Xanthium strumarium</i>	2, 3, 4, 5, 6		

**COMMENTS/PROBLEMS:** \_Virtually no vegetation surrounding Puffin Reservoir\_\_\_\_\_

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## PLANTED WOODY VEGETATION SURVIVAL

[illegible]

**COMMENTS/PROBLEMS:** \_\_\_\_\_

[illegible]

## BIRDS

Were man made nesting structures installed? Yes\_\_\_\_ No\_\_X\_Type:\_\_\_\_ How many?\_\_\_\_ Are the nesting structures being utilized? Yes\_\_\_\_ No\_\_\_\_ Do the nesting structures need repairs? Yes\_\_\_\_ No\_\_\_\_

[illegible]

## \_X\_\_Macroinvertebrate sampling (if required)

This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

## PHOTOGRAPHS

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

Checklist:

- ☒ One photo for each of the 4 cardinal directions surrounding wetland
- ☒ At least one photo showing upland use surrounding wetland – if more than one upland use exists, take additional photos
- ☒ At least one photo showing buffer surrounding wetland
- ☐ 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 for 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:** ☐ No GPS data recorded in 2002 – adjustments made on aerial photo.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



## WETLAND DELINEATION

(Attach Corps of Engineers delineation forms)

At each site conduct the items on the checklist below:

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

**COMMENTS/PROBLEMS:** ☐ See data forms \_\_\_\_\_

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## FUNCTIONAL ASSESSMENT

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

**COMMENTS/PROBLEMS:** ☐ See data forms \_\_\_\_\_

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## MAINTENANCE

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

If yes, do they need to be repaired? YES\_\_\_ NO\_\_\_

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

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

YES ☒\_\_\_ NO\_\_\_

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

If no, describe the problems below.

**COMMENTS/PROBLEMS:** \_\_\_\_\_

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# MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: No Transects at this site Date: \_\_\_\_\_ Examiner: \_\_\_\_\_ Transect # \_\_\_\_\_

Approx. transect length: \_\_\_\_\_ Compass Direction from Start (Upland): \_\_\_\_\_

<b>Vegetation type A:</b>		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

<b>Vegetation type B:</b>		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

<b>Vegetation type C:</b>		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

<b>Vegetation type D:</b>		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

## MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form)

## Cover Estimate

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

**Indicator Class:**

+ = Obligate  
- = Facultative/Wet  
0 = Facultative

**Source:**

P = Planted  
V = Volunteer

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

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

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

Notes: No transects at this site

[illegible]

**SITE:** Fourchette Reserve

[illegible]

**Notes:** Many cows at Puffin

**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

Montana Department of Transportation Wetland Mitigation Monitoring Project Rhithron Associates, Inc. for Land and Water Consulting		Project Name	puffin	flashlight	pengala	albatross	puffin	flashlight	pengala	albatross
2001 and 2002		Date	2001	2001	2001	2001	7/29/2002	Jul-02	Jul-02	Jul-02
Cnidaria		<i>Hydra</i>							1	
Turbellaria		<i>Dugesia</i>								
Oligochaeta	Enchytraeidae	Enchytraeidae		1						
	Lumbriculidae	Lumbriculidae								
	Naididae	<i>Chaetogaster</i>								
		<i>Nais elinguis</i>								
		<i>Nais variabilis</i>				10				3
		<i>Ophidonais serpentina</i>								
	Tubificidae	<i>Tubificidae - immature</i>								
		<i>Limnodrilus hoffmeisteri</i>								
Hirudinea		<i>Moerobdella microstoma</i>			3	1			7	
		<i>Nepheleopsis</i>								
		<i>Helobdella stagnalis</i>								
		<i>Helobdella</i>								
		<i>Rosaphonia</i>								
		<i>Theromyzon</i>								
Bivalvia	Sphaeriidae	<i>Sphaerium</i>						2		1
Gastropoda	Lymnaeidae	<i>Fossaria</i>				1				
	Physidae	<i>Physa</i>	1		16				7	
	Planorbidae	<i>Gyraulus</i>								
		<i>Helicoma</i>				1				
		<i>Planorbella</i>								
Crustacea	Cladocera	<i>Cladocera</i>			7		4	1		3
	Copepoda	<i>Calanoida</i>				12				
		<i>Cyclopoida</i>							2	
	Ostracoda	<i>Ostracoda</i>					2			1
	Amphipoda	<i>Gammarus</i>	1		1			5		
		<i>Hyalella astuta</i>	7		37	9		11	27	3
	Isopoda	<i>Carcinotera</i>								
	Decapoda	<i>Oreochelone</i>								
Acarina		<i>Acaris</i>			1			1	10	
Odonata	Aeschnidae	<i>Aeschna punctata</i>								
	Libellulidae	<i>Libellulidae - early instar</i>								
		<i>Symptetrus</i>	2		2					
	Coenagrionidae	<i>Coenagrionidae - early instar</i>	4		45			3	22	
		<i>Eallagma</i>								
Ephemeroptera	Lestidae	<i>Lestes</i>								
	Baetidae	<i>Baetis tricaudatus</i>								
		<i>Callibaetis</i>			3			2		
		<i>Centroptilum</i>								
	Caenidae	<i>Caenis</i>			1			1	3	
	Ephemerellidae	<i>Ephemerella</i>								
	Heptageniidae	<i>Chrysa</i>								
		<i>Nixe</i>								
	Leptophlebiidae	<i>Paraleptophlebia</i>								
	Anisoptera	<i>Anisoptera</i>								
Homoptera	Coreidae	<i>Coreidae - immature</i>			6	20	5		1	9
		<i>Coreocera tarsalis</i>								
		<i>Helopeltis</i>								
		<i>Palmaecora basalis</i>								
		<i>Sigara</i>			2	1	1			1
		<i>Trichocoryna</i>								
	Nepidae	<i>Ranatra</i>								
	Notonectidae	<i>Notonecta</i>	3	3	7				3	
Plecoptera	Chloroperlidae	<i>Stenonema</i>								
	Perlidae	<i>Perlidae</i>								
Trichoptera	Brachycentridae	<i>Brachycentrus - early instar</i>								
	Hydroptilidae	<i>Hydroptilidae - pupa</i>								
		<i>Hydroptila</i>								
	Lepidostomatidae	<i>Lepidostoma</i>								
	Leptoceridae	<i>Leptoceridae - early instar</i>								
		<i>Ceratoph</i>								
		<i>Myrtilus</i>	1							2
		<i>Neotoma</i>						3		
		<i>Psychoglypha subaenea</i>								
Coleoptera	Chrysomelidae	<i>Chrysomelidae</i>								
	Curculionidae	<i>Baryscapus</i>								
	Dytiscidae	<i>Aethys</i>								
		<i>Dytiscidae - early instar larvae</i>								
		<i>Hydrophilidae - early instar larvae</i>								
		<i>Hydrobia</i>								1
		<i>Liodonta</i>								
		<i>Laccophilus</i>								
		<i>Neoporus</i>								
		<i>Oreodytes</i>								
		<i>Rhantus</i>								
		<i>Strophotarsus</i>								
	Elmidae	<i>Elmidae</i>								
		<i>Heteromys</i>								
		<i>Lara avara</i>								
		<i>Optoservus</i>								
		<i>Zaitzevia</i>								
	Halophilidae	<i>Halophilus</i>			1			1	2	
		<i>Pelodytes</i>								
	Hydrophilidae	<i>Hydrophilidae - early instar larvae</i>								
		<i>Berosus</i>	1		4	6	3			
		<i>Helophorus</i>								
		<i>Hydrobia</i>								
		<i>Hydrochara</i>								
		<i>Laccobius</i>								
		<i>Tropisternus</i>								
Diptera	Athericidae	<i>Atherix</i>								
	Ceratopogonidae	<i>Bracon/Palpus</i>							1	
		<i>Dasyhelea</i>								
	Chaoboridae	<i>Chaoborus</i>					41			
	Culicidae	<i>Anopheles</i>								

