

Biological Resources Report for

**BILLINGS BYPASS**

NCPD 56 (55) Control Number 4199

*Yellowstone County, Montana*

Prepared for:

**Montana Department of Transportation**



Prepared by:

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November 2011



## Executive Summary

This Biological Resources Report identifies and addresses potential effects on biological resources from the Billings Bypass project. It is being prepared in compliance with the environmental review process associated with the National Environmental Policy Act (NEPA), the Montana Environmental Policy Act (MEPA), and the US Endangered Species Act of 1973 (ESA).

MDT proposes to construct a new principal arterial roadway to improve access and connectivity between Interstate 90 (I-90) and Old Highway 312 (Hwy 312) to improve mobility in the eastern area of Billings, Montana. Typical sections include two 12-foot wide travel lanes in each direction; paved shoulder; and drainage channels and side slopes. Where practicable, the alternatives were placed along existing transportation facilities. Known habitat areas such as rivers, riparian zones, sagebrush steppe habitat, cliffs, and wetlands were avoided where possible. Based on the impacts reported in this and other resource reports, MDT will identify additional avoidance and minimization measures.

Six build alternatives were evaluated for the following resources; terrestrial resources, aquatic resources, sensitive species of special concern, threatened and endangered species, and wetlands and waters of the U.S. The results of this evaluation are summarized in this Executive Summary.

## TERRESTRIAL RESOURCES

### General Vegetation

About half of the project corridor is in existing transportation corridors and the other half traverses primarily agricultural land. To a lesser extent there are four native habitats found within the study area: riparian areas, sagebrush steppe, cliffs, and wetlands. A summary of preliminary impacts is presented in **Exhibit A**.

**Exhibit A. Summary of Preliminary Impacts to Native Habitats**

Alternatives	Johnson Lane Option 1 – Mary Street Option 1	Johnson Lane Option 1 – Mary Street Option 2	Johnson Lane Option 2 – Mary Street Option 1	Johnson Lane Option 2 – Mary Street Option 2	Johnson Lane Option 1 – Five Mile Road	Johnson Lane Option 1 – Five Mile Road
<b>HABITAT TYPE</b>						
Riparian	8 acres	5 acres	8 acres	5 acres	5 acres	5 acres
Sage brush steppe	0 acres	0 acres	0 acres	0 acres	0 acres	0 acres
Cliffs	0.4 acres	0.38 acres	0.4 acres	0.38 acres	0.3 acres	0.3 acres
Wetlands	3.71 acres	3.13 acres	4.80 acres	4.13 acres	3.70 acres	4.70 acres

Impacts to vegetation will be avoided and minimized by implementing best management practices (BMPs). Limits of clearing will be clearly marked and construction plans will specify material staging areas be outside of riparian or sagebrush steppe areas. Additional

conservation measures for vegetation are not anticipated with the implementation of project avoidance and minimization measures.

### ***Noxious Weeds/Invasive Species***

The study area has well maintained roadside grassy areas and agricultural areas with very few weed species. Where present, Priority 2B infestations are predominantly Canada thistle (*Cirsium arvense*) mixed with some Russian knapweed (*Centaurea repens*), houndstongue (*Cynoglossum officianale*). Leafy spurge (*Euphorbia esula*) was located only along the Yellowstone River south channel.

Ground-disturbing construction activities could facilitate the spread of noxious weeds by opening up new areas for invasion and assisting in transportation of weeds to new areas by equipment.

Standard specifications and BMPs will be used during and after construction to reduce and minimize noxious weeds. The following notes will be included in the plan set.

- Control of noxious weeds will occur during and after construction.
- A temporary erosion control plan will include provisions for post- construction revegetation of the disturbed road corridor with desirable species seed mix to minimize colonization by noxious weeds.

Additional conservation measures for noxious weeds are not anticipated with the implementation of project avoidance and minimization measures.

### ***General Wildlife Species***

Sixty-three bird species were identified; seventeen mammal species, three terrestrial reptile species and one terrestrial amphibian were documented. However the number wildlife species that are likely to occur in the study area due to the habitat diversity is much higher.

It is likely that impacts would include some direct mortality, displacement, and habitat fragmentation. It is anticipated that direct impacts to wildlife would be similar among alternatives as the length of the alignments and habitat are similar.

Avoiding and/or minimizing impacts to habitats, serves to avoid and minimize impacts to the wildlife that occupies them. By aligning alternatives with previously developed transportation corridors and altered landscapes, the conceptual design avoids or minimizes impacts to known ecological resources such as rivers, riparian, sagebrush steppe, cliff, and wetland areas. The MBTA requires a preconstruction nest survey if construction is to occur during the nesting season. The nesting season (and thus, seasonal restriction) generally is from April 30<sup>th</sup> through August 15<sup>th</sup>.

## **AQUATIC RESOURCES**

### ***Aquatic Sites***

There are three major surface water bodies in the study area including the Yellowstone River, Five Mile Creek, and Seven Mile Creek. Other water bodies include unnamed tributaries, ponds, wetlands, gravel pit ponds, and numerous irrigation ditches. The

Yellowstone River is listed with a 303(d) water quality Category 5 and 2B designation. No other water bodies in the study area were included in the Water Quality Integrated Report 303 (d) list or Section 305(b) Report.

Direct impacts to Yellowstone River, Five Mile Creek, and Seven Mile Creek would occur at bridge crossing locations. Bridge engineering and analysis of resulting water body modifications would be conducted during final design. Direct water quality impacts would be primarily encountered during construction.

Numerous avoidance and minimization measures are included as part of this project, including but not limited to a temporary erosion control plan that will include provisions for post-construction revegetation of the disturbed road corridor with desirable species seed mix to minimize erosion, and stormwater pollution prevention plans will be incorporated as part of the final design. Additional conservation measures for aquatic resources are not anticipated with the implementation of project avoidance and minimization measures.

Permit requirements are specified in this BRR.

### **General Aquatic Species**

Thirty-three fish species have been confirmed in the project area. In-water work may result in direct mortality and temporary disturbance and/or displacement of individual fish, aquatic amphibians and reptiles, microinvertebrates, and other organisms. Indirect impacts of the project to aquatic species could occur as a result of impacts to aquatic habitats through water quality concerns such as increased water temperature, pollutants, or habitat fragmentation.

Efforts to avoid and minimize impacts to aquatic species are anticipated to be achieved through avoidance and minimization measures to aquatic sites. Additional conservation measures for aquatic species are not anticipated with the implementation of project avoidance and minimization measures such as compliance with Section 208 of MDT's Standard Specifications and adherence to resource agency conditions.

### **SENSITIVE SPECIES OF SPECIAL CONCERN**

Seventeen species of concern are likely to occur in the project area as shown in **Exhibit B**.

#### **Exhibit B. Sensitive Species of Special Concern Documented in the Billings East Quadrangle, Yellowstone County**

Common Name	Scientific Name	Global Rank	State Rank	Habitat Requirements	Occurrence in Project Area	Potential Project Impact
<b>Birds</b>						
Bald eagle	<i>Haliaeetus leucocephalus</i>	G5	S3	Rivers, lakes, riparian forest	P/D	Temporary disruption in foraging and roosting locations

Common Name	Scientific Name	Global Rank	State Rank	Habitat Requirements	Occurrence in Project Area	Potential Project Impact
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	G5	S3B	Riparian forest	P	Disruption of habitat and potential nest sites
Brewer's sparrow	<i>Spizella breweri</i>	G5	S2B	Sagebrush	P/D	No impact anticipated
Grasshopper sparrow	<i>Ammodramus savannarum</i>	G5	S3B	Grasslands	NL	No impact anticipated
Great blue heron	<i>Ardea herodias</i>	G5	S3	Riparian forest	P/D	Disruption of rookery
Loggerhead shrike	<i>Lanius ludovicianus</i>	G4	S3B	Sagebrush, mixed use	P	No impact anticipated
Peregrine falcon	<i>Falco peregrinus</i>	G4	S2B	Cliffs	P	Temporary disruption in foraging and roosting locations
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	G5	S3	Open conifer	NL	No impact anticipated
Veery	<i>Catharus fuscescens</i>	G5	S3B	Riparian forest	P	Disruption of habitat and potential nest sites
<b>Mammals</b>						
Hoary bat	<i>Lasiurus cinereus</i>	G5	S3	Riparian or forest near water sources	P	Disruption of habitat and potential breeding locations
Spotted bat	<i>Euderma maculatum</i>	G4	S2	Arid land rock outcrops	P	Temporary disruption of potential breeding locations
<b>Reptiles</b>						
Common Sagebrush lizard	<i>Sceloporus graciosus</i>	G5	S3	Sagebrush steppe with rock outcrops	P/D	Negligible direct impact

Common Name	Scientific Name	Global Rank	State Rank	Habitat Requirements	Occurrence in Project Area	Potential Project Impact
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>	G5	S3	Sandy/gravelly soils of sparse arid sage or grasslands	P	No impact anticipated
Milksnake	<i>Lampropeltis triangulum</i>	G5	S2	Rock outcrops, hillsides, badlands	P	Negligible direct impact
Snapping turtle	<i>Chelydra serpentina</i>	G5	S3	Small reservoirs and perennial small streams	D	Negligible direct impact
Spiny softshell	<i>Apalone spinifera</i>	G5	S3	Prairie rivers & larger streams	P	Negligible direct impact
Western hog-nosed snake	<i>Heterodon nasicus</i>	G5	S2	Sagebrush, grasslands, arid farms or floodplains	P	Negligible direct impact
<b>Fish</b>						
Sauger	<i>Sander canadensis</i>	G5	S2	Large prairie rivers	NL	Potential disruption of spawning locations
Yellowstone Cutthroat Trout	<i>Oncorhynchus clarkii bouvieri</i>	G4T2	S2	Cold rivers	NL	No impact anticipated

Source: MTNHP 2011

P = probable occurrence based on habitat

D= Documented by DEA field studies

NL=Not likely

**Definitions of Ranks:**

- G1 / S1 At high risk because of extremely limited and/or rapidly declining numbers, range, and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.
- G2 / S2 At risk because of very limited and/or declining numbers, range, and/or habitat, making it vulnerable to global extinction or extirpation in the state.
- G3 / S3 Potentially at risk because of limited and/or declining numbers, range, and/or habitat, even though it may be abundant in some areas.
- G4 / S4 Uncommon but not rare (although it may be rare in parts of its range), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern.
- G5 / S5 Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.

Implementation of the Recommended Conservation Measures for general wildlife species will avoid the majority of breeding schedules addressed in this section. Construction timing restrictions might be important to avoid disturbance to spawning activities of the sauger, which is a spring spawner.

Blasting within 1/2 mile of active eagle nest nests should be avoided. Blasting within 1/2 mile of bald eagle communal roosting sites may not be conducted without prior coordination of the USFWS and MTFWP. The location of the eagle nests and communal roosting sites needs to be verified by a pre-construction survey or by coordination with resource agencies or organizations. The location of the heron rookery needs to be verified by a pre-construction survey or by coordination with resource agencies or organizations. If it is located within the 900-foot recommended buffer area, consultation with the resource agencies is advised.

**THREATENED AND ENDANGERED SPECIES**

A summary of the project effects to federally protected species is provided below in **Exhibit C**.

**Exhibit C. Federally Listed Species in the Project Area**

Common Name	Scientific Name	USFWS Status	Occurrence in Project Area	Project Effect Determination
Whooping crane	<i>Grus americana</i>	Listed Endangered	Potentially during migration	Not likely to adversely affect.
Greater sage-grouse	<i>Centrocercus urophasianus</i>	Candidate	Unlikely	Not likely to significantly impact populations, individuals, or suitable habitat.
Sprague's pipit	<i>Anthus spragueii</i>	Candidate	Unlikely	Not likely to significantly impact populations, individuals, or suitable habitat.

No conservation measures are likely to be necessary. However, if any whooping cranes are observed in or adjacent to the project area during construction, work would be halted and MDT would contact the USFWS. Migration peaks are in April and October.

**WETLANDS**

Over 50 wetlands were identified within the study area. Of those, 24 wetlands were located within the project corridor (construction limits based on conceptual design). A summary of preliminary wetland impacts is presented in **Exhibit A** along with other vegetation impacts. Impacts assume that any wetlands under bridge structures would be completely affected.

The USACE 404 (b) permit would require mitigation for the impacts to jurisdictional wetlands in the form of using credits from one of MDT's wetland mitigation reserves; purchasing credits from a wetland mitigation bank; or developing on-site wetland restoration, enhancement, or creation. MDT policy is to avoid and minimize impacts to wetlands, and if wetlands are impacted as a result of an individual highway project, MDT would mitigate for jurisdictional and non-jurisdictional wetlands.

## Table of Contents

---

<b>1.0</b>	<b>Introduction.....</b>	<b>1</b>
1.1	<i>Project Description.....</i>	<i>1</i>
1.1.1	Alternatives .....	1
1.1.2	General Avoidance and Minimization Measures .....	7
1.2	<i>General Area Description.....</i>	<i>7</i>
<b>2.0</b>	<b>General Study Methods .....</b>	<b>7</b>
2.1	<i>Agency Coordination.....</i>	<i>8</i>
2.2	<i>Literature and Database Searches.....</i>	<i>8</i>
2.3	<i>Field Surveys.....</i>	<i>9</i>
<b>3.0</b>	<b>Terrestrial Resources.....</b>	<b>9</b>
3.1	<i>Methods.....</i>	<i>9</i>
3.2	<i>Results.....</i>	<i>9</i>
3.2.1	Ecological Setting and General Description .....	9
3.2.2	General Vegetation .....	10
3.2.3	Noxious Weeds/Invasive Species .....	14
3.2.4	General Wildlife Species .....	15
<b>4.0</b>	<b>Aquatic Resources .....</b>	<b>18</b>
4.1	<i>Methods.....</i>	<i>18</i>
4.2	<i>Results.....</i>	<i>18</i>
4.2.1	Aquatic Sites .....	18
4.2.2	General Aquatic Species .....	22
<b>5.0</b>	<b>Sensitive Species of Special Concern .....</b>	<b>24</b>
5.1	<i>Methods.....</i>	<i>24</i>
5.2	<i>Results.....</i>	<i>24</i>
5.2.1	Bald Eagle .....	26
5.2.2	Black-Billed Cuckoo .....	27
5.2.3	Brewer's Sparrow.....	27
5.2.4	Grasshopper Sparrow.....	27
5.2.5	Great Blue Heron .....	27
5.2.6	Loggerhead Shrike.....	28
5.2.7	Peregrine Falcon .....	28
5.2.8	Pinyon Jay.....	28
5.2.9	Veery .....	29
5.2.10	Hoary Bat.....	29
5.2.11	Spotted Bat .....	29
5.2.12	Common Sagebrush Lizard .....	30
5.2.13	Greater Short-horned Lizard .....	30
5.2.14	Milksnake .....	30
5.2.15	Spiny Softshell.....	31
5.2.16	Snapping Turtle .....	31
5.2.17	Western Hog-Nosed Snake .....	31
5.2.18	Sauger .....	32
5.2.19	Yellowstone Cutthroat Trout.....	32
5.3	<i>Potential to Occur in the Project Area.....</i>	<i>32</i>

5.4 *Potential Impacts*..... 32

**6.0 Threatened and Endangered Species - Biological Assessment ..... 34**

6.1 *Introduction* ..... 34

6.2 *Whooping Crane*..... 35

6.2.1 Species Description ..... 35

6.2.2 Status and Distribution ..... 35

6.2.3 Reason for Decline..... 35

6.2.4 Occurrence in Project Area ..... 36

6.2.5 Effects of the Action..... 36

6.2.6 Recommended Conservation Measures..... 36

6.2.7 Effect Determination ..... 36

6.3 *Greater Sage-Grouse* ..... 36

6.3.1 Species Description ..... 36

6.3.2 Status and Distribution ..... 37

6.3.3 Reason for Decline..... 37

6.3.4 Occurrence in Project Area ..... 37

6.3.5 Effects of the Action..... 37

6.3.6 Recommended Conservation Measures..... 37

6.3.7 Effect Determination ..... 37

6.4 *Sprague's Pipit*..... 37

6.4.1 Species Description ..... 37

6.4.2 Status and Distribution ..... 38

6.4.3 Reason for Decline..... 38

6.4.4 Occurrence in Project Area ..... 38

6.4.5 Effects of the Action..... 38

6.4.6 Recommended Conservation Measures..... 38

6.4.7 Effect Determination ..... 38

**7.0 Wetlands ..... 39**

7.1 *Introduction* ..... 39

7.2 *Methods*..... 40

7.3 *Wetland Results*..... 42

7.3.1 Description of Delineated Wetlands..... 45

7.3.2 Potential Wetland Impacts..... 49

7.3.3 Avoidance and Minimization..... 51

7.3.4 Permitting Required ..... 51

7.3.5 Proposed Wetland Mitigation ..... 51

**8.0 References ..... 52**

**APPENDICES**

**Appendix A. Agency Coordination**

**Appendix B. Photographs**

**Appendix C. Species List**

**Appendix D. Wetland Maps**

**Appendix E. Wetland Delineation Data Forms and MDT Wetland Evaluation Forms**

**EXHIBITS**

Exhibit 1. Project Location ..... 2  
Exhibit 2. Typical Sections ..... 5  
Exhibit 3. Resource Map ..... 11  
Exhibit 4. Potential Impact to Native Habitat Areas in Study Area ..... 13  
Exhibit 5. Major Hydrology of the Study Area ..... 19  
Exhibit 6. Species of Concern Documented in the Billings East Quadrangle, Yellowstone  
County ..... 24  
Exhibit 7. Federally Listed Species in the Project Area ..... 34  
Exhibit 8. Wetland Indicator Status System ..... 41  
Exhibit 9. Wetland Summary for the Project Corridor ..... 43  
Exhibit 10. Potential Wetland Impacts for Build Alternatives (acres) ..... 50

LIST OF ACRONYMS AND ABBREVIATIONS

BLM	U.S. Department of Interior, Bureau of Land Management
BMP	best management practice
BRR	Biological Resources Report
CEQ	Council for Environmental Quality
CFR	Code of Federal Regulations
DEA	David Evans and Associates, Inc.
CWA	Clean Water Act
EIS	Environmental Impact Statement
EO	Executive Order
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
F	Fahrenheit
FHWA	U.S. Department of Transportation – Federal Highway Administration
GIS	Geographic Information Systems
GPS	Global Positioning System
Hwy 312	Old Highway 312
HUC	Hydrologic unit code
I-90	Interstate 90
MBTA	Migratory Bird Treaty Act
MDA	Montana Department of Agriculture
MDEQ	Montana Department of Environmental Quality
MDT	Montana Department of Transportation
MEPA	Montana Environmental Policy Act
MP	milepost
MPDES	Montana Pollutant Discharge Elimination System
mph	miles per hour
MFISH	Montana Fisheries Information System
MPDES	Montana Pollutant Discharge Elimination System
MT	Montana
MTNHP	Montana Natural Heritage Program
MTFWP	Montana Fish, Wildlife and Parks
NCDC	National Climatic Data Center
NEPA	National Environmental Policy Act
NRCS	U.S. Department of Agriculture – Natural Resources Conservation Service
NWI	National Wetland Inventory
QQLL	quarter of a quarter Latitude/Longitude
SPA	Stream Protection Act

TMDL	total maximum daily load
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Department of Interior, Geological Survey
WRCC	Western Regional Climate Center

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## **1.0 Introduction**

This Biological Resources Report (BRR) identifies and addresses potential project effects on biological resources in the project area. It is being prepared in compliance with the environmental review process associated with the National Environmental Policy Act (NEPA), the Montana Environmental Policy Act (MEPA), and the U.S. Endangered Species Act of 1973 (ESA).

This document describes the existing ecological conditions of the project area and the anticipated impacts of the proposed project on those resources. Biological resource topics addressed in this BRR include:

- Terrestrial Resources
- Aquatic Resources
- Montana Species of Concern
- Threatened and Endangered Species
- Wetlands

### **1.1 PROJECT DESCRIPTION**

MDT proposes to construct a new principal arterial roadway between Interstate 90 (I-90) and Old Highway 312 (Hwy 312). The goals of this project include:

- Reduce physical barrier impacts to the transportation system.
- Improve connectivity between Lockwood and Billings.
- Improve mobility to and from Billings Heights.
- Improve truck/commercial vehicle access to and through Billings.

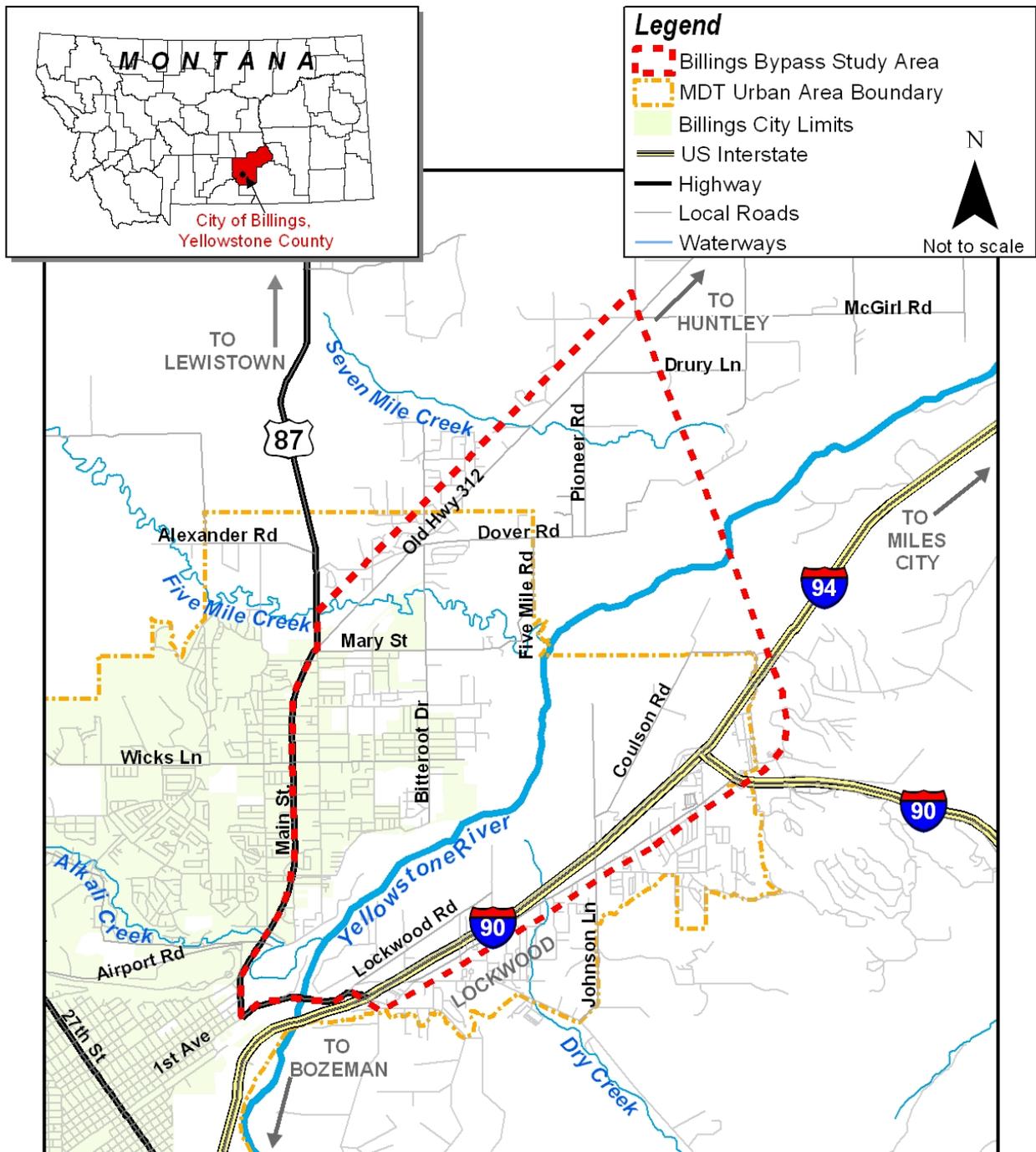
The proposed project area is located in Yellowstone County in the northeast portion of the Billings urban area (**Exhibit 1**).

#### **1.1.1 Alternatives**

##### **No-Build Alternative**

Under the No-Build Alternative, the proposed new principal arterial would not be constructed and existing conditions within the study area would continue. The No-Build Alternative would have no temporary construction, direct, indirect, or cumulative impacts on any biological resources in the study area. Therefore no mitigation would be required under the No-Build Alternative.

**Exhibit 1. Project Location**



**Build Alternatives**

The proposed road is designed to meet National Highway System Principle Arterial standards and will include limited access control measures to balance through mobility and local access needs. Each of the alternatives under consideration begins at the

Johnson Lane interchange with Interstate 90 (I-90) and would require a complete reconstruction of the existing interchange. The build alternatives for this project are bounded connect between I-90 and Old Hwy 312. Six alignment alternatives are addressed in this report.

- Johnson Lane Option 1 - Mary Street Option 1
- Johnson Lane Option 1 - Mary Street Option 2
- Johnson Lane Option 2 - Mary Street Option 1
- Johnson Lane Option 2 - Mary Street Option 2
- Johnson Lane Option 1 - Five Mile Road
- Johnson Lane Option 2 - Five Mile Road

Elements common to all of the alternatives include two 12-foot wide travel lanes in each direction, paved shoulders, and drainage channels and side slopes. The design speed, shoulder width, and median vary by alternative depending on the context of the surrounding area. Alignment segments using urban design standards have a design speed of 55 mph. Alignment segments using rural design standards have a design speed of 60 or 70 mph dependant of the topography of the surrounding area. The three typical sections proposed for this project are shown in **Exhibit 2**.

All alternatives include new bridge structures. Ground disturbance and noise disturbance from blasting and pile driving is anticipated. Both of the Yellowstone River bridge crossing options utilize two different superstructure types. Multi-span composite steel plate girders were selected to cross the active channel. Outside of the active channel and for crossing the remainder of the floodplain, the span lengths were reduced and prestressed concrete girders were assumed.

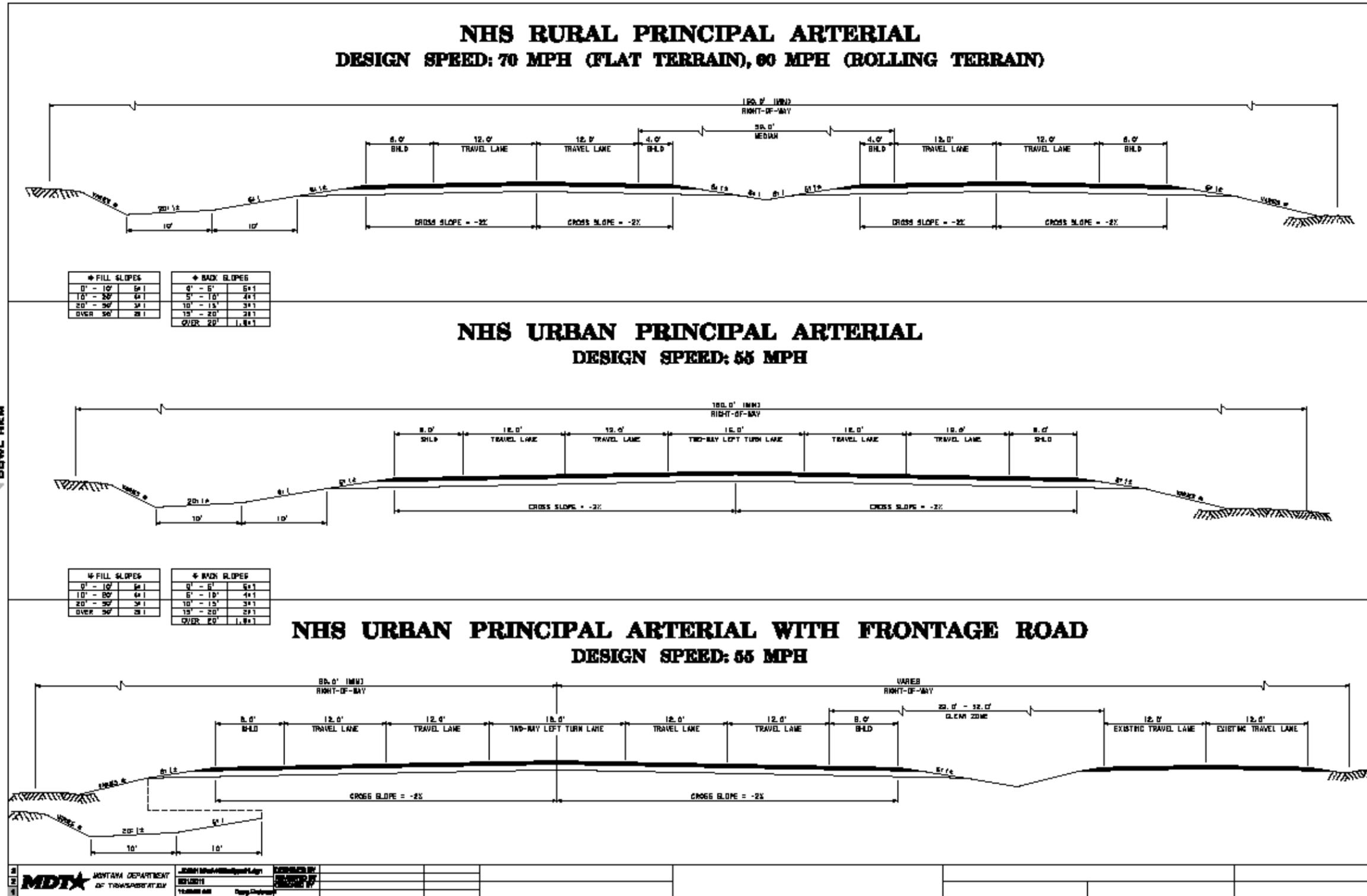
The superstructure type for the railroad overpasses varies between the two Johnson Lane alignment options. As a result of the anticipated skew of the Johnson Lane Option 1 overpass structure, multi-span steel plate girders were selected for the superstructure type. Prestressed concrete girders were selected for the Johnson Lane Option 2 overpass structure, as this alignment is generally straight and the bents are anticipated to be positioned normal to the roadway.

The bridge over Five Mile Creek (associated with alternatives using Mary Street Option 2 only) uses steel plate girders with a single-span radial layout. This bridge type is due to the horizontal and vertical curve anticipated at this location.

For each of the alternatives to be carried forward in the DEIS, additional improvements are recommended for existing roads north of the Yellowstone River to meet design objectives for operations and safety. Therefore, each alternative will include primary corridor improvements (as discussed above) as well as secondary corridor improvements. This report does not address the secondary corridor improvements because the design of these improvements is in progress. The impacts associated with the primary and secondary corridor improvements will be evaluated in the EIS.

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Exhibit 2. Typical Sections



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### **1.1.2 General Avoidance and Minimization Measures**

The project team considered known terrestrial and aquatic biological resources in the routing of alternatives in this conceptual design. Where practicable, the alternatives were placed along existing transportation facilities. Known habitat areas such as rivers, riparian zones, sagebrush steppe habitat, cliffs, and wetlands were avoided to the greatest extent practicable.

Unavoidable impacts were minimized. The alignments were routed around and away from the confluence of the Yellowstone River and Five Mile Creek. The bridge structures were designed to minimize the environmental impacts by spanning the streams riparian, wetland, and floodplains areas and limiting the number of intermediate bents located in the active river channel. Avoiding and minimizing impact to these important habitats thereby avoids and minimizes impacts to the species that occupy them.

