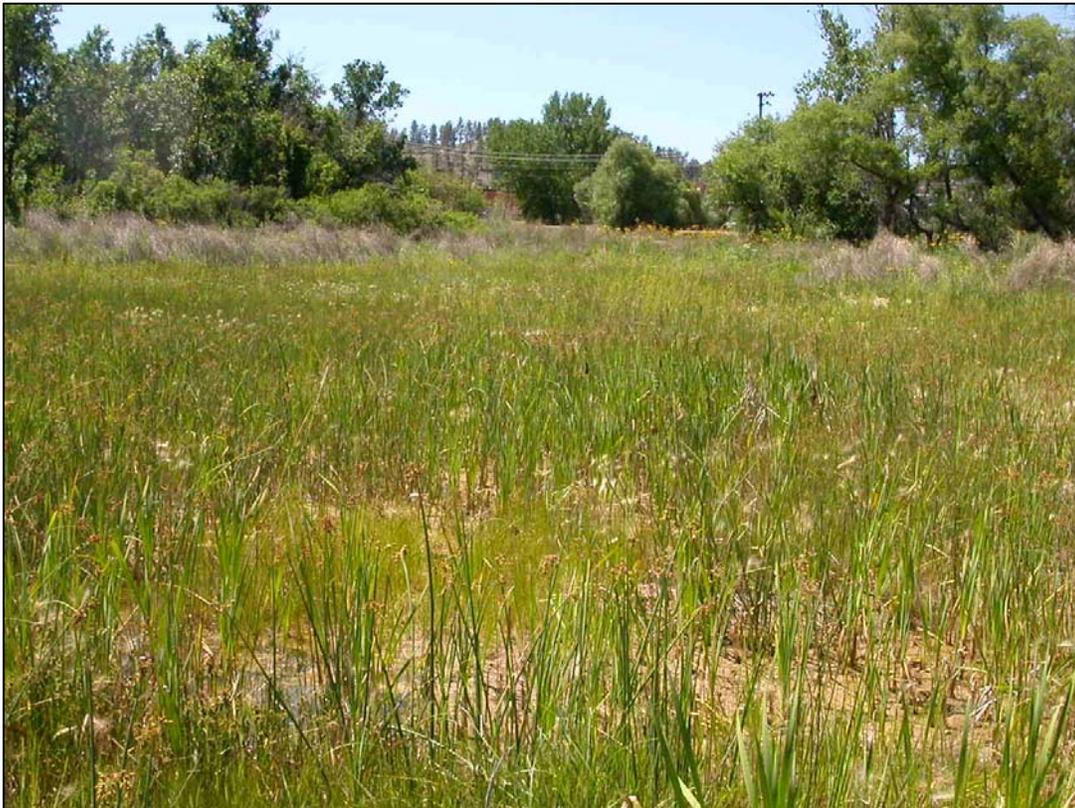

MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2004

*Lame Deer - East Mitigation Sites
Lame Deer, Montana*



Prepared for:

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

Prepared by:

LAND & WATER CONSULTING
~ A DIVISION OF **PBS&J**
P.O. Box 239
Helena, MT 59624

June 2005

Project No: B43054.00 - 0410



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TABLE OF CONTENTS

1.0 INTRODUCTION.....	1
2.0 METHODS.....	1
2.1 Monitoring Dates and Activities.....	1
2.2 Hydrology	3
2.3 Vegetation.....	3
2.4 Soils.....	3
2.5 Wetland Delineation	4
2.6 Mammals, Reptiles and Amphibians	4
2.7 Birds.....	4
2.8 Macroinvertebrates	4
2.9 Functional Assessment.....	4
2.10 Photographs.....	4
2.11 GPS Data.....	5
2.12 Maintenance Needs.....	5
3.0 RESULTS	5
3.1 Hydrology	5
3.2 Vegetation.....	6
3.3 Soils.....	6
3.4 Wetland Delineation	10
3.5 Wildlife	10
3.6 Macroinvertebrates	10
3.7 Functional Assessment.....	10
3.8 Photographs.....	12
3.9 Maintenance Needs/Recommendations	12
3.10 Current Credit Summary.....	13
4.0 REFERENCES.....	13

TABLES

Table 1	<i>2002-2004 School mitigation site vegetation species list.</i>
Table 2a	<i>2002-2004 Transect 1 data summary.</i>
Table 2b	<i>2004 Transect 2 data summary.</i>
Table 3	<i>2002-2004 fish and wildlife species observed at the School Mitigation Site.</i>
Table 4	<i>Summary of 2002-2004 Wetlands Function/Value Ratings and Functional Points at the School and Creek Mitigation Sites</i>
Table 4a	<i>Summary 2004 wetland function/value ratings and functional points at the Lame Deer-East Mitigation Sites.</i>

FIGURES

Figure 1	<i>Project Site Location Map</i>
Figure 2	<i>Monitoring Activity Locations 2004 – School Mitigation Site</i> <i>Monitoring Activity Locations 2004 – Creek Mitigation Sites</i>
Figure 3	<i>Mapped Site Features 2004- School Mitigation Site</i> <i>Mapped Site Features 2004- Creek Mitigation Sites</i>

CHARTS

Chart 1	<i>Length of vegetation communities along Transect 1 (South Cell).</i>
Chart 2	<i>Transect maps showing vegetation types of Transect 1 (South Cell).</i>
Chart 3	<i>Length of vegetation communities along Transect 2 (North Cell).</i>
Chart 4	<i>Transect maps showing vegetation types of Transect 2 (North Cell).</i>

APPENDICES

Appendix A	<i>School Mitigation Site: Figures 2 - 3</i>
Appendix B	<i>School Mitigation Site:</i> <i>Wetland Mitigation Site Monitoring Form</i> <i>Bird Survey Forms</i> <i>Wetland Delineation Forms</i> <i>Functional Assessment Forms</i>

APPENDICES (continued)

Appendix C *School Mitigation Site:*

Representative Photographs and Photograph Log

2004 Aerial Photograph

Appendix D *1999 Grading and Planting Plans, School Reserve Wetland Mitigation Site*

Martin Letter: Sanitary Sewer Line

Carter-Burgess Letter Pertaining to Mitigation Wetland Acreage

Site Plans Recreated Wetlands Hwy. 212

Appendix E *Bird Survey Protocol*

GPS Protocol

Appendix F *Recreated Wetlands Hwy. 212 (WL-369 & 380):*

Figures 2 - 3

Wetland Delineation Forms

Functional Assessment Forms

Photograph Log and Representative Photographs

2004 Aerial Photographs

Cover Photo: *School Mitigation Site, South Cell.*

1.0 INTRODUCTION

This annual report summarizes methods and results of 2004 (third year) monitoring for the Montana Department of Transportation's (MDT) Lame Deer - East mitigation site. The Lame Deer - East wetlands, located in Watershed #4 of the Glendive District, were constructed to mitigate in part for the 2.5 acres of wetland impact to the Alderson Creek corridor during the Hwy. 212 reconstruction project. The monitoring site is located in Rosebud County within the town of Lame Deer, Section 34, Township 2 South, Range 41 East (**Figure 1**). There are three (3) mitigation sites within this area: the Lame Deer – East site is adjacent to a school in the center of town and is often referred to as the “school mitigation or reserve site”; and two recreated wetlands are located along Highway 212, Wetland 369 and Wetland 380 (the numbers correlate with MDT project survey stations). Elevations of all three mitigation sites range from 3,250 to 4,337 feet above sea level.

The Lame Deer - East monitoring site wetland (in this report referred to as the School Mitigation Site) was constructed in July/August 2001 within the historic floodplain of Lame Deer Creek; fill was historically placed within the current mitigation site to create a ball field for the school (**Figure 2, Appendix A**). The fill was removed to create and restore wetlands in the area; the intent was to create 1.23 acres and restore 0.56 acres for a total of 1.79 acres. The wetland is bisected by a sewer line that was in place prior to the wetland construction; fill removed from the constructed wetland areas was placed on top of the sewer line to create a thermal barrier (Martin 2001) and in effect an access trail to the creek. The area represented by the sewer line/trail system represents approximately 0.11 acre, which adjusts the intended size of the mitigation wetland to 1.68 acres. The resulting areas within the bisected wetland are referred to as the north and south cell in this report.

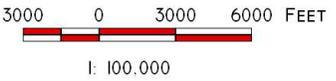
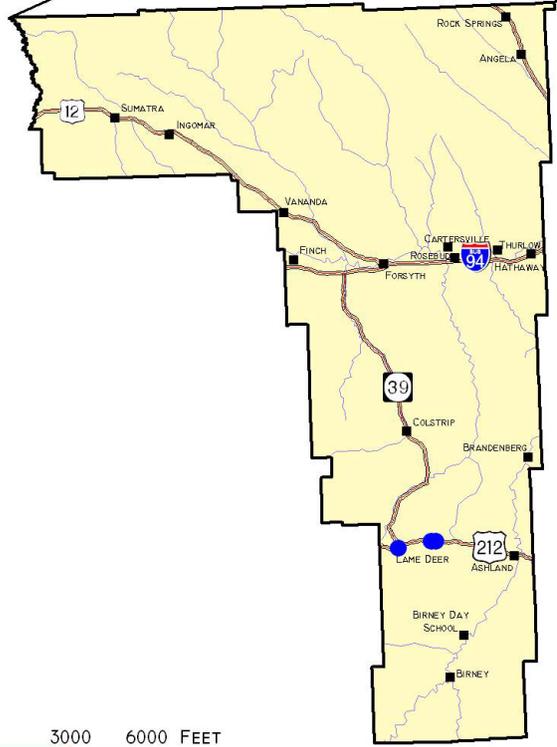
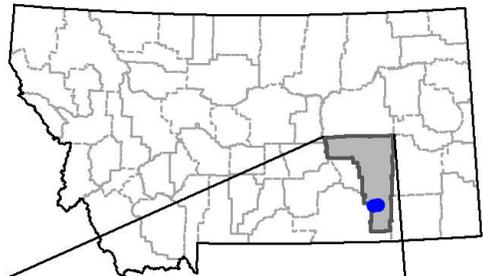
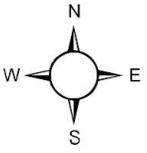
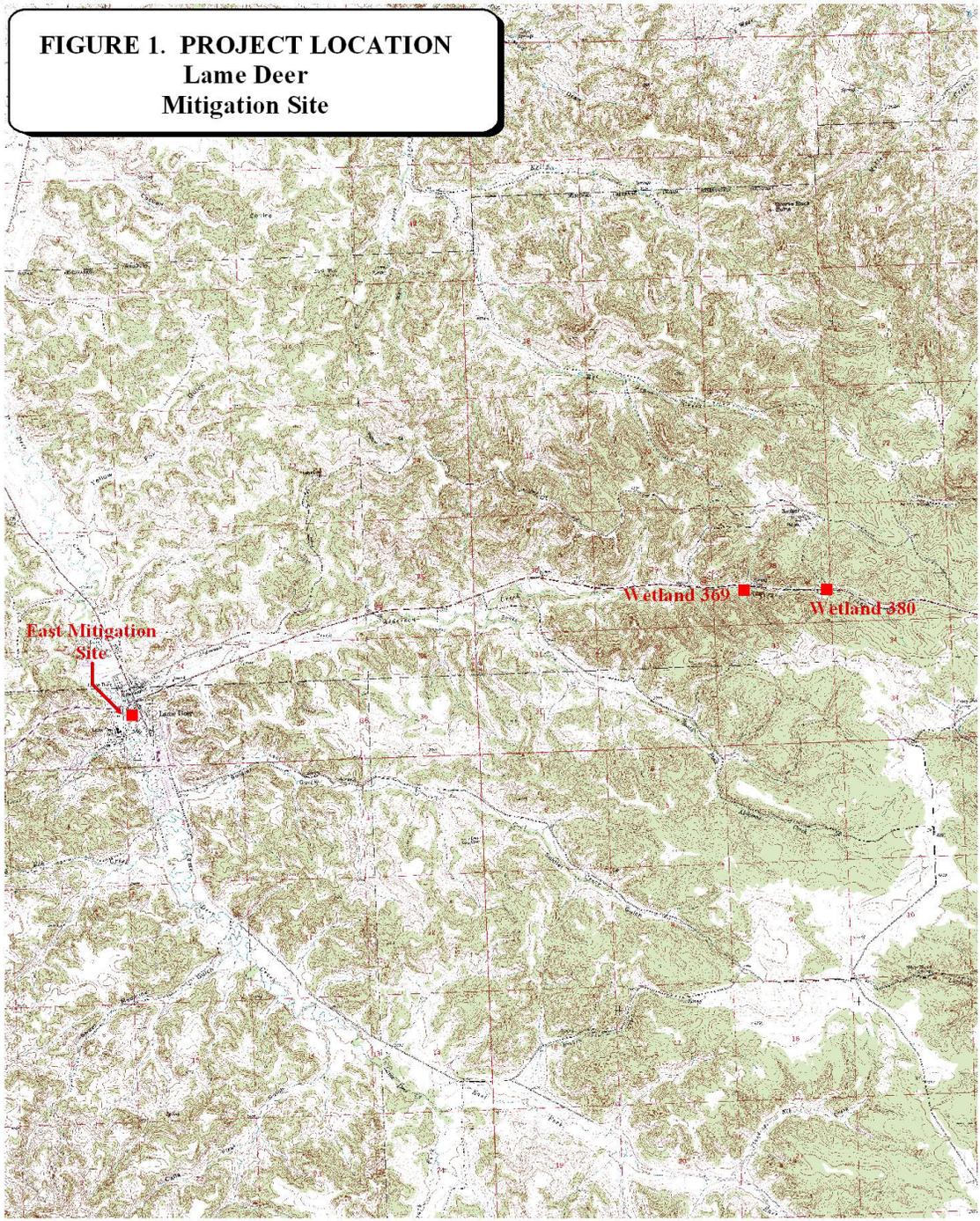
The two recreated wetlands along Hwy. 212 are adjacent to Alderson Creek: Wetland 369 is approximately 4.75 miles from the intersection of Hwy. 39 and 212 in Lame Deer (station numbers increase in an easterly direction from Lame Deer), and Wetland 380 is 5.5 miles from the intersection. The intent of these mitigation efforts was to recreate approximately 1.5 acres of wetland (Harris 1999, on file at MDT). Site plans are included in **Appendix D**. The recreated wetlands were photographed to monitor wetland development and the wetland acreage was estimated by recording the wetland boundary on an aerial photograph (**Figure 3, Appendix F**).

2.0 METHODS

2.1 Monitoring Dates and Activities

All three Lame Deer-East wetland mitigation sites were monitored on July 25, 2004. A full site investigation involving the collection of data for the Wetland Mitigation Site Monitoring Form was conducted on the school mitigation site, including COE sample point data and MDT functional assessments (**Appendix B**). Activities and information conducted/collected for the full monitoring assessment at the school mitigation site included: wetland delineation; wetland/open water data; vegetation community mapping; vegetation transects; soils data;

FIGURE 1. PROJECT LOCATION
Lame Deer
Mitigation Site



PROJECT #: 130091.040
 DATE: Dec 2002
 LOCATION:
 PROJECT MANAGER: J. BERGLUND
 DRAWN BY: B. NOECKER

LAND & WATER CONSULTING, INC.
 1120 CEDAR PO BOX 8254 MISSOULA, MT 59807

hydrology data; bird and general wildlife use; photograph points; GPS data points; functional assessment; and, maintenance assessment of any inflow/outflow structures (non-engineering).

At the recreated wetlands along Hwy. 212, COE sample point, wetland boundary, and MDT functional assessment data were collected (**Appendix F**). Photographs were taken from photo reference points during the same monitoring event.

2.2 Hydrology

Wetland hydrology indicators were recorded using procedures outlined in the US Army Corps of Engineers (COE) 1987 Wetland Delineation Manual (Environmental Laboratory 1987).

Hydrology data were recorded on the Routine Wetland Delineation Data Form (**Appendix B**) at each wetland determination point. Precipitation data for the year 2003 were compared to the 1944-2004 average (WRCC 2005).

All additional hydrologic data were recorded on the school mitigation site monitoring form (**Appendix B**). The boundary between emergent vegetation and open water was mapped on the aerial photograph (**Figure 3, Appendix A**). There are no groundwater monitoring wells at the site.

The open water boundary at the Hwy. 212 recreated wetlands was mapped on aerial photographs and quantified (**Figure 3, Appendix F**).

2.3 Vegetation

General vegetation types within the school mitigation site were delineated on an aerial photograph during the site visit (**Figure 3, Appendix A**). Coverage of the dominant species in each community type is listed on the monitoring form (**Appendix B**). A comprehensive plant species list for the entire site was compiled and will be updated as new species are encountered. Observations from past years will be compared with new data to document vegetation changes over time. Woody species were planted at the school mitigation site and are listed on the monitoring form.

A transect was established in each cell of the school mitigation site; the location of the transects is shown on **Figure 2, Appendix A**. Percent cover for each species was recorded on the vegetation transect form (**Appendix B**). Transect ends were marked with metal fence posts and their locations recorded on the vegetation map. Photos of the transect were taken from both ends during the site visit.

The emergent vegetation boundary at the Hwy. 212 recreated wetlands was mapped on aerial photographs and quantified (**Figure 3, Appendix F**).

2.4 Soils

Soils were evaluated during the site visit according to the procedure 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-School Site; Appendix F-HWY 212 Wetland Sites**).

2.5 Wetland Delineation

A wetland delineation was conducted within the assessment area 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 the COE Routine Wetland Delineation Forms (**Appendix B-School Site; Appendix F-HWY 212 Wetland Sites**). The wetland boundaries at the school mitigation site (**Figure 3, Appendix A**) and the recreated wetlands along Hwy. 212 (**Figure 3, Appendix F**) were mapped onto aerial photographs.

2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations were recorded on the wetland monitoring form during the site visit (**Appendix B**). Indirect use indicators were also recorded including tracks, scat and burrows. A comprehensive wildlife species list for the entire site was compiled and will be updated as new species are encountered. Observations from past years will be compared with new data to determine if wildlife use is changing over time.

2.7 Birds

Bird observations were recorded during the site visit according to the established bird survey protocol (**Appendix E**). A general, qualitative bird list has been compiled using these observations. Observations will be compared between years in future studies.

2.8 Macroinvertebrates

No macroinvertebrate samples were collected on the site.

2.9 Functional Assessment

A functional assessment form was completed in 2004 for all mitigation monitoring sites using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were collected on a condensed data sheet. The remainder of the assessment was completed in the office. Completed functional assessment forms for the school site are included in **Appendix B**. Functional assessments of the Hwy. 212 recreated wetlands were also conducted; completed forms are included in **Appendix F**.

2.10 Photographs

Photographs were taken showing the current land use surrounding the mitigation monitoring site, the wetland buffer, the monitored area, and the vegetation transect (**Appendix C**). A description

and compass direction for each photograph were recorded on the wetland monitoring form. During the 2002 monitoring season, each photo-point was marked on the ground with a wooden stake and the location recorded with a resource grade GPS. The approximate photograph locations are shown on **Figure 2, Appendix A**. A 2004 aerial photograph is included in **Appendix C**.

