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

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*Johnson-Valier  
Valier, Montana*



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

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

May 2003

Project No: 130091.018



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## 1.0 INTRODUCTION

The Johnson-Valier wetland mitigation site was constructed in 1994 to mitigate wetland impacts associated with Montana Department of Transportation (MDT) projects F 44-1(3)14 (Valier-East), F 44-1(7)0 (Valier-West), and other projects in Watershed #8 (Marias). The Valier-East and Valier-West projects resulted in a combined wetland loss of approximately 17 acres. Constructed within the MDT Great Falls District, the mitigation site is located approximately 2 miles northwest of Valier (**Figure 1**). The entire site occurs in Pondera County.

The intent of the project was to create three impoundments: a main impoundment, which would hold approximately 19.9 acres of surface water at capacity (3-foot depth), and two smaller impoundments ranging in size between 4.1 and 4.8 acres at maximum capacity (2-foot depth) (Van Hook 1994; Diagram 1 in **Appendix D**). The total projected surface water area at the site was 28.8 acres. Exact area of wetlands to be created was left to be determined during future monitoring, although “approximately 28 acres” of created wetlands were specified in the 1994 Wetland Development Agreement.

An approximate 2.5-acre remnant wetland pothole occurred in the area of the main impoundment prior to project construction. This area was to be subtracted from total wetland acreage credit unless determined that its wetland functions have been improved.

Generally, the project was designed to support waterfowl and wetland communities while also focusing on providing habitat for upland game birds, ungulates, furbearers, predators, amphibians, songbirds, and small mammals. It was also expected that an increasing diversity of invertebrates would benefit from shallow impoundments over time.

MDT personnel visited the site intermittently over the past several years. Photographs were taken during several visits and vegetation species were recorded. These materials were not incorporated into a report format, but are available in the MDT project files. Land & Water Consulting monitored the site in 2001, and again in 2002. No performance standards or success criteria were required by the U.S. Army Corps of Engineers (COE), MDT, or other agencies. The monitoring area is illustrated in **Figure 2, Appendix A**.

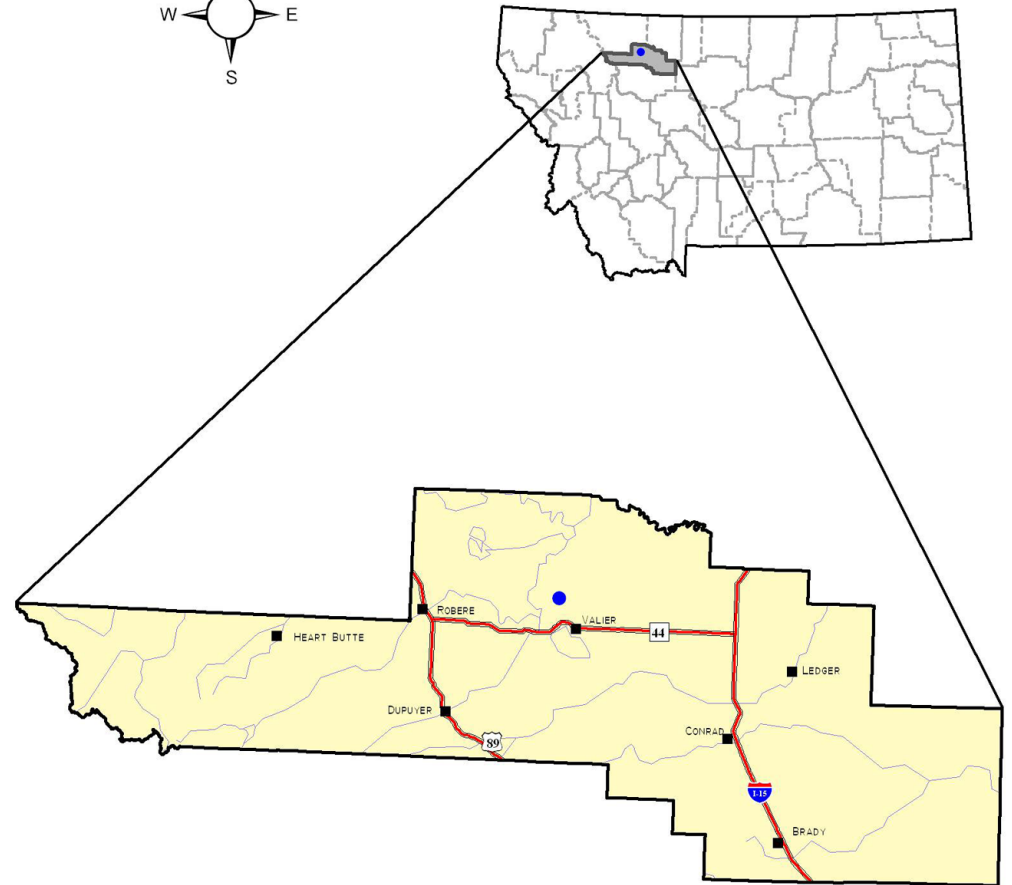
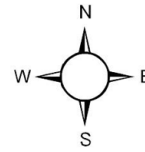
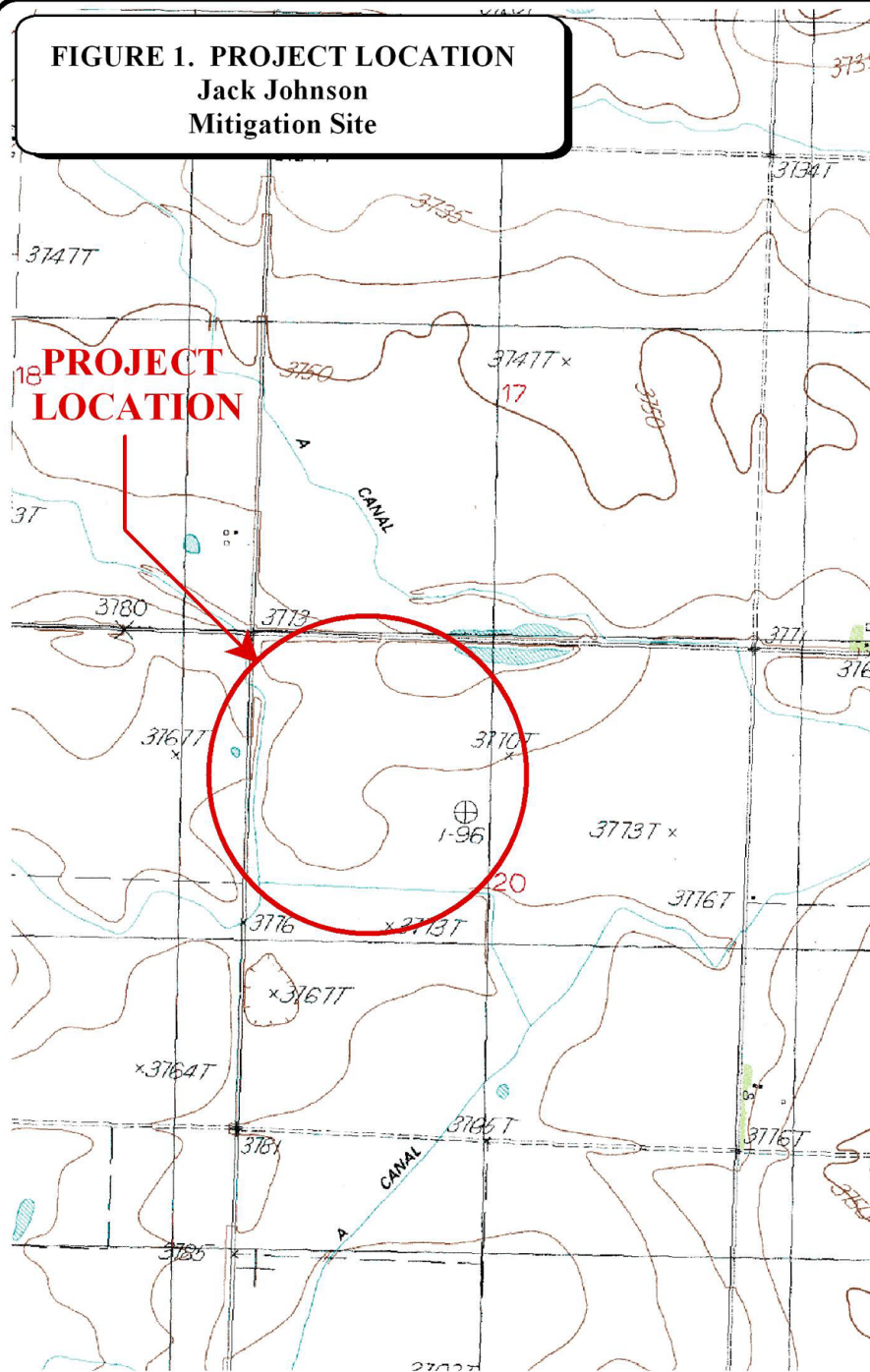
## 2.0 METHODS

### 2.1 Monitoring Dates and Activities

The site was visited on May 5 (spring), August 1 (mid-season), and October 3 (fall) 2002. The primary purpose of the spring and fall visits was to conduct a bird/general wildlife reconnaissance.

**FIGURE 1. PROJECT LOCATION**

**Jack Johnson  
Mitigation Site**



800 0 800 1600 FEET  
1: 24,000

PROJECT #: 130091.018  
DATE: MAY 2001  
LOCATION:  
PROJECT MANAGER: J. BERGLUND  
DRAWN BY: B. NOECKER

**LAND & WATER** CONSULTING, INC.

1120 CEDAR PO BOX 8254 MISSOULA, MT 59807

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

## 2.2 Hydrology

According to the mitigation plan, spring refill is not normally accomplished until June 15<sup>th</sup> or until completion of the waterfowl nesting season in order to avoid nest flooding (Van Hook 1994). Primary flooding to capacity is accomplished during September-October.

Impoundment areas are indicated on Diagram 1 in **Appendix D**. Hydrologic indicators were primarily evaluated during the mid-season visit. Wetland hydrology indicators were recorded using procedures outlined in the COE 1987 Wetland Delineation Manual (Environmental Laboratory 1987). Hydrology data was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**).

All additional hydrologic data was recorded on the mitigation site monitoring form (**Appendix B**). The boundary between wetlands and open water aquatic habitats (no rooted vegetation) was mapped on an aerial photograph and an estimate of the average water depth at this boundary was recorded.

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

## 2.3 Vegetation

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

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

The transect location is depicted on **Figure 2 (Appendix A)**. All data was recorded on the mitigation site monitoring form. Photos of the transect were taken from both ends during the mid-season visit.

A few woody species were planted at the site over time; however, the location of these plantings was not mapped or otherwise documented. A list of plants used or proposed for use in the design specifications (Van Hook 1994) was provided in the 2001 monitoring report. Shrubs, primarily snowberry (*Symphoricarpos occidentalis*) and rose (*Rosa* sp.), were generally planted over the years in the vicinity of current birdhouse locations (Urban pers. comm.). The site was searched for evidence of planted woody species during the mid-season visit.

## 2.4 Soils

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

A published soil survey does not exist for Pondera County. However, the soils mapping is complete, and the local Natural Resources Conservation Service (NRCS) office was consulted relative to unpublished mapped soil units at the site.

## 2.5 Wetland Delineation

Wetland delineation was conducted during the mid-season visit according to the 1987 COE Wetland Delineation Manual. Wetland and upland areas within the monitoring area were investigated for the presence of wetland hydrology, hydrophytic vegetation and hydric soils. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). The information was recorded on COE Routine Wetland Delineation Data Forms (**Appendix B**). The wetland/upland boundary delineated in 2001 using a GPS unit was confirmed and adjusted using an aerial photograph. The wetland/upland boundary in combination with any wetland/open water habitat boundary was used to calculate the wetland area developed on the site.

It was estimated by MDT that approximately 2.5 acres of wetland originally existed at the site. Wetland delineation data collected during 2002 was compared to this pre-construction estimate in an effort to calculate additional wetland development since project construction.

