MONTANA DEPARTMENT OF TRANSPORTATION WETLAND MITIGATION MONITORING REPORT: YEAR 2001

Vince Ames
Red Lodge, Montana

Prepared for:

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

Prepared by:

WETLANDS WEST INC.
P.O. Box 6786
Bozeman, MT 59771

Compiled and Edited by:

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

July 2002

Project No: 130091.033

LAND & WATER

MONTANA DEPARTMENT OF TRANSPORTATION

WETLAND MITIGATION MONITORING REPORT:

YEAR 2001

Vince Ames
Red Lodge, Montana

Prepared for:

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

Prepared by:

WETLANDS WEST INC.
P.O. Box 6786
Bozeman, MT 59771

Compiled and Edited by:

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

July 2002

Project No: 130091.033

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

This report summarizes methods and results from the monitoring program (2001) at the Montana Department of Transportation's (MDT) Vince Ames mitigation site. The site is located in Carbon County 15 miles north of Red Lodge in Section 18, Township 6 South, Range 20 East **(Figure 1)**. Elevation at the site is approximately 2,206 feet above sea level. This wetland was developed to mitigate wetland impacts associated with MDT roadway projects that have been constructed or will be constructed in watershed #13 located in the MDT Billings district.

Construction of the site's first three ponds occurred in 1992 **(Figure 3)**. An additional pond was constructed in 1994. Data from the MDT (1994) indicate that construction of Pond 4 impacted a wet meadow (0.68 ac) and an historic stream channel (1.71 ac). Total wetland impacts for Pond 4 were therefore estimated at 2.39 acres.

The four ponds were anticipated to yield a total of 9.8 acres of wetland. All ponds were constructed with low dikes built to flood old meander channels of East Red Lodge Creek, creating open water 0-12 feet deep with interspersed islands for waterfowl habitat.

The site was designed to mitigate for specific wetland functions impacted by MDT roadway projects. These functions include: storm water retention, roadway runoff filtration, sediment and nutrient retention, water quality, groundwater recharge, waterfowl and wildlife habitats, and riparian restoration.

2.0 METHODS

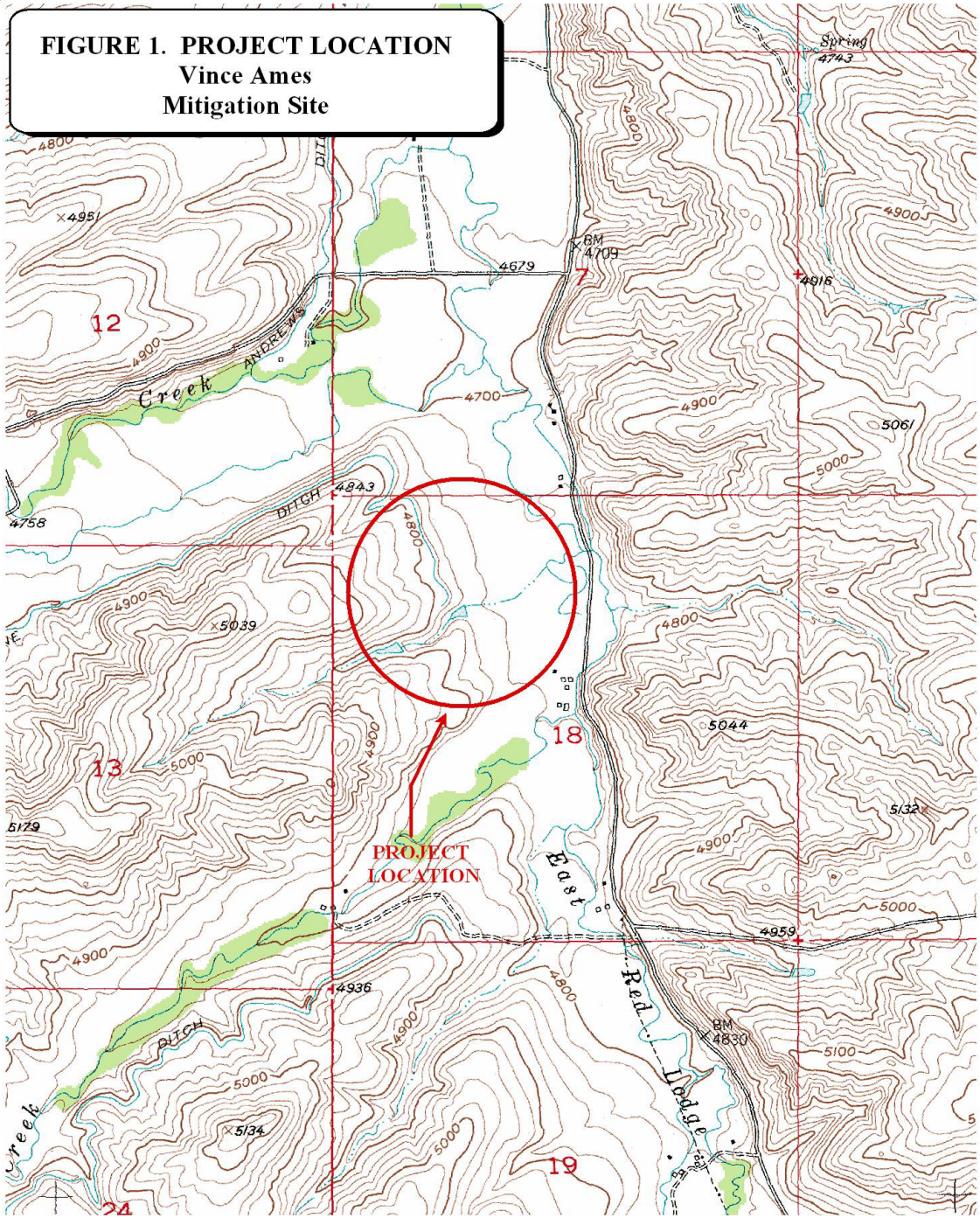
2.1 Monitoring Dates and Activities

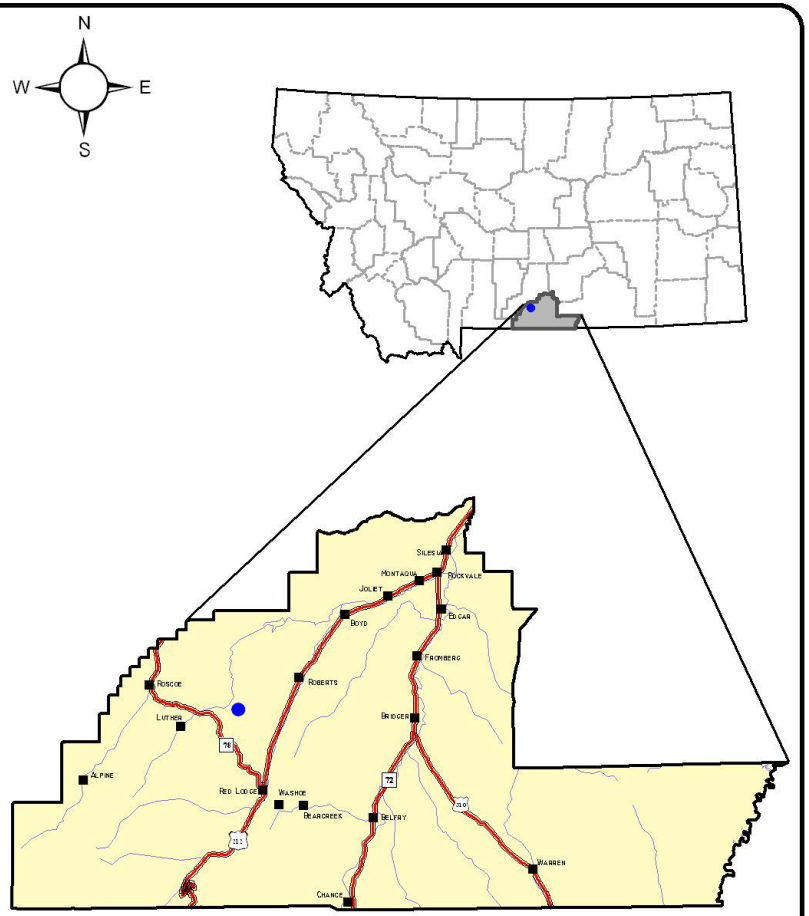
The site was visited by Wetlands West, Inc. personnel twice in 2001 (April 29th and August 7$^{th)}$ to assess compliance with the US Army Corps of Engineers (COE), and other agencies', Section 404 compliance requirements. The first visit was devoted to a spring bird survey. The complete monitoring protocol was conducted during the second visit in August. All information contained within the Wetland Mitigation Site Monitoring Form **(Appendix B)** was collected at this time. Activities and information conducted/collected included: wetland delineation; wetland/open water boundary mapping; vegetation community mapping; vegetation transects; soils data; hydrology data; bird and general wildlife use; photograph points; GPS data points; functional assessment; and, assess maintenance needs of any bird nesting structures and inflow and outflow structures.

2.2 Hydrology

Wetland hydrology indicators were recorded using procedures outlined in the COE 1987 Wetland Delineation Manual. Hydrology data were recorded on the Routine Wetland Delineation Data Forms **(Appendix B)**. The boundary between emergent vegetation and open water was mapped on the aerial photograph as shown in **Figure 3**. The groundwater elevation wells noted in 1994 were not located in 2001.

FIGURE 1. PROJECT LOCATION
Vince Ames
Mitigation Site





800 0 800 1600 FEET

1: 24,000

PROJECT #: 130091.033
DATE: APRIL 2001
LOCATION:
PROJECT MANAGER: B. DUTTON
DRAWN BY: B. NOECKER

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

2.3 Vegetation

General vegetation types were delineated on an air photograph during the site visit (**Figure 3)**. Coverage of the dominant species in each community type is listed on the monitoring form **(Appendix B)**. Although foxtail (FACW) and reed canary grass (FACW) could be found in some of the areas adjacent to the willow communities, the sites lacked hydric soil indicators for a positive wetland determination. The presence of smooth brome with the foxtail was evidence of the lack of significant hydrology. A comprehensive plant species list for the entire site was compiled.

Two transects were established during the 2001 monitoring event to represent the range of current vegetation conditions. Transect locations are shown on **Figure 2**. Percent covers for each species was recorded on the vegetation transect form within the monitoring form **(Appendix B)**. Transect ends were marked with metal fence posts and their locations recorded with the GPS unit. Photos of the transects were taken from both ends during the site visit.

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)**. The most current terminology used by NRCS was used to describe hydric soils.

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: Northwest Region 9 (Reed 1988). The information was recorded on the COE Routine Wetland Delineation Forms **(Appendix B)**. The wetland/upland and open water boundaries were used to calculate the wetland area. A wetland delineation and functional assessment completed in 1994 prior to construction of Pond #4 is included in **Appendix C** (MDT 1994).

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.

2.7 Birds

Bird observations were recorded during the site visits according to the established bird survey protocol **(Appendix D).** A general, qualitative bird list has been compiled using these observations.

2.8 Macroinvertebrates

One composite macroinvertebrate sample was collected during the mid-season site visit following the 2001 protocol **(Appendix D)**. The sample was preserved and sent to a laboratory for analysis. The sampling location is indicated on **Figure 2**.

2.9 Functional Assessment

A functional assessment form was completed for the mitigation site using the 1999 MDT Montana Wetland Assessment Method. Field data necessary for this assessment were collected and are included in the mitigation site monitoring form **(Appendix B)**. The remainder of the assessment was completed in the office. Pre-construction functional assessments completed in 1994, prior to pond construction, are included in **Appendix C** (MDT 1994).

2.10 Photographs

Photographs were taken showing the current land use surrounding the site, the wetland buffer, the monitored area, and the vegetation transect. A description and compass direction for each photograph were recorded on the wetland monitoring form.

During the 2001 monitoring season, each photo point was marked on the ground with a wooden stake and the location recorded with a resource grade GPS **(Appendix E)**. The approximate locations are shown on **Figure 2, Appendix A**. All photographs were taken using a 50 mm lens.