Based on the impacts reported in this and other resource reports, MDT will identify additional avoidance and minimization measures. These measures will be incorporated, as practicable, into the preliminary design and will be used to calculate impacts for the Environmental Impact Statement (EIS), including updated and refined impact analysis for vegetation, wildlife, and other resources.

## **1.2 GENERAL AREA DESCRIPTION**

The proposed project is located in Yellowstone County in the northeastern portion of the Billings urban area and contains a combination of residential, agricultural, and commercial land uses. The south and west portions of the project area are mostly developed land consisting of residential, commercial, and industrial uses. The north and east portions of the study area are more rural in nature consisting of predominantly agricultural uses. The Yellowstone River flows in a northeasterly direction through the length of the study area and is flanked by a broad floodplain with steep sandstone cliffs in some locations. In the southern portion of the study area, the land on the north side of the floodplain is between 43 and 115 feet higher than the land on the south side of the floodplain. Named tributaries of the Yellowstone River within the study area include Five Mile Creek and Seven Mile Creek.

## **2.0 General Study Methods**

Information included in this BRR was obtained from a variety of sources including review of literature, map and photo interpretation, field surveys, and personal communications with the project team, agency staff, and local landowners.

In this report, Council for Environmental Quality (CEQ) regulation 1508 terminology is used. The term "temporary construction impacts" refers to effects that are caused during the construction process and end once construction is complete. The term "direct impacts" refers to effects that are caused by the action and occur at the same time and place. "Indirect impacts" are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. A "cumulative impact" is the impact on the

environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertake such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time [40 CFR 1508].

The study area for this project includes an approximately 18 square mile area between I-90 and Old Hwy 312. The study area boundary is depicted in **Exhibit 1**.

The project corridor is defined as an area that includes the construction limits of all six alignment alternatives. Quantitative impact calculations are based on the current conceptual design of alternatives. These conceptual design plans did not include staging areas, materials storage areas, or secondary road improvements. These areas will be included in the alternative alignments advanced in the preliminary and final designs and will be documented in the EIS.

For the purposes of this report, the project area is defined as the project corridor plus all adjacent areas that contribute to the characterization and attributes of the wildlife resources, up to one mile from the project corridor.

## **2.1 AGENCY COORDINATION**

MDT received letters from the U.S. Fish and Wildlife Service (USFWS), Montana Fish, Wildlife and Parks (MTFWP), and from the Montana Natural Heritage Program (MTNHP) responding to requests for information pertaining to sensitive, candidate, threatened, and endangered fish, wildlife, and plant species. The Department of Environmental Quality (MDEQ) and Department of Natural Resources and Conservation (DNRC) are participating agencies and Army Corps of Engineers (USACE) is a cooperating agency. In a letter dated, July 26, 2012 (see Appendix A), the United States Fish and Wildlife Service (USFWS), concurred with MDT's determination that the project is not likely to adversely affect the whooping crane, and the determination regarding no effect on the black-footed ferret. They also acknowledged MDT's determination that the proposed action is not likely to jeopardize the existence of greater sage grouse and Sprague's pipit (both candidate species). The Service also noted that the letter indicated conclusion of informal consultation pursuant to regulations 50 CFR 402.13. Letters from these agencies are included in **Appendix A**.

## **2.2 LITERATURE AND DATABASE SEARCHES**

A literature and database review was conducted to identify general wildlife, fish, vegetative communities, noxious weeds, and threatened and endangered species, rare and/or sensitive plant and animal species. Current database information from USFWS, MTNHP, and MTFWP sources concerning threatened, endangered, and sensitive species potentially inhabiting the area were obtained. Habitats, rivers, streams, wetlands, irrigation canals, pipes, and other water resources at or near the project corridor were investigated through database review with map and photo interpretation. Climate, soils, geography, and land use were also investigated.

MTNHP species occurrence information depicts probable occupied habitat based on direct observation of a species location and home range size of the species. It should be noted that because surveys may not have been conducted in the area, lack of documentation of

occurrence by MTHNP, MTFWP, and investigations for this BRR, do not disprove the presence of significant biological features.

### **2.3 FIELD SURVEYS**

Biologists with David Evans and Associates, Inc. (DEA) conducted project area site visits on July 12-14 and August 24-26, 2011, and earlier investigations in the fall of 2007. Reconnaissance level biological surveys and wetland delineations were conducted within the study area. Qualitative data on other biological resources were collected throughout the study area. This included describing vegetative communities, wildlife habitats, plant species, noxious weeds, wildlife observations, and an assessment of the potential for threatened and endangered species or species of concern to occur in the study area.

Resource-specific study methods are described in appropriate sections below.

## **3.0 Terrestrial Resources**

### **3.1 METHODS**

Terrestrial resource information was initially obtained from a review of literature and maps primarily via the internet and supported by correspondence with agency personnel and field investigations. An inventory of vegetation along the project corridor was prepared during site visits. References to the source of information are included in the resource narratives and References, **Section 8.0**.

### **3.2 RESULTS**

#### **3.2.1 Ecological Setting and General Description**

The project area is located within the Northwestern Great Plains Ecoregion Level III and more specifically the Montana Central Grasslands Ecoregion Level IV. The Central Grassland Ecoregion is described as an unglaciated plain that is dissected by many small, ephemeral, or intermittent streams. It is largely underlain by noncarbonate, finegrained sedimentary rock of the Tertiary Fort Union Formation. Clayey frigid soils derived from residuum are common and have an ustic-aridic moisture regime. Natural vegetation is grama-needlegrass-wheatgrass. The ecoregion is mostly rangeland, but irrigated and un-irrigated farms occur in the Yellowstone Valley (Woods et al. 2002).

The Billings area has a relatively dry climate with hot summers and cold winters. The average annual precipitation in Billings from 1948 to 2010 was 14.3 inches. May is the wettest month averaging 2.3 inches, and February the driest, averaging 0.6 inches. Average annual snowfall is 59.1 inches. Average daily maximum temperature is 58.7° F (Fahrenheit), and an average daily minimum is 36.0° F. (WRCC [Western Regional Climate Center] 2010). The frost-free season averages 150 days (NCDC [National Climatic Data Center] 2011).

### 3.2.2 General Vegetation

#### Baseline Conditions

The study area crosses a variety of land cover types. The predominant habitats observed were residential, commercial, agricultural, and those natural habitats found to be associated within the Yellowstone River corridor such as riparian, cliffs, and wetlands. The Yellowstone River corridor includes the Yellowstone River and its naturally occurring tributaries: Five Mile Creek and Seven Mile Creek. Multiple irrigation canals and ditches intersect the project area and many have associated wetlands.

Residential and commercial areas were located within city limits and transitioned to industrial, rural residential, and agricultural land use outside of city limits. About half of the alignment corridor is existing transportation corridors, the other half is primarily agriculture. The agricultural uses in the study area were predominantly irrigated hayfields, with some non-irrigated hayfields, pasture, and cultivated croplands.

The native habitats observed were primarily associated with the river corridors and nearby undisturbed upland areas. Riparian areas identified in the study area were primarily associated with the Yellowstone River, with isolated patches along the tributaries. These habitats had moderate plant diversity but little to no buffers due to the proximity of the agricultural, commercial, and residential land use. In these areas, the riparian habitat quality was reduced and, in some cases, fragmented. The most prevalent tree species include: Plains cottonwood (*Populus deltoides*) and crack willow (*Salix fragilis*). In the Yellowstone River floodplain, the riparian area had higher habitat quality with mature, large-diameter Plains cottonwood trees and snags. Russian olive (*Elaeagnus angustifolia*), ash (*Fraxinus latifolia*), and boxelder (*Acer negundo*) were found along Five Mile Creek and other tributaries. Typical shrub species included smooth sumac (*Rhus trilobata*) and silver buffaloberry (*Shepherdia argentia*).

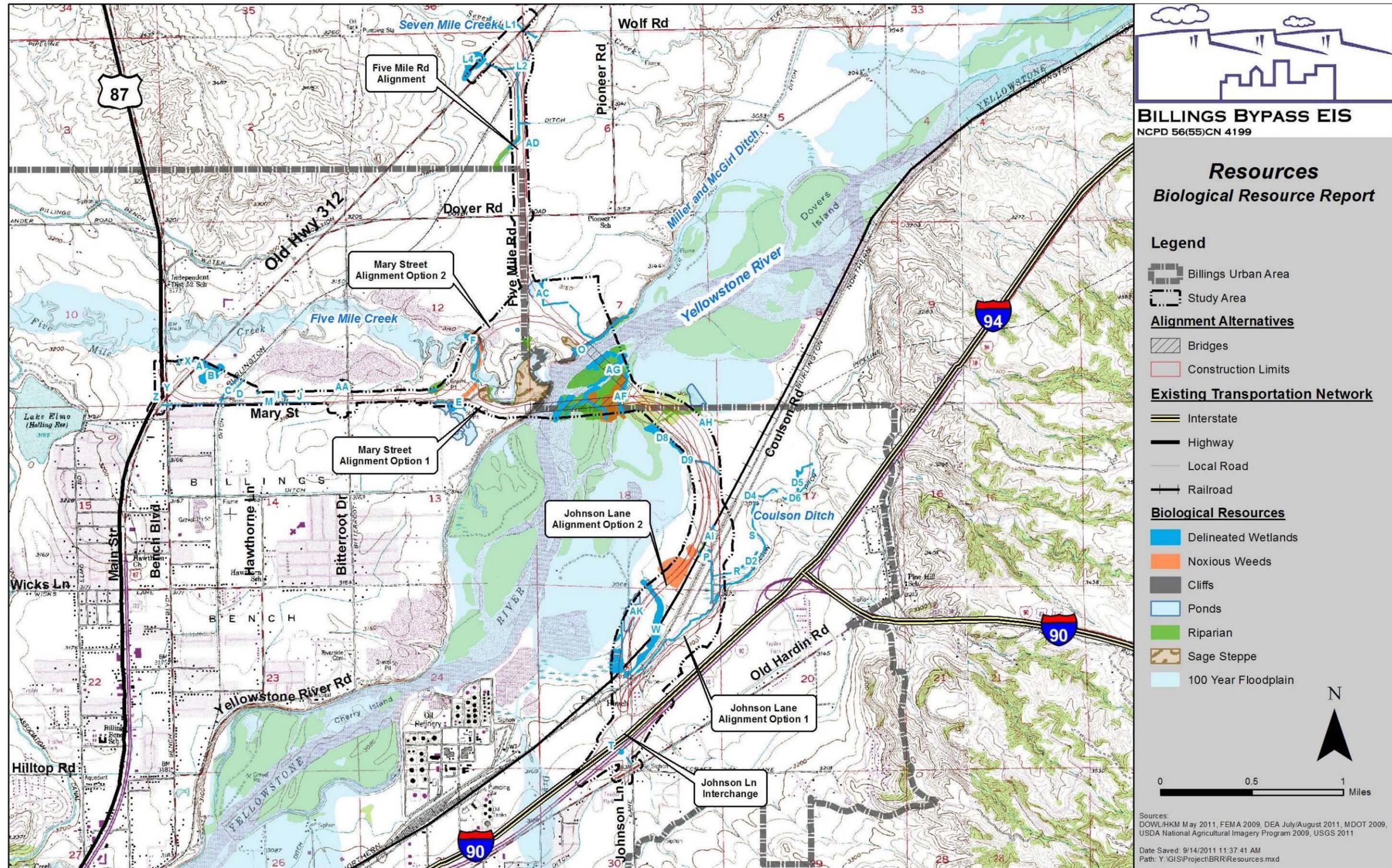
Sagebrush steppe areas were located in the study area north of the Yellowstone River, adjacent to the Five Mile Creek drainage. These areas had generally moderate to low habitat quality due to the presence of introduced species, fragmentation, and lack of buffers to agricultural or developed areas. The most prevalent species include big sage (*Artemisia tridentata*), common rabbit-brush (*Chrysothamnus nauseosus*), western wheatgrass (*Agropyron smithii*), bluebunch wheatgrass, (*Agropyron spicatum*), and Idaho fescue (*Festuca idahoensis*).

Sandstone cliffs ring the bluffs of the Yellowstone River corridor. They rise about 60-75 feet above the Yellowstone River and about 50-70 feet above Five Mile Creek in the study area.

Wetlands are described in **Section 7.0**.

**Exhibit 3** provides a general overview of study area resources and project alternatives on aerial imagery with rivers, riparian, cliffs, sagebrush steppe, wetlands, and noxious weed areas displayed. **Appendix B**, photographs 1-24 provide an overview of the alignments and resource features.

Exhibit 3. Resource Map



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**Potential Impacts**

Generally, the amount and type of direct vegetation impact would be similar among the alternatives as the length of the alternatives and habitat that the alternatives cross are similar.

About half of the alignment corridor crosses agricultural land; therefore, vegetation removal would primarily impact agricultural areas. To a lesser extent, there are five native habitats found within the alignment corridors: streams, riparian areas, sagebrush steppe, cliffs, and wetlands. Streams are discussed in **Section 4.0** and wetlands are discussed in **Section 7.0**.

The bridge crossings generally avoid habitats associated with the streams, but at the Yellowstone River crossing, the riparian habitat would be removed as needed under the bridge, primarily Plains cottonwood trees. The height of the bridge varies from east to west. The conceptual design did not establish the clearance area under the bridges or whether or not shrubs and forbs are to remain or be planted under the bridge. Cliff areas are also located under the bridges. Sagebrush steppe areas were avoided. A summary of potential impacts according to alignment alternatives is presented in **Exhibit 4**.

Indirectly, the project may increase the degradation of the riparian, sagebrush steppe, and cliff areas through fragmentation or spread of noxious weeds. They may indirectly be affected through fragmentation.

**Exhibit 4. Potential Impact to Native Habitat Areas in Study Area**

Habitat type	Riparian*	Sage brush steppe	Cliffs*
<b>Alternatives</b>			
Johnson Lane Option 1 - Mary Street Option 1	8 acres	0 acres	0.4 acres
Johnson Lane Option 1 - Mary Street Option 2	5 acres	0 acres	0.38 acres
Johnson Lane Option 2 - Mary Street Option 1	8 acres	0 acres	0.4 acres
Johnson Lane Option 2 - Mary Street Option 2	5 acres	0 acres	0.38 acres
Johnson Lane Option 1 - Five Mile Road	5 acres	0 acres	0.3 acres
Johnson Lane Option 1 - Five Mile Road	5 acres	0 acres	0.3 acres

\*Approximate area of intersect of the bridge over delineated riparian and cliff areas.

Johnson Lane Option 1 and Johnson Lane Option 2 with Mary Street Option 2 had 0.3 acres potential cliff impacts at Yellowstone River and 0.08 acres at Five Mile Creek for a

total of 0.38 acres of potential impacts. All other potential cliff impacts locations are located at the north bank of the Yellowstone River.

### **Avoidance and Minimization**

The avoidance and minimization measures identify important measures incorporated as part of the design.

The conceptual design will be further refined with avoidance and minimization measures. With more information about the bridge configuration, the project alternatives will be analyzed to assess permanent and temporary direct impacts to vegetation and native habitats. This analysis is to include the amount and type of vegetation impacted, the number of mature trees, and the actual area of riparian habitat and cliff habitat impacted under each alternative.

Impacts to vegetation will be avoided and minimized by implementing best management practices (BMPs). Limits of clearing will be plainly marked and construction plans will specify material staging areas be outside of riparian or sagebrush steppe areas.

### **Recommended Conservation Measures**

Recommended Conservation Measures include further alternative refinement to avoid impacts to vegetation. During EIS development, the type and acreage of impacts will be calculated under each alternative. Final design will avoid and minimize impacts of the preferred alternative to the extent practicable. Additional conservation measures for vegetation are not anticipated with the implementation of project avoidance and minimization measures.

#### **3.2.3 Noxious Weeds/Invasive Species**

Yellowstone County manages noxious weeds within the project area. The Montana Department of Agriculture (MDA) defines noxious weeds as "any exotic plant species established or that may be introduced into the state that may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities and that is designated as a statewide noxious weed by rule of the department; or as a district noxious weed by a board, following public notice of intent and public hearing" (MDA 2010). Noxious weeds are broken into five priority levels by Yellowstone County as follows.

**Priority 1A:** These weeds are not present in Montana. Management criteria will require eradication if detected; education; and prevention.

**Priority 1B:** These weeds have limited presence in Montana. Management criteria will require eradication or containment and education.

**Priority 2A:** These weeds are common in isolated areas of Montana. Management criteria will require eradication or containment where less abundant. Management shall be prioritized by local weed districts.

**Priority 2B:** These weeds are abundant in Montana and widespread in many counties. Management criteria will require eradication or containment where less abundant. Management shall be prioritized by local weed districts.

**Priority 3: Regulated Plants: (Not Montana Listed Noxious Weeds)** These regulated plants have the potential to have significant negative impacts. The plant may not be intentionally spread or sold other than as a contaminant in agricultural products. The state recommends research, education and prevention to minimize the spread of the regulated plant.

In addition to the state-declared noxious weed list, each county weed district can declare additional non-native plants to be noxious within the county (Yellowstone County Weed Department 2011).

### **Species, Distribution, and Degree of Infestation**

Generally, the study area and alignment corridors have well maintained roadside grassy areas and agricultural areas with very few weed species. Species and quantity of noxious weeds are similar among alternatives. The weed locations indicated in **Exhibit 3** were predominantly Priority 2B including Canada thistle (*Cirsium arvense*) infestations and, to a lesser extent, Russian knapweed (*Centaurea repens*) and houndstongue (*Cynoglossum officinale*). Leafy spurge (*Euphorbia esula*) was located only along the Yellowstone River south channel noxious weed area. Priority 1A, 1B, and 2A noxious weeds were either not found or found as individual plants in small isolated occurrences. Russian Olive, a Priority 3 species (Not Montana Listed Noxious Weeds), was found to be a dominant and prevalent species along Five Mile Creek, its tributaries, and wetlands in the project area. Priority 3 regulated plants have the potential to have significant negative impacts.

### **Potential Impacts**

Ground-disturbing construction activities could facilitate the spread of noxious weeds by opening up new areas for invasion and assisting in transportation of weeds to new areas by equipment.

### **Avoidance and Minimization**

Standard specifications and BMPs will be used during and after construction to reduce and minimize noxious weeds. The following notes will be included in the plan set.

- Control of noxious weeds will occur during and after construction.
- A temporary erosion control plan will include provisions for post-construction revegetation of the disturbed road corridor with desirable species seed mix to minimize colonization by noxious weeds.

### **Recommended Conservation Measures**

Additional conservation measures for noxious weeds are not anticipated with the implementation of project avoidance and minimization measures.

#### **3.2.4 General Wildlife Species**

This section describes general fish, wildlife, and their habitats known or potentially present in the project area. Montana species of concern are described in more detail in **Section 5.0**. Species protected by the ESA are described in **Section 6.0**.

### **Species Present and Distribution**

Based on the habitats present in the study area, as described in **Section 3.2.2**, numerous wildlife species are likely to occur. Because the alignment corridors are primarily agricultural or developed, species that are adapted to the human environment are highly likely to occur project-wide. Areas such as the Yellowstone River corridor with habitat such as riparian, cliffs, and wetlands may have a high diversity of species. Irrigation canals and ditches in the agricultural areas provide wildlife with a man-made water and habitat source that would not naturally be present in this arid climate area.

Species that prefer sagebrush steppe habitats would be found in fewer numbers as the percentage of this habitat in the project area is very low and fragmented. Species that do not tolerate human disturbance would likely be found in fewer numbers near the developed areas of the study area.

**Appendix C** contains the lists of birds, mammals, reptiles and amphibian observed during biological surveys or reported by landowner accounts.

Sixty-three bird species were identified by sight or song during biological surveys of the study area in July and August 2011, including, but not limited to, waterfowl, shorebirds, raptors, passerines, game birds, and woodpeckers. All but five of these species are protected by the Migratory Bird Treaty Act (MBTA). Most of these species are cosmopolitan, associated with many habitat types and adapted to human activities and man-made environs. The field reconnaissance took place in the late portion of the breeding season, so many species may not have been detected. Since the project area is within the North American Central Flyway bird migration route, innumerable species of birds migrate through the area.

Seventeen mammal species were documented by sight or sign during site visits from August through October 2007. Landowner accounts support general observations that many mammal species known to occur in Yellowstone County use the Yellowstone River and tributaries as travel corridors and for food, cover, and water. Most of these species are associated with altered habitat and have adapted to human activities and are common project-wide in a variety of man-made environs. Species include but are not limited to big game, carnivores, bats, and rodents. Other small mammals that were not observed during field investigations but may occur in the project area, based on habitat and range (MTNHP and MTFWP 2011), include little myotis bat (*Myotis sp*), meadow vole (*Microtus pennsylvanicus*), deer mouse (*Peromyscus maniculatus*), house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*). Domestic animals include cattle, horses, cats, and dogs.

Three terrestrial reptile species and one terrestrial amphibian were documented by sight in the study area. Other species that were not observed during field investigations but may occur include Western Rattlesnake (*Crotalus viridis*), plains spadefoot (*Spea bombifrons*), and Great Plains toad (*Bufo cognatus*) (MTNHP 2011c). Terrestrial reptiles and amphibians were found in agricultural and riparian areas. Aquatic reptiles and amphibians are discussed in **Section 4.0**.

### **Potential Impacts**

It is anticipated that direct impacts to wildlife would be similar among alternatives as the length of the alignments and habitat are similar. Potential impacts to wildlife would

primarily occur in the higher quality habitat areas such as along the Yellowstone River and in undeveloped areas of the project area. Impacts would likely include direct mortality, displacement, and habitat fragmentation.

Direct mortality of road-killed wildlife would likely increase over the current conditions because of new roadways, additional pavement, traffic, and new traffic speeds in the project area. Speeds on the urban arterials will increase from 35 mph to 55 mph and on the rural arterials will increase to 70 mph.

During construction small mammals, reptiles, amphibians, and invertebrates, especially those that burrow, could experience direct mortality due to earth moving activities. Birds and larger species of mammals currently using the proposed project footprint and adjacent areas may be displaced into surrounding lands during construction because of construction noise and other disturbances. In particular, the cavity nesting or burrowing mammals that utilize the mature, large diameter trees along the Yellowstone River corridor may experience direct mortality during the winter and spring breeding months if tree removal occurs during these months.

Indirectly, wildlife would be impacted by the presence of a new roadway, increased roadway noise, and increased habitat fragmentation, which could reduce the quality of wildlife habitat in the study area. Movement of wildlife for foraging, dispersion, and migration could be altered. However, connectivity in riparian areas that provide important travel corridors for wildlife will be maintained by the installation of appropriately sized culverts and bridges. Mitigation measures described below would reduce the potential adverse effects on wildlife movements.

### **Avoidance and Minimization**

The project team considered effects to wildlife and wildlife habitat in the routing of alternatives. By aligning alternatives with previously developed transportation corridors and altered landscapes, the conceptual design avoids or minimizes impacts to known ecological resources such as rivers, riparian, sagebrush steppe, cliff, and wetland areas. Avoiding and/or minimizing impacts to habitats, i.e. avoidance and minimization measures in **Section 3.2.2**, serves to avoid and minimize impacts to the wildlife that occupies them.

The impacts to the Yellowstone River corridor wildlife habitats would be generally avoided because of the bridge crossings design. However, there will still be impacts to habitat areas from abutments, piers, and vegetation clearance zones.

### **Recommended Conservation Measures**

The Migratory Bird Treaty Act (MBTA) of 1918 prohibits the destruction or damage of active or occupied nests and eggs of migratory birds. Native species that do not migrate are included under the protected list of the MBTA (USFWS Undated a). Impact to known breeding locations such as avian nests or burrows will be avoided or minimized as required. In conformance to the MBTA, seasonal restrictions or deterrent methods are used to ensure that active nests are not harmed during the breeding season.

Recommended conservation measures include, but are not limited to: a) removal of structures outside of the nesting season and when the nests are not occupied, typically between the dates of August 16 and April 30; b) removal of unoccupied nests, partially

completed nests, or new nests as they are build (prior to occupation); c) installation of nesting deterrents that do not harm active nests; d) removal of existing and new nests from the structure as they are built (this work performed outside of the nesting season and when the nests are not occupied, typically between the dates of August 16 and April 30); e) cover or enclose potential nesting surfaces with mesh netting, chicken wire fencing, or other suitable material to prevent birds from establishing new nests; f) and application of a non-toxic, non-lethal, bird repellent gel or liquid on all potential nesting surfaces on the structure to prevent new nests from being established.

## **4.0 Aquatic Resources**

### **4.1 METHODS**

Aquatic resource information was obtained primarily from a review of literature via the internet and supported by correspondence with agency personnel and field investigation. General aquatic species presence was documented when feasible during field investigations. References to the source of information are included in the resource narratives and **Section 8.0**.

### **4.2 RESULTS**

#### **4.2.1 Aquatic Sites**

The project area is located within the Upper Missouri Drainage Basin and the Middle Yellowstone Watershed, Yellowstone Basin identified as U.S. Geological Survey (USGS) Hydrologic Unit Code (HUC) 10070007, Upper Yellowstone-Pompeys Pillar. The Yellowstone River originates at Yellowstone Lake in Yellowstone National Park, Wyoming and flows north into Montana through Paradise Valley, between Gardiner and Livingston. At Livingston, the river flows east through Billings, eventually flowing into the Missouri River near the Montana/North Dakota border. The Yellowstone River has a drainage area of 11,795 square miles.

The MTNHP classifies the Yellowstone River as a Large Valley River, Aquatic Ecological System Type A001 and A002 (Stagliano 2005). It is a large warm-water river with a moderate gradient and characterized by long deep runs and pools with depths of less than two meters, mid-stream islands, and side channels and interspaced riffles. Substrate generally consists of cobble in the riffles, with sand and gravel in the runs and pools, and gravel or finer textured substrates in side channels.

All of Yellowstone County is drained by the Yellowstone River and its tributaries. East of Billings, the Yellowstone River has cut through resistant sandstone, which has formed prominent rimrocks on both sides of the valley. The river flows northeastward through a moderately steep-walled valley (Stagliano 2005). It ranges from a few hundred feet to more than half a mile in width, carrying a large volume of water (USGS 2011). The Yellowstone River includes the floodplain and channel migration areas.

#### **Surface Water**

The three major surface water bodies in the study area include the Yellowstone River, Five Mile Creek, and Seven Mile Creek. The flow of Seven Mile Creek to the Yellowstone

River is interrupted by a flume. Other surface water bodies include smaller unnamed tributaries, ponds in wetlands, and gravel pit ponds. The project corridors also include two major irrigation ditches: Coulson Ditch, Miller McGirl Ditch, as well as numerous smaller side ditches. The Miller McGirl Ditch is located outside of the study area but receives waters from other ditches within the study area. The hydrology of the study area, including the irrigation systems and gravel pit ponds, is detailed in the Preliminary Location Hydraulic Study Report prepared by DOWL HKM (June 2011). **Exhibit 5** lists the major hydrology in the study area and the alternatives that intersect them.

**Exhibit 5. Major Hydrology of the Study Area**

Name	Project Section, Township (T), Range (R)	Type	Alternatives	Preliminary Jurisdictional Determination*
Yellowstone River	Section 7 and 18 T1N, R27E	Perennial	All	Yes
Five Mile Creek	Section 12 T1N, R26E	Perennial	Johnson Lane Option 1 - Mary Street Option 2 and Johnson Lane Option 2 - Mary Street Option 2	Yes
Seven Mile Creek	Section 11 T1N, R26E	Perennial	Johnson Lane Option 1 – Five Mile Road and Johnson Lane Option 2 - Five Mile Road	Yes
Coulson Ditch	Section 19 T1N, R27E	canal	Johnson Lane Option 2 - Mary Street Option 1, Johnson Lane Option 2 - Mary Street Option 2, and Johnson Lane Option 2 - Five Mile Road	Yes
Miller McGirl Ditch	Section 7 T1N, R27E	canal	Johnson Lane Option 1 – Five Mile Road and Johnson Lane Option 2 - Five Mile Road	Yes

\* DOWL HKM 2011. Preliminary determination is provided by DEA according to connectivity or a significant nexus to traditional navigable waters of the US. Final determination will be by the USACE.

**Water Quality**

Section 303(d) of the Clean Water Act (CWA) and related regulations requires states to assess the condition of their waters to determine where water quality is impaired (does not fully meet standards) or threatened (is likely to violate standards in the near future). The result of this review is the 303(d) list. Section 303(d) also requires states to prioritize

and target water bodies on their list for development of water quality improvement strategies, e.g. total maximum daily loads (TMDLs), and to develop such strategies for impaired and threatened waters. The 303(d) list is defined by EPA as waters with Category 5 designations, i.e. "Waters where one or more applicable beneficial uses have been assessed as being impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat." These categories include:

- waters that are fully supporting all beneficial uses (Category 1),
- waters where available data and/or information indicate that some, but not all of the beneficial uses are supported (Category 2A),
- waters where available data and/or information indicate that a water quality standard is exceeded due to an apparent natural source in the absence of any identified anthropogenic sources (Category 2B),
- waters that have not been assessed or have insufficient data to evaluate their use support levels (Category 3), and
- waters where one or more beneficial uses have been assessed as being impaired or threatened, however, either all necessary TMDLs have been completed (Category 4A) or are not required (Category 4C) (MDEQ, 2010).
- waters where one or more applicable beneficial uses have been assessed as being impaired or threatened, and a TMDL is required to address the factors causing the impairment or threat (Category 5).

In the study area, the Yellowstone River is listed with a water quality Category 5 and 2B designation. The river's beneficial use support information indicates "fully supporting" agriculture and industrial use, but is "not supporting" aquatic life, drinking water, primary contact recreation, and warm water fishery. Impairment probable causes include natural source arsenic, agriculture and municipal source impacts to benthic-macroinvertebrates, dissolved oxygen saturation, excess algal growth, nutrient eutrophication, periphyton indicators, and suspended/bedload solids (MDEQ 2010). No other water bodies in the study area were included in the Water Quality Integrated Report 303(d) list or Section 305(b) Report.

### **Potential Impacts**

Direct impacts to Yellowstone River, Five Mile Creek, and Seven Mile Creek would occur at bridge crossing locations. Bridge engineering and analysis of resulting water body modifications will be conducted during preliminary and final design.

Direct water quality impacts would be primarily related to construction. Construction actions could exacerbate the impaired condition of the Yellowstone River, destabilize the banks or cause erosion, contributing to decreased water quality, increased sedimentation, and increased water temperatures. These impacts would occur with varying intensity and duration during the phases of construction.

Indirect impacts to surface waters may occur due to changes in the hydrology of aquatic sites. Roads commonly affect how water and its various loads move through watersheds. Roads can disrupt natural flows of surface water and groundwater or create new routes

for the flow of water. Fill can increase on-site and off-site flooding. The presence of roads bisecting wetlands can disrupt water circulation patterns (Forman et al. 2003).

Indirect impacts to water quality are typically associated with clearing of vegetation and increased impervious surface. When areas adjacent to aquatic resources are left exposed as a result of cut and fills, sedimentation can occur. Because the proposed project would increase impervious surface through construction of new roads and widening of existing roads, stormwater runoff is likely to increase. The primary source of contaminants from transportation systems is runoff from impervious surfaces. Rainfall and snowmelt can carry sediments, animal and agricultural wastes, pesticides, fertilizers, heavy metals, hydrocarbons, road salts, and debris into creeks, wetlands, and waterways. Stormwater runoff can also result in water temperature increases in receiving waters. Additionally, hydrology may be changed with impervious surfaces preventing rainfall from percolating into the soil.