## 2.6 Mammals, Reptiles, and Amphibians

Mammal, reptile, and amphibian species observations and other positive indicators of use, such as vocalizations, were recorded on the wetland monitoring form during each site visit. Indirect use indicators, including tracks; scat; burrows; eggshells; skins; bones; etc., were also recorded. These observations were recorded as the observer traversed the site while conducting other required activities. Direct sampling methods such as snap traps, live traps, and pitfall traps, were not implemented. A comprehensive list of wildlife species observed during 2002 monitoring was compiled.

## 2.7 Birds

Bird observations were recorded during both visits. No formal census plots, spot mapping, point counts, or strip transects were conducted. During the spring and fall visits, observations were recorded in compliance with the bird survey protocol in **Appendix E**. During the mid-season visit, bird observations were recorded incidental to other monitoring activities. During all visits, observations were categorized by species, activity code, and general habitat association (see field data forms in **Appendix B**). A comprehensive 2002 bird list was compiled using these observations.

Nine birdhouses are currently located on the site (Urban pers. comm.). These structures were examined for bird use.

## 2.8 Macroinvertebrates

Two separate macroinvertebrate samples were collected during the mid-season site visit. These samples were collected at the southwest and main impoundments. Data were recorded on the wetland mitigation monitoring form. Macroinvertebrate sampling procedures are provided in **Appendix E**. The sampling locations are shown on **Figure 2 (Appendix A)**. The samples were preserved as outlined in the sampling procedure and sent to a laboratory for analysis.

## 2.9 Functional Assessment

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

## 2.10 Photographs

Photographs were taken showing the current land use surrounding the site, the upland buffer, the monitored area, and the vegetation transect. Four photograph points established and shot during 2001 were also shot during 2002. The approximate locations of these photo points are shown on **Figure 2 (Appendix A)**. All photographs were taken using a 50 mm lens. A description and compass direction for each photograph was recorded on the wetland monitoring form.

## 2.11 GPS Data

During the 2002 monitoring season, no survey points were collected with a GPS unit as most site features were recorded during 2001. These included vegetation transect beginning and ending locations, birdhouse locations, all photograph locations and the wetland boundary. Minor wetland boundary changes observed in 2002 were documented by hand on the aerial photograph.

## 2.12 Maintenance Needs

The dikes at each impoundment were examined during the 2002 site visits for obvious signs of breaching, damage, or other problems. This did not constitute an engineering-level structural inspection, but rather a cursory examination. Current or future potential problems were documented. Birdhouses were examined for signs of wear and structural integrity.

## 3.0 RESULTS

### 3.1 Hydrology

The site was severely dewatered during the spring visit. However, inundation was observed at most of the wetland areas during both the mid-season and fall visits. The landowner had apparently applied water to the site prior to both visits. Specific water values recorded during the mid-season visit are provided on the attached data forms.

During the mid-season visit, the 80-acre site as a whole was estimated to be approximately 30 percent inundated, with an average depth of 0.5 feet and a range of depths from zero to an estimated three feet. Most of the wetlands delineated in the main impoundment were inundated; approximately 50 to 60% inundation was observed at wetlands delineated at the large northeast and southwest impoundments as well. The small west and northwest depressions were dry. Two small open water areas were delineated in the main impoundment.

During the fall visit, virtually all wetlands in the main, northeast, and southwest impoundments were inundated, as were some uplands adjacent to the northeast impoundment. Vegetated areas in the center of the main impoundment were flooded and functioning as open water areas. The small west depression was saturated, but the small northwest depression was dry. Surface water may simply have not yet reached this small depression by the fall visit.

No groundwater component appears to contribute to this site, which is charged by irrigation water, precipitation, and runoff. The exhibited inundation was largely the result of irrigation water being turned into the site by the landowner.

### 3.2 Vegetation

Vegetation species identified on the site are presented in **Table 1** and on the attached data form. Six wetland community types were identified and mapped on the mitigation area (**Figure 3, Appendix A**) during 2002. These included Type 1: *Typha latifolia/Scirpus acutus*, Type 2: *Alopecurus pratensis/Carex lanuginosa*, Type 3: *Typha latifolia/Hordeum jubatum*, Type 4: *Polygonum/Alisma gramineum*, Type 5: *Hordeum jubatum/Chenopodium*, and Type 7: *Chenopodium*. Type 6: exposed mudflats, was mapped during 2001, but these areas were inundated and had reverted to Type 1 in 2002. Dominant species within each of these communities are listed on the attached data form (**Appendix B**).



**Table 1: 2002 Johnson - Valier Vegetation Species List**

Species	Region 9 (Northwest) Wetland Indicator	Observed in 2001	Observed in 2002
<i>Agropyron cristatum</i>	--	x	x
<i>Agropyron in termedium</i>	--	x	x
<i>Agropyron repens</i>	FACU	x	x
<i>Agrostis alba</i>	FACW	x	x
<i>Alisma gramineum</i>	OBL	x	x
<i>Alopecurus pratensis</i>	FACW	x	x
<i>Avena fatua</i>	--	x	x
<i>Beckmannia syzigachne</i>	OBL	x	x
<i>Bromus inermis</i>	--	x	x
<i>Carex lanuginosa</i>	OBL	x	x
<i>Chenopodium album</i>	FAC	x	x
<i>Chenopodium berlandieri</i>	--	x	x
<i>Chenopodium chenopodiodes</i>	--	x	x
<i>Cirsium arvense</i>	FAC-	x	x
<i>Dactylis glomerata</i>	FACU		x
<i>Eleocharis acicularis</i>	OBL	x	x
<i>Eleocharis palustris</i>	OBL	x	x
<i>Glyceria grandis</i>	OBL	x	x
<i>Helianthus annuus</i>	FACU+	x	x
<i>Hordeum jubatum</i>	FAC-	x	x
<i>Juncus balticus</i>	OBL	x	x
<i>Juncus torreyi</i>	FACW	x	x
<i>Lactuca serriola</i>	FACU	x	x
<i>Medicago sativa</i>	--	x	x
<i>Melilotus officinalis</i>	FACU	x	x
<i>Phleum pratense</i>	FAC-	x	x
<i>Poa palustris</i>	FAC	x	x
<i>Polygonum amphibium</i>	OBL	x	x
<i>Polygonum hydropiperoides</i>	OBL	x	x
<i>Ranunculus aquatilis</i>	OBL	x	x
<i>Rorippa curvisiliqua</i>	FACW+		x
<i>Rosa woodsii</i>	FACU	x	x
<i>Rumex crispus</i>	FACW	x	x
<i>Salsola iberica</i>	--	x	x
<i>Scirpus acutus</i>	OBL	x	x
<i>Scirpus microcarpus</i>	OBL	x	x
<i>Scirpus validus</i>	OBL	x	x
<i>Solidago canadensis</i>	FACU	x	x
<i>Sonchus arvensis</i>	FACU+	x	x
<i>Taraxacum officinale</i>	FACU	x	x
<i>Thlaspi arvense</i>	--	x	x
<i>Tragopogon dubius</i>	--		x
<i>Typha angustifolia</i>	OBL	x	x
<i>Typha latifolia</i>	OBL	x	x

Type 1 occurs primarily in the center and along the west portion of the main impoundment and in the deepest portion of the southwest impoundment. This community expanded in 2002 in the main impoundment with the addition of surface water, eliminating mudflat communities mapped during 2001. Small pockets of open water are interspersed within this community, but were not mapped separately. Type 2 occurs mainly as an interface between wetland and upland areas. Type 3 occurs largely along north-central portion of the main impoundment, and comprises the majority of the northeast impoundment. Type 4 occurs mainly as small pockets within the deepest portion of the main impoundment, apparently within the pre-existing pothole. Type 5 occurs within the central portion of the main impoundment, within the areas likely inundated during normal water years as was the case in 2002. Type 7 occurs as a small monotype in the west-central portion of the main impoundment.

Adjacent upland communities are comprised of rangeland habitats. Common species include smooth brome (*Bromus inermis*), quackgrass (*Agropyron repens*), timothy (*Phleum pratense*), crested wheatgrass (*Agropyron cristatum*), intermediate wheatgrass (*Agropyron intermedium*), yellow sweet clover (*Melilotus officinalis*), Russian thistle (*Salsola iberica*), prickly lettuce (*Lactuca serriola*), and goosefoot (*Chenopodium* sp.).

Vegetation transect results are detailed in the attached data form, and are summarized graphically below. Results were identical to 2001 results, although changes may occur in subsequent years due to increased inundation.

2001

Start (nw)	Up. (50')	Type 2 (42')	Type 1 (111')	Type 5 (495')	Type 1 (84')	Type 2 (40')	Up. (110')	Total: 932'	End (se)
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2002

Start (nw)	Up. (50')	Type 2 (42')	Type 1 (111')	Type 5 (495')	Type 1 (84')	Type 2 (40')	Up. (110')	Total: 932'	End (se)
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A few woody species were planted at the site over time; however, the locations of these plantings were not mapped or otherwise documented. According to MDT, some shrubs were planted in the vicinity of current birdhouse locations (Urban pers. comm.). The site was searched for evidence of planted woody species during the mid-season visit. However, as in 2001, no evidence of such plantings was observed. Consequently, 100% mortality of such plantings was assumed, likely due to drought conditions.

### 3.3 Soils

A published soil survey does not exist for Pondera County. However, the soils mapping is complete, and the local Natural Resources Conservation Service (NRCS) office was consulted relative to unpublished mapped soil units at the site. Soils on the vast majority of the site are mapped as Nunemaker silty clay loam, 0-4 percent slopes. This well drained soil typically occurs on glaciated till plains between 3,300 and 4,000 feet elevation. This soil is generally considered as non-hydric by the NRCS.

B Horizon soils in wetland portions of the site consisted of silty clay loam with a matrix color ranging from 2.5Y4/2 to 2.5Y4/1 to 10YR5/1. Faint mottles at 2.5Y5/8 were observed in the northeast impoundment area, indicating periodic inundation. Generally, hydric soils appeared to be developing within proposed wetland areas, but this development has likely been impeded by extremely dry conditions over the past few years. This was particularly evident at the two depressions located along the site's north border and the small western-most depression.

During 2001, soils on the site were not saturated within 18 inches of the surface at the time of the mid-season survey, with the exception of two small 200 square foot pools in the southwest impoundment. In contrast, most wetland area soils at the site were either saturated or inundated during the 2002 mid-season visit, with the exception of the northeast depression, which exhibited water marks from earlier in the spring.



### 3.4 Wetland Delineation

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

Johnson-Valier Mitigation Area:      22.12 wetland acres (emergent, aquatic bed)  
    0.51 acre open water  
    22.63 acres total aquatic habitats

Approximately 22.12 acres of wetlands presently occur on the site (**Figure 2, Appendix A**). A sparsely vegetated mudflat area in the center of the main impoundment, included in the 2001 wetland acreage tally, had reverted to *Typha/Scirpus*, *Polygonum*, and open water communities by the 2002 mid-season visit due to the addition of surface water. Larger open water pockets tallied to 0.51 acre. Smaller open water pockets were also interspersed through vegetated areas, but were too small to map separately. During the October 2002 visit, much of the main impoundment was flooded to capacity, temporarily flooding many of the emergent communities. A small wetland gain of 0.14 acre was noted north of the dike structure at the northeast impoundment.

An approximate 2.5-acre remnant wetland pothole occurred in the area of the main impoundment prior to project construction. This area was to be subtracted from total wetland acreage credit unless determined that its wetland functions have been improved. Although no baseline functional assessment was performed, it is assumed that because this impoundment now achieves a Category II rating due to wildlife habitat (and is now protected by a conservation easement), functions at this pre-existing site have likely improved at least somewhat over baseline conditions. Therefore, the pre-existing 2.5 acres was not subtracted from the post-project 22.63-acre total.

### 3.5 Wildlife

Wildlife species, or evidence of wildlife, observed on the site during 2001 and 2002 monitoring efforts are listed in **Table 2**. Specific evidence observed, as well as activity codes pertaining to birds, are provided on the completed monitoring form in **Appendix B**. The site provides habitat for several wildlife species; particularly waterfowl. Four mammal, one amphibian, and 21 bird species were noted using the mitigation site during the course of 2002 monitoring activities. Very limited use of birdhouses was observed during 2002.