2.11 GPS Data

During the 2001 monitoring season survey points were collected using a resource grade Trimble, Geoexplorer III hand-held GPS unit. Points collected included: the vegetation transect beginning and ending locations; photograph locations; and the jurisdictional wetland boundary. In addition, during the August 2001 monitoring season, survey points were collected at four (4) landmarks recognizable on the air photo for purposes of line fitting to the topography.

2.12 Maintenance Needs

The condition of inflow and outflow structures, habitat enhancement structures or other mitigation related structures were evaluated. No maintenance needs were noted.

3.0 RESULTS

3.1 Hydrology

The hydrologic source for the Vince Ames ponds is primarily Red Lodge Creek and intercepted groundwater. The four ponds on site yield a total of 7.427 acres of open water. The ponds were constructed within historic meander channels of East Red Lodge Creek; depths range from 0 to

12 feet deep. Outlet structures with a supporting concrete pad were constructed on each pond (MDT 1992). Each of the ponds has islands for waterfowl habitat.

On the August 7, 2001 visit approximately 65% of the assessment area was inundated with 0-12 feet of standing water. The exact depth of the ponds was not measured; however, a local resident stated that he cannot touch the bottom of the ponds with a canoe paddle. All inflow and outflow structures were functioning satisfactorily. No groundwater wells were located, although historic data indicate that some were initially installed.

According to the Western Regional Climate Center, Red Lodge yearly precipitation totals for 2000 (15.4 inches) and 2001 (13.2 inches) were 71 and 61 percent, respectively, of the total annual mean precipitation (21.7 inches) in this area.

3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and in the monitoring form **(Appendix B)**. Two (2) dominant vegetation communities were mapped on the mitigation area map (**Figure 3, Appendix A**). The communities include: Type 1: *Alopecurus pratensis/Bromus inermis* and, Type 2: *Salix spp./Agrostis alba*. Dominant species within each community are listed on the monitoring form **(Appendix B)**. Islands within the deeper open water areas of the ponds are dominated by reed canarygrass, a component of both vegetation community types. Areas along the connecting waterway and the larger islands are primarily dominated by willow.

Table 1: ***2001 Vince Ames Vegetation Species List***

Scientific Name	Common Name	Indicator Status
Agrostis alba	redtop	FACW
Alopecurus pratensis	Meadow foxtail	FACW
Bromus inermis	smooth brome	NI
Carex utriculata	beaked sedge	OBL
Cirsium arvense	Canada thistle	FACU+
Dactylis glomerata	orchard grass	FACU
Glyceria spp.	manna grass	OBL
Lotus corniculatus	bird's foot trefoil	FAC
Myriophyllum spicatum	water milfoil	OBL
Phalaris arundinacea	reed canary grass	FACW
Phleum pratense	timothy grass	FAC-
Polygonum amphibium.	Water smartweed	OBL
Salix spp.	willow	FACW-OBL
Scirpus spp.	bulrush	OBL
Typha latifolia.	cattail	OBL
Veronica spp.	speedwell	OBL

The vegetation transect results are detailed in the monitoring form **(Appendix B)** and are summarized below. The vegetation transects will be used to evaluate changes over time, if and when the MDT chooses to revisit the site (2001 is the last planned monitoring year for this site during this study). The establishment and increase of hydrophytic vegetation composition will

remain stable unless there is a significant change in water levels or the banks of the ponds are sloped back to create flood plain areas.

Transect 1 Start	Type 1 (11')	Type 2 (3')	Total 14'			End Transect 1
Transect 2 Start	Type 2 (15')	Type 2 (20')		Type 2 (6')	Total 41'	End Transect 1

3.3 Soils

Soils were evaluated during the August 7, 2001 visit according to the procedures outlined in the COE 1987 Wetland Delineation Manual. Soil data were recorded for each wetland determination point on the COE Routine Wetland Delineation Data Form. The most current terminology used by NRCS was used to describe hydric soils (USDA 1998).

The site was mapped as part of the Carbon County Soil Survey (USDA unpublished). The dominant soil on the site is the Red Lodge-Adel Silty Clay Loam. In a representative profile, the surface layer is very dark grayish-brown and very dark gray silty clay loam and clay about 16 inches thick (USDA unpublished). Red Lodge-Adel soils are not listed on the Montana NRCS Hydric Soil list.

Soils at the site were sampled at one upland (SP-1) and one wetland location (SP-2). Soils at SP-1 were black (10YR2/1) very fine silty loam from 0-6 inches, and very dark gray (10YR 3/1) sandy loam from 6-18 inches. Soils at SP-2 were dark gray (2.5Y3/1) gravelly loams from 0-18 inches with strong brown (7.5YR4/6) mottles from 0-5 inches.

3.4 Wetland Delineation

The delineated wetland boundary is depicted on **Figure 3, Appendix A**. The gross aquatic area boundary encompasses 15.236 acres with approximately 7.427 acres of that being open-water habitat. Approximately 0.642 acre of wetland "islands" occur within the open water habitat, which brings the actual wetland acreage total to 8.451 acres and the associated actual open water total to 6.785 acres. The COE data forms are included in **Appendix B**.

3.5 Wildlife

Wildlife species are listed in **Table 2.** Activities and densities associated with the observations area included on the monitoring form in **Appendix B**. Wildlife observations included one sighting of a whitetail deer and observations of raccoon tracks. The ponds and vegetation provide excellent habitat for breeding ducks and geese, blackbirds, and Neotropical migrants (i.e. common yellowthroats). Foraging for swallows is also optimal.

3.6 Macroinvertebrates

One macroinvertebrate sample was collected from each impoundment and was composited during the August 7, 2001 site visit. The samples were stored in 90% ethanol and shipped to Rhithron, Inc. for analysis. Results from this analysis are included below and in **Table 4**.

The results of the analysis suggests optimal biotic condition in the Vince Ames complex of ponds (Rhithron, Inc.). Taxa richness was very high; varied habitats were readily available. The biotic index value suggests unimpaired water quality.

Table 2. ***Fish and Wildlife Species Observed at the Vince Ames Wetland Mitigation Site During 2001***

BIRDS	Eastern Kingbird (*Tyrannus tyrannus)*
	Fly Catcher (*Empidonax traillii)*
American Coot (*Fulica americana)*	Gray Catbird (*Dumetella carolinensis)*
American Robin (*Turdus migratorius)*	Greater Yellow Legs (*Tringa melanoleuca)*
Barn Swallows (*Hirundo rustica)*	Mallard (*Anas platyrhynchos)*
Black-capped Chickadee (*Poecile atricapillus)*	Marsh Wren (*Cistothorus palustris)*
	Raven (*Corvus corax)*
Canada Goose (*Branta canadensis)*	Red-wing blackbird (*Agelaius phoeniceus)*
Common Merganser (*Mergus merganser)*	Sandhill Cranes (*Grus Canadensis)*
Common Snipe (*Gallinago gallinago)*	Tree swallow (*Tachycineta bicolor)*
Common Yellowthroat (*Geothlypis trichas)*	Wood duck *(Aix sponsa)*
MAMMALS	
White-tailed deer (*Odocoileus virginianus)*	
Raccoon (*Procyon lotor)*	

3.7 Functional Assessment

Completed functional assessment form(s) from 2001 are included in **Appendix B** and summarized in **Table 3.** The functional assessments conducted in 1994 (**Appendix C)** by the MDT indicate that the wetlands impacted by construction of Pond #4 were rated as III (marsh) and IV (channel) wetlands.

The functional assessment completed for 2001 for the site collectively rated the site as a category III wetland with a 64% Possible Score Achieved, very close to a Category II wetland which requires a score of 65%. Increasing the structural diversity by planting trees would place the wetland in a Category II rating. The site collectively scored high for: general wildlife habitat; short and long-term surface water storage; sediment, nutrient, toxicant removal; production export/food chain support; and groundwater discharge/recharge. The functional unit total is impressive at 117.

3.8 Photographs

Representative photos taken from photo points and transect ends are included in **Appendix E.**

3.9 Maintenance Needs/Recommendations

All dikes, inlet and outlet structures were functioning satisfactorily. No maintenance needs were apparent at the site.

Table 3: ***Summary of 2001 Wetland Function/Value Ratings and Functional Points at the Vince Ames Wetland Mitigation Project***

Function and Value Parameters From the 1994 MDT Montana Wetland Assessment Method: Pond 4 Area	Wet Mdws 4A 1994	Pond 4 Stream Channel 1994	All Ponds 2001
Listed/Proposed T&E Species Habitat	None (0)	None (0)	Low (0)
MNHP Species Habitat	None (0)	None (0)	Low (0)
General Wildlife Habitat	High (5)	High (5)	High (.7)
General Fish/Aquatic Habitat	High (5)	High (5)	Mod (.6)
Flood Attenuation (Flood Control & Storage)[1]	Mod (3)	Low (1)	Mod (.6)
Short and Long Term Surface Water Storage (Flood Control & Storage)[1]	Mod (3)	Low (1)	High (1)
Sediment, Nutrient, Toxicant Removal (Sediment Filtration)[1]	Low (1)	Mod (3)	High (.9)
Sediment/Shoreline Stabilization (Erosion Control)[1]	None (0)	None (0)	High (1)
Production Export/Food Chain Support	Mod (3)	Low (1)	High (.9)
Groundwater Discharge/Recharge	High (5)	High (5)	High (1)
Uniqueness	Low (1)	Low (1)	Low (.3)
Recreation/Education Potential	Low (1)	Low (1)	Mod. (.7)
Actual Points/Possible Points	28/105	23/105	7.7/12
% of Possible Score Achieved	27%	19%	64%
Overall Category	III	IV	III
Total Acreage of Assessed Wetlands within Easement	0.68 ac	1.71 ac	15.236 ac
Functional Units (acreage x actual points)	NA[2]	NA[2]	117.32 fu
Net Acreage Gain	Unknown (Pond 4)	Unknown (Pond 4)	12.846 (All Ponds)
Net Functional Unit Gain	Unknown	Unknown	Unknown
Total Functional Unit "Gain"	Unknown	Unknown	Unknown

[1] Category titles vary on the FA forms slightly between 1994 and 2001; changes are shown in parenthesis.

[2] Due to form differences it is not possible to use the FU (acres x actual points) formula to calculate the 1994 FUs. In addition, pre-construction data exists only for Pond #4, not Ponds 1-3. The results would not be directly comparable.

3.10 Current Credit Summary

Construction of the site's first three ponds occurred in 1992 **(Figure 3)**. An additional pond was constructed in 1994. All ponds were constructed with low dikes built to flood old meander channels of East Red Lodge Creek, creating open water 0-12 feet deep with interspersed islands for waterfowl habitat. Data from the MDT (1994) indicate that construction of Pond 4 impacted a wet meadow (0.68 ac) and an historic stream channel (1.71 ac). Total wetland impacts for Pond 4 were therefore estimated at 2.39 acres.

The four ponds were anticipated to yield a total of 9.8 acres of wetland. The 2001 gross aquatic area boundary encompasses 15.236 acres with approximately 7.427 acres of that being open-water habitat. Approximately 0.642 acre of wetland "islands" occur within the open water habitat, which brings the actual wetland acreage total to 8.451 acres and the associated actual open water total to 6.785 acres.

Subtracting 2.39 acres of wetland to account for Pond 4 construction impacts leaves a net gain of 12.846 gross aquatic acres, comprised of 6.061 wetland acres and 6.785 open water acres.

The site was designed to mitigate for specific wetland functions impacted by MDT roadway projects. These functions include: storm water retention, roadway runoff filtration, sediment and nutrient retention, water quality, groundwater recharge, waterfowl and wildlife habitats, and riparian restoration. All of these functions have been met per the 2001 evaluation data summarized in **Table 3** and included as **Appendix C**.

Due to form differences between 1994 and 2001, it is not possible to use the FU (acres x actual points) formula to calculate the 1994 FUs. In addition, pre-construction data exists only for Pond #4, not Ponds 1-3. The results would not be directly comparable. The entire pond complex was evaluated in 2001 and scored an impressive total of 117 functional units **(Table 3 and Appendix C)**. The site scored highest in sediment/shoreline stabilization, general wildlife habitat, short and long-term surface water storage, production export/food chain support, and groundwater discharge/recharge.