Photographs were also taken of the recreated wetlands east of Lame Deer along Hwy. 212 (**Appendix F**); aerial photographs and photo logs of the recreated wetlands are also included in **Appendix F**. All on-site photographs were taken a digital camera.

2.11 GPS Data

During the 2002 monitoring season, survey points were collected at the monitoring site using a resource grade Trimble, Geoexplorer III hand-held GPS unit (**Appendix E**). Points collected at the school site included: the vegetation transect beginning and ending locations; photograph locations; and the jurisdictional wetland boundary. In addition, survey points were collected at several landmarks recognizable on the air photo for purposes of line fitting to the topography. At wetlands 369 and 380, photo reference points and photo location data were also collected using GPS. No additional GPS data were collected in 2004.

2.12 Maintenance Needs

No bird boxes are located within this site. The inflow structure was checked for obstructions.

3.0 RESULTS

3.1 Hydrology

The Lame Deer - East mitigation monitoring site was constructed in July/August 2001 to be a 1 to 1.5-acre wetland within the floodplain of Lame Deer Creek. The hydrologic source of the mitigation wetland is primarily ground and stormwater and secondarily overbank flows from Lame Deer Creek. Stormwater enters the southwest corner of the south cell through an up-gradient culvert under the access road. The north and south cells were created when fill from the wetland construction was placed over the sanitary sewer line to protect it from damage; the sewer line and fill effectively create the two cells.

During the July 25, 2004 visit, the south cell site was inundated with 1 inch of standing water. The north cell had no surface water but was saturated in areas. Wetlands 369 and 380 were inundated. The outlet culvert in wetland 369 was plugged by sediment and debris and a beaver damn had been built across the outlet area.

Precipitation data for the Busby station indicate that the yearly average (1944-2004) is 14.07 inches (WRCC 2005); through the month of July the average precipitation is 8.17 inches. During 2004, precipitation through the month of July was 6.2 inches or 67% of the average. With the exception of 2003, yearly precipitation has been below average since 1999.

3.2 Vegetation

Vegetation species identified within both cells of the school monitoring site are presented in **Table 1** and in the monitoring form (**Appendix B**). There are eight (8) vegetation communities defined within the monitoring form, however, as a result of community transitions and expansions, only four (4) were mapped in 2004 (**Figure 3, Appendix A and Charts 1-4**). The communities include: Type 1, *Scirpus* spp.; Type 2, *Hordeum jubatum*/*Eleocharis palustris*; Type 3, *Salix exigua*/*Puccinellia nuttalliana*; Type 4, Upland (Undeveloped Wetland); Type 5 *Agropyron sp.*/*Melilotus officinale*; Type 6, *Melilotus officinale*/*Lactuca serriola*/*Cirsium arvensis*; Type 7, *Scirpus pungens*/*Hordeum jubatum*; and Type 8, *Populus tremula*/*Salix exigua*/*Scirpus pungens*. Dominant species within each community are listed on the monitoring form (**Appendix B**). The vegetation transect results are detailed in the monitoring form (**Appendix B**) and are summarized below in **Tables 2a and 2b** and **Charts 1-4**.

Total vegetation cover and percent cover of wetland species has increased in the south cell along transect 1 since 2002 (**Table 2a**). Most of the sprigged willows continue to survive and the basin of the cell has homogenized into one large community type (Type 1).

The transect within the north cell was established in 2002 (**Table 2a**). Two distinct community types have established within the north cell. The substrate is saturated into the upland zone and it is anticipated that wetland vegetation will colonize these areas within the next few growing seasons.

Wetland vegetation at W-369 continues to be almost non-existent as a result of excessive inundation although a few new species have been observed: short-awn foxtail (*Alopecurus aequalis*), cattail (*Typha latifolia*), tall mangrass (*Glyceria grandis*), and porcupine sedge (*Carex hystericina*). The vegetation around Wetland-380 has increased in complexity and to a small extent expanded into the saturated upland zone surrounding the pond (see COE forms for partial species list).

3.3 Soils

The school site was mapped as part of the Rosebud County Soil Survey. The soil series on the mitigation site is Straw-Canburn complex (Map Unit 172). The Straw component is a non-hydric well drained loam and the Canburn is a hydric very poorly drained loam. The dominant parent material in both components is alluvium with infrequent flooding of the Straw component and frequent flooding of the Canburn component.

Soils were sampled at two wetland locations: SP-1, South Cell and SP-3, North Cell. Soils at SP-1 were a dark brown (7.5Y 3/3) silty sand at a depth of 10 inches. In the north cell, SP-3 included olive brown, very dark gray to grayish brown sand (2.5 Y 3/1, 3/2, 4/3) at a depth of 10 inches. Saturation and slight surface inundation was observed in the south cell and saturation in both wetland and upland areas of the north cell. COE data sheets for the school site are included in **Appendix B**.

Along route 212 in the vicinity of the recreated wetland sites, the soils are Bitton-Shambo complex (Map Unit 26); a well drained channery loam and loam (respectively) soil complex. At site 369, soils were saturated to the surface and a coarse mix of sand, silt and clay with a matrix color of 10YR 3/1 at 10 inches. At site 380, soils were also saturated with a matrix of 7.5 YR 3/2 and 3/1 at a depth of 10 inches. COE data sheets for wetlands 369 and 380 are included in **Appendix F**.

Table 1: 2002-2004 School mitigation site vegetation species list.

Scientific Name	Region 4 (North Plains) Wetland Indicator Status
<i>Agropyron spp.</i>	FAC-FACU
<i>Chenopodium hybridum</i>	-(FAC)
<i>Carex lanuginosa.</i>	OBL
<i>Carex praegracilis</i>	FACW
<i>Eleocharis palustris</i>	OBL
<i>Equisetum hyemale</i>	FACW
<i>Glyceria grandis</i>	OBL
<i>Glycyrrhiza lepidota</i>	FACU
<i>Hordeum jubatum</i>	FACW
<i>Juncus bufonius</i>	OBL
<i>Lactuca serriola</i>	FACU
<i>Melilotus officinalis</i>	FACU-
<i>Mentha arvensis</i>	FACW
<i>Pastinaca sativa</i>	-
<i>Populus tremula</i>	FAC
<i>Puccinellia distans</i>	FACW
<i>Puccinellia nuttalliana</i>	OBL
<i>Rumex crispus</i>	FACW
<i>Salix exigua</i> (planted)	FACW+
<i>Salix sp.</i> (young sprig)	(FACW-OBL)
<i>Scirpus acutus</i>	OBL
<i>Scirpus pungens</i>	OBL
<i>Trifolium spp.</i>	(unknown-assumed UPL)
<i>Typha latifolia</i>	OBL

¹ **Bolded** species indicate those documented within the analysis area for the first time in 2004.

-Species either not included or classified as “non-indicator” for the North Plains Region in the National List of Plant Species that Occur in Wetlands (Reed 1988); status in parentheses are probable based on national indicators and classifications for adjacent regions.

Table 2a: 2002-2004 Transect 1 data summary.

Monitoring Year	2002	2003	2004
Transect Length	207 ft	207 ft	207 ft
# Vegetation Community Transitions along Transect	3	3	0
# Vegetation Communities along Transect	3	3	1
# Hydrophytic Vegetation Communities along Transect	2	2	1
Total Vegetative Species	9	8	7
Total Hydrophytic Species	6	5	6
Total Upland Species	3	3	1
Estimated % Total Vegetative Cover	53%	80%	99%
% Transect Length Comprised of Hydrophytic Vegetation Communities	29%	90%	100%
% Transect Length Comprised of Upland Vegetation Communities	71%	10%	0%
% Transect Length Comprised of Unvegetated Open Water	0%	0%	0%
% Transect Length Comprised of Bare Substrate	0%*	0%	0%

* Bare substrate a high percent (38%) within wetland area in 2002; first year of WL development.

Chart 1: Length of vegetation communities along Transect 1 (South Cell).

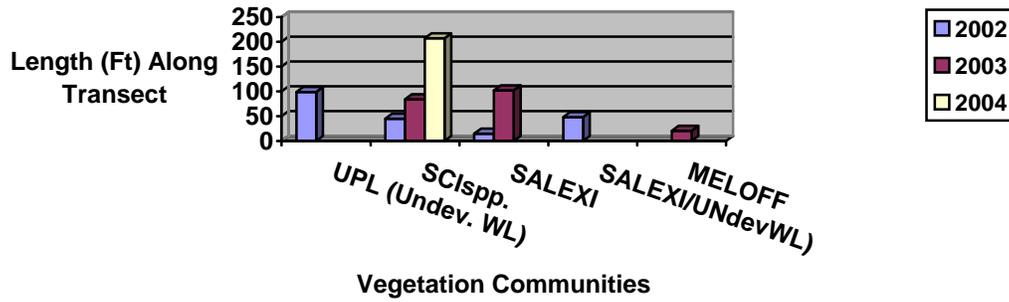


Chart 2: Transect maps showing vegetation types of Transect 1 (South Cell)

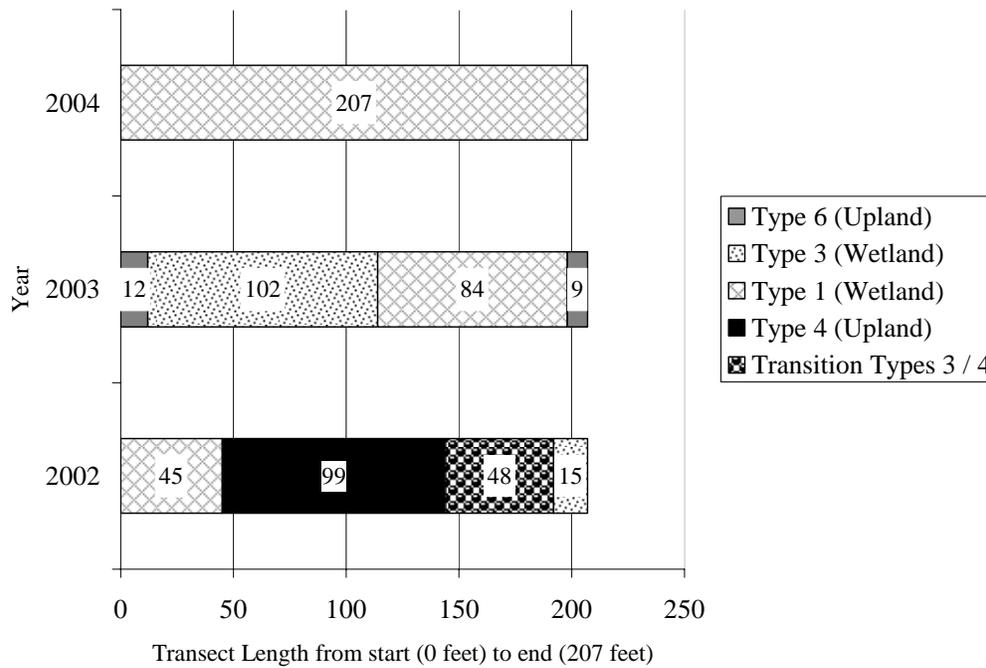


Table 2b: 2004 Transect 2 data summary.

Monitoring Year	2003	2004
Transect Length	162 ft	162 ft
# Vegetation Community Transitions along Transect	4	3
# Vegetation Communities along Transect	2	3
# Hydrophytic Vegetation Communities along Transect	1	2
Total Vegetative Species	12	13
Total Hydrophytic Species	9	9
Total Upland Species	3	4
Estimated % Total Vegetative Cover	100%	100%
% Transect Length Comprised of Hydrophytic Vegetation Communities	28%	67%
% Transect Length Comprised of Upland Vegetation Communities	72%	33%
% Transect Length Comprised of Unvegetated Open Water	0%	0%
% Transect Length Comprised of Bare Substrate	0%	0%

Chart 3: Length of vegetation communities along Transect 2 (North Cell).

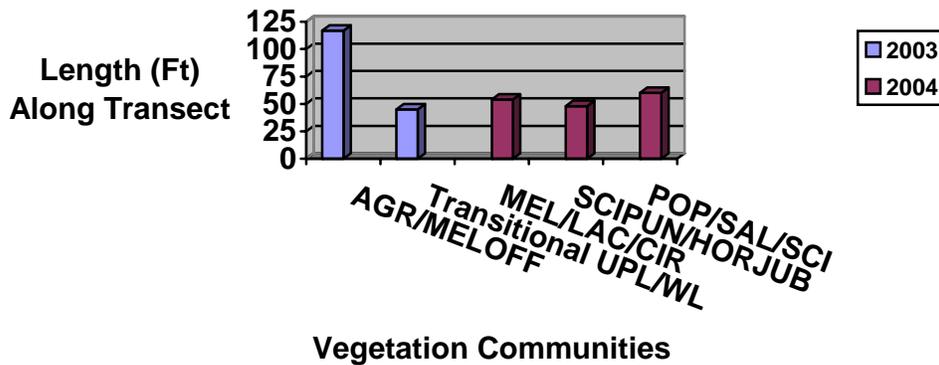
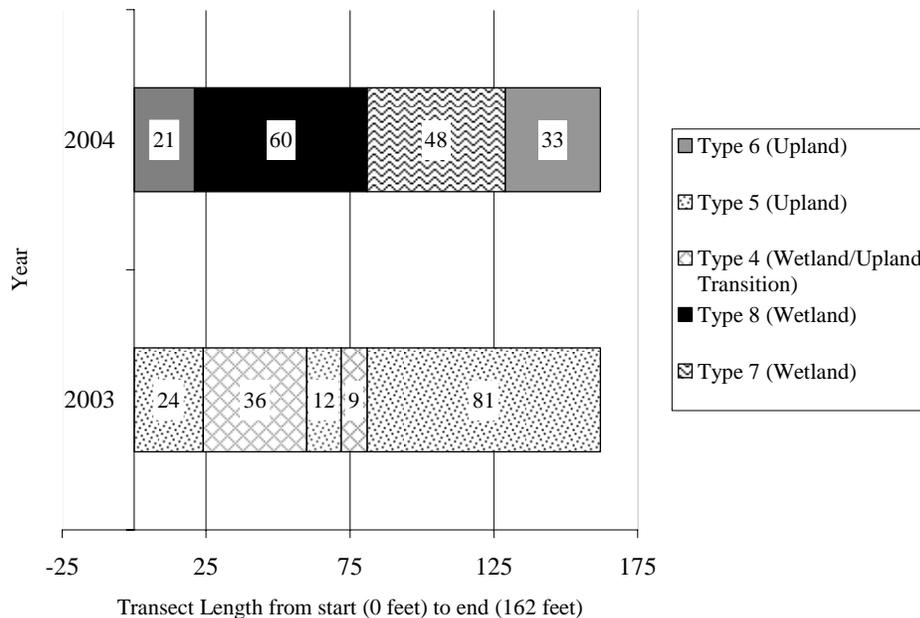


Chart 4: Transect maps showing vegetation types of Transect 2 (North Cell) from start (0 feet) to end (162 feet) for each year monitored.



3.4 Wetland Delineation

The delineated wetland boundary at the school mitigation site is depicted on **Figure 3, Appendix A**. The delineation resulted in a total of 0.62 acre of wetland development within the north and south cells; an increase of 0.47 acre since 2002. The south cell has developed into a homogenous vegetation community and is 99% vegetated with visible substrate between the plants. The north cell has developed two wetland communities and, given the degree of soil saturation within the cell, the wetland boundary will continue to expand. The COE data forms are included in **Appendix B**.

The estimated gross wetland acreages for the recreated wetlands along Hwy. 212 were 0.57 acre at Wetland 369 and 0.30 acre at Wetland 380 for a total of 0.87 acre (**Figure 3, Appendix F**). Wetland 369 was 9% vegetated and Wetland 380 was 53% vegetated. The total gross wetland acreage within the three Lame Deer-East mitigation sites is 1.49 acres.

3.5 Wildlife

Wildlife species observed at the school mitigation site are listed in **Table 3**. Cattle tracks were observed within the wetland and three (3) new bird species were observed foraging within the developing vegetation layers. A single northern leopard frog was observed at the school site in 2004. No bird boxes have been installed at this site.

Table 3. 2002-2004 fish and wildlife species observed at the School Mitigation Site.

AMPHIBIANS AND REPTILES	
Northern Leopard Frog (<i>Rana pipiens</i>)	
BIRDS	
American Robin (<i>Turdus migratorius</i>)	Eastern Kingbird (<i>Tyrannus tyrannus</i>)
Cedar Waxwing (<i>Bombycilla cedorum</i>)	Song Sparrow* (<i>Melospiza melodia</i>)
Common Grackle* (<i>Quiscalus quiscula</i>)	Yellow Warbler* (<i>Dendroica petechia</i>)
Common Yellowthroat (<i>Geothlypis trichas</i>)	
MAMMALS	
Cattle (tracks)	

*Individuals not in wetland but in adjoining upland.

Bolded species indicate those documented within the analysis area for the first time in 2004.

3.6 Macroinvertebrates

No macroinvertebrate samples were collected on the site.

3.7 Functional Assessment

Completed functional assessment forms for the school monitoring site are included in **Appendix B** and summarized below in **Table 4** and **4a**. The 1999 “baseline” functional assessment is not directly comparable because the assessment area included 20-30 acres of floodplain on the north and south sides of Hwy. 212. The assessment does provide valuable information regarding the

Table 4: Summary of 1999¹, 2002-2003 Wetland Function/Value Ratings and Functional Points at the Lame Deer-East Mitigation Sites

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Method	1999 ¹	2002	2003 School Site	2003 W-369	2003 W-380
Listed/Proposed T&E Species Habitat	Low (.3)	Low (0)	Low (0)	Low (0)	Low (0)
MNHP Species Habitat	Low (0)	Low (0)	Low (0)	Low (0)	High (.8)
General Wildlife Habitat	High (.7)	Moderate (.5)	Moderate (.5)	High (.8)	High (.8)
General Fish/Aquatic Habitat	NA	NA	NA	Moderate (.6)	Moderate (.6)
Flood Attenuation	Moderate (.4) ²	Low (.2)	Low (.2)	Low (.1)	Low (.1)
Short and Long Term Surface Water Storage	-	Moderate (.6)	Moderate (.6)	Moderate (.4)	Moderate (.4)
Sediment, Nutrient, Toxicant Removal	High (1)	Moderate (.7)	Moderate (.7)	Moderate (.6)	Moderate (.6)
Sediment/Shoreline Stabilization	Moderate (.7)	NA	NA	Low (.3)	Low (.3)
Production Export/Food Chain Support	High (.8)	Moderate (.5)	Moderate (.5)	Moderate (.6)	Moderate (.6)
Groundwater Discharge/Recharge	NA	High (1)	High (1)	High (1)	NA
Uniqueness	Moderate (.5)	Low (.3)	Low (.3)	Low (.3)	Low (.3)
Recreation/Education Potential	Moderate (.5)	Low (.1)	Moderate (.5)	High (1)	High (1.0)
Actual Points/Possible Points	4.9/9	3.9/10	4.3/10	5.7/12	5.5/11
% of Possible Score Achieved	54%	39%	43%	48%	50%
Overall Category	III	III	III	III	III
Total Acreage of Assessed Wetlands within Monitoring Area	20-30	0.15	0.47 ³	0.57	0.23
Total Functional Units (acreage x actual points)	-	0.58	2.02	3.25	1.27
Net Acreage Gain (“new” wetlands)	-	0.15	0.47 ³	0.57	0.23
Net Functional Unit Gain (new acreage x actual points)	-	0.58	2.02	3.25	1.27
Total Functional Unit Gain Lame Deer-East Mitigation Site (2003)			6.54 ³		

¹ FA done on general area in 1999, and includes the area cells 1 and 2 are currently located.