Northern leopard frogs (*Rana pipiens*), observed during 2001, were not observed during 2002, but were assumed present due to the greater amounts of surface water available in 2002. Leopard frogs are considered “species of special concern” by the Montana Natural Heritage Program (MNHP) due largely to their apparent extirpation from the portion of their historic distribution west of the Continental Divide. This species has been assigned a rank of S1 west of the Continental Divide and S3 east of the Divide by the MNHP. The southwest impoundment is considered documented secondary habitat for this species due to the few individuals observed during 2001 and intermittent nature of surface water.

**Table 2: Fish and Wildlife Species Observed on the Johnson - Valier Mitigation Site 2001 - 2002**

<b>FISH</b>	
None	
<b>AMPHIBIANS</b>	
Northern Leopard Frog ( <i>Rana pipiens</i> )	
Tiger Salamander ( <i>Ambystoma tigrinum</i> )**	
<b>REPTILES</b>	
None	
<b>BIRDS</b>	
American Avocet ( <i>Recurvirostra americana</i> )	Mourning Dove ( <i>Zenaida macroura</i> )
American Coot ( <i>Fulica americana</i> )**	Northern Harrier ( <i>Circus cyaneus</i> )*
American Kestrel ( <i>Falco sparverius</i> )	Northern Shoveler ( <i>Anas clypeata</i> )*
American Robin ( <i>Turdus migratorius</i> )**	Red-winged Blackbird ( <i>Agelaius phoeniceus</i> )*
American Wigeon ( <i>Anas americana</i> )	Ring-billed Gull ( <i>Larus delawarensis</i> )
Barn Swallow ( <i>Hirundo rustica</i> ) *	Ring-necked Pheasant ( <i>Phasianus colchicus</i> )*
Brewer's Blackbird ( <i>Euphagus cyanocephalus</i> )	Rock Dove ( <i>Columba livia</i> )
Brown-headed Cowbird ( <i>Molothrus ater</i> )	Sandhill Crane ( <i>Grus Canadensis</i> )
Canada Goose ( <i>Branta Canadensis</i> )**	Savannah Sparrow ( <i>Passerculus sandwichensis</i> )*
Cliff Swallow ( <i>Petrochelidon pyrrhonota</i> )	Sharp-tailed Grouse ( <i>Tympanuchus phasianellus</i> )
Common Snipe ( <i>Gallinago gallinago</i> ) *	Song Sparrow ( <i>Melospiza melodia</i> )**
Gadwall ( <i>Anas strepera</i> ) *	Sora ( <i>Porzana Carolina</i> )**
Gray Partridge ( <i>Perdix perdix</i> )**	Spotted Sandpiper ( <i>Actitis macularia</i> )**
Killdeer ( <i>Charadrius vociferous</i> )*	Tree Swallow ( <i>Tachycineta bicolor</i> )*
Mallard ( <i>Anas platyrhynchos</i> )*	Vesper Sparrow ( <i>Pooecetes gramineus</i> )*
Marbled Godwit ( <i>Limosa fedoa</i> )	Western Meadowlark ( <i>Sturnella neglecta</i> )*
Marsh Wren ( <i>Cistothorus palustris</i> )	Willet ( <i>Catoptrophorus semipalmatus</i> )
	Wilson's Phalarope ( <i>Phalaropus tricolor</i> )
	Yellow-headed Blackbird ( <i>Xanthocephalus xanthocephalus</i> )*
<b>MAMMALS</b>	
Coyote ( <i>Canis latrans</i> )**	
Raccoon ( <i>Procyon lotor</i> )**	
Richardson's Ground Squirrel ( <i>Spermophilus richardsonii</i> )*	
Striped Skunk ( <i>Mephitis mephitis</i> )	
White-tailed Deer ( <i>Odocoileus virginianus</i> ) *	
* denotes observed in 2002 in addition to previous years	
** denotes observed in 2002 for the first time	
No asterisk indicates observed in 2001 only	

Also of interest were observations of several tiger salamanders (*Ambystoma tigrinum*) within the dike control structure and outlet pipe of the main impoundment during the October 2002 visit.

### 3.6 Macroinvertebrates

Macroinvertebrate sampling results are provided in **Appendix B** and summarized by Rhithron Associates in the italicized section below.

Main Impoundment: *Scores implied that this site was in optimal biologic condition. Taxa richness and chironomid taxa richness were both exceptionally high, suggesting abundant diverse habitats. Water quality was better than at most sites; the biotic index value (7.35) was*

*slightly lower than the median value. Slight impairment of water quality by nutrients or warm temperatures cannot be ruled out.*

*Southwest Impoundment: Sub-optimal biotic conditions were suggested by scores calculated for this site. Taxa richness was slightly depressed, which may indicate limited habitat availability. The elevated biotic index (8.36) strongly implied that water quality was impaired by warm temperatures and/or nutrient enrichment.*

### 3.7 Functional Assessment

Completed functional assessment forms are presented in **Appendix B**. Functional assessment results are summarized in **Table 3**. Year 2002 scores and ratings were very similar to those calculated in 2001.

The main impoundment of the mitigation site again rated as a Category II site, primarily due to high ratings for wildlife habitat, surface water storage, and food chain support. The southwest and northeast impoundments again rated as Category III sites, although the score at the southwest impoundment was nearly double of that achieved at the northeast impoundment. The small depressions outside of the main cells again rated as Category IV (low value) sites. This was primarily due to low vegetative diversity and low acreage of actual wetlands present.

Based on functional assessment results (**Table 3**), approximately 107 functional units have been gained thus far at the Johnson-Valier mitigation site.

### 3.8 Photographs

Representative photographs taken from photo-points are provided in **Appendix C**, as is a 2002 aerial photograph of the site.

### 3.9 Maintenance Needs/Recommendations

The dikes and all nine birdhouses were in good condition during the mid-season visit. No significant problems were observed.

Due to the extreme drought conditions evident during 2001 monitoring, it was recommended in the 2001 monitoring report that MDT postpone “final” site characterization until a “normal” precipitation year (or perhaps following a succession of normal years) in order to accurately document the functional attributes and vegetative establishment at the site. Given that the site was filled again during fall of 2002, year 2003 results may be more reflective of the site’s potential. Thus, monitoring during 2003 is recommended. Increased MDT monitoring of water delivery to the site should also be undertaken to insure that it occurs consistently.

### 3.10 Current Credit Summary

No specific performance criteria were required to be met at this site in order to document its success. However, the overall goal was to provide approximately 28 wetland acres. The project was designed to support waterfowl and wetland communities while also focusing on providing

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

Function and Value Parameters from the 1999 MDT Montana Wetland Assessment Method	Wetland Sites			
	Main Impoundment	Southwest Impoundment	Two Small Depressions Outside of Main and SW Impoundments	Northeast Depression
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.0)	Low (0.0)	Low (0.3)
MNHP Species Habitat	Mod (0.6)	Mod (0.7)	Low (0.1)	Low (0.1)
General Wildlife Habitat	High (0.9)	Mod (0.5)	Low (0.2)	Mod (0.5)
General Fish/Aquatic Habitat	NA	NA	NA	NA
Flood Attenuation	Mod (0.5)	Low (0.2)	NA	NA
Short and Long Term Surface Water Storage	High (0.9)	Low (0.3)	Low (0.1)	Low (0.3)
Sediment, Nutrient, Toxicant Removal	High (1)	High (1.0)	NA	NA
Sediment/Shoreline Stabilization	Mod (0.6)	NA	NA	NA
Production Export/Food Chain Support	High (0.9)	Mod (0.7)	Low (0.3)	Mod (0.5)
Groundwater Discharge/Recharge	NA	Low (0.1)	Low (0.1)	NA
Uniqueness	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
Recreation/Education Potential	Low (0.3)	Low (0.3)	Low (0.1)	Low (0.1)
Actual Points/Possible Points	6.3 / 10	4.1 / 10	1.2 / 8	2.1 / 7
% of Possible Score Achieved	63%	41%	15%	30%
Overall Category	II	III	IV	III
Total Acreage of Assessed Wetlands and Other Aquatic Habitats within Site Boundaries	16.99 ac	2.47 ac	0.59 ac	2.58 ac
Functional Units (acreage x actual points)	107 fu	10 fu	1 fu	5 fu
Net Acreage Gain	16.99 – 2.5 = 14.49 ac	2.47 ac	0.59 ac	2.58 ac
Net Functional Unit Gain	91 fu	10 fu	1 fu	5 fu
Total Functional Unit “Gain”	<b>107 Total Functional Units</b>			

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

habitat for upland game birds, ungulates, furbearers, predators, amphibians, songbirds, and small mammals. It was also expected that an increasing diversity of invertebrates would benefit from shallow impoundments over time. Based on 2001 and 2002 monitoring results, some of these goals have been achieved. Although hydrology was improved in 2002 over 2001, prior drought conditions have apparently prevented this site from realizing its full potential from a habitat standpoint.

As the project stands, approximately 22.63 acres of wetlands and open water presently occur on the site (**Figure 2, Appendix A**). This is presently the maximum assignable credit at this site as of 2002. Approximately 107 functional units have been gained at this site.

#### 4.0 REFERENCES

- Carlson, J. Program Zoologist, Montana Natural Heritage Program. Helena, MT. April 2001 conversation.
- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. US Army Corps of Engineers. Washington, DC.
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- Werner, K. Herpetologist, Salish-Kootenai Community College. Pablo, MT. May 1998 instructional presentation.

## Appendix A

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### FIGURES 2 - 3

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*MDT Wetland Mitigation Monitoring*  
*Johnson-Valier*  
*Valier, Montana*



**Figure 2 - Monitoring Activity Locations 2002**

**Legend**

- Monitoring Area Limits
- Photograph Point
- Aerial Reference Point
- Bird Box
- Soil Sample
- Macro-invertebrate Sample Point