This site is well vegetated and stable providing good wildlife habitat. It is not anticipated that changes will occur without interference from man or nature. It is a one-time monitoring site that has met the impacted wetland functions for mitigation as well as surpassing the goals for acres.

4.0 REFERENCES

Berglund, J. 1999. *MDT Montana Wetland Assessment Method*. Prepared for Montana Department of Transportation. May 1999.

Reed, P.B. 1988. National list of plant species that occur in wetlands: North West (Region 9). Biological Report 88(26.9), May 1988. U.S. Fish and Wildlife Service. Washington, D.C.

US Army Corps of Engineers. 1987. *Corps of Engineers Wetlands Delineation Manual.* US Army Corps. Washington, DC.

USDA Natural Resource Conservation Service. Soil Survey of Carbon County, Montana.

MDT. 1994. MDT Wetland Findings (Pond 4): Vince Ames Mitigation Project for Absarokee.

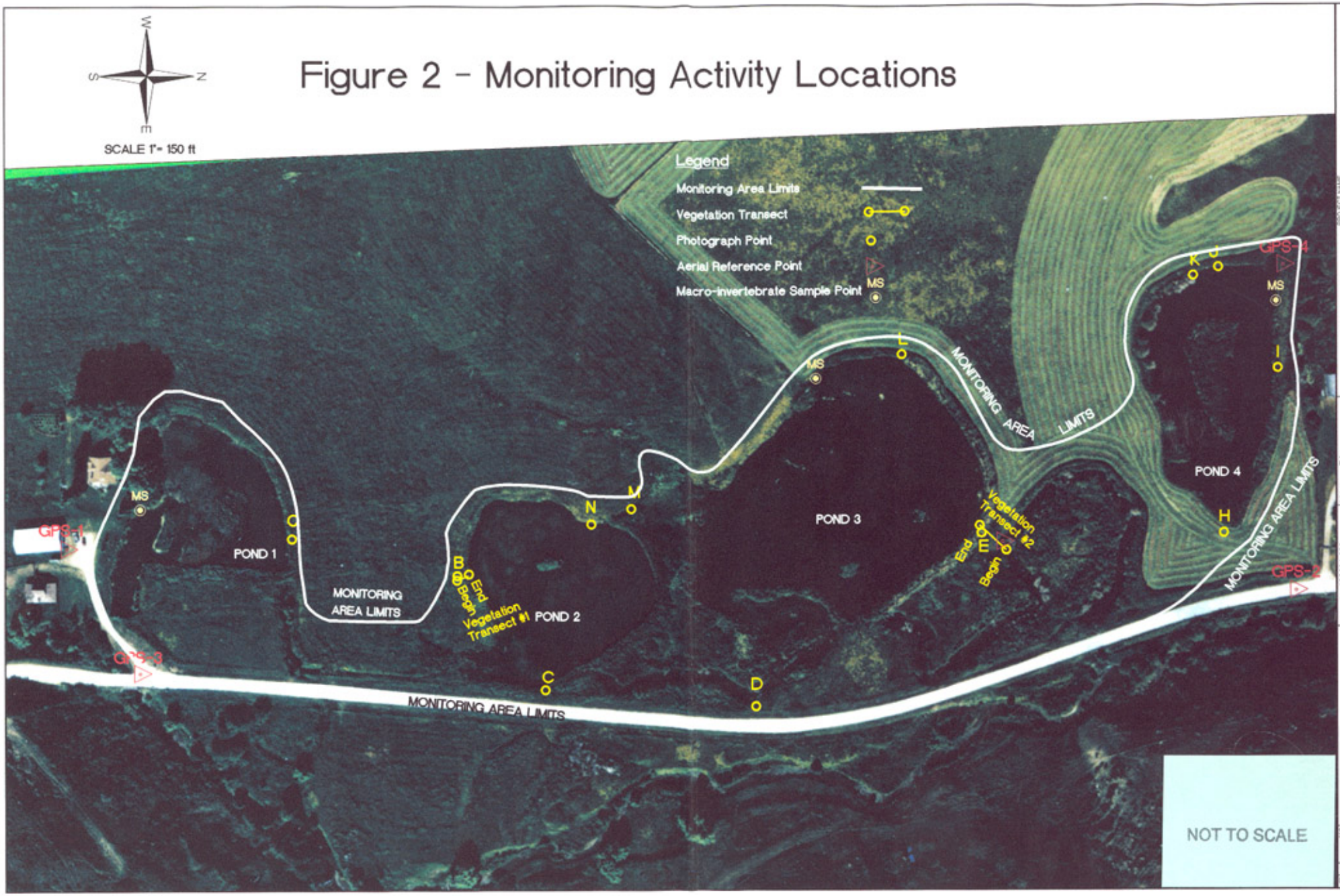
Appendix A

FIGURES 2 - 3

MDT Wetland Mitigation Monitoring
Vince Ames
Red Lodge, Montana

LAND & WATER

Figure 2 - Monitoring Activity Locations



PROJECT NAME: MDT Vince Ames Wetland Mitigation
DRAWING TITLE: Monitoring Activity Locations

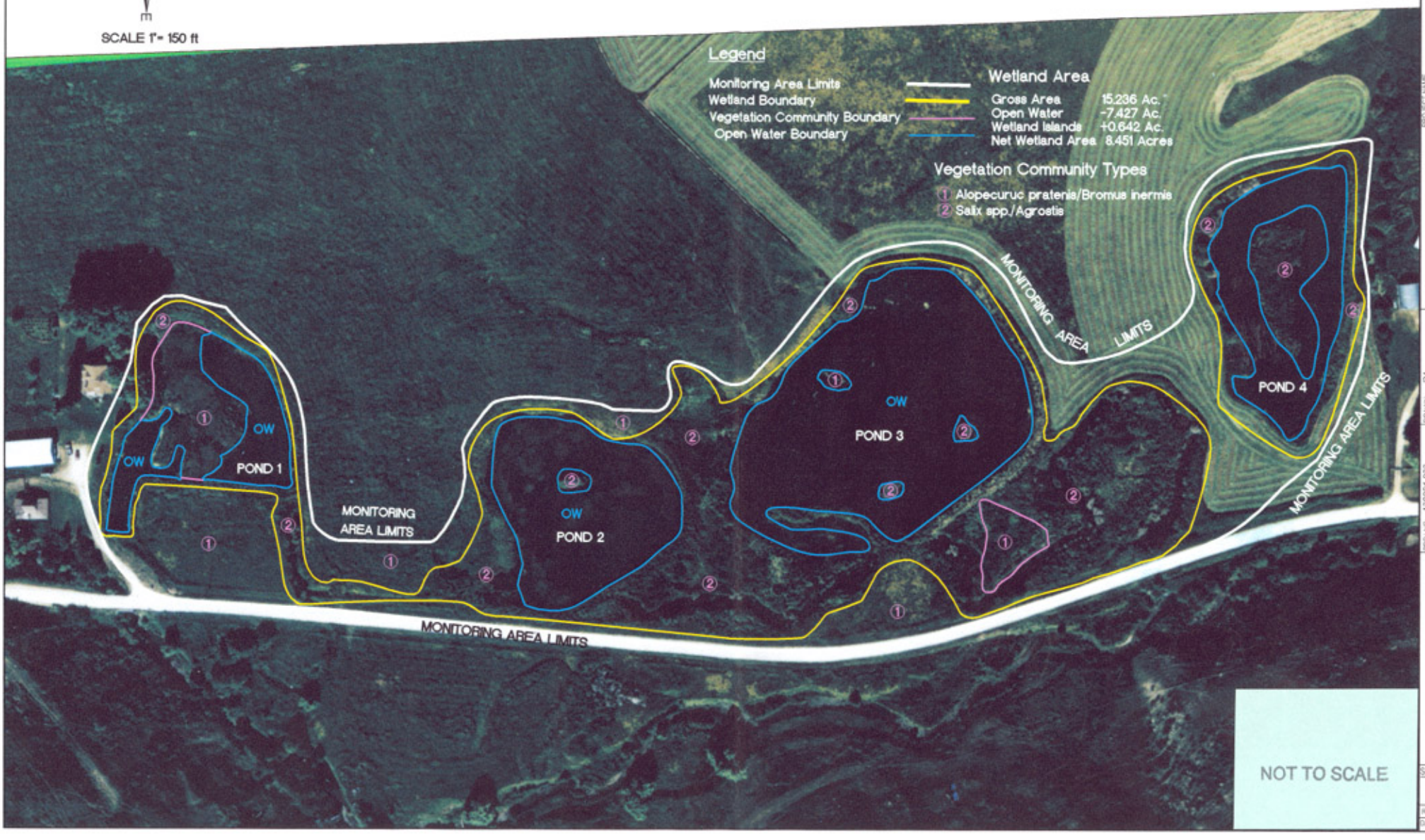
PROJ NO: 130091.033
FILE NAME: 7ASK33BASE.dwg
SCALE: 1"= 150 ft
LOCATION: Vince Ames

DRAWN: RA
CHECKED:
APVD: BD
PROJ MGR: BD

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

SHEET NUMBER: 2
REV:
DATE:

Figure 3 - Mapped Site Features



MDT Vince Ames Wetland Mitigation

Mapped Site Features

PROJECT NAME

DRAWING TITLE

PROJ. NO 130091.033 | DRAWN RA

FILE NAME TASK33BASE.DWG | CHECKED BD

SCALE 1"= 150 ft | APPVD BD

LOCATION Vince Ames | PROJ MGR BD

LAND & WATER CONSULTING, INC.

SHEET NUMBER 3

REV -

DATE

Appendix B

COMPLETED 2001 WETLAND MITIGATION SITE MONITORING FORM
COMPLETED 2001 BIRD SURVEY FORMS
COMPLETED 2001 WETLAND DELINEATION FORMS
COMPLETED 2001 FIELD AND FUNCTIONAL ASSESSMENT FORMS
COMPLETED 2001 MACROINVERTEBRATE SAMPLING RESULTS

MDT Wetland Mitigation Monitoring
Vince Ames
Red Lodge, Montana

LAND & WATER

DRAFT - MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Pine Acres Project Number: 19 Assessment Date: 3/17/01
Location: Red Lodge MDT District: _____ Milepost: _____
Legal description: T___ R___ Section___ Time of Day: 6 [illegible] - 1100
Weather Conditions: [illegible] Person(s) conducting the assessment: VB / RL - WWI
Initial Evaluation Date: 1/17 Visit #: 2 Monitoring Year: 01
Size of evaluation area: _____ acres Land use surrounding wetland: cropland

HYDROLOGY

Surface Water

Inundation: Present ✓ Absent___ Average depths: 6-10 ft Range of depths: 0 - 12 ft
Assessment area under inundation: 65%
Depth at emergent vegetation-open water boundary: 0.5ft
If assessment area is not inundated are the soils saturated w/in 12" of surface: Yes___ No___
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): _____

Groundwater

Monitoring wells: Present_____ Absent ✓
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: _____

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Vince Ames Date: 8/7/01 Examiner: B/WWI Transect # 1 (East side)

Approx. transect length: 15' Compass Direction from Start (Upland): 320° N

Vegetation type 1:	Type 1	
Length of transect in this type:	10.5'	feet
Species:		Cover:
orchard grass (Dactylis glomerata)		15
Smooth Brome (Bromus inermis)		30
Red top (agrostis alba)		50
reed canary grass (Phalaris arundinacea)		15
Total Vegetative Cover:		100%

Vegetation type 2:	Type 2	
Length of transect in this type:	4.5'	feet
Species:		Cover:
Beaked Sedge (C. utriculata)		90
red top (agrostis alba)		10
Total Vegetative Cover:		100 %

Vegetation type 3:		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

Vegetation type 4:		
Length of transect in this type:		feet
Species:		Cover:
Total Vegetative Cover:		

VEGETATION COMMUNITIES

LAND & WATER *B-3*

Community No.: 1 Community Title (main species): Alopecurus / B[illegible] pratensis

Dominant Species	% Cover	Dominant Species	% Cover
Bromus inermis	30	Lotus corniculatus	trace
alopecurus pratensis	50		
Phalaris arundinaceae	10		
Dactylus glomerata	10		
Circium arvense	10		