² Flood attenuation and short and long term storage were combined as one variable on the 1999 form.

³ Acreage in 2003 was overestimated at 0.84 acre, corrected to true 2003 acreage of 0.47.

Table 4a: Summary 2004 wetland function/value ratings and functional points at the Lane Deer-East Mitigation Sites.

Function and Value Parameters From the 1999 MDT Montana Wetland Assessment Method	2004 School Site	2004 W-369	2004 W-380
Listed/Proposed T&E Species Habitat	Low (0)	Low (0)	Low (0)
MNHP Species Habitat	Moderate (.7)	Low (0)	High (.8)
General Wildlife Habitat	Moderate (.7)	High (.9)	High (.9)
General Fish/Aquatic Habitat	NA	Moderate (.6)	High (.8)
Flood Attenuation	Low (.2)	Low (.2)	Low (.1)
Short and Long Term Surface Water Storage	Moderate (.6)	Moderate (.4)	Moderate (.4)
Sediment, Nutrient, Toxicant Removal	Moderate (.7)	Moderate (.7)	Moderate (.6)
Sediment/Shoreline Stabilization	High (.9)	Low (.3)	High (1.0)
Production Export/Food Chain Support	Low (.3)	Moderate (.4)	Moderate (.4)
Groundwater Discharge/Recharge	High (1)	High (1)	High (1)
Uniqueness	Mod (.4)	Mod (.4)	Mod (.4)
Recreation/Education Potential	Moderate (.5)	High (1)	High (1.0)
Actual Points/Possible Points	6.0/11	5.9/12	7.4/12
% of Possible Score Achieved	55%	49%	62%
Overall Category	III	II	II
Total Acreage of Assessed Wetlands within Monitoring Area	0.62	0.57	0.30
Total Functional Units (acreage x actual points)	3.72	3.36	2.22
Net Acreage Gain ("new" wetlands)	0.62	0.57	0.30
Net Functional Unit Gain (new acreage x actual points)	3.72	3.36	2.22
Total Functional Unit Gain Lane Deer-East Mitigation Sites (2004)	9.3		

baseline characteristics of floodplain wetlands in that area; the general wetland floodplain rated as a Category III wetland in 1999 (Harris 1999).

The school mitigation monitoring site again scored as a Category III wetland in 2004 (**Table 4a**). The percent possible score has increased from 39% to 55% as the wetland vegetation and most other parameters improve. Wetland 369 is classified as a Category II wetland in 2004 due to a high rating for wildlife habitat. Wetland 380 is also a Category II as it is suspected northern leopard frog primary habitat and has a high wildlife habitat rating, although it also rates very close to the Category II threshold with a percent possible score of 62%. Functional assessments are included in **Appendix B** (school site) and **Appendix F** (other sites). Total functional unit gain for all Lane Deer-East Mitigation sites as of 2004 is 9.3 units.

3.8 Photographs

Representative photos taken from photo points and transect ends are included in **Appendix C**. Photos of the recreated wetlands along Hwy. 212 are included in **Appendix F**.

3.9 Maintenance Needs/Recommendations

The stormwater inlet culvert in the southwest corner of the south cell was in working order and required no maintenance. Soil saturation was evident in the north cell during the investigation and was obviously enough to support an increase in hydrophytic vegetation between 2003 and

2004. Outflow from Wetland-369 is blocked by debris in the culvert and a beaver dam in the outflow area.

3.10 Current Credit Summary

The intended size of the school mitigation site wetland was 1.68 acres. An additional 1.5 acres of wetlands were intended to develop along Hwy. 212 for a total of 3.18 acres. The 2004 delineation at the school site resulted in a total of 0.62 acre of wetland development within the north and south cells; an increase of 0.47 acre since 2002. The estimated gross wetland acreages for the recreated wetlands along Hwy. 212 were 0.57 acre at Wetland 369 and 0.30 acre at Wetland 380 for a total of 0.87 acre (**Figure 3, Appendix F**). The total gross wetland acreage within the three Lane Deer-East mitigation sites as of 2004 is 1.49 acres or 47% of the mitigation goal.

Wetland-369 and Wetland-380 are Category II wetlands, while the school site is a Category III wetland. Total functional unit gain for all Lane Deer-East Mitigation sites as of 2004 is 9.3 units.

4.0 REFERENCES

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Appendix A

2004 SCHOOL MITIGATION SITE: FIGURES 2 – 3

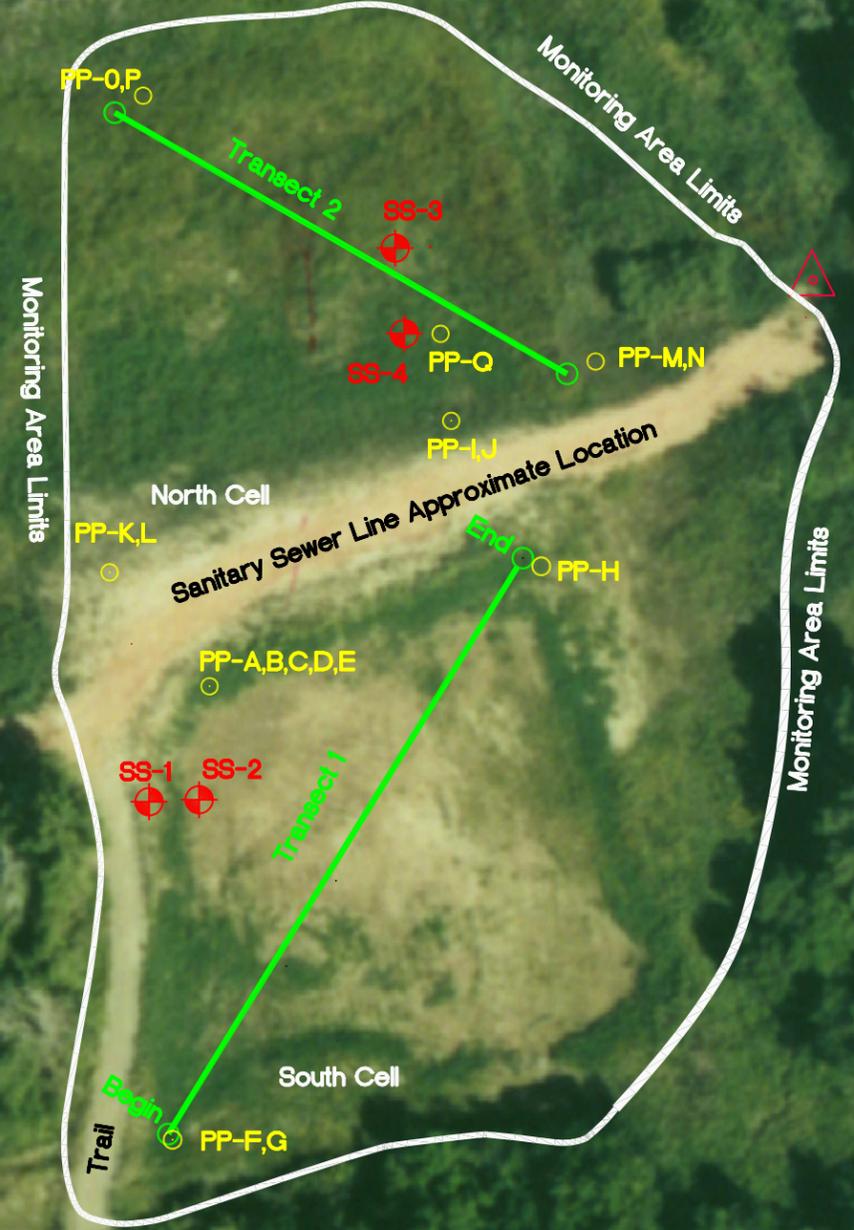
*MDT Wetland Mitigation Monitoring
Lame Deer - East Mitigation Site
Lame Deer - East, Montana*

Figure 2 - Monitoring Activity Locations 2004



- Monitoring Area Limits
 - Vegetation Transect
 - Aerial Reference Point
 - Photo Point
 - Soil Sample
- Base photograph August 26, 2002

SCHOOL



Lame Deer - East Mitigation Site

<p>PROJECT NAME MDT Lame Deer - East Mitigation Site</p> <p>DRAWING TITLE Monitoring Activity Locations 2004</p>	<p>DRAWN: RAA/SH</p> <p>CHECKED: LB</p> <p>APPROVED: JB</p> <p>PROJ MGR: J.Bergland</p>	<p>PROJ NO: 330054.410</p> <p>FILE NAME: TASK40BASE2004</p> <p>SCALE: 1"=60ft</p> <p>LOCATION: Lame Deer</p>	<p>LAND & WATER CONSULTING, INC. P.O. BOX 8254 Missoula, MT 59807</p>
SHEET NUMBER		2 OF 2	
REV 02		DATE: 06/27/05	

Figure 3 - Mapped Site Features 2004

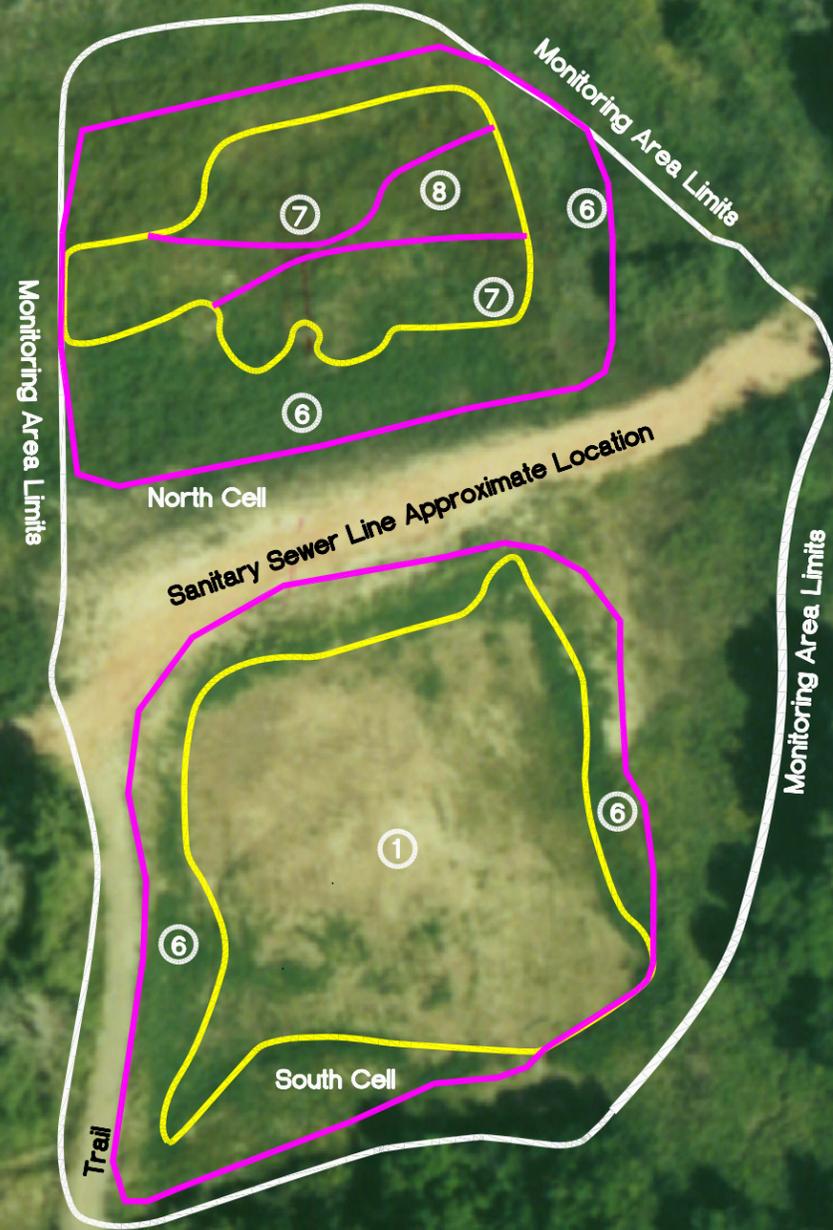


Monitoring Area Limits
 Wetland Boundary
 Vegetation Community Limits
 Base photograph August 26, 2002
 Wetland Area 0.62 Acres

SCHOOL

Vegetation Communities:

- ① Scirpus spp.
- ② Hordeum jubatum/Eleocharis palustris
- ③ Salix exigua/Puccinellia nuttalliana
- ④ Upland (undeveloped wetland)
- ⑤ Agropyron sp./Melilotus officinale
- ⑥ Melolotis officinale/Lactuca serriola/Cirsium arvensis
- ⑦ Scirpus pungens/Hordeum jubatum
- ⑧ Populus tremula/Salix exigua/Scirpus pungens



Lame Deer - East Mitigation Site

PROJECT NAME MDT Lame Deer - East Mitigation Site	DRAWN: RAA/SH CHECKED: LB APPVD: JB PROJ MGR: J. Berglund	PROJECT NO: 330054.4.10 FILE NAME: TASK40BASE2004 SCALE: 1"=60ft LOCATION: Lame Deer	DRAWING TITLE Mapped Site Features 2004
LAND & WATER CONSULTING, INC. P.O. BOX 8254 Missoula, MT 59807		SHEET NUMBER 3 OF . REV 02 DATE: 06/27/05	

Appendix B

**2004 SCHOOL MITIGATION SITE:
WETLAND MITIGATION SITE MONITORING FORM
BIRD SURVEY FORMS
WETLAND DELINEATION FORMS
FUNCTIONAL ASSESSMENT FORMS**

*MDT Wetland Mitigation Monitoring
Lame Deer - East Mitigation Site
Lame Deer, Montana*

LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Lame Deer Project Number: B43054.040 Assessment Date: 7 / 25 / 04
 Location: Lame Deer MDT District: #4 Glendive Milepost: _____
 Legal description: T_2 S_ R_41 E_ Section_34 Time of Day: 8AM-2PM
 Weather Conditions: clear Person(s) conducting the assessment: LB/LWC
 Initial Evaluation Date: 7 / 23 / 02 Visit #: 1 Monitoring Year: 2004
 Size of evaluation area ~4 acres Land use surrounding wetland: transportation corridors; school

HYDROLOGY

Surface Water Source: stormwater and groundwater
 Inundation: Present Absent Average depths: south cell: 1" ; north cell: 0" Range of depths: ft
 Assessment area under inundation: ~0 (puddles)
 Depth at emergent vegetation-open water boundary: _* 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 dispersed throughout much of hydrophytic veg in south cell and puddled in 2-3 areas in north cell

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: _____

VEGETATION COMMUNITIES

Community No.: 1 Community Title (main species): *Scirpus* spp.

Dominant Species	% Cover	Dominant Species	% Cover
SCIACU	35	CARLAN	<1
ELEPAL	10	SALEXI	5
HORJUB	2	JUNTOR	30
EQUHYM	<1	TYPLAT	5
PUCNUT	5	SCIPUN	<5
JUNBUF	<1	mud	5

COMMENTS/PROBLEMS: _____

Community No.: 2 Community Title (main species): *Hordeum jubatum/Eleocharis palustris*

Dominant Species	% Cover	Dominant Species	% Cover
RUNCRI	<5	LACSER	<5
HORJUB	40	MELOFF	40
SALEXI	<5	SCIPUN	<5
PUCNUT	<5	ELEPAL	<5
TYPLAT	<5	AGRsp.	<5

COMMENTS/PROBLEMS: also: GLYELA, BECSYZ (<1) _____

Community No.: 3 Community Title (main species): *Salix exigua/Puccinellia nutalliana*

Dominant Species	% Cover	Dominant Species	% Cover
SALEXI	10	ELEPAL	10
PUCNUT	20	Openwater	50
HORJUB	<1	TYPLAT	<1
JUNBUF	<1	AGRsp.	<1
SCIACU/SCIPUN	10		

COMMENTS/PROBLEMS:

VEGETATION COMMUNITIES (continued)

Community No.: 4 Community Title (main species): Transitional Upland/Wetland

Dominant Species	% Cover	Dominant Species	% Cover
(MUD)	(65%)	GLYELA	<5
SALEXI	10	TRIFOLIUM spp.	10
LACSER	<5		
CHEHYB	<5		
JUNBUF	<5		

COMMENTS/PROBLEMS: This CT may have patches of upland interspersed w/ WL patches: **transitional.**

Community No.: 5 Community Title (main species): Agopyron sp./Melolotis officinale

Dominant Species	% Cover	Dominant Species	% Cover
AGRsp.	45	HORJUB	<5
POPTRE	<1	SALEXI (25 sprigged)	
SCIPUN	<5		
SALsp.	<1		
MELOFF	45		

COMMENTS/PROBLEMS:

Community No.: 6 Community Title (main species): Melolotis officinale/Lactuca serriola/Circium arvensis

Dominant Species	% Cover	Dominant Species	% Cover
MELOFF (biennial pattern or has been sprayed)	5	CHEsp.	5
LACSER	40	PASSAT	1
CIRARV	40	GLYLEP	1
AGRsp.	15	ELEPAL	1
CARPRA	1		

COMMENTS/PROBLEMS:

VEGETATION COMMUNITIES (continued)

Community No.: 7 Community Title (main species): *Scirpus pungens/Hordeum jubatum* _____

Dominant Species	% Cover	Dominant Species	% Cover
RUNCRI	<5	LACSER	30
HORJUB	20	SCIPUN	20
SALEXI	<5	ELEPAL	<5
PUCNUT	<5	AGRSP.	<5
PUCDIS	<5	CARsp. (no inflor.)	<1
TYPLAT	<5		

COMMENTS/PROBLEMS:

Community No.: 8 Community Title (main species): *Populus tremula/Salix exigua/Scirpus pungens* _____

Dominant Species	% Cover	Dominant Species	% Cover
POPTRE	30	SCIPUN	10
SALEXI	30	LACSER	20
Salix sp.	<1	TYPLAT	<1
Kochia sp.	5	PUCDIS	1
MELOFF	<1	PUNUT	1

COMMENTS/PROBLEMS:

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

Dominant Species	% Cover	Dominant Species	% Cover

COMMENTS/PROBLEMS:

Additional Activities Checklist:

Record and map vegetative communities on air photo

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

South Cell:

Location	Photograph Description	Compass Reading
A	south cell wetland view, border	170
B	south cell wetland view, center	130
C	south cell wetland view, border	76
D	across dike from south cell toward school	290
E	across dike from south cell toward north cell	17
F	from storm culvert across south cell	~130
G	south cell, beginning of transect	130
H	south cell, end of transect	210
I	north cell view from central dike toward 212 stop sign	16
J	north cell view toward creek	314
K	north cell, vegetation along north side of dike	44
L	north cell, vegetation east of road and north of dike	18
M	north cell, south transect end	358
N	north cell, interior view south	290
O	north cell, north transect end	174
P	north cell, interior view north	100
Q	interior of north cell wetland	west

COMMENTS/PROBLEMS:

GPS SURVEYING

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

Checklist:

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

COMMENTS/PROBLEMS:

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: Wetland areas drawn in 2004 in north and south cell.