**NOT TO SCALE**

**MDT Jack Johnson Wetland Mitigation**

**Monitoring Activity Locations 2002**

**PROJECT NAME** MDT Jack Johnson Wetland Mitigation

**DRAWING TITLE** Monitoring Activity Locations 2002

**PROJECT NUMBER** 2

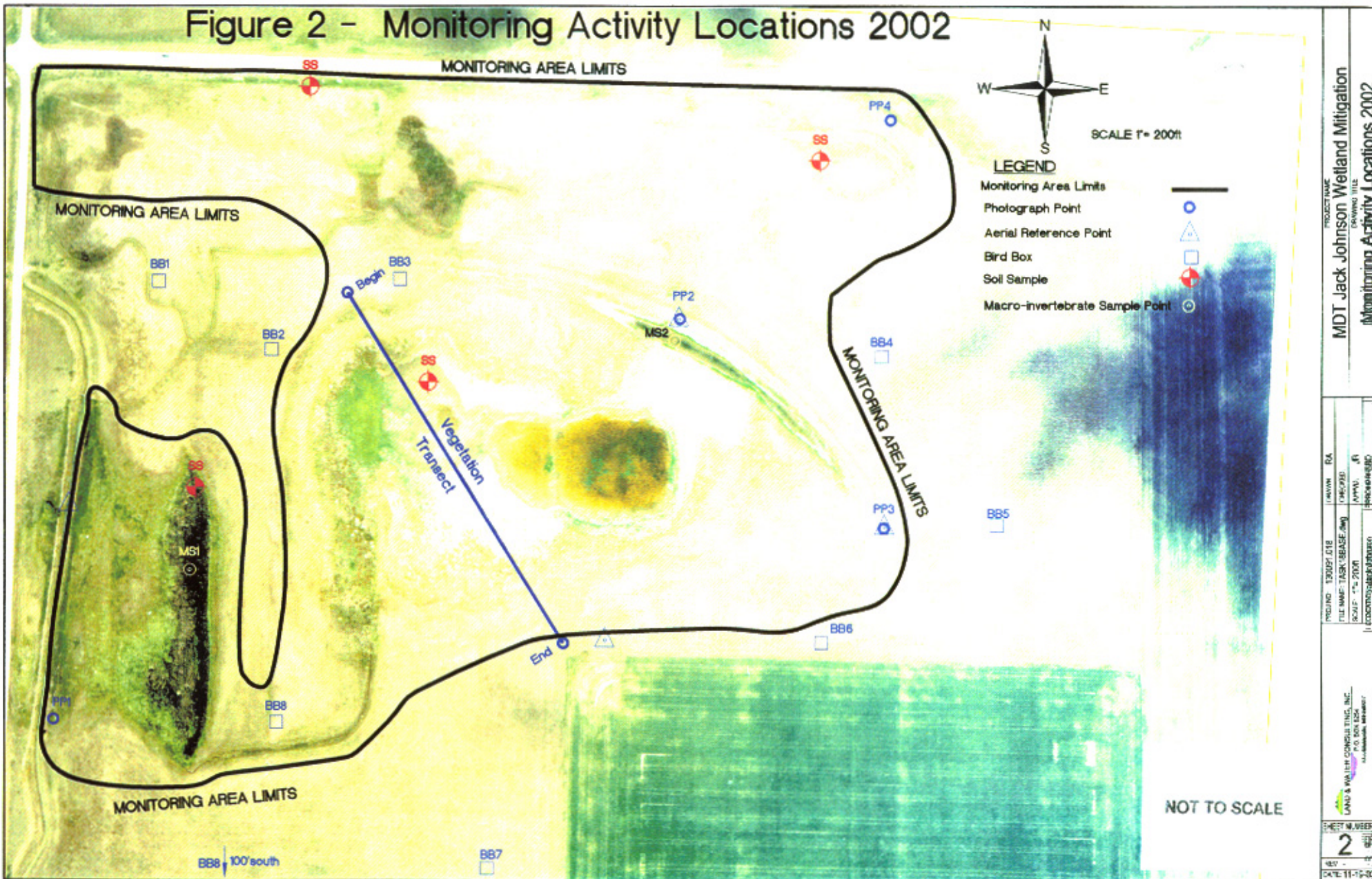
**DATE** 11-15-02

**SCALE** 1" = 200'

**PROJECT LOCATION** JACKSONVILLE, FLORIDA

**PROJECT OWNER** LAND & WATER CONSULTING, INC.

**PROJECT MANAGER** P.O. BOX 1254  
JACKSONVILLE, FLORIDA 32202



NOT TO SCALE



### Figure 3 - Mapped Site Feature 2002

**MONITORING AREA LIMITS**

**LEGEND**

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

**Net Wetland Area 2001** 22.49 Acres  
**Wetland Adj. 2002** +0.14 Acres  
**Open Water Area 2002** -0.51 Acres  
**Net Wetland Area 2002** 22.12 Acres

**Vegetation Types:**

- 1 Typha/Scirpus
- 2 Alopecurus/Carex
- 3 Typha/Hordeum
- 4 Polygonum/Alema
- 5 Hordeum/Chenopodium
- 6 Mud Flat (None in 2002)
- 7 Chenopodium

**NOT TO SCALE**

**MDT Jack Johnson Wetland Mitigation**  
**Mapped Site Features 2002**

**PROJECT NAME** MDT Jack Johnson Wetland Mitigation  
**DRAWING TITLE** Mapped Site Features 2002  
**PROJECT NO.** 130081.010  
**FILE NAME:** TASK18BASE.dwg  
**SCALE:** 1" = 200'  
**LOCATION:** Jack Johnson  
**DRAWN:** RA  
**CHECKED:**  
**APPROVED:** JB  
**PROJECT MANAGER:** JB

**LAND & WATER CONSULTING, INC.**  
 10000 W. 10th Ave.  
 Suite 100  
 Golden, CO 80601  
 303.440.1111  
 www.lwc.com

**3**  
 REV -  
 DATE: 11-19-03

 <b>LAND &amp; WATER CONSULTING, INC.</b> 1000 Main Street Portsmouth, NH 03801	PROJECT NO: 130091.010 FILE NAME: TASK1BBSAE.dwg SCALE: 1"= 200' DATE: 11-1-2002	DRAWN: RA CHECKED: APPR'D: JH PROJECTOR: JD	PROJECT NAME: <b>MDT Jack Johnson Wetland Mitigation</b>
	DRAWING TITLE: <b>Mapped Site Features 2002</b>		



## Appendix B

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**COMPLETED 2002 WETLAND MITIGATION SITE MONITORING  
FORM**

**COMPLETED 2002 BIRD SURVEY FORMS**

**COMPLETED 2002 WETLAND DELINEATION FORMS**

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

**MACROINVERTEBRATE DATA**

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***MDT Wetland Mitigation Monitoring***

*Johnson-Valier*

*Valier, Montana*



# LWC / MDT WETLAND MITIGATION SITE MONITORING FORM

Project Name: Johnson - Valier Project Number: F 44-1(3)14 Assessment Date: 8 / 1 / 02  
Location: 4 mi. north of Valier MDT District: Great Falls Milepost: 5 of Hwy. 358  
Legal description: T\_30N R\_5W\_ Section\_20\_ Time of Day: 0630-1100  
Weather Conditions: dry, windy Person(s) conducting the assessment: Berglund  
Initial Evaluation Date: 8 / 26 / 01 Visit #: 2 Monitoring Year: 2002 (year 2)  
Size of evaluation area: 80+ acres Land use surrounding wetland: croplands

## HYDROLOGY

**Surface Water** Source: irrigation and runoff  
Inundation: Present X Absent      Average depths: .5 ft Range of depths: 0 - 3 ft  
Assessment area under inundation: 30%  
Depth at emergent vegetation-open water boundary: 2 ft  
If assessment area is not inundated are the soils saturated w/in 12" of surface: Yes X No       
Other evidence of hydrology on site (drift lines, erosion, stained vegetation etc.): stained vegetation, water marks

### Groundwater

Monitoring wells: Present      Absent X

Record depth of water below ground surface

Well #	Depth	Well #	Depth	Well #	Depth

### Additional Activities Checklist:

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

**COMMENTS/PROBLEMS:** Water had been turned on at some point; much of the main impoundment was inundated, with some (about 50-60%) inundation at the northeast and southwest impoundments as well. The northwest wetland depression was dry, with no surface water. Even greater inundation was observed during the October 2002 birding visit – It is expected that this will substantially assist wetland vegetative growth next spring / summer.

## VEGETATION COMMUNITIES

Community No.: 1 Community Title (main species): TYP LAT / SCI ACU

Dominant Species	% Cover	Dominant Species	% Cover
TYP LAT	70	BEC SYZ	<3
SCI ACU	20		
ALO PRA	5		
SCI MIC	5		
ELE PAL	20		

**COMMENTS/PROBLEMS:** SCI ACU and ELE PAL increased over 2001 percentages

\_\_\_\_\_

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\_\_\_\_\_

Community No.: 2 Community Title (main species): ALO PRA / CAR LAN

Dominant Species	% Cover	Dominant Species	% Cover
ALO PRA	40	JUN BAL	5
CAR LAN	25	POA PAL	< 5
AGR ALB	15		
HOR JUB	5		
RUM CRI	5		

**COMMENTS/PROBLEMS:** Same as 2001

\_\_\_\_\_

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Community No.: 3 Community Title (main species): TYP LAT / HOR JUB

Dominant Species	% Cover	Dominant Species	% Cover
TYP LAT	40	AGR REP	1-2
TYP ANG	10	BEC SYZ	1-2
HOR JUB	45		
RUM CRI	2-3		
ELE PAL	10		

**COMMENTS/PROBLEMS:** Similar to 2001, with slight increase in TYP LAT percentage.

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\_\_\_\_\_

\_\_\_\_\_

### Additional Activities Checklist:

X Record and map vegetative communities on air photo

## VEGETATION COMMUNITIES (continued)

Community No.: 4 Community Title (main species): POL Sp. / ALI GRA

Dominant Species	% Cover	Dominant Species	% Cover
POL AMP	60		
POL HYD	20		
ALI GRA	15		
RAN AQU	10		

**COMMENTS/PROBLEMS:** All aquatic species increased over 2001; Chenopodium was eliminated from this community in 2002 due to increased inundation.

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\_\_\_\_\_

\_\_\_\_\_

Community No.: 5 Community Title (main species): HOR JUB / CHE CHE

Dominant Species	% Cover	Dominant Species	% Cover
HOR JUB	90		
CHE CHE	5		
RUM CRI	1-3		
LAC SER	1-3		

**COMMENTS/PROBLEMS:** Same as 2001

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\_\_\_\_\_

\_\_\_\_\_

Community No.: 7 Community Title (main species): CHE CHE

Dominant Species	% Cover	Dominant Species	% Cover
CHE CHE	90		
HOR JUB	10		
LAC SER	10		

**COMMENTS/PROBLEMS:** Same as 2001. Community Type 6, "Mudflat" did not occur in 2002 as this area was inundated and vegetated with Types 1 and 4.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

## COMPREHENSIVE VEGETATION LIST

Species	Vegetation Community Number(s)	Species	Vegetation Community Number(s)
<i>Agropyron cristatum</i>	upland	<i>Solidago canadensis</i>	2, upland
<i>Agropyron intermedium</i>	upland	<i>Sonchus arvensis</i>	3, upland
<i>Agropyron repens</i>	3, upland	<i>Taraxacum officinale</i>	upland
<i>Agrostis alba</i>	2,	<i>Thlaspi arvense</i>	upland
<i>Alisma gramineum</i>	4,	<i>Typha angustifolia</i>	3,
<i>Alopecurus pratensis</i>	1, 2,	<i>Typha latifolia</i>	1, 3,
<i>Avena fatua</i>	upland	<i>Dactylis glomerata</i>	upland
<i>Beckmannia syzigachne</i>	1, 3,	<i>Tragopogon dubius</i>	upland
<i>Bromus inermis</i>	upland		
<i>Carex lanuginosa</i>	2,		
<i>Chenopodium album</i>	7, upland		
<i>Chenopodium berlandieri</i>	7, upland		
<i>Chenopodium chenopodiodes</i>	5, 7		
<i>Cirsium arvense</i>	1, 5, upland		
<i>Eleocharis acicularis</i>	1		
<i>Eleocharis palustris</i>	1, 3,		
<i>Glyceria grandis</i>	1		
<i>Helianthus annuus</i>	upland		
<i>Hordeum jubatum</i>	2, 3, 5, 7		
<i>Juncus balticus</i>	2,		
<i>Juncus torreyi</i>	2		
<i>Lactuca serriola</i>	5, 7		
<i>Medicago sativa</i>	upland		
<i>Melilotus officinalis</i>	upland		
<i>Phleum pratense</i>	2, upland		
<i>Poa palustris</i>	2,		
<i>Polygonum amphibium</i>	4,		
<i>Polygonum hydropiperoides</i>	4,		
<i>Ranunculus aquatilis</i>	4,		
<i>Rosa woodsii</i>	upland		
<i>Rumex crispus</i>	2, 3, 5,		
<i>Salsola iberica</i>	upland		
<i>Scirpus acutus</i>	1,		
<i>Scirpus microcarpus</i>	1,		
<i>Scirpus validus</i>	1		

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

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## PLANTED WOODY VEGETATION SURVIVAL

[illegible]

**COMMENTS/PROBLEMS:** No planted woody species observed on the site.

[illegible]

## BIRDS

Were man made nesting structures installed? Yes\_\_x\_\_ No\_\_\_\_Type:\_\_\_\_\_ How many?\_9\_\_\_\_ Are the nesting structures being utilized? Yes\_x\_\_ No\_\_\_\_ Do the nesting structures need repairs? Yes\_\_\_\_ No\_x\_\_

[illegible]

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

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

## PHOTOGRAPHS

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

Checklist:

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

Location	Photo Frame #	Photograph Description	Compass Reading
A		See photo sheets and field notes	
B			
C			
D			
E			
F			
G			
H			

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

## GPS SURVEYING

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

Checklist:

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

**COMMENTS/PROBLEMS:** \_\_\_\_\_GPS not used during 2002; minor changes in wetland borders were hand-adjusted using aerial photograph and 2001 delineation.