### **Avoidance and Minimization**

The project team considered aquatic resources and water quality in the development of the conceptual design and routing of alternatives. Alternatives avoided water resources where practicable. Where impacts to the resources are unavoidable, impacts will be minimized through bridge and culvert design analysis and development of project alternatives. The final design will include water quality conservation measures and identify temporary and permanent impacts to aquatic sites. The proposed bridge designs would avoid and minimize impacts to the rivers, floodplain, and channel migration zone as practicable.

The potential and magnitude for the impacts to occur will be minimized with implementation of standard BMPs. Standard specifications and stream protection plans will be used during and after construction to reduce or eliminate water quality impacts. With the conservation measures described below, the project is unlikely to significantly adversely alter the aquatic sites and water quality.

- The Yellowstone River bridge crossings utilize two different superstructure types. To minimize the environmental impacts and the number of intermediate bents located in the active channel, multi-span composite steel plate girders were selected to cross the active channel. Outside of the active channel and for crossing the remainder of the floodplain, the span lengths were reduced and prestressed concrete girders were assumed. Five Mile Creek will have a single-span bridge crossing to avoid the creek. Seven Mile Creek Bridge on highway 312 will be improved. These designs will minimize potential impacts to surface waters and associated wetlands floodplains.
- The location and potential impacts from bridge piers, abutments, and culverts to surface waters will be assessed quantitatively and qualitatively in the EIS.
- In-water work for bridge construction should be scheduled during the low water levels to minimize impacts to river characteristics.
- Floodplain impact analysis will be conducted in the EIS to identify avoidance and minimization measures.

- The existing and proposed conveyances and anticipated in-stream work will be evaluated quantitatively to identify potential impacts within the bed and banks of the water bodies.
- A temporary erosion control plan will include provisions for post-construction revegetation of the disturbed road corridor with desirable species seed mix to minimize erosion. Stormwater pollution prevention plans will be incorporated as part of the final design.

### **Recommended Conservation Measures**

Additional conservation measures for aquatic resources are not anticipated with the implementation of project avoidance and minimization measures.

### **Permitting Required**

U.S. Federal regulations that may pertain to the proposed project include the CWA of 1972, Section 404 including the 2007 Rampanos/SWANCC Guidance, Section 401 (Water quality certification), Executive Order 11990 (Protection of Wetlands), and Executive Order 11988 (Protection of Floodplains).

Section 404 of the CWA requires approval prior to discharging dredged or fill material into the waters of the United States. The USACE administers the 404 program. Implementation of any of the build alternatives would require securing a Section 404 permit to authorize discharge of any dredged or fill material into the Waters of the U.S.

A nationwide permit is generally the simplest form of the 404 permits and authorizes a category of activities throughout the nation. These permits are valid only if the conditions applicable to the permits are met. If the conditions cannot be met, a regional or individual permit is required. Individual permits are more complicated and time consuming and are designed specifically for each project. They are subject to a public review period.

The Montana Stream Protection Act (SPA 124 notification) requires a notification for any agency proposing a project that may affect the bed or banks of any stream in Montana to protect and preserve fish and wildlife resources. This notification is administered by the Montana Department of Fish, Wildlife and Parks. Additional state regulations and associated permitting include Montana Natural Streambed and Land Preservation Act, Montana Floodplain and Floodway Management Act (Floodplain Permit), Montana Pollutant Discharge Elimination System (MPDES Permit), MDEQ 401 Certification and Source Water Protection, and construction permits.

#### **4.2.2 General Aquatic Species**

##### **Species Present and Distribution**

Thirty-three fish species have been confirmed as occurring within the project area in the Yellowstone River and Five Mile Creek. (MTFWP 2011). **Appendix C** lists the Yellowstone River and Five Mile Creek fish occurrences. The Seven Mile Creek flow to the Yellowstone River is interrupted by a flume and the Miller McGirl Ditch; no fish species are listed (MTFWP 2011). Fourteen of the species listed are classified by MTFWP as game fish, and fishing for these species is regulated. The rest of the species are classified as non-game and are not regulated. Two species are Montana Species of Concern: the sauger and

Yellowstone cutthroat trout described in **Section 5.0**. Two aquatic reptiles and two aquatic amphibians were observed in the study area.

The existing condition of the aquatic habitat has been reduced due to water quality concerns of the Yellowstone River, the proximity of agriculture, commercial, and residential disturbance.

### **Potential Impacts**

Direct mortality to individual fish and larger aquatic amphibians and reptiles may occur during in-water work. Microinvertebrates and smaller, less mobile organisms may be directly impacted at ground disturbed or pier locations. The canals and ditches have limited potential impacts due to limited aquatic habitat.

During construction of the bridges and culvert placement, fish and other aquatic organisms may be temporarily disturbed and/or displaced.

Indirect impacts of the project to aquatic species could occur as a result of impacts to aquatic habitats through water quality concerns such as increased water temperature, pollutants, or habitat fragmentation. As runoff moves over warmed impervious surfaces, the temperature of the water rises and dissolved oxygen content decreases causing stress or mortality in aquatic organisms. Increased salinity, turbidity, and toxicity affect aquatic life and therefore the food web for fish species. The location of piers could fragment the Yellowstone River channel migration sites that provide habitat locations for fish, amphibians, reptiles, and the other many species that utilize aquatic sites and resources. A change in hydrology in some cases changes the movement of organisms, so much that the separated water bodies exhibit different ecological characteristics (Crance 1984).

### **Avoidance and Minimization**

Impacts to aquatic species are not anticipated with the use of the bridge crossing and culvert designs for this project and the implementation of standard specifications and BMPs. Bridge crossings are planned for the fish bearing streams. Efforts to avoid and minimize impacts to aquatic species are anticipated to be achieved through avoidance and minimization measures to aquatic sites **Section 4.2.1**. Additional avoidance and minimization measures include:

- The bridge design optimizes the shape, size, number, and placement of pier locations in a manner that would maintain uninterrupted fish passage.
- In-water work for bridge construction should be scheduled during the low water levels to minimize spring spawning timelines.
- Adhere to Section 208 of MDT's Standard Specifications for Road and Bridge Construction (2006).
- Adhere to special conditions set forth by the resource agencies.

### **Recommended Conservation Measures**

Additional conservation measures for aquatic species are not anticipated with the implementation of project avoidance and minimization measures.

## 5.0 Sensitive Species of Special Concern

### 5.1 METHODS

Species discussed in this part of the BRR have been documented by MTNHP (2011a and 2011b), and/or during field investigations. The regional MTFWP biologist provided further information regarding species presence in the study area (Begley, personal comm. 2011). Field investigations included search of preferred habitats of the species of concern to document occurrence by sight, song, and/or signs with photo documentation and mapping. Landowner accounts were incorporated. Existing habitat was documented and evaluated.

### 5.2 RESULTS

MTNHP and field investigations have documented a total of 19 potential sensitive species of special concern (species of concern) in the Yellowstone County, Billings East Quadrangle area (2011a). The quarter of a quarter Latitude/Longitude (QQL) information provided by MTNHP covers an area of over 200 square miles. This larger database was used for species that have an extensive home range. Of these 19 species, 17 are likely to occur in the project area based on MTNHP Species Occurrence Data, probable occurrence based on habitat, and/or documented during DEA field investigations. **Exhibit 6** summarizes the species, ranks, habitat requirements, and occurrence in the project area. Species of concern that are federally listed are addressed in **Section 6.0**.

**Exhibit 6. Species of Concern Documented in the Billings East Quadrangle, Yellowstone County**

Common Name	Scientific Name	Global Rank	State Rank	Habitat Requirements	Occurrence in Project Area
<b>Birds</b>					
Bald eagle	<i>Haliaeetus leucocephalus</i>	G5	S3	Rivers, lakes, Riparian forest	P/D
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	G5	S3B	Riparian forest	P
Brewer's sparrow	<i>Spizella breweri</i>	G5	S2B	Sagebrush	P/D
Grasshopper sparrow	<i>Ammodramus savannarum</i>	G5	S3B	Grasslands	NL
Great blue heron	<i>Ardea herodias</i>	G5	S3	Riparian forest	P/D
Loggerhead shrike	<i>Lanius ludovicianus</i>	G4	S3B	Sagebrush, mixed use	P
Peregrine falcon	<i>Falco peregrinus</i>	G4	S2B	Cliffs	P
Pinyon jay	<i>Gymnorhinus cyanocephalus</i>	G5	S3	Open conifer	NL
Veery	<i>Catharus fuscescens</i>	G5	S3B	Riparian forest	P

Common Name	Scientific Name	Global Rank	State Rank	Habitat Requirements	Occurrence in Project Area
<b>Mammals</b>					
Hoary bat	<i>Lasiurus cinereus</i>	G5	S3	Riparian or forest near water sources	P
Spotted bat	<i>Euderma maculatum</i>	G4	S2	Arid land rock outcrops	P
<b>Reptiles</b>					
Common Sagebrush lizard	<i>Sceloporus graciosus</i>	G5	S3	Sagebrush steppe with rock outcrops	P/D
Greater short-horned lizard	<i>Phrynosoma hernandesi</i>	G5	S3	Sandy/gravelly soils of sparse arid sage or grasslands	P
Milksnake	<i>Lampropeltis triangulum</i>	G5	S2	Rock outcrops, hillsides, badlands	P
Snapping turtle	<i>Chelydra serpentina</i>	G5	S3	Small reservoirs and perennial small streams	D
Spiny softshell	<i>Apalone spinifera</i>	G5	S3	Prairie rivers & larger streams	P
Western hog-nosed snake	<i>Heterodon nasicus</i>	G5	S2	Sagebrush, grasslands, arid farms or floodplains	P
<b>Fish</b>					
Sauger	<i>Sander canadensis</i>	G5	S2	Large prairie rivers	NL
Yellowstone Cutthroat Trout	<i>Oncorhynchus clarkii bouvieri</i>	G4T2	S2	Cold rivers	NL

Source: MTNHP 2011

P = probable occurrence based on habitat

D= Documented by DEA field studies

NL=Not likely

Definitions of Ranks:

G1 / S1 At high risk because of extremely limited and/or rapidly declining numbers, range, and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.

G2 / S2 At risk because of very limited and/or declining numbers, range, and/or habitat, making it vulnerable to global extinction or extirpation in the state.

- G3 / S3 Potentially at risk because of limited and/or declining numbers, range, and/or habitat, even though it may be abundant in some areas.
- G4 / S4 Uncommon but not rare (although it may be rare in parts of its range), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern.
- G5 / S5 Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.

### **Species Descriptions**

Summaries of the Montana Species of Concern that have been documented in Billings East Quadrangle, Yellowstone County are provided in the following section of the BRR. Information is referenced primarily from the Montana Field Guide (MTNHP and MTFWP 2011) and the MTNHP GIS (Geographic Information System) geodatabase (MTNHP 2011a).

#### **5.2.1 Bald Eagle**

The bald eagle was removed from ESA protection in 2007. This species is still protected by the Bald and Golden Eagle Protection Act and is a Montana Species of Concern. The Bald Eagle is a year-round resident in forested, mountainous areas of Montana. However, some may move to the more temperate weather of lower elevations or to other areas with higher concentrations of food (Montana Bald Eagle Working Group 1994). This is especially true of individuals that nest at higher elevations.

The bald eagle occurs primarily in riparian and lacustrine habitats (forested areas along rivers and lakes), especially during the breeding season. Important year-round habitat includes wetlands, major water bodies, spring spawning streams, ungulate winter ranges, and open water areas. Wintering habitat may include upland sites. Nesting sites are generally located within larger forested areas near large lakes and rivers where nests are usually built in the tallest, oldest, large diameter trees. Nesting site selection is dependent upon maximum local food availability and minimum disturbance from human activity (Montana Bald Eagle Working Group 2010).

Bald eagles consume primarily fish but will also take waterfowl, carrion, and small mammals in the winter. Nests are very large structures, usually reused for many years (Baicich and Harrison 1997). The most common nest trees are ponderosa pine, Douglas fir, and cottonwood. Nest building dates in Montana begin as early as December and fledging may continue through August (USFWS 2007). In Montana, seasonal restrictions occur from approximately February 1 through August 15 (Montana Bald Eagle Working Group 2010).

Bald eagles have been sighted regularly in the study area as breeding birds, winter migrants, and transients (MTNHP 2011b). Bald eagles were observed along the Yellowstone River and Five Mile Creek by DEA biologists and by landowner accounts. 2010 bald eagle nest locations provided by MTFWP were located about 1.5 miles downstream of the project and another about 0.61 miles upstream, in closest proximity to the Johnson Lane Alignment Option 2. Several bald eagles were observed during the August field investigation dates at a communal roosting snag tree near the Yellowstone River at the intersection of the Johnson Lane Option 1 and Johnson Lane Option 2 alignments and a single roosting site north of the Yellowstone River and west of the Five Mile Road and Mary Street Option 2 alignments. Both were within 500 feet of the alignments.

### **5.2.2 Black-Billed Cuckoo**

The black-billed cuckoo is a grayish-brown cuckoo with a dark mandible. Black-billed cuckoos typically arrive in Montana from early to mid June and depart before October. It is a summer resident and a nocturnal migrant. In Montana, they are found most often in riparian areas with a shrubby understory. They also occur in foothill deciduous woodlands. Diet consists of insects such as caterpillars, crickets, grasshoppers, and butterflies. Also included are mollusks, fish, small vertebrates, and fruits. Their populations have been correlated to tent caterpillar populations (MTNHP and MTFWP 2011).

There has been one sighting of the black-billed cuckoo in the project area on June 20, 2009. The sighting was of indirect breeding evidence west of the study area near Billings Bench gravel pit pond, east of Barnet Road, about 0.1 mile west of the Yellowstone River (MTNHP 2011b). The riparian habitat along the Yellowstone River meets the habitat requirement for this species. None were documented during DEA field investigations.

### **5.2.3 Brewer's Sparrow**

Brewer's sparrows migrate into Montana in mid to late May and leave in mid-August (Skaar 1969). They generally nest in sagebrush in Montana (Best 1970). Brewer's sparrows eat mostly insects (grasshoppers and beetles) and a smaller percentage of grass seeds. In central Montana, most nests were found between 6 to 8 inches above the ground in big sagebrush plants (MTNHP and MTFWP 2011).

Brewer's sparrows have been sighted in the project area, during the Landbird Monitoring Program with indirect breeding evidence (MTNHP 2011b). The sagebrush steppe areas in the study area are suitable habitat for Brewer's sparrow. They were documented during field investigations by DEA biologists in these areas and were likely breeding populations.

### **5.2.4 Grasshopper Sparrow**

Grasshopper sparrows occur in open prairies with intermittent brush. Its diet consists of insects and grasshoppers in the summer and grasses and seeds in the winter. This migratory sparrow occurs in Montana mid-April to mid-July. They nest and forage mostly on the ground (MTNHP and MTFWP 2011).

Grasshopper sparrows have been documented in the project area, during the Landbird Monitoring Program with indirect breeding evidence (MTNHP 2011b). The habitat in the study area has limited habitat for the grasshopper sparrow due to lack of native prairieland; thus, it is not likely that grasshopper sparrows occupy the study area. None were documented during DEA field investigations.

### **5.2.5 Great Blue Heron**

The great blue heron is a year-round resident through most of Montana. They are a fairly common permanent resident. They are found in wetlands in residential and wilderness settings. Most Montana nesting colonies are in cottonwoods along major rivers and lakes. A smaller number occur in riparian ponderosa pines and on islands in prairie wetlands. Nesting trees are the largest available. Great blue herons consume mostly fish but also amphibians, invertebrates, reptiles, mammals, and birds. Breeding season begins in March and fledging occurs by mid-August (MTNHP and MTFWP 2011). Most studies recommend

a minimum of about 900 feet for a buffer zone from the periphery in which no human activity should take place during courtship and the nesting period between February 15 and July 31 (Cuthrell 2004).

Great blue herons have been regularly sighted in the project area in agricultural areas, wetlands, and along the Yellowstone River. MTFWP identified a heron rookery within the study area and near the south crossing of the Yellowstone River. However, this rookery was not confirmed by DEA biologists.

### **5.2.6 Loggerhead Shrike**

Loggerhead shrikes migrate to Montana primarily in May and depart in August. This species occurs in native grassland communities with shrub components as well as fallow fields and roadsides. They eat primarily insects but also consume amphibians, small reptiles, small mammals, and birds. Often observed on wire fence lines, it uses barbed wire, thorns, and forks of a branch to hold large prey (Yosef 1996). Loggerhead shrikes are similar in appearance to Northern Shrikes (*Lanius excubitor*) but the base of the lower mandible is black instead of pale (MTNHP and MTFWP 2011).

A loggerhead shrike was sighted in the project area in 2002, during the Landbird Monitoring Program with indirect breeding evidence (MTNHP 2011b). Although there is suitable habitat for loggerhead shrike in the study area, none were documented by DEA biologists.

### **5.2.7 Peregrine Falcon**

Peregrine falcons are migratory birds arriving in Montana in late April to early May and departing in August to early September. Nests are typically located on ledges of vertical cliffs, ideally in undisturbed areas with a wide view, near water, and close to prey sources. They will sometimes nest on man-made substitutes for cliffs such as tall buildings, bridges, rock quarries, and raised platforms (MTNHP and MTFWP 2011). Peregrine falcons feed primarily on birds (medium-size songbirds to small waterfowl) and may hunt up to several kilometers from their nest site (Skaggs et al. 1988). The nesting period is estimated to be June and July (Davis 1961). The peregrine was removed from the federal endangered species list in 1999.

There is a peregrine falcon eyrie (i.e., nest) at the Sacrifice Cliff area, about 5 miles upstream from the project (MTNHP 2011b). The study area is within their hunting range.

### **5.2.8 Pinyon Jay**

Pinyon jays are small-medium jays and are crestless. Adult plumage is entirely dull blue. This jay is a year-round resident of southeast Montana and may be nomadic. In Montana, they occur in low-elevation ponderosa pine and limber pine-juniper woodlands. They are generally omnivorous, with pine seeds an important component of their diet. They also consume wild fruits, agricultural grains, arthropods, lizards, snakes, and nestling birds or small mammals. These jays are rarely seen individually and often nest in colonies (MTNHP and MTFWP 2011).

Pinyon jays have been sighted most commonly about 5 miles southwest of the project in the Sacrifice Cliff area (MTNHP 2011b). Generally there is a lack of conifers in the study

area, except a location near the mouth of Five Mile Creek. No pinyon jays were documented during DEA field investigations.

### **5.2.9 Veery**

This thrush is migratory and is found in Montana mid-April through mid-September. It has a strong preference for riparian habitats in the Great Plains. In Montana, veerys are often associated with willow thickets and cottonwoods along streams and lakes in valleys and lower mountain canyons. The veery is primarily a ground forager, with a diet including insects and fruit. It is heavily parasitized by brown-headed cowbird (MTNHP and MTFWP 2011).

There is one documented sighting in 1991 at the Billings Riverfront Park, about 4 miles from the project (MTNHP 2011b). However, the entire riparian habitat along the Yellowstone River meets the habitat requirement for this species. None were heard or seen during DEA field investigations.

### **5.2.10 Hoary Bat**

Hoary Bat is the largest bat species found in Montana (35 g in weight, to about 140 mm in total length). It is migratory and only a summer resident in Montana, with records from early June through September occupying forested areas. This bat appears to be solitary, roosting primarily in trees. Roosting may occur in manmade structures. Often occurring over water sources within forested terrain, both conifer and hardwood, as well as along riparian corridors, hoary bats are reported in Montana over a broad elevation range. They favor moths, beetles, other flying bugs and the much smaller bats (MTNHP and MTFWP 2011). Hoary bats breed in autumn, possibly during migration and give birth middle of May into early July (Anderson 2002).

The hoary bat was observed southwest of Huntley in 2005 (MTNHP 2011b). The riparian habitat along the Yellowstone River and Five Mile Creek meets the habitat requirement for this species. None were heard or seen during DEA field investigations.

### **5.2.11 Spotted Bat**

Spotted bats have been documented most frequently in open arid habitats dominated by Little Utah juniper (*Juniperus osteosperma*) and sagebrush (*Artemisia tridentata* and *A. nova*), sometimes intermixed with limber pine or Douglas-fir, or in grassy meadows in ponderosa pine savannah (Fenton et al. 1987, Worthington 1991, Hendricks and Carlson 2001). Cliffs, rocky outcrops, and water are other characteristics of sites where spotted bats have been documented (Foresman 2001). Spotted bats roost in caves and in cracks and crevices in cliffs and canyons (van Zyll de Jong 1985). This bat is insectivorous feeding primarily on moths (Barbour and Davis 1969). Little is known about breeding behaviors of spotted bats. Juveniles have been caught in mist nets in July and lactating females have been caught as late as August (Anderson 2002).

The spotted bat was observed mostly at the Billings Riverfront Park, about 4 miles from the project area (MTNHP 2011b). The cliff areas along the Yellowstone River and Five Mile Creek meet the habitat requirement for this species. None were documented during DEA field investigations.

### **5.2.12 Common Sagebrush Lizard**

The common sagebrush lizard is a year-round resident of southeast Montana. It is small and narrow with small spiny, keeled scales on the back and a pale dorsolateral stripe on each side. Males have blue lateral abdominal patches and mottling on the throat. This species occurs in sagebrush steppe habitats with rock outcrops. It uses rodent burrows, shrubs, logs, and rocks for cover. Although a ground dweller, this lizard will perch up above ground in low shrubs and trees. This invertivore consumes mostly ants, beetles, and moths. It is diurnal and active above ground from early May through mid-September. It is predated by snakes, lizards, and birds (Hammerson 1999).

This species has been observed in the project area in suitable habitat (MTNHP 2011b). The sagebrush steppe areas in the study area are suitable habitat for this species. They were documented during field investigations by DEA biologists in these areas and in an irrigated cropland site.

### **5.2.13 Greater Short-horned Lizard**

The greater short-horned lizard is a year-round resident of eastern Montana. It is broad and flattened with a single row of scales fringing each side of the body and the back of the head. Coloration is cryptic. This species occurs in sparse, short grass and sagebrush in coulees and canyons with stone and sun-baked soil. It consumes mostly ants and beetles. Adult lizards are diurnal and active above ground from mid-April to mid-September. It is predated by snakes and birds (Hammerson 1999).

This species has been observed in the project area in suitable habitat of the project area (MTNHP 2011b). The drainage areas of the sagebrush steppe areas in the study area are suitable habitat for this species. However, they were not documented during field investigations by DEA biologists.

### **5.2.14 Milksnake**

The milksnake is a year-round resident of southeast Montana. The body of the milksnake is marked with wide whitish, black, and reddish/orange banded in black. Milksnakes have been reported in areas of open sagebrush-grassland habitat (Dood 1980) and most often in or near areas of rocky outcrops and hillsides or badland scarps, sometimes within city limits. Milksnakes are carnivorous consuming mostly small vertebrates, including snakes, lizards, reptile eggs, birds, bird eggs, small mammals (especially mice), and occasionally insects and worms (Hammerson 1999). Milksnakes are mostly crepuscular and nocturnal. In Montana, they are active from late May to October. Predators are largely unknown in Montana, but milksnakes exhibit predator defense behavior, and rear up and strike, or vibrate the tail, when disturbed, although they are usually docile when handled (MTNHP and MTFWP 2011).

There are few recent milksnake records for Montana. The milksnake was historically present in the southeast portion of the project area, but there has been no recent observation there. Current sightings have been about 4 miles outside of the project area near the cliffs of Alkali Creek, rimrock area, and the Exxon Mobile refinery (MTNHP 2011b). There is suitable habitat in the study area for this species. However, they were not documented during field investigations by DEA biologists.

### **5.2.15 Spiny Softshell**

Native populations of the spiny softshell turtle occur in Montana east of the Continental Divide in the Missouri River and Yellowstone River drainages, and some principal tributaries (Maxwell et al. 2003). Spiny softshells are isolated in Montana from the remainder of the global population. They primarily occupy large rivers and their tributaries, but are also found in lakes, ponds along rivers, bayous, irrigation canals, oxbows, and pools along intermittent streams. They spend winter burrowed into the bottoms of permanent water bodies. They are considered to be generalist carnivores and usually feed on the bottom. Major foods include crayfish, aquatic insects, and fish. Eggs are laid primarily in the second half of May through June. Clutch size averages 20-40 eggs but may be as few as 6 or as high as 109 (Hammerson 1999).

The spiny softshell has been observed in the Riverfront Park and the Yellowstone River (MTNHP 2011b). In the study area, there is suitable habitat along the Yellowstone River for this species. However, they were not documented during field investigations by DEA biologists.

### **5.2.16 Snapping Turtle**

Snapping turtle habitat studies are lacking and there is little quantitative information available. They been captured or observed in backwaters along major rivers, at smaller reservoirs, and in smaller streams and creeks with permanent flowing water and sandy or muddy bottoms. They are mostly bottom dwellers; however, they may make long movements. Snapping turtle diets have not been studied in Montana, but they are known to eat about anything that can be captured (fish, amphibians, reptiles, aquatic birds, small mammals, invertebrates, and carrion). They are mostly nocturnal and hibernate October until April. In northern regions, eggs are generally deposited in late May to early June, but incur high rates of nest predation by widespread predators such as raccoon, skunk, fox, crows, snakes, otters, herons, fish, and bullfrogs (Congdon et al. 1987, Hammerson 1999, Hendricks 1999).

A single snapping turtle was observed by a landowner a few years ago at his gravel pit pond near Mary Street. There is suitable habitat in the project area for this species. However, they were not documented during field investigations by DEA biologists.

### **5.2.17 Western Hog-Nosed Snake**

The western hog-nosed snake has been found in a variety of habitats including sagebrush-grassland habitat (Dood 1980), near pine savannah in grassland underlain by sandy soil (Reichel 1995, Hendricks 1999), in arid areas, farmlands, and floodplains, particularly those with gravelly or sandy soils. They occupy burrows or dig into soil, and, less often, are found under rocks or debris during periods of inactivity (Hammerson 1999, Stebbins 2003). MTNHP (2011a) reports element occurrences near Billings.

The western hog-nosed snake has been observed in suitable habitat near the project area (MTNHP 2011b). There is suitable habitat in the study area for this species. However, they were not documented during field investigations by DEA biologists.

### **5.2.18 Sauger**

The sauger is a highly prized sport fish native to Montana east of the Continental Divide. It is mainly a river fish but it inhabits turbid waters of large rivers and reservoirs. In the spring, sauger broadcast their spawn in gravelly or rocky areas over riffles in shallow water and seem to prefer turbid water. Spawning is often accompanied by migration upstream and/or into tributary streams in the spring. Long migration occurs in the Yellowstone and Missouri rivers. The Tongue and Powder rivers are vital spawning areas for the Yellowstone River population. Billings is the west extent of their range in the Yellowstone River. Their major food items are insects and small fish (MTNHP and MTFWP 2011).

The sauger has been documented in the Yellowstone River (MTFWP 2011). The bulk of this fishery exists downstream of Huntley, MT. Recent information suggests the sauger in this area are genetically unique from sauger in the Bighorn River and in the Yellowstone below the confluence of the Bighorn River. The study area may have spawning areas within the Yellowstone River channels or Five Mile Creek.

### **5.2.19 Yellowstone Cutthroat Trout**

The Yellowstone cutthroat trout has a golden coloration, two prominent red slashes on the lower jaw, and medium-large, black spots that tend to be concentrated posteriorly. They are native to the Yellowstone River drainage of southwest and south-central Montana. Pure, un-hybridized populations are limited to some headwaters streams and Yellowstone National Park. Yellowstone cutthroat trout are used extensively for mountain lake stocking on the east slope of the Rocky Mountains and in the Absaroka-Beartooth Wilderness. Life histories are resident, fluvial, and adfluvial (MTNHP and MTFWP 2011).

Yellowstone cutthroat trout are stocked in Lake Elmo located about 1/2 mile west of the Mary Street and US 87 interchange outside of the study area and in parts of the Yellowstone River (MTFWP 2011). Yellowstone cutthroat trout would be rare in the project area and unlikely to occur. Historically, Yellowstone cutthroat trout likely spawned in the Yellowstone River, but well upstream of Billings. Currently they are relegated to headwater areas, which are not present in the study area (Ruggles 2011).

## **5.3 POTENTIAL TO OCCUR IN THE PROJECT AREA**

Species of concern that have the potential to occur in the project area are listed in **Exhibit 6**.

## **5.4 POTENTIAL IMPACTS**

Because the grasshopper sparrow and pinyon jay are highly unlikely to occur in the project area, no impacts to these species are anticipated.

The Brewer's sparrow and greater short-horned lizard have specific habitat requirements that are present in the study area, but have been avoided in the alignment alternatives. Therefore, no impacts to these species are anticipated.

Generally for the other species of concern that may occur in the project area and study area, the types of direct impacts would be similar to those described for general wildlife in **Section 3.2.4** The peregrine falcon and bald eagle, whose nesting areas are located

away from the project corridor, may potentially experience temporary disruption in foraging and roosting locations during construction.

Species that inhabit primarily developed or agriculture areas (loggerhead shrike, common sagebrush lizard, milksnake, and western hog-nosed snake) and that are adapted to human use when nesting or denning, will have suitable habitat available outside of the project area. However, direct mortality may occur to those unable to disperse during construction, such as reptiles that burrow. The loss of some individuals should have little or no effect to the overall population of these species; this effect is considered discountable.

The species that utilize the Yellowstone River corridor such as the spiny softshell, snapping turtle, and sauger would incur negligible direct impacts, due to the bridge crossings. The locations of sauger spawning areas in the study area have not been identified therefore there is potential for disruption of spawning locations. Construction timing to avoid spawning activity might be important for the sauger, which is a spring spawner. Overall this project is not anticipated to negatively affect sauger (Ruggles 2011). The Yellowstone cutthroat spawning areas are in the Yellowstone River headwaters, outside of the project area, and negative impacts are not anticipated.

Where riparian areas, wetlands, or ditches are impacted by the project, direct mortality may affect tree nesting or breeding species such as the black-billed cuckoo, great blue heron, veery, and hoary bat and other small and less mobile species that would not be able to disperse out of the construction zone (small burrowing animals, hibernating reptiles, and amphibians).

The nearby heron rookery, if active, may be impacted during the construction period.

The closest eagle nest is 0.61 miles from the project construction limits. No impacts to eagle nests are anticipated. However, roosting and foraging locations may be impacted during construction.

Indirect impacts would include loss of some habitat, fragmentation, and potential degradation of habitats.

### **Avoidance and Minimization**

Efforts to avoid and minimize impacts to species of concern are anticipated to be achieved through avoidance and minimization measures identified for terrestrial resources, **Section 3.0**, and aquatic resources, **Section 4.0**.

### **Recommended Conservation Measures**

Implementation of the Recommended Conservation Measures for general wildlife species, particularly in regard to MBTA and the Bald and Golden Eagle Protection Act, will avoid the majority of breeding schedules addressed in this section. Complying with the resource agencies' conditions would avoid or minimize impacts to aquatic species.

The location of the nests and communal roosting sites needs to be verified by a pre-construction survey or coordination with resource agencies or organizations. Blasting within ½ mile of active nests should be avoided (USFWS 2007). The current nest locations are outside of this buffer area and road construction buffer limits (660 feet).