		<i>Culex</i>								
	Dixidae	<i>Dixella</i>								
	Dolichopodidae	Dolichopodidae								
	Ephydriidae	Ephydriidae								
	Muscidae	Muscidae								1
	Pelecorhynchidae	<i>Clutopia</i>								
	Psychodidae	<i>Pericoma</i>								
	Simuliidae	<i>Simulium</i>								
	Sciomyzidae	Sciomyzidae								
	Stratiomyidae	<i>Odonotomys</i>								
	Tuboniidae	Tuboniidae								
	Tipulidae	<i>Hexatoma</i>								
		<i>Tipula</i>								
	Chironomidae	<i>Ablabesmyia</i>								
		<i>Acrisotopus</i>								
		<i>Camptocladius</i>								
		<i>Chironomus</i>					7			
		<i>Cladotanytarsus</i>							1	
		<i>Corynoneura</i>								
		<i>Cricotopus bicinctus</i> Gr.								
		<i>Cricotopus (Cricotopus) Gr.</i>							7	1
		<i>Cricotopus notococcladius</i>								
		<i>Cryptotendipes</i>								
		<i>Damesa</i>								
		<i>Deutotendipes</i>								
		<i>Einfeldia</i>			13					
		<i>Endochironomus</i>			32					
		<i>Labrundia</i>								
		<i>Micropectra</i>								
		<i>Microtendipes</i>	1		19			4	4	1
		<i>Odonotomys</i>								
		<i>Orthocladus annexus</i>			1			11	8	2
		<i>Pagania</i>								
		<i>Parachironomus</i>								
		<i>Paracladopelma</i>								
		<i>Paramira</i>								
		<i>Parametronemus</i>								
		<i>Paratanytarsus</i>								
		<i>Pseudotendipes</i>								
		<i>Phaenopsectra</i>							2	
		<i>Polypedilum</i>								
		<i>Procladius</i>				1			1	
		<i>Psectrocladius elatus</i>			1					
		<i>Psectrocladius vernalis</i>								1
		<i>Psectrotanytus</i>								
		<i>Pseudochironomus</i>						1		
		<i>Stictochironomus</i>								
		<i>Tanytus</i>								
		<i>Tanytarsus</i>								
		<i>Thetamanuella</i>						1		
		<i>Tvetusia</i>								
	Total		3	22	202	62	63	47	114	25
	Total taxa		1	10	20	10	7	14	21	11
	POET		0	3	4	0	0	4	2	1
	Chironomidae taxa		0	1	5	1	1	4	6	4
	Crustacea taxa + Mollusca taxa		0	3	4	4	2	4	5	2
	% Chironomidae	0.00%	4.55%	32.67%	1.61%	11.11%	36.17%	20.18%	20.00%	
	Orthocladinae/Chironomidae	#DIV/0!	0.00	0.03	0.00	0.00	0.71	0.63	0.80	
	%Amphipoda	0.00%	36.36%	18.81%	14.52%	0.00%	34.04%	23.68%	12.00%	
	%Crustacea + %Mollusca	0.00%	40.91%	30.20%	37.10%	9.52%	40.43%	35.09%	16.00%	
	HBI	11.00	7.36	7.50	7.52	8.03	6.15	6.85	7.24	
	%Dominant taxon	100.00%	31.82%	22.25%	32.26%	65.08%	23.40%	23.68%	36.00%	
	%Collector-Gatherers	0.00%	50.00%	45.54%	51.61%	34.29%	80.83%	51.75%	48.00%	
	%Filterers	0.00%	0.00%	3.47%	0.00%	6.35%	2.13%	3.51%	0.00%	
	Scores (2002 criteria)									
	Total taxa		1	1	3	1	1	3	5	3
	POET		1	3	5	1	1	5	1	1
	Chironomidae taxa		1	1	3	1	1	3	3	3
	Crustacea taxa + Mollusca taxa		1	1	5	5	1	5	1	1
	% Chironomidae		5	5	3	5	5	3	3	3
	Orthocladinae/Chironomidae		1	1	1	1	1	5	5	5
	%Amphipoda		5	1	3	3	5	1	3	3
	%Crustacea + %Mollusca		5	3	5	3	5	3	5	5
	HBI		1	3	3	3	1	5	5	3
	%Dominant taxon		1	3	5	3	1	5	5	3
	%Collector-Gatherers		1	3	1	3	1	3	3	1
	%Filterers		1	1	3	1	3	1	3	1
	Total score		24	26	40	38	26	42	44	32



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

<b>Project/Site:</b> Fourchette Creek Reserve	<b>Project No:</b> Task 23	<b>Date:</b> 29-Jul-2002
<b>Applicant/Owner:</b> Montana Department of Transportation		<b>County:</b> Phillips
<b>Investigators:</b> Berglund		<b>State:</b> Montana
		<b>Plot ID:</b> 1

Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on the reverse side)	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Community ID:</b> EM / AB <b>Transect ID:</b> NA <b>Field Location:</b> Flashlight Reservoir
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VEGETATION (USFWS Region No. 4)					
Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Hordeum jubatum</i>	Herb	FACW	<i>Myriophyllum spicatum</i>	Herb	OBL
Barley, Fox-Tail			Water-Milfoil, Eurasian		
<i>Eleocharis palustris</i>	Herb	OBL	<i>Scirpus acutus</i>	Herb	OBL
Spikerush, Creeping			Bulrush, Hard-Stem		
<i>Potamogeton foliosus</i>	Herb	OBL	<i>Xanthium strumarium</i>	Herb	FAC
Pondweed, Leafy			Cockle-Bur, Rough		
<i>Distichlis spicata</i>	Herb	NI	<i>Nasturtium officinale</i>	Herb	OBL
Saltgrass, Inland			Water-Cress, True		
<i>Eleocharis acicularis</i>	Herb	OBL	<i>Puccinellia nuttalliana</i>	Herb	OBL
Spikerush, Least			Grass, Nuttall's Alkali		
<i>Sagittaria cuneata</i>	Herb	OBL	<i>Rumex crispus</i>	Herb	FACW
Arrow-Head, Northern			Dock, Curly		
<i>Scirpus maritimus</i>	Herb	NI	<i>Scirpus americanus</i>	Herb	OBL
Bulrush, Saltmarsh			Bulrush, Olney's		
<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-) 12/12 = 100.00%			<b>FAC Neutral:</b> 11/11 = 100.00% <b>Numeric Index:</b> 16/12 = 1.33		

<b>Remarks:</b>
-----------------

<b>HYDROLOGY</b> <b>YES</b> Recorded Data(Describe in Remarks): <u>NO</u> Stream, Lake or Tide Gauge <b>YES</b> Aerial Photographs <u>NO</u> Other  <u>NO</u> No Recorded Data  <b>Field Observations</b>  Depth of Surface Water: = 48 (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: N/A (in.)	<b>Wetland Hydrology Indicators</b> <b>Primary Indicators</b> <b>YES</b> Inundated <b>YES</b> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <b>YES</b> Sediment Deposits <b>YES</b> Drainage Patterns in Wetlands <b>Secondary Indicators</b> <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <b>YES</b> FAC-Neutral Test <u>NO</u> Other(Explain in Remarks)
<b>Remarks:</b> Soils along edge saturated to surface; pond inundated.	

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

<b>Project/Site:</b> Fourchette Creek Reserve	<b>Project No:</b> Task 23	<b>Date:</b> 29-Jul-2002
<b>Applicant/Owner:</b> Montana Department of Transportation		<b>County:</b> Phillips
<b>Investigators:</b> Berglund		<b>State:</b> Montana
		<b>Plot ID:</b> 1

<b>SOILS</b>
<b>Map Unit Name (Series and Phase):</b> Unmapped <b>Map Symbol:</b> NA <b>Drainage Class:</b> Unknown <b>Taxonomy (Subgroup):</b> Unknown <b>Profile Description</b>
<b>Mapped Hydric Inclusion?</b> <b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="radio"/> No

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
10	B	2.5Y4/2	N/A	N/A N/A	Clay
10	B	2.5Y4/3	2.5Y5/6	Common Faint	Clay
10	B	2.5Y4/2	2.5Y5/6	Few Faint	Clay

<b>Hydric Soil Indicators:</b> <u>NO</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>NO</u> Gleyed or Low Chroma Colors	<u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <b>YES</b> Other (Explain in Remarks)
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<b>Remarks:</b> Clear wetland border; soils support obligate species. Soils are clays and are likely poorly to very poorly drained.
--

<b>WETLAND DETERMINATION</b> Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes No Wetland Hydrology Present? <input checked="" type="radio"/> Yes No Hydric Soils Present? <input checked="" type="radio"/> Yes No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes No
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<b>Remarks:</b> Emergent / aquatic bed communities surrounding and within Flashlight Reservoir.
--

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

<b>Project/Site:</b> Fourchette Creek Reserve	<b>Project No:</b> Task 23	<b>Date:</b> 29-Jul-2002
<b>Applicant/Owner:</b> Montana Department of Transportation	<b>County:</b> Phillips	<b>State:</b> Montana
<b>Investigators:</b> Berglund	<b>Plot ID:</b> 2	

Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on the reverse side)	<input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No	<b>Community ID:</b> EM/AB <b>Transect ID:</b> NA <b>Field Location:</b> Penguin Reservoir
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**VEGETATION** (USFWS Region No. 4)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Hordeum jubatum</i>	Herb	FACW	<i>Potamogeton foliosus</i>	Herb	OBL
Barley,Fox-Tail			Pondweed,Leafy		
<i>Xanthium strumarium</i>	Herb	FAC	<i>Elodea canadensis</i>	Herb	OBL
Cockle-Bur,Rough			Water-Weed,Broad		
<i>Eleocharis palustris</i>	Herb	OBL	<i>Myriophyllum spicatum</i>	Herb	OBL
Spikerush,Creeping			Water-Milfoil,Eurasian		
<i>Eleocharis acicularis</i>	Herb	OBL	<i>Sagittaria cuneata</i>	Herb	OBL
Spikerush,Least			Arrow-Head,Northern		
<i>Beckmannia syzigachne</i>	Herb	OBL	<i>Rumex crispus</i>	Herb	FACW
Sloughgrass,American			Dock,Curly		
<i>Polygonum lapathifolium</i>	Herb	OBL	<i>Juncus balticus</i>	Herb	OBL
Willow-Weed			Rush,Baltic		

Percent of Dominant Species that are OBL, FACW or FAC: **FAC Neutral:** 11/11 = 100.00%  
 (excluding FAC-) 12/12 = 100.00% **Numeric Index:** 16/12 = 1.33

**Remarks:**

**HYDROLOGY**

<b>YES</b> Recorded Data(Describe in Remarks): <u>NO</u> Stream, Lake or Tide Gauge <u>YES</u> Aerial Photographs <u>NO</u> Other  <u>NO</u> No Recorded Data  <b>Field Observations</b>  Depth of Surface Water: = 48 (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: N/A (in.)	<b>Wetland Hydrology Indicators</b> <b>Primary Indicators</b> <u>YES</u> Inundated <u>YES</u> Saturated in Upper 12 Inches <u>YES</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>YES</u> Drainage Patterns in Wetlands <b>Secondary Indicators</b> <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>YES</u> FAC-Neutral Test <u>NO</u> Other(Explain in Remarks)
<b>Remarks:</b> Inundated in pond, saturated at edges.	