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### WETLAND DELINEATION

(Attach Corps of Engineers delineation forms)

At each site conduct the items on the checklist below:

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

**COMMENTS/PROBLEMS:** ☐ See attached completed delineation forms. \_\_\_\_\_

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### FUNCTIONAL ASSESSMENT

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

**COMMENTS/PROBLEMS:** ☐ See attached completed functional assessment forms. \_\_\_\_\_

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### MAINTENANCE

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

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

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

Were man-made structures build or installed to impound water or control water flow into or out of the wetland?  
YES ☒ NO ☐

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

If no, describe the problems below.

**COMMENTS/PROBLEMS:** ☐ Water had not been turned into the site prior to the spring visit, but had been prior to the mid-season visit. Site was fully inundated by the time the fall visit was conducted in October.

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## MDT WETLAND MONITORING – VEGETATION TRANSECT

Site: Johnson-Valier Date: 8/1/02 Examiner: Berglund Transect # 1

Approx. transect length: 932 ft                      Compass Direction from Start (Upland): 153 degrees

<b>Vegetation type A:</b>	Upland	
Length of transect in this type:	50	feet
Species:		Cover:
CIR ARV		21-50
BRO INE		11-20
AGR REP		1-5
TAR OFF		6-10
MED SAT		11-20
Total Vegetative Cover:		80%

<b>Vegetation type B:</b>	ALO PRA (veg type 2)	
Length of transect in this type:	42	feet
Species:		Cover:
ALO PRA		100
<b>AGR REP</b>		<1
Total Vegetative Cover:		100

<b>Vegetation type C:</b>	TYP LAT / SCI ACU (veg type 1)	
Length of transect in this type:	111	feet
Species:	Cover:	
TYP LAT / TYP ANG	>50	
SCI ACU	11-20	
<i>BEC SYZ (6-10)</i>	1-5	
LAC SER	<1	
<b>CIR ARV</b>	<1	
<b>CON ARV</b>	<1	
<b>HOR JUB</b>	<1	
<b>ELE PAL</b>	<1	
Total Vegetative Cover:		100%

<b>Vegetation type D:</b>	HOR JUB (veg type 5)	
Length of transect in this type:	495	feet
Species:		Cover:
HOR JUB		>50
<i>CHE CHE (21-50)</i>		6-10
BEC SYZ		1-5
LAC SER		<1
POL HYD		6-10
CIR ARV		<1
ELE PAL		<1
<b>RUM CRI</b>		1-5
<b>MEL OFF</b>		<1
Total Vegetative Cover:		75%

# MDT WETLAND MONITORING – VEGETATION TRANSECT (continued)

Site: Johnson Date: 8/1/02 Examiner: Berglund Transect # 1 (cont.)

Approx. transect length: 932 ft Compass Direction from Start (Upland): 153 deg.

Vegetation type E:	TYP LAT / SCI ACU (veg type 1)	
Length of transect in this type:	84	feet
Species:	Cover:	
TYP LAT / TYP ANG	21-50	
<i>HOR JUB (&lt;1)</i>	1-5	
<i>ELE PAL (6-10)</i>	11-20	
BEC SYZ	1-5	
SCI ACU	21-50	
LAC SER	11-20	
ALO PRA	11-20	
<i>AGR ALB (1-5) eliminated in 2002</i>		
Total Vegetative Cover:		100%

Vegetation type F: ALO PRA (veg type 2)		
Length of transect in this type:	40	feet
Species:	Cover:	
ALO PRA	>50	
AGR ALB	21-50	
TYP LAT	1-5	
Total Vegetative Cover:	100%	

Vegetation type G: Upland		
Length of transect in this type:	110	feet
Species:	Cover:	
CIR ARV	21-50	
BRO INE	6-10	
AGR REP	21-50	
TAR OFF	6-10	
AGR ALB	<5	
Total Vegetative Cover:	90%	

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

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

## Cover Estimate

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

**Indicator Class:**

+ = Obligate  
- = Facultative/Wet  
0 = Facultative

**Source:**

P = Planted  
V = Volunteer

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

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

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

Notes:

**Bolded** species are new additions in 2002. Changes in species cover percentages are indicated by *italics*, with the 2001 percentages included in parentheses

[illegible]

Page\_\_1\_of\_\_1\_

Date: 5/5/02

Survey Time: 0830-1000

**SITE:** Jack Johnson - Valier

[illegible]

**Notes:**

One small puddle, 30' X 15', in SW impoundment – most of site dry – water not turned on.

ground squirrel burrows, deer scat on main dike, coyote scat, raccoon tracks in mud flats

Dry, sunny, and windy conditions

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

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

**SITE:** Jack Johnson - Valier

Survey Time: 0630-1100

[illegible]

**Notes:**

Water turned on – much of main imp. inundated

ground squirrel burrows, white-tailed doe and two fawns, deer scat and tracks

Dry, overcast, and windy conditions

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

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



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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 1
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<b>Do Normal Circumstances exist on the site?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No <b>Is the site significantly disturbed (Atypical Situation:)?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No <b>Is the area a potential Problem Area?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No (If needed, explain on the reverse side)	<b>Community ID:</b> EM / AB <b>Transect ID:</b> SW-1 <b>Field Location:</b> SW impoundment
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**VEGETATION**

(USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Typha latifolia</i>	Herb	OBL	<i>Scirpus microcarpus</i>	Herb	OBL
Cattail, Broad-Leaf			Bulrush, Small-Fruit		
<i>Typha angustifolia</i>	Herb	OBL	<i>Alopecurus pratensis</i>	Herb	FACW
Cattail, Narrow-Leaf			Foxtail, Meadow		
<i>Scirpus acutus</i>	Herb	OBL			
Bulrush, Hard-Stem					

<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-) 5/5 = 100.00%	<b>FAC Neutral:</b> 5/5 = 100.00% <b>Numeric Index:</b> 6/5 = 1.20
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**Remarks:**  
 Species listed are dominants.

**HYDROLOGY**

<b><u>YES</u> Recorded Data(Describe in Remarks):</b> <u>NO</u> Stream, Lake or Tide Gauge <u>YES</u> Aerial Photographs <u>NO</u> Other  <b><u>NO</u> No Recorded Data</b>  <b>Field Observations</b>  Depth of Surface Water: = 2 (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: N/A (in.)	<b>Wetland Hydrology Indicators</b> <b>Primary Indicators</b> <u>YES</u> Inundated <u>YES</u> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands <b>Secondary Indicators</b> <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>YES</u> FAC-Neutral Test <u>NO</u> Other(Explain in Remarks)
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**Remarks:**  
 Saturated to surface throughout, with small pockets of surface water.



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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 1
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Nunemaker silty clay loam 0-4 percent						
<b>Map Symbol:</b> 250b		<b>Drainage Class:</b> wd		<b>Mapped Hydric Inclusion?</b>		
<b>Taxonomy (Subgroup):</b> fine montmorillonitic ustochrepts				<b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No		
<b>Profile Description</b>						
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
10	B	10YR5/1	N/A	N/A	N/A	Clay loam
<b>Hydric Soil Indicators:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <u>NO</u> Histosol  <u>NO</u> Histic Epipedon  <u>NO</u> Sulfidic Odor  <u>NO</u> Aquic Moisture Regime  <u>NO</u> Reducing Conditions  <u>YES</u> Gleyed or Low Chroma Colors         </div> <div style="width: 45%;"> <u>NO</u> Concretions  <u>NO</u> High Organic Content in Surface Layer in Sandy Soils  <u>NO</u> Organic Streaking in Sandy Soils  <u>NO</u> Listed on Local Hydric Soils List  <u>NO</u> Listed on National Hydric Soils List  <u>NO</u> Other (Explain in Remarks)         </div> </div>						
<b>Remarks:</b>						

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b> Plot taken at SW impoundment. Site is vastley dominated by Typha. Appeared to receive increased water in 2002 vs. 2001.	

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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 2
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<b>Do Normal Circumstances exist on the site?</b> <b>Is the site significantly disturbed (Atypical Situation:)?</b> <b>Is the area a potential Problem Area?</b> (If needed, explain on the reverse side)	Yes <input checked="" type="radio"/> No <input type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/> Yes <input type="radio"/> No <input checked="" type="radio"/>	<b>Community ID:</b> EM/ AB <b>Transect ID:</b> Main-1 <b>Field Location:</b> Main impdment., midway through transect
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**VEGETATION** (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Hordeum jubatum</i> Barley,Fox-Tail	Herb	FAC+	<i>Cirsium arvense</i> Thistle,Creeping	Herb	FACU+
<i>Chenopodium chenopodioides</i> Goosefoot,Red	Herb	FAC+	<i>Eleocharis palustris</i> Spikerush,Creeping	Herb	OBL
<i>Beckmannia syzigachne</i> Sloughgrass,American	Herb	OBL	<i>Rumex crispus</i> Dock,Curly	Herb	FACW
<i>Polygonum hydropiperoides</i> Smartweed,Swamp	Herb	OBL			

<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-) 6/7 = 85.71%	<b>FAC Neutral:</b> 4/5 = 80.00% <b>Numeric Index:</b> 15/7 = 2.14
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**Remarks:**  
 Species are indicative of west portion of main impoundment, where the plot was taken. Numerous additional species occur throughout the main impoundment.

**HYDROLOGY**

<b>YES Recorded Data(Describe in Remarks):</b> <u>NO</u> Stream, Lake or Tide Gauge <u>YES</u> Aerial Photographs <u>NO</u> Other  <u>NO</u> No Recorded Data  <b>Field Observations</b>  Depth of Surface Water: = 3 (in.) Depth to Free Water in Pit: N/A (in.) Depth to Saturated Soil: N/A (in.)	<b>Wetland Hydrology Indicators</b> <b>Primary Indicators</b> <u>YES</u> Inundated <u>YES</u> Saturated in Upper 12 Inches <u>NO</u> Water Marks <u>NO</u> Drift Lines <u>NO</u> Sediment Deposits <u>NO</u> Drainage Patterns in Wetlands <b>Secondary Indicators</b> <u>NO</u> Oxidized Root Channels in Upper 12 Inches <u>NO</u> Water-Stained Leaves <u>NO</u> Local Soil Survey Data <u>YES</u> FAC-Neutral Test <u>NO</u> Other(Explain in Remarks)
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**Remarks:**  
 West portion of main impoundment was inundated to 3" throughout.

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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 2
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Nunemaker silty clay loam 0-4 percent <b>Map Symbol:</b> 250b <b>Drainage Class:</b> wd <b>Mapped Hydric Inclusion?</b> <b>Taxonomy (Subgroup):</b> fine montmorillonitic ustochrepts <b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>					
<b>Profile Description</b>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
10	B	2.5Y4/1	N/A	N/A N/A	Clay
<b>Hydric Soil Indicators:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 48%;"> <u>NO</u> Histosol  <u>NO</u> Histic Epipedon  <u>NO</u> Sulfidic Odor  <u>NO</u> Aquic Moisture Regime  <u>NO</u> Reducing Conditions  <u>YES</u> Gleyed or Low Chroma Colors         </div> <div style="width: 48%;"> <u>NO</u> Concretions  <u>NO</u> High Organic Content in Surface Layer in Sandy Soils  <u>NO</u> Organic Streaking in Sandy Soils  <u>NO</u> Listed on Local Hydric Soils List  <u>NO</u> Listed on National Hydric Soils List  <u>NO</u> Other (Explain in Remarks)         </div> </div>					
<b>Remarks:</b>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b> This plot was taken midway through the transect in the west portion of the main impoundment. Goosefoot is becoming less prevalent here with the addition of surface water. If water application continues, hordeum communities may shift to a dominance of "wetter" species as well.	