However, if a new bald eagle nest is located within ½ mile of the project, informal consultation with the USFWS should be initiated.

Blasting within ½ mile of communal roosting sites may not be conducted without prior coordination of the USFWS and MTFWP (USFWS 2007). The existing roosting sites are within ½ mile of the alignment corridor. Coordination of the USFWS and MTFWP is required if blasting is to occur near these roosts.

The location of the heron rookery needs to be verified by a pre-construction survey or coordination with resource agencies or organizations. If it is located within the 900-foot recommended buffer area, coordination with MTFWP should be completed to avoid potential impacts during the March to mid-August breeding season.

## **6.0 Threatened and Endangered Species - Biological Assessment**

### **6.1 INTRODUCTION**

The ESA directs federal agencies to ensure that their actions are not likely to jeopardize the existence of any threatened, endangered, or candidate species, or result in the destruction or modification of their critical habitat. Section 7 of the ESA requires federal agencies to consult with the USFWS on actions that may affect listed species. MDT is responsible for Section 7 consultation for this project on behalf of the lead federal agency, the FHWA. This biological assessment represents MDT’s analysis of the anticipated effects of the proposed action on listed species. This assessment will also serve as the basis for the threatened and endangered species existing conditions and environmental consequences sections of the EIS for this project in compliance with the National Environmental Policy Act. The effects analyses do not vary by Alternative. Under the No Build Alternative there would be no effect on any threatened and endangered species. Of the four species listed as Endangered, Threatened, Proposed and/or Candidate species by the USFWS for Yellowstone County (**Appendix A**), three species are analyzed below - whooping crane (*Grus americana*), Greater sage-grouse (*Centrocercus urophasianus*), and Spragues’s pipit (*Anthus spragueii*). The black-footed ferret (*Mustela nigripes*) is not addressed in this biological assessment, because the last observation near the project area was in 1949 (MTNHP 2011b) and suitable habitat and prey (prairie dogs) are not located in the project area.

Summaries of the federally listed species of Yellowstone County are provided in **Exhibit 7** and the following sections. Information is referenced primarily from the *Montana Field Guide* (MTNHP and MTFWP 2011) and the MTNHP GIS geodatabase (MTNHP 2011a).

**Exhibit 7. Federally Listed Species in the Project Area**

Common Name	Scientific Name	USFWS Status	Occurrence in Project Area	Project Effect Determination
Whooping crane	<i>Grus americana</i>	Listed Endangered	Potentially during migration	Not likely to adversely affect

Common Name	Scientific Name	USFWS Status	Occurrence in Project Area	Project Effect Determination
Greater sage-grouse	<i>Centrocercus urophasianus</i>	Candidate	Unlikely	Not likely to significantly impact populations, individuals, or suitable habitat
Spragues's pipit	<i>Anthus spragueii</i>	Candidate	Unlikely	Not likely to significantly impact populations, individuals, or suitable habitat

## 6.2 WHOOPING CRANE

### 6.2.1 Species Description

The whooping crane is a large white crane that inhabits wetlands and upland grain fields. It is the tallest bird in North America, about 5 feet in height. The sexes appear similar, snowy white with black and red on the crown, nape, and cheek. The primaries are black. Whooping cranes do not reach sexual maturity until 4 or 5 years of age and only fledge one chick per year. They nest in marshes and feed on insects, minnows, crabs, clams, crayfish, frogs, rodents, small birds, and berries. They associate with sandhill cranes and waterfowl (MTNHP and MTFWP 2011).

### 6.2.2 Status and Distribution

The whooping crane has been listed as endangered since March 11, 1967 (USFWS 2011b). The species also has an experimental non-essential designation in some areas, but none apply within Montana. A recovery plan was completed in 1994. Critical habitat was designated in 1978; Montana is not included within the designation (MTNHP and MTFWP 2011).

The entire wild breeding population breeds in Wood Buffalo National Park in Canada. This population winters at Aransas National Wildlife Refuge on the Texas coast. A smaller non-migratory population exists near Orlando, Florida. There are also captive flocks of whooping cranes. The total known population of wild and captive whooping cranes in July, 2010 was 535 (USFWS 2011b).

### 6.2.3 Reason for Decline

Conversion of habitat to agriculture was the primary factor in the decline of the whooping crane (USFWS 2011b). Prairie potholes and prairie were converted to hay and grain production, which were unsuitable for whooping cranes. Collision with rural power lines is also thought to have contributed to a substantial number of crane deaths. Currently, reproductive characteristics of whooping crane make recovery difficult. The species displays delayed sexual maturity, small clutch size, and low recruitment. The only breeding population is in a northern location, decreasing the available time period for reproduction. Migration hazards can be important when the population size is so small. Migrating birds face collision with obstructions, predators, disease, shooting, and

hurricanes. Their primary wintering location is along one of the heaviest barge traffic waterways in the world making the population susceptible to an oil spill.

#### **6.2.4 Occurrence in Project Area**

This species migrates through eastern Montana. Most observations have occurred in April and October. Whooping Cranes were documented in April 2010 near the Huntley interchange, about 9 miles east of the project. No whooping cranes were observed during field visits in the project area. Habitat that could be used during migration by whooping cranes is present in the project area. However, use of these areas would be infrequent and brief during migration.

#### **6.2.5 Effects of the Action**

The proposed project could have negligible effects on whooping crane. Only brief, rare use of the project area is likely during migration. There would be a slight decrease in potential habitat for migrating cranes due to construction of the roadway and a slight increase in potential disturbance or avoidance from construction. Because the potential for cranes to use the project area is very slight, the effects on the species from the project are discountable.

#### **6.2.6 Recommended Conservation Measures**

No conservation measures are likely to be necessary. However, if any cranes are observed in or adjacent to the project area during construction, work would be halted and MDT would contact the USFWS. Migration peaks are in April and October.

#### **6.2.7 Effect Determination**

Because it has some limited potential to briefly occur in the project area, the proposed project may affect, but is not likely to adversely affect, whooping crane.

### **6.3 GREATER SAGE-GROUSE**

#### **6.3.1 Species Description**

The greater sage-grouse is the largest of Montana's grouse. They have relatively long, pointed tails, feathered legs, and mottled gray-brown, buff, and black plumage. Blackish bellies contrast sharply with white under-wing coverts while in flight. Males have a blackish-brown throat patch and an inconspicuous yellow eye comb. Females appear to dip from side to side while flying. Adult males range from 26 to 30 inches in length and average 4 to 7 pounds in weight; adult females range from 19 to 23 inches in length and 2.5 to 3.5 pounds in weight (USFWS 2011a).

They are a year-round resident of Montana. Sagebrush is the preferred habitat. They use sagebrush covered benches in June to July (average 213 acres); move to alfalfa fields (144 acres) or greasewood bottoms (91 acres) when forbs on the benches dry out; and move back to sagebrush (average 128 acres) in late August to early September (Peterson 1969).

### **6.3.2 Status and Distribution**

On March 5, 2010, the U.S. Fish and Wildlife Service determined that the greater sage-grouse warrants protection under the ESA. The listing is as a candidate species. However, listing the species under the Act is precluded by the need to address other listing actions of a higher priority. Currently, greater sage-grouse are found in Washington, Oregon, Idaho, Montana, North Dakota, eastern California, Nevada, Utah, western Colorado, South Dakota, and Wyoming and the Canadian provinces of Alberta and Saskatchewan (USFWS 2011a).

### **6.3.3 Reason for Decline**

Greater sage-grouse occupy approximately 56 percent of their historical range (USFWS 2011a). Grazing and agricultural development led to a 50 percent decrease in populations by the 1930s (Mussehl 1971). Evidence suggests that habitat fragmentation and destruction across much of the species' range has contributed to significant population declines over the past century. These birds cannot survive in areas where sagebrush no longer exists, and distribution has contracted due to loss of sagebrush habitat (USFWS 2011a).

### **6.3.4 Occurrence in Project Area**

Individual greater sage-grouse and their leks have been documented over two miles west of the project area in suitable habitat (MTNHP 2011b). It is unlikely that greater sage-grouse occur in the project area due lack of quality, suitable habitat. Sagebrush areas in the project area are limited to isolated, small locations. The project alignment corridor does not contain sagebrush steppe habitat. It is predominantly developed or agricultural land unsuitable for the greater sage-grouse.

### **6.3.5 Effects of the Action**

The greater sage-grouse does not occur in the project area. Suitable habitat is located outside of the study area. Therefore, the action will not affect the sage-grouse.

### **6.3.6 Recommended Conservation Measures**

No conservation measures are necessary.

### **6.3.7 Effect Determination**

The project is not likely to significantly impact populations, individuals, or suitable habitat of the greater sage-grouse.

## **6.4 SPRAGUE'S PIPIT**

### **6.4.1 Species Description**

The Sprague's pipit is endemic to grasslands. It is a pale, slender, sparrow-sized bird with white outer tail feathers, a thin bill, pale legs, and a heavily streaked back. The sides of the head and eye rings are pale and buffy. The bird is secretive and flies away in a long, undulating flight and only lands on the ground. It exhibits circular song-flight displays

around its territory with its white conspicuous outer tail feathers spread. The Sprague's pipit arrives in Montana in early May and breeds shortly thereafter. Sprague's pipit nests have been recorded from May through August. The Sprague's pipit prefers native, medium to intermediate height prairie. It is significantly more abundant in native prairie than in exotic vegetation. The primary summer food item is insects, while seeds are consumed during the fall. The species has been shown to be area sensitive, requiring relatively large areas of appropriate habitat. A minimum size requirement is thought to vary from 70 to 360 acres [50 CFR Part 17].

#### **6.4.2 Status and Distribution**

On September 14, 2010, the U.S. Fish and Wildlife Service determined that the Sprague's pipit warrants protection under the ESA as a candidate species. However, listing the species under the Act is precluded by the need to address other listing actions of a higher priority.

It breeds in the north-central United States in Minnesota, Montana, North Dakota, and South Dakota as well as south-central Canada. Wintering occurs in the southern States of Arizona, Texas, Oklahoma, Arkansas, Mississippi, Louisiana, and New Mexico (USFWS 2011c).

#### **6.4.3 Reason for Decline**

Sprague's pipits avoid unsuitable landscape features in breeding territories. Threats include loss of habitat, habitat fragmentation on the breeding grounds, and inadequacy of existing regulatory mechanisms. Approximately two percent of the species' historical U.S. range remains in potentially suitable habitat for the pipit [50 CFR Part 17].

#### **6.4.4 Occurrence in Project Area**

Migrating populations occur in south Montana and breeding occurrences are generally north of the Yellowstone River through south Canada. There is no breeding evidence in Yellowstone County (MTNHP and MTFWP 2011). Sprague's pipit is unlikely to occur in the project area. There are no reported species occurrences in the project area. There were no observations during field investigations. Suitable habitat in the form of large tracts of native medium to intermediate height prairie is not present on the project area.

#### **6.4.5 Effects of the Action**

Sprague's pipit is not known or likely to occur in the project area. Preferable habitat is not located near the project area. Therefore, the action will not affect Sprague's pipit.

#### **6.4.6 Recommended Conservation Measures**

No conservation measures are necessary.

#### **6.4.7 Effect Determination**

The project is not likely to significantly impact populations, individuals, or suitable habitat of the Sprague's pipit.

## **7.0 Wetlands**

### **7.1 INTRODUCTION**

The objectives of this analysis are to:

- Determine the presence and extent of wetlands in the study area;
- Document and quantify functions and values of wetlands in the study area; and
- Document and quantify the functions and values of wetland habitats in the study area as the basis for potential habitat for fish, wildlife, species of special concern, and threatened and endangered species.

The USACE and Environmental Protection Agency (EPA) jointly define wetlands as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

Wetlands have three general diagnostic characteristics:

- Hydrophytic vegetation;
- Hydric soils; and
- Wetland hydrology.

Wetlands provide a number of important and beneficial functions. During periods of heavy rainfall, wetlands serve as flood storage areas, where water can dissipate without damage to developed uplands. As the water passes through the wetlands, pollutants are filtered out. Wetlands also stabilize shorelines, thereby preventing the harmful effects of erosion. Wetlands produce the basic food material used by fish and aquatic life. Some wetlands also serve as nursery grounds for fish and rookery areas for birds. Many wildlife species, some of which are threatened or endangered, need to live in wetlands for all or part of their life.

The USACE (2007) memorandum which addresses jurisdiction over waters of the United States under the Clean Water Act asserts agency jurisdiction over the following waters:

- Traditional navigable waters
- Wetlands adjacent to traditional navigable waters
- Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (typically three months)
- Wetlands that directly abut such tributaries.

The agencies will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:

- Non-navigable tributaries that are not relatively permanent

- Wetlands adjacent to non-navigable tributaries that are not relatively permanent
- Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary

The agencies generally will not assert jurisdiction over the following features:

- Swales or erosional features (e.g., gullies, small washes characterized by low volume, infrequent, or short duration flow)
- Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water

In this BRR all wetlands are documented whether or not they have connectivity, abut, or are adjacent to potentially jurisdictional waters; and if these waters are relatively permanent or not relatively permanent. The USACE will determine whether the wetlands are under their jurisdiction.

## 7.2 METHODS

Both preliminary research and a site-specific investigation were conducted to determine the presence of wetlands. Existing information was reviewed prior to the field investigation to develop background knowledge of physical features and to identify the potential for wetland occurrence in the study area. Preliminary information related to topography, drainage, and water features was obtained from the following resource documents:

- Natural Resources Conservation Service (NRCS) – Soil Survey Geographic Database (SSURGO) Database, Yellowstone County, Montana, (NRCS 2011)
- USGS Topographic Maps, 7.5 minute Quadrangles (USGS 2011)
- Aerial Photography for Yellowstone County, USDA - Farm Services Agency (FSA), Aerial Photography Field Office, (USDA - FSA 2009)
- National Wetland Inventory (NWI) mapping (NRIS 2011)

Biologists from DEA conducted wetland delineations to identify and document the presence and extent of wetlands and waters of the U.S. The area surveyed for wetlands is shown on the Wetland Maps in **Appendix D**. The wetland survey area is approximately 100 feet beyond the anticipated construction limits of the project. The survey area was expanded in several locations to account for the conceptual level of design at this point in the project.

Delineations were completed using the routine (on-site) methodology and criteria in accordance with the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and subsequent *Regional Supplement Great Plains Region, Version 2.0* (USACE 2010). These methods require that evidence of three parameters (a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology) be simultaneously present for a wetland determination.

At least one pair of data plots was conducted for each potential wetland. Field notes and photographs documented existing conditions. DEA completed routine wetland determination forms for each data plot identifying information on vegetation, soils, and

hydrology. Areas with evidence of all three parameters were identified as wetlands. DEA surveyed wetland boundaries using a Trimble Global Positioning System (GPS) GeoXT.

During field investigations, biologists reviewed wetlands delineated in the study area in 2007 that used the *1987 Delineation Manual* (prior to the *Great Plains Regional Supplement*). Biologists documented any changes in wetland vegetation, nearby land use changes that could affect hydrology or disturb other wetland characteristics, and confirmed wetland delineation boundaries.

### **Vegetation**

DEA biologists established data sampling plots in areas of homogenous vegetation, within the wetland communities and in the adjacent uplands. Biologists identified plant species in the representative areas using Hitchcock and Cronquist (1977) as the primary identification and taxonomy references. Vegetation was considered hydrophytic (adapted to frequent saturation or inundation) if over 50 percent of plant species had indicator status of facultative (FAC), facultative wetland (FACW), or obligate (OBL); when there is a prevalence of over 80 percent of the plant community is hydrophytic; or when plants have morphological adaptations for life in wetlands. **Exhibit 8** describes indicator statuses given to plant species.

**Exhibit 8. Wetland Indicator Status System**

Code	Wetland Type	Comment
OBL	Obligate Wetland	Occurs almost always (estimated probability 99%) under natural conditions in wetlands.
FACW	Facultative Wetland	Usually occurs in wetlands (estimated probability 67% - 99%) but occasionally found in non-wetlands.
FAC	Facultative	Equally likely to occur in wetlands or non-wetlands (estimated probability 34% - 66%).
FACU	Facultative Upland	Usually occurs in non-wetlands (estimated probability 67% - 99%), but occasionally found in wetlands (estimated probability 1% - 33%).
UPL	Obligate Upland	Plants that occur rarely (estimated probability <1%) in wetlands under natural conditions.

(Reed 1988).

### **Soils**

In accordance with the Manual, biologists dug soil pits and examined profiles at all data plots for indicators of hydric conditions or met the definition of hydric soils. Hydric soil may include a variety of indicators such as thick organic layers, gleying, or low soil matrix chroma, depletion or redox concentrations. Hydric soils are defined as those that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions that favor the growth of hydrophytic vegetation.

### **Hydrology**

DEA evaluated wetland hydrology at each data plot location and other locations throughout the project corridors. Evaluation of hydrology included observation of

hydrologic indicators, surface water, soil saturation, groundwater depth, ponding, evidence of drainage patterns, and other indicators.

### **Post-Processing**

Post-processing methods involved extensive analysis of information from the preliminary research, dataforms, field notes, diagrams, photographs, and GPS data collected during field studies. Using ESRI ArcGIS (version 10.0) GIS software, wetland delineation boundaries were refined. In some cases (i.e. segments of wetlands AG, F, O, and W), the GPS delineated boundaries were extrapolated using photo-interpretation of boundaries or in other circumstances where safety concerns limited GPS data collection. The delineated wetland acreage within the study area and potential impacts to the wetlands according to the alternatives were subsequently calculated.

Areas determined to be wetlands were evaluated for functional value according to the 2008 MDT Montana Wetland Assessment Method (Berglund et al. 2008). Wetlands provide valuable functions for physical and biological systems, and may significantly affect socioeconomic systems. Qualitative methodologies have been developed for assessing wetland functional values. These values include wildlife habitat, fish habitat, flood attenuation, surface water storage, sediment/toxicant retention and removal, sediment/shoreline stabilization, production export/food chain support, groundwater discharge/recharge, uniqueness, and recreational/educational potential. Wetlands can be classified as Category I, II, III, or IV. According to the MDT Montana Wetland Assessment Method, Category I wetlands are of exceptionally high quality and are generally rare to uncommon in the state. Category II wetlands are more common than Category I, and are those that provide habitat for sensitive plants or animals, function at very high levels for wildlife/fish habitat, are unique in a given region, or are assigned high ratings for many of the assessed functions and values. Category III wetlands are more common, generally less diverse, and often smaller and more isolated than Category I or II wetlands. They still can provide many functions and values, although may not be assigned high ratings for as many parameters as Category I and II wetlands. Category IV wetlands are generally small, isolated, and lack vegetative diversity. These sites provide little in the way of wildlife habitat, and are often directly or indirectly disturbed (Berglund et al. 2008).

Wetlands ratings for those wetlands delineated in the study area in 2007 were updated to reflect any changes in wetland vegetation, hydrology, size, or nearby land use changes.

### **7.3 WETLAND RESULTS**

Over 50 wetlands were identified during field investigations. Of those, 24 wetlands were located within or partially within the project corridor. **Exhibit 9** summarizes information about these wetlands including location, class, MDT rating, and associated water body.

A re-evaluation of the wetland delineations conducted in 2007 found that wetlands characteristics described in the datasheets and delineated boundaries are still valid with the exception of wetlands D9, L4, and O, whose delineated boundaries were updated.

Maps showing the locations of wetlands are found in **Appendix D**. Many of the wetlands identified extended well outside the biological resources survey area. On the wetland maps, they are indicated with boundary lines extending beyond the survey area limits. USACE Wetland data forms and MDT Wetland Evaluation Forms are contained in

**Appendix E.** Photographs of the wetlands are provided in **Appendix B**, photographs 25-50. Although the wetland maps show all 50 delineated wetlands, the photographs, wetland forms, and results presented in this section focus on the 24 wetlands located within or partially within the project corridor.

**Exhibit 9** summarizes location, classification, MDT functional assessment rating, associated water body, and the acreage of wetlands within the study area.

**Exhibit 9. Wetland Summary for the Project Corridor**

Wetland Field ID	Section , Township, Range	Cowardin Wetland Class*	Category	Potential Connection to Waters of the US	Delineated acres **
AC	S7, T1N, R27E	R2EM	III	Wetland associated with irrigation canal that discharges into a natural drainage to the Yellowstone River	0.94
AD	S1, T1N, R26E	R2EM	IV	Wetland associated with two canal segments that join and flow east in a canal for potential agricultural end use and/or to Seven Mile Creek or the Miller McGirl Ditch	1.15
AF	S7, T1N, R27E	PFO	II	Wetland has a natural drainage to the Yellowstone River	1.82
AG	S7, T1N, R27E	R2UB	II	Wetland located within the Yellowstone River channel	10.32
AH	S18, T1N, R27E	PSS	IV	Wetland has a seasonal flow east to a larger wetland that flows to the Yellowstone River and/or gravel pit ponds adjacent to the wetlands that discharge to the Yellowstone River.	0.20
AI	S17, T1N, R27E	PEM	IV	Wetland abuts RR right-of-way ditch, no outlet	0.44
AK	S19, T1N, R27E	PEM	IV	Wetland a depression in active gravel yard, no outlet	0.31
C	S11, T1N, R26E	R2SBHX	IV	Wetland abuts the canal which flows north to Five Mile Creek	0.18
D	S11, T1N, R26E	PEM	IV	Wetland abuts lateral supply ditch-agriculture end use	0.09
D9	S18, T1N, R27E	PEM	IV	Wetland abuts lateral supply ditch- agriculture end use	0.83

Wetland Field ID	Section , Township, Range	Cowardin Wetland Class*	Category	Potential Connection to Waters of the US	Delineated acres **
E	S13, T1N, R26E	PEM	III	Wetland source water is a pipe from Lake Elmo, and wetland the pond discharges into the Yellowstone River	0.89
F	S12, T1N, R26E	PEM	III	Wetland along Five Mile Creek	1.11
I	S11, T1N, R26E	PSS	IV	Wetland along irrigation ditch that discharges into natural drainages to Five Mile Creek	0.39
J	S11, T1N, R26E	PSS	IV	Wetland along irrigation ditch that discharges into natural drainages to Five Mile Creek	0.19
L2	S6, T2N, R27E	PEM	IV	Wetland connects to larger canal wetland to the south (Wetland AD), which potentially drains to Seven Mile Creek or the Miller McGirl Ditch.	0.30
L4	S1, T1N, R26E	PEM	III	Wetland connects to Wetland AD, which potentially drains to Seven Mile Creek or the Miller McGirl Ditch.	1.31
M	S11 and 12, T1N, R26E	PEM	IV	Wetland abuts supply ditch-agriculture end use	0.68
O	S7, T1N, R27E	R2UB	IV	Wetland located within the Yellowstone River channel	1.79
P	S17,18 and 19, T1N, R27E	PEM	III	Wetland associated with an irrigation canal that is a supply/waste ditch that potentially flows to the Yellowstone River	0.94
R	S17 , T1N, R27E	PEM	IV	Wetland abuts irrigation lateral supply/waste ditch that potentially flows into the Yellowstone River	0.02
S	S17, 19,20 T1N, R27E and beyond	PEM	IV	Wetland associated with Coulson Ditch which potentially discharges into the Yellowstone River	1.12

Wetland Field ID	Section , Township, Range	Cowardin Wetland Class*	Category	Potential Connection to Waters of the US	Delineated acres **
T	S19, T1N, R27E	PEM	IV	Roadside ditch wetlands with fully infiltrated flow	0.37
W	S 19, T1N, R27E	PEM	III	Wetland discharges into an unnamed drainage to Yellowstone River	12.20
Y	S11, T1N, R26E	PEM	IV	Wetland abuts lateral supply ditch-agriculture end use	0.04

\*Cowardin et al. 1979

\*\*Delineated acres within study area

### **7.3.1 Description of Delineated Wetlands**

The following is a description of the 24 delineated wetlands that intersect the project corridor and a summary of the MDT assessment rating. For each wetland, a notation is made to identify which wetland map(s) in **Appendix D** display the wetland.

**Wetland AC** is along an irrigation canal that runs south to the Yellowstone River. The dominant wetland plant species were cattail (*Typha latifolia*), hardstem bulrush (*Scirpus acutus*), and reed canarygrass (*Phalaris arundinacea*). There were isolated areas dominated by shrubs. It is surrounded by irrigated hayfields and pasture. The NRCS soils listed for Wetland AC are Bew silty clay loam, 0 to 1% slope and Keiser silty clay loam, 1 to 4% slope none of which are listed as hydric in Yellowstone County (NRCS 2011). Wetland AC and its associated irrigation canal discharges into a natural drainage to the Yellowstone River. The most prominent functions were moderate ratings in MT Natural Heritage program species habitat, sediment/shoreline stabilization, production export/food chain support, and general wildlife habitat categories. (Wetland Map #3)

**Wetland AD** is along two segments of an irrigation canal south of Highway 312. The dominant wetland plant species were reed canarygrass and watercress (*Rorippa nasturtium-aquaticum*). It is surrounded by irrigated cropland, hayfields, and grazing. The NRCS soil listed for Wetland AD is Lohmiller silty clay, 0 to 1% slope, which is not listed as hydric in Yellowstone County (NRCS 2011). The two segments (north and south flowing) join and flow east in a canal for potential agricultural end use and/or to Seven Mile Creek or the Miller McGirl Ditch. It rated low in most wetland functions except for a moderate rating in sediment, nutrient, and toxic removal. (Wetland Map #4)

**Wetland AF** is a naturally occurring wetland located within the channel migration zone of the Yellowstone River, located along the south bank. Dominant wetland plant species were Plains cottonwood and reed canarygrass. It is bordered on the east by cropland and a gravel pit operation. To the west are the riparian areas of the Yellowstone River. The NRCS soil listed for Wetland AF is Haverson loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland AF has a natural drainage that discharges to the Yellowstone River. The most prominent functions were high ratings in sediment/shoreline stabilization, MT Natural Heritage program species habitat, general wildlife habitat, general fish habitat, and production export/food chain support. All other functions were rated high or moderate. (Wetland Maps #2 and #3)

**Wetland AG** is a naturally occurring wetland located within the channel migration zone of the Yellowstone River, along the south bank. Dominant wetland plant species were sedge (*Carex sp.*) and spikerush (*Eleocharis palustris*). It is bordered on the east by the Yellowstone River riparian areas and on the west by the Yellowstone River channels. The NRCS soil listed for Wetland AG is Riverwash, listed as hydric in Yellowstone County (NRCS 2011). The boundary of this wetland is transitory and subject to channel changes. Wetland AG is located within the Yellowstone River channel. The most prominent functions were high ratings in sediment/shoreline stabilization, MT Natural Heritage program species habitat, general wildlife habitat, general fish habitat, and production export/food chain support. All other functions were rated high or moderate. (Wetland Maps #2 and #3)

**Wetland AH** is a naturally occurring wetland south of the Yellowstone River that seasonally has a hydrolic connection to a larger wetland east of the study area. The dominant wetland plant species in Wetland AH were Russian olive, cattail, and smooth scouring rush (*Equisetum laevigatum*). It is bordered by irrigated hayfields and a gravel pit operation. The NRCS soil listed for Wetland AH is Haverson loam, gravelly variant, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland AH has a seasonal flow east to a larger wetland that flows to the Yellowstone River and/or gravel pit ponds adjacent to the wetlands that discharge to the Yellowstone River. The most prominent functions were moderate ratings in sediment, nutrient, and toxic removal; sediment/shoreline stabilization; and production export/food chain support. (Wetland Maps #2 and #3)

**Wetland AI** is located within a ditch along the north side of the BNSF railroad line. The dominant wetland plant species in Wetland AI was reed canarygrass. It is bordered by irrigated hayfields to the north and the railroad embankment to the south. The NRCS soil listed for Wetland AI is Hysham-Laurel silty clay loams, 0 to 2% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland AI has no outlet. Its most prominent function was a high rating in sediment, nutrient, and toxic removal. All other functions were rated low. (Wetland Map #2)

**Wetland AK** is located near Johnson Lane in the middle of a gravel pit operation. At one time Wetland AK was probably part of Wetland W. The dominant wetland plant species in Wetland AK is cattail. The NRCS soil listed for Wetland AK is gravel pit, not listed as hydric in Yellowstone County (NRCS 2011). Wetland AK has no discernable outlet. (Wetland Maps #1 and #2)

**Wetland C** is associated with an irrigation canal that intersects Mary Street. The dominant wetland plant species were reed canarygrass and watercress. It is surrounded by irrigated cropland and hayfields. The NRCS soil listed for Wetland C is Keiser silty clay loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland C abuts the canal which flows north to Five Mile Creek. It rated low in most wetland functions except for a moderate rating in sediment, nutrient, and toxic removal. (Wetland Map #5)

**Wetland D** is associated with an irrigation lateral supply ditch located north of Mary Street. The dominant wetland plant species in Wetland D was reed canarygrass. It is surrounded by irrigated cropland. The NRCS soil listed for Wetland D is Keiser silty clay loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland D

discharges into cropland. It rated low in most wetland functions except for a moderate rating in sediment, nutrient, and toxic removal. (Wetland Map #5)

**Wetland D9** is located in a lateral irrigation ditch north of the Burlington Northern Railroad. The dominant wetland plant species in Wetland D9 was Nebraska sedge (*Carex nebrascensis*) and three-square bulrush (*Scirpus pungens*). The primary NRCS soil listed for Wetland D9 is Wanetta clay loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland D9 ditch flows to agricultural end use. (Wetland Map #2)

**Wetland E** is a wetland south of Mary Street abutting and within a gravel pit pond that was naturalized in the 1980s. The dominant wetland plant species in Wetland F is cattail. It is bordered by residential use and irrigated hayfields. The NRCS soil listed for Wetland E is gravel pit, not listed as hydric in Yellowstone County (NRCS 2011). Wetland E pond source water is a pipe from Lake Elmo, and the pond discharges into the Yellowstone River. The most prominent functions were high ratings in sediment/shoreline stabilization; and sediment, nutrient, and toxic removal; moderate ratings in general wildlife habitat, short and long term water storage, and production export/food chain support. (Wetland Maps #3 and #5)

**Wetland F** is a naturally occurring wetland along Five Mile Creek and tributaries, north and south of Mary Street/Five Mile Road. Five Mile Creek receives water from various waste irrigation ditches upstream of this location. The dominant wetland plant species in Wetland F is reed canarygrass. It is surrounded by pasture and hayfields. The NRCS soil listed for Wetland F is Haverson and Lohmiller soils, 0 to 4% slope, not listed as hydric in Yellowstone County (NRCS 2011). Water from Wetland F flows into the Yellowstone River. The most prominent functions were high ratings in sediment/shoreline stabilization; sediment, nutrient, and toxic removal; general fish habitat; and production export/food chain support. (Wetland Map #3)

**Wetlands I and J** are located along irrigation waste ditches located north of Mary Street. The dominant wetland plant species were reed canarygrass, cattail, and American speedwell (*Veronica americana*). They are surrounded by pasture and hayfields. The NRCS soil listed for Wetlands I and J was Keiser silty clay loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetlands I and J associated irrigation ditches discharge into natural drainages to Five Mile Creek. The most prominent functions were a high rating for in sediment/shoreline stabilization and moderate rating for sediment, nutrient, and toxic removal. The remaining functions were rated low. (Wetland Map #5)