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

<b>Project/Site:</b> Fourchette Creek Reserve	<b>Project No:</b> Task 23	<b>Date:</b> 29-Jul-2002
<b>Applicant/Owner:</b> Montana Department of Transportation	<b>County:</b> Phillips	<b>State:</b> Montana
<b>Investigators:</b> Berglund	<b>Plot ID:</b> 2	

**SOILS**

<b>Map Unit Name (Series and Phase):</b> Basconey clay <b>Map Symbol:</b> 250E <b>Drainage Class:</b> PD (?) <b>Taxonomy (Subgroup):</b> Unknown <b>Profile Description</b>	<b>Mapped Hydric Inclusion?</b> <b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No
--	---

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
10	B	10YR4/2	10YR5/8	Common Distinct	Clay

**Hydric Soil Indicators:**

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

**Remarks:**  
 Sample at wetland edge.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	
Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	

**Remarks:**  
 EM / AB communities at Penguin Reservoir.

Do Normal Circumstances exist on the site?	<input checked="" type="radio"/> Yes	No	Community ID:	EM
Is the site significantly disturbed (Atypical Situation)?	Yes	<input checked="" type="radio"/> No	Transect ID:	NA
Is the area a potential Problem Area?	<input checked="" type="radio"/> Yes	No	Field Location:	Pintail Reservoir
(if needed, explain on the reverse side)				

## VEGETATION (USFWS Region No. 4)

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 7/7 = 100.00%	FAC Neutral: 5/5 = 100.00% Numeric Index: 13/7 = 1.86
--	--

Remarks: Scattered wetland species beginning to emerge within the impoundment basin where surface water levels have dropped from 2001. No aquatic veg

## HYDROLOGY

<p><u>YES</u> Recorded Data (Describe in Remarks):  <u>NO</u> Stream, Lake or Tide Gauge  <u>YES</u> Aerial Photographs  <u>NO</u> Other</p> <p><u>NO</u> No Recorded Data</p> <p>Field Observations</p> <p>Depth of Surface Water: N/A (in.)</p> <p>Depth to Free Water in Pit: N/A (in.)</p> <p>Depth to Saturated Soil: = 12 (in.)</p>	<p>Wetland Hydrology Indicators</p> <p>Primary Indicators</p> <p><u>NO</u> Inundated  <u>YES</u> Saturated in Upper 12 Inches  <u>YES</u> Water Marks  <u>NO</u> Drift Lines  <u>NO</u> Sediment Deposits  <u>NO</u> Drainage Patterns in Wetlands</p> <p>Secondary Indicators</p> <p><u>NO</u> Oxidized Root Channels in Upper 12 Inches  <u>NO</u> Water-Stained Leaves  <u>NO</u> Local Soil Survey Data  <u>YES</u> FAC-Neutral Test  <u>NO</u> Other (Explain in Remarks)</p>
<p>Remarks:</p> <p>Wetland fringe likely seasonally flooded. Scattered wetland veg in dried impoundment area. *Max* impoundment line drawn in 2001 was reduced in 2002 - no evidence of flooding to this extent in 2002.</p>	

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

SOILS	
Map Unit Name (Series and Phase):	Unmapped
Map Symbol: NA	Drainage Class: Unknown
Taxonomy (Subgroup): Unknown	Mapped Hydric Inclusion?
Profile Description	Field Observations Confirm Mapped Type? Yes <input checked="" type="radio"/> No <input type="radio"/>

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

Remarks:  
First 2 Samples along fringe area. Third in drawdown zone with scattered wetland veg.

## WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No	Is the Sampling Point within the Wetland?	<input checked="" type="radio"/> Yes	<input type="radio"/> No
Wetland Hydrology Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No			
Hydric Soils Present?	<input checked="" type="radio"/> Yes	<input type="radio"/> No			

Remarks: EM community at Pintal Reservoir. Limited wetland veg present in main impoundment area. Water extremely turbid.

Explanation for response to:	Normal Circumstances?	Atypical Situation?	Potential Problem Area?
The site is likely a seasonal wetland (Problem Area Type b); hydrology may be present during early growing season, but is reduced or lacking during later growing season. Site was drier than it appeared in 2001.			

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

<b>Project/Site:</b> Fourchette Creek Reserve	<b>Project No:</b> Task 23	<b>Date:</b> 29-Jul-2002
<b>Applicant/Owner:</b> Montana Department of Transportation	<b>County:</b> Phillips	<b>State:</b> Montana
<b>Investigators:</b> Berglund	<b>Plot ID:</b> 4	

Do Normal Circumstances exist on the site?	<input checked="" type="radio"/> Yes <input type="radio"/> No	Community ID: EM
Is the site significantly disturbed (Atypical Situation)?	<input type="radio"/> Yes <input checked="" type="radio"/> No	Transect ID: NA
Is the area a potential Problem Area?	<input type="radio"/> Yes <input checked="" type="radio"/> No	Field Location: Albatross Reservoir
(If needed, explain on the reverse side)		

VEGETATION (USFWS Region No. 4)					
Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Eleocharis palustris</i>	Herb	OBL	<i>Typha latifolia</i>	Herb	OBL
Spikerush, Creeping			Cattail, Broad-Leaf		
<i>Hordeum jubatum</i>	Herb	FACW	<i>Rumex crispus</i>	Herb	FACW
Barley, Fox-Tail			Dock, Curly		
<i>Xanthium strumarium</i>	Herb	FAC	<i>Eleocharis acicularis</i>	Herb	OBL
Cockle-Bur, Rough			Spikerush, Least		
<i>Marsilea vestita</i>	Herb	OBL	<i>Cirsium arvense</i>	Herb	FACU
Fern, Hairy Water			Thistle, Creeping		
<i>Scirpus maritimus</i>	Herb	NI			
Bulrush, Saltmarsh					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 7/8 = 87.50%	FAC Neutral: 6/7 = 85.71%
	Numeric Index: 15/8 = 1.88

**Remarks:**  
 1 sally exigu seedling. Wetland veg is emerging along fringe where water levels have receded in comparison to 2001. No aquatic veg in impoundment.

HYDROLOGY	
<b>YES</b> Recorded Data(Describe in Remarks): <u>NO</u> Stream, Lake or Tide Gauge <u>YES</u> Aerial Photographs <u>NO</u> Other  <u>NO</u> No Recorded Data	<b>Wetland Hydrology Indicators</b> <b>Primary Indicators</b> <u>NO</u> Inundated <u>YES</u> Saturated in Upper 12 Inches <u>YES</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands <b>Secondary Indicators</b> <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>YES</u> FAC-Neutral Test <u>NO</u> Other(Explain in Remarks)
<b>Field Observations</b>  Depth of Surface Water: N/A (In.) Depth to Free Water in Pit: N/A (In.) Depth to Saturated Soil: = 12 (In.)	

**Remarks:**  
 Impoundment inundated, but no wetland veg. Water very turbid. Water levels about 2' lower than observed during 2001.

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

<b>Project/Site:</b> Fourchette Creek Reserve	<b>Project No:</b> Task 23	<b>Date:</b> 29-Jul-2002
<b>Applicant/Owner:</b> Montana Department of Transportation	<b>County:</b> Phillips	<b>State:</b> Montana
<b>Investigators:</b> Berglund	<b>Plot ID:</b> 4	

<b>SOILS</b>	
<b>Map Unit Name (Series and Phase):</b> Sunburst <b>Map Symbol:</b> 825C <b>Drainage Class:</b> PD (?) <b>Taxonomy (Subgroup):</b> Unknown <b>Profile Description:</b>	<b>Mapped Hydric Inclusion?</b> <b>Field Observations Confirm Mapped Type?</b> Yes <input checked="" type="radio"/> No

Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
10	B	10YR4/2	10YR5/8	Few Distinct	Clay
10	B	2.5Y4/1	10YR4/6	N/A N/A	Clay

<b>Hydric Soil Indicators:</b> <u>NO</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>YES</u> Gleyed or Low Chroma Colors	<u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <u>NO</u> Other (Explain in Remarks)
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**Remarks:**  
 1st Sample in NW "arm". Second in drawdown zone.

WETLAND DETERMINATION	
Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No

**Remarks:**  
 Wetland fringe occurs along most of shoreline in drawdown area.

**Explanation for response to:** Normal Circumstances? Atypical Situation? Potential Problem Area?  
 The site is possibly a seasonal wetland (Problem Area Type b); hydrology may be present during early growing season, but may be reduced or lacking during later growing season.





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

1. Project Name: Fourchette Creek 2. Project #: \_\_\_\_\_ Control #: \_\_\_\_\_3. Evaluation Date: Mo. 8 Day 30 Yr. 01 4. Evaluator(s): SB/MT 5. Wetlands/Site #(s): Penguin Res.6. Wetland Location(s): i. Legal: T 22 N or S; R 30 E or W; S 19; T \_\_\_\_\_ N or S; R \_\_\_\_\_ E or W; S \_\_\_\_\_  
ii. Approx. Stationing or Mileposts: \_\_\_\_\_iii. Watershed: 10040104 GPS Reference No. (if applies): NA  
Other Location Information: RESERVOIR

7. a. Evaluating Agency: MDT  
 b. Purpose of Evaluation:  
 1. ☐ Wetlands potentially affected by MDT project  
 2. ☐ Mitigation wetlands; pre-construction  
 3. ☒ Mitigation wetlands; post-construction  
 4. ☐ Other
8. Wetland size: (total acres) \_\_\_\_\_ (visually estimated)  
 \_\_\_\_\_ (measured, e.g. by GPS [if applies])
9. Assessment area: (AA, tot., ac., see instructions on determining AA) \_\_\_\_\_ (visually estimated)  
 \_\_\_\_\_ (measured, e.g. by GPS [if applies])

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
<u>Dep (surf. water)</u>	<u>Palustrine</u>	<u>-</u>	<u>EM</u>	<u>SF</u>	<u>D</u>	<u>40</u>
<u>II</u>	<u>Palustrine</u>	<u>-</u>	<u>AB</u>	<u>SPF</u>	<u>D</u>	<u>30</u>
<u>II</u>	<u>II</u>	<u>-</u>	<u>UB</u>	<u>SPF</u>	<u>D</u>	<u>30</u>

(Abbreviations: System: Palustrine (P)/ Subsystem: none/ Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)/ System: Lacustrine (L)/ Subsystem: Limnetic (2)/ Classes: RB, UB, AB/ Subsystem: Littoral (4)/ Classes: RB, UB, AB, US, EM/ System: Riverine (R)/ Subsystem: Lower Perennial (2)/ Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3)/ Classes: RB, UB, AB, US/ Water Regimes: Permanently Flooded (H), Intermittently Exposed (G), Semipermanently Flooded (F), Seasonally Flooded (C), Saturated (B), Temporarily Flooded (A), Intermittently Flooded (J) Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A) HGM Classes: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)  
 (Circle one) Unknown Rare Common Abundant  
 Comments: \_\_\_\_\_

## 12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Heavy grazing impacts

- ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list)
- CIR ARV

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Impoundment surrounded by undeveloped rangeland, Penguin Reservoir.