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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 3
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<b>Do Normal Circumstances exist on the site?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No <b>Is the site significantly disturbed (Atypical Situation)?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No <b>Is the area a potential Problem Area?</b> <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on the reverse side)	<b>Community ID:</b> EM <b>Transect ID:</b> NW-1 <b>Field Location:</b> Northwest depression
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**VEGETATION** (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Hordeum jubatum</i> Barley, Fox-Tail	Herb	FAC+	<i>Cirsium arvense</i> Thistle, Creeping	Herb	FACU+
<i>Typha latifolia</i> Cattail, Broad-Leaf	Herb	OBL	<i>Agropyron repens</i> Quackgrass	Herb	FACU
<i>Alopecurus pratensis</i> Foxtail, Meadow	Herb	FACW	<i>Scirpus acutus</i> Bulrush, Hard-Stem	Herb	OBL
<i>Eleocharis palustris</i> Spikerush, Creeping	Herb	OBL			

<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-) 5/7 = 71.43%	<b>FAC Neutral:</b> 4/6 = 66.67% <b>Numeric Index:</b> 16/7 = 2.29
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**Remarks:**

**HYDROLOGY**

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

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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 3
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Nunemaker silty clay loam 0-4 percent <b>Map Symbol:</b> 250b <b>Drainage Class:</b> wd <span style="float: right;"><b>Mapped Hydric Inclusion?</b></span> <b>Taxonomy (Subgroup):</b> fine montmorillonitic ustochrepts <span style="float: right;"><b>Field Observations Confirm Mapped Type?</b> <input checked="" type="radio"/> Yes <input type="radio"/> No</span> <b>Profile Description</b>						
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc	
10	B	2.5Y4/2	N/A	N/A N/A	Clay loam	

**Hydric Soil Indicators:**

<u>NO</u> Histosol <u>NO</u> Histic Epipedon <u>NO</u> Sulfidic Odor <u>NO</u> Aquic Moisture Regime <u>NO</u> Reducing Conditions <u>NO</u> Gleyed or Low Chroma Colors	<u>NO</u> Concretions <u>NO</u> High Organic Content in Surface Layer in Sandy Soils <u>NO</u> Organic Streaking in Sandy Soils <u>NO</u> Listed on Local Hydric Soils List <u>NO</u> Listed on National Hydric Soils List <u>YES</u> Other (Explain in Remarks)
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**Remarks:**  
 Many obligate species occur at this site, which appears to receive at least minimal wetland hydrology. Soils development may be lagging due to brief periods of inundation.

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
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**Remarks:**  
 This plot was taken at the small depression in the NW corner of the site. Many obligate species occur here, but the site may be drying out. Addition of surfacewater would greatly rejuvenate this site.

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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 4
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<b>Do Normal Circumstances exist on the site?</b> <span style="float: right;"><input checked="" type="radio"/> Yes <input type="radio"/> No</span> <b>Is the site significantly disturbed (Atypical Situation)?</b> <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> <b>Is the area a potential Problem Area?</b> <span style="float: right;"><input type="radio"/> Yes <input checked="" type="radio"/> No</span> (If needed, explain on the reverse side)	<b>Community ID:</b> EM <b>Transect ID:</b> NE-1 <b>Field Location:</b> Northeast impoundment
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**VEGETATION** (USFWS Region No. 9)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
<i>Hordeum jubatum</i>	Herb	FAC+	<i>Typha latifolia</i>	Herb	OBL
Barley,Fox-Tail			Cattail,Broad-Leaf		
<i>Alopecurus pratensis</i>	Herb	FACW	<i>Scirpus acutus</i>	Herb	OBL
Foxtail,Meadow			Bulrush,Hard-Stem		
<i>Eleocharis palustris</i>	Herb	OBL	<i>Rumex crispus</i>	Herb	FACW
Spikerush,Creeping			Dock,Curly		
<i>Beckmannia syzigachne</i>	Herb	OBL			
Sloughgrass,American					

<b>Percent of Dominant Species that are OBL, FACW or FAC:</b> (excluding FAC-) 7/7 = 100.00%	<b>FAC Neutral:</b> 6/6 = 100.00% <b>Numeric Index:</b> 11/7 = 1.57
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**Remarks:**

**HYDROLOGY**

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

This area was not inundated during the August delineation, but was inundated to a max depth of 2 feet during a subsequent October 2002 visit.



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



<b>Project/Site:</b> Jack Johnson Mitigation Site <b>Applicant/Owner:</b> Montana Department of Transportation <b>Investigators:</b> Berglund	<b>Project No:</b> Task 18	<b>Date:</b> 1-Aug-2002 <b>County:</b> Pondera <b>State:</b> Montana <b>Plot ID:</b> 4
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**SOILS**

<b>Map Unit Name (Series and Phase):</b> Nunemaker silty clay loam 0-4 percent <b>Map Symbol:</b> 250b <b>Drainage Class:</b> wd <b>Taxonomy (Subgroup):</b> fine montmorillonitic ustochrepts <b>Profile Description</b>					
<b>Mapped Hydric Inclusion?</b> <b>Field Observations Confirm Mapped Type?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>					
Depth (Inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc
10	B	2.5Y4/2	2.5YR5/8	Few Faint	Clay
<b>Hydric Soil Indicators:</b> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <u>NO</u> Histosol  <u>NO</u> Histic Epipedon  <u>NO</u> Sulfidic Odor  <u>NO</u> Aquic Moisture Regime  <u>NO</u> Reducing Conditions  <u>YES</u> Gleyed or Low Chroma Colors         </div> <div style="width: 45%;"> <u>NO</u> Concretions  <u>NO</u> High Organic Content in Surface Layer in Sandy Soils  <u>NO</u> Organic Streaking in Sandy Soils  <u>NO</u> Listed on Local Hydric Soils List  <u>NO</u> Listed on National Hydric Soils List  <u>NO</u> Other (Explain in Remarks)         </div> </div>					
<b>Remarks:</b>					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Wetland Hydrology Present? <input checked="" type="radio"/> Yes <input type="radio"/> No Hydric Soils Present? <input checked="" type="radio"/> Yes <input type="radio"/> No	Is the Sampling Point within the Wetland? <input checked="" type="radio"/> Yes <input type="radio"/> No
<b>Remarks:</b> This plot was taken in the northeast impoundment. The area was not inundated during the delineation, but was observed to be inundated during a subsequent field visit in October. Aquatic bed communities may re-establish at this site with the improved hydrology.	

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

1. Project Name: Johnson-Valier 2. Project #: F 44 1-(3) 14 Control #: NA

3. Evaluation Date: Mo. 8 Day 01 Yr. 02 4. Evaluator(s): Berglund 5. Wetlands/Site #(s): Main Impoundment

6. Wetland Location(s): I. Legal: T 30 N or S; R 5 E or W; S 20 ; T     N or S; R     E or W; S     ;

II. Approx. Stationing or Mileposts: MP #5 of Highway 358, ~4 miles north of Valier

III. Watershed: 10030201 GPS Reference No. (if applies): NA

Other Location Information: Marias Watershed (#8)

7. a. Evaluating Agency: MDT

8. Wetland size: (total acres) 16.92 (visually estimated)  
(measured, e.g. by GPS (if applies))

b. Purpose of Evaluation:

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

9. Assessment area: (AA, tot., ac., see instructions on determining AA) 16.92 (visually estimated)  
(measured, e.g. by GPS (if applies))

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
<u>Depressional</u>	<u>Palustrine</u>	<u>-</u>	<u>EM</u>	<u>C/B</u>	<u>D</u>	<u>60</u>
<u>h</u>	<u>h</u>	<u>-</u>	<u>AB</u>	<u>C</u>	<u>D</u>	<u>40</u>

(Abbreviations: System: Palustrine(P)/ Subst.: 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 (LY), Subst.: Littoral (2)/ Classes: RB, UB, AB/ Subsystem: Littoral (4)/ Classes: RB, UB, AB, US, EM/ System: Riverine (R)/ Subst.: Lower Perennial (2)/ Classes: RB, UB, AB, US, EM/ Subsystem: Upper Perennial (3)/ Classes: RB, UB, AB, US/ Water Regimes: Permanently Flooded (H), Intermittently Exposed (G), Semipermanently Flooded (F), Seasonally Flooded (C), Saturated (B), Temporarily Flooded (A), Intermittently Flooded (J) Modifiers: Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A) HGM Classes: Riverine, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

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

12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Adjacent Ag

ii. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Canada Thistle, Prickly Lettuce, Russian Thistle, Orchardgrass, Crested Wheatgrass, Timothy

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Large marsh/impoundment.

Surrounding land use is primarily agricultural

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

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

Comments:



## SECTION PERTAINING to FUNCTIONS &amp; VALUES ASSESSMENT

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

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

bald eagle

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

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

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

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

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

n. leopard frog, black tern

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)	<u>.6 (M)</u>	.2 (L)	.1 (L)	0 (L)

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

## 14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in ≥ 10% of AA																				
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	<u>H</u>	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
<u>Substantial</u>	1 (E)	<u>.9 (H)</u>	.8 (H)	.7 (M)
Moderate	.9 (H)	.7 (M)	.5 (M)	.3 (L)
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)

Comments:

Substantial waterfowl use observed during fall.

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

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

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

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

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

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

Comments:

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

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

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

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

Comments: *Floods via irrigation canal - "artificial"*

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

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

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

Comments:

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

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

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

Comments:

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

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

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

Comments:

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

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

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

Comments:

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

##### i. Discharge Indicators

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

##### ii. Recharge Indicators

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

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

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

Comments: May be slight groundwater component in pre-existing pothole - unsure.

#### 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		
	rare	common	abundant	rare	common	abundant	rare	common	abundant
Estimated relative abundance (#11)									
Low disturbance at AA (#12i)	1 (H)	.9 (H)	.8 (H)	.8 (H)	.6 (M)	.5 (M)	.5 (M)	.4 (M)	.3 (L)
Moderate disturbance at AA (#12i)	.9 (H)	.8 (H)	.7 (M)	.7 (M)	.5 (M)	.4 (M)	.4 (M)	.3 (L)	.2 (L)
High disturbance at AA (#12i)	.8 (H)	.7 (M)	.6 (M)	.6 (M)	.4 (M)	.3 (L)	.3 (L)	.2 (L)	.1 (L)

Comments:

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

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

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

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

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

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

Comments: Possible education value - close to Valner.



FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.3	1	
B. MT Natural Heritage Program Species Habitat	Mod	0.6	1	
C. General Wildlife Habitat	High	0.9	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	Mod	0.5	1	"artificial"
F. Short and Long Term Surface Water Storage	High	0.9	1	
G. Sediment/Nutrient/Toxicant Removal	High	1.0	1	
H. Sediment/Shoreline Stabilization	Mod	0.6	1	
I. Production Export/Food Chain Support	High	0.9	1	
J. Groundwater Discharge/Recharge	NA	—	NA	
K. Uniqueness	Low	0.3	1	
L. Recreation/Education Potential	Low	0.3	1	
Totals:		6.3	10	

63%

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

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

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

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

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

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

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

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

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

1. Project Name: Johnson-Valier 2. Project #: F 44 1-(3) 14 Control #: N/A3. Evaluation Date: Mo. 8 Day 01 Yr. 02 4. Evaluator(s): Berglund 5. Wetlands/Site #(s): Larger Southwest Impoundment6. Wetland Location(s): I. Legal: T 30 (N or S); R 5 E of (W) S 20; T    N or S; R    E or W; S   :II. Approx. Stationing or Mileposts:   III. Watershed: 10030201 GPS Reference No. (if applies): N/AOther Location Information: Marias Watershed (#8)7. a. Evaluating Agency: MDT8. Wetland size: (total acres) 2.47 (visually estimated)  
(measured, e.g. by GPS (if applies))

b. Purpose of Evaluation:

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

9. Assessment area: (AA, tot., ac., see instructions on determining AA) 2.47 (visually estimated)  
(measured, e.g. by GPS (if applies))

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
<u>Depressional</u>	<u>Palustrine</u>	<u>-</u>	<u>EM</u>	<u>FLG</u>	<u>D</u>	<u>95</u>
<u>"</u>	<u>"</u>	<u>-</u>	<u>AB</u>	<u>FLC</u>	<u>D</u>	<u>5</u>

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

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

(Circle one) Unknown Rare Common Abundant  
 Comments:   

## 12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Adjacent Ag. + Highway/RoadII. Prominent woody, alien, & introduced species (including those not domesticated, feral): (list) Canada Thistle, Prickly Lettuce, Russian Thistle, Orchardgrass, Mixed Wheatgrass, Timothy

III. Provide brief descriptive summary of AA and surrounding land use/habitat:

Typha-dominated marsh in SW corner of property.  
Surrounding land use is primarily agricultural

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

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

Comments:

# SECTION PERTAINING to FUNCTIONS & 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

☒ S

None

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

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

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

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

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

☒ S

Incidental habitat (list species)

D S

No usable habitat

D S

N. Leopard Frog

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

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

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

2 Leopard Frogs obs. in 2001; not seen in 2002

## 14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in ≥ 10% of AA																				
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	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 in the comments.)