COMMENTS/PROBLEMS:

Community No.: 2 Community Title (main species): Salix spp / Agrostis alba

Dominant Species	% Cover	Dominant Species	% Cover
C. utriculata	10	Salix spp	30
agrostis alba	20	Phalaris arundinaceae	20
Scirpus spp.	negligible		
Typha latifolia	15		
Glyceria spp.	5		

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

\\Ina\Bevanan Projects\Admin Forms\LW Wetland Monitoring Form.doc

MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Vince Ames Date: 9/7/01 Examiner: VB/unit Transect # 2 West

Approx. transect length: 54' Compass Direction from Start (Upland): 200°S

Vegetation type 1:	Type 2
Length of transect in this type:	15' feet
Species:	**Cover:**
manna grass	25
orchard grass	10
reed canary grass	40
red top	20
cattail	trace
mud	5
Total Vegetative Cover:	95%

Vegetation type 2:	Type 1
Length of transect in this type:	33' feet
Species:	**Cover:**
birds foot trefoil	5
Smooth Brome	70
Canada thistle	10
Reed canary grass	15
Total Vegetative Cover:	100%

Vegetation type 3:	Type 1
Length of transect in this type:	6' feet
Species:	**Cover:**
reed canary grass (Phalaris arundinacea)	100
Total Vegetative Cover:	100%

Vegetation type 4:	
Length of transect in this type:	feet
Species:	**Cover:**
Total Vegetative Cover:	

LAND & WATER B-4

MDT WETLAND MONITORING – VEGETATION TRANSECT (back of form)

LAND & WATER B-5

Cover Estimate

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

Indicator Class:

+ = Obligate
- = Facultative/Wet
0 = Facultative

Source:

P = Planted
V = Volunteer

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

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

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

Notes:

WETLAND DELINEATION

At each site conduct the items on the checklist below:

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

COMMENTS/PROBLEMS: _____

FUNCTIONAL ASSESSMENT

Complete Jeff's abbreviated MDT Function and Values Assessment field form.

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: _____

COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
alopecurus pratensis	1		
Bromus inermus	1		
phalaris arundinaceae	1+2		
Dactylis glomerata	1		
Circium arvense	1		
Lotus corniculatus	1		
Carex utriculata	2		
agrostis alba	2		
Scirpus spp.	2		
typha latifolia	2		
Salix spp.	2		
Polygonum amphibium	OW		
myriophyllum spicatum	OW		
Veronica spp.	1		
UNK Juncus or Eleocharis - young plant	1	unk (" ")	

COMMENTS/PROBLEMS:

PLANTED WOODY VEGETATION SURVIVAL ~~0~~ DNA

Species	Number Originally Planted	Number Observed	Mortality Causes

COMMENTS/PROBLEMS:

odd CABI ... stu ...
E. king bird

WILDLIFE

LAND & WATER *B-9*

BIRDS

Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating	Species	Number Observed	Nesting or Breeding Activity	Likely Breeding Resident	Likely Migrating
mallard									
Common yellowthroat									
CA geese	2								
wood ducks	2 ♀ + ♂								
co snipe									
barnswallows									
rit sew									
sandhills (FO)									
greater yell. legs									
tree swallows									
catbird									
eastern kingbird									

Were man made nesting structures installed? Yes____ No____Type:_____ How many?_______ Are the nesting structures being utilized? Yes_____ No_____ Do the nesting structures need repairs? Yes_____ No_____

MAMMALS AND HERPTILES

Species	Number Observed	Indirect indication of use			
		Tracks	Scat	Burrows	Other
WT deer	1				
racoon		X			

Additional Activities Checklist:

_✓_ Macroinvertebrate sampling (if required)

COMMENTS/PROBLEMS: #4 sampled (Northern-most)
#1, 2, 3 combined

PHOTOGRAPHS

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

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

Location	Photo Frame #	Photograph Description	Compass Reading
A	No photo		
B	19 A	pond 2	N
C	20	pond 2	W
D	21a	wl btw pond 2 + 3	W
E	22a	pond 3	S
F	1	transect 2	40° N
G	2	transect 2	220° S
H	3	pond 4	W

~~COMMENTS/PROBLEMS~~:

I	4	pond 4	S
J	5	pond 4	E
K	6	upland use	S
L	7	pond 3	E
M	8	WL buffer	NE
N	9	pond 2	
O	9a	Transect 1 ~~begin~~	220° S

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

P	10a	Transect 1 end	30° N
Q	11a	pond 1	S

Checklist:

- ✓ Jurisdictional wetland boundary
- ✓ 4-6 landmarks recognizable on the air photo
- ✓ Start and end points of vegetation transect(s)
- ✓ Photo reference points
- No Groundwater monitoring well locations

COMMENTS/PROBLEMS:

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

Project/Site: Vince Ames	Date: 8/7/01
Applicant/Owner: MDT	County:
Investigator: Pearson / WWT	State: MT
Do Normal Circumstances exist on the site? Yes No	Community ID: Transect 2
Is the site significantly disturbed (Atypical Situation)? Yes No	Transect ID:
Is the area a potential Problem Area? Yes No	Plot ID: SP-2
(If needed, explain on reverse.)	(WL - pond #3)

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. manna grass	H	OBL	9.		
2. veronica (C)	H	OBL	10.		
3. reed canary	H	FACW	11.		
4. juncus (@ floater = row plants)	H	OBL	12.		
5.			13.		
6.			14.		
7.			15.		
8.			16.		

dom

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-). >50%

Remarks: >50% hydrophytic veg - area adj. to oxbow open water

HYDROLOGY

- [X] Recorded Data (Describe in Remarks):
  - [ ] Stream, Lake, or Tide Gauge
  - [ ] Aerial Photographs
  - [ ] Other
- [ ] No Recorded Data Available

Field Observations:

Depth of Surface Water:	N/A	(in.)
Depth to Free Water in Pit:	5"	(in.)
Depth to Saturated Soil:	0"	(in.)

H2O coming in @ 5"

Wetland Hydrology Indicators:

Primary Indicators:
- [X] Inundated 1 to 2 ft by (1-2')
- [X] Saturated in Upper 12 Inches
- [X] Water Marks
- [X] Drift Lines
- [X] Sediment Deposits
- [X] Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- [ ] Oxidized Root Channels in Upper 12 Inches
- [ ] Water-Stained Leaves
- [ ] Local Soil Survey Data
- [ ] FAC-Neutral Test
- [ ] Other (Explain in Remarks)

Remarks:

SOILS

Map Unit Name
(Series and Phase): Redlodge - adel silty clay loam Drainage Class: NA (slow permeability)

Taxonomy (Subgroup): _____ Field Observations Confirm Mapped Type? (Yes) No

Profile Description:

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-5	A	dk gray 2.5y 3/1	strong brown 7.5yr 4/6	5% / fine	sandy gravelly loam
5-	B	2.5y 3/1			sandy clay loam

Hydric Soil Indicators:

- ___ Histosol
- ___ Histic Epipedon
- ___ Sulfidic Odor
- X Aquic Moisture Regime
- X Reducing Conditions
- X Gleyed or Low-Chroma Colors
- ___ Concretions
- ___ High Organic Content in Surface Layer in Sandy Soils
- ___ Organic Streaking in Sandy Soils
- ___ Listed on Local Hydric Soils List
- ___ Listed on National Hydric Soils List
- ___ Other (Explain in Remarks)

Remarks:

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	(Circle)
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Is this Sampling Point Within a Wetland? (Yes) No (Circle)

Remarks:

Approved by HQUSACE 3/92

LAND & WATER *B-13*

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

oject/Site: Vince ames	Date: 8/7/01
pplicant/Owner: mDT	County:
vestigator: Bacon/WWI	State: mT
Normal Circumstances exist on the site?: ✓ Yes ___ No	Community ID: 1-cropland/pond fringe
the site significantly disturbed (Atypical Situation)?: ___ Yes ✓ No	Transect ID:
the area a potential Problem Area?: constructed WL ___ Yes ✓ No	Plot ID: SP-1 (upL)
(If needed, explain on reverse.)	

EGETATION

	Dominant Plant Species	Stratum	Indicator		Dominant Plant Species	Stratum	Indicator
	Brome - (dom)	H	upL				
	CA thistle	H	upL	7			
	Reed canary	H	FACW	8			
				9			
				10			
				11			
				12			

rcent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). < 50%

emarks: Ø hydrophytic

YDROLOGY

X Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- X Aerial Photographs
- ___ Other

___ No Recorded Data Available

eld Observations:

Depth of Surface Water:	Ø	(in.)
Depth to Free Water in Pit:	Ø	(in.)
Depth to Saturated Soil:	Ø	(in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- ___ Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- ___ Sediment Deposits
- ___ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- ___ Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

emarks: Ø hydrology

OI' ^

ap ..t Name eries and Phase): axonomy (Subgroup):	Rodlodge - Adel silty Clay loam	Drainage Class: NA (slow permeability) Field Observations Confirm Mapped Type? (X) Yes ____ No

ofile Description:

epth ches	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-6		10yr 2/1	⊘		very fine silty loam
6-18		10yr 2/1 10yr 3/1	⊘		silty loam sandy loam very fine texture

ydric Soil Indicators:

- ____ Histosol
- ____ Histic Epipedon
- ____ Sulfidic Odor
- ____ Aquic Moisture Regime
- ____ Reducing Conditions
- ____ Gleyed or Low-Chroma Colors
- ____ Concretions
- ____ High Organic Content in surface Layer in Sandy Soils
- ____ Organic Streaking in Sandy Soils
- ____ Listed on Local Hydric Soils List
- ____ Listed on National Hydric Soils List
- ____ Other (Explain in Remarks)

:marks: ⊘ hydric soil pit

ETLAND DETERMINATION

drophytic Vegetation Present?	____ Yes X No	
etland Hydrology Present?	____ Yes X No	
dric Soils Present?	____ Yes X No	Is this Sampling Point Within a Wetland? ____ Yes X No

emarks:

area between ponds 3 and oxbow area (where transect #2 is located)

LAND & WATER B-15

ponds 1 → 4

Draft Field Data Collection Sheet for MDT Montana Wetland Assessment Form

1. CLASSIFICATION

Vegetated Cowardin Class	Estimated % of AA	Predominant Water Regime (CIRCLE)
Emergent	70 %	PF IE SPF (SF) (S) TF IF
Aquatic Bed	5 %	(PF) IE SPF SF S TF IF
Moss-Lichen	0	PF IE SPF SF S TF IF
Scrub-Shrub	25 %	PF IE SPF (SF) (S) TF IF
Forested	0	PF IE SPF SF S TF IF
Total Estimated % Vegetated	100 %	

?

2. DISTURBANCE is: High Moderate Low hayed around perimeter

3. HYDROLOGY

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

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

w/ culverts

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

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

Estimated wetland area subject to periodic flooding (acres): ≥10 (2-10) <2

Estimated % of flooded wetland classified SS, FO or both: ≥75 25-74 <25

20?

Evidence of groundwater discharge or recharge? Y N List:

4. VERTEBRATES

Evidence of or potential for T&E or MNHP species use? (For general wildlife use, see separate form.) Ø

Fish observations? yes

5. OTHERS

20?