**Wetland L2** is a depressional wetland from canal overflow from an unnamed ditch, located south of Hwy 312. The dominant wetland plant species in Wetland L2 was meadow foxtail (*Alopecurus pratensis*). The wetland is in a heavily grazed area. The surrounding habitat is irrigated cropland. Wetland L2 is part of larger wetland to the west (L4), connected through a culvert. The NRCS soil listed for Wetland L2 is McRae loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland L2 connects to a larger canal wetland to the south (Wetland AD), which potentially drains to Seven Mile Creek or the Miller McGirl Ditch. The most prominent functions were a high rating in groundwater discharge/recharge and moderate ratings in sediment, nutrient, and toxic removal and short and long term water storage. (Wetland Map #4)

**Wetland L4** is a large naturally occurring wetland area bisected by Hwy 312 that extends beyond the survey area to the BBWA Canal. It is primarily a depressional wetland that drains through an irrigation ditch to the south. The dominant wetland plant species were cattail and three-square bulrush. The surrounding habitat is irrigated hayfields and grazing. The NRCS soil listed for Wetland L4 is Alluvial land, seeped, listed as hydric in Yellowstone County (NRCS 2011). Wetland L4 connects to Wetland AD, which potentially drains to Seven Mile Creek or the Miller McGirl Ditch. The most prominent functions were high ratings in sediment/shoreline stabilization; sediment, nutrient, and toxic removal; groundwater discharge/recharge. Moderate ratings were in short and long term water storage and production export/food chain support. (Wetland Map #4)

**Wetland M** is a fringe wetland along an irrigation ditch north of and paralleling Mary Street. The dominant wetland plant species was reed canarygrass. It is bordered by irrigated cropland and hayfields. The primary NRCS soil listed for Wetland M is Keiser silty clay loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland M discharges into cropland. The most prominent function was a high rating in sediment/shoreline stabilization. The remaining functions were rated low. (Wetland Map #5)

**Wetland O** is a natural occurring wetland located on the north shore channel of the Yellowstone River. The dominant wetland plant species were reed canarygrass and cattail. It is separated from another wetland east of the study area by a head gate. The NRCS soil listed for Wetland O7 is Hilly, gravelly land, not listed as hydric in Yellowstone County (NRCS 2011). Wetland O7 is located within the Yellowstone River channel. All the wetland functions were rated low. (Wetland Map #3)

**Wetland P** is along an irrigation canal primarily south of Coulson Road. The dominant wetland plant species were cattail, rough fescue (*Festuca scabrella*), and Russian olive. It is bordered by irrigated hayfields and commercial use. The NRCS soil listed for Wetland P is Hysham-Laurel silty clay loams, 0 to 2% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland P is associated with an irrigation canal that is a supply/waste ditch that potentially flows to the Yellowstone River. The most prominent functions were moderate ratings in MT Natural Heritage program species habitat, sediment/shoreline stabilization, production export/food chain support, and general wildlife habitat. (Wetland Maps #1 and #2)

**Wetland R** is located along small narrow lateral irrigation waste ditch, located south of Coulson Road. The dominant wetland plant species were cattail and small-fruited bulrush (*Scirpus microcarpus*). It is surrounded by irrigated hayfields. The NRCS soil listed for Wetlands R is Hysham-Laurel silty clay loams, 0 to 2% slope, not listed as hydric in Yellowstone County (NRCS 2011). Wetland R and its associated ditch discharges into a larger ditch (Wetland P) that potentially flows to the Yellowstone River. The most prominent functions were a high rating for sediment/shoreline stabilization and moderate rating for sediment, nutrient, and toxic removal. The remaining functions were rated low. (Wetland Map #2)

**Wetland S** is a fringe wetland along Coulson Ditch. The dominant wetland plant species were reed canarygrass and Canada thistle. Shrubs were dominant in isolated locations. It is surrounded primarily by irrigated hayfields. The primary NRCS soil listed for Wetland S area is Hysham-Laurel silty clay loams, 0 to 2% slope, not listed as hydric in Yellowstone

County (NRCS 2011). Wetland S is associated with Coulson Ditch, which potentially discharges into the Yellowstone River. The most prominent function was a high rating in sediment/shoreline. The remaining functions were rated low. (Wetland Maps #1 and #2)

**Wetland T** is group of small, connected ditch wetlands within the I-90/Johnson Lane intersection. The water source was an irrigation waste ditch and highway runoff. The dominant wetland plant species were reed canarygrass and cattail. It is surrounded by maintained highway right-of-way. The NRCS soil listed for Wetland T is Thurlow clay loam, 4 to 7% slope, not listed as hydric in Yellowstone County (NRCS 2011), but is most likely fill materials. Wetland T flow was fully infiltrated at the lowest elevation with no hydrology evident beyond the north wetland boundary. The most prominent functions were a high rating in sediment/shoreline stabilization and a moderate rating for flood attenuation. The remaining functions were rated low. (Wetland Map #1)

**Wetland W** is a large, natural wetland mosaic that has been modified and reduced in expanse over the years by dikes, berms, and commercial development within the study area. It is located north of I-90 and the BNSF railroad. The dominant wetland plant species were cattail with isolated shrub components in the perimeter. The surrounding area is commercial land use. The NRCS soil listed for Wetland W is Alluvial land, seeped, listed as hydric in Yellowstone County (NRCS 2011). Wetland W waters discharge into an unnamed drainage to Yellowstone River. The most prominent functions were a high rating in short and long term water storage and moderate ratings in MT Natural Heritage program, flood attenuation, and production export/food chain support. (Wetland Maps #1 and #2)

**Wetland Y** abuts a small roadside ditch on the east side of Highway 87, north of Mary Street. The dominant wetland plant species for Wetland Y was woolly sedge (*Carex lanuginosa*) and cottonwood saplings. It is surrounded by development and pasture. The NRCS soil listed for Wetlands Y was Keiser silty clay loam, 0 to 1% slope, not listed as hydric in Yellowstone County (NRCS 2011). Water from Wetland Y flows to agricultural end use. The most prominent function was a high rating for in sediment/ shoreline stabilization. The remaining functions were rated low. (Wetland Map #5)

### **7.3.2 Potential Wetland Impacts**

#### **Direct Impacts**

Under the No-Build Alternative, the proposed arterial would not be constructed and there would be no impacts to the wetlands.

#### **Impacts Common to All Build Alternatives**

Implementing any of the build alternatives would result in permanent loss of existing wetlands. Wetland area would be lost to the construction of the roadway, bridges, culverts, and landscaping due to the placement of fill in the form of soil, riprap, concrete, various sizes of rock, and other construction materials. The area of loss will be minimized to the extent possible during preliminary and final design.

#### **Build Alternative Impacts**

The total area of wetlands potentially affected varies by Alternative. **Exhibit 10** shows the preliminary potential area of impact to wetlands according to Alternative and MDT rating. As stated previously, the conceptual design for the build alternatives upon which

the impact calculations are based, do not include staging areas, materials storage areas, or secondary road improvements that will be part of the project footprint. These elements will be incorporated during the preliminary design process with consideration for sensitive habitat, such as wetlands.

This preliminary impact analysis assumes that any wetlands under bridge structures would be completely affected. However, because the river bridge heights reach up to 100 feet, impacts to the wetlands (Wetland AG, F, and O) may be avoided and impacts to others could be less than is estimated in this report.

The conceptual design will be further refined and impacts likely significantly reduced during the preliminary design process. Permanent and temporary impacts will be determined in greater detail in the EIS.

**Exhibit 10. Potential Wetland Impacts for Build Alternatives (acres)**

Name	Delineated Acres	Johnson1-Mary1	Johnson1-Mary2	Johnson2-Mary1	Johnson2-Mary2	Johnson1-FiveMile	Johnson2-FiveMile
AC	0.59					0.15	0.15
AD	3.55					0.87	0.87
AF	2.81	0.39	0.34	0.39	0.34	0.34	0.34
AG	9.64	1.85	0.99	1.85	0.99	0.99	0.99
AH	0.02	0.02					
AI	0.70	0.18	0.18			0.18	
AK	0.19			0.11	0.03		0.03
C	0.09	0.02	0.02	0.02	0.02		
D	0.07	0.02	0.02	0.02	0.02		
D9	0.77	0.08	0.10	0.09	0.10	0.10	0.10
E	0.46	0.23		0.23			
F	0.43		0.21		0.21		
I	0.26	0.07	0.07	0.07	0.07		
J	0.32	0.08	0.08	0.08	0.08		
L2	0.27					0.13	0.13
L4	0.14						
M	0.63	0.16	0.16	0.16	0.16		
O	2.14		0.36		0.36	0.36	0.36
P	0.36	0.09	0.09			0.09	
R	0.04	0.01	0.01			0.01	
S	0.75	0.19	0.19			0.19	
T	2.42	0.30	0.30	0.30	0.30	0.30	0.30
W	5.76			1.45	1.44		1.44
Y	0.11	0.03	0.03	0.03	0.03		
<b>Total Acres<sup>2</sup></b>	<b>32.51</b>	<b>3.71</b>	<b>3.13</b>	<b>4.80</b>	<b>4.13</b>	<b>3.70</b>	<b>4.70</b>

<sup>1</sup>Potential impacts include all wetlands within the preliminary construction limits of the conceptual design

<sup>2</sup>Totals presented are based on the GPS delineation data collected with six decimal places and may not match data presented in this table due to rounding.

**Indirect Impacts**

Indirect impacts to wetlands would include potential loss of their inherent functions and values including:

- Fish and wildlife habitat;
- Flood attenuation;
- Surface water storage;
- Sediment, nutrient, and toxicant removal;
- Bank and shoreline stabilization;
- Groundwater discharge and recharge; and
- Uniqueness, recreational and educational opportunities.

Depending on the height of bridge structures, wetlands under bridges may be impacted due to obstruction of sunlight and precipitation from the structures.

### ***7.3.3 Avoidance and Minimization***

As a result of the BRR wetland investigation and results, the locations and functional assessment of wetlands will provide the design team with the information needed to refine the alternatives as practicable to avoid or minimize impacts to wetlands. Impacts to wetlands should be avoided to the greatest extent practicable as MDT currently has no wetland reserve credits available within the Middle Yellowstone Watershed.

### ***7.3.4 Permitting Required***

Several U.S. federal wetland regulations that may pertain to the proposed project including the CWA of 1972, Section 404 including the 2007 Rampanos/Swancc Guidance; Section 401 (Water quality certification) National Environmental Policy Act; Executive Order 11990 (Protection of Wetlands); Executive Order 11988 (Protection of Floodplains) and the Fish and Wildlife Coordination Act (Protection of Threatened and Endangered species).

Permitting required is similar to those described in **Section 4.21 Aquatic Sites**: USACE 404(b) permit, MDEQ water quality permit, Montana Pollutant Discharge Elimination System (MPDES Permit), and construction permits.

### ***7.3.5 Proposed Wetland Mitigation***

The 404(b) permit would likely require mitigation for the impacts to jurisdictional wetlands in the form of using credits from one of MDT's wetland mitigation reserves; purchasing credits from a wetland mitigation bank; or developing on-site wetland restoration, enhancement, or creation. MDT policy is to avoid and minimize impacts to wetlands, and if wetlands are impacted as a result of an individual highway project, MDT would mitigate for jurisdictional and non-jurisdictional wetlands. MDT attempts to mitigate wetland impacts within the same watershed where the impacts occurred. Thus, each individual MDT project would mitigate for its own impacts. This project's contribution to adverse cumulative impacts, mitigated in compliance with the terms of a Clean Water Act Section 404 permit and MDT policies, would be minor.

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# **BILLINGS BYPASS**

Biological Resources Report

November 2011

## **APPENDIX A**

### **AGENCY COORDINATION**





## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
ECOLOGICAL SERVICES  
MONTANA FIELD OFFICE  
585 SHEPARD WAY  
HELENA, MONTANA 59601  
PHONE (406) 449-5225, FAX (406) 449-5339

File: M.44. MDT (I)

November 23, 2010

Tom S. Martin, Chief  
Environmental Services Bureau  
Montana Department of Transportation  
2701 Prospect Avenue  
P.O. Box 201001  
Helena, Montana 59620-1001

Dear Mr. Martin:

This is in response to your September 27, 2010 letter on behalf of the Federal Highway Administration (FHWA) inviting participation by the U.S. Fish and Wildlife Service (Service) in the environmental review process for the Billings Bypass Environmental Impact Statement (EIS). The completed Participating Agency Designation is attached.

The environmental review process will develop a proposed action and alternatives for a bypass road from Interstate 90 in the vicinity of Lockwood to Old Highway 312 north of Billings Heights. Of necessity, this project will entail a new bridge spanning the Yellowstone River. All activities will occur in Yellowstone County, Montana. Species that are listed under the Endangered Species Act that may occur in the vicinity of this project include: black-footed ferret (*Mustela nigripes*), whooping crane (*Grus americana*), mountain plover (*Charadrius montanus*), a proposed species, and greater sage-grouse (*Centrocercus urophasianus*), a candidate species. In the past we have been concerned about the possible presence of pallid sturgeons (*Scaphirhynchus albus*) in this area. However, information obtained in the last decade indicates that pallid sturgeons are unlikely to be found upstream of the confluence with the Big Horn River, and are not expected to occur within the vicinity of the project area. No wildlife refuges are contained within the project study area.

We have indicated our status as a Participating Agency because the project may affect listed species. However, as you are undoubtedly aware, we are extremely short-staffed at this time, and we do not anticipate being able to provide substantial review or participation in meetings, field reviews, and other activities. Once the preferred alternative is identified, consultation regarding effects to listed species will be handled from this office.

We recommend that you consider locations for the new bridge across the Yellowstone River that minimize impacts to the floodplain, riparian habitat, and the channel migration zone. Designs to be considered should include, if practicable, as clear-span bridge that has no footings or supports within the active river channel.

We appreciate your efforts to ensure the conservation of threatened and endangered species as part of our joint responsibilities under the Endangered Species Act, as amended. If you have questions or comments related to this correspondence, please contact Shannon Downey of my staff at 406-449-5225, ext 214.

Sincerely,

A handwritten signature in black ink that reads "R. Mark Wilson". The signature is written in a cursive style with a large, looping "R" and a long, sweeping underline.

R. Mark Wilson  
Field Supervisor

Billings Bypass EIS  
Project No. NCPD 56(55)  
Control No. 4199

PARTICIPATING AGENCY DESIGNATION

- Yes U.S. FISH AND WILDLIFE SERVICE wishes to be designated as a participating agency for the proposed Billings Bypass EIS Project
- No U.S. FISH AND WILDLIFE SERVICE does not wish to be designated as a participating agency for the proposed Billings Bypass EIS Project because:\*
- Agency has no jurisdiction or authority with respect to the project
  - Agency has no expertise or information relevant to the project
  - Agency does not intend to submit comments on the project

Please check (✓) appropriate box or boxes.

R. Mark Wilson (Signature Authorized Representative)  
R. Mark Wilson (Print)  
Project Leader (Title)  
11-22-10 (Date)

Please refer to:

Thomas S. Martin, P.E.  
MDT Environmental Services Bureau Chief  
2701 Prosper Avenue  
PO Box 201001  
Helena MT 59620-1001

Fax: 406-444-7671

\* Please note that if Federal agencies do not state their position in these terms, then the Federal agency should be treated as a participating agency. Designation as a "participating agency" does not imply that the agency supports the proposed project or has any jurisdiction.





# United States Department of the Interior

FISH AND WILDLIFE SERVICE  
 ECOLOGICAL SERVICES  
 MONTANA FIELD OFFICE  
 585 SHEPARD WAY  
 HELENA, MONTANA 59601  
 PHONE (406) 449-5225, FAX (406) 449-5339

## ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES MONTANA COUNTIES\* Endangered Species Act

May 2011

C = Candidate  
 LT = Listed Threatened  
 LE = Listed Endangered  
 P = Proposed  
 PCH = Proposed Critical Habitat  
 CH = Designated Critical Habitat  
 XN = Experimental non-essential population

\*Note: Generally, this list identifies the counties where one would reasonably expect the species to occur, not necessarily every county where the species is listed

County/Scientific Name	Common Name	Status
<b>BEAVERHEAD</b>		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Thymallus arcticus</i>	Arctic Grayling (Upper Missouri River DPS)	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>BIG HORN</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>BLAINE</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>BROADWATER</b>		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C

County/Scientific Name	Common Name	Status
<b>CARBON</b>		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>CARTER</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>CASCADE</b>		
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>CHOUTEAU</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>CUSTER</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>DANIELS</b>		
<i>Grus americana</i>	Whooping Crane	LE
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>DAWSON</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>DEER LODGE</b>		
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Thymallus arcticus</i>	Arctic Grayling (Upper Missouri River DPS)	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>FALLON</b>		
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>FERGUS</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C

County/Scientific Name	Common Name	Status
<b>FLATHEAD</b>		
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Silene spaldingii</i>	Spalding's Campion	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Lednia tumana</i>	Meltwater Lednian Stonefly	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>GALLATIN</b>		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>GARFIELD</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>GLACIER</b>		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Lednia tumana</i>	Meltwater Lednian Stonefly	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>GOLDEN VALLEY</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>GRANITE</b>		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	C
<b>HILL</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>JEFFERSON</b>		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Gulo gulo luscus</i>	Wolverine	C
<i>Anthus spragueii</i>	Sprague's Pipit	C

County/Scientific Name	Common Name	Status
<b>JUDITH BASIN</b>		
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>LAKE</b>		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Howellia aquatilis</i>	Water Howellia	LT
<i>Silene spaldingii</i>	Spalding's Campion	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	C
<b>LEWIS AND CLARK</b>		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>LIBERTY</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>LINCOLN</b>		
<i>Acipenser transmontanus</i>	White Sturgeon (Kootenai River Pop.)	LE
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Silene spaldingii</i>	Spalding's Campion	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Howellia aquatilis</i>	Water Howellia	LT
<i>Gulo gulo luscus</i>	Wolverine	C
<b>MADISON</b>		
<i>Spiranthes diluvialis</i>	Ute Ladies' Tresses	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Thymallus arcticus</i>	Arctic Grayling (Upper Missouri River DPS)	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>McCONE</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C

County/Scientific Name	Common Name	Status
<b>MEAGHER</b>		
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>MINERAL</b>		
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	C
<b>MISSOULA</b>		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Howellia aquatilis</i>	Water Howellia	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Coccyzus americanus</i>	Yellow-billed cuckoo (western pop.)	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>MUSSELSHELL</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>PARK</b>		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>PETROLEUM</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>PHILLIPS</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Mustela nigripes</i>	Black-footed Ferret	LE, XN
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>PONDERA</b>		
<i>Charadrius melodus</i>	Piping Plover	LT
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C

County/Scientific Name	Common Name	Status
<b>POWDER RIVER</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>POWELL</b>		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>PRAIRIE</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>RAVALLI</b>		
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Coccyzus americanus</i>	Yellow-billed cuckoo (western pop.)	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>RICHLAND</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>ROOSEVELT</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>ROSEBUD</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>SANDERS</b>		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT
<i>Salvelinus confluentus</i>	Bull Trout	LT, CH
<i>Gulo gulo luscus</i>	Wolverine	C
<b>SHERIDAN</b>		
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Grus americana</i>	Whooping Crane	LE
<i>Anthus spragueii</i>	Sprague's Pipit	C

County/Scientific Name	Common Name	Status
<b>SILVER BOW</b>		
<i>Salvelinus confluentus</i>	Bull Trout	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Thymallus arcticus</i>	Arctic Grayling (Upper Missouri River DPS)	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>STILLWATER</b>		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>SWEET GRASS</b>		
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>TETON</b>		
<i>Ursus arctos horribilis</i>	Grizzly Bear	LT
<i>Lynx canadensis</i>	Canada Lynx	LT, CH
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C
<b>TOOLE</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>TREASURE</b>		
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>VALLEY</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Charadrius melodus</i>	Piping Plover	LT, CH
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>WHEATLAND</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<i>Gulo gulo luscus</i>	Wolverine	C

County/Scientific Name	Common Name	Status
<b>WIBAUX</b>		
<i>Scaphirhynchus albus</i>	Pallid Sturgeon	LE
<i>Sterna antillarum athalassos</i>	Interior Least Tern	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C
<b>YELLOWSTONE</b>		
<i>Mustela nigripes</i>	Black-footed Ferret	LE
<i>Grus americana</i>	Whooping Crane	LE
<i>Centrocercus urophasianus</i>	Greater Sage-Grouse	C
<i>Anthus spragueii</i>	Sprague's Pipit	C



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October 5, 2010

Tom S. Martin, PE, Chief  
Environmental Services Bureau  
Montana Department of Transportation  
2701 Prospect Avenue  
Helena, Montana 59620-1001

Dear Tom,

I am writing in response to your recent request regarding Montana species of concern in the vicinity of the Billings Bypass Sections 1, 2, 11-15, 22-27 and 34-36, T01N, R26E; Sections 5-9, 15-20 and 30, T01N, R27E; Section 36, T02N, R26E; and Sections 29-32, T02N, R27E, in Yellowstone County. I checked our databases for information in this general area and have enclosed 31 species occurrence reports for 14 species of concern, 2 ecological site reports, a map depicting species of concern and ecological site locations, a map depicting wetland locations and documents with explanatory material for species of concern and wetlands.

Please keep in mind the following when using and interpreting the enclosed information and maps:

- (1) These materials are the result of a search of our database for species of concern that occur in an area defined by requested township, range and sections with an additional one-mile buffer surrounding the requested area. This is done to provide a more inclusive set of records and to capture records that may be immediately adjacent to the requested area. Reports are provided for the species of concern that are located in your requested area with a one-mile buffer. Species of concern outside of this buffered area may be depicted on the map due to the map extent, but are not selected for the SOC report.
- (2) On the map, polygons represent one or more source features as well as the locational uncertainty associated with the source features. A source feature is a point, line, or polygon that is the basic mapping unit of a Species Occurrence (SO) representation. The recorded location of the occurrence may vary from its true location due to many factors, including the level of expertise of the data collector, differences in survey techniques and equipment used, and the amount and type of information obtained. Therefore, this inaccuracy is characterized as locational uncertainty, and is now incorporated in the representation of an SO. If you have a question concerning a specific SO, please do not hesitate to contact us.
- (3) This report may include sensitive data, and is not intended for general distribution, publication or for use outside of your agency. In particular, public release of specific location information may jeopardize the welfare of threatened, endangered, or sensitive species or communities.
- (4) The accompanying map(s) display management status, which may differ from ownership. Also, this report may include data from privately owned lands, and approval by the landowner is advisable if specific location information is considered for distribution. Features shown on this map do not imply public access to any lands.
- (5) Additional biological data for the search area(s) may be available from other sources. We suggest you contact the U.S. Fish and Wildlife Service for any additional information on threatened and endangered species (406-449-5225). Also,

significant gaps exist in the Heritage Program's fisheries data, and we suggest you contact the Montana Rivers Information System for information related to your area of interest (406-444-3345).

- (6) **Additional information on species habitat, ecology and management is available on our web site in the Plant and Animal Field Guides, which we encourage you to consult for valuable information. You can access these guides at <http://mtnhp.org>. General information on any species can be found by accessing the link to NatureServe Explorer.**

The results of a data search by the Montana Natural Heritage Program reflect the current status of our data collection efforts. These results are not intended as a final statement on sensitive species within a given area, or as a substitute for on-site surveys, which may be required for environmental assessments. The information is intended for project screening only with respect to species of concern, and not as a determination of environmental impacts, which should be gained in consultation with appropriate agencies and authorities.

I hope the enclosed information is helpful to you. Let me know if you would prefer to receive digital PDF versions of these documents via email. Please feel free to contact me at (406) 444-3290 or via my e-mail address, below, should you have any questions or require additional information.

Sincerely,



Martin P. Miller  
Montana Natural Heritage Program  
martinm@mt.gov

**Billings Bypass EIS  
Project No. NCPD 56(55)  
Control No. 4199**

**PARTICIPATING AGENCY DESIGNATION**

Yes – MONTANA NATURAL HERITAGE PROGRAM wishes to be designated as a participating agency for the proposed Billings Bypass EIS Project

No – MONTANA NATURAL HERITAGE PROGRAM does not wish to be designated as a participating agency for the proposed Billings Bypass EIS Project because:\*

Agency has no jurisdiction or authority with respect to the project → *Neutral data provider.*

Agency has no expertise or information relevant to the project

Agency does not intend to submit comments on the project

Please check (✓) appropriate box or boxes.

Bryce A. Maxell (Sign – Authorized Representative)  
Bryce A. Maxell (Print)  
Interim Director (Title)  
9/29/10 (Date)

Please return to:

Thomas S. Martin, P.E.  
MDT Environmental Services Bureau Chief  
2701 Prospect Avenue  
PO Box 201001  
Helena MT 59620-1001

Fax: 406-444-7671

\* Please note that if Federal agencies do not state their position in these terms, then the Federal agency should be treated as a participating agency. Designation as a “participating agency” does not imply that the agency supports the proposed project or has any jurisdiction.



### Explanation of Species of Concern Reports

Since 1985, the Montana Natural Heritage Program (MTNHP) has been compiling and maintaining an inventory of elements of biological diversity in Montana. This inventory includes plant species, animal species, plant communities, and other biological features that are rare, endemic, disjunct, threatened, or endangered throughout their range in Montana, vulnerable to extirpation from Montana, or in need of further research.

**Species Occurrences:** (formerly called 'Element Occurrences') A "Species Occurrence" (SO) is an area depicting only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature. If an observation can be associated with a map feature that can be tracked (e.g., a wetland) then this polygon feature is used to represent the SO. Areas that can be inferred as probable occupied habitat based on direct observation of a species location and what is known about the foraging area or home range size of the species may be incorporated into the Species Occurrence. A "Species Occurrence" generally falls into one of the following three categories:

**Plants:** A documented location of a specimen collection or observed plant population. In some instances, adjacent, spatially separated clusters are considered subpopulations and are grouped as one occurrence (e.g., the subpopulations occur in ecologically similar habitats, and are within approximately one air mile of one another).

**Animals:** The location of a specimen collection or of a verified sighting; known or assumed to represent a breeding population. Additional collections or sightings are often appended to the original record.

**Other:** Significant biological features not included in the above categories, such as bird rookeries, peatlands, or state champion trees.

**Ecological Information:** Areas for which we have ecological information are represented on the map as either shaded polygons (where small and/or well defined) or simply as map labels (where they are large generally-defined landscapes). Descriptive information about these areas is contained in the associated report. Such information can be useful in assessing biological values and interpreting Species of Concern data.

The quantity and quality of data contained in MTNHP reports is dependent on the research and observations of the many individuals and organizations that contribute information to the program. Please keep in mind that the absence of information for an area does not mean the absence of significant biological features, since no surveys may have been conducted there. Reports produced by the Montana Natural Heritage Program summarize information documented in our databases at the time of a request. These reports are not intended as a final statement on the species or areas being considered, nor are they a substitute for on-site surveys, which may be required for environmental assessments.

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As a user of MTNHP, your contributions of data are essential to maintaining the accuracy of our databases. New or updated location information for all species of concern is always welcome.

We encourage you to visit our website at <http://mtnhp.org>. On-line tools include a species observation viewer: the Natural Heritage TRACKER and *The Montana Field Guide* which contains photos, illustrations, and supporting information on Montana's animals and plant species of concern. Additional data are available on most species and ecological areas identified in our reports.

**If you have questions or need further assistance, please contact us either by phone at (406/444-5354), e-mail ([mtnhp@mt.gov](mailto:mtnhp@mt.gov)) or**

## Data Descriptions

The section below lists the names and definitions for descriptions of the data fields used in the reports. Certain codes and abbreviations are used in Species Occurrence reports. Although many of these are very straightforward, the following explanations should answer most questions.

**Map Label:** The label for the species occurrence as it appears on the map.

**Element Subnational ID:** The unique code used by the state or province to identify a specific element (species).

**SO Number:** Number that identifies the particular occurrence of the element (species).

**Scientific Name:** Latin (scientific) name.

**Common Name:** Commonly recognized name.

**Species of Concern/Potential Concern:** This value indicates whether the species is a "Species of Concern" (Y) or of "Potential Concern" (W).

**Last Observation Date:** The date the Species Occurrence was last observed extant at the site (not necessarily the date the site was last visited).

**First Observation Date:** The date the Species Occurrence was first reported at the site.

**EO Rank:** indicates the relative value of the Species Occurrence (SO) with respect to other occurrences of the Species, based on an assessment of estimated viability (species).

### Values:

- A - Excellent estimated viability/ecological integrity
- A? - Possibly excellent estimated viability/ecological integrity
- AB - Excellent or good estimated viability/ecological integrity
- AC - Excellent, good, or fair estimated viability/ecological integrity
- B - Good estimated viability/ecological integrity
- B? - Possibly good estimated viability/ecological integrity
- BC - Good or fair estimated viability/ecological integrity
- BD - Good, fair, or poor estimated viability/ecological integrity
- C - Fair estimated viability/ecological integrity
- C? - Possibly fair estimated viability/ecological integrity
- CD - Fair or poor estimated viability/ecological integrity
- D - Poor estimated viability/ecological integrity
- D? - Possibly poor estimated viability/ecological integrity
- E - Verified extant (viability/ecological integrity not assessed)
- F - Failed to find
- F? - Possibly failed to find
- H - Historical
- H? - Possibly historical
- X - Extirpated
- X? - Possibly extirpated
- U - Unrankable
- NR - Not ranked

**SO Data:** Data collected on the biology of this Species Occurrence. Specific information may include number of individuals, vigor, habitat, soils, associated species, and other characteristics.

## Species Status Codes

Provided below are definitions for species conservation status ranks, categories and other codes designated by MTNHP, Federal and State Agencies and non-governmental organizations.

- [Montana Species of Concern](#)
- [Montana Potential Species of Concern](#)
- [Status Under Review](#)
- [Exotic Species](#)
- [Montana Species Ranking Codes](#)
- [U.S. Fish and Wildlife Service](#)
- [Forest Service](#)
- [Bureau of Land Management](#)
- [MFWP Conservation Need](#)
- [Partners In Flight \(PIF\)](#)
- [MNPS Threat Category](#)

### Species of Concern

Species of Concern are native taxa that are at-risk due to declining population trends, threats to their habitats, restricted distribution, and/or other factors. Designation as a Montana Species of Concern or Potential Species of Concern is based on the Montana Status Rank, and is not a statutory or regulatory classification. Rather, these designations provide information that helps resource managers make proactive decisions regarding species conservation and data collection priorities. See the latest [Species of Concern Reports](#) for more detailed explanations and assessment criteria.

### Potential Species of Concern

Potential Species of Concern are native taxa for which current, often limited, information suggests potential vulnerability. Also included are animal species which additional data are needed before an accurate status assessment can be made.

### Status Under Review

Species designated "Status Under Review" are plant species that require additional information and currently do not have a status rank but may warrant future consideration as Species of Concern. This category also includes plant species whose status rank is questionable due to the availability of new information or the availability of conflicting or ambiguous information or data. Species listed in this category will be reviewed periodically or as new information becomes available.

### Exotic Species

Exotic species are not native to Montana, but have either been reported in Montana or have established populations in Montana outside of their native range.

### Montana Species Ranking Codes

Montana employs a standardized ranking system to denote global (G) and state (S) status (NatureServe 2003). Species are assigned numeric ranks ranging from 1 (critically imperiled) to 5 (demonstrably secure), reflecting the relative degree to which they are "at-risk". Rank definitions are given below. A number of factors are considered in assigning ranks - the number, size and distribution of known "occurrences" or populations, population trends (if known), habitat sensitivity, life history traits and threats.