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

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

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

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

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

Comments:

**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:

"artificial" from irrigation canal

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

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

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

Comments:

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

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

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

Comments:

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

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

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

Comments:

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

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

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

Comments:

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

**i. Discharge Indicators**

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

**ii. Recharge Indicators**

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

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

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

Comments:

*Very doubtful that this site provides this function.*

**14K. Uniqueness:**

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

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

Comments:

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

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

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

*Close to Valer + other suitable "study" AA's on site.*



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

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	None	0.0	1	
B. MT Natural Heritage Program Species Habitat	MOD	0.7	1	
C. General Wildlife Habitat	MOD	0.5	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	Low	0.2	1	
F. Short and Long Term Surface Water Storage	Low	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	High	1	1	
H. Sediment/Shoreline Stabilization	NA	—	—	
I. Production Export/Food Chain Support	MOD	0.7	1	
J. Groundwater Discharge/Recharge	Low	0.1	1	
K. Uniqueness	Low	0.3	1	
L. Recreation/Education Potential	Low	0.3	1	
Totals:		4.1	10	

41%

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

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

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

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

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

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

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

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

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

1. Project Name: Johnson-Valier 2. Project #: F 44 1-(3) 14 Control #: N/A3. Evaluation Date: Mo. 8 Day 01 Yr. 02 4. Evaluator(s): Berglund 5. Wetlands/Site #(s): Small NW and W/SW  
Depressions (2)6. Wetland Location(s): I. Legal: T 30 N or S; R 5 E or W; S 20; T    N or S; R    E or W; S   ;

II. Approx. Stationing or Mileposts:

III. Watershed: 10030201GPS Reference No. (if applies): N/A

Other Location Information:

Mp #5 of Highway 358, ~4 miles north of Valier  
Marias Watershed (#8)7. a. Evaluating Agency: MDT8. Wetland size: (total acres)    (visually estimated)  
0.17-0.42 AC (measured, e.g. by GPS [if applies])

b. Purpose of Evaluation:

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

9. Assessment area: (AA, tot., ac.,    (visually estimated)  
see instructions on determining AA) 0.17-0.42 AC (measured, e.g. by GPS [if applies])

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
<u>Depressional</u>	<u>Palustrine</u>	<u>-</u>	<u>EM</u>	<u>C/B</u>	<u>A</u>	<u>100</u>

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

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

(Circle one) Unknown Rare Common Abundant  
 Comments:   

12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Adjacent Ag. + HighwayII. Prominent weedy, alien, & introduced species (including those not domesticated, feral): (list) Canada Thistle, Prickly  
lettuce, Russian Thistle, Orchardgrass, Crested Wheatgrass, TimothyIII. Provide brief descriptive summary of AA and surrounding land use/habitat:  
No small emergent depressions within larger emergent area.Surrounding land use is primarily agricultural

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

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

Comments:

# SECTION PERTAINING to FUNCTIONS & VALUES ASSESSMENT

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

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

Primary or critical habitat (list species) D S \_\_\_\_\_  
 Secondary habitat (list species) D S \_\_\_\_\_  
 Incidental habitat (list species) D S \_\_\_\_\_  
 No usable habitat D (S) None

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)	<u>0 (L)</u>

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

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

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

Primary or critical habitat (list species) D S \_\_\_\_\_  
 Secondary habitat (list species) D S \_\_\_\_\_  
 Incidental habitat (list species) D (S) Leafy frog  
 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)	<u>.1 (L)</u>	0 (L)

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

## 14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in ≥ 10% of AA																				
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	<u>M</u>	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)	<u>.2 (L)</u>	.1 (L)

Comments: Habitat very dry + sparse.

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

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

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

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

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

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

Comments:

**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: Score 0.2, but evaluator-adjusted to remain consistent w/ 2001 FA.

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

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

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

Comments:



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

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

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

Comments:

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

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

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

Comments:

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

**i. Discharge Indicators**

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

**ii. Recharge Indicators**

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

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

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

Comments:

*No indicators present*

**14K. Uniqueness:**

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

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

Comments:

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

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

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

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

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

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

Comments:

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.0	1	
B. MT Natural Heritage Program Species Habitat	Low	0.1	1	
C. General Wildlife Habitat	Low	0.2	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	NA	—	—	
F. Short and Long Term Surface Water Storage	Low	0.1	1	
G. Sediment/Nutrient/Toxicant Removal	NA	—	—	
H. Sediment/Shoreline Stabilization	NA	—	—	
I. Production Export/Food Chain Support	Low	0.3	1	
J. Groundwater Discharge/Recharge	Low	0.1	1	
K. Uniqueness	Low	0.3	1	
L. Recreation/Education Potential	Low	0.1	1	
Totals:		1.2	8	

15%

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

I II III IV

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

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

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

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

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

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

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

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

1. Project Name: Johnson-Valier2. Project #: F 44 1-(3) 14Control #: NA3. Evaluation Date: Mo. 8 Day 01 Yr. 024. Evaluator(s): Berglund5. Wetlands/Site #(s) NE depression/impoundment6. Wetland Location(s): I. Legal: T 30 N or S; R 5 E or W; S 20; T    N or S; R    E or W; S   :II. Approx. Stationing or Mileposts: Mp #5 of Highway 358, 2.4 miles north of ValierIII. Watershed: 10030201GPS Reference No. (if applies): NAOther Location Information: Marias Watershed (#8)7. a. Evaluating Agency: MDT

8. Wetland size: (total acres)

(visually estimated)

b. Purpose of Evaluation:

(measured, e.g. by GPS [if applies])

1.    Wetlands potentially affected by MDT project2.    Mitigation wetlands; pre-construction3. ☒ Mitigation wetlands; post-construction4.    Other

9. Assessment area: (AA, tot., ac.,

(visually estimated)

see instructions on determining AA)

(measured, e.g. by GPS [if applies])

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
<u>Depressional</u>	<u>Palustrine</u>	<u>-</u>	<u>Em</u>	<u>AC</u>	<u>D</u>	<u>100</u>
<u>11</u>						

(No AB component in 2002 - Dry)

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

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

(Circle one)

Unknown

Rare

Common

Abundant

Comments:

## 12. General condition of AA:

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

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

Comments: (types of disturbance, intensity, season, etc.): Highway ROW

II. Prominent woody, alien, &amp; introduced species (including those not domesticated, feral): (list)

Canada thistle, Prickly lettuce, Russian thistle, orchardgrass, crested wheatgrass, timothy

III. Provide brief descriptive summary of AA and surrounding land use/habitat:

Surrounding land use is primarily agricultural

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

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

Comments:

## SECTION PERTAINING to FUNCTIONS &amp; VALUES ASSESSMENT

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

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

Possible bald eagle

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

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

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

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

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

Primary or critical habitat (list species)

D S

Secondary habitat (list species)

D S

Incidental habitat (list species)

D S

No usable habitat

D S

Leopard frog

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

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

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

## 14C. General Wildlife Habitat Rating:

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

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

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

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

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

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

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

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

Structural diversity (see #13)	High								Moderate								Low			
	Even				Uneven				Even				Uneven				Even			
Class cover distribution (all vegetated classes)	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Duration of surface water in $\geq 10\%$ of AA																				
Low disturbance at AA (see #12)	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 #12)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	<u>M</u>	L	L
High disturbance at AA (see #12)	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)	<u>.5 (M)</u>	.3 (L)
Minimal	.6 (M)	.4 (M)	.2 (L)	.1 (L)

Comments:



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

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

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

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

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

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

Comments:

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

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

Estimated wetland area in AA subject to periodic flooding	> 10 acres			<10, >2 acres			<2 acres		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
% of flooded wetland classified as forested, scrub/shrub, or both									
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		
	P/P	S/I	T/E	P/P	S/I	T/E	P/P	S/I	T/E
Duration of surface water at wetlands within the AA									
Wetlands in AA flood or pond ≥ 5 out of 10 years	1(H)	.9(H)	.8(H)	.8(H)	.6(M)	.5(M)	.4(M)	.3(L)	.2(L)
Wetlands in AA flood or pond < 5 out of 10 years	.9(H)	.8(H)	.7(M)	.7(M)	.5(M)	.4(M)	.3(L)	.2(L)	.1(L)

Comments:

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

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

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver low to moderate levels of sediments, nutrients, or compounds such that other functions are not substantially impaired. Minor sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.				Waterbody on MDEQ list of waterbodies in need of TMDL development for "probable causes" related to sediment, nutrients, or toxicants or AA receives or surrounding land use with potential to deliver high levels of sediments, nutrients, or compounds such that other functions are substantially impaired. Major sedimentation, sources of nutrients or toxicants, or signs of eutrophication present.			
	≥ 70%		< 70%		≥ 70%		< 70%	
% cover of wetland vegetation in AA	Yes	No	Yes	No	Yes	No	Yes	No
Evidence of flooding or ponding in AA								
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:

Diked on highway side - likely no sig. inputs.

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

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

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

Comments:

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

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

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

Comments:

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

##### I. Discharge Indicators

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

##### II. Recharge Indicators

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

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

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

Comments:

Possible, but unknown. Could be an element of sub-surface seepage from upslope dikes.

#### 14K. Uniqueness:

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

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

Comments:

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

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

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

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

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

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

Comments:

FUNCTION & VALUE SUMMARY & OVERALL RATING

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points x Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	Low	0.3	1	
B. MT Natural Heritage Program Species Habitat	Low	0.1	1	
C. General Wildlife Habitat	MOD	0.5	1	
D. General Fish/Aquatic Habitat	NA	—	—	
E. Flood Attenuation	NA	—	—	
F. Short and Long Term Surface Water Storage	LOW	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	NA	—	—	
H. Sediment/Shoreline Stabilization	NA	—	—	
I. Production Export/Food Chain Support	MOD	0.5	1	
J. Groundwater Discharge/Recharge	NA	—	—	
K. Uniqueness	LOW	0.3	1	
L. Recreation/Education Potential	LOW	0.1	1	
Totals:		2.1	7	