Do wetlands have potential to receive excess sediments, nutrients, or toxicants? (Y) N From: irr ditch and Red Lodge Cr

Potential to receive: low to moderate levels high levels

Does site contain bog, fen, warm springs, >80 year-old forested wetland, or MNHP "S1" or "S2" plant association? Y (N)

List:

Is AA a known recreation / education site? (Y) N Type: camping

Does AA offer strong potential for use as recreation / education site? (Y) N Type: birding / bugs

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

1. Project Name: MDT Vinco Ames 2. Project #: 19 Site Control #: Task 33

3. Evaluation Date: Mo. 8 Day 7 Yr. 01 4. Evaluator(s): VP 5. Wetlands/Site #(s) Vinco Ames

6. Wetland Location(s): I. Legal: T 6 N or (S) R 20 E or (W) S 18 ; T ___ N or S; R ___ E or W; S ___ ;
II. Approx. Stationing or Mileposts: ___

III. Watershed: L0970006 GPS Reference No. (If applies): ___
Other Location Information: District 5 - Well Estab. site

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

8. Wetland size: (total acres) ___ (visually estimated)
15.236 (measured, e.g. by GPS [if applies])

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

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Palustrine	Palustrine	NA	EM	H/G	I	65%
Riverine	Riverine	Lower Perenn.	RB	H	I	35%

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

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

12. General condition of AA:
I. Regarding disturbance: (use matrix below to determine [circle] appropriate response)

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

Comments: (types of disturbance, intensity, season, etc.): ___
II. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) ___
III. Provide brief descriptive summary of AA and surrounding land use/habitat: hay fields, dirt road

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

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

Comments:

SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

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

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

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

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

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

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

14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program: (not including species listed in14A above)

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

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

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

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

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

14C. General Wildlife Habitat Rating:

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

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

Low (based on any of the following [check]):
- ___ few or no wildlife observations during peak use periods
- ___ little to no wildlife sign
- ___ sparse adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

Moderate (based on any of the following [check]):
- ✓ observations of scattered wildlife groups or individuals or relatively few species during peak periods
- ___ common occurrence of wildlife sign such as scat, tracks, nest structures, game trails, etc.
- ___ adequate adjacent upland food sources
- ___ interviews with local biologists with knowledge of the AA

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

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

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

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

Comments:

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

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

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

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

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

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

Comments: assumed introduced game

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

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

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

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

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

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

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

Comments: assured doesn't flood often because of general habitat characteristics (dry, grassy hills)

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

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

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

Comments: looked up Red Lodge Creek = low priority

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

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

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

Comments: ponds on old meanders of E. Red lodge Cr.

14I. Production Export/Food Chain Support:

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

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

Comments:

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

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

ii. **Recharge Indicators**
- X Permeable substrate present without underlying impeding layer
- ___ Wetland contains inlet but no outlet
- ___ Other

unknown – assumed yes – at grd water table

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

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

Comments:

14K. Uniqueness:

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

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

Comments:

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

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

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

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

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

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

Comments:

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage) 15.236 AC.
A. Listed/Proposed T&E Species Habitat	L	0	1	0
B. MT Natural Heritage Program Species Habitat	L	0	1	0
C. General Wildlife Habitat	H	.7	1	10.6652
D. General Fish/Aquatic Habitat	M	.6	1	9.1416
E. Flood Attenuation	M	.6	1	9.1416
F. Short and Long Term Surface Water Storage	H	1	1	15.236
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	13.7124
H. Sediment/Shoreline Stabilization	H	1	1	15.236
I. Production Export/Food Chain Support	H	.9	1	13.7124
J. Groundwater Discharge/Recharge	H	1	1	15.236
K. Uniqueness	L	.3	1	4.5708
L. Recreation/Education Potential	M	.7	1	10.6652
Totals:		7.7	12	117.3172

7.7/12 = 64%

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

Category I Wetland: (Must satisfy **one** of the following criteria; if does not meet criteria, go to Category II)
- ___ Score of 1 functional point for Listed/Proposed Threatened or Endangered Species; **or**
- ___ Score of 1 functional point for Uniqueness; **or**
- ___ Score of 1 functional point for Flood Attenuation **and** answer to Question 14E.ii is "yes"; **or**
- ___ Total actual functional points > 80% (round to nearest whole #) of total possible functional points.

Category II Wetland: (Criteria for Category I not satisfied **and** meets **any one** of the following criteria; if not satisfied, go to Category IV)
- ___ Score of 1 functional point for Species Rated S1, S2, or S3 by the MT Natural Heritage Program; **or**
- ___ Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- ___ Score of .9 or 1 functional point for General Fish/Aquatic Habitat; **or**
- ___ "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- ___ Score of .9 functional point for Uniqueness; **or**
- ___ Total Actual Functional Points > 65% (round to nearest whole #) of total possible functional points.

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

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

Pond slopes are steep to abrupt edge to WL. Gentler slopes would have promoted more diverse WL community. Alopecuris/Phar communities on islands = WL and had hydro. Alop/Phar around pond edges had no hydric soils.

Macro-invertebrate Sampling Results for Vince Ames

Montana Department of Transportation		Project Name	Vince Ames
Wetland Mitigation Monitoring Project		Project/task number	215-33
for		Date	8/7/2001
Land and Water Consulting		Field Personnel	Wetlands West
		Note	Ponds 1,2,and 3
2001		Rhithron Sample Identification	24
Coelenterata		*Hydra*	
Oligochaeta	Enchytraeic	Enchytraeidae	
	Naididae	*Chaetogaster*	
		Nais elinguis	
		Nais variabilis	
		Ophidonais serpentina	5
	Tubificidae	Tubificidae - immature	
		Limnodrilus hoffmeisteri	13
Hirudinea	Erpobdellid	*Mooreobdella microstoma*	
		Nephelopsis	1
	Glossiphoniidae	*Helobdella stagnalis*	1
		Helobdella	
		Glossiphonia	
Bivalvia	Sphaeriid	*Sphaerium*	4
Gastropoda	Lymnaeid	*Fossaria*	2
	Physidae	*Physa*	2
	Planorbidae	*Gyraulus*	28
		Helisoma	
Crustacea	Cladocer	Cladocera	6
	Copepoda	Calanoida	
		Cyclopoida	8
	Ostracoda	Ostracoda	1
	Amphipoda	*Gammarus*	2
		Hyalella azteca	22
	Decapoda	*Orconectes*	
Acarina		Acari	
Odonata	Aeshnid:	*Anax*	2
	Libellulidae	Libellulidae-early instar	
		Sympetrum	
	Coenagrionidae	Coenagrionidae-early instar	29
		Enallagma	
	Lestidae	*Lestes*	
Ephemeroptera	Baetid:	*Callibaetis*	24
	Caenidae	*Caenis*	5
Hemiptera	Corixid:	Corixidae - immature	
		Hesperocorixa	1
		Sigara	1
		Trichocorixa	
	Nepidae	*Ranatra*	
	Notonectidae	*Notonecta*	6
Trichoptera	Hydroptilid:	Hydroptilidae - pupa	1
	Leptoceridae	Leptoceridae - early instar	
		Mystacides	
		Ylodes	
Coleoptera	Chrysomelid:	Chrysomelidae	
	Curculionidae	*Bagous*	
	Dytiscidae	*Acilius*	
		Hydroporinae - early instar larvae	
		Hygrotus	
		Liodessus	
		Laccophilus	
		Neoporus	1
	Elmidae	*Heterlimnius*	
	Haliplidae	*Haliplus*	5
		Peltodytes	
	Hydrophilidae	*Berosus*	
		Helophorus	
		Hydrobius	
		Hydrochara	
		Laccobius	
		Tropistermus	

Macro-invertebrate Sampling Results for Vince Ames

Diptera	Ceratopogoninae	*Bezzia/Palpomyia*	5
		Dasyhelea	1
	Chaoboridae	*Chaoborus*	1
	Culicidae	*Anopheles*	1
		Culex	
	Ephydridae	Ephydridae	
	Simuliidae	*Simulium*	
	Sciomyzidae	Sciomyzidae	
	Stratiomyidae	*Odontomyia*	
	Chironomidae	*Acricotopus*	1
		Chironomus	
		Cladotanytarsus	
		Corynoneura	
		Cryptotendipes	3
		Dicrotendipes	1
		Einfeldia	
		Endochironomus	
		Labrundinia	
		Microtendipes	
		Orthocladius annectens	12
		Parachironomus	
		Paramerina	
		Paratanytarsus	36
		Phaenopsectra	
		Polypedilum	
		Procladius	
		Psectrocladius	1
		Psectrotanypus	
		Pseudochironomus	
		Tanypus	12
		Tanytarsus	

TOTAL	244
grids	4

Total taxa	34
POET	3
Chironomidae taxa	7
Crustacea taxa + Mollusca taxa	6
% Chironomidae	27.04918033
Orthocladiinae/Chironomidae	21.21212121
%Amphipoda	9.836065574
%Crustacea + %Mollusca	24.59016393
HBI	7.143442623
%Dominant taxon	14.75409836
%Collector-Gatherers	59.01639344
%Filterers	2.459016393

Total taxa	5
POET	3
Chironomidae taxa	5
Crustacea taxa + Mollusca taxa	5
% Chironomidae	1
Orthocladiinae/Chironomidae	3
%Amphipoda	3
%Crustacea + %Mollusca	1
HBI	3
%Dominant taxon	5
%Collector-Gatherers	3
%Filterers	1

site score	38

Appendix C

1994 Pre-Construction Wetland Findings for Pond #4
MDT Wetland Site Evaluation Forms
Data Sheets

MDT Wetland Mitigation Monitoring
Vince Ames
Red Lodge, Montana

LAND & WATER

MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND FINDING

VINCE AMES MITIGATION PROJECT
FOR ABSAROKE N&S
Control No. 0920
August 19, 1994

CH

A field survey of this proposed mitigation project, adjacent to the existing mitigation project was conducted July 13, 1994 to determine potential impacts to the biological resources in the vicinity including threatened and endangered species and wetlands.

A wetland delineation, using landowner supplied contour mapping and construction plans was performed to quantify the probable acreage of wetlands affected.

WETLAND FINDING

The wetland delineation and assessment was conducted by on site inspection, and the use of photographs taken earlier. In accordance with the COE 1987 Wetland Delineation Manual, and the Interagency Memorandum of Understanding: For the Conservation of Wetland Resources Associated With Highway Construction Projects in the State of Montana. The indicator status of vegetation was derived from the National List of Plant Species that occur in Wetlands: Northern Plains (Region 4) (Reed 1988).

Two jurisdictional wetlands were identified at the site which will be disturbed by the proposed mitigation/enhancement project.

POND# 4: This site was an abandoned section of the channel, banks and floodplain of Red Lodge Creek. This section of the stream remains the recipient of sufficient groundwater to support cattails in the bottom and sedges on the slopes and willow on the small bench above the channel. This wetland is approximately 1.71 ac in size. The site will be enhanced through conversion into a pond or slough, similar to it's original condition. The addition of a small island and dike will cause the filling and covering of a total of .35 ac. The result of this impact will to be to create a wetland site of higher function . The function of the current wetland according to the MDT Wetland Site Evaluation Form is a rating of III and a point value of 28.

MARSH 4A: This site is a groundwater discharge area which is in a pasture/hayfield environment about 100 feet adjacent to POND #4 in a westerly direction. This site is higher in elevation than POND #4 and receives it's water supply via underground from a distant coulee in the foothills to the west. This wetland site is a wet meadow with saturated soils which is .68 ac. in total size. The proposed addition of two dikes will fill and cover a total of .12 ac. of wetland. This excavation and fill will produce a shallow marsh; the current function of the site according to the MDT Wetland Site Evaluation Form is a rating of IV and a point total value of 20.

Neither of these sites have value as fish habitat, nor are they connected directly to flowing streams. The best habitat value which these wetlands offer. and which will not be lost in the conversion is for songbirds, deer, rodents, and occasional small predators. There are a number of domestic felines in the immediate area.