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

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

Comments: \_\_\_\_\_

## SECTION PERTAINING to FUNCTIONS &amp; VALUES ASSESSMENT

## 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

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

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

pipit pipit

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

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

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

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

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

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

Northern Leopard Frogs  
black-necked stilt, Franklin's gull

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

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

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

Northern Leopard Frogs observed (dozens of frogs) in 2001

## 14C. General Wildlife Habitat Rating:

I. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

**Substantial** (based on any of the following [check]):

- ☒ observations of abundant wildlife #s or high species diversity (during any period)  
☒ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.  
☐ presence of extremely limiting habitat features not available in the surrounding area  
☐ interviews with local biologists with knowledge of the AA

**Low** (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods  
☐ little to no wildlife sign  
☐ sparse adjacent upland food sources  
☐ interviews with local biologists with knowledge of the AA

**Moderate** (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods  
☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.  
☐ adequate adjacent upland food sources  
☐ interviews with local biologists with knowledge of the AA

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

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	<u>S/I</u>	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in ≥ 10% of AA																				
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	<u>M</u>	L	L	M	L	L	L	L	L	L	L

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

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

Comments:

Many leopard frogs, painted turtles

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

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

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

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

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

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

Comments:

**14E. Flood Attenuation:** (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

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

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

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

Comments:

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

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

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

Comments:

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Comments:



Pen

**14H Sediment/Shoreline Stabilization:** (applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

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

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

Comments:

**14I. Production Export/Food Chain Support:**

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E/A = temporary/ephemeral or absent [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
B	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
C	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
P/P	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
S/I	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
T/E/A																		

Comments:

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

**i. Discharge Indicators**

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

**ii. Recharge Indicators**

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

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

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

Comments:

**14K. Uniqueness:**

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

Comments:

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

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

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

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

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

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

Comments:

Pen

## FUNCTION &amp; VALUE SUMMARY &amp; OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.3	1	
B. MT Natural Heritage Program Species Habitat	HIGH	1.0	1	
C. General Wildlife Habitat	HIGH	0.8	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	Low	0.2	1	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	MOD	0.5	1	
H. Sediment/Shoreline Stabilization	MOD	0.6	1	
I. Production Export/Food Chain Support	MOD	0.7	1	
J. Groundwater Discharge/Recharge	Low	0.1	1	
K. Uniqueness	Low	0.2	1	
L. Recreation/Education Potential	Low	0.1	1	
Totals:		5.1	11	

46%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

I

II

III

IV

Category I Wetland: (Must satisfy one of the following criteria; if does not meet criteria, go to Category II)

- \_\_\_ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or
- \_\_\_ Score of 1 functional point for Uniqueness; or
- \_\_\_ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or
- \_\_\_ Total actual functional points > 80% (round to nearest whole #) of total possible functional points.

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

- ✓ Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or
- \_\_\_ Score of .9 or 1 functional point for General Wildlife Habitat; or
- \_\_\_ Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or
- \_\_\_ "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or
- \_\_\_ Score of .9 functional point for Uniqueness; or
- \_\_\_ Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.

Category III Wetland: (Criteria for Categories I, II or IV not satisfied)

Category IV Wetland: (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)

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



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

1. Project Name: Fourchette Creek 2. Project #: \_\_\_\_\_ Control #: \_\_\_\_\_3. Evaluation Date: Mo. 8 Day 30 Yr. 01 4. Evaluator(s): JB/MT 5. Wetlands/Site #(s): Flashlight Reservoir6. Wetland Location(s): I. Legal: T 22 N or S; R 29 E or W; S 24; T \_\_\_\_\_ N or S; R \_\_\_\_\_ E or W; S \_\_\_\_\_; II. Approx. Stationing or Mileposts: \_\_\_\_\_iii. Watershed: 10040104 GPS Reference No. (if applies): NA Other Location Information: RESERVOIR7. a. Evaluating Agency: MDT8. Wetland size: (total acres) \_\_\_\_\_ (visually estimated)  
\_\_\_\_\_ (measured, e.g. by GPS [if applies])

b. Purpose of Evaluation:

1. \_\_\_\_\_ Wetlands potentially affected by MDT project  
 2. \_\_\_\_\_ Mitigation wetlands; pre-construction  
 3. ☒ Mitigation wetlands; post-construction  
 4. \_\_\_\_\_ Other

9. Assessment area: (AA, tot., ac., see instructions on determining AA) \_\_\_\_\_ (visually estimated)  
\_\_\_\_\_ (measured, e.g. by GPS [if applies])

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Dep (surf. water)	Palustrine	—	EM	SF	D	40
II II	Palustrine	—	AB	SPF	D	50
II II	II	—	UB	SPF	D	10

(Abbreviations: System: Palustrine (P)/ Subsystem: none/ Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO)/ System: Lacustrine (L)/ Subsystem: Littoral (2)/ Classes: RB, UB, AB/ Subsystem: Littoral (4)/ Classes: RB, UB, AB, US, EM/ System: Riverine (R)/ Subsystem: Lower Perennial (2)/ Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3)/ Classes: RB, UB, AB, US/ Water Regimes: Permanently Flooded (H), Intermittently Flooded (G), Semipermanently Flooded (F), Seasonally Flooded (C), Saturated (B), Temporarily Flooded (A), Intermittently Flooded (J) Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A) HGM Classes: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)  
 (Circle one) Unknown Rare Common Abundant  
 Comments: \_\_\_\_\_

12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Heavy grazing impactsii. Prominent woody, alien, & introduced species (including those not domesticated, feral): (list) CIR ARViii. Provide brief descriptive summary of AA and surrounding land use/habitat: Impoundment surrounded by undeveloped rangeland.

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

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

Comments: \_\_\_\_\_

## SECTION PERTAINING to FUNCTIONS &amp; VALUES ASSESSMENT

## 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

pipit

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

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

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

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

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

Northern Leopard Frogblack-necked stilt, peregrine falcon

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

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

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

Northern Leopard Frogs present, (100's of frogs observed in 2001)

## 14C. General Wildlife Habitat Rating:

I. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

Substantial (based on any of the following [check]):

- ☒ observations of abundant wildlife #s or high species diversity (during any period)
- ☒ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☒ presence of extremely limiting habitat features not available in the surrounding area
- ☐ interviews with local biologists with knowledge of the AA

Low (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods
- ☐ little to no wildlife sign
- ☐ sparse adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):

- ☐ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ☐ adequate adjacent upland food sources
- ☐ interviews with local biologists with knowledge of the AA

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

Structural diversity (see #13)	High								Moderate				Low			
	Even				Uneven				Even				Uneven			
Class cover distribution (all vegetated classes)	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
Duration of surface water in ≥ 10% of AA	E	E	E	H	E	E	H	H	E	<u>H</u>	H	M	E	H	M	M
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	<u>M</u>	L	L	M	L	L	L

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

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

Comments:

1000's of leopard frogs present in 2001.

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

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

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

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

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

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

Comments:

*None obs., but MDT says fish were observed (Urban).*

**14E. Flood Attenuation:** (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

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

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

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

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

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

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

Comments:

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Comments:



**14H Sediment/Shoreline Stabilization:** (applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

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

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

Comments:

**14I. Production Export/Food Chain Support:**

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E/A = temporary/ephemeral or absent [see instructions for further definitions of these terms].

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
B	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	<u>.7M</u>	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L

Comments:

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

**i. Discharge Indicators**

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

**ii. Recharge Indicators**

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

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

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

Comments:

**14K. Uniqueness:**

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	<u>common</u>	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	<u>.2 (L)</u>	.1 (L)

Comments:

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

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

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

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

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

Ownership	Disturbance at AA (#12j)		
	low	moderate	high
public ownership	1 (H)	.5 (M)	<u>.2 (L)</u>
private ownership	.7 (M)	.3 (L)	<u>.1 (L)</u>

Comments:



## FUNCTION &amp; VALUE SUMMARY &amp; OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	HIGH	1.0	1	
C. General Wildlife Habitat	High	0.8	1	
D. General Fish/Aquatic Habitat	MOD	0.5	1	
E. Flood Attenuation	LOW	0.2	1	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	MOD	0.5	1	
H. Sediment/Shoreline Stabilization	MOD	0.6	1	
I. Production Export/Food Chain Support	MOD	0.7	1	
J. Groundwater Discharge/Recharge	LOW	0.1	1	
K. Uniqueness	LOW	0.2	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		5.6	12	

47%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below) I II III IV**Category I Wetland:** (Must satisfy one of the following criteria; if does not meet criteria, go to Category II)

- ☐ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or  
☐ Score of 1 functional point for Uniqueness; or  
☐ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or  
☐ Total actual functional points > 80% (round to nearest whole #) of total possible functional points.