30%

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

Montana Department of Transportation Wetland Mitigation Monitoring Project Rhithron Associates, Inc. for Land and Water Consulting 2001 and 2002		Project Name	Jack Johnson Main	Jack Johnson SW
		Date	Jul-02	Jul-02
Coelenterata		<i>Hydra</i>		
Turbellaria		<i>Dugesia</i>		
Oligochaeta	Enchytraeidae	Enchytraeidae		
	Lumbriculidae	Lumbriculidae		
	Naididae	<i>Chaetogaster</i>		
		<i>Nais elinguis</i>		
		<i>Nais variabilis</i>		3
		<i>Ophidonais serpentina</i>		
	Tubificidae	Tubificidae - immature	9	4
		<i>Limnodrilus hoffmeisteri</i>		
Hirudinea		<i>Mooreobdella microstoma</i>		
		<i>Nepheleopsis</i>		
		<i>Helobdella stagnalis</i>		
		<i>Helobdella</i>		
		<i>Glossiphonia</i>		
		<i>Theromyzon</i>		
Bivalvia	Sphaeriidae	<i>Sphaerium</i>		2
Gastropoda	Lymnaeidae	<i>Fossaria</i>		
	Physidae	<i>Physa</i>		2
	Planorbidae	<i>Gyraulus</i>		
		<i>Helisoma</i>		
		<i>Planorbella</i>		2
Crustacea	Cladocera	Cladocera	41	
	Copepoda	Calanoida		4
		Cyclopoida		4
	Ostracoda	Ostracoda	36	34
	Amphipoda	<i>Gammarus</i>		
		<i>Hyaella azteca</i>		
	Isopoda	<i>Caecidotea</i>		
	Decapoda	<i>Orconectes</i>		
Acarina		Acari		2
Odonata	Aeshnidae	<i>Anax junius</i>		
	Libellulidae	Libellulidae-early instar	2	2
		<i>Sympetrum</i>		
	Coenagrionidae	Coenagrionidae-early instar	3	
		<i>Enallagma</i>		
	Lestidae	<i>Lestes</i>	1	
Ephemeroptera	Baetidae	<i>Baetis tricaudatus</i>		
		<i>Callibaetis</i>		1
		<i>Centroptilum</i>		
	Caenidae	<i>Caenis</i>	4	
	Ephemerellidae	<i>Ephemerella</i>		
	Heptageniidae	<i>Cinygma</i>		
		<i>Nixe</i>		
	Leptophlebiidae	<i>Paraleptophlebia</i>		
	Ameletidae	<i>Ameletus</i>		
Homoptera	Corixidae	Corixidae - immature	4	
		<i>Corisella tarsalis</i>	1	
		<i>Hesperocorixa</i>		
		<i>Palmaricorixa buenoi</i>		
		<i>Sigara</i>		
		<i>Trichocorixa</i>		
	Nepidae	<i>Ranatra</i>		
	Notonectidae	<i>Notonecta</i>	1	
Plecoptera	Chloroperlidae	<i>Sweltsa</i>		
	Perlodidae	<i>Skwala</i>		
Trichoptera	Brachycentridae	<i>Brachycentrus</i> - early instar		
	Hydroptilidae	Hydroptilidae - pupa		



		<i>Hydroptila</i>		
	Lepidostomatidae	<i>Lepidostoma</i>		
	Leptoceridae	Leptoceridae - early instar		
		<i>Ceraclea</i>		
		<i>Mystacides</i>		
		<i>Nectopsyche</i>		
		<i>Ylodes</i>		
	Limnephilidae	<i>Psychoglypha suborealis</i>		
Coleoptera	Chrysomelidae	Chrysomelidae		
	Curculionidae	<i>Bagous</i>		
	Dytiscidae	<i>Acilius</i>		
		Dytiscidae - early instar larvae	2	1
		Hydroporinae - early instar larvae		
		<i>Hygrotus</i>		
		<i>Liodessus</i>		
		<i>Laccophilus</i>		
		<i>Neoporus</i>		
		<i>Oreodytes</i>		
		<i>Rhantus</i>		
		<i>Stichtotarsus</i>		
	Elmidae	<i>Dubiraphia</i>		
		<i>Heterlimnius</i>		
		<i>Lara avara</i>		
		<i>Optioservus</i>		
		<i>Zaitzevia</i>		
	Halplidae	<i>Halplus</i>	2	
		<i>Peltodytes</i>		
	Hydrophilidae	Hydrophilidae - early instar larvae		
		<i>Berosus</i>		
		<i>Helophorus</i>		
		<i>Hydrobius</i>		
		<i>Hydrochara</i>		
		<i>Laccobius</i>		
		<i>Tropisternus</i>		
Diptera	Athericidae	<i>Atherix</i>		
	Ceratopogonidae	<i>Bezzia/Palpomyia</i>	20	18
		<i>Dasyhelea</i>		
	Chaoboridae	<i>Chaoborus</i>	1	
	Culicidae	<i>Anopheles</i>		
		<i>Culex</i>		
	Dixidae	<i>Dixella</i>		
	Dolichopodidae	Dolichopodidae		
	Empididae	<i>Clinocera</i>		
	Ephydriidae	Ephydriidae		
	Muscidae	Muscidae		
	Pelecorhynchidae	<i>Glutops</i>		
	Psychodidae	<i>Pericoma</i>		
	Simuliidae	<i>Simulium</i>		
	Sciomyzidae	Sciomyzidae		
	Stratiomyidae	<i>Odontomyia</i>		
	Tabanidae	Tabanidae	3	
	Tipulidae	<i>Hexatoma</i>		
		<i>Tipula</i>		
	Chironomidae	<i>Ablabesmyia</i>		
		<i>Acricotopus</i>	40	72
		<i>Camptocladius</i>		
		<i>Chironomus</i>	1	4
		<i>Cladotanytarsus</i>	11	
		<i>Corynoneura</i>		
		<i>Cricotopus Bicinctus</i> Gr.		
		<i>Cricotopus (Cricotopus)</i> Gr.	2	5
		<i>Cricotopus nostococladius</i>		
		<i>Cryptotendipes</i>		
		<i>Diamesa</i>		

	<i>Dicrotendipes</i>		
	<i>Einfeldia</i>		
	<i>Endochironomus</i>		
	<i>Labrundinia</i>		
	<i>Micropsectra</i>		
	<i>Microtendipes</i>	74	
	<i>Odontomesa</i>		
	<i>Orthocladus annectens</i>	1	
	<i>Pagastia</i>		
	<i>Parachironomus</i>		
	<i>Paracladopelma</i>	1	
	<i>Paramerina</i>		
	<i>Parametriocnemus</i>		
	<i>Paratanytarsus</i>		4
	<i>Paratendipes</i>		
	<i>Phaenopsectra</i>		
	<i>Polypedilum</i>		
	<i>Procladius</i>	1	
	<i>Psectrocladius elatus</i>		
	<i>Psectrocladius vernalis</i>	5	
	<i>Psectrotanytus</i>		
	<i>Pseudochironomus</i>		
	<i>Stichtochironomus</i>		
	<i>Tanytus</i>		
	<i>Tanytarsus</i>	13	8
	<i>Theinmanniella</i>	2	2
	<i>Tvetenia</i>		
	Total	281	174
	Total taxa	26	19
	POET	4	2
	Chironomidae taxa	11	6
	Crustacea taxa + Mollusca taxa	2	6
	% Chironomidae	53.74%	54.60%
	Orthoclaadiinae/Chironomidae	0.33	0.83
	%Amphipoda	0.00%	0.00%
	%Crustacea + %Mollusca	27.40%	27.59%
	HBI	7.35	8.37
	%Dominant taxon	26.33%	41.38%
	%Collector-Gatherers	66.55%	85.63%
	%Filterers	18.51%	0.00%
	Scores (2002 criteria)		
	Total taxa	5	3
	POET	5	1
	Chironomidae taxa	5	3
	Crustacea taxa + Mollusca taxa	1	5
	% Chironomidae	1	1
	Orthoclaadiinae/Chironomidae	3	5
	%Amphipoda	5	5
	%Crustacea + %Mollusca	5	5
	HBI	3	1
	%Dominant taxon	3	3
	%Collector-Gatherers	3	5
	%Filterers	5	1
	Total score	44	38



## Appendix C

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### REPRESENTATIVE PHOTOGRAPHS

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*MDT Wetland Mitigation Monitoring*  
*Johnson-Valier*  
*Valier, Montana*



Photo point 1, SW impoundment, facing 95 degrees E.



Photo point 2, main impoundment, facing 130 degrees SE.



Photo point 3, main impoundment, facing 286 degrees W/NW.



Photo point 4, northeast impoundment, facing 242 degrees SW.



Transect Start, facing down-transect 153 degrees SE.



Transect End, facing up-transect 333 degrees NW.

**Johnson-Valier 2002**





Jack Johnson 2002



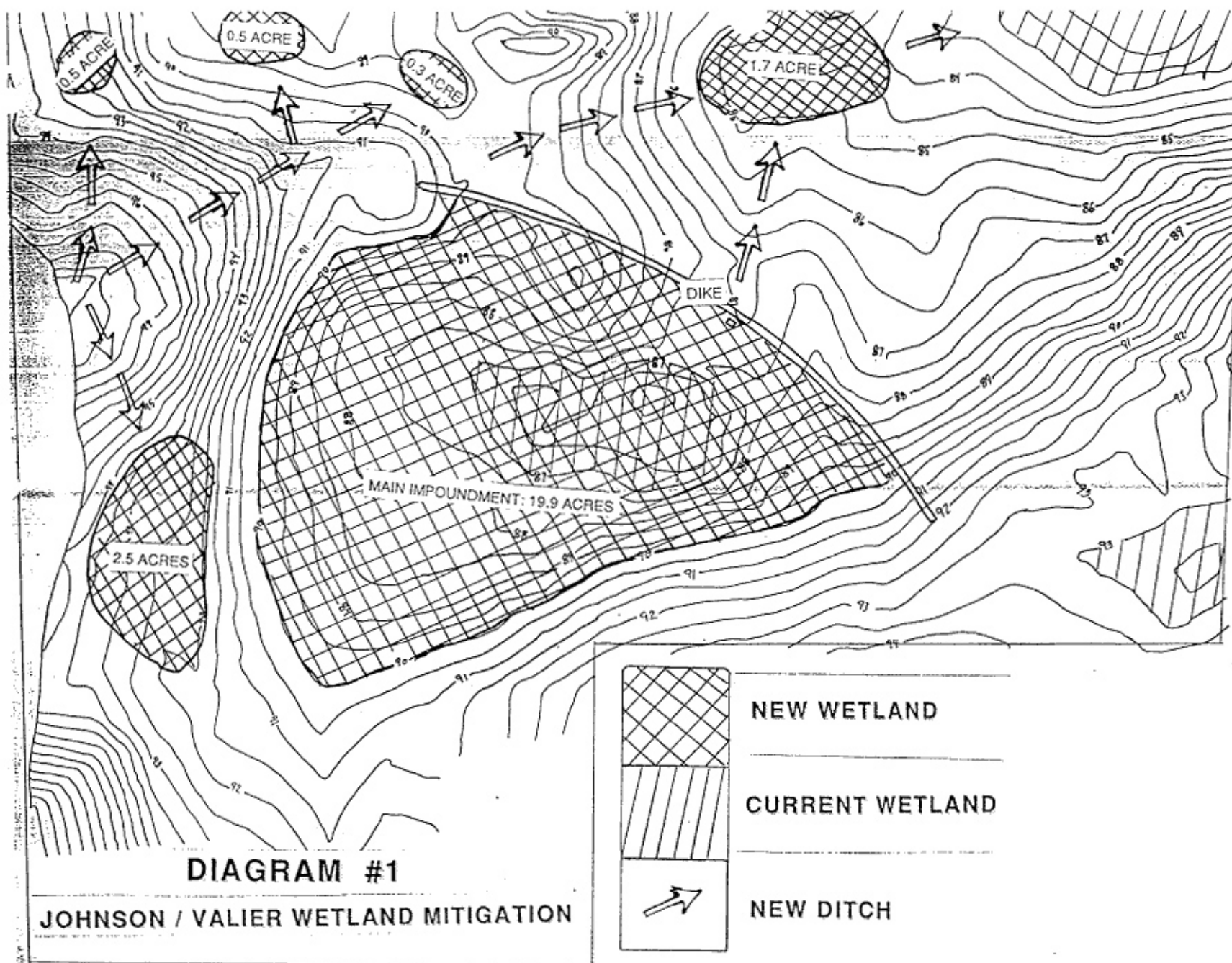
## Appendix D

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### MAP OF PROPOSED IMPOUNDMENT AREAS FROM VAN HOOK (1994)

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*MDT Wetland Mitigation Monitoring*  
*Johnson-Valier*  
*Valier, Montana*



## **Appendix E**

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

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***MDT Wetland Mitigation Monitoring***

*Johnson-Valier*

*Valier, Montana*



## BIRD SURVEY PROTOCOL

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

# AQUATIC INVERTEBRATE SAMPLING PROTOCOL

## Equipment List

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

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

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

## Site Selection

Select the sampling site with these considerations in mind:

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

## Sampling

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

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

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

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

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

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

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

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

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

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

Photograph the sampled site.

### **Sample Handling/Shipping**

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

## **GPS Mapping and Aerial Photo Referencing Procedure**

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

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

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

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