For example, Clustered lady's slipper (*Cypripedium fasciculatum*) is ranked G4 S2. Globally the species is uncommon but not vulnerable, while in Montana it is at risk because of limited and potentially declining numbers, extent and/or habitat.

#### G1 S1

At high risk because of extremely limited and potentially declining numbers, extent and/or habitat, making it highly vulnerable to global extinction or extirpation in the state.

#### G2 S2

At risk because of very limited and potentially declining numbers, extent and/or habitat, making it vulnerable to global extinction or extirpation in the state.

#### G3 S3

Potentially at risk because of limited and potentially declining numbers, extent and/or habitat, even though it may be abundant in some areas.

#### G4 S4

Uncommon but not rare (although it may be rare in parts of its range), and usually widespread. Apparently not vulnerable in most of its range, but possibly cause for long-term concern.

#### G5 S5

Common, widespread, and abundant (although it may be rare in parts of its range). Not vulnerable in most of its range.

#### GX SX

Presumed Extinct or Extirpated - Species is believed to be extinct throughout its range or extirpated in Montana. Not located despite intensive searches of historical sites and other appropriate habitat, and small likelihood that it will ever be rediscovered.

#### GH SH

Possibly Extinct or Extirpated - Species is known only from historical records, but may nevertheless still be extant; additional surveys are needed.

**GNR SNR**

Not yet ranked.

**GU SU**

Unrankable - Species currently unrankable due to lack of information or due to substantially conflicting information about status or trends.

**GNA SNA**

A conservation status rank is not applicable for one of the following reasons:

The taxa is of Hybrid Origin; is Exotic or Introduced; is Accidental or is Not Confidently Present in the state. (see other codes below)

**Other Codes and Modifiers**

**HYB**

Hybrid-Entity not ranked because it represents an interspecific hybrid and not a species.

**T**

**Infraspecific Taxon (trinomial)** - The status of infraspecific taxa (subspecies or varieties) are indicated by a "T-rank" following the species' global rank.

**?**

**Inexact Numeric Rank** - Denotes inexact numeric rank.

**Q**

**Questionable** taxonomy that may reduce conservation priority-Distinctiveness of this entity as a taxon at the current level is questionable; resolution of this uncertainty may result in change from a species to a subspecies or hybrid, or inclusion of this taxon in another taxon, with the resulting taxon having a lower-priority (numerically higher) conservation status rank.

**C**

**Captive or Cultivated Only** - Species at present is extant only in captivity or cultivation, or as a reintroduced population not yet established.

**A**

**Accidental** - Species is accidental or casual in Montana, in other words, infrequent and outside usual range. Includes species (usually birds or butterflies) recorded once or only a few times at a location. A few of these species may have bred on the one or two occasions they were recorded.

**SYN**

**Synonym** - Species reported as occurring in Montana, but the Montana Natural Heritage Program does not recognize the taxon; therefore the species is not assigned a rank.

**B**

**Breeding** - Rank refers to the breeding population of the species in Montana.

**N**

**Nonbreeding** - Rank refers to the non-breeding population of the species in Montana.

**M**

**Migratory** - Species occurs in Montana on during migration.

**U.S. Fish and Wildlife Service**

**LE**

**Listed endangered** - Any species in danger of extinction throughout all or a significant portion of its range (16 U.S.C. 1532(6)).

**PE**

**Proposed endangered** - Any species for which a proposed rule has been published in the Federal Register to list the species as endangered.

**LT**

**Listed threatened** - Any species likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range (16 U.S.C. 1532(20)).

**PT**

**Proposed threatened** - Any species for which a proposed rule has been published in the Federal Register to list the species as threatened.

**E(S/A) or T(S/A)**

Any species listed endangered or threatened because of similarity of appearance.

**C**

**Candidate** - Those taxa for which sufficient information on biological status and threats exists to propose to list them as threatened or endangered. We encourage their consideration in environmental planning and partnerships; however, none of the substantive or procedural provisions of the Act apply to candidate species.

**PDL**

**Proposed for delisting** - Any species for which a final rule has been published in the Federal Register to delist the species.

**DM**

**Recovered, delisted, and being monitored** - Any previously listed species that is now recovered, has been delisted, and is being monitored.

**NL**

**Not listed** - No designation.

**XE**

**Essential experimental population** - An experimental population whose loss would be likely to appreciably reduce the likelihood of the survival of the species in the wild.

XN

**Nonessential experimental population** - An experimental population of a listed species reintroduced into a specific area that receives more flexible management under the Act.

CH

**Critical Habitat** - The specific areas (i) within the geographic area occupied by a species, at the time it is listed, on which are found those physical or biological features (I) essential to conserve the species and (II) that may require special management considerations or protection; and (ii) specific areas outside the geographic area occupied by the species at the time it is listed upon determination that such areas are essential to conserve the species.

PS

**Partial status** - status in only a portion of the species' range. Typically indicated in a "full" species record where an infraspecific taxon or population, that has a record in the database has USESA status, but the entire species does not.

PS:value

**Partial status** - status in only a portion of the species' range. The value of that status appears in parentheses because the entity with status is not recognized as a valid taxon by Central Sciences (usually a population defined by geopolitical boundaries or defined administratively, such as experimental populations).

## Forest Service

The status of species on Forest Service lands as defined by the U.S. Forest Service manual (2670.22). These taxa are listed as such by the Regional Forester (Northern Region). The Forest Service lists animal species as:

### Endangered

Listed as Endangered (LE) by the USFWS.

### Threatened

Listed as Threatened (LT) by the USFWS.

### Sensitive

Any species for which the Regional Forester has determined there is a concern for population viability within the state, as evidenced by a significant current or predicted downward trend in populations or habitat.

### Species of Concern

USFS Species-of-Concern (FSH 1909.12, 43.22b) are species for which the Responsible Official determines management actions may be necessary to prevent listing under the Endangered Species Act (ESA). The Responsible Official, as appropriate, may identify the following plant and animal species, including macro-lichens, as species-of-concern:

1. Species identified as proposed and candidate species under the ESA.
2. Species with ranks of G-1 through G-3 on the NatureServe ranking system.
3. Infraspecific (subspecific) taxa with ranks of T-1 through T-3 on the NatureServe ranking system.
4. Species that have been petitioned for federal listing and for which a positive "90-day finding" has been made (a 90-day finding is a preliminary finding that substantive information was provided indicating that the petition listing may be warranted and a full status review will be conducted).
5. Species that have been recently delisted (these include species delisted within the past five years and other delisted species for which regulatory agency monitoring is still considered necessary).

### Species of Interest

USFS Species-of-Interest (FSH 1909.12, 43.22c) are species for which the Responsible Official determines that management actions may be necessary or desirable to achieve ecological or other multiple-use objectives. The Responsible Official may review the following sources for potential species-of-interest:

1. Species with ranks of S-1, S-2, N1, or N2 on the NatureServe ranking system.
2. State listed threatened and endangered species that do not meet the criteria as species-of-concern.
3. Species identified as species of conservation concern in State Comprehensive Wildlife Strategies.
4. Bird species on the U.S. Fish and Wildlife Service Birds of Conservation Concern National Priority list (for the U.S. portion of the northern Rockies that occur on National Forest system lands).
5. Additional species that valid existing information indicates are of regional or local conservation concern (this includes all Forest Service Northern Region sensitive species) due to factors that may include:
  - a. Significant threats to populations or habitat.
  - b. Declining trends in populations or habitat.
  - c. Rarity.
  - d. Restricted ranges (for example, narrow endemics, disjunct populations, or species at the edge of their range).
6. Species that are hunted or fished and other species of public interest. Invasive species may also be considered.

## Bureau of Land Management

BLM Sensitive Species are defined by the BLM 6840 Manual as those that normally occur on Bureau administered lands for which BLM has the capability to significantly affect the conservation status of the species through management. The State Director may designate additional categories of special status species as appropriate and applicable to his or her state's needs. The sensitive species designation, for species other than federally listed, proposed, or candidate species, may include such native species as those that:

1. could become endangered in or extirpated from a state, or within a significant portion of its distribution in the foreseeable future,
2. are under status review by FWS and/or NMFS,
3. are undergoing significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution,

4. are undergoing significant current or predicted downward trends in population or density such that federally listed, proposed, candidate, or State listed status may become necessary,
5. have typically small and widely dispersed populations,
6. are inhabiting ecological refugia, specialized or unique habitats, or
7. are State listed but which may be better conserved through application of BLM sensitive species status. Such species should be managed to the level of protection required by State laws or under the BLM policy for candidate species, whichever would provide better opportunity for its conservation.

### MFWP Conservation Need

In recent years states have received federal funding to develop Comprehensive Fish and Wildlife Conservation Strategies. Montana Fish, Wildlife, and Parks completed Montana's Comprehensive Fish and Wildlife Conservation Strategy in 2005. Under this conservation strategy individual animal species were assigned levels of conservation need as follows:

**Tier I:**

**Tier I:** Greatest conservation need. Montana Fish, Wildlife & Parks has a clear obligation to use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

**Tier II:**

**Tier II:** Moderate conservation need. Montana Fish, Wildlife & Parks could use its resources to implement conservation actions that provide direct benefit to these species, communities, and focus areas.

**Tier III:**

**Tier III:** Lower conservation need. Although important to Montana's wildlife diversity, these species, communities, and focus areas are either abundant and widespread or are believed to have adequate conservation already in place.

**Tier IV:**

**Tier IV:** Species that are non-native, incidental, or on the periphery of their range and are either expanding or very common in adjacent states.

### Partners In Flight (PIF)

Partners In Flight (PIF) is a partnership of federal and state agencies, industry, non-governmental organizations, and many others, with the goal of conserving North American birds. In 1991, PIF began developing a formal species assessment process that could provide consistent, scientific evaluations of conservation status across all bird species in North America, and identify areas most important to the conservation of each species. This process applies quantitative rule sets to complex biological data on the population size, distribution, population trend, threats, and regional abundance of individual bird species to generate simple numerical scores that rank each species in terms of its biological vulnerability and regional status. The process results in global and regional conservation assessments of each bird species that, among other uses, can be used to objectively assign regional and continental conservation priorities among birds. The species assessment scores and process has recently been updated! Check out the new scores and make sure to download and read the updated Handbook on Species Assessment, which contains important information on the how scores are derived and used in the assessment process. Note that currently only breeding-season regional scores are available for BCRs. We hope to have non-breeding scores available soon. For those needing access to the previous versions of the PIF Species Assessment Database, including past regional scores for physiographic areas, click here.

### Montana Native Plant Society (MNPS) Threat Category

The MNPS Threat Category process was initiated in 2006 at the Montana Plant Conservation Conference with the formation of a committee represented by federal, state and private botanists, ecologists and biologists. The objectives were to: 1) Evaluate threats impacting Montana's Plant Species of Concern and to classify species according to their level of imperilment/risk as a result of these threats. 2) Develop a ranking system based on the impacts of the identified threats to the species' viability in the state. The result of this process is a 4-tier threat ranking system for Plant Species of Concern in Montana. The threat categories are:

**Category 1:**

The viability of the species in the state is Highly Threatened by one or more activities. Associated threats have caused or are likely to cause a major reduction of the state population or its habitat that will require 50 years or more for recovery, 20% or more of the state population has been or will be affected, and the negative impact is occurring or is likely to occur within the next 5 years.

**Category 2:**

The viability of the species or a portion of the species habitat in the state is Threatened by one or more activities, though impacts to the species are expected to be less severe than those in Category 1. Associated threats exist but are not as severe, wide-ranging or immediate as for Category 1, though negative impacts are occurring or are likely to occur.

**Category 3:**

The viability of the species in the state is Not Threatened or the Threats are Insignificant. Associated threats are either not known to exist, are not likely to occur in the near future or are not known to be having adverse impacts that will severely affect the species' viability in the state.

**Category 4:**

Assessment not possible due to insufficient and/or conflicting information on potential threats to the species.

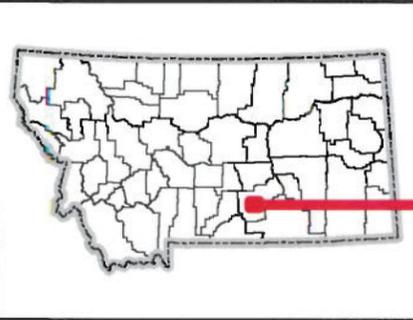
Please visit the MNPS website at <http://www.mtnativeplants.org> for additional information on MNPS Threat Categories or for MNPS contact information.



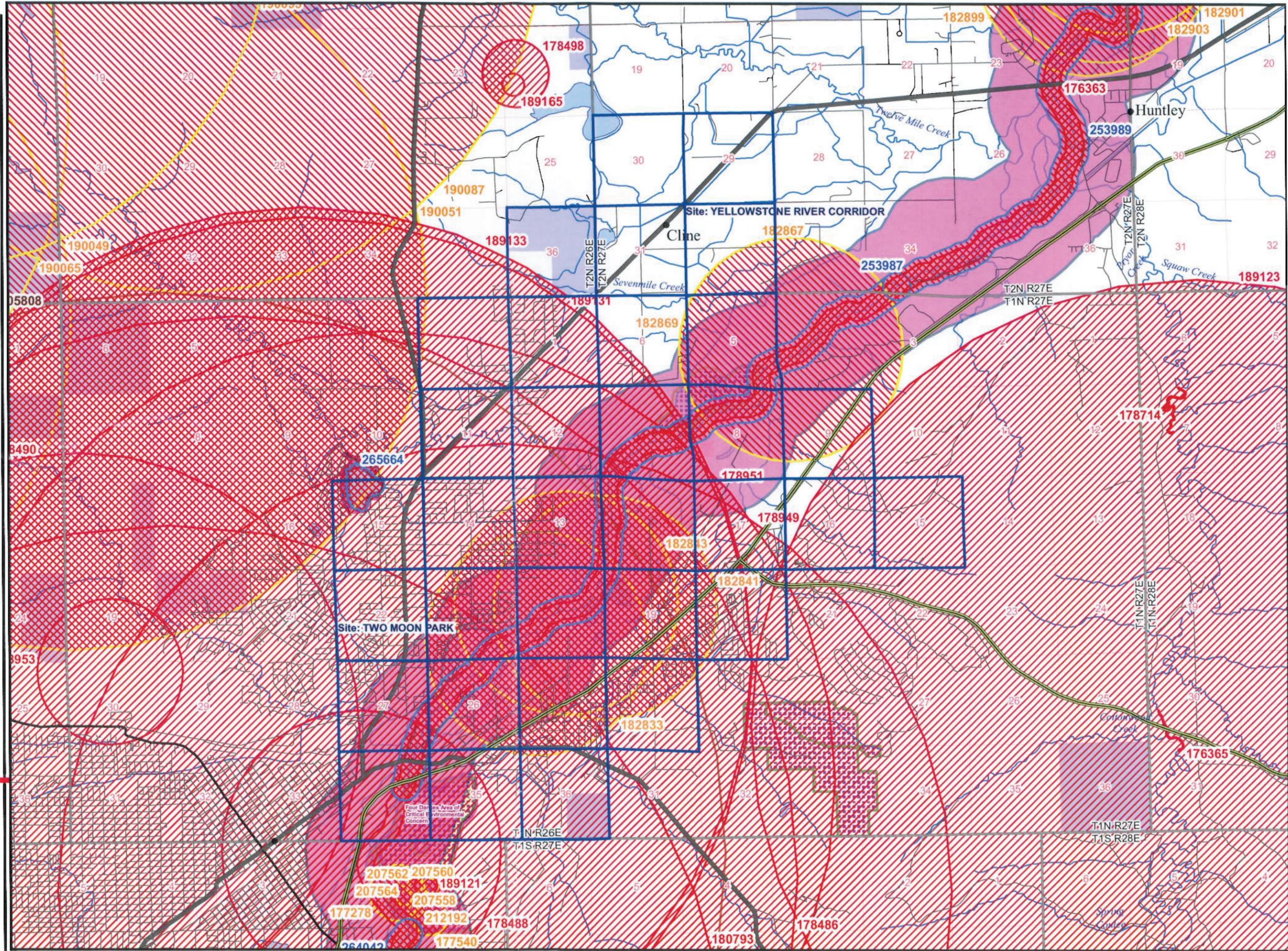
**Montana Species of Concern  
Billings Bypass  
Species of Concern / Sites**

**SPECIES OF CONCERN:** A polygon feature representing only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature.

- NonVascular Plants**
  - NonVascular Plants
- Vascular Plants**
  - Vascular Plants
- Invertebrates**
  - Invertebrates
- Amphibians**
  - Amphibians
- Fish**
  - Fish
- Reptiles**
  - Reptiles
- Birds**
  - Birds
- Mammals**
  - Mammals
- Sites**
  - Sites



Not all legend items may occur on the map.  
Features shown on this map do not imply public access to any lands.  
This map displays management status, which may vary from ownership.







# Species of Concern Data Report

Report Date:  
 Tuesday, October 5, 2010

Visit <http://mtnhp.org> for additional information.

## Haliaeetus leucocephalus

[View Species Info in MT Field Guide](#)

**Common Name:** Bald Eagle

**Description:** Vertebrate Animal

**Mapping Delineation:**

Confirmed nesting area buffered by a minimum distance of 2,000 meters in order to be conservative about encompassing the breeding territory and area commonly used for re-nesting and otherwise buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

### Species Status

**Natural Heritage Ranks:**

State: S3  
 Global: G5

**Federal Agency Status:**

U.S. Fish & Wildlife Service: DM  
 U.S. Forest Service: THREATENED  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

**FWP CFWCS Tier: 1**

**MT PIF Code:**

### Species Occurrences

Species Occurrence Map Label: <b>182833</b>	SO Number: 417,176
First Observation Date: 2003-03-01	Acreage: 3,089
Last Observation Date: 2003-08-01	SO Rank:

Species Occurrence Map Label: <b>182841</b>	SO Number: 417,177
First Observation Date: 2005-03-01	Acreage: 3,089
Last Observation Date: 2005-08-01	SO Rank:

Species Occurrence Map Label: <b>182843</b>	SO Number: 417,178
First Observation Date: 2001-03-01	Acreage: 3,089
Last Observation Date: 2001-08-01	SO Rank:

Species Occurrence Map Label: <b>182867</b>	SO Number: 417,424
First Observation Date: 1997-03-01	Acreage: 3,089
Last Observation Date: 2001-08-01	SO Rank:

Species Occurrence Map Label: <b>182869</b>	SO Number: 417,527
First Observation Date: 1995-03-01	Acreage: 3,089
Last Observation Date: 2000-08-01	SO Rank:

## Falco peregrinus

[View Species Info in MT Field Guide](#)

**Common Name:** Peregrine Falcon

**Description:** Vertebrate Animal

**Mapping Delineation:**

Confirmed nesting area buffered by a minimum distance of 500 meters in order to encompass the area around the nest known to be defended by adults as well as the minimum distance reported between nests. Otherwise the nest area is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.



# Species of Concern Data Report

Report Date:  
 Tuesday, October 5, 2010

Visit <http://mtnhp.org> for additional information.

## Species Status

### Natural Heritage Ranks:

State: S3  
 Global: G4

FWP CFWCS Tier:2

### Federal Agency Status:

U.S. Fish & Wildlife Service: DM  
 U.S. Forest Service: SENSITIVE  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

MT PIF Code:

## Species Occurrences

Species Occurrence Map Label:	<b>177278</b>	SO Number:	734,855
First Observation Date:		Acreage:	193
Last Observation Date:		SO Rank:	

## Centrocercus urophasianus

[View Species Info in MT Field Guide](#)

**Common Name:** Greater Sage-Grouse

**Description:** Vertebrate Animal

### **Mapping Delineation:**

Confirmed breeding area based on the presence of a nest, chicks, juveniles, or adults on a lek. Point observation location is buffered by a minimum distance of 6,400 meters in order to encompass the latest research on the area used for breeding, nesting, and brood rearing and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

## Species Status

### Natural Heritage Ranks:

State: S2  
 Global: G4

FWP CFWCS Tier:1

### Federal Agency Status:

U.S. Fish & Wildlife Service:  
 U.S. Forest Service: SENSITIVE  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

MT PIF Code:

## Species Occurrences

Species Occurrence Map Label:	<b>190051</b>	SO Number:	719,962
First Observation Date:	1980-04-01	Acreage:	31,636
Last Observation Date:	1987-05-15	SO Rank:	

Species Occurrence Map Label:	<b>190087</b>	SO Number:	725,876
First Observation Date:	1971-04-01	Acreage:	31,636
Last Observation Date:	2007-05-15	SO Rank:	

## Lanius ludovicianus

[View Species Info in MT Field Guide](#)

**Common Name:** Loggerhead Shrike

**Description:** Vertebrate Animal

### **Mapping Delineation:**

Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the maximum breeding territory size reported for the species in Alberta and Idaho and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.



# Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
 Tuesday, October 5, 2010

## Species Status

### Natural Heritage Ranks:

State: S3B  
 Global: G4

FWP CFWCS Tier: 2

### Federal Agency Status:

U.S. Fish & Wildlife Service:  
 U.S. Forest Service:  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

MT PIF Code:

## Species Occurrences

Species Occurrence Map Label:	<b>177540</b>	SO Number:	536,655
First Observation Date:		Acreage:	70
Last Observation Date:		SO Rank:	

## Spizella breweri

[View Species Info in MT Field Guide](#)

**Common Name:** Brewer's Sparrow

**Description:** Vertebrate Animal

### **Mapping Delineation:**

Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 100 meters in order to encompass the maximum territory size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

## Species Status

### Natural Heritage Ranks:

State: S3B  
 Global: G5

FWP CFWCS Tier: 2

### Federal Agency Status:

U.S. Fish & Wildlife Service:  
 U.S. Forest Service:  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

MT PIF Code:

## Species Occurrences

Species Occurrence Map Label:	<b>207558</b>	SO Number:	524,601
First Observation Date:	2002-06-27	Acreage:	13
Last Observation Date:	2002-06-27	SO Rank:	

Species Occurrence Map Label:	<b>207560</b>	SO Number:	553,764
First Observation Date:	2002-06-27	Acreage:	13
Last Observation Date:	2002-06-27	SO Rank:	

Species Occurrence Map Label:	<b>207562</b>	SO Number:	548,646
First Observation Date:	2002-06-27	Acreage:	13
Last Observation Date:	2004-07-02	SO Rank:	



# Species of Concern Data Report

Report Date:  
 Tuesday, October 5, 2010

Visit <http://mtnhp.org> for additional information.

## Species Occurrences

Species Occurrence Map Label: **207564** SO Number: 650,290  
 First Observation Date: 2002-06-27 Acreage: 13  
 Last Observation Date: 2004-07-02 SO Rank:

### **Ammodramus savannarum**

[View Species Info in MT Field Guide](#)

**Common Name:** Grasshopper Sparrow

**Description:** Vertebrate Animal

**Mapping Delineation:**

Confirmed breeding area based on the presence of a nest, chicks, or territorial adults during the breeding season. Point observation location is buffered by a minimum distance of 75 meters in order to encompass the majority of breeding territory sizes reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

### Species Status

**Natural Heritage Ranks:**

State: S3B  
 Global: G5

**Federal Agency Status:**

U.S. Fish & Wildlife Service:  
 U.S. Forest Service:  
 U.S. Bureau of Land Management:

[Click for Status Help](#)

**FWP CFWCS Tier: 2**

**MT PIF Code:**

## Species Occurrences

Species Occurrence Map Label: **212192** SO Number: 677,939  
 First Observation Date: 2002-06-27 Acreage: 13  
 Last Observation Date: 2002-06-27 SO Rank:

### **Oncorhynchus clarkii bouvieri**

[View Species Info in MT Field Guide](#)

**Common Name:** Yellowstone Cutthroat Trout

**Description:** Vertebrate Animal

**Mapping Delineation:**

Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

### Species Status

**Natural Heritage Ranks:**

State: S2  
 Global: G4T2

**Federal Agency Status:**

U.S. Fish & Wildlife Service:  
 U.S. Forest Service: SENSITIVE  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

**FWP CFWCS Tier: 1**

**MT PIF Code:**



# Species of Concern Data Report

Report Date:  
 Tuesday, October 5, 2010

Visit <http://mtnhp.org> for additional information.

## Species Occurrences

Species Occurrence Map Label: **264042** SO Number: 57,001  
 First Observation Date: Acreage: 638  
 Last Observation Date: SO Rank:

Species Occurrence Map Label: **265664** SO Number: 54,314  
 First Observation Date: Acreage: 92  
 Last Observation Date: SO Rank:

### Sander canadensis

[View Species Info in MT Field Guide](#)

**Common Name:** Sauger

**Description:** Vertebrate Animal

**Mapping Delineation:**

Stream reaches and standing water bodies where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a fisheries biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters, standing water bodies greater than 1 acre are buffered 50 meters, and standing water bodies less than 1 acre are buffered 30 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

### Species Status

**Natural Heritage Ranks:**

State: S2  
 Global: G5

**Federal Agency Status:**

[Click for Status Help](#)

U.S. Fish & Wildlife Service:  
 U.S. Forest Service:  
 U.S. Bureau of Land Management: SENSITIVE

**FWP CFWCS Tier:** 1

**MT PIF Code:**

## Species Occurrences

Species Occurrence Map Label: **253987** SO Number: 380  
 First Observation Date: Acreage: 1,783  
 Last Observation Date: SO Rank:

### Euderma maculatum

[View Species Info in MT Field Guide](#)

**Common Name:** Spotted Bat

**Description:** Vertebrate Animal

**Mapping Delineation:**

Confirmed area of occupancy based on the documented presence of adults or juveniles during the active season. Point observation location is buffered by a distance of 10,000 meters in order to encompass the reported maximum foraging distance for the species in British Columbia.



# Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
 Tuesday, October 5, 2010

## Species Status

### Natural Heritage Ranks:

State: S2  
 Global: G4

FWP CFWCS Tier: 1

### Federal Agency Status:

U.S. Fish & Wildlife Service:  
 U.S. Forest Service: SENSITIVE  
 U.S. Bureau of Land Management: SENSITIVE

MT PIF Code:

[Click for Status Help](#)

## Species Occurrences

Species Occurrence Map Label: **205808**

First Observation Date: 1949-06-27

Last Observation Date: 1949-06-27

SO Number: 5,770

Acreage: 77,237

SO Rank:

## Apalone spinifera

[View Species Info in MT Field Guide](#)

**Common Name:** Spiny Softshell

**Description:** Vertebrate Animal

### **Mapping Delineation:**

Stream reaches where the species presence has been confirmed through direct capture or where they are believed to be present based on the professional judgement of a biologist due to confirmed presence in adjacent areas. In order to reflect the importance of adjacent terrestrial habitats to survival, stream reaches are buffered 100 meters into the terrestrial habitat based on PACFISH/INFISH Riparian Conservation Area standards.

## Species Status

### Natural Heritage Ranks:

State: S3  
 Global: G5

FWP CFWCS Tier: 1

### Federal Agency Status:

U.S. Fish & Wildlife Service:  
 U.S. Forest Service:  
 U.S. Bureau of Land Management: SENSITIVE

MT PIF Code:

[Click for Status Help](#)

## Species Occurrences

Species Occurrence Map Label: **176363**

First Observation Date: 1806-07-29

Last Observation Date: 2006-07-11

SO Number: 11

Acreage: 43,253

SO Rank:

## Phrynosoma hernandesi

[View Species Info in MT Field Guide](#)

**Common Name:** Greater Short-horned Lizard

**Description:** Vertebrate Animal

### **Mapping Delineation:**

Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 300 meters in order to encompass habitats supporting other individuals and documented distances moved between summer and winter habitats. Otherwise the point observation is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.



# Species of Concern Data Report

Report Date:  
 Tuesday, October 5, 2010

Visit <http://mtnhp.org> for additional information.

## Species Status

### Natural Heritage Ranks:

State: S3  
 Global: G5

FWP CFWCS Tier:2

### Federal Agency Status:

U.S. Fish & Wildlife Service:  
 U.S. Forest Service: SENSITIVE  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

MT PIF Code:

## Species Occurrences

Species Occurrence Map Label: **178949** SO Number: 2,027  
 First Observation Date: 1806-12-31 Acreage: 49,431  
 Last Observation Date: 2003-12-31 SO Rank:

Species Occurrence Map Label: **178951** SO Number: 2,029  
 First Observation Date: 1904-07-01 Acreage: 49,431  
 Last Observation Date: 1904-07-16 SO Rank:

## Sceloporus graciosus

[View Species Info in MT Field Guide](#)

**Common Name:** Common Sagebrush Lizard

**Description:** Vertebrate Animal

### **Mapping Delineation:**

Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 200 meters in order to encompass habitats supporting other individuals in adjacent territories. Otherwise the point observation is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

## Species Status

### Natural Heritage Ranks:

State: S3  
 Global: G5

FWP CFWCS Tier:2

### Federal Agency Status:

U.S. Fish & Wildlife Service:  
 U.S. Forest Service:  
 U.S. Bureau of Land Management:

[Click for Status Help](#)

MT PIF Code:

## Species Occurrences

Species Occurrence Map Label: **189121** SO Number: 394,093  
 First Observation Date: 2005-05-20 Acreage: 31  
 Last Observation Date: 2005-05-20 SO Rank:

Species Occurrence Map Label: **189123** SO Number: 2,035  
 First Observation Date: 1961-07-08 Acreage: 49,431  
 Last Observation Date: 1961-07-08 SO Rank:



# Species of Concern Data Report

Report Date:  
 Tuesday, October 5, 2010

Visit <http://mtnhp.org> for additional information.

## Species Occurrences

Species Occurrence Map Label: **189131** SO Number: 582,768  
 First Observation Date: 1909-08-18 Acreage: 49,431  
 Last Observation Date: 1909-08-23 SO Rank:

Species Occurrence Map Label: **189133** SO Number: 2,036  
 First Observation Date: 1909-07-28 Acreage: 49,431  
 Last Observation Date: 1909-07-28 SO Rank:

Species Occurrence Map Label: **189165** SO Number: 394,111  
 First Observation Date: 2005-06-05 Acreage: 31  
 Last Observation Date: 2005-06-05 SO Rank:

## Heterodon nasicus

[View Species Info in MT Field Guide](#)

**Common Name:** Western Hog-nosed Snake

**Description:** Vertebrate Animal

**Mapping Delineation:**

Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 500 meters in order to encompass the maximum summer home range size reported for the congeneric Eastern Hog-nosed Snake and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.

## Species Status

**Natural Heritage Ranks:**

State: S2  
 Global: G5

**Federal Agency Status:**

U.S. Fish & Wildlife Service:  
 U.S. Forest Service: SENSITIVE  
 U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

**FWP CFWCS Tier:** 1

**MT PIF Code:**

## Species Occurrences

Species Occurrence Map Label: **180793** SO Number: 2,067  
 First Observation Date: 1909-08-27 Acreage: 77,237  
 Last Observation Date: 1909-08-27 SO Rank:

## Lampropeltis triangulum

[View Species Info in MT Field Guide](#)

**Common Name:** Milksnake

**Description:** Vertebrate Animal

**Mapping Delineation:**

Confirmed breeding area based on the presence of a resident animal of any age. Point observation location is buffered by a minimum distance of 300 meters in order to encompass the maximum summer home range size reported for the species and otherwise is buffered by the locational uncertainty associated with the observation up to a maximum distance of 10,000 meters.