As a result to this mitigation project the old creek channel will become an inline component of ponds which receive water from Red Lodge Creek. This will become

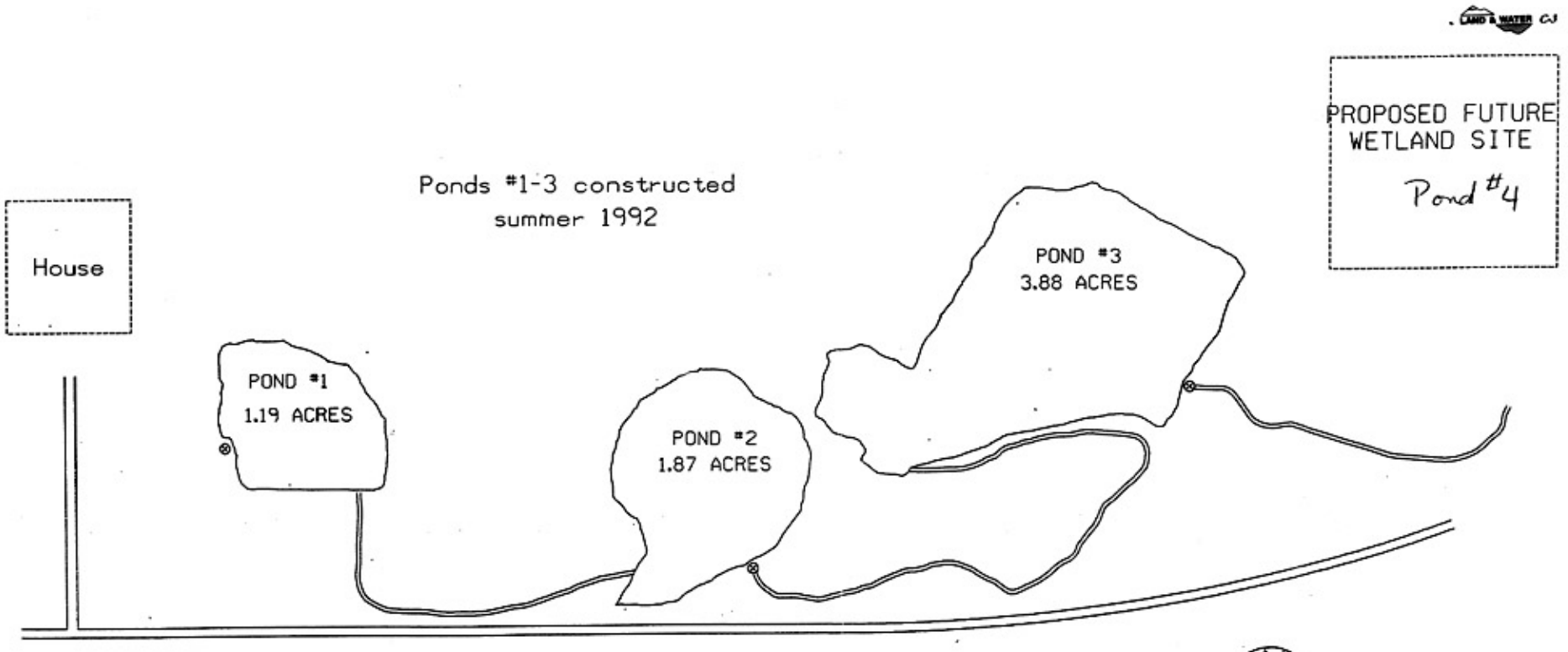
the 4th pond in the series. The adjacent wet meadow will be lightly excavated and diked to produce a freshwater marsh. This marsh will be designated wetland site # 4A and it will drain into POND #4.

This wetland mitigation project will be developed to the satisfaction of the COE and will undergo a monitoring program of 3 to 5 years, where adjustments may be made as necessary to assure the quality of the project.

REFERENCES

Environmental Laboratory. 1987. "Corps of Engineers Wetland Delineation Manual," Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

Reed, P.B. Jr., 1988. National List Of Plant Species That Occur in Wetlands: North Plains (Region 4). U.S. Fish & Wildlife Service Biological Report 88(26). 64pp.



Notes:
⊗-Location of Benchmark/Photopoint for each pond; silver cap approx. 4" above ground; ex.- Pond #1 B.M. -- 1
Acreages represent wetland areas including water.
Areas measured June 24, 1993 by Steve Brackman, Envr. Bureau.

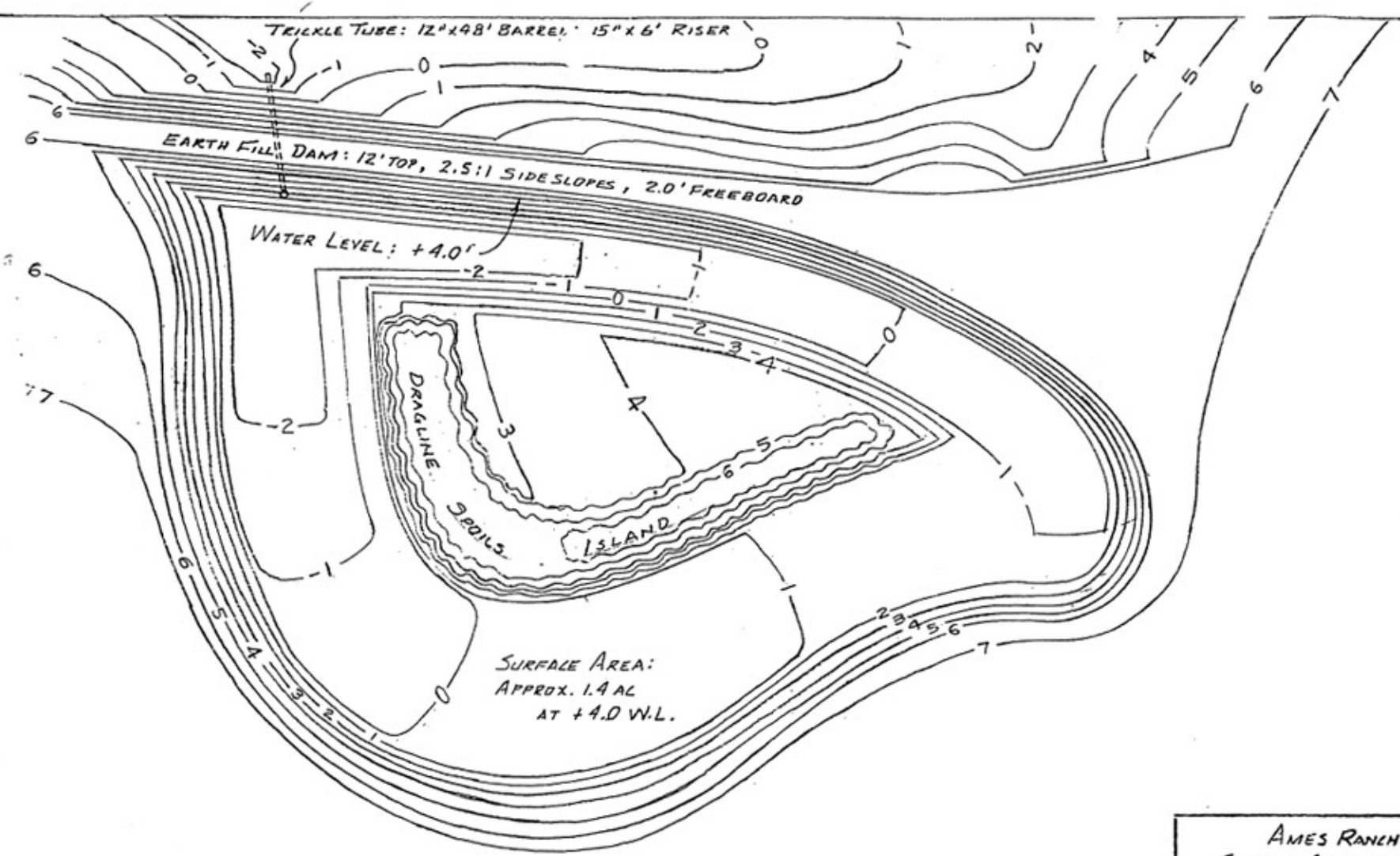
Dept. of Trans. Montana

1" = 200'

VINCENT AMES WETLAND MITIGATION PROJECT
Vincent & Margaret Ames, Rt. 2 Box 3090, Red Lodge, Mt 59068
1993 Monitoring
Montana Department of Transportation

State of Montana
County of Carbon
T6S R20E N½ SEC. 18

\dgn\vincames.dgn Feb. 24, 1994 14:37:41



AMES RANCH
CARBON COUNTY, MONTANA

PROPOSED REDESIGN
WILDLIFE POND NO. 4
C.I. 1' SCALE 1"=50'
VEA 4-28-94

Kond #4 & Wet Meadow 4A

LAND & WATER C-5

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

Project/Site: Mitigation: Absaroka N&S F78-2(5)27 Applicant/Owner: Vince Ames — MDT Project Investigator: Charles Van Hook	Date: 7-13-94 County: Carbon State: Montana
Do Normal Circumstances exist on the site? (Yes) No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: ___ Transect ID: ___ Plot ID: ___

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. Typha Latifolia	Herbaceous	OBL	9.		
2.			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-). ___

Remarks: a stream channel of Red Lodge Creek which was abandoned due to stream relocation 1940's - now Receives only groundwater

HYDROLOGY

___ Recorded Data (Describe in Remarks):
- ___ Stream, Lake, or Tide Gauge
- ___ Aerial Photographs
- ___ Other

X No Recorded Data Available

Field Observations:

Depth of Surface Water: Intermittent (in.)

Depth to Free Water in Pit: ___ (in.)

Depth to Saturated Soil: 0 (in.)

Wetland Hydrology Indicators:

Primary Indicators:
- ___ Inundated
- X Saturated in Upper 12 Inches
- ___ Water Marks
- ___ Drift Lines
- X Sediment Deposits
- X Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- ___ Oxidized Root Channels in Upper 12 Inches
- ___ Water-Stained Leaves
- X Local Soil Survey Data
- ___ FAC-Neutral Test
- ___ Other (Explain in Remarks)

Remarks: This is a stream channel (abandoned) which retains enough groundwater to support wet vegetation

LAND & WATER C-6

MDT WETLAND SITE EVALUATION FORM
(Revised June 22, 1994)

Project Name: Vinegar Agres Wetland Mitigation Number: Mitigation for: Absaroka NHS, F 78-2(5)27

Evaluation Date: 7/13/94 Evaluator(s): Charles van Hook Site Name(s): Wet Meadow 4A

Site Location: SW¼ of the NE¼ of Sec 8, T6S, R20E. All west of the County Rd & Park Hwy

Estimated Total Wetland Size: .68 ac Estimated Size Within Proposed ROW: None

Conditions During Evaluation: Peak of Growing season - Partially excavated site.

Wetland Classification (from MDT Wetland Classification Scheme)

Water Regime (e.g., Permanently flooded)	Wetland Type (e.g., Marsh)	Dominant Species	Modifier (e.g., Impounded) and/or Descriptor	% of Wetland
Saturated	Wet Meadow	Carex-Juncus	Grazed	100

Wetland Type(s) is (are) locally (circle): Rare Common (Abundant)

Brief Descriptive Summary: Site is a groundwater discharge site in a pasture/hayfield

Functions and Values Assessment

1. Wetland Size (All size criteria throughout the assessment refer to the size of the entire wetland.)

Size	Score
> 10 acres	=10
6 to 10 acres	=5
1 to 5 acres	=3
< 1 acre	=1

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	(Low)	=1
3 =	Moderate	=3
5 =	High	=5
10 =	Except.	=10

2. Habitat Diversity (Function of wetland type diversity and presence of open water component.)

# of Wetland Types (not including open water types)	(1 Multiply 1) Score	Score	Open Water
≥ 3 types	=5	2=	Present
2 types	=3	1=	Absent
≤ 1 type	(=1)		

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	(Low)	=1
2-3 =	Moderate	=3
5-6 =	High	=5
10 =	Except.	=10

3. Food Chain Support (Function of habitat diversity [HD] and wetland size)

HD Rating (from #2 above)	(1 Multiply 1) Score	Score	Size
Low	=1	5=	> 5 acres
Moderate	=2	3=	1-5 acres
High	=3	1=	< 1 acre
Exceptional	=4		

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
1-2 =	(Low)	=1
3-9 =	Moderate	=3
10-15 =	High	=5
20 =	Except.	=10

4. Habitat for Federally-listed Endangered, Threatened, Proposed, or Candidate (C1 or C2) Species

Wetland Receives:	Score
Regular use by such species or is designated critical habitat	=10
Occasional use (e.g., infrequent, sporadic use)	=5
Incidental use (e.g., chance, inconsequential use)	=3
No known or suspected use	=0

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	(None)	=0
3 =	Moderate	=3
5 =	High	=5
10 =	Except.	=10

5. Habitat for Species Rated "S1", "S2", or "S3" by the Montana Natural Heritage Program (Not including those addressed under #4 above.)