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

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

**Category III Wetland:** (Criteria for Categories I, II or IV not satisfied)**Category IV Wetland:** (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)

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

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

1. Project Name: Fourchette Creek 2. Project #: \_\_\_\_\_ Control #: \_\_\_\_\_

3. Evaluation Date: Mo. 8 Day 30 Yr. 01 4. Evaluator(s): JB/MT 5. Wetlands/Site #(s): Pintail Reservoir

6. Wetland Location(s): I. Legal: T 22 N or S; R 30 E or W; S 19; T \_\_\_\_\_ N or S; R \_\_\_\_\_ E or W; S \_\_\_\_\_;  
 II. Approx. Stationing or Mileposts: \_\_\_\_\_ RESERVOIR  
 III. Watershed: 10040104 GPS Reference No. (if applies): NA  
 Other Location Information: \_\_\_\_\_

7. a. Evaluating Agency: MDT 8. Wetland size: (total acres) \_\_\_\_\_ (visually estimated)  
 b. Purpose of Evaluation: < 1 (measured, e.g. by GPS [if applies])  
 1. \_\_\_\_\_ Wetlands potentially affected by MDT project  
 2. \_\_\_\_\_ Mitigation wetlands; pre-construction  
 3. ☒ Mitigation wetlands; post-construction  
 4. \_\_\_\_\_ Other  
 9. Assessment area: (AA, tot., ac., see instructions on determining AA) 1.5 (visually estimated)  
1.5 (measured, e.g. by GPS [if applies])

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Dep (surf. water)	Palustrine	—	EM	SF	D	10
II II	Palustrine	—	UB	SF	D	90

(Abbreviations: System: Palustrine (P), Subsystem: none/ Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO) System: Lacustrine (L), Subsystem: Littoral (4) Classes: RB, UB, AB, US, EM/ System: Riverine (R) Subsystem: Lower Perennial (2) Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3) Classes: RB, UB, AB, US/ Water Regimes: Permanently Flooded (H), Intermittently Exposed (G), Semipermanently Flooded (F), Seasonally Flooded (C), Saturated (B), Temporarily Flooded (A), Intermittently Flooded (J) Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A) HGM Classes: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)  
 (Circle one) Unknown Rare Common Abundant  
 Comments: \_\_\_\_\_

## 12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Heavy grazing impacts

II. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) CIR ARV

III. Provide brief descriptive summary of AA and surrounding land use/habitat: Impoundment surrounded by undeveloped rangeland, Pintail Reservoir

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

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

Comments: \_\_\_\_\_

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

Pin

14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

Piping plover

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

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

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

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

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

Northern Leopard frog

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

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

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

Few leopard frogs observed (~3) in 2001

14C. General Wildlife Habitat Rating:

I. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

**Substantial** (based on any of the following [check]):

- observations of abundant wildlife #s or high species diversity (during any period)
- abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.
- presence of extremely limiting habitat features not available in the surrounding area
- interviews with local biologists with knowledge of the AA

**Low** (based on any of the following [check]):

- few or no wildlife observations during peak use periods
- little to no wildlife sign
- sparse adjacent upland food sources
- interviews with local biologists with knowledge of the AA

**Moderate** (based on any of the following [check]):

- XX observations of scattered wildlife groups or individuals or relatively few species during peak periods
- common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- adequate adjacent upland food sources
- interviews with local biologists with knowledge of the AA

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

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	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
Duration of surface water in ≥ 10% of AA	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

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

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

Comments: No wildlife obs., but seas. use likely.

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

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

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

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

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

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

Comments:

**14E. Flood Attenuation:** (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

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

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

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

Comments:

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

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

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

Comments:

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	≥ 70%		< 70%		≥ 70%		< 70%	
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Comments:

Heavy grazing - water very turbid.



**14H Sediment/Shoreline Stabilization:** (applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

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

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

Comments:

**14I. Production Export/Food Chain Support:**

**I. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E/A = temporary/ephemeral or absent [see instructions for further definitions of these terms].)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
B	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
C	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
P/P	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
S/I	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L
T/E/A																		

Comments:

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

**i. Discharge Indicators**

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

**ii. Recharge Indicators**

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

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

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

Comments:

**14K. Uniqueness:**

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

Comments:

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

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

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

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

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

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

Comments:

## FUNCTION &amp; VALUE SUMMARY &amp; OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	LOW	0.2	1	
C. General Wildlife Habitat	LOW	0.3	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	LOW	0.2	1	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	LOW	0.3	1	
H. Sediment/Shoreline Stabilization	LOW	0.2	1	
I. Production Export/Food Chain Support	LOW	0.3	1	
J. Groundwater Discharge/Recharge	LOW	0.1	1	
K. Uniqueness	LOW	0.2	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		2.8	11	

25%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

I

II

III

IV

**Category I Wetland:** (Must satisfy one of the following criteria; if does not meet criteria, go to Category II)

- \_\_\_ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or
- \_\_\_ Score of 1 functional point for Uniqueness; or
- \_\_\_ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or
- \_\_\_ Total actual functional points > 80% (round to nearest whole #) of total possible functional points.

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

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

**Category III Wetland:** (Criteria for Categories I, II or IV not satisfied)**Category IV Wetland:** (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)

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

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

1. Project Name: Fourchette Creek 2. Project #: \_\_\_\_\_ Control #: \_\_\_\_\_  
 3. Evaluation Date: Mo. 8 Day 30 Yr. 01 4. Evaluator(s): SB/MT 5. Wetlands/Site #(s): Albatross  
7 29 02 38 Reservoir  
 6. Wetland Location(s): I. Legal: T 22 N or S; R 29 E or W; S 14 ; T \_\_\_\_\_ N or S; R \_\_\_\_\_ E or W; S \_\_\_\_\_  
 II. Approx. Stationing or Mileposts: \_\_\_\_\_  
 III. Watershed: 10040104 GPS Reference No. (if applies): NA  
 Other Location Information: RESERVOIR

7. a. Evaluating Agency: MDT 8. Wetland size: (total acres) 2 (visually estimated)  
 b. Purpose of Evaluation: 2 (measured, e.g. by GPS [if applies])  
 1. Wetlands potentially affected by MDT project  
 2. Mitigation wetlands; pre-construction  
 3. ☒ Mitigation wetlands; post-construction  
 4. Other  
 9. Assessment area: (AA, tot., ac., see instructions on determining AA) 2 (visually estimated)  
2 (measured, e.g. by GPS [if applies])

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Dep (surf. water)	Palustrine	—	EM	SF	D	10
II II	Palustrine	—	UB	SF	D	90

(Abbreviations: System: Palustrine (P) Subsystem: none/ Classes: Rock Bottom (RB), Unconsolidated bottom (UB), Aquatic Bed (AB), Unconsolidated Shore (US), Moss-lichen Wetland (ML), Emergent Wetland (EM), Scrub-Shrub Wetland (SS), Forested Wetland (FO) System: Lacustrine (L), Subsystem: Littoral (L) Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3) Classes: RB, UB, AB, US/ Water Regimes: Permanently Flooded (H), Intermittently Exposed (G), Semipermanently Flooded (F), Seasonally Flooded (C), Saturated (B), Temporarily Flooded (A), Intermittently Flooded (J) Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Famed (F), Artificial (A) HGM Classes: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

11. Estimated relative abundance: (of similarly classified sites within the same Major Montana Watershed Basin, see definitions)  
 (Circle one) Unknown Rare Common Abundant  
 Comments:

## 12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Heavy grazing impacts

II. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) CIRRV

III. Provide brief descriptive summary of AA and surrounding land use/habitat: Impoundment surrounded by undeveloped rangeland, Albatross Reservoir.

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

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

Comments:

# SECTION PERTAINING TO FUNCTIONS & VALUES ASSESSMENT

## 14A. Habitat for Federally Listed or Proposed Threatened or Endangered Plants or Animals:

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

- Primary or critical habitat (list species)  
Secondary habitat (list species)  
Incidental habitat (list species)  
No usable habitat

D S  
D S  
D S  
D S

pipit plane

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

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

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

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

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

- Primary or critical habitat (list species)  
Secondary habitat (list species)  
Incidental habitat (list species)  
No usable habitat

D S  
D S  
D S  
D S

black-necked stilt

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

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

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

## 14C. General Wildlife Habitat Rating:

I. Evidence of overall wildlife use in the AA (circle substantial, moderate, or low based on supporting evidence):

**Substantial** (based on any of the following [check]):

- ☐ observations of abundant wildlife #'s or high species diversity (during any period)  
☐ abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.  
☐ presence of extremely limiting habitat features not available in the surrounding area  
☐ interviews with local biologists with knowledge of the AA

**Low** (based on any of the following [check]):

- ☐ few or no wildlife observations during peak use periods  
☐ little to no wildlife sign  
☐ sparse adjacent upland food sources  
☐ interviews with local biologists with knowledge of the AA

**Moderate** (based on any of the following [check]):

- ☒ observations of scattered wildlife groups or individuals or relatively few species during peak periods  
☐ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.  
☐ adequate adjacent upland food sources  
☐ interviews with local biologists with knowledge of the AA

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

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	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
Duration of surface water in ≥ 10% of AA	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Low disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
Moderate disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L
High disturbance at AA (see #12i)																				

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

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

Comments:

Western chorus frogs obs. (Feb 2-3) in 2001



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

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

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

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

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

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

Comments:

**14E. Flood Attenuation:** (applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, circle NA here and proceed to next function.)

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

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

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

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; and T/E = temporary/ephemeral [see instructions for further definitions of these terms].)

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

Comments:

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input. If no wetlands in the AA are subject to such input, circle NA here and proceed with the evaluation.)

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
% cover of wetland vegetation in AA	>70%		<70%		≥70%		<70%	
Evidence of flooding or ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1 (H)	.8 (H)	.7 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)	.2 (L)
AA contains unrestricted outlet	.9 (H)	.7 (M)	.6 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)	.1 (L)

Comments: Heavily grazed - water turbid.

**14H Sediment/Shoreline Stabilization:** (applies only if AA occurs on or within the banks of a river, stream, or other natural or man-made drainage, or on the shoreline of a standing water body which is subject to wave action. If does not apply, circle NA here and proceed to next function)

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

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

Comments:

**14I. Production Export/Food Chain Support:**

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, or L = low] for this function. Factor A = acreage of vegetated component in the AA; Factor B = structural diversity rating from #13; Factor C = whether or not the AA contains a surface or subsurface outlet; the final three rows pertain to duration of surface water in the AA, where P/P = permanent/perennial; S/I = seasonal/intermittent; T/E/A = temporary/ephemeral or absent (see instructions for further definitions of these terms.)