Natural Resource Information System  
Montana State Library  
PO Box 201800  
Helena, MT 59620-1800  
(406)444-3009 mtnhp@mt.gov

## Species of Concern Data Report

Visit <http://mtnhp.org> for additional information.

Report Date:  
Tuesday, October 5, 2010

### Species Status

#### Natural Heritage Ranks:

State: S2  
Global: G5

FWP CFWCS Tier: 1

#### Federal Agency Status:

U.S. Fish & Wildlife Service:  
U.S. Forest Service: SENSITIVE  
U.S. Bureau of Land Management: SENSITIVE

[Click for Status Help](#)

MT PIF Code:

### Species Occurrences

Species Occurrence Map Label: **178486** SO Number: 582,975  
First Observation Date: 1909-08-01 Acreage: 77,237  
Last Observation Date: 1909-08-31 SO Rank:

Species Occurrence Map Label: **178488** SO Number: 3,199  
First Observation Date: 1971-05-01 Acreage: 4,827  
Last Observation Date: 1971-05-15 SO Rank:

Species Occurrence Map Label: **178490** SO Number: 20,866  
First Observation Date: 1947-07-17 Acreage: 19,309  
Last Observation Date: 1947-07-17 SO Rank:

Species Occurrence Map Label: **178498** SO Number: 394,295  
First Observation Date: 1950-01-01 Acreage: 278  
Last Observation Date: 1959-12-31 SO Rank:



## Ecological Information

### YELLOWSTONE RIVER CORRIDOR

The geographic scope of your data search intersected an area for which the Natural Heritage Program databases have ecological information. Such information can be useful in assessing biological values and interpreting Species of Concern data. A summary is provided below of conditions at the time of site record creation.

### YELLOWSTONE RIVER CORRIDOR

#### General Description

This Yellowstone River Corridor is located along the Yellowstone River in south central Montana. This area has a rich diversity of aquatic, riverine, wetland and adjacent upland habitats along the main-stem of the Yellowstone River from the Wyoming border to the confluence with the Bighorn River. Unlike most major rivers in the west, the Yellowstone River is free from major impoundments that have dramatically altered the hydrologic regime. The Yellowstone is characterized as a relatively free-flowing river. The intact hydrology and river dynamics give rise to important cottonwood floodplain communities. The aquatic environments include both cold water and warm water species. Adjacent uplands (within the 1 kilometer buffer) include benches, slopes, cliffs, rock outcrops and historic river-bottom that support shrublands of sagebrush (all three subspecies of *Artemisia tridentata*), grasslands consisting of bluebunch wheatgrass, and woodlands of primarily ponderosa pine (*Pinus ponderosa*).

#### Biological Significance

The Yellowstone River Corridor contains a diverse environment. In the headwaters near the Wyoming border, the river corridor includes habitat for grizzly bear (*Ursus arctos horribilis*), Canada lynx (*Lynx canadensis*), and gray wolf (*Canis lupus*). Cold water aquatic environments support Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*). Downstream warm water aquatic species include pallid sturgeon (*Scaphirhynchus albus*), paddlefish (*Polyodon spathula*), blue sucker (*Cyprinus elongatus*), the sicklefin chub (*Hybopsis meeki*) and sturgeon chub (*Macrhybopsis gelida*). River and floodplain habitats are very important ecologically; three species of cottonwoods, narrowleaf cottonwood (*Populus angustifolia*), black cottonwood (*Populus balsamifera* spp. *trichocarpa*) and plains cottonwood (*Populus deltoides*) occur in gallery forests and terraces and provide habitat for nesting, wintering and migrating bald eagle (*Haliaeetus leucocephalus*) and rookery sites for blue heron. Channel gravel and sandbars provide habitat for spiny softshell (*Trionyx spiniferus*) and persistent-sepal yellowcress (*Rorippa calcyina*), although this species has not been relocated in recent years. Riparian communities include the state significant plants beaked spikerush (*Eleocharis rostellata*) and Schweinitz's flatsedge (*Cyperus schweinitzii*). Notable shorebirds recorded from this stretch include the Interior Least Tern (*Sterna antillarum athalassos*). Two reptiles, the western hognose snake (*Heterodon nasicus*) and milk snake (*Lampropeltis triangulum*) have been reported from the river corridor.

#### Key Ecological Factors

Seasonal flooding is the principal process facilitating the establishment and regeneration of cottonwood forests and riparian communities. Consequently, the process of seasonal flooding has direct implications to the numerous plant and animal species occurring within the river corridor.

#### Exotic Species

There are infestations of numerous exotic plant species and populations of exotic fish species. Non-native salmonid species compete and / or hybridize with the Yellowstone cutthroat trout (*Oncorhynchus clarki bouvieri*).

#### Other Values

The Yellowstone River is a relatively free flowing river, restricted only by the occasional riprap along the banks and numerous irrigation diversions and pumping stations. This area captures nesting and foraging habitats of a plethora of species associated with the river and its floodplain.

#### Management Information

Agriculture, rural and urban developments and subsequent bank stabilization activities take place along the corridor. Diversions and dams for irrigation canals exit along the main stem and tributaries of the upper Yellowstone River. Irrigation is the major water use. Both irrigation and municipal use of groundwater have increased since 1970, and over 7,000 new wells have been drilled within 5 miles of either side of the bank along the upper Yellowstone River in Montana (MT Bureau of Mines and Geology Wells database).



## Ecological Information

### YELLOWSTONE RIVER CORRIDOR

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#### Information Gaps

An assessment of the health, population structure and age of cottonwoods along islands in the main channel would quantify the dynamics of cottonwood and channel bar establishment.

The geographic scope of your data search intersected an area for which the Natural Heritage Program databases have ecological information. Such information can be useful in assessing biological values and interpreting Species of Concern data. A summary is provided below of conditions at the time of site record creation.

### TWO MOON PARK

#### General Description

Two Moon Park is located in the floodplain of the the Yellowstone River in the unglaciated High Plains. This area is located within the city of Billings and occurs between low bluffs that overlook the river and the river's active channel. The landscape consists of a mosaic of communities that occur on different fluvial landforms. On recently created mid-channel bars, the vegetation is very weedy and is dominated by leafy spurge (*Euphorbia esula*) and sandbar willow (*Salix exigua*). Recently deposited side bars and sloughs are dominated by sandbar willow and the exotic reed canarygrass (*Phalaris arundinacea*), with wetter microsites occupied by monospecific stands of reed canarygrass.

Higher portions of the floodplain are a mosaic of plains cottonwood / western snowberry (*Populus deltoides* / *Symphoricarpos occidentalis*) woodland and herbaceous openings. The cottonwood stands are open woodlands with a locally abundant mid-canopy of the exotic Russian olive (*Elaeagnus angustifolia*). The herbaceous layer is dominated by the exotic grasses Canada bluegrass (*Poa compressa*), Kentucky bluegrass (*Poa pratensis*), and smooth brome (*Bromus inermis*). The herbaceous openings are also largely dominated by the same exotic grasses; however, patches of western wheatgrass (*Pascopyrum smithii*) still dominate some low-lying swales, although some of these are being invaded by cheatgrass (*Bromus tectorum*). Seepy, groundwater-receiving sites at the base of the bluffs are dominated by broadleaf cattail (*Typha latifolia*) and reed canarygrass. A small stand of peachleaf willow (*Salix amygdaloides*) occurs along one of the sloughs.

#### Biological Significance

No special status plants or animals were observed. Two state significant plant communities, plains cottonwood / western snowberry (*Populus deltoides* / *Symphoricarpos occidentalis*), and peachleaf willow (*Salix amygdaloides*), were documented in fair to poor condition.

#### Key Ecological Factors

Flooding, and the associated erosion, deposition, and channel migration, is the dominant process influencing vegetation. Vegetation is also influenced by microtopography and by seepage from the toeslope of the bluffs.

#### Exotic Species

Exotic grasses dominate the ground layer in this area, especially Kentucky bluegrass (*Poa pratensis*) and smooth brome (*Bromus inermis*). Reed canarygrass (*Phalaris arundinacea*) dominates many mesic portions of the area, such as sloughs. Cheatgrass (*Bromus tectorum*) currently occurs as several small monospecific stands, but it is likely to spread. Leafy spurge (*Euphorbia esula*) is scattered in small patches except on mid-channel bars where it is the dominant species. Hound's tongue (*Cynoglossum officinale*) and Canada thistle (*Cirsium arvense*) are common throughout the area. Russian olive (*Elaeagnus angustifolia*) is well established in the cottonwood stands. It is likely that as the cottonwoods die (and many of the cottonwoods are mature or senescent), these stands will convert to a Russian olive-dominated community. This conversion will have unknown habitat and biodiversity implications.

#### Other Values

This area offers habitat for many Neotropical migrant birds and other wildlife. This area is also locally important because of habitat fragmentation in the greater Billings metropolitan area.

#### Management Information

This area occurs as an isolated fragment of riparian vegetation within the urban/industrial context of Billings. Although it is unlikely that native species will reclaim the herbaceous layer, the more aggressive exotic species such as leafy spurge (*Euphorbia esula*) and cheatgrass (*Bromus tectorum*) could be controlled.



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Program

Natural Resource Information System  
Montana State Library  
PO Box 201600  
Helena, MT 59620-1600  
(406) 444-3009 [mtnhp@state.mt.us](mailto:mtnhp@state.mt.us)

## Natural Heritage Data Report

Tuesday, October 5, 2010

Visit <http://mtnhp.org> for additional information.

### Ecological Information

#### TWO MOON PARK

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#### Information Gaps

Information on the history of gravel extraction and grazing in this area is lacking.

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*More detailed data on vegetation communities in this area may be available; if you are interested, contact the Montana Natural Heritage Program at (406) 444-5354 or [mtnhp@mt.gov](mailto:mtnhp@mt.gov)*

# A GUIDE TO WETLAND AND DEEPWATER HABITATS CLASSIFICATION USED IN THE NATIONAL WETLAND INVENTORY (NWI) MAPPING IN MONTANA



## **Purpose:**

The Montana Wetland and Riparian Mapping Center uses the Cowardin classification system (Cowardin et al. 1979) adopted by the National Wetland Inventory (NWI) for wetlands (FGDC Wetlands Subcommittee, 2009). The riparian system follows the U.S. Fish and Wildlife Service (USFWS) standard (U.S. Fish and Wildlife Services, 2009). NWI is the standard classification system for wetland mapping across the United States. For ease of display and interpretation the NWI attributes have been grouped into major wetland and riparian types.

## **Wetlands**

In Montana, there are three NWI wetland systems: Palustrine, Lacustrine, and Riverine.

### **PALUSTRINE:**

- In Montana, this system includes all wetlands dominated by trees, shrubs, and emergent, herbaceous vegetation.
- Wetlands lacking vegetation are included if they are less than 8 hectares (20 acres) in size and are less than 2 meters (6.6 feet) deep in the deepest portion of the wetland.

#### ***Freshwater pond:***

- Wetlands with vegetation growing on or below the water surface for most of the growing season.

#### ***Freshwater Emergent Wetland:***

- Wetlands with erect, rooted herbaceous vegetation present during most of the growing season.

#### ***Freshwater Shrub Wetland:***

- Wetlands dominated by woody vegetation less than 6 meters (20 feet) tall. Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

#### ***Freshwater Forested Wetland:***

- Wetlands dominated by woody vegetation greater than 6 meters (20 feet) tall.

### **LACUSTRINE (Lakes):**

- This system includes any large body of water that is greater than 8 hectares (20 acres) in size OR is more than 2 meters (6.6 feet) deep.
- This system is usually found in a topographic depression. It may also be formed by damming of a river channel.

### **RIVERINE (Rivers and streams and shore):**

- This system includes all wetlands and deepwater habitats that are within natural and artificial channels.
- These systems contain either continuous (perennial) or intermittently flowing water.

### **RIPARIAN:**

The Wetland and Riparian Mapping Center uses the riparian classification system developed by the U.S. Fish and Wildlife Service to map riparian areas in Montana. The riparian classification types listed below are followed by the coding convention used for mapping purposes.

- Plant communities (trees, shrubs and/or herbaceous plants) contiguous to rivers, streams, lakes, or drainage ways.
- Riparian areas are influenced by both surface and below surface hydrology.
- The plant species present in riparian areas are distinctly different from plant species found in adjacent areas.
- Plants in riparian areas demonstrate more vigorous or robust growth forms than in adjacent areas.

#### **Riparian Classes:**

##### ***Scrub-Shrub (SS):***

- This type of riparian area is dominated by woody vegetation that is less than 6 meters (20 feet) tall.
- Woody vegetation includes tree saplings and trees that are stunted due to environmental conditions.

##### ***Forested (FO):***

- This riparian class has woody vegetation that is greater than 6 meters (20 feet) tall.

##### ***Emergent (EM):***

- Riparian areas that have erect, rooted herbaceous vegetation during most of the growing season.

## References

- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service, Washington, D.C. FWS/OBS-79/31.
- FGDC Wetlands Subcommittee. 2009. Wetlands Mapping Standard. U.S. Geological Survey, Reston, Virginia.
- U.S. Fish and Wildlife Services. 2009. A system for mapping riparian areas in the western United States. Division of Habitat and Resource Conservation, Branch of Resource and Mapping Support, Arlington, Virginia.

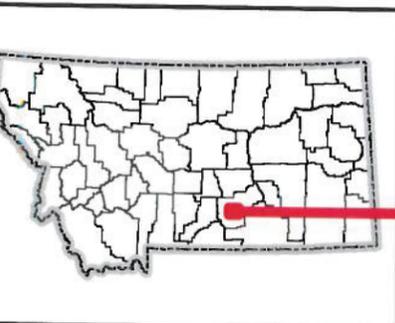


# Montana Species of Concern Billings Bypass Wetlands

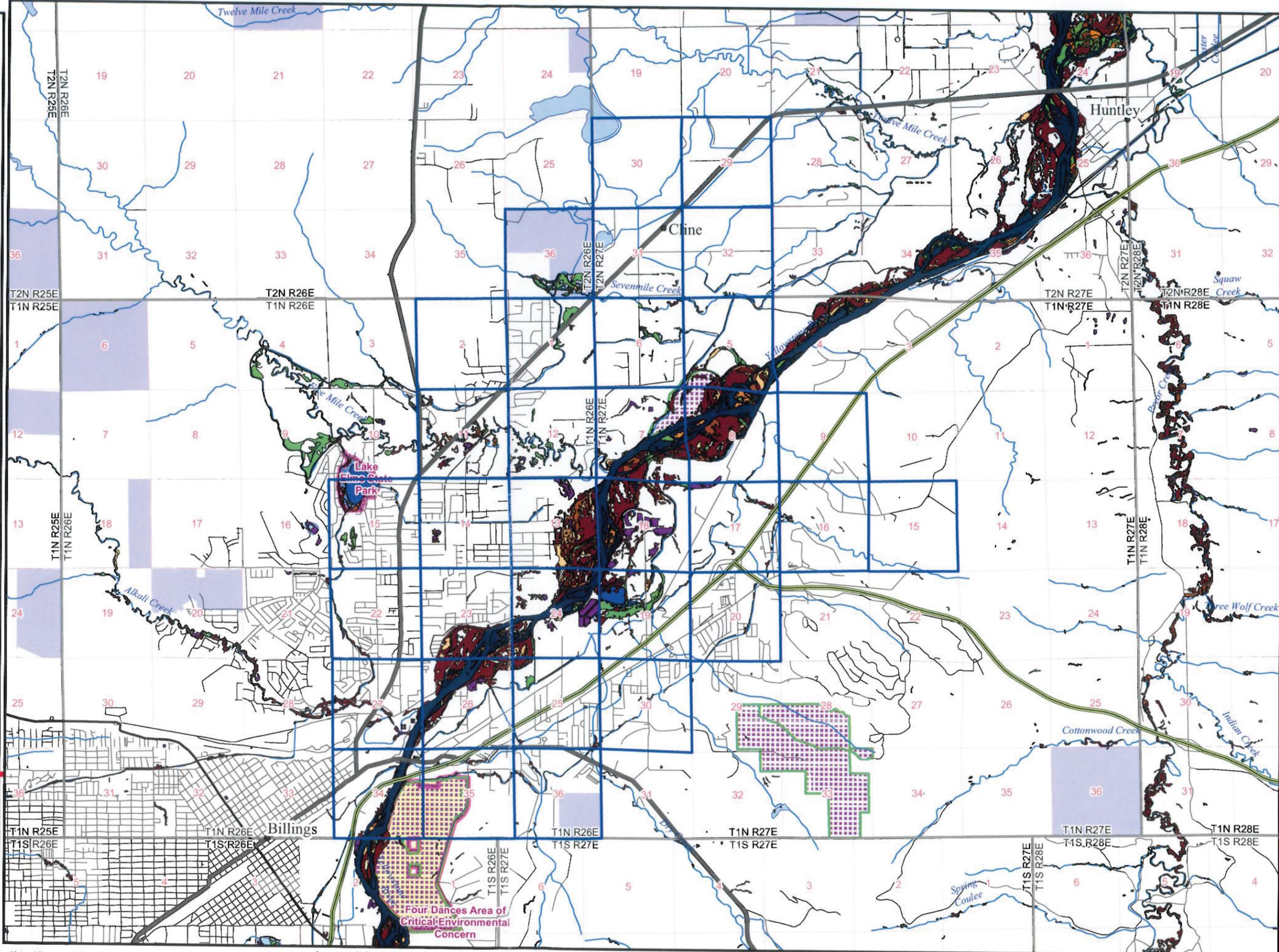
SPECIES OF CONCERN: A polygon feature representing only what is known from direct observation with a defined level of certainty regarding the spatial location of the feature.

### Wetland and Riparian Classes

-  Lacustrine
-  Freshwater Pond
-  Freshwater Emergent Wetland
-  Freshwater Shrub Wetland
-  Freshwater Forested Wetland
-  Riverine
-  Riparian Emergent
-  Riparian Shrub
-  Riparian Forested



Not all legend items may occur on the map.  
Features shown on this map do not imply public access to any lands.  
This map displays management status, which may vary from ownership.



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406 444-5354 <http://mtnhp.org> [mtnhp@mt.gov](mailto:mtnhp@mt.gov)

0 0.5 1 2 3 4 Miles  
Map Document: K:\REQUESTS\Requests\11\MDT\11mdt0006\11mdt0006.mxd (10/5/2010)





data request

**From:** Lee Stragis  
**Sent:** Thursday, June 02, 2011 8:34 AM  
**To:** 'MTNHP'  
**Subject:** RE: data request

Thank you Martin!

***Licia (Lee) A. Stragis***  
 Senior Biologist  
 David Evans and Associates, Inc  
 Spokane, WA  
 509-232-8709

---

**From:** Miller, Martin [mailto:martinm@mt.gov] **On Behalf Of** MTNHP  
**Sent:** Thursday, June 02, 2011 8:29 AM  
**To:** Lee Stragis  
**Subject:** RE: data request

Jesse,

The attached zip file contains a personal geodatabase with a layer for Montana animal species of concern (SOC), and a layer for ecological sites. There were no plant species of concern in the vicinity of the project. I used a one mile buffer around the Billings East quad in performing the query. Metadata (not available for sites) and explanatory material are included.

Please let me know if you have any questions.

Thanks,

Martin Miller  
 (406) 444-3290  
 Data Assistant  
 Montana Natural Heritage Program

---

**From:** Lee Stragis [mailto:Lxst@deainc.com]  
**Sent:** Wednesday, June 01, 2011 4:02 PM  
**To:** MTNHP  
**Subject:** RE: data request

Hi Martin, attached is the signed data use acknowledgement. I made an address change. Thanks for your prompt attention.

***Licia (Lee) A. Stragis***  
 Senior Biologist  
 David Evans and Associates, Inc  
 Spokane, WA  
 509-232-8709

---

**From:** Miller, Martin [mailto:martinm@mt.gov] **On Behalf Of** MTNHP  
**Sent:** Wednesday, June 01, 2011 2:47 PM  
**To:** Lee Stragis  
**Subject:** RE: data request

Hi, Mandy,

I can provide you with the information you have requested in a personal geodatabase. In order to do so, I'm required to obtain a signed data use acknowledgement.

A sample document is attached. Please read it and return a signed version to me. A copy with your scanned signature is fine, or fax it to me at 406-444-0266.

Let me know if you have any questions.

file://P:\MDOT0000-0019 - Billings\Planning\Resource Reports\BRR\Appendices\Appendix A\MTNHP dat... 9/15/2011

Thanks,

Martin Miller  
(406) 444-3290  
Data Assistant  
Montana Natural Heritage Program  
[martinm@mt.gov](mailto:martinm@mt.gov)

---

**From:** Lee Stragis [mailto:Lxst@deainc.com]  
**Sent:** Wednesday, June 01, 2011 11:24 AM  
**To:** MTNHP  
**Subject:** data request

Martin Miller or other NHP staff,

Good Morning,

I am currently working on an EIS project for the Montana Department of Transportation

and would like to request NHP GIS spatial data and element

occurrence sheets for plants and animals in the project area as well

as the Streamnet Data. An electronic format would be fine.

Here is the project information

Project name: Billings Bypass

MDT:NCPD 56 (55) Control Number 4199

TRS: Entire Billings East Quadrangle of Yellowstone County

Please feel free to call or email me with any questions or Concerns,

Thank you for your time,

***Licia (Lee) A. Stragis***  
Senior Biologist  
David Evans and Associates, Inc  
Spokane, WA  
509-232-8709



# United States Department of the Interior

## Fish and Wildlife Service

Ecological Services  
Montana Field Office  
585 Shepard Way  
Helena, Montana 59601-6287



Phone: (406) 449-5225 Fax: (406) 449-5339

M.17 FHWA (I)

July 26, 2012

Bill Semmens  
Montana Department of Transportation  
2701 Prospect Avenue  
PO Box 201001  
Helena, MT 59620-1001

Dear Mr. Semmens:

This is in response to your June 28, 2012 request from the Montana Department of Transportation (Department) for concurrence with your effects determinations on federally listed species affected by the proposed Billings Bypass (NCPD 56(55)) project in Yellowstone County, Montana. The purpose of this project is to improve access, connectivity, and mobility between I-90 and Old Highway 312 in the eastern area of Billings, Montana through construction of a new arterial roadway and a new bridge across the Yellowstone River. This letter addresses only project-related effects to listed species that may occur in the project vicinity in accordance with the Endangered Species Act of 1973 (Act), as amended (16 U.S.C. 1531 et seq.), and does not address the overall environmental acceptability of the proposed actions.

We have reviewed the biological assessment and amended biological assessment for the proposed project and concur with your determination that the project is not likely to adversely affect whooping crane (*Grus americana*), and acknowledge your determination that the proposed project would have no effect on the black-footed ferret (*Mustela nigripes*). We also acknowledge your determinations that the proposed action is not likely to jeopardize the existence of the greater sage-grouse (*Centrocercus urophasianus*) and Sprague's pipit (*Anthus spragueii*), which are candidate species. We base our concurrences on the information displayed in the biological assessment, amended biological assessment, and biological resource report.

This concludes informal consultation pursuant to regulations 50 CFR 402.13 implementing the Act. This project should be re-analyzed if new information reveals effects of the action that

may affect federally-listed species or critical habitat, or if the project is modified in a manner that causes an effect not considered in this consultation.

We appreciate the Department's efforts to conserve fish and wildlife resources. If you have questions about this letter, please contact Mike McGrath at (406) 449-5225, extension 201, or at [mike\\_mcgrath@fws.gov](mailto:mike_mcgrath@fws.gov).

Sincerely,



R. Mark Wilson  
Field Supervisor

Copies to:

Bonnie Gundrum, Montana Department of Transportation, Helena, MT

Brian Hasselbach, Federal Highways Administration, Helena, MT

# **BILLINGS BYPASS**

Biological Resources Report

November 2011

## **APPENDIX B PHOTOGRAPHS**





**Figure 1. Johnson Lane Option 2 alignment, view north, wetland and gravel pit.**



**Figure 2. Johnson Lane Option 2 alignment, view west from compost facility to gravel pit.**



**Figure 3. Johnson Lane Option 2 alignment, view west from pond/wetland to gravel pit.**



**Figure 4. Johnson Lane Option 1 alignment view east, south of Coulson Road.**



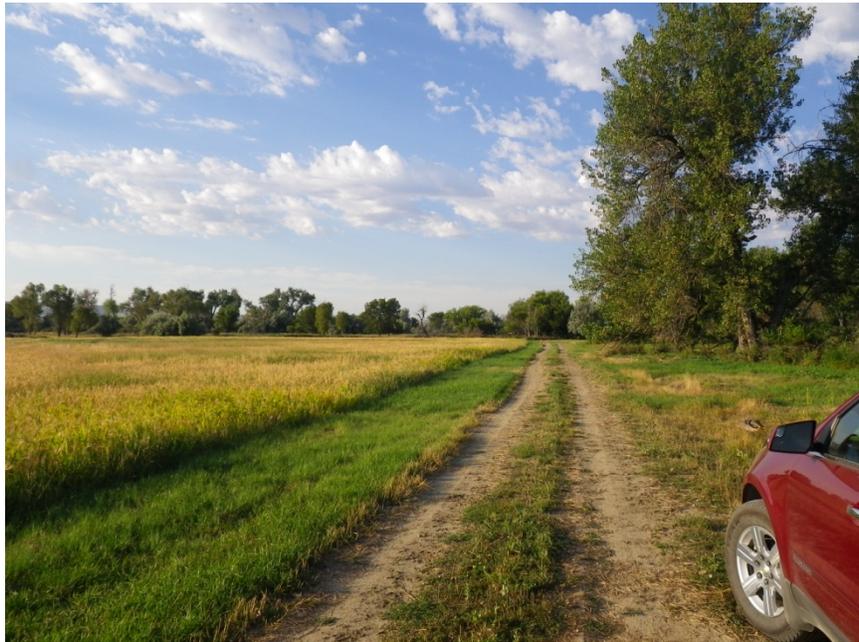
**Figure 5. Johnson Lane Option 1 alignment, view east, south of Coulson Road toward Coulson ditch.**



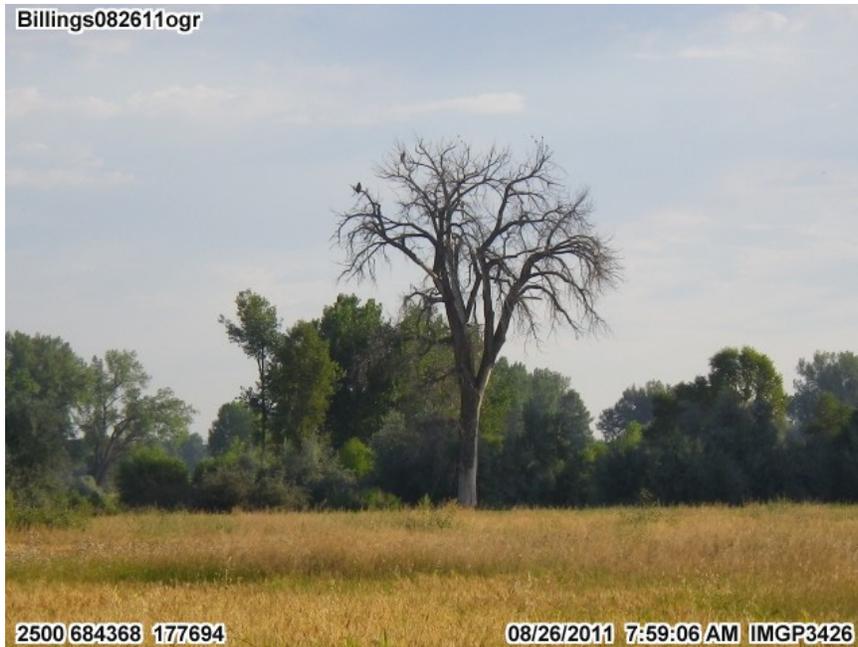
**Figure 6. Muskrat in irrigation canal within Johnson Lane Option 1 alignment south of Coulson Road.**



**Figure 7. Johnson Lane alignments, view south toward railroad.**



**Figure 8. Johnson Lane alignments, view south across agriculture grain fields.**



**Figure 9. Bald Eagle communal roost snag, south of Yellowstone River, view north, north of Johnson Lane Option 1 alignment.**



**Figure 10. Central bridge alignment view northwest across Yellowstone channel.**



**Figure 11. Yellowstone River riparian area, mature large diameter cottonwood.**



**Figure 12. Wildlife tracks on Yellowstone River channel.**



**Figure 13. Yellowstone River crossing, view west. Bluff with sandstone cliffs.**



**Figure 14. Yellowstone River crossing, view south from Five Mile Road alignment.**



**Figure 15. Sage steppe habitat, in the area of the mouth of Five Mile Creek, outside of alignment corridor, in between alignments. View northeast.**



**Figure 16. Five Mile Road alignment, view north from Yellowstone River bluff.**



**Figure 17. Five Mile Road alignment view north, north of Dover Road toward Hwy 312.**



**Figure 18. Mary Street Option 1 alignment, Yellowstone River crossing, view east.**



**Figure 19. Mary Street Option 1 alignment, view east.**



**Figure 20. Mary Street Option 1 alignment, view west.**



**Figure 21. Mary Street Option 1 alignment, cliffs of Five Mile Creek, view southeast.**



**Figure 22. Mary Street Option 2 alignment, view east across Five Mile Creek, sandstone cliffs.**



**Figure 23. Mary Street Option 2 alignment, view southwest across Five Mile Creek from bluff.**



**Figure 24. Mary Street intersection alignment, view east.**



**Figure 25. Wetland AC, view north.**



**Figure 26. Wetland AD, view southeast.**



**Figure 27. Wetland AF, view north.**



**Figure 28. Wetland AG, view south, active channel.**



**Figure 29. Wetland AG, view north, active channel.**



**Figure 30. Wetland AH, view east.**



**Figure 31. Wetland AI, view west.**



**Figure 32. Wetland AK, view west.**



**Figure 33. Wetland C, view north.**



**Figure 34. Wetland D, view north.**



**Figure 35. Wetland D9, view north.**



**Figure 36. Wetland E, view east.**



**Figure 37. Wetland F, view north.**



**Figure 38. Wetland I, view northeast.**



**Figure 39. Wetland J, view west.**



**Figure 40. Wetland L2, view west.**



**Figure 41. Wetland L4, view northwest.**



**Figure 42. Wetland M, view east.**



Figure 43. Wetland O, view east, overhead.



Figure 44. Wetland P, view south.