Wetland Provides:	Score
Breeding or other crucial habitat	=10
Habitat that is used regularly	=5
Habitat that is used occasionally (e.g., infrequent, sporadic use)	=3
Habitat that is used incidentally (e.g., chance, inconsequential use)	=1
No known or suspected habitat	=0

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	(None)	=0
1 =	Low	=1
3 =	Moderate	=3
5 =	High	=5
10 =	Except.	=10

6. General Wildlife & Fish Habitat (Non-T&E)

Criteria I (apply to each group)			Criteria II (apply to entire group)	Score
Substantial or significant use	=S	M Songbirds	≥ 6 S's or ≥ 8 M's	=10
Occasional or moderate use	=M	M Raptors	3-5 S's or 6-7 M's	=5
Little or no perceived use	=L	L Waterfowl	1-2 S's or 3-5 M's	=3
		M Marsh & Shorebirds	No S's and ≤ 2 M's	=1
		M Rodents & Insectivores		
		L Carnivores		
		M Ungulates	Calculated Score = ____	
		L Herptiles		
		L Fish		
		M Invertebrates		

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	Low	=1
3 =	Moderate	=3
5 =	High	=5
10 =	Except.	=10

7. Flood Control & Storage (Function of floodwater proximity, wetland size, vegetative composition, and flow restriction; Applies only to sites within a discernable floodplain [based on floodwater proximity, flood deposits, FEMA maps, etc.]; If does not apply, Point Value is 0.)

A. Wetland Size	Score	(1 Multiply 1) Score	Vegetative Composition
> 5 acres	=5	3 =	> 50% forested or shrub or combination
1-5 acres	=3	2 =	10-50% forested or shrub or combination
< 1 acre	=1	1 =	< 10% forested or shrub or combination

B. Flow Restriction	Score
Outlet restricted or absent	=2
Outlet unrestricted	=1

Calculated Score (A + B) = 2

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	None	=0
2-3 =	Low	=1
4-8 =	Moderate	=3
10-16 =	High	=5
17 =	Except.	=10

8. Sediment Filtration and Water Purification (Function of proximity to potential sediment/pollutant source and emergent vegetative component.)

Likelihood to Receive Sediment/Pollutants	Score	(1 Multiply 1) Score	Emergent Vegetative Component
Substantial accumulations evident or likely	=2	5 =	> 50% emergent
Moderate accumulations evident or likely	=1	3 =	10-50% emergent
Accumulations not evident and unlikely	=0.5	1 =	< 10% emergent

Calculated Score = 2.5

Calcul. Score =	Rating (circle)	Point Value = (circle)
.5-1.5 =	Low	=1
2-3 =	Moderate	=3
5-10 =	High	=5

9. Erosion Control (Flow or wave dissipation; applies only if site is on shoreline of lake [subject to wave action], river, stream, or other defined drainage; if does not apply, Point Value is 0.)

Size of Rooted Vegetative Component	Score
> 5 acres	=5
1-5 acres	=3
< 1 acre	=1

Calculated Score = D

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	None	=0
1 =	Low	=1
3 =	Moderate	=3
5 =	High	=5

10. Nutrient Cycling (Potential to accumulate, process, and export nutrients [expressed as organic matter].)

Organic Matter Accumulation	Score	(1 Multiply 1) Score	Proximity to Other Aquatic Habitats
Substantial accumulation evident	=3	3 =	Adjacent or contiguous to other aquatic habitats
Little to no accumulation evident	=1	1 =	Isolated basin

Calculated Score = 1

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	Low	=1
3 =	Moderate	=3
9 =	High	=5

11. Groundwater Discharge/Recharge

Wetland:	Criteria	Score
A. Is a known discharge or recharge area	A, B, or C true	=5
B. occurs immediately below a dam		
C. Is a suspected discharge or recharge		
	D true, all others false	=3
area due to: ____		
D. has an outlet, but no inlet	A-D false.	=1

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	Low	=1
3 =	Moderate	=3
5 =	High	=5

12. Uniqueness (Function of relative abundance of wetland type in Montana and replacement potential of ecological functions.)

Frequency of Occurrence in Montana	Score	(1 Multiply 1) Score	Replacement Potential
Rare	=3	5 =	Irreplaceable ecological functions
Common	=2	3 =	Ecological functions replaceable with difficulty
Abundant	=1	1 =	Ecological functions readily replaceable

Calculated Score = 1

Calcul. Score =	Rating (circle)	Point Value = (circle)
1-2 =	Low	=1
3-6 =	Moderate	=3
9-10 =	High	=5
15 =	Except.	=10

13. Recreation/Education Potential (Subjective assessment of potential for boating, hunting, birdwatching, photography, and other recreation/education activities; remember to consider access restrictions.)

Recreation Potential	Score	(1 Multiply 1) Score	Education Potential
High	=3	5 =	High
Moderate	=2	3 =	Moderate
Low	=1	1 =	Low

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
1-2 =	Low	=1
3-6 =	Moderate	=3
9-15 =	High	=5

Function & Value Summary and Overall Wetland Rating

for Wetland Site(s):_____

Function & Value Parameters		Point Values	Ratings
1.	Wetland Size	1	Low
2.	Habitat Diversity	3	Moderate
3.	Food Chain Support	3	Moderate
4.	T&E/Proposed/Candidate Species Habitat	0	None.
5.	MNHP Species Habitat	0	None
6.	General Fish & Wildlife Habitat	5	High
7.	Flood Control & Storage	3	moderate
8.	Sediment Filtration	1	Low
9.	Erosion Control	0	None
10.	Nutrient Cycling	5	High
11.	Groundwater Discharge/Recharge	5	High
12.	Uniqueness	1	Low
13.	Recreation/Education Potential	1	Low.
TOTAL POINT VALUE		28	

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

I II (III) IV

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

- Total Point Value of 65 or more; or
- "Exceptional" ratings for T&E/Proposed/Candidate Species Habitat or Flood Control & Storage or Uniqueness.

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

- Total Point Value of 40 - 64; or
- "Exceptional" ratings for MNHP Species Habitat or General Wildlife & Fish Habitat; or
- "High" ratings for Food Chain Support or Uniqueness.

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:

- Total Point Value less than 26; and
- "Low" ratings for Wetland Size and Habitat Diversity.

MDT Wetland Classification Scheme
(adapted from Windell et al.[1986] and Cowardin et al.[1979])

Water Regime	Vegetation Type	Substrate	Wetland Type	Modifiers and Descriptors
* Permanently flooded * Intermittently exposed * Semi-permanently flooded * Seasonally flooded * Saturated * Temporarily flooded	Rooted floating, floating-leaved, or submergent	Water, mineral, or organic	Aquatic Bed (standing water)	Modifiers * Excavated ditch * Excavated basin * Impounded * Diked * Farmed * Grazed * Partly Drained --- Descriptors * Riparian * Deepwater Habitat * Drumlin Wetland * Seasonal Wetland * Prairie Pothole * Vegetated Flat
			Aquatic Channel (within channel)	
	Emergent (erect, rooted, herbaceous hydrophytes [includes mosses and lichens])	Organic (peat, muck)	Fen (typically "peatland" dominated by sedges and grasses)	
			Bog (typically "peatland" dominated by sphagnum mosses)	
			Marsh (substrate can be "muck" or mineral; not typically dominated by sedges and grasses)	
		Mineral	Wet Meadow (dominated by sedges, grasses and rushes)	
			Marsh (substrate can be "muck" or mineral; not typically dominated by sedges and grasses)	
			Emergent Channel (within channel)	
	Shrub (woody vegetation less than 20 feet tall)	Organic (peat, muck)	Carr (shrub-dominated fen)	
			Shrub-bog (shrub-dominated bog)	
		Mineral	Shrub (coniferous, deciduous, or mixed)	
	Forested (woody vegetation greater than 20 feet tall)	Organic or Mineral	Forested (coniferous, deciduous, or mixed)	
	Unvegetated	Mineral or Water	Open Water	
			Bare Substrate	

Permanently flooded: Water covers land surface throughout the year in all years.
Intermittently exposed: Surface water present throughout the year except during years of extreme drought.
Semipermanently flooded: Surface water persists throughout growing season in most years.
Seasonally flooded: Surface water present for extended periods, especially early in the growing season, but usually absent by end of season.
Saturated: Substrate saturated to surface during growing season, but surface water seldom present.
Temporarily flooded: Surface water present for brief periods during growing season, but water table well below surface most of the year.

Excavated ditch or basin: Lies within basin or channel excavated by man.
Impounded: Created or modified by barrier or dam which purposefully or unintentionally obstructs water outflow.
Diked: Created or modified by man-made barrier or dike designed to obstruct the inflow of water.
Farmed: Soil surface has been mechanically or physically altered for crop production, but hydrophytes will reestablish if farming discontinued.
Grazed: Vegetation grazed by domestic stock.
Partly Drained: Water level has been artificially lowered, but soil moisture sufficient to support hydrophytes.
Riparian: Of, on, or pertaining to the bank of a natural watercourse.
Deepwater Habitat: Open water area with a mean annual water depth > 6.6 feet.
Drumlin and Seasonal Wetlands, Prairie Potholes, and Vegetated Flats: See 1987 COE Wetland Delineation Manual, Section G - Problem Areas.

MDT WETLAND SITE EVALUATION FORM
(Revised June 22, 1994)

LAND & WATER C-10

Project Name: Vince Ames Wetland Mitigation Number: Mitigation For Absarokee NHS FTB-2(5)27

Evaluation Date: 7/13/94 Evaluator(s): Charles von Hook Site Name(s): Pond #4 Stream Channel

Site Location: SW¼ of the NE¼ of Sec 18, T6S, R20E All West of the County Road

Estimated Total Wetland Size: 1.71 ac Estimated Size Within Proposed ROW: None

Conditions During Evaluation: Peak of Growing Season - Partially excavated site.

Wetland Classification (from MDT Wetland Classification Scheme)

Water Regime (e.g., Permanently flooded)	Wetland Type (e.g., Marsh)	Dominant Species	Modifier (e.g., Impounded) and/or Descriptor	% of Wetland
Seasonally Flooded	Cattail Marsh	Typha	Partly Drained	50%
Saturated	Shrub-forb	Carex → Salix	Partly Drained	50%

Wetland Type(s) is (are) locally (circle): Rare Common Abundant

Brief Descriptive Summary: Abandoned stream bed, bank & floodplain of Redlodge Creek

Functions and Values Assessment

1. Wetland Size (All size criteria throughout the assessment refer to the size of the entire wetland.)

Size	Score
> 10 acres	=10
6 to 10 acres	=5
1 to 5 acres	=3
< 1 acre	=1

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	(Low)	=1
3 =	(Moderate)	=3
5 =	High	=5
10 =	Except.	=10

2. Habitat Diversity (Function of wetland type diversity and presence of open water component.)

# of Wetland Types (not including open water types)	(1 Multiply 1) Score	Score	Open Water
≥ 3 types	=5	2=	Present
2 types	=3	1=	Absent
≤ 1 type	=1		

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	Low	=1
2-3 =	(Moderate)	=3
5-6 =	High	=5
10 =	Except.	=10

3. Food Chain Support (Function of habitat diversity [HD] and wetland size)

HD Rating (from #2 above)	(1 Multiply 1) Score	Score	Size
Low	=1	5=	> 5 acres
Moderate	=2	3=	1-5 acres
High	=3	1=	< 1 acre
Exceptional	=4		

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
1-2 =	Low	=1
3-9 =	(Moderate)	=3
10-15 =	High	=5
20 =	Except.	=10

4. Habitat for Federally-listed Endangered, Threatened, Proposed, or Candidate (C1 or C2) Species

Wetland Receives:	Score
Regular use by such species or is designated critical habitat	=10
Occasional use (e.g., infrequent, sporadic use)	=5
Incidental use (e.g., chance, inconsequential use)	=3
No known or suspected use	=0

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	(None)	=0
3 =	Moderate	=3
5 =	High	=5
10 =	Except.	=10

5. Habitat for Species Rated "S1", "S2", or "S3" by the Montana Natural Heritage Program (Not including those addressed under #4 above.)