A	Vegetated component >5 acres						Vegetated component 1-5 acres						Vegetated component <1 acre					
	High		Moderate		Low		High		Moderate		Low		High		Moderate		Low	
B	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
C	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
P/P	1H	.9H	.9H	.8H	.8H	.7M	.9H	.8H	.8H	.7M	.7M	.6M	.7M	.6M	.6M	.4M	.4M	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.6M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.2L
T/E/A	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.1L

Comments:

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

**i. Discharge Indicators**

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

**ii. Recharge Indicators**

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

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

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

Comments:

**14K. Uniqueness:**

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

Replacement potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
Estimated relative abundance (#11)	rare	common	abundant	rare	common	abundant	rare	common	abundant
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

Comments:

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

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

iii. Based on the location, diversity, size, and other site attributes, is there strong potential for rec./ed. use? Yes N  
(If yes, go to ii, then proceed to iv; if no, then rate as [circle] Low [0.1])

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

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

Comments:

## FUNCTION &amp; VALUE SUMMARY &amp; OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	LOW	0.3	1	
B. MT Natural Heritage Program Species Habitat	LOW	0.1	1	
C. General Wildlife Habitat	LOW	0.3	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	LOW	0.2	1	
F. Short and Long Term Surface Water Storage	MOD	0.6	1	
G. Sediment/Nutrient/Toxicant Removal	LOW	0.3	1	
H. Sediment/Shoreline Stabilization	LOW	0.2	1	
I. Production Export/Food Chain Support	LOW	0.3	1	
J. Groundwater Discharge/Recharge	LOW	0.1	1	
K. Uniqueness	LOW	0.2	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		2.7	11	

25%

OVERALL ANALYSIS AREA (AA) RATING: (Circle appropriate category based on the criteria outlined below)

I

II

III

IV

**Category I Wetland:** (Must satisfy one of the following criteria; if does not meet criteria, go to Category II)

- \_\_\_ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or
- \_\_\_ Score of 1 functional point for Uniqueness; or
- \_\_\_ Score of 1 functional point for Flood Attenuation and answer to Question 14E.ii is "yes"; or
- \_\_\_ Total actual functional points > 80% (round to nearest whole #) of total possible functional points.

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

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

**Category III Wetland:** (Criteria for Categories I, II or IV not satisfied)**Category IV Wetland:** (Criteria for Categories I or II are not satisfied and all of the following criteria are met; if does not satisfy criteria go to Category III)

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

## Appendix C

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### **REPRESENTATIVE PHOTOGRAPHS** **2002 AERIAL PHOTOGRAPHS**

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*MDT Wetland Mitigation Monitoring*  
*Fourchette Creek*  
*Phillips County, Montana*