FUNCTIONAL ASSESSMENT

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

COMMENTS/PROBLEMS: One FA done for north and south cells combined.

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: utility line berm separates south from north cell _____

SOILS

Map Unit Name		Straw-Canburn		Drainage Class:	well; very poor (resp.)
(Series and Phase):				Field Observations	
Taxonomy (Subgroup):		mixed Cumulic Haploborolls; frigid Cumulic Haploborolls		Confirm Mapped Type?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10	B	7.5 YR 3/3, 3/1 streaks			silty sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			
Hydric soils are evidently developing.					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
Remarks:					
Wetland improving since 2002.					

Approved by HQUSACE 2/92

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

Project/Site: <u>Lame Deer</u> Applicant/Owner: <u>MDT</u> Investigator: <u>LB/LWC</u>	Date: <u>7/25/04 (South Cell)</u> County: <u>Rosebud</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <u>X</u> Yes <u> </u> No Is the site significantly disturbed (Atypical Situation)? <u> </u> Yes <u>X</u> No Is the area a potential Problem Area?: <u> </u> Yes <u>X</u> No (If needed, explain on reverse.)	Community ID: <u>UPL</u> Transect ID: <u>1</u> Plot ID: <u>SP-2</u>

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	CIRARV	H	FACU	9			
2	LACSER	H	FACU	10			
3				11			
4				12			
5				13			
6				14			
7				15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 2/2

sample point is on bank adjacent to transect end.

HYDROLOGY

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

SOILS

Map Unit Name		Straw-Canburn		Drainage Class: <u>well; very poor (resp.)</u>	
(Series and Phase):				Field Observations	
Taxonomy (Subgroup):		<u>mixed Cumulic Haploborolls; frigid Cumulic Haploborolls (resp.)</u>		Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10	B	10YR 5/2			sand
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks:	
Bank area has not developed into WL as of monitoring date but given hydrology score there is a possibility that expansion up the bank will continue.	

Approved by HQUSACE 2/92

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

Project/Site: <u>Lame Deer</u> Applicant/Owner: <u>MDT</u> Investigator: <u>LB/LWC</u>	Date: <u>7/25/04 (North Cell)</u> County: <u>Rosebud</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <u>X</u> Yes <u> </u> No Is the site significantly disturbed (Atypical Situation)? <u> </u> Yes <u>X</u> No Is the area a potential Problem Area?: <u> </u> Yes <u>X</u> No (If needed, explain on reverse.)	Community ID: <u>emergent</u> Transect ID: <u>2</u> Plot ID: <u>SP-3</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1 HORJUB	H	FACW		9 PUCDIS	H	FACW
2 ELEPAL	H	OBL		10 RUNCRI	H	FACW
3 SCIPUN	H	OBL		11		
4 SALEXI	S	FACW+		12		
5 SALsp.	S	FACW-OBL		13		
6 POPTRE		FAC		14		
7 SCIPUN	H	OBL		15		
8 LACSER	H	FACU		16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 9/10

Hydrophytic community becoming more complex.

HYDROLOGY

Recorded Data (Describe in Remarks): <u> </u> Stream, Lake, or Tide Gauge <u> </u> Aerial Photographs <u> </u> Other <u>X</u> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <u> </u> Inundated <u>X</u> Saturated in Upper 12 Inches <u>X</u> Water Marks <u> </u> Drift Lines <u> </u> Sediment Deposits <u> </u> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <u> </u> Oxidized Root Channels in Upper 12 Inches <u> </u> Water-Stained Leaves <u> </u> Local Soil Survey Data <u> </u> FAC-Neutral Test <u> </u> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u> </u> (in.) Depth to Free Water in Pit: <u>6"</u> (in.) Depth to Saturated Soil: <u>@</u> (in.) <u>surface</u>	
Remarks: groundwater close to surface in small areas of north cell.	

SOILS

Map Unit Name	Straw-Canburn	Drainage Class:	well; very poor (resp.)
(Series and Phase):		Field Observations	
Taxonomy (Subgroup):	mixed Cumulic Haploborolls; frigid Cumulic Haploborolls	Confirm Mapped Type?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Profile Description:

Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10"	B	2.5Y 3/1,3/2,4/3			sand

Hydric Soil Indicators:

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

WETLAND DETERMINATION

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

Remarks:

Wetland has expanded since 2003 though still weedy at edges, aprt. LACSER, CIRARV, Kochia.

Approved by HQUSACE 2/92

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

Project/Site: <u>Lame Deer</u> Applicant/Owner: <u>MDT</u> Investigator: <u>LB/LWC</u>	Date: <u>7/25/04 (North Cell)</u> County: <u>Rosebud</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the area a potential Problem Area?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Community ID: <u>emergent</u> Transect ID: <u>2</u> Plot ID: <u>SP-4</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	HORJUB	H	FACW	9	AGRsp.	H (FACU)
2	LACSER	H	FACU	10		
3	CIRARV	H	FACU	11		
4	CHENsp.	H	FAC-?	12		
5				13		
6				14		
7				15		
8				16		

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

If CHEN FAC, FAC neutral = upland dominance.

HYDROLOGY

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

SOILS

Map Unit Name		Straw-Canburn		Drainage Class:	well; very poor (resp.)
(Series and Phase):				Field Observations	
Taxonomy (Subgroup):		mixed Cumulic Haploborolls; frigid Cumulic Haploborolls		Confirm Mapped Type?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10"	B	7.5YR3/1			Organic streaks, coarse frags, silty clay gravelly loam
		10YR3/2			
Hydric Soil Indicators:					
<input type="checkbox"/>	Histosol		<input type="checkbox"/>	Concretions	
<input type="checkbox"/>	Histic Epipedon		<input type="checkbox"/>	High Organic Content in surface Layer in Sandy Soils	
<input type="checkbox"/>	Sulfidic Odor		<input type="checkbox"/>	Organic Streaking in Sandy Soils	
<input type="checkbox"/>	Aquic Moisture Regime		<input type="checkbox"/>	Listed on Local Hydric Soils List	
<input type="checkbox"/>	Reducing Conditions		<input type="checkbox"/>	Listed on National Hydric Soils List	
<input checked="" type="checkbox"/>	Gleyed or Low-Chroma Colors		<input type="checkbox"/>	Other (Explain in Remarks)	
hydric soils developing					

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks:		
Wetland likely will expand into this current UPL area given hydrology.		

Approved by HQUSACE 2/92

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

Project/Site: <u>Lame Deer</u> Applicant/Owner: <u>MDT</u> Investigator: <u>LB/LWC</u>	Date: <u>7/25/04</u> County: <u>Rosebud</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <u>X</u> Yes <u> </u> No Is the site significantly disturbed (Atypical Situation)? <u> </u> Yes <u>X</u> No Is the area a potential Problem Area?: <u> </u> Yes <u>X</u> No (If needed, explain on reverse.)	Community ID: <u>emergent</u> Transect ID: <u> </u> Plot ID: <u>WL-369</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	GLYGRA	H	OBL	9		
2	POLYGsp.	H	OBL	10		
3	PHLPRA	H	FACU	11		
4				12		
5				13		
6				14		
7				15		
8				16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 2/3

WL veg community very small, most of basin is inundated.

HYDROLOGY

Recorded Data (Describe in Remarks): <u> </u> Stream, Lake, or Tide Gauge <u> </u> Aerial Photographs <u> </u> Other <u>X</u> No Recorded Data Available	Wetland Hydrology Indicators: Primary Indicators: <u>X</u> Inundated <u>X</u> Saturated in Upper 12 Inches <u>X</u> Water Marks <u>X</u> Drift Lines <u>X</u> Sediment Deposits <u>X</u> Drainage Patterns in Wetlands Secondary Indicators (2 or more required): <u> </u> Oxidized Root Channels in Upper 12 Inches <u> </u> Water-Stained Leaves <u> </u> Local Soil Survey Data <u> </u> FAC-Neutral Test <u> </u> Other (Explain in Remarks)
Field Observations: Depth of Surface Water: <u> - </u> (in.) Depth to Free Water in Pit: <u> 0 </u> (in.) Depth to Saturated Soil: <u> @ </u> (in.) <u>surface</u>	
Remarks: Beaver dam constructed on outlet; no flow entering stream channel below wetland.	

SOILS

Map Unit Name		Bitton-Shambo		Drainage Class:	well
(Series and Phase):				Field Observations	
Taxonomy (Subgroup):				Confirm Mapped Type?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10"	A	10YR 3/1,4/2			Coarse red frags, silt sand clay
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
Remarks:					
Stream has been effectively captured by non-functioning culvert and now a beaver dam. Emergent veg. almost non-existent around perimeter because of "full-pond" issue. Pond is shallow and aquatics noted.					

Approved by HQUSACE 2/92

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

Project/Site: <u>Lame Deer</u> Applicant/Owner: <u>MDT</u> Investigator: <u>LB/LWC</u>	Date: <u>7/25/04</u> County: <u>Rosebud</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the area a potential Problem Area?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Community ID: <u>emergent</u> Transect ID: _____ Plot ID: <u>WL-380</u>

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	JUNTEN	H	FAC	9			
2	JUNNOD	H	OBL	10			
3	SALBEB	S	FACW	11			
4	SCIPAL	H	OBL	12			
5	CARHYS	H	OBL	13			
6	AGREXA	H	FACW	14			
7	CIRARV	H	FACU	15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 7/7

Diverse community.

HYDROLOGY

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

SOILS

Map Unit Name		Bitton-Shambo		Drainage	well
(Series and Phase):				Class:	
Taxonomy (Subgroup):				Field Observations	
				Confirm Mapped	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
				Type?	<input type="checkbox"/> <input type="checkbox"/>
Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10"	B	7.5YR3/2,3/1			Silt clay loam w/ carbon chunks
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			

WETLAND DETERMINATION

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

Approved by HQUSACE 2/92

**Highway 212 Wetlands
PHOTOGRAPH LOG**

Wetland #	Photo Location	Photograph Description	Compass Reading
369 ¹	A	wetland view toward inflow area	78
369	B	wetland view toward road	16
369	C	wetland view toward outflow from below road edge	124
369	D	wetland view toward upstream drainage	110
369	E	west side of wetland	268
369	F	erosion issues below road edge	~110
380	A	inlet	86
380	B	intermittent drainage from east	48
380	C	inlet	10
380	D	outflow (left side in photo)	314
380	E	from east drainage to road and outlet-side of wetland	152

¹ The wetland number refers to the station number on the plan map (wetland 380 is higher in elevation and a greater distance from Lame Deer than 369 along Hwy. 212).

COMMENTS/PROBLEMS: Note erosion problems in Wetland 369. _____

_____ (Als
o, across the road from W-380, sediment entering mountain (?) beaver pond from steep road embankment.)

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

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

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

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	---	---	---	0 (L)

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

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM.

Do not include species listed in 14A(i).

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

- Primary or Critical habitat (list species) D S _____
- Secondary habitat (list species) D S Rana pipiens
- Incidental habitat (list species) D S _____
- No usable habitat D S _____

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

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

If documented, list the source (e.g., observations, records, etc.): Observed 1 frog in 2004.

14C. General Wildlife Habitat Rating

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

Substantial (based on any of the following)

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

Low (based on any of the following)

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

Moderate (based on any of the following)

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

ii. **Wildlife Habitat Features** (Working from top to bottom, select appropriate AA attributes to determine the exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from #13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition in the AA (see #10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.

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

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

Evidence of Wildlife Use from 14C(i)	Wildlife Habitat Features Rating from 14C(ii)			
	<input type="checkbox"/> Exceptional	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
Substantial	--	--	--	--
Moderate	--	.7 (M)	--	--
Low	--	--	--	--

Comments: The surrounding upland and stream corridor is prime habitat for deer and migratory birds.

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

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

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

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

Duration of Surface Water in AA	<input type="checkbox"/> Permanent/Perennial			<input type="checkbox"/> Seasonal / Intermittent			<input type="checkbox"/> Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects (e.g. submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading - 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--

ii. **Modified Habitat Quality:** Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity or is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support?

Y N If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: E H M L

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

Types of Fish Known or Suspected Within AA	Modified Habitat Quality from 14D(ii)			
	<input type="checkbox"/> Exceptional	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
Native game fish	--	--	--	--
Introduced game fish	--	--	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: _____

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

Applies only to wetlands subject to flooding via in-channel or overbank flow.

If wetlands in AA do not flooded from in-channel or overbank flow, check NA above.

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

Estimated wetland area in AA subject to periodic flooding	<input type="checkbox"/> ≥ 10 acres			<input type="checkbox"/> <10, >2 acres			<input checked="" type="checkbox"/> ≤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	--	--	--	--	--	--	--	--	.2 (L)
AA contains unrestricted outlet	--	--	--	--	--	--	--	--	--

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

Y N Comments: _____

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

Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow.

If no wetlands in the AA are subject to flooding or ponding, check NA above.

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

Abbreviations: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding.	<input type="checkbox"/> >5 acre feet			<input checked="" type="checkbox"/> <5, >1 acre feet			<input type="checkbox"/> ≤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	--	--	--	--	.6 (M)	--	--	--	--
Wetlands in AA flood or pond < 5 out of 10 years	--	--	--	--	--	--	--	--	--

Comments: _____

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

Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input.

If no wetlands in the AA are subject to such input, check NA above.

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

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	<input type="checkbox"/> ≥ 70%		<input checked="" type="checkbox"/> < 70%		<input type="checkbox"/> ≥ 70%		<input type="checkbox"/> < 70%	
Evidence of flooding or ponding in AA	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
AA contains no or restricted outlet	--	--	.7 (M)	--	--	--	--	--
AA contains unrestricted outlet	--	--	--	--	--	--	--	--

Comments: _____

14H. SEDIMENT/Shoreline Stabilization

NA (proceed to 14I)

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

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

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses.	Duration of Surface Water Adjacent to Rooted Vegetation		
	<input type="checkbox"/> Permanent / Perennial	<input checked="" type="checkbox"/> Seasonal / Intermittent	<input type="checkbox"/> Temporary / Ephemeral
≥ 65 %	--	.9 (H)	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments:

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

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

A	<input type="checkbox"/> Vegetated component >5 acres				<input type="checkbox"/> Vegetated component 1-5 acres				<input checked="" type="checkbox"/> Vegetated component <1 acre					
B	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input checked="" type="checkbox"/> Low	
C	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
P/P	--	--	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	--	--	--	--	--	--	--	--	.3L	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Comments:

14J. GROUNDWATER DISCHARGE/RECHARGE (D/R) (Check the indicators in i & ii below that apply to the AA)

i. **Discharge Indicators**

- Springs are known or observed.
- Vegetation growing during dormant season/drought.
- Wetland occurs at the toe of a natural slopes.
- 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 presents without underlying impeding layer.
- Wetland contains inlet but not outlet.
- Other

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

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

Comments:

14K. UNIQUENESS

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

Replacement Potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP.			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP.			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate.		
Estimated Relative Abundance from #11	<input type="checkbox"/> rare	<input type="checkbox"/> common	<input type="checkbox"/> abundant	<input type="checkbox"/> rare	<input type="checkbox"/> common	<input type="checkbox"/> abundant	<input type="checkbox"/> rare	<input checked="" type="checkbox"/> common	<input type="checkbox"/> abundant
Low disturbance at AA (#12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--

Comments:

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? Yes (Rate High (1.0), then proceed to 14L(ii) only] No [Proceed to 14L(iii)]

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

iii. Based on the location, diversity, size, and other site attributes, is there a strong potential for recreational or educational use?

- Yes [Proceed to 14L (ii) and then 14L(iv).]
- No [Rate as low in 14L(iv)]

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

Ownership	Disturbance at AA from #12(i)	
	<input type="checkbox"/> Low	<input checked="" type="checkbox"/> Moderate
Public ownership	--	.5(M)
Private ownership	--	--

Comments: wetland plant study; diversity increasing

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0.00	1	
B. MT Natural Heritage Program Species Habitat	M	0.70	1	
C. General Wildlife Habitat	M	0.7	1	
D. General Fish/Aquatic Habitat	NA		--	
E. Flood Attenuation	L	0.20	1	
F. Short and Long Term Surface Water Storage	M	0.60	1	
G. Sediment/Nutrient/Toxicant Removal	M	0.70	1	
H. Sediment/Shoreline Stabilization	H	0.90	1	
I. Production Export/Food Chain Support	L	0.30	1	
J. Groundwater Discharge/Recharge	H	1.00	1	
K. Uniqueness	M	0.40	1	
L. Recreation/Education Potential	M	0.50	1	
Totals:		6.00	11.00	3
Percent of Total Possible Points:			55% (Actual / Possible) x 100 [rd to nearest whole #]	

<p>Category I Wetland: (Must satisfy one of the following criteria. If not proceed to Category II.)</p> <p><input type="checkbox"/> Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or</p> <p><input type="checkbox"/> Score of 1 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Score of 1 functional point for Flood Attenuation and answer to Question 14E(ii) is "yes"; or</p> <p><input type="checkbox"/> Percent of total Possible Points is > 80%.</p>
<p>Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following Category II criteria. If not satisfied, proceed to Category IV.)</p> <p><input type="checkbox"/> Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or</p> <p><input type="checkbox"/> Score of .9 or 1 functional point for General Wildlife Habitat; or</p> <p><input type="checkbox"/> Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or</p> <p><input type="checkbox"/> "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish / Aquatic Habitat; or</p> <p><input type="checkbox"/> Score of .9 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Percent of total possible points is > 65%.</p>
<p><input checked="" type="checkbox"/> Category III Wetland: (Criteria for Categories I, II, or IV not satisfied.)</p>
<p>Category IV Wetland: (Criteria for Categories I or II are not satisfied and <u>all</u> of the following criteria are met; If not satisfied, proceed to Category III.)</p> <p><input type="checkbox"/> "Low" rating for Uniqueness; and</p> <p><input type="checkbox"/> "Low" rating for Production Export / Food Chain Support; and</p> <p><input type="checkbox"/> Percent of total possible points is < 30%.</p>

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

I
 II
 III
 IV

Appendix C

**SCHOOL MITIGATION SITE:
REPRESENTATIVE PHOTOGRAPHS
2004 AERIAL PHOTOGRAPH**

*MDT Wetland Mitigation Monitoring
Lame Deer - East Mitigation Site
Lame Deer, Montana*

2004 LAME DEER – SCHOOL SITE



Location: A **Description:** South Cell wetland view, border **Compass Reading:** 170°



Location: B **Description:** South Cell wetland view, center **Compass Reading:** 130°



Location: C **Description:** South Cell wetland view, border **Compass Reading:** 76°