Wetland Provides:	Score
Breeding or other crucial habitat	=10
Habitat that is used regularly	=5
Habitat that is used occasionally (e.g., infrequent, sporadic use)	=3
Habitat that is used incidentally (e.g., chance, inconsequential use)	=1
No known or suspected habitat	=0

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	(None)	=0
1 =	Low	=1
3 =	Moderate	=3
5 =	High	=5
10 =	Except.	=10

6. General Wildlife & Fish Habitat (Non-T&E)

Criteria I (apply to each group)				Criteria II (apply to entire group)	Score
Substantial or significant use	=S	S	Songbirds	≥ 6 S's or ≥ 8 M's	=10
Occasional or moderate use	=M	M	Raptors	3-5 S's or 6-7 M's	=5
Little or no perceived use	=L	M	Waterfowl	1-2 S's or 3-5 M's	=3
		M	Marsh & Shorebirds	No S's and ≤ 2 M's	=1
		S	Rodents & Insectivores		
		M	Carnivores		
		M	Ungulates	Calculated Score = 5	
		M	Herpdiles		
		L	Fish		
		M	Invertebrates		

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	Low	= 1
3 =	Moderate	= 3
5 =	(High)	(=5)
10 =	Except.	= 10

7. Flood Control & Storage (Function of floodwater proximity, wetland size, vegetative composition, and flow restriction; Applies only to sites within a a discernable floodplain [based on floodwater proximity, flood deposits, FEMA maps, etc.]; If does not apply, Point Value is 0.)

A. Wetland Size	(1 Multiply 1) Score	Score	Vegetative Composition
> 5 acres	=5	3 =	> 50% forested or shrub or combination
1-5 acres	=3	(2 =)	10-50% forested or shrub or combination
< 1 acre	(=1)	1 =	< 10% forested or shrub or combination

B. Flow Restriction	Score
Outlet restricted or absent	=2
Outlet unrestricted	=1

Calculated Score (A + B) = 4

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	None	= 0
2-3 =	Low	= 1
4-8 =	(Moderate)	(=3)
10-16 =	High	= 5
17 =	Except.	= 10

8. Sediment Filtration and Water Purification (Function of proximity to potential sediment/pollutant source and emergent vegetative component.)

Likelihood to Receive Sediment/Pollutants	(1 Multiply 1) Score	Score	Emergent Vegetative Component
Substantial accumulations evident or likely	=2	5 =	> 50% emergent
Moderate accumulations evident or likely	=1	(3 =)	10-50% emergent
Accumulations not evident and unlikely	(=0.5)	1 =	< 10% emergent

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
.5-1.5 =	(Low)	(=1)
2-3 =	Moderate	= 3
5-10 =	High	= 5

9. Erosion Control (Flow or wave dissipation; applies only if site is on shoreline of lake [subject to wave action], river, stream, or other defined drainage; If does not apply, Point Value is 0.)

Size of Rooted Vegetative Component	Score
> 5 acres	=5
1-5 acres	=3
< 1 acre	=1

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
0 =	(None)	(=0)
1 =	Low	= 1
3 =	Moderate	= 3
5 =	High	= 5

10. Nutrient Cycling (Potential to accumulate, process, and export nutrients [expressed as organic matter].)

Organic Matter Accumulation	(1 Multiply 1) Score	Score	Proximity to Other Aquatic Habitats
Substantial accumulation evident	(=3)	(3 =)	Adjacent or contiguous to other aquatic habitats
Little to no accumulation evident	=1	1 =	Isolated basin

Calculated Score = ____

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	Low	= 1
3 =	Moderate	= 3
9 =	(High)	(=5)

11. Groundwater Discharge/Recharge

Wetland:	Criteria	Score
A. Is a known discharge or recharge area	A, B, or C true	(=5)
B. occurs immediately below a dam		
C. Is a suspected discharge or recharge		
	D true, all others false	=3
area due to: ____		
D. has an outlet, but no inlet	A-D false.	(=1)

Calcul. Score =	Rating (circle)	Point Value = (circle)
1 =	Low	= 1
3 =	Moderate	= 3
5 =	(High)	(=5)

12. Uniqueness (Function of relative abundance of wetland type in Montana and replacement potential of ecological functions.)

Frequency of Occurrence in Montana	(1 Multiply 1) Score	Score	Replacement Potential
Rare	=3	5 =	Irreplaceable ecological functions
Common	=2	3 =	Ecological functions replaceable with difficulty
Abundant	(=1)	(1 =)	Ecological functions readily replaceable

Calculated Score = 1

Calcul. Score =	Rating (circle)	Point Value = (circle)
1-2 =	(Low)	(=1)
3-6 =	Moderate	= 3
9-10 =	High	= 5
15 =	Except.	= 10

13. Recreation/Education Potential (Subjective assessment of potential for boating, hunting, birdwatching, photography, and other recreation/education activities; remember to consider access restrictions.)

Recreation Potential	(1 Multiply 1) Score	Score	Education Potential
High	=3	5 =	High
Moderate	=2	3 =	Moderate
Low	(=1)	(1 =)	Low

Calculated Score = 1

Calcul. Score =	Rating (circle)	Point Value = (circle)
1-2 =	(Low)	(=1)
3-6 =	Moderate	= 3
9-15 =	High	= 5

Function & Value Summary and Overall Wetland Rating

for Wetland Site(s):_____

Function & Value Parameters		Point Values	Ratings
1.	Wetland Size	1	Low
2.	Habitat Diversity	1	Low
3.	Food Chain Support	1	Low
4.	T&E/Proposed/Candidate Species Habitat	0	none
5.	MNHP Species Habitat	0	none
6.	General Fish & Wildlife Habitat	5	High
7.	Flood Control & Storage	1	Low
8.	Sediment Filtration	3	Moderate
9.	Erosion Control	0	none
10.	Nutrient Cycling	1	Low
11.	Groundwater Discharge/Recharge	5	High
12.	Uniqueness	1	Low
13.	Recreation/Education Potential	1	Low
TOTAL POINT VALUE		20	

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

I II III (IV)

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

- Total Point Value of 65 or more; or
- "Exceptional" ratings for T&E/Proposed/Candidate Species Habitat or Flood Control & Storage or Uniqueness.

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

- Total Point Value of 40 - 64; or
- "Exceptional" ratings for MNHP Species Habitat or General Wildlife & Fish Habitat; or
- "High" ratings for Food Chain Support or Uniqueness.

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:

- Total Point Value less than 26; and
- "Low" ratings for Wetland Size and Habitat Diversity.

The proposed change will not alter the

MDT Wetland Classification Scheme
(adapted from Windell et al.[1986] and Cowardin et al.[1979])

Water Regime	Vegetation Type	Substrate	Wetland Type	Modifiers and Descriptors
* Permanently flooded * Intermittently exposed * Semi-permanently flooded * Seasonally flooded * Saturated * Temporarily flooded	Rooted floating, floating-leaved, or submergent	Water, mineral, or organic	Aquatic Bed (standing water)	Modifiers * Excavated ditch * Excavated basin * Impounded * Diked * Farmed * Grazed * Partly Drained --- Descriptors * Riparian * Deepwater Habitat * Drumlin Wetland * Seasonal Wetland * Prairie Pothole * Vegetated Flat
			Aquatic Channel (within channel)	
	Emergent (erect, rooted, herbaceous hydrophytes [includes mosses and lichens])	Organic (peat, muck)	Fen (typically "peatland" dominated by sedges and grasses)	
			Bog (typically "peatland" dominated by sphagnum mosses)	
			Marsh (substrate can be "muck" or mineral; not typically dominated by sedges and grasses)	
		Mineral	Wet Meadow (dominated by sedges, grasses and rushes)	
			Marsh (substrate can be "muck" or mineral; not typically dominated by sedges and grasses)	
			Emergent Channel (within channel)	
	Shrub (woody vegetation less than 20 feet tall)	Organic (peat, muck)	Carr (shrub-dominated fen)	
			Shrub-bog (shrub-dominated bog)	
		Mineral	Shrub (coniferous, deciduous, or mixed)	
	Forested (woody vegetation greater than 20 feet tall)	Organic or Mineral	Forested (coniferous, deciduous, or mixed)	
	Unvegetated	Mineral or Water	Open Water	
			Bare Substrate	

Permanently flooded: Water covers land surface throughout the year in all years.
Intermittently exposed: Surface water present throughout the year except during years of extreme drought.
Semipermanently flooded: Surface water persists throughout growing season in most years.
Seasonally flooded: Surface water present for extended periods, especially early in the growing season, but usually absent by end of season.
Saturated: Substrate saturated to surface during growing season, but surface water seldom present.
Temporarily flooded: Surface water present for brief periods during growing season, but water table well below surface most of the year.

Excavated ditch or basin: Lies within basin or channel excavated by man.
Impounded: Created or modified by barrier or dam which purposefully or unintentionally obstructs water outflow.
Diked: Created or modified by man-made barrier or dike designed to obstruct the inflow of water.
Farmed: Soil surface has been mechanically or physically altered for crop production, but hydrophytes will reestablish if farming discontinued.
Grazed: Vegetation grazed by domestic stock.
Partly Drained: Water level has been artificially lowered, but soil moisture sufficient to support hydrophytes.
Riparian: Of, on, or pertaining to the bank of a natural watercourse.
Deepwater Habitat: Open water area with a mean annual water depth > 6.6 feet.
Drumlin and Seasonal Wetlands, Prairie Potholes, and Vegetated Flats: See 1987 COE Wetland Delineation Manual, Section G - Problem Areas.

Appendix D

BIRD SURVEY PROTOCOL
MACROINVERTEBRATE SAMPLING PROTOCOL
GPS PROTOCOL

MDT Wetland Mitigation Monitoring
Vince Ames
Red Lodge, Montana

LAND & WATER

BIRD SURVEY PROTOCOL

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

Species Use within the Mitigation Wetland: Survey Method

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

Sites that can be circumambulated or walked throughout.

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

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

Sites that cannot be circumambulated.

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

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

Species Use within the Mitigation Wetland: Data Recording

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

1. Bird Species List

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

2. Bird Density

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

3. Bird Behavior

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

4. Bird Species Habitat Use

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

AQUATIC INVERTEBRATE SAMPLING PROTOCOL

Equipment List

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

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

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

Site Selection

Select the sampling site with these considerations in mind:

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

Sampling

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

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

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

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

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

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

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

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

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

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

Photograph the sampled site.

Sample Handling/Shipping

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

GPS Mapping and Aerial Photo Referencing Procedure

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

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

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

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

Appendix E

REPRESENTATIVE PHOTOGRAPHS

MDT Wetland Mitigation Monitoring
Vince Ames
Red Lodge, Montana

LAND & WATER

Photo point Q, pond 1; view South

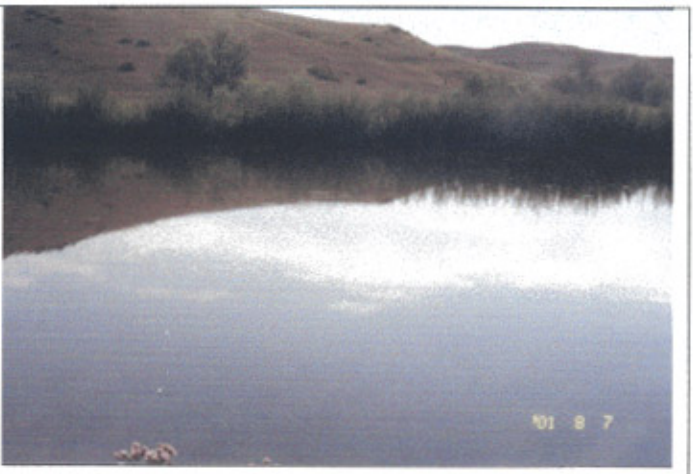


Photo point N, pond 2; view East.

Photo point C, pond 2; view West

Photo point D, wetland between ponds 2 and 3; view West

Photo point L, pond 3; view East.

Photo point H, pond 4; view West

Photo point I, pond 4; view South.

Photo point J, pond 4; view East.

Photo point O, beginning transect 1; view SW.

Photo point P, end transect 1; view North.

Photo point G, beginning transect 2; view South.

Photo point F, end transect 2; view North.

2001 Vince Ames Sheet 2

	
Photo point M, wetland buffer; view North.	Photo point K, upland use; view South.