Penguin, photo point 1, 60 degrees NE



Penguin, photo point 2, 344 degrees NW



Flashlight, photo point 1, 290 degrees NW



Flashlight, photo point 2, 270 degrees W



Flashlight, photo point 3, 90 degrees E



Pintail, photo point 1, 350 degrees N/NW

## 2002 Fourchette Creek



Pintail, photo point 1, 284 degrees NW



Pintail, photo point 2, 330 degrees NW



Puffin, photo point 1, 340 degrees N/NW



Puffin, photo point 2, 315 degrees W/NW



Albatross, photo point 1, 0 degrees N



Albatross, photo point 2, 60 degrees E/NE

## 2002 Fourchette Creek



Penguin Reservoir

Pintail Reservoir

21-429

21-429



JOB:FOURCHETTE CREEK WETLAND ROLL:000 SCALE:1:6000 FLT:41 07/22/2002 10:41:37

Flashlight Reservoir

FS100 1/ 160 f/5.6

FF1.0 EC 0 SIN

dt046.4

26.7V -58mb ER00 C



MURCHETTE CREEK WETLAND ROLL:000 SCALE:1:6000 FLT:41 07/22/2002 10:38:46

Albatross Reservoir

1/ 380 f/5.6 FF1.0 EC 0 SIN dt107.6 26.7V -58mb ER00 CAM5169



JOB:FOURCHETTE CREEK WETLAND ROLL:000 SCALE:1:6000 FLT:41 07/22/2002 10:19:31

Puffin Reservoir

FS100 1/ 320 f/5.6

FF1.0 EC 0 SIN

dt280.2

26.7V -59mb E



## **Appendix D**

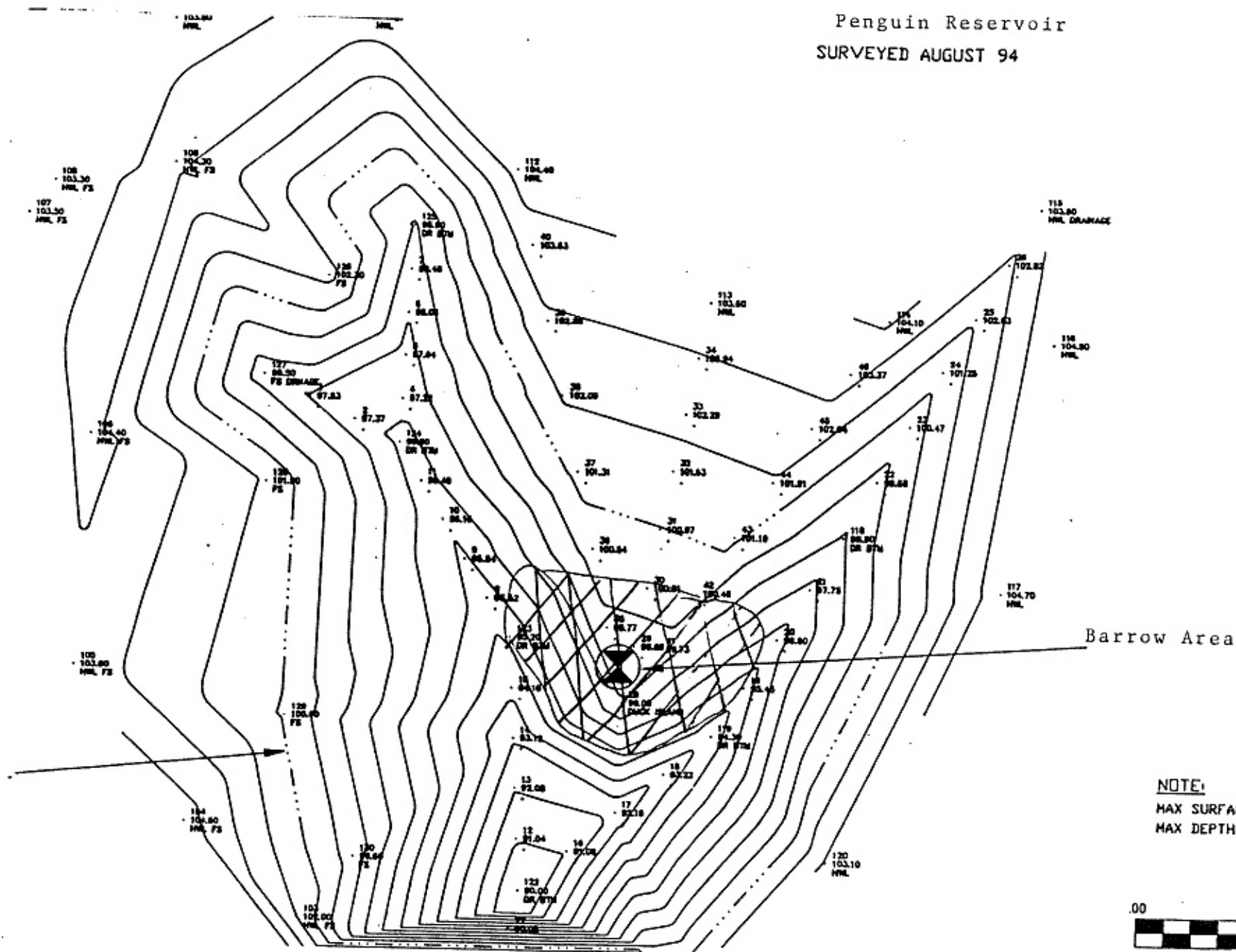
---

### **CONCEPTUAL SITE LAYOUTS**

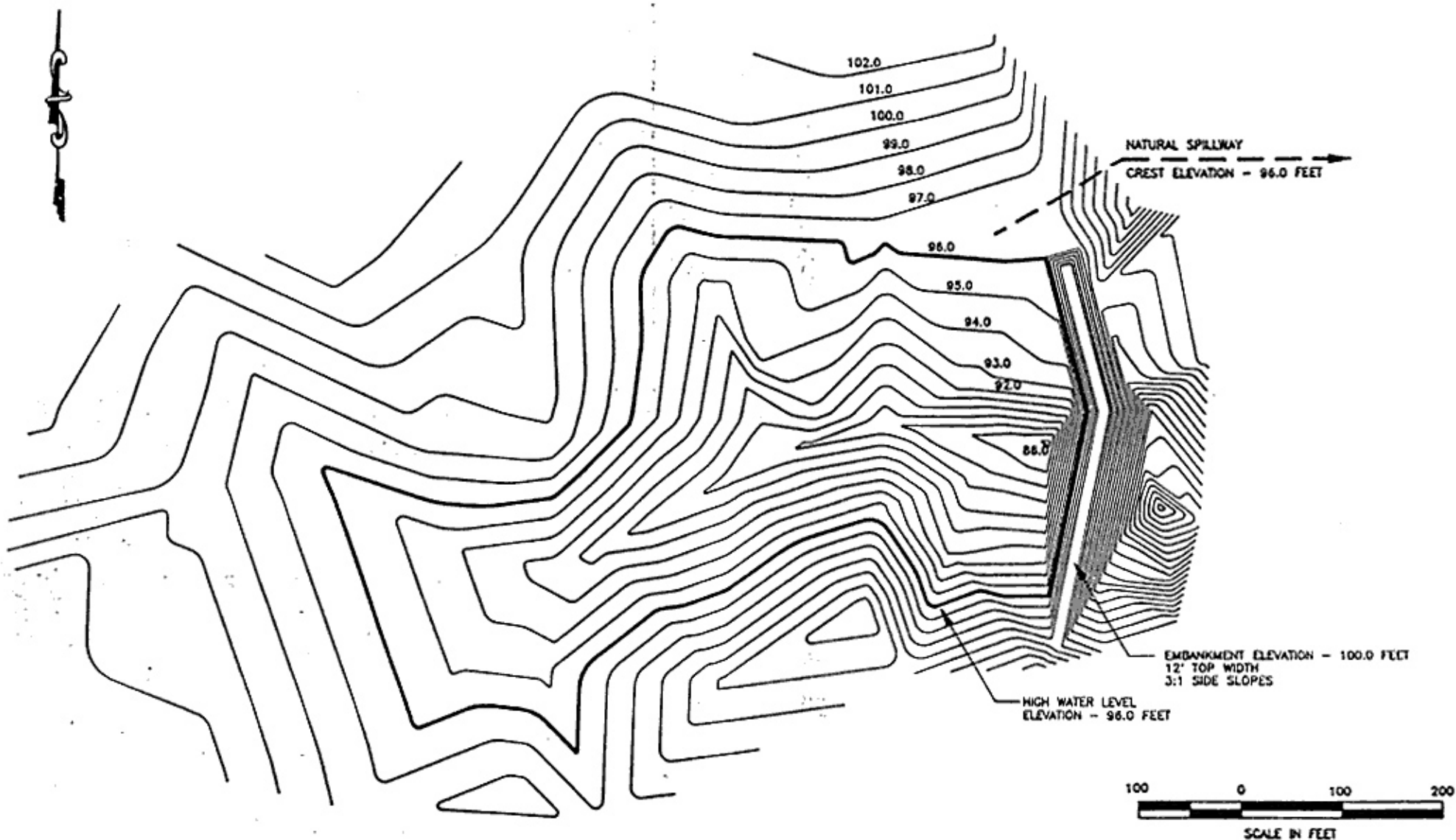
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*MDT Wetland Mitigation Monitoring  
Fourchette Creek  
Phillips County, Montana*

# Penguin Reservoir SURVEYED AUGUST 94







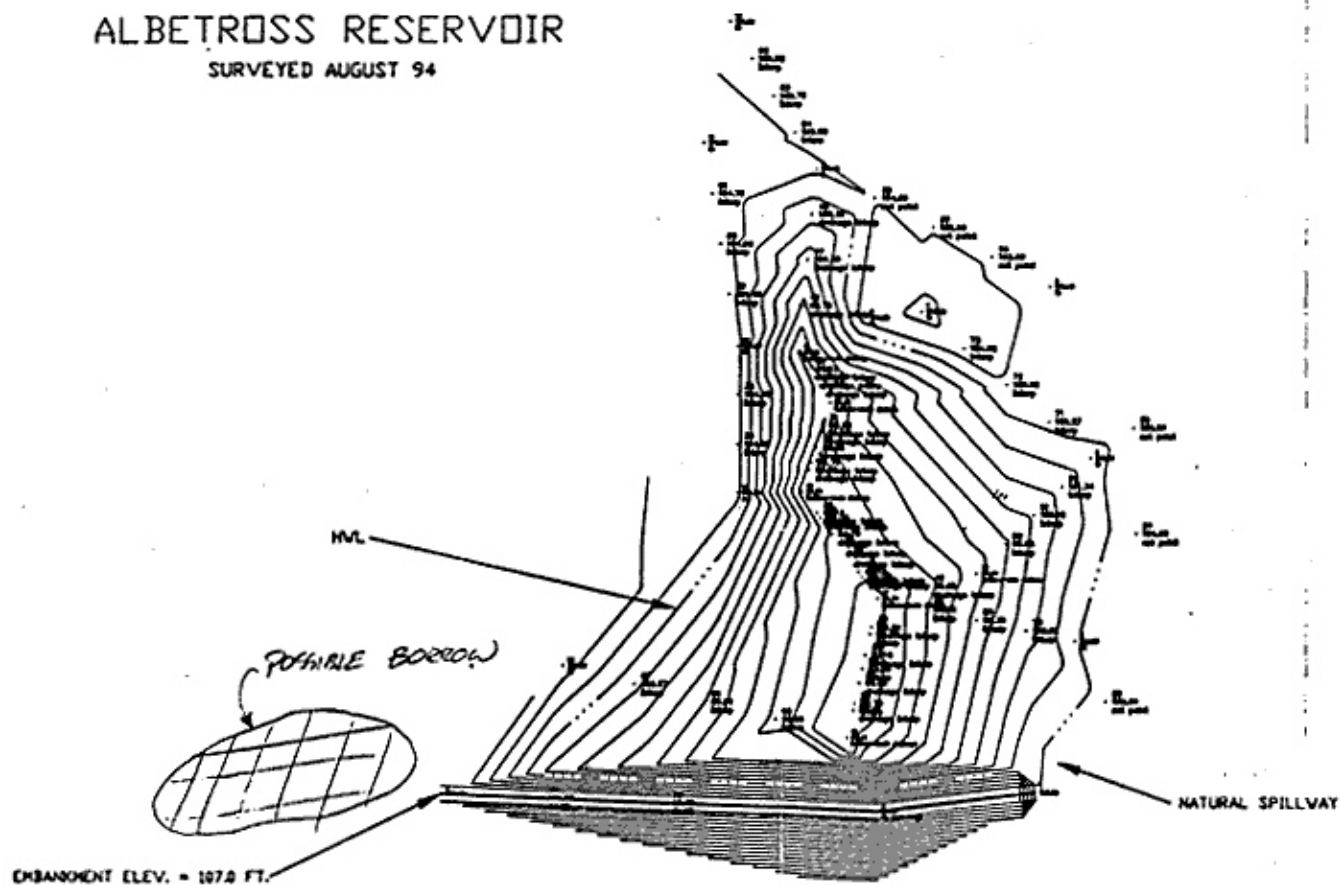
**NOTES**

MAXIMUM SURFACE AREA = 4.56 ACRES  
 MAXIMUM DEPTH = 10 FEET  
 MAXIMUM STORAGE (INCLUDING BORROW AREA) = 15.6 ACRE FEET

U.S. DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT	TITLE <u>FLASHLIGHT RESERVOIR</u>	
	DATE <u>10-23</u>	DRAWN <u>TAS</u>
	DRAWING NO. <u>FLASHLT.DWG</u>	SHEET <u>1</u> of <u>1</u>
DESIGNED _____	REVIEWED _____	APPROVED _____

## ALBETROSS RESERVOIR

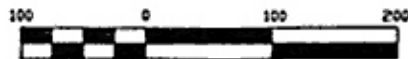
SURVEYED AUGUST 94



**NDTE:**

MAX SURFACE AREA = 2.60 ACRES

MAX DEPTH = 10 FEET



SCALE IN FEET

CONTOUR INTERVAL = 1 FT.