Location: D **Description:** Across dike from South Cell toward school **Compass Reading:** 290°



Location: E **Description:** Across dike from South Cell toward north cell **Compass Reading:** 17°



Location: F **Description:** From storm culvert across south cell **Compass Reading:**

2004 LAME DEER – SCHOOL SITE



Location: G **Description:** South cell, beginning of transect **Compass Reading:** 130°



Location: H **Description:** South cell, end of transect **Compass Reading:** 210°



Location: I **Description:** North Cell view from central dike toward 212 stop sign **Compass Reading:** 16°



Location: J **Description:** North Cell view toward creek **Compass Reading:** 314°



Location: K **Description:** North Cell, vegetation along north side of dike **Compass Reading:** 44°



Location: L **Description:** North Cell, vegetation east of road and north of dike **Compass Reading:** 18°

2004 LAME DEER – SCHOOL SITE



Location: M **Description:** North Cell south transect end **Compass Reading:** 358°



Location: N **Description:** North Cell, view south from south transect end **Compass Reading:** 290°



Location: O **Description:** North Cell, north transect end **Compass Reading:** 174°



Location: P **Description:** North Cell, view south **Compass Reading:** 100°



Location: Q **Description:** View inside North Cell

JOB:LAME DEER WETLAND #___ ROLL:000 SCALE:1:6000 FLT:52 07/25/2004 11:36:40



Lame Deer School Site 2004

FS160 1/ 180 f/4.0 1/3 FF4.0 EC 0 SIN dt614.4 27.9V -57mb

Appendix D

**1999 GRADING AND PLANTING PLANS, SCHOOL RESERVE
MITIGATION SITE**

MARTIN LETTER: SANITARY SEWER LINE

**CARTER-BURGESS LETTER PERTAINING TO WETLAND
MITIGATION ACREAGE**

RECREATED HWY. 212 WETLANDS WETLAND SITE PLANS

*MDT Wetland Mitigation Monitoring
Lame Deer - East Mitigation Site
Lame Deer, Montana*

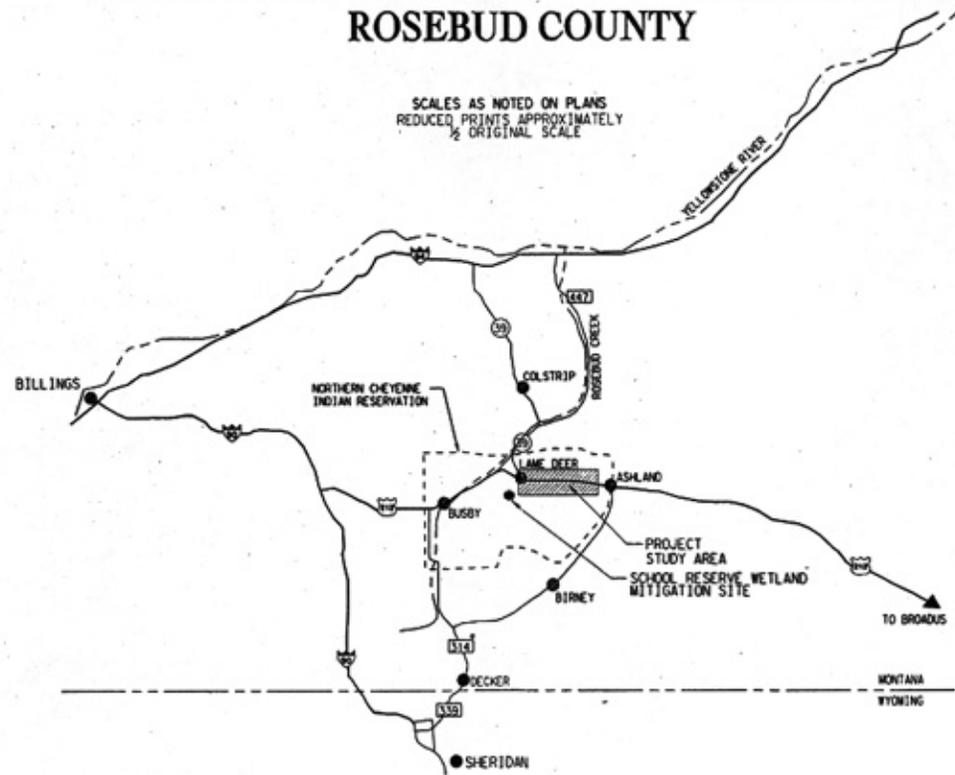
MONTANA DEPARTMENT OF TRANSPORTATION

FEDERAL AID PROJECT NO. NH37-2(16)42, NH37-2(17)49. LAME DEER-EAST AND EAST OF LAME-DEER-EAST. SCHOOL RESERVE WETLAND MITIGATION SITE ROSEBUD COUNTY



PRELIMINARY - FOR REVIEW
FINAL PLANS

SCALES AS NOTED ON PLANS
REDUCED PRINTS APPROXIMATELY
1/2 ORIGINAL SCALE



PLANS PREPARED BY

Carter-Burgess

216 SIXTEENTH STREET HALL, SUITE 1700
DENVER, COLORADO 80202
(303) 620-5240

RELATED PROJECTS

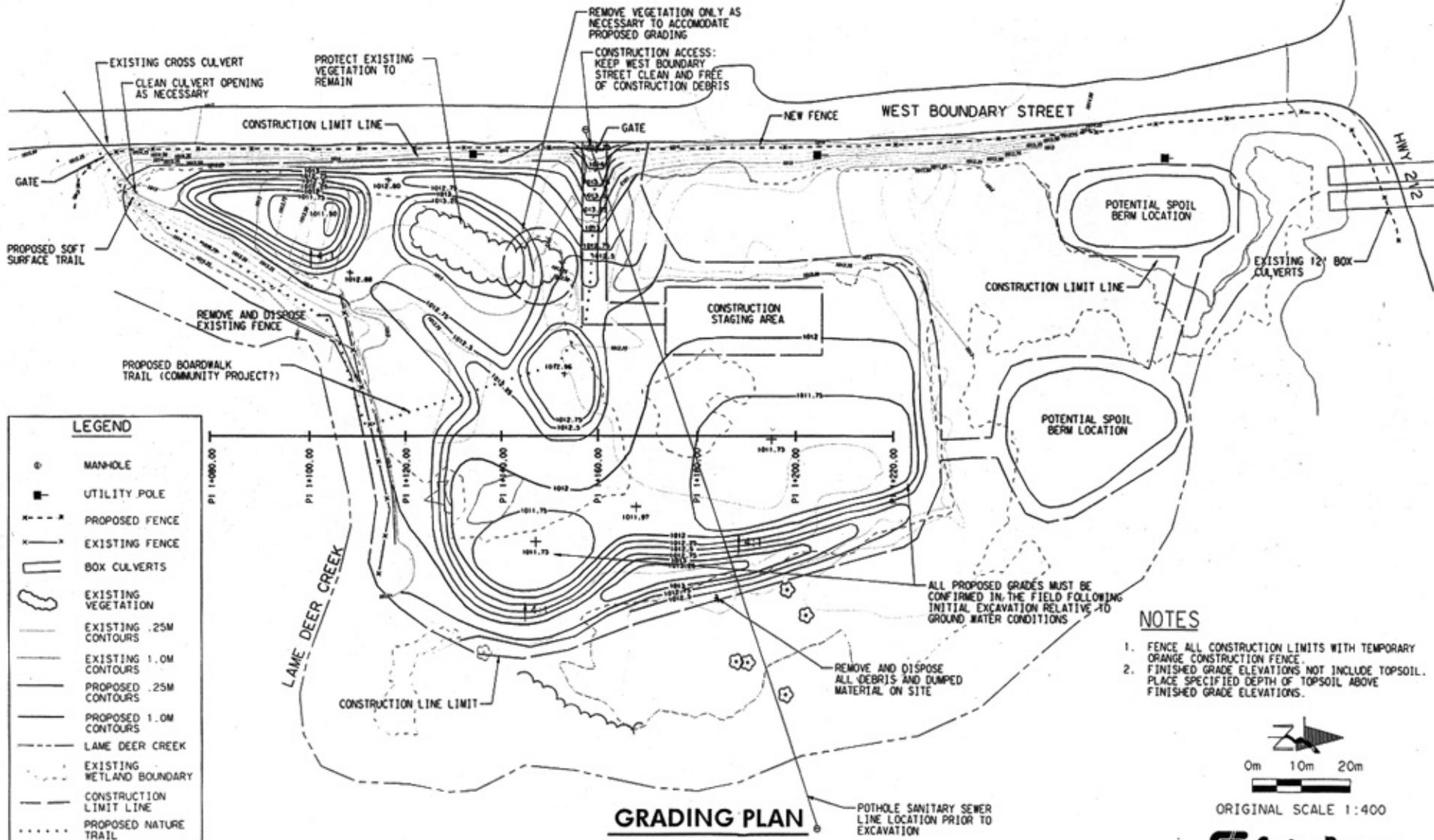
LAME DEER-EAST AND EAST OF
LAME DEER-EAST ROAD
IMPROVEMENTS
RP (MP) 42.1 TO 54.3

MONTANA DEPARTMENT OF TRANSPORTATION	
APPROVED: _____ 19 ____	
MARVIN DYE DIRECTOR OF TRANSPORTATION	
BY: _____	
PRECONSTRUCTION ENGINEER	
U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION	
APPROVED: _____	
DIVISION ADMINISTRATOR	DATE _____

ITEM	UNITS	QUANTITY
AREA OF WETLAND MITIGATION	ACRES (HECTARES)	1.79 (.06)

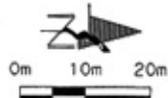
STATE	PROJECT NUMBER	SHEET NO.
MONTANA	MD7-211642, MD7-211749	7

LAND & WATER D-2



LEGEND	
○	MANHOLE
■	UTILITY POLE
- - - - -	PROPOSED FENCE
- - - - -	EXISTING FENCE
▭	BOX CULVERTS
⊿	EXISTING VEGETATION
—	EXISTING .25M CONTOURS
—	EXISTING 1.0M CONTOURS
- - - - -	PROPOSED .25M CONTOURS
- - - - -	PROPOSED 1.0M CONTOURS
- - - - -	LAME DEER CREEK
- - - - -	EXISTING WETLAND BOUNDARY
- - - - -	CONSTRUCTION LIMIT LINE
⋯	PROPOSED NATURE TRAIL

- NOTES**
1. FENCE ALL CONSTRUCTION LIMITS WITH TEMPORARY ORANGE CONSTRUCTION FENCE.
 2. FINISHED GRADE ELEVATIONS NOT INCLUDE TOPSOIL. PLACE SPECIFIED DEPTH OF TOPSOIL ABOVE FINISHED GRADE ELEVATIONS.



ORIGINAL SCALE 1:400

GRADING PLAN

Carter Burgess

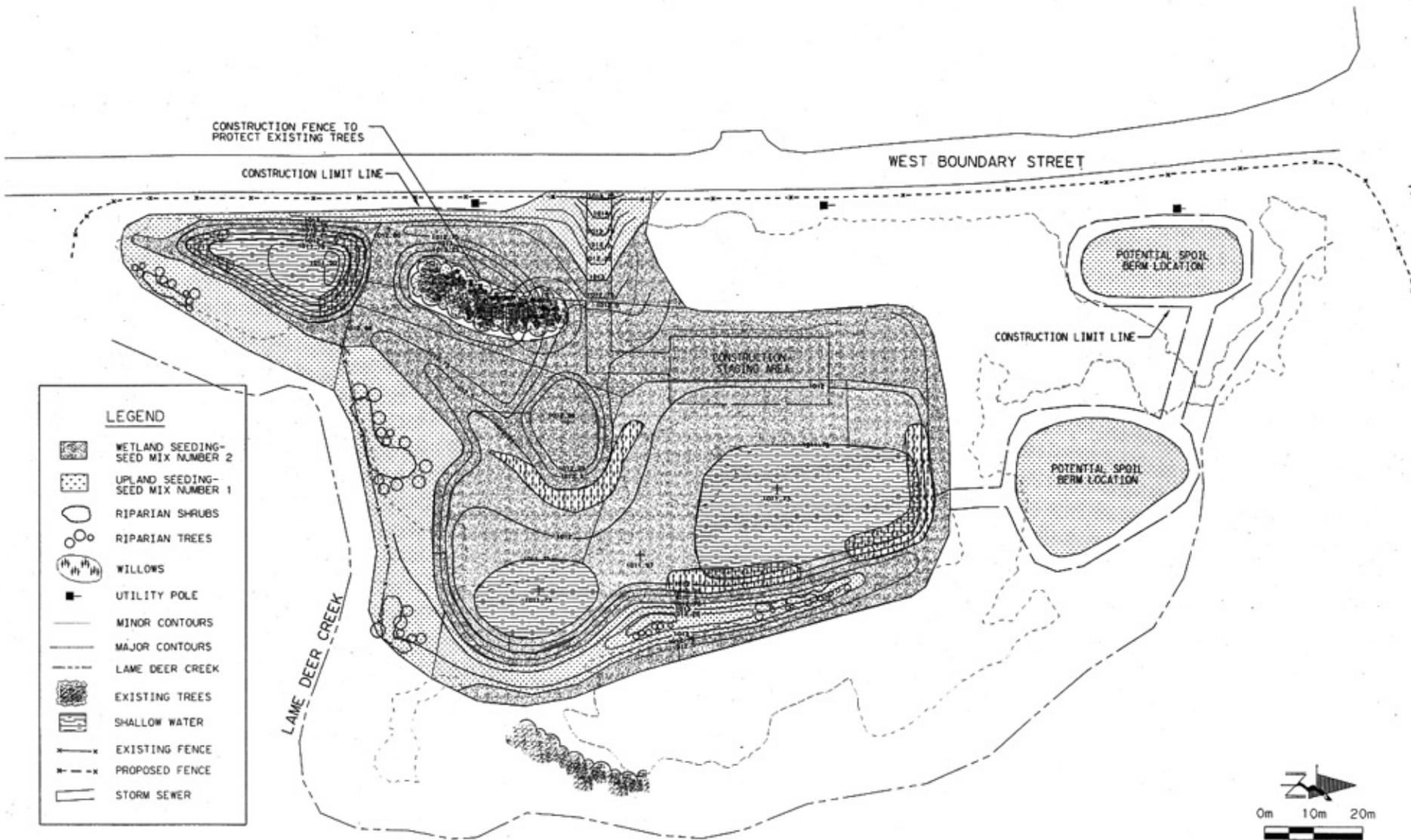
MONTANA DEPARTMENT OF TRANSPORTATION

ITEM	UNITS	QUANTITY
AREA OF WETLAND MITIGATION	ACRES (HECTARES)	1.79 (.06)

STATE	PROJECT NUMBER	SHEET NO.
MONTANA	MS7-2116142, MS7-2117149	9

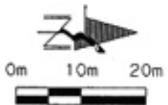
LAND & WATER D-3

MONTANA DEPARTMENT OF TRANSPORTATION



LEGEND	
	WETLAND SEEDING- SEED MIX NUMBER 2
	UPLAND SEEDING- SEED MIX NUMBER 1
	RIPARIAN SHRUBS
	RIPARIAN TREES
	WILLOWS
	UTILITY POLE
	MINOR CONTOURS
	MAJOR CONTOURS
	LAME DEER CREEK
	EXISTING TREES
	SHALLOW WATER
	EXISTING FENCE
	PROPOSED FENCE
	STORM SEWER

PLANTING PLAN



ORIGINAL SCALE 1:400

Montana Department of Transportation
P.O. Box 460
Miles City MT 59301



March 16, 2001

David Milligan
Environmental Protection Department
Northern Cheyenne Tribe

RECEIVED

MAR 19 2001

ENVIRONMENTAL

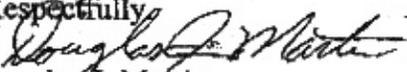
Subject: NH 37-2(16)42F
Lame Deer-East
Lame Deer Wetland Site

Due to concerns from the Northern Cheyenne's Utility Department, further survey work was done at the subject site to determine cover for the sanitary sewer line running through the wetland. This survey led to the discovery that no cut could be made over the existing sewer line due to freeze and thaw causing future breaks. Department project personnel redesigned this area to leave a 6 meter wide area at existing elevation over the existing sewer. In addition a 6:1 slope is to be built from this area down to plan elevations of the wetland on both sides of the existing sewer line.

At this time, no other changes will be made to the designed wetland site. With no fill being placed over the sewer line, a good chance exists that no substantial acreage will be lost, as the soil over the line will be wet and seeded as per contract plans.

If you have any questions, please contact me.

Respectfully,


Douglas J. Martin
Engineering Project Manager

Cc: Project File
Dist. Construction File
Terry Yarger
Larry Sickerson
Riverside Contracting Inc.

DJM: jj



Carter & Burgess

Consultants in Planning, Engineering, Architecture,
Construction Management, and Related Services

January 19, 2000

Mr. Paul Ferry
Montana Department of Transportation
2701 Prospect Avenue
Helena, MT 59620-1001

RE: Lame Deer East
NH 37-2 (16) 42
Control No. 0874

cc: G. Stock
J. Man
B. Bro
T. Att
L. Lind
S. Altho
L. Sickerson
File (only)

Dear Paul:

Please find attached our final plans submittal for the Lame Deer-East project. We have incorporated the comments and direction received from recent e-mails from Larry Sickerson, Ray Mengel, Todd Tillinger and you, in addition to comments received from the P-I-H meeting.

- 1) I contacted the NCT regarding the seed mix content and ratios and Desi Roleffson had already gone back to Washington, D.C. Phil Johnson had given me direction to raise the Great Basin Wild Rye to (9.5) kgs. per hectare.
- 2) I was able to locate some information on the water (tap?) from the NCT utilities. (see attached. It doesn't appear to be affected by the project's excavation. However, please review the attached to see if you agree with this assumption.
- 3) We have included a soft surface trail with crusher fines through the site. As directed by the Corps (Todd Tillinger), this quantity of surface area has been deleted from the total mitigation acreage. Direction is needed regarding a culvert crossing beneath the path at the drainage swale.
- 4) The mitigation acreage previously estimated will be reduced to 0.68 hectares (1.68 acres) due to the trail. This is information the Corps will be interested in. This roughly equates to 0.5 hectare (1.23 acres) of wetland creation and 0.18 hectare (0.45 acre) of restoration.
- 5) An outstanding issue was a staking plan. We have provided elevations on the cross-sections at every 20 meters from the centerline and at key elevation changes. Please advice if this is sufficient or another method is preferred.
- 6) While Todd Tillinger's response to the erosion control plan allowed that further coordination with the EPA may be required, we kept the erosion control item quantities in the plans as directed at the P-I-H meeting.

At this time, I think it is appropriate to re-iterate that Carter-Burgess staff and consultants have prepared these plans based on the information we had available. It is Carter-Burgess'

standard practice to design a wetland mitigation site, particularly creation sites, with multi-year studies on groundwater levels. In addition no information was available on the adjacent creek or culvert water levels or flow data for the Lane Deer-East project. We would like to recommend again that MDT or the contractor monitor the ground, culvert and creek water elevations and flow quantities on a bi-monthly basis throughout the next year and preferably two years. We have written on the plans that the contractor verify site conditions for ground and surface water levels. MDT could make this a requirement.