U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

DRAWING NO. ALBETRES.DWG

TITLE ALBETROSS RESERVOIR

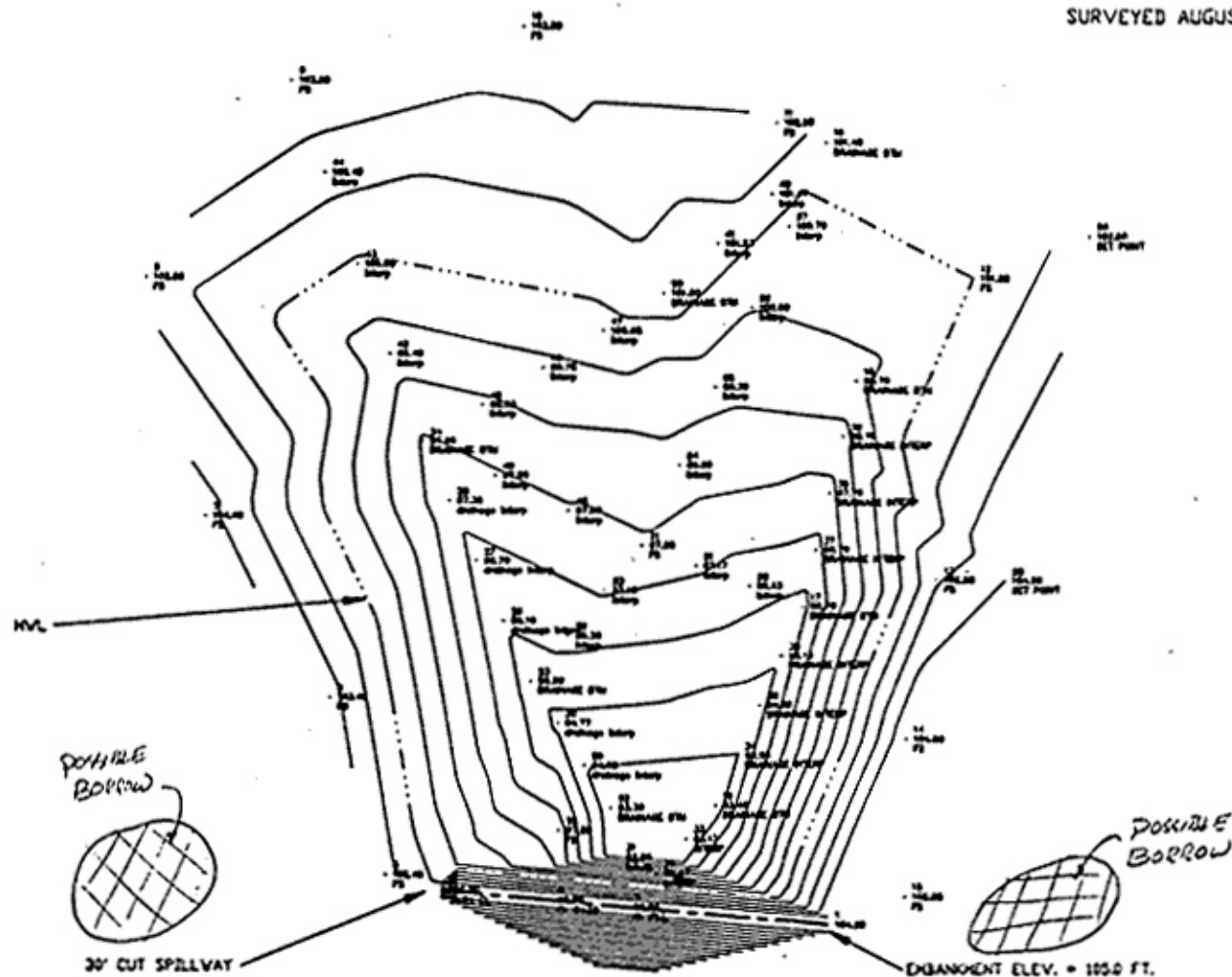
DATE 10-12-94 DRAWN HAC

SHEET 1 of 1 REVIEWED

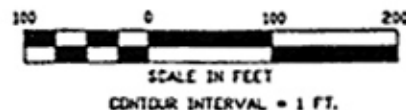
\_\_\_\_\_

# PINTAILS RESERVOIR

SURVEYED AUGUST 94



NOTE:  
MAX SURFACE AREA = 3,209 ACRES  
MAX DEPTH = 8 FEET



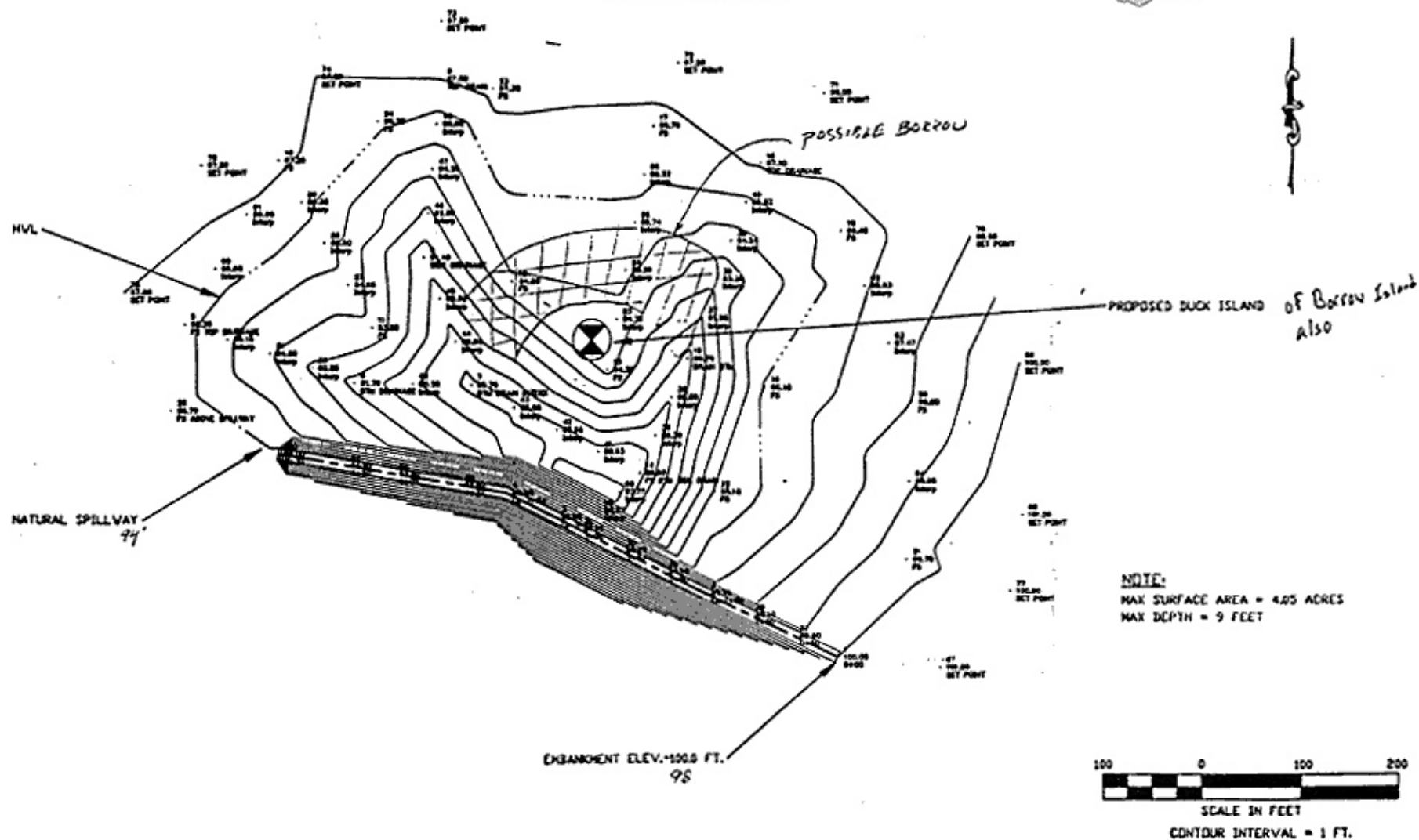
U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
DRAWING NO. PINTA.RS.DVG

TITLE PINTAILS RESERVOIR  
DATE 10-13-94 DRAWN HAC  
SHEET 1 of 1 REVIEWED

PUFFIN RESERVOIR

SURVEYED AUGUST 94

**LAND & WATER D-5**



U.S. DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

DRAWING NO. PUEFNRES.DWG

TITLE PUFFIN RESERVOIR

DATE 10-17-94 DRAWN HAC

SHEET 1 of 1 REVIEWED



## **Appendix E**

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### **BIRD SURVEY PROTOCOL MACROINVERTEBRATE SAMPLING PROTOCOL GPS PROTOCOL**

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*MDT Wetland Mitigation Monitoring  
Fouchette Creek  
Phillips County, Montana*

## BIRD SURVEY PROTOCOL

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

### **Species Use within the Mitigation Wetland: Survey Method**

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

#### ***Sites that can be circumambulated or walked throughout.***

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

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

#### ***Sites that cannot be circumambulated.***

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

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

### **Species Use within the Mitigation Wetland: Data Recording**

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

#### ***1. Bird Species List***

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

#### ***2. Bird Density***

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

#### ***3. Bird Behavior***

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

#### ***4. Bird Species Habitat Use***

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



# AQUATIC INVERTEBRATE SAMPLING PROTOCOL

## Equipment List

- D-frame sampling net with 1 mm mesh. Wildco is a good source of these.
- Spare net.
- 1-liter plastic sample jars, wide-mouth. VWR has these: catalog #36319-707.
- 95% ethanol: Northwest Scientific in Billings carries this.

All these other things are generally available at hardware or sporting goods stores. Make the labels on an ink jet printer preferably.

- hip waders.
- pre-printed sample labels (printed on Rite-in-the-Rain or other coated paper, two labels per sample).
- pencil.
- plastic pail (3 or 5 gallon).
- large tea strainer or framed screen.
- towel.
- tape for affixing label to jar.
- cooler with ice for sample storage.

## Site Selection

Select the sampling site with these considerations in mind:

- Select a site accessible with hip waders. If substrates are too soft, lay a wide board down to walk on.
- Determine a location that is representative of the overall condition of the wetland.

## Sampling

Wetland invertebrates inhabit the substrate, the water column, the stems and leaves of aquatic vegetation, and the water surface. Your goal is to sweep the collecting net through each of these habitat types, and then to combine the resulting samples into the 1-liter sample jar.

Dip out about a gallon of water into the pail. Pour about a cup of ethanol into the sample jar. Fill out the top half of the sample labels, using pencil, since ink will dissolve in the ethanol.

Ideally, you can sample a swath of water column from near-shore outward to a depth of approximately 3 feet with a long sweep of the net, keeping the net at about half the depth of the water throughout the sweep. Sweep the water surface as well. Pull the net through a vegetated area, beneath the water surface, for at least a meter of distance.

Sample the substrate by pulling the net along the bottom, bumping it against the substrate several times as you pull.

This step is optional, but it gives you a chance to see that you've collected some invertebrates. Rinse the net out into the bucket, and look for insects, crustaceans, etc. If necessary, repeat the sampling process in a nearby location, and add the net contents to the bucket. Remember to sample all four environments.

Sieve the contents of the bucket through the straining device and pour or carefully scrape the contents of the strainer into the sample jar.

If you skip the bucket-and-sieve steps, simply lift handfuls of material out of the sampling net into the jars. In either case, please include some muck or mud and some vegetation in the jar. Often, you will have collected a large amount of vegetable material. If this is the case, lift out handfuls of material from the sieve into the jar, until the jar is about half full. Please limit material you include in the sample, so that there is only a single jar for each sample.

Top off the sample jar with enough ethanol to cover all the material in the jar. Leave as little headroom as possible.

It is not necessary to sample habitats in any specified order. Keep in mind that disturbing the habitats prior to sampling will chase off the animals you are trying to capture.

Complete the sample labels. Place one label inside the sample jar and tape the other label securely to the outside of the jar. Dry the jar before attaching the outer label if necessary. In some situations, it may be necessary to collect more than one sample at a site. If you take multiple samples from the same site, clearly indicate this by using individual sample numbers, along with the total number of samples collected at the site (e.g. Sample #3 of 5 total samples).

Photograph the sampled site.

### **Sample Handling/Shipping**

- In the field, keep collected samples cool by storing them in a cooler. Only a small amount of ice is necessary.
- Inventory all samples, preparing a list of all sites and enumerating all samples, before shipping or delivering to the laboratory.
- Deliver samples to Rhithron.

## **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.