We recommend MDT have a wetland specialist on-site through construction to judge site conditions, make judgements on how to excavate, whether to dewater the site or not, modify the grading plans as needed, and determine where to plant the shrubs and sow seeds based on final site conditions.

We recommend the construction documents include a contractor's warrantee for the survival and establishment of all wetland plants (seeded or planted) for at least one year after construction is complete and accepted by MDT. In regards to the performance standards required by the Corps, we recommend to incorporate maximum flexibility. These should not specify the size of each wetland type (ie. Area of surface water, wet meadow or marsh). This allows MDT to change the planting plan in response to site conditions without having to change the grading or re-grade the site. I requested a copy of the performance standards from Larry Urban, but haven't received them yet.

It is our intent to provide MDT with the most successful product (plans) possible and hence, these recommendations. Please let me know if you have any comments on the plans or these recommendations.

Sincerely,



Diana Bell
Carter-Burgess

Attachments

cc. Larry Sickerson
Gordon Stockstad
Ray Mengel
Bill McChesney
Tom Atkins
Diane Yates
Chris Ricciardiello
Jeanette Lostracco
file

J:\97705901\Deer\manage\Corr\finalplans.doc

1. Project Name: **LAME DEER MIT.** 2. Project # and Control #: **F-37-2(3)42F** **CN 0874**
 3. Evaluation Date: **20-21 Apr** 4. Evaluator(s): **R. HARRIS** 5. Wetland/Size #(s): **School Mit. Site**
 6. Wetland Location(s): **Lame Deer floodplain immed. south of Hwy 212**
 7. Evaluation is to assess functions and values of Wetlands that may be affected by an MDT project:
 Mitigation wetlands: pre-construction
 Mitigation Wetlands: post-construction
 Other:
 8. Estimated total wetland size (acres): **2-3 acres south of road - restoration**
 9. Estimated acreage of assessment area (AA): **includes WL system north of road. 20-30 ac.** (see detailed instructions on how to determine AA)

10. Classification of AA (HGM according to Brinson; system, subsystem, class, water regime, and special modifier according to Cowardin (1979))

HGM Class (Brinson)	System (Cowardin)	Subsystem (Cowardin)	Class (Cowardin)	Water Regime (Cowardin)	Modifier (Cowardin)	% of AA
Riverine	Riverine	Low. Peren.	Emergent	Saturated	Riparian	90%

11. Circle estimated occurrence frequency (see definitions) of similarly classified sites within the same USGS Hydrologic Unit:
 Rare **Common** Abundant

12. Circle general condition of AA (see definitions): Undisturbed **Encroached Upon** Directly Disturbed

13. Habitat Diversity
 A). # of persistent vegetated classes (circle points):
 ≥3 = 5 points
2 = 3 points
 ≤1 = 1 point
 B). Open water (see definition) in the AA is (circle points):
 present = 2 points
 absent = 1 point
 - marginally so, by Lame Deer Crk.
 Comments: **more open water could further use by shorebirds, waterfowl, etc.**
 Score is (A) x (B) = **6**

Score	Rating	Functional Points
10	Excep	NA
6	High	NA
2-3	Mod	NA
1	Low	NA

14. Brief descriptive summary of AA and surrounding land use and habitat:
A small piece of floodplain that has been encroached upon on all sides by the community of Lame Deer. The only remaining 'green space' left within the town. Largely emergent w/ shrub-scrub component.

15. Functions and Values Assessment

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

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

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

15.b) Habitat for Plants or Animals Rated S1, S2, or S3 by the Montana Natural Heritage Program
 AA is documented or suspected (circle D or S) to receive:
 D S Regular use (list species):
 D S Occasional (infrequent, sporadic) use (list species):
 D S Incidental (chance, inconsequential) use (list species):
D S No use

Source(s) for documented use (e.g., observation, records, etc.):
 Comments: **No MNHP or Tribal listings of any sort. Apprec. human disturbance from nearby schools.**

Highest Level Use:	Rating	Functional Points
doc/reg	High	1
doc/oc	High	.8
sus/reg	Mod	.7
sus/oc	Mod	.6
doc/incid	Low	.5
sus/incid	Low	.4
none	None	0

15.c) General Wildlife Habitat

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

- S M Aquatic/semi-aquatic birds (list examples): C. snipe
- S M Non-aquatic birds (list examples): v.w. blackbirds, etc. neo-tropicals
- S L Aquatic/semi-aquatic mammals (list examples): possible skunk, raccoon, etc.
- S L Non-aquatic mammals (list examples):
- S L Aquatic/semi-aquatic reptiles (list examples): painted turtles
- S L Non-aquatic reptiles (list examples):
- S L Amphibians (list examples):
- S L Invertebrates (list examples):

i. Assessed wildlife use (circle points):

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

ii. Habitat diversity from #13 (circle points)

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

Comments: More practically a moderate at present with potential for betterment through enhancement and clean-up.

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

Score is (i) x (ii) = 9

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

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

- S Game fish = 3 points
- S Rough fish, but no game fish = 2 points
- S No fish = 1 point

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

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

Comments:

NA

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

Score is (i) x (ii) =

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

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

- Flooded wetlands ≥ 20 acres = 7 points
- 20 acres > Flooded wetlands > 5 acres = 5 points
- Flooded wetlands ≤ 5 acres = 1 point

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

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

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

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

Comments: Lane Deer Crk. may experience brief, 'flashy' run-off events vs. major spring run-off. Score is [(i) x (ii)] + (iii) = 5

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

15.f) Sediment/Nutrient/Toxicant Retention and Removal
Circle true (T) or false (F) for each of the following statements:

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

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

Comments: This may be one of the AA's stronger functions.

Score	Rating	Functional Points
NA	High	1
NA	Mod	.5
NA	Low	.1

15.g) Sediment/Shoreline Stabilization (applies only if AA occurs on the banks of a river, stream, or other natural or manmade drainage, or on the shoreline of a standing water body which has a maximum depth exceeding 6.5 feet at low water (e.g., subject to wave action). If does not apply, circle NA here and proceed to next function.

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

- ii. Water body adjacent to rooted vegetation is (circle points):
 Permanent/perennial = 5 points
 Seasonal/intermittent = 3 points
 Temporary/ephemeral = 2 points

Comments: Lame Deer Crk. flowed less than 1 cfs. at time of April's delineation. Score is (i) x (ii) = 6 vs. 15

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

rejected - current

15.h) Production Export/Food Chain Support

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

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

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

- iv. Surface water in AA is (circle points):
 Permanent/perennial = 3 points
 Seasonal/intermittent = 2 points
 Temporary/ephemeral or absent = 1 point

Comments: Seems artificially high in light of small, intermittent stream volumes. Score is [(i) x (ii)] + [(iii) x (iv)] = 36

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

15.i) Groundwater Discharge/Recharge

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

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

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

- Permeable substrate present without underlying impeding layer. AA is known discharge or recharge area or one or more indicators of discharge or recharge present = High rating
 Wetland contains inlet, but no outlet. No discharge or recharge indicators present = Moderate rating
 Other: Available information pertaining to AA is inadequate to judge discharge/recharge potential = Unknown

Comments: Needs further research. Upstream reach of Lame Deer Crk. appears to be subsurface source of recharge on the School site.

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

15.j) Uniqueness

- i. Estimated occurrence frequency of similarly classified sites within the USGS Hydrologic Unit (#11: circle points):
 Rare = 3 points
 Common = 2 points
 Abundant = 1 point

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

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

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

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

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

15.k) Recreation/Education Potential

- i. Is the AA a known rec/ed site (circle)? N (If yes, rate as High and go to ii. If no, go to iii.)
 ii. Check the categories listed below that apply to the AA:
 education/scientific study
 consumptive recreation
 non-consumptive recreation
 others:
 iii. Based on the location, diversity, size, and other attributes of the site, is there strong potential for recreational/educational use (circle)? Y (If yes, go to ii, then proceed to iv. If no, rate as Low (.1))

- iv. Condition of AA (from #12: circle points):
 Undisturbed = 3 points
 Encroached Upon = 2 points
 Directly Disturbed = 1 point

- v. Ownership of AA (circle points):
 Public = 2 points
 Private = 1 point

Comments: This is possibly the sites strongest suit in the overall mitigation plan. Score is (iv) x (v) = 4

projected

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

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

i. Estimated acreage of jurisdictional wetland in the AA

ii. Estimated flood

that is subject to periodic flooding (circle points):

frequency (circle points)

Flooded wetlands ≥ 5 acres = 3 points

Wetland floods ≥ 5/10 years = 2 points

5 acres > Flooded wetlands > 1 acre = 2 points

Wetland floods < 5/10 years = 1 point

Flooded wetlands < 1 acre = .5 point

Score	Rating	Functional Points
6	High	1
4	Mod	.8
2.3	Mod	.3
1	Low	.3
.3	Low	.1

Comments:

applies to the school site only just south of Hwy 212

Score is (i) x (ii) =

Function & Value Summary and Overall Rating

Function & Value Parameters	Rating	Actual functional points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	.3	1	
B. MNHP Species Habitat	none	0	1	
C. General Wildlife Habitat	High	.7	1	
D. General Fish/Aquatic Habitat	-	NA	NA	
E. Flood Attenuation and Storage	Mod	.4	1	
F. Sediment/Nutrient/Toxicant Removal	High	1.0	1	
G. Sediment/Shoreline Stabilization	Mod	.7	1	projected .9 High
H. Production Export/Food Chain Support	High	.8	1	
I. Groundwater Discharge/Recharge UNK.	none	none	1	
J. Uniqueness	Mod	.5	1	
K. Recreation/Education Potential	Mod	.5	1	projected 1.0
L. Dynamic Surface Water Storage	NA	NA	1	
Totals		4.9	9.0	as now occurs

54%

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

$5.6 \div 9.0 = 62\%$ projected

I II III IV

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

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

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

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

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

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

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

(F4)

Wetlands of the smaller school site just south of Hwy 212 are more appropriately a Cat. IV when considered apart from the healthier system north of the road.

PROJECT NAME LAME DEER CRK. SCHOOL SITEWETLAND SITE # N/ADATAPOINT # N/A

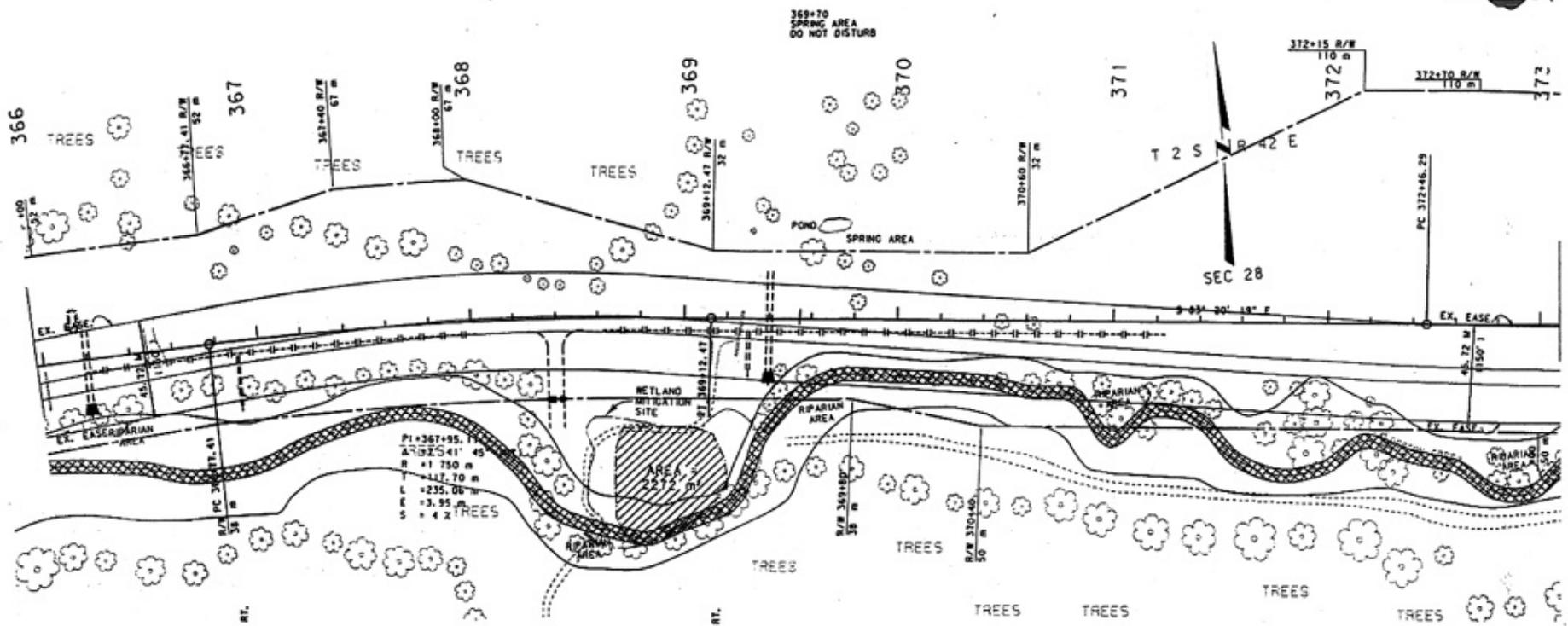
	GENUS/SPECIES	COMMON NAME	STRATA	INDICATOR
WETLAND				
C-	<i>Typha latifolia</i>	broad-leaved cattail	F	OBL
C-	<i>Carex nebrascensis</i>	Nebraska sedge	G	OBL
R-	<i>Carex</i> spp. (<i>laguablis</i> ?)	sedge spp.	G	OBL
R-	<i>Scirpus acutus</i>	hard-stem bulrush	F	OBL
T-	<i>Scirpus validus</i>	soft-stemmed bulrush	F	OBL
C-	<i>Scirpus americanus</i>	Obey 3-square bulrush	F	OBL
C-	<i>Salix exigua</i>	streambank willow	S	OBL
T-	<i>Salix</i> spp.	willow spp.	S	likely FACW
C-	<i>Hordeum jubatum</i>	Foxtail barley	G	FAC+
T-	<i>Spartina pectinata</i>	prairie cordgrass	G	FACW
R-	<i>Rumex crispus</i>	curly dock	F	FACW
C-	<i>Muhlenbergia</i> spp.	muhly spp.	G	likely FACW
R-	<i>Heracleum lanatum</i>	cow parsnip	F	FAC
R-	<i>Glycyrrhiza lepidota</i>	American licorice	F	FAC+
C-	<i>Equisetum hyemale</i>	rough horsetail	F	FACW
T-	<i>Tragopogon dubius</i>	western salsify	F	NI
UPLAND				
C-	<i>Populus deltoides</i>	plains cottonwood	SAP-Tree	FAC
R-	<i>Acer negundo</i>	boxelder	S - SAP	FAC+
R-	<i>Fraxinus pennsylvanica</i>	green ash	SAP-Tree	FAC
R-	<i>Prunus virginiana</i>	common chokecherry	S	FACU
C-	<i>Prunus americana</i>	American plum	S	FACU
R-	<i>Symphoricarpos occidentalis</i>	w. snowberry	S	FACU
R-	<i>Grindelia squarrosa</i>	curly-cup gumweed	F	FACU
T-	<i>Carduus nubans</i>	musk thistle	F	NI
R-	<i>Solidago occidentalis</i>	western goldenrod	F	NI
C-	<i>Cirsium arvense</i>	canada thistle	F	FACU+
C-	<i>Agropyron</i> spp.	wheatgrass spp.	G	likely FACW
C-	<i>Rosa acicularis</i>	prickly rose	S	FACU
C-R-	<i>Melilotus officinalis</i>	yellow sweetclover	F	FACU

Recreated Hwy. 212 Wetland 369



CONTRACT NO. 0874emp000.dgn
 MONTANA
 CAD

NO.	DATE	DESCRIPTION
1	11/20/03	REVISED
2	11/20/03	REVISED
3	11/20/03	REVISED
4	11/20/03	REVISED
5	11/20/03	REVISED
6	11/20/03	REVISED
7	11/20/03	REVISED
8	11/20/03	REVISED
9	11/20/03	REVISED
10	11/20/03	REVISED



366+01
 610 mm
 REMOVE

366+20
 497 mm
 NEW 750 mm DR.

366+32
 497 mm
 APP. PIPE LT.
 REMOVE

366+90
 NEW 300 mm
 EMB PROTECTOR RT.

369+30
 NEW 300 mm
 EMB PROTECTOR RT.

369+27
 497 mm
 CAP - IN PL.
 REMOVE

369+40
 NEW 1050 mm
 DR.

Appendix E

BIRD SURVEY PROTOCOL GPS PROTOCOL

*MDT Wetland Mitigation Monitoring
Lame Deer - East Mitigation Site
Lame Deer, Montana*

BIRD SURVEY PROTOCOL

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

Species Use within the Mitigation Wetland: Survey Method

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

Sites that can be circumambulated or walked throughout.

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

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

Sites that cannot be circumambulated.

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

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

Species Use within the Mitigation Wetland: Data Recording

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

1. Bird Species List

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

2. Bird Density

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

3. Bird Behavior

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

4. Bird Species Habitat Use

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

GPS Mapping and Aerial Photo Referencing Procedure

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

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

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

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

Appendix F

2004 RECREATED HWY. 212 WETLANDS:

FIGURES 2 – 3

WETLAND DELINEATION FORMS

FUNCTIONAL ASSESSMENT FORMS

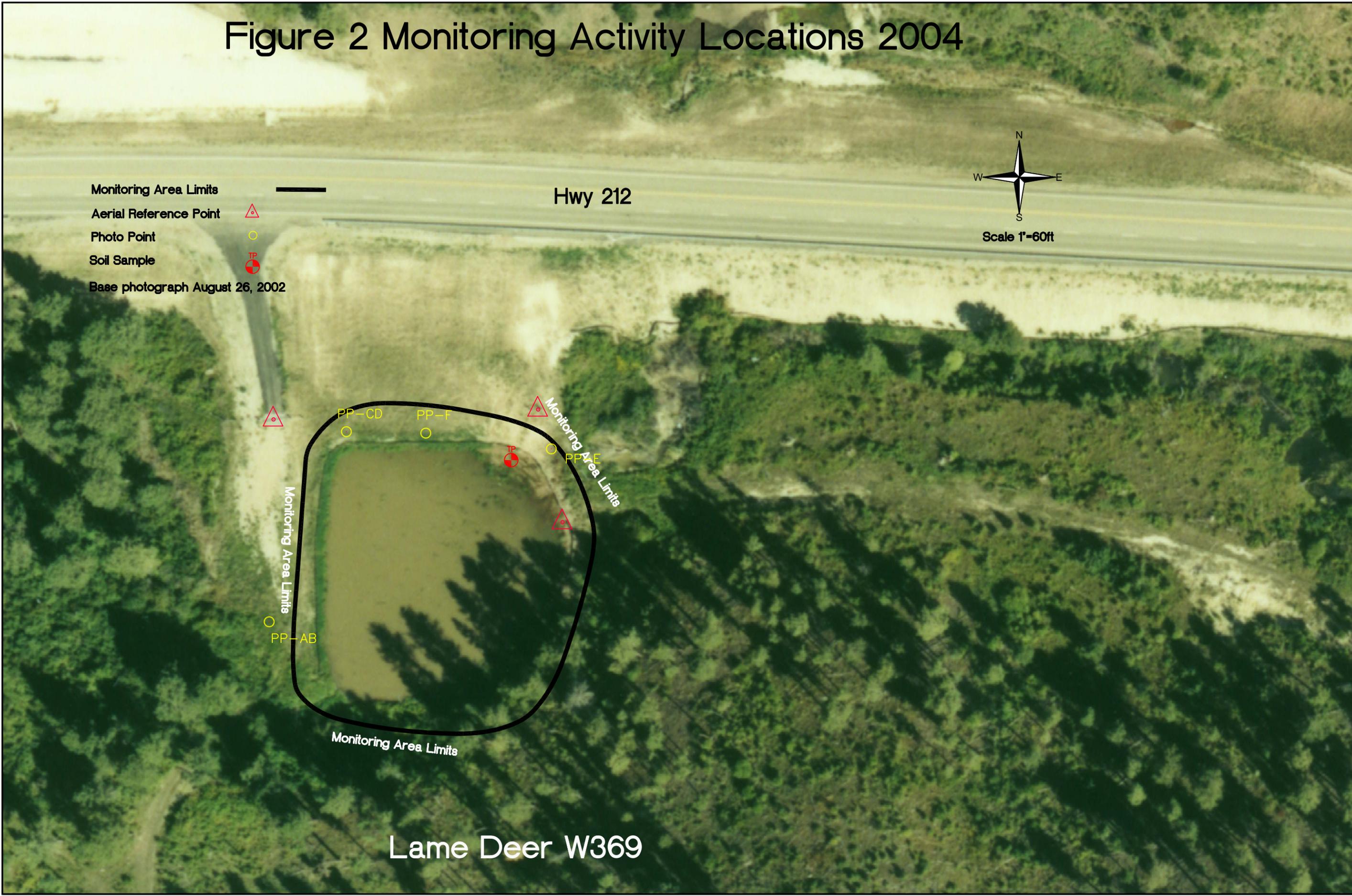
PHOTOGRAPH LOG RECREATED HWY. 212 WETLANDS

REPRESENTATIVE PHOTOGRAPHS

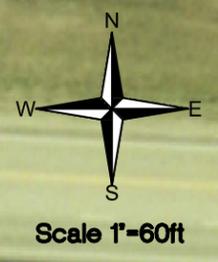
2004 AERIAL PHOTOGRAPH

*MDT Wetland Mitigation Monitoring
Lame Deer - East Mitigation Site
Lame Deer, Montana*

Figure 2 Monitoring Activity Locations 2004



Monitoring Area Limits
 Aerial Reference Point
 Photo Point
 Soil Sample
 Base photograph August 26, 2002



Hwy 212

Monitoring Area Limits

Monitoring Area Limits

Monitoring Area Limits

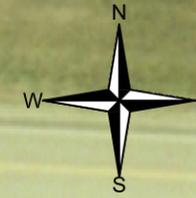
Lame Deer W369

PROJECT NAME		MDT Lame Deer Wetland W369 Mitigation	
DRAWING TITLE		Monitoring Activity Locations 2004	
PROJ NO:	330054.410	DRAWN:	RAA/SH
FILE NAME:	TASK40BASE2004.dwg	CHECKED:	LB
SCALE:	1"=60ft	APPVD:	JB
LOCATION:	Lame Deer	PROJ MGR:	J. Bergland
SHEET NUMBER		2 OF .	
REV		02	
DATE:		06/27/05	

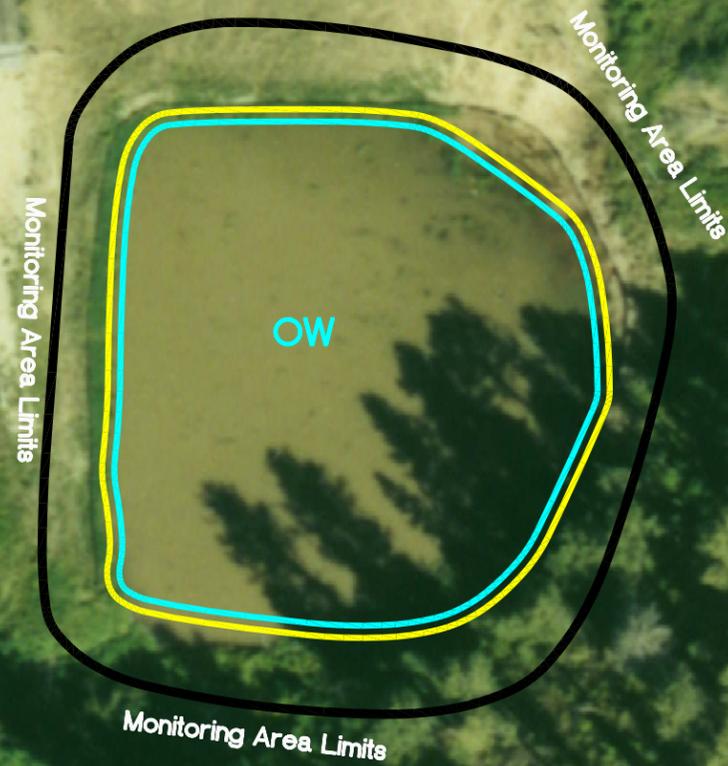
Figure 3 - Mapped Site Features 2004

- Monitoring Area Limits
- Estimated Wetland Boundary (Not by GPS)
- Open Water Boundary
- Base photograph August 26, 2002
- Gross Wetland Area 0.57 Acres
- Open Water 0.52 Acres
- Net Wetland Area 0.05 Acres

Hwy 212



Scale 1"=60ft



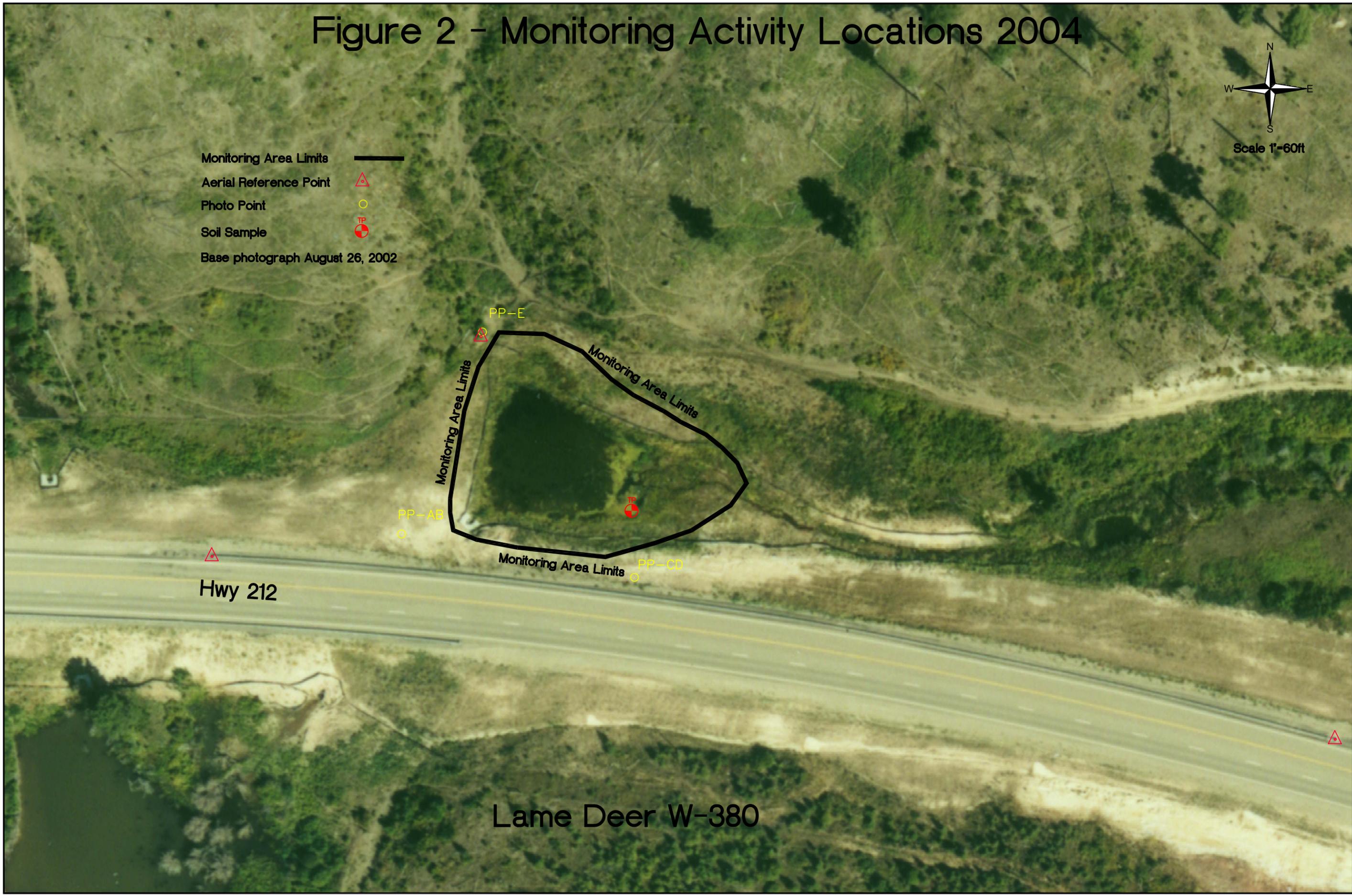
Lame Deer W369

PROJECT NAME		MDT Lame Deer Wetland W369 Mitigation	
DRAWING TITLE		Mapped Site Features 2004	
PROJ NO:	330054.410	DRAWN:	RAA
FILE NAME:	TASK40BASE2004.dwg	CHECKED:	LB
SCALE:	1"=60ft	APPVD:	JB
LOCATION:	Lame Deer	PROJ MGR:	J. Berglund
		SHEET NUMBER 3 OF REV 02 DATE: 06/27/05	

Figure 2 - Monitoring Activity Locations 2004



- Monitoring Area Limits 
 - Aerial Reference Point 
 - Photo Point 
 - Soil Sample 
- Base photograph August 26, 2002

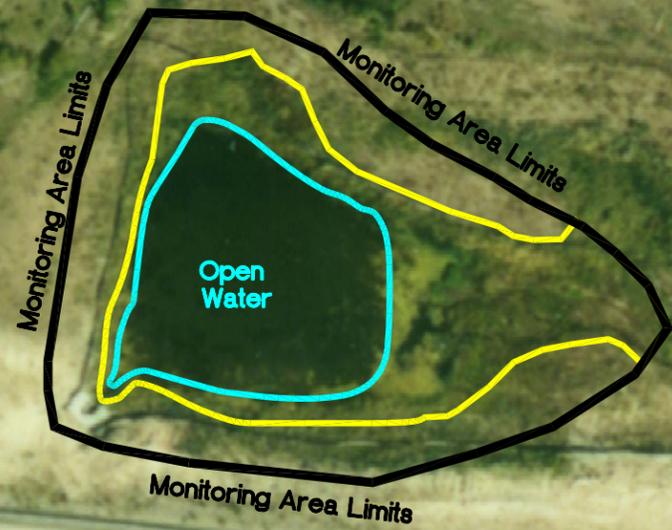


PROJECT NAME MDT Lame Deer Wetland W-380 Mitigation	
DRAWING TITLE Monitoring Activity Locations 2004	
PROJ NO: 330054.410	DRAWN: RAA/SH
FILE NAME: TASK40BASE2004.dwg	CHECKED: LB
SCALE: 1"=60ft	APPVD: JB
LOCATION: Lame Deer 380	PROJ MGR: J.Bergland
	
SHEET NUMBER 2 OF 2	
REV 02	
DATE: 06/27/05	

Figure 3 - Mapped Site Features 2004



- Monitoring Area Limits ———
- Wetland Boundary (Not by GPS) ———
- Open Water Boundary ———
- Base photograph August 26, 2002
- Gross Wetland Area 0.30 Acres
- Open Water Area 0.14 Acres
- Net Wetland Area 0.16 Acres



Hwy 212

Lame Deer W-380

PROJECT NAME		MDT Lame Deer Wetland W-380 Mitigation	
DRAWING TITLE		Mapped Site Features 2004	
PROJ NO:	330054.410	DRAWN:	RAA
FILE NAME:	TASK40BASE2004.dwg	CHECKED:	LB
SCALE:	1"=60ft	APPVD:	JB
LOCATION:	Lame Deer 380	PROJ MGR:	J. Bergland
SHEET NUMBER		3 OF 3	
REV		02	
DATE:		06/27/05	

SOILS

Map Unit Name		Bitton-Shambo		Drainage Class:	well
(Series and Phase):				Field Observations	
Taxonomy (Subgroup):				Confirm Mapped Type?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10"	A	10YR 3/1,4/2			Coarse red frags, silt sand clay
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks:		
Stream has been effectively captured by non-functioning culvert and now a beaver dam. Emergent veg. almost non-existent around perimeter because of "full-pond" issue. Pond is shallow and aquatics noted.		

Approved by HQUSACE 2/92

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

Project/Site: <u>Lame Deer</u> Applicant/Owner: <u>MDT</u> Investigator: <u>LB/LWC</u>	Date: <u>7/25/04</u> County: <u>Rosebud</u> State: <u>MT</u>
Do Normal Circumstances exist on the site: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is the area a potential Problem Area?: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No (If needed, explain on reverse.)	Community ID: <u>emergent</u> Transect ID: _____ Plot ID: <u>WL-380</u>

VEGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
1	JUNTEN	H	FAC	9			
2	JUNNOD	H	OBL	10			
3	SALBEB	S	FACW	11			
4	SCIPAL	H	OBL	12			
5	CARHYS	H	OBL	13			
6	AGREXA	H	FACW	14			
7	CIRARV	H	FACU	15			
8				16			

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). 7/7

Diverse community.

HYDROLOGY

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

SOILS

Map Unit Name		Bitton-Shambo		Drainage	well
(Series and Phase):				Class:	
Taxonomy (Subgroup):				Field Observations	
				Confirm Mapped	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
				Type?	<input type="checkbox"/> <input type="checkbox"/>
Profile Description:					
Depth inches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
10"	B	7.5YR3/2,3/1			Silt clay loam w/ carbon chunks
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol		<input type="checkbox"/> Concretions			
<input type="checkbox"/> Histic Epipedon		<input type="checkbox"/> High Organic Content in surface Layer in Sandy Soils			
<input type="checkbox"/> Sulfidic Odor		<input type="checkbox"/> Organic Streaking in Sandy Soils			
<input type="checkbox"/> Aquic Moisture Regime		<input type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Reducing Conditions		<input type="checkbox"/> Listed on National Hydric Soils List			
<input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors		<input type="checkbox"/> Other (Explain in Remarks)			

WETLAND DETERMINATION

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

Approved by HQUSACE 2/92

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

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

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

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	---	---	---	0 (L)

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

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM.

Do not include species listed in 14A(i).

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

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

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

Highest Habitat Level:	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	---	---	---	0 (L)

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

14C. General Wildlife Habitat Rating

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

Substantial (based on any of the following)

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

Low (based on any of the following)

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

Moderate (based on any of the following)

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

ii. **Wildlife Habitat Features** (Working from top to bottom, select appropriate AA attributes to determine the exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from #13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition in the AA (see #10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A = absent.

Structural Diversity (from #13)	<input type="checkbox"/> High								<input type="checkbox"/> Moderate								<input checked="" type="checkbox"/> Low			
Class Cover Distribution (all vegetated classes)	<input type="checkbox"/> Even				<input type="checkbox"/> Uneven				<input type="checkbox"/> Even				<input type="checkbox"/> Uneven				<input checked="" type="checkbox"/> Even			
Duration of Surface Water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	E	--	--	--
Moderate disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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

Evidence of Wildlife Use from 14C(i)	Wildlife Habitat Features Rating from 14C(ii)			
	<input checked="" type="checkbox"/> Exceptional	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
Substantial	--	--	--	--
Moderate	.9 (H)	--	--	--
Low	--	--	--	--

Comments: The surrounding upland and stream corridor is prime habitat for ungulates and migratory birds.

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

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

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

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

Duration of Surface Water in AA	<input checked="" type="checkbox"/> Permanent/Perennial			<input type="checkbox"/> Seasonal / Intermittent			<input type="checkbox"/> Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects (e.g. submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading - 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	M	--	--	--	--	--	--	--

ii. **Modified Habitat Quality:** Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity or is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support?

Y N If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: E H M L

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

Types of Fish Known or Suspected Within AA	Modified Habitat Quality from 14D(ii)			
	<input type="checkbox"/> Exceptional	<input type="checkbox"/> High	<input checked="" type="checkbox"/> Moderate	<input type="checkbox"/> Low
Native game fish	--	--	--	--
Introduced game fish	--	--	.6 (M)	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: _____

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

Applies only to wetlands subject to flooding via in-channel or overbank flow.

If wetlands in AA do not flooded from in-channel or overbank flow, check NA above.

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

Estimated wetland area in AA subject to periodic flooding	<input type="checkbox"/> ≥ 10 acres			<input type="checkbox"/> <10, >2 acres			<input checked="" type="checkbox"/> ≤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	--	--	--	--	--	--	--	--	.2 (L)
AA contains unrestricted outlet	--	--	--	--	--	--	--	--	--

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

Y N **Comments:** SHOULD have unrestricted outlet but culvert plugged.

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

Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow.

If no wetlands in the AA are subject to flooding or ponding, check NA above.

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

Abbreviations: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding.	<input type="checkbox"/> >5 acre feet			<input type="checkbox"/> <5, >1 acre feet			<input checked="" type="checkbox"/> ≤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	--	--	--	--	--	--	.4 (M)	--	--
Wetlands in AA flood or pond < 5 out of 10 years	--	--	--	--	--	--	--	--	--

Comments: _____

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

Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input.

If no wetlands in the AA are subject to such input, check NA above.

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

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	<input type="checkbox"/> ≥ 70%		<input checked="" type="checkbox"/> < 70%		<input type="checkbox"/> ≥ 70%		<input type="checkbox"/> < 70%	
% cover of wetland vegetation in AA	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Evidence of flooding or ponding in AA	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
AA contains no or restricted outlet	--	--	.7 (M)	--	--	--	--	--
AA contains unrestricted outlet	--	--	--	--	--	--	--	--

Comments: outlet plugged by debris and beaver dam

14H. SEDIMENT/Shoreline Stabilization NA (proceed to 14I)

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

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

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses.	Duration of Surface Water Adjacent to Rooted Vegetation		
	<input checked="" type="checkbox"/> Permanent / Perennial	<input type="checkbox"/> Seasonal / Intermittent	<input type="checkbox"/> Temporary / Ephemeral
≥ 65 %	--	--	--
35-64 %	--	--	--
< 35 %	.3 (L)	--	--

Comments:

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

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

A	<input type="checkbox"/> Vegetated component >5 acres				<input type="checkbox"/> Vegetated component 1-5 acres				<input checked="" type="checkbox"/> Vegetated component <1 acre			
B	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input checked="" type="checkbox"/> Low	
C	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N
P/P	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	--	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--

Comments:

14J. GROUNDWATER DISCHARGE/RECHARGE (D/R) (Check the indicators in i & ii below that apply to the AA)

i. **Discharge Indicators**

- Springs are known or observed.
- Vegetation growing during dormant season/drought.
- Wetland occurs at the toe of a natural slopes.
- 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 presents without underlying impeding layer.
- Wetland contains inlet but not outlet.
- Other

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

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

Comments:

14K. UNIQUENESS

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

Replacement Potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP.			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP.			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate.		
Estimated Relative Abundance from #11	<input type="checkbox"/> rare	<input type="checkbox"/> common	<input type="checkbox"/> abundant	<input type="checkbox"/> rare	<input type="checkbox"/> common	<input type="checkbox"/> abundant	<input type="checkbox"/> rare	<input checked="" type="checkbox"/> common	<input type="checkbox"/> abundant
Low disturbance at AA (#12i)	--	--	--	--	--	--	--	.4M	--
Moderate disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--

Comments:

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? Yes (Rate High (1.0), then proceed to 14L(ii) only] No [Proceed to 14L(iii)]

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

iii. Based on the location, diversity, size, and other site attributes, is there a strong potential for recreational or educational use?

- Yes [Proceed to 14L (ii) and then 14L(iv).]
- No [Rate as low in 14L(iv)]

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

Ownership	Disturbance at AA from #12(i)	
	<input type="checkbox"/> Low	<input type="checkbox"/> High
Public ownership	--	--
Private ownership	--	--

Comments: Tribal member informed me that this area is fished.

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0.00	1	
B. MT Natural Heritage Program Species Habitat	L	0.00	1	
C. General Wildlife Habitat	H	0.90	1	
D. General Fish/Aquatic Habitat	M	0.60	1	
E. Flood Attenuation	L	0.20	1	
F. Short and Long Term Surface Water Storage	M	0.40	1	
G. Sediment/Nutrient/Toxicant Removal	M	0.70	1	
H. Sediment/Shoreline Stabilization	L	0.30	1	
I. Production Export/Food Chain Support	M	0.4	1	
J. Groundwater Discharge/Recharge	H	1.00	1	
K. Uniqueness	M	0.4	1	
L. Recreation/Education Potential	H	1.00	1	
Totals:		5.90	12.00	3
Percent of Total Possible Points:			49% (Actual / Possible) x 100 [rd to nearest whole #]	

<p>Category I Wetland: (Must satisfy one of the following criteria. If not proceed to Category II.)</p> <p><input type="checkbox"/> Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or</p> <p><input type="checkbox"/> Score of 1 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Score of 1 functional point for Flood Attenuation and answer to Question 14E(ii) is "yes"; or</p> <p><input type="checkbox"/> Percent of total Possible Points is > 80%.</p>
<p>Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following Category II criteria. If not satisfied, proceed to Category IV.)</p> <p><input type="checkbox"/> Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or</p> <p><input checked="" type="checkbox"/> Score of .9 or 1 functional point for General Wildlife Habitat; or</p> <p><input type="checkbox"/> Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or</p> <p><input type="checkbox"/> "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish / Aquatic Habitat; or</p> <p><input type="checkbox"/> Score of .9 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Percent of total possible points is > 65%.</p>
<p><input type="checkbox"/> Category III Wetland: (Criteria for Categories I, II, or IV not satisfied.)</p>
<p>Category IV Wetland: (Criteria for Categories I or II are not satisfied and <u>all</u> of the following criteria are met; If not satisfied, proceed to Category III.)</p> <p><input type="checkbox"/> "Low" rating for Uniqueness; and</p> <p><input type="checkbox"/> "Low" rating for Production Export / Food Chain Support; and</p> <p><input type="checkbox"/> Percent of total possible points is < 30%.</p>

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

I
 II
 III
 IV

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

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

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

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

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	---	---	---	---	---	0 (L)

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

14B. HABITAT FOR PLANTS AND ANIMALS RATED AS S1, S2, OR S3 BY THE MONTANA NATURAL HERITAGE PROGRAM.

Do not include species listed in 14A(i).

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

- Primary or Critical habitat (list species) D S Rana pipiens??
- Secondary habitat (list species) D S _____
- Incidental habitat (list species) D S _____
- No usable habitat D S _____

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

Highest Habitat Level:	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	none
Functional Point and Rating	---	.8 (H)	---	---	---	---	---

If documented, list the source (e.g., observations, records, etc.): Observed dozens of frogs in the water and leaping off the bank; could not get a positive ID.

14C. General Wildlife Habitat Rating

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

Substantial (based on any of the following)

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

Low (based on any of the following)

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

Moderate (based on any of the following)

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

ii. **Wildlife Habitat Features** (Working from top to bottom, select appropriate AA attributes to determine the exceptional (E), high (H), moderate (M), or low (L) rating. Structural diversity is from #13. For class cover to be considered evenly distributed, vegetated classes must be within 20% of each other in terms of their percent composition in the AA (see #10). Duration of Surface Water: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; A= absent.

Structural Diversity (from #13)	<input type="checkbox"/> High				<input type="checkbox"/> Moderate				<input checked="" type="checkbox"/> Low											
	<input type="checkbox"/> Even		<input type="checkbox"/> Uneven		<input type="checkbox"/> Even		<input type="checkbox"/> Uneven		<input checked="" type="checkbox"/> Even											
Class Cover Distribution (all vegetated classes)																				
Duration of Surface Water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A				
Low disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	E	--	--	--
Moderate disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
High disturbance at AA (see #12)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

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

Evidence of Wildlife Use from 14C(i)	Wildlife Habitat Features Rating from 14C(ii)			
	<input checked="" type="checkbox"/> Exceptional	<input type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
Substantial	--	--	--	--
Moderate	.9 (H)	--	--	--
Low	--	--	--	--

Comments: The surrounding upland and stream corridor is prime habitat for ungulates and migratory birds.

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

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

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

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

Duration of Surface Water in AA	<input checked="" type="checkbox"/> Permanent/Perennial			<input type="checkbox"/> Seasonal / Intermittent			<input type="checkbox"/> Temporary / Ephemeral		
Cover - % of waterbody in AA containing cover objects (e.g. submerged logs, large rocks & boulders, overhanging banks, floating-leaved vegetation)	>25%	10-25%	<10%	>25%	10-25%	<10%	>25%	10-25%	<10%
Shading - >75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities	--	--	--	--	--	--	--	--	--
Shading - 50 to 75% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	--	--	--	--	--	--	--	--	--
Shading - < 50% of streambank or shoreline of AA contains riparian or wetland scrub-shrub or forested communities.	H	--	--	--	--	--	--	--	--

ii. **Modified Habitat Quality:** Is fish use of the AA precluded or significantly reduced by a culvert, dike, other man-made structure or activity or is the waterbody included on the 'MDEQ list of waterbodies in need of TMDL development' with 'Probable Impaired Uses' listed as cold or warm water fishery or aquatic life support?

Y N If yes, reduce the rating from 14D(i) by one level and check the modified habitat quality rating: E H M L

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

Types of Fish Known or Suspected Within AA	Modified Habitat Quality from 14D(ii)			
	<input type="checkbox"/> Exceptional	<input checked="" type="checkbox"/> High	<input type="checkbox"/> Moderate	<input type="checkbox"/> Low
Native game fish	--	--	--	--
Introduced game fish	--	.8 (H)	--	--
Non-game fish	--	--	--	--
No fish	--	--	--	--

Comments: _____

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

Applies only to wetlands subject to flooding via in-channel or overbank flow.

If wetlands in AA do not flooded from in-channel or overbank flow, check NA above.

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

Estimated wetland area in AA subject to periodic flooding	<input type="checkbox"/> ≥ 10 acres			<input type="checkbox"/> <10, >2 acres			<input checked="" type="checkbox"/> ≤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	--	--	--	--	--	--	--	--	--
AA contains unrestricted outlet	--	--	--	--	--	--	--	--	.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?** (check)

Y N Comments: _____

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

Applies to wetlands that flood or pond from overbank or in-channel flow, precipitation, upland surface flow, or groundwater flow.

If no wetlands in the AA are subject to flooding or ponding, check NA above.

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

Abbreviations: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral.

Estimated maximum acre feet of water contained in wetlands within the AA that are subject to periodic flooding or ponding.	<input type="checkbox"/> >5 acre feet			<input type="checkbox"/> <5, >1 acre feet			<input checked="" type="checkbox"/> ≤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	--	--	--	--	--	--	.4 (M)	--	--
Wetlands in AA flood or pond < 5 out of 10 years	--	--	--	--	--	--	--	--	--

Comments: _____

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

Applies to wetlands with potential to receive excess sediments, nutrients, or toxicants through influx of surface or ground water or direct input.

If no wetlands in the AA are subject to such input, check NA above.

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

Sediment, Nutrient, and Toxicant Input Levels Within AA	AA receives or surrounding land use has potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use has potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	<input type="checkbox"/> ≥ 70%		<input checked="" type="checkbox"/> < 70%		<input type="checkbox"/> ≥ 70%		<input type="checkbox"/> < 70%	
% cover of wetland vegetation in AA	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
Evidence of flooding or ponding in AA	<input type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Yes <input type="checkbox"/> No	
AA contains no or restricted outlet	--	--	--	--	--	--	--	--
AA contains unrestricted outlet	--	--	.6 (M)	--	--	--	--	--

Comments: _____

14H. SEDIMENT/Shoreline Stabilization NA (proceed to 14I)

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

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

% Cover of wetland streambank or shoreline by species with deep, binding rootmasses.	Duration of Surface Water Adjacent to Rooted Vegetation		
	<input checked="" type="checkbox"/> Permanent / Perennial	<input type="checkbox"/> Seasonal / Intermittent	<input type="checkbox"/> Temporary / Ephemeral
≥ 65 %	1 (H)	--	--
35-64 %	--	--	--
< 35 %	--	--	--

Comments:

14I. PRODUCTION EXPORT / FOOD CHAIN SUPPORT

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

A	<input type="checkbox"/> Vegetated component >5 acres				<input type="checkbox"/> Vegetated component 1-5 acres				<input checked="" type="checkbox"/> Vegetated component <1 acre			
B	<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input type="checkbox"/> Low		<input type="checkbox"/> High		<input type="checkbox"/> Moderate		<input checked="" type="checkbox"/> Low	
C	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> Y	<input type="checkbox"/> N
P/P	--	--	--	--	--	--	--	--	--	--	--	--
S/I	--	--	--	--	--	--	--	--	--	--	--	--
T/E/A	--	--	--	--	--	--	--	--	--	--	--	--

Comments:

14J. GROUNDWATER DISCHARGE/RECHARGE (D/R) (Check the indicators in i & ii below that apply to the AA)

i. **Discharge Indicators**

- Springs are known or observed.
- Vegetation growing during dormant season/drought.
- Wetland occurs at the toe of a natural slopes.
- 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 presents without underlying impeding layer.
- Wetland contains inlet but not outlet.
- Other

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

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

Comments: Seep noted upslope of WL and drains into pond..

14K. UNIQUENESS

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

Replacement Potential	AA contains fen, bog, warm springs or mature (>80 yr-old) forested wetland or plant association listed as "S1" by the MTNHP.			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MTNHP.			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate.		
	<input type="checkbox"/> rare	<input type="checkbox"/> common	<input type="checkbox"/> abundant	<input type="checkbox"/> rare	<input type="checkbox"/> common	<input type="checkbox"/> abundant	<input type="checkbox"/> rare	<input checked="" type="checkbox"/> common	<input type="checkbox"/> abundant
Estimated Relative Abundance from #11	--	--	--	--	--	--	--	.4M	--
Low disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--
Moderate disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--
High disturbance at AA (#12i)	--	--	--	--	--	--	--	--	--

Comments:

14L. RECREATION / EDUCATION POTENTIAL

i. Is the AA a known recreational or educational site? Yes (Rate High (1.0), then proceed to 14L(ii) only] No [Proceed to 14L(iii)]

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

iii. Based on the location, diversity, size, and other site attributes, is there a strong potential for recreational or educational use?

- Yes [Proceed to 14L (ii) and then 14L(iv).]
- No [Rate as low in 14L(iv)]

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

Ownership	Disturbance at AA from #12(i)	
	<input type="checkbox"/> Low	<input type="checkbox"/> High
Public ownership	--	--
Private ownership	--	--

Comments: Tribal member informed me that this area is fished.

FUNCTION, VALUE SUMMARY, AND OVERALL RATING

Function and Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0.00	1	
B. MT Natural Heritage Program Species Habitat	H	0.80	1	
C. General Wildlife Habitat	H	0.90	1	
D. General Fish/Aquatic Habitat	H	0.80	1	
E. Flood Attenuation	L	0.10	1	
F. Short and Long Term Surface Water Storage	M	0.40	1	
G. Sediment/Nutrient/Toxicant Removal	M	0.60	1	
H. Sediment/Shoreline Stabilization	H	1.00	1	
I. Production Export/Food Chain Support	M	0.40	1	
J. Groundwater Discharge/Recharge	H	1.00	--	
K. Uniqueness	M	0.40	1	
L. Recreation/Education Potential	H	1.00	1	
Totals:		7.40	12.00	
Percent of Total Possible Points:			62% (Actual / Possible) x 100 [rd to nearest whole #]	

<p>Category I Wetland: (Must satisfy one of the following criteria. If not proceed to Category II.)</p> <p><input type="checkbox"/> Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; or</p> <p><input type="checkbox"/> Score of 1 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Score of 1 functional point for Flood Attenuation and answer to Question 14E(ii) is "yes"; or</p> <p><input type="checkbox"/> Percent of total Possible Points is > 80%.</p>
<p>Category II Wetland: (Criteria for Category I not satisfied and meets any one of the following Category II criteria. If not satisfied, proceed to Category IV.)</p> <p><input type="checkbox"/> Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; or</p> <p><input checked="" type="checkbox"/> Score of .9 or 1 functional point for General Wildlife Habitat; or</p> <p><input type="checkbox"/> Score of .9 or 1 functional point for General Fish/Aquatic Habitat; or</p> <p><input type="checkbox"/> "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish / Aquatic Habitat; or</p> <p><input type="checkbox"/> Score of .9 functional point for Uniqueness; or</p> <p><input type="checkbox"/> Percent of total possible points is > 65%.</p>
<p><input type="checkbox"/> Category III Wetland: (Criteria for Categories I, II, or IV not satisfied.)</p>
<p>Category IV Wetland: (Criteria for Categories I or II are not satisfied and <u>all</u> of the following criteria are met; If not satisfied, proceed to Category III.)</p> <p><input type="checkbox"/> "Low" rating for Uniqueness; and</p> <p><input type="checkbox"/> "Low" rating for Production Export / Food Chain Support; and</p> <p><input type="checkbox"/> Percent of total possible points is < 30%.</p>

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

I
 II
 III
 IV

Highway 212 Wetlands PHOTOGRAPH LOG

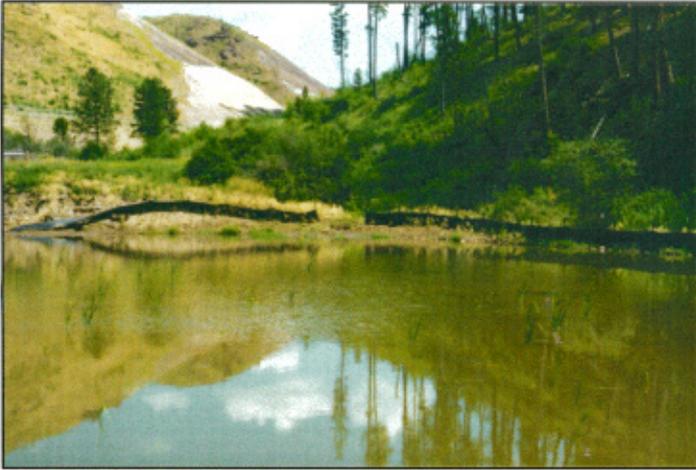


Wetland #	Photo Location	Roll/ Frame #	Photograph Description	Compass Reading
369 ¹	A	4A	wetland view toward inflow area	78
369	B	5A	wetland view toward road	16
369	C	6A	wetland view toward outflow from below road edge	124
369	D	7A	wetland view toward upstream drainage	110
369	E	9A	west side of wetland	268
369	F	8A	erosion issues below road edge	~110
380	A	5	inlet	86
380	B	6	intermittent drainage from east	48
380	C	7	inlet	10
380	D	8	outflow (left side in photo)	314
380	E	9	from east drainage to road and outlet-side of wetland	152

¹ The wetland number refers to the station number on the plan map (wetland 380 is higher in elevation and a greater distance from Lane Deer than 369 along Hwy. 212).

COMMENTS/PROBLEMS: Note erosion problems in Wetland 369. _____

(Also, across the road from W-380, sediment entering mountain (?) beaver pond from steep road embankment.)



Location: A Photo Frame: 4A Description: Wetland view toward inflow area **Compass Reading: 78°**



Location: B Photo Frame: 5A Description: Wetland view toward road **Compass Reading: 16°**



Location: C Photo Frame: 6A Description: Wetland view toward outflow from below road edge **Compass Reading: 124°**



Location: D Photo Frame: 7A Description: Wetland view toward upstream drainage **Compass Reading: 110°**

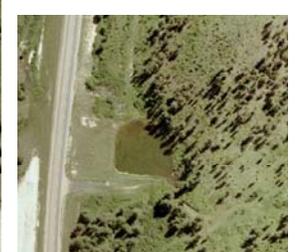


Location: E Photo Frame: 9A Description: West side of wetland **Compass Reading: 268°**



Location: F Photo Frame: 8A Description: Erosion issues below road edge **Compass Reading: ~110**

FS160 1/ 180 f/5.6 FF4.0 EC 0 SIN Alt13.2 27.8W -57.0b FR00 DAMS16.9



Lame Deer W-369 2004

627-77

3 139

WILD 15/4 UAG-S No.10229 152.94



**Location: A Photo Frame: 5 Description: Inlet
Compass Reading: 86°**



**Location: B Photo Frame: 6 Description:
Intermittent drainage from east Compass Reading: 48°**



**Location: C Photo Frame: 7 Description: Inlet
Compass Reading: 10°**



**Location: D Photo Frame: 8 Description: Outflow
(left side in photo) Compass Reading: 314°**



**Location: E Photo Frame: 9 Description: From east
drainage to road and outlet-side of wetland Compass
Reading: 152°**

F3160 1/ 200 f/5.6 FF4.0 EC 0 SIN 4013.5 27.8V -57mb FROM CAM5169



Lame Deer W-380 2004

627-78

3190

WILD 15/A UAG-S
No.13229 152.94