**Figure 45. Wetland R, view east.**



**Figure 46. Wetland S, view east.**



**Figure 47. Wetland T, view northeast, representative vegetation, one of three intersection locations.**



**Figure 48. Wetland W, view south.**



**Figure 49. Wetland Y, view south.**

# **BILLINGS BYPASS**

Biological Resources Report

November 2011

## **APPENDIX C SPECIES LIST**



## BILLINGS BYPASS VEGETATION

### Plant Species

Common Name	Scientific Name
alfalfa	<i>Medicago sativa</i>
American bulrush	<i>Scirpus americanus</i>
American speedwell	<i>Veronica americana</i>
arumleaf arrowhead	<i>Sagittaria cuneata</i>
ash	<i>Fraxinus latifolia</i>
awl-fruited sedge	<i>Carex stipata</i>
balsam poplar	<i>Populus basamifera</i>
Baltic rush	<i>Juncus balticus</i>
barnyard grass	<i>Echinochloa crusgalli</i>
big sage	<i>Artemisia tridentata</i>
bittersweet	<i>Solanum dulcamara</i>
blue spruce	<i>Picea pungens</i>
bluebunch wheatgrass	<i>Agropyron intermedium</i>
bluebunch wheatgrass	<i>Agropyron spicatum</i>
boxelder	<i>Acer negundo</i>
broomcorn millet	<i>Panicum miliceum</i>
bullrush species	<i>Scirpus sp.</i>
Canada thistle	<i>Cirsium arvense</i>
cattail	<i>Typha latifolia</i>
cheatgrass	<i>Bromus tectorum</i>
cinquefoil	<i>Potentilla sp.</i>
clasping peppergrass	<i>Lepidium perfoliatum</i>
common dogbane	<i>Apocynum cannubinum</i>
common horsetail	<i>Equisetum arvense</i>
common hound's-tongue	<i>Cynoglossum officinale</i>
common rabbit-brush	<i>Chrysothamnus nauseosus</i>
common spikerush	<i>Eleocharis palustris</i>
common sunflower	<i>Helianthus annuus</i>
common timothy	<i>Phleum pratense</i>
Common touch-me-not	<i>Impatiens noli-tangere</i>
coyote williw	<i>Salix exigua</i>
crack willow	<i>Salix fragilis</i>
crested wheat-grass	<i>Agropyron cristatum</i>
cultivated wheat	<i>Triticum aestivum</i>
curly dock	<i>Rumex crispus</i>
curly-cup gumweed	<i>Grindelia squarrosa</i>
dagger-leaf rush	<i>Juncus ensifolius</i>
dandelion	<i>Taraxacum sp.</i>
erect knotweed	<i>Polygonum erecta</i>
field bindweed	<i>Convolvulus arvensis</i>
field mint	<i>Mentha arvensis</i>
field pennycress	<i>Thlaspi arvense</i>
fowl bluegrass	<i>Poa palustris</i>
goldenweed	<i>Haplopappus sp.</i>
goosegrass	<i>Eleusine indica</i>
green bristlebrush	<i>Setaria verticillata</i>
hairgrass dropseed	<i>Sporobolus airoides</i>
hairy nightshade	<i>Solanum sarrachoides</i>
hardstem bullrush	<i>Scirpus acutus</i>

## BILLINGS BYPASS VEGETATION

Common Name	Scientific Name
horseweed	<i>Conyza canadensis</i>
Idaho fescue	<i>Festuca idahoensis</i>
indian ricegrass	<i>Oryzopsis hymenoides</i>
Junegrass	<i>Koeleria macrantha</i>
Kentucky bluegrass	<i>Poa pratensis</i>
lambsquartars	<i>Chenopodium alba</i>
leafy spurge	<i>Euphorbia esula</i>
mariposa	<i>Calochortus sp.</i>
meadow fescue	<i>Festuca pratensis</i>
meadow foxtail	<i>Alopecurus pratensis</i>
meadow goldenrod	<i>Solidago canadensis</i>
medusahead rye	<i>Elymus caput-medusae</i>
monkey flower	<i>Mimulus guttatus</i>
mullein	<i>Verbascum thapsus</i>
Nebraska sedge	<i>Carex nebrascensis</i>
needle-and-thread grass	<i>Stipa comata</i>
orchard grass	<i>Dactylis glomerata</i>
ornamental plum	<i>Prunus sp. var</i>
peppermint	<i>menta peperita</i>
Plains cottonwood	<i>Populus deltoides</i>
pondweed	<i>Potamogeton sp.</i>
prairie sandgrass	<i>Calamovilfa longifolia</i>
quackgrass	<i>Agropyron repens</i>
rabbitfootgrass	<i>Polypogon mospeliensis</i>
ragweed	<i>Ambrosia sp.</i>
ragwort	<i>Senecio sp.</i>
red fescue	<i>Festuca rubra</i>
red-osier dogwood	<i>Cornus sericea</i>
redtop	<i>Agrostis alba</i>
Reed canarygrass	<i>Phalaris arundinacea</i>
Rocky Mountain beeplant	<i>Cleome serrulata</i>
Rocky Mountain juniper	<i>Juniperus scopulorum</i>
rough fescue	<i>Festuca scabrella</i>
Russian knapweed	<i>Centaurea repens</i>
Russian olive	<i>Elaeagnus angustifolia</i>
saltcedar	<i>Tamarix parviflora</i>
saltgrass	<i>Distichlis spicata</i>
saltmeadow rush	<i>Juncus geardii</i>
sandwort	<i>Arenaria sp</i>
scotch thistle	<i>Onopordum acanthium</i>
sedges	<i>Carex sp.</i>
sheep sorrel	<i>Rumex acetosa</i>
showy milkweed	<i>Asclepias speciosa</i>
Siberian elm	<i>Ulmus pumila</i>
silver buffaloberry	<i>Shepherdia argentia</i>
six-weeks fescue	<i>Vulpia octoflora</i>
slender rush	<i>Juncus tenuis</i>
slim-leaf goosesfoot	<i>Chenopodium leptophyllum</i>
small-fruited bulrush	<i>Scirpus microcarpus</i>
smooth brome	<i>Bromus inermis</i>

## BILLINGS BYPASS VEGETATION

Common Name	Scientific Name
smooth scouring rush	<i>Equisetum laevigatum</i>
smooth sumac	<i>Rhus trilobata</i>
soft brome	<i>Bromus mollis</i>
soft rush	<i>Juncus effusus</i>
sowthistle	<i>Sonchus arvensis</i>
spearmint	<i>Mentha spicata</i>
squirreltail grass	<i>Sitanion hystrix</i>
tarragon	<i>Artemesia dracunculus</i>
teasel	<i>Dipsacus sylvestris</i>
three-square bulrush	<i>Scirpus pungens</i>
Torry's rush	<i>Juncus torreyi</i>
tufted hairgrass	<i>Deschampsia cespitosa</i>
tumblemustard	<i>Sisymbrium altissimum</i>
tumbleweed	<i>Salsola kali</i>
water sedge	<i>Carex aquatilis</i>
watercress	<i>Rorippa nasturtium-aquaticum</i>
wavy-leaved thistle	<i>Cirsium undulatum</i>
Western fescue	<i>Festuca occidentalis</i>
western snowberry	<i>Symphoricarpos occidentalis</i>
western wheatgrass	<i>Agropyron smithii</i>
white clover	<i>Trifolium repens</i>
white sweetclover	<i>Melilotus alba</i>
whitetop	<i>Cadaria draba</i>
wild licorice	<i>Glycyrrhiza lepidata</i>
willow	<i>Salix sp.</i>
willow-herb	<i>Epilobium sp.</i>
witch grass	<i>Panicum capillare</i>
wooly sedge	<i>Carex lanuginosa</i>
wormwood	<i>Artemesia absinthium</i>
yarrow	<i>Achilea millefolium</i>
yellow salsify	<i>Tragopyron dubius</i>
yellow sweetclover	<i>Melilotus officialis</i>
yucca	<i>Yucca glauca</i>

## BILLINGS BYPASS WILDLIFE

### Bird Species

Common Name	Scientific Name	Habitats
American goldfinch	<i>Carduelis tristis</i>	Riparian
American kestrel	<i>Falco sparverius</i>	Project-wide
American robin	<i>Turdus migratorius</i>	Project-wide
Bald eagle <sup>1</sup>	<i>Haliaeetus leucocephalus</i>	Water
Barn swallow	<i>Hirundo rustica</i>	Water
Belted kingfisher	<i>Ceryle alcyon</i>	Water
Black-billed magpie <sup>2</sup>	<i>Pica hudsonia</i>	Project-wide
Black-capped chickadee	<i>Parus atricapillus</i>	Riparian
Brewer's blackbird	<i>Euphagus cyanocephalus</i>	Project-wide
Canada goose	<i>Branta canadensis</i>	Water
Cliff swallow	<i>Hirundo pyrrhonota</i>	Upland
Common nighthawk	<i>Chordeiles minor</i>	Upland
Common raven	<i>Corvus corax</i>	Project-wide
Common yellowthroat	<i>Geothlypis trichas</i>	water
Dark-eyed junco	<i>Junco hyemalis</i>	Riparian
Double-crested cormorant	<i>Phalacrocorax auritus</i>	Water
Eastern kingbird	<i>Tyrannus tyrannus</i>	Upland
European starling <sup>2</sup>	<i>Sturnus vulgaris</i>	Project-wide
Flycatcher	<i>Empidonax sp. et al.</i>	Riparian
Golden eagle	<i>Aquila chrysaetos</i>	Project wide
Gray catbird	<i>Dumetella carolinensis</i>	Upland
Great blue heron <sup>1</sup>	<i>Ardea herodias</i>	Wetlands
Great horned owl	<i>Bubo virginianus</i>	Project-wide
Greater yellowlegs	<i>Tringa melanoleuca</i>	Water
Gull	<i>Larus spp.</i>	Water
Hairy woodpecker	<i>Picoides villosus</i>	Riparian
House finch	<i>Carpodacus mexicanus</i>	Project-wide
House wren	<i>Troglodytes aedon</i>	project -wide
Killdeer	<i>Charadrius vociferus</i>	Upland
Mallard	<i>Anas platyrhynchos</i>	Water
Marsh Wren	<i>Cistothorus palustris</i>	Water
Mountain bluebird	<i>Sialia currucoides</i>	Upland
Mountain chickadee	<i>Poecile gambeli</i>	Upland
Mourning dove	<i>Zenaida macroura</i>	Project-wide
Northern flicker	<i>Colaptes auratus</i>	Riparian
Northern harrier	<i>Circus cyaneus</i>	Upland
Osprey	<i>Pandion haliaetus</i>	Water
Pied-billed grebe	<i>Podilymbus podiceps</i>	Water
Pine siskin	<i>Carduelis pinus</i>	Upland
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Water

## BILLINGS BYPASS WILDLIFE

Common Name	Scientific Name	Habitats
Red-tailed hawk	<i>Buteo jamaicensis</i>	Upland
Ring-necked pheasant <sup>2</sup>	<i>Phasianus colchicus</i>	Project-wide
Rock dove <sup>2</sup>	<i>Columba livia</i>	Project-wide
Sandhill crane	<i>Grus canadensis</i>	Water
Snow goose	<i>Chen caerulescens</i>	Water
Solitary sandpiper	<i>Tringa solitaria</i>	Water
Song sparrow	<i>Melospiza melodia</i>	Project-wide
Spotted sandpiper	<i>Actitis macularia</i>	Water
Spotted towhee	<i>Pipilo maculatus</i>	Riparian
Swan	<i>Cygnus sp.</i>	Water
Three-toed woodpecker	<i>Picoides tridactylus</i>	Riparian
Tree swallow	<i>Tachycineta bicolor</i>	Riparian
Turkey vulture	<i>Cathartes aura</i>	Project-wide
Vesper sparrow	<i>Pooecetes gramineus</i>	Upland
Warbler	<i>Parulidae sp. et al.</i>	Project-wide
Western grebe	<i>Aechmophorus occidentalis</i>	Water
Western meadowlark	<i>Sturnella neglecta</i>	Upland
Western wood-pewee	<i>Contopus sordidulus</i>	Upland
White-crowned sparrow	<i>Zonotrichia leucophrys</i>	Upland
Wild turkey <sup>2</sup>	<i>Meleagris gallopavo</i>	Riparian
Winter wren	<i>Troglodytes troglodytes</i>	Riparian
Yellow-breasted chat	<i>Icteria virens</i>	Riparian
Yellow warbler	<i>Dendroica petechia</i>	Riparian

<sup>1</sup>Montana species of concern

<sup>2</sup>Not protected by MBTA

## BILLINGS BYPASS WILDLIFE

### Mammal Species

Common Name	Scientific Name	Habitats
American badger	<i>Taxidea taxus</i>	Upland
American beaver	<i>Castor canadensis</i>	Water
Black bear	<i>Ursus americanus</i>	Project-wide
Cottontail rabbit	<i>Sylvilagus spp.</i>	Project-wide
Coyote	<i>Canis latrans</i>	Project-wide
Fox squirrel	<i>Sciurus niger</i>	Riparian
Mountain lion	<i>Felis concolor</i>	River Corridor
Mule deer	<i>Odocoileus hemionus</i>	Upland
Muskrat	<i>Ondatra zibethicus</i>	Water
Northern pocket gopher	<i>Thomomys talpoides</i>	Upland
Northern river otter	<i>Lutra canadensis</i>	River Corridor
Raccoon	<i>Procyon lotor</i>	Project-wide
Red fox	<i>Vulpes vulpes</i>	River Corridor
Squirrel sp.	<i>Sciurissp.</i>	Project wide
Striped skunk	<i>Mephitis mephitis</i>	Project-wide
Whitetail deer	<i>Odocoileus virginianus</i>	Project-wide
Whitetail jackrabbit	<i>Lepus townsendi</i>	Upland

<sup>1</sup>Montana species of concern

### Reptile and Amphibian Species

Common Name	Scientific Name	Habitats
Common sagebrush lizard <sup>1</sup>	<i>Sceloporus graciosus</i>	Upland
Gopher snake	<i>Pituophis catenifer</i>	Upland
terrestrial garter snake	<i>Thamnophis elegans</i>	Project-wide
Woodhouse's toad	<i>Bufo woodhousii</i>	Project-wide
American bullfrog	<i>Rana catesbeiana</i>	Water
northern leopard frog	<i>Rana pipiens</i>	Water
Snapping turtle <sup>1</sup>	<i>Chelydra serpentina</i>	Water
Red-eared slider	<i>Trachemys scripta</i>	Water

<sup>1</sup>Montana species of concern

BILLINGS BYPASS WILDLIFE

**Fish Species**

Common Name	Scientific Name	Spawning Period	Five Mile Creek	Yellowstone River
<b>Minnow family</b>	<b>Cyprinidae</b>			
Common carp	<i>Cyprinus carpio</i>	May - July	P	C
Longnose dace	<i>Rhinichthys cataractae</i>	late spring - early summer	C	C
Lake chub	<i>Couesius plumbeus</i>	May - June	C	-
Flathead chub	<i>Platygobio gracilis</i>	July	C	C
Emerald shiner	<i>Notropis atherinoides</i>	July - Aug	P	C
Sand shiner	<i>Notropis streamineus</i>	May - Aug	C	C
Fathead minnow	<i>Pimephales promelas</i>	May - Aug	C	C
Western silvery minnow	<i>Hybognathus argyritis</i>	June - July	C	C
<b>Suckers</b>	<b>Catostomidae</b>			
River carpsucker	<i>Carpodes carpio</i>	May - July	P	C
Smallmouth buffalo	<i>Ictiobus bubalus</i>	May	P	C
Shorthead redhorse	<i>Moxostoma macrolepidotum</i>	April - May	C	C
White sucker	<i>Catostomus commersoni</i>	April - June	C	C
Mountain sucker	<i>Catostomus platyrhynchus</i>	June - July	C	C
Longnose sucker	<i>Catostomus catostomus</i>	April - early July	C	C
<b>Catfish</b>	<b>Ictaluridae</b>			
Stonecat	<i>Nocturus falvus</i>	June - Aug	C	C
Channel catfish	<i>Ictalurus punctatus</i>	May - July	P	C
Black bullhead	<i>Ameiurus melas</i>	May - early July	P	C
<b>Cod</b>	<b>Gadidae</b>			
Burbot	<i>Lota lota</i>	Dec - Feb	-	C
<b>Sticklebacks</b>	<b>Gasterosteidae</b>			
Brook stickleback	<i>Culaea inconstans</i>	May - June	C	C
<b>Pike</b>	<b>Esocidae</b>			
Tiger muskellunge	<i>Esox masquinongy x lucius</i>	Sterile hybrid	P	C
<b>Mooneye and Goldeye</b>	<b>Hiodontidae</b>			
Goldeye	<i>Hiodon alosoides</i>	Late March - May	P	C
<b>Sunfish</b>	<b>Centrarchidae</b>			
Largemouth bass	<i>Micropterus salmoides</i>	May - mid-July	P	C
Smallmouth bass	<i>Microperus dolomieu</i>	May - June	P	C
Black crappie	<i>Pomoxis nigromaculatus</i>	May - June	P	C
Green sunfish	<i>Lepomis cyanellus</i>	May - midsummer	P	C
Pumpkinseed	<i>Lepomis gibbosus</i>	late spring - early summer	P	C
Bluegill	<i>Lepomis macrochirus</i>		P	C
<b>Perch</b>	<b>Percidae</b>			
Walleye	<i>Stizostedion vitreum</i>	April	P	C
Sauger	<i>Stizostedion canadense</i>	April - May	P	C
<b>Trout and Salmon</b>	<b>Salmonidae</b>			
Yellowstone cutthroat	<i>Oncorhynchus clarki bouvieri</i>	spring - early summer	P	P
Rainbow trout	<i>Oncorhynchus mykiss</i>	April - July	P	C
Brown trout	<i>Salmo trutta</i>	Oct - Dec	C	C
Mountain whitefish	<i>Prosopium williamsoni</i>	Oct - Nov	C	C

Source: MFWP 2011

<sup>1</sup>Montana species of concern

C = confirmed by Mfish surveys, P = possible, - = unknown

# **BILLINGS BYPASS**

Biological Resources Report

November 2011

## **APPENDIX D**

### **WETLANDS MAPS**



BILLINGS BYPASS EIS  
NCPD 56(55)CN 4199

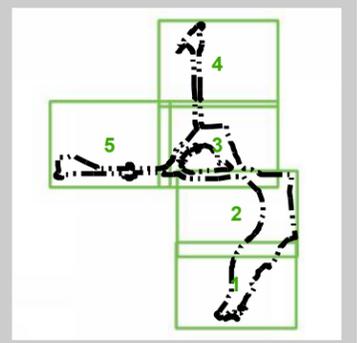
# Wetlands

## #1 ~ Johnson South

### Legend

- Wetland Survey Area
- Local Road
- Alignment Alternatives**
- Bridges
- Construction Limits
- Biological Resources**
- Delineated Wetlands
- Upland Data Plot
- Wetland Data Plot
- 2011 Ponds
- Spring
- Culvert

N



Sources:  
DOWL/HKM May 2011, FEMA 2009, MDOT 2009,  
DEA July/August 2011, USGS 2011,  
USDA National Agricultural Imagery Program 2009

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BILLINGS BYPASS EIS  
NCPD 56(55)CN 4199

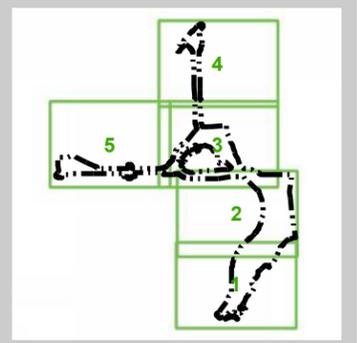
# Wetlands

## #2 ~ Johnson North

### Legend

- Wetland Survey Area
- Local Road
- Alignment Alternatives**
- Bridges
- Construction Limits
- Biological Resources**
- Delineated Wetlands
- Upland Data Plot
- Wetland Data Plot
- 2011 Ponds
- Spring
- Culvert

N



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Feet

Sources:  
DOWL/HKM May 2011, FEMA 2009, MDOT 2009,  
DEA July/August 2011, USGS 2011,  
USDA National Agricultural Imagery Program 2009

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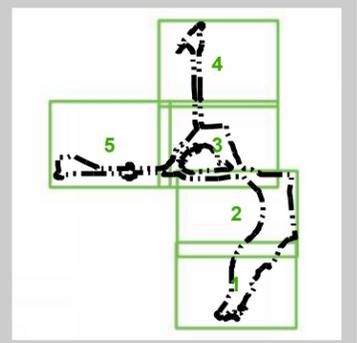
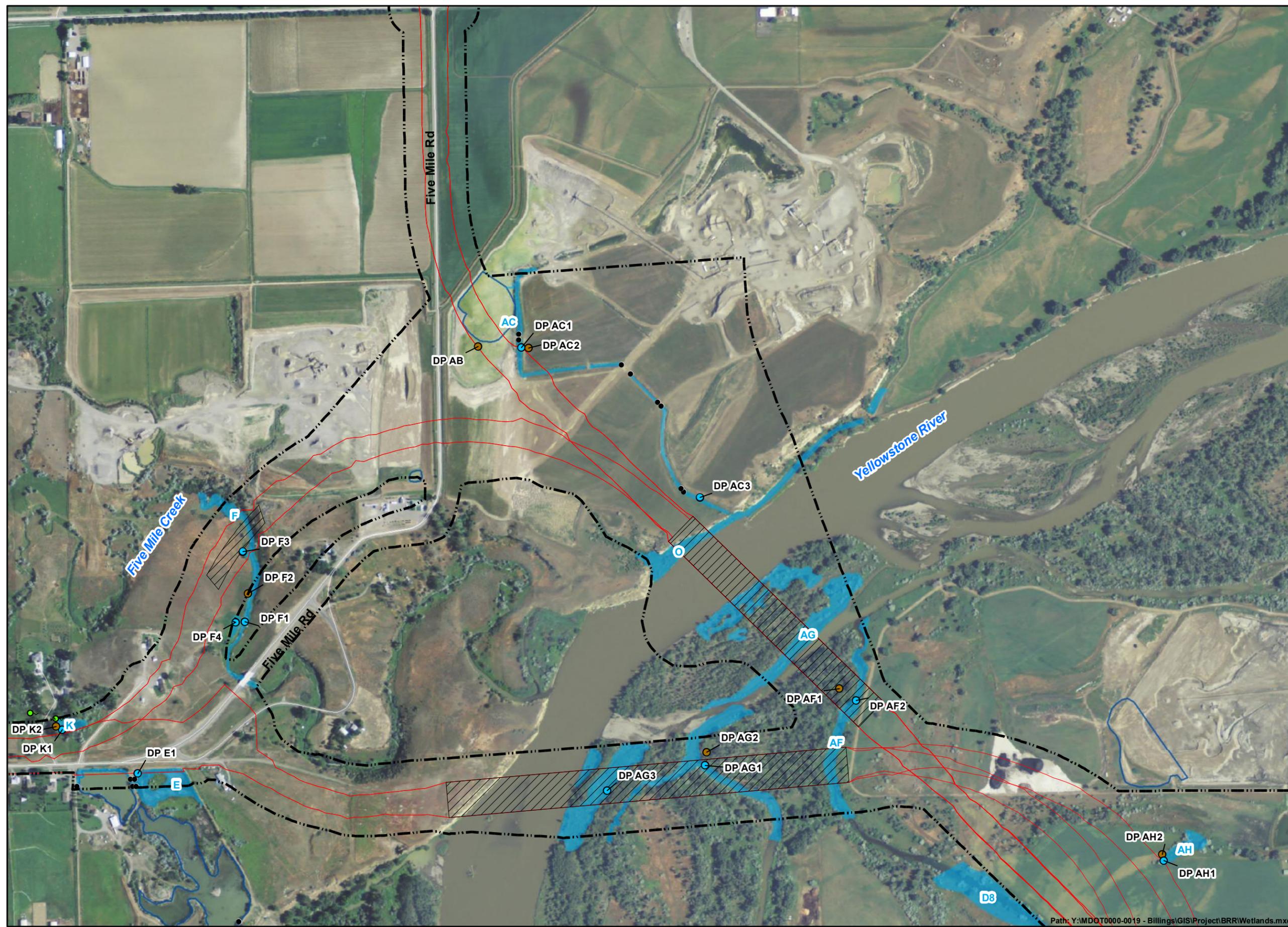
BILLINGS BYPASS EIS  
NCPD 56155/CN 4199

# Wetlands

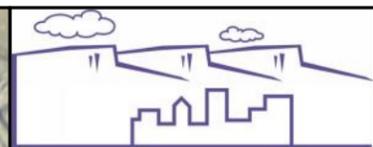
## #3 ~ Bridge Area

### Legend

- Wetland Survey Area
- Local Road
- Alignment Alternatives**
- Bridges
- Construction Limits
- Biological Resources**
- Delineated Wetlands
- Upland Data Plot
- Wetland Data Plot
- 2011 Ponds
- Spring
- Culvert



Sources:  
DOWL/HKM May 2011, FEMA 2009, MDOT 2009,  
DEA July/August 2011, USGS 2011,  
USDA National Agricultural Imagery Program 2009



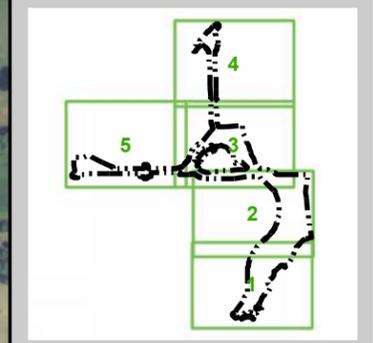
**BILLINGS BYPASS EIS**  
NCPD 56(55)CN 4199

## Wetlands

### #4 ~ Five Mile

#### Legend

- Wetland Survey Area
- Local Road
- Alignment Alternatives**
- Bridges
- Construction Limits
- Biological Resources**
- Delineated Wetlands
- Upland Data Plot
- Wetland Data Plot
- 2011 Ponds
- Spring
- Culvert



Sources:  
DOWL/HKM May 2011, FEMA 2009, MDOT 2009,  
DEA July/August 2011, USGS 2011,  
USDA National Agricultural Imagery Program 2009

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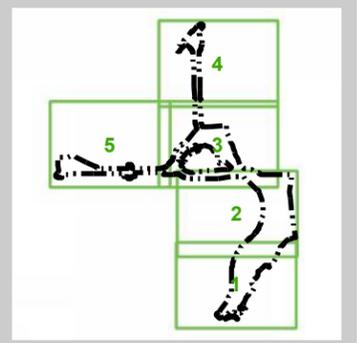
BILLINGS BYPASS EIS  
NCPD 56(55)CN 4199

# Wetlands

## #5 ~ Mary Street

### Legend

- Wetland Survey Area
- Local Road
- Alignment Alternatives**
- Bridges
- Construction Limits
- Biological Resources**
- Delineated Wetlands
- Upland Data Plot
- Wetland Data Plot
- 2011 Ponds
- Spring
- Culvert



Sources:  
DOWL/HKM May 2011, FEMA 2009, MDOT 2009,  
DEA July/August 2011, USGS 2011,  
USDA National Agricultural Imagery Program 2009

# **BILLINGS BYPASS**

Biological Resources Report

November 2011

## **APPENDIX E**

### **WETLAND DELINEATION DATA FORMS and MDT WETLAND EVALUATION FORMS**



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/25/11  
 Applicant/Owner: MDT State: MT Sampling Point: AC-1  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S 7, T1N, R27E  
 Landform (hillslope, terrace etc.): \_\_\_\_\_ Local relief (concave, convex, none) Slope (%): 0-2  
 Subregion (LRR): B Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWL classification: P2m

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Canal w/cattails + rushes</u> <u>cobble waste on banks -&gt; fields</u>	
Connection to AB/GPS NT: <u>16'</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover.				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. <u>Populus deltoides</u>	<u>10%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Salix exigua</u>	<u>10%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. _____				
4. _____				
<u>20</u> = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Typha latifolia</u> cattail	<u>80</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Scirpus acutus</u> h-s bullrush	<u>25%</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Juncus tenuis</u> slender rush	<u>3%</u>		<u>FA</u>	
4. <u>Solidago canadensis</u> goldenrod	<u>&gt;5%</u>		<u>FACU</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)				
<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				

Remarks: wildlife corridor fish in canal  
also barnyard grass (Echinochloa crusgalli)  
R-W BB, m. Dove, sp. sandpiper, Bullfrogs, sp. 15

**SOIL**

Sampling Point: AC1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	2.5Y4/1	90	Gley 1 3/N	10	C	PL	silty clay	
3-8	2.5Y4/1	70	2.5Y5/2	30	C	M	sandy clay	Redox
			Gley 1 3/N	10	C	M	-	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):  
 Type: sobble  
 Depth (inches): 8"

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (minimum of two required)</b>
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 2"

Water Table Present? Yes  No  Depth (inches): 4"

Saturation Present? Yes  No  Depth (inches): 0"

(includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Hydrology from pond flow south waste material

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/25/11  
 Applicant/Owner: MOT State: MT Sampling Point: AC-2  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S7, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:  <u>N 50 E of canal</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Agropyron cristatum</u> <u>70</u> <input checked="" type="checkbox"/> <u>UPL</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>30 w/crust</u>				

Remarks:  
  
small fish in canal

SOIL

Sampling Point: AC2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10 YR	3/3						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	

Restrictive Layer (if present):  
 Type: hardpan  
 Depth (inches): 6"

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season-Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)		<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	
---	--	---	--	--	--

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billing Bypass City/County: Yellowstone Sampling Date: 8/25  
 Applicant/Owner: MDT State: MT Sampling Point: AC-3  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S7, T1N, R27E  
 Landform (hillslope) terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 5-8%  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2m

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>waste ditch Δ'd to creek, water ~ 1 1/2" wide</u> <span style="float:right;"><u>flows S. to Yellowstone</u></span> <u>30+1 of PHAR</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, <u>FACW</u> , or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Phalaris arundinacea</u> <u>100</u> <input checked="" type="checkbox"/> <u>FACW</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____ = Total Cover				

Remarks: \_\_\_\_\_

**SOIL**

Sampling Point: AC3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10 YR 3/2	100					loam w/organic matter	
2-7	2.5 Y 3/2	90	7.5 YR 4/6	10	C	PL	clay loam	redox
7-14	2.5 Y 4/2	85	1.0 YR 5/6	10	C	PL/m	clay loam	redox

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                               | <input type="checkbox"/> Sandy Gleyed Matrix (S4)      | <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)  |
| <input type="checkbox"/> Histic Epipedon (A2)                        | <input type="checkbox"/> Sandy Redox (S5)              | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)  |
| <input type="checkbox"/> Black Histic (A3)                           | <input type="checkbox"/> Stripped Matrix (S6)          | <input type="checkbox"/> Dark Surface (S7) (LRR G)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                       | <input type="checkbox"/> Loamy Mucky Mineral (F1)      | <input type="checkbox"/> High Plains Depressions (F16)  |
| <input type="checkbox"/> Stratified Layers (A5) <sup>1</sup> (LRR F) | <input type="checkbox"/> Loamy Gleyed Matrix (F2)      | <input type="checkbox"/> (LRR H outside of MLRA 72 & 73)  |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)                | <input type="checkbox"/> Depleted Matrix (F3)          | <input type="checkbox"/> Reduced Vertic (F18)   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)           | <input type="checkbox"/> Redox Dark Surface (F6)       | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input checked="" type="checkbox"/> Thick Dark Surface (A12)         | <input type="checkbox"/> Depleted Dark Surface (F7)    | <input type="checkbox"/> Very Shallow Dark Surface (TF12)   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                    | <input type="checkbox"/> Redox Depressions (F8)        | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)   | <input type="checkbox"/> High Plains Depressions (F16) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)        | <input type="checkbox"/> (MLRA 72 & 73 of LRR H)       |   |

Restrictive Layer (if present):

Type: rock  
Depth (inches): 17

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Surface Soil Cracks (B6)                   |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)    |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                    |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry-Season Water Table (C2)                | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> (where tilled)                             |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> (where not tilled)                         | <input type="checkbox"/> Crayfish Burrows (C8)                      |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)  |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     | <input type="checkbox"/> Geomorphic Position (D2)                   |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> FAC-Neutral Test (D5)                      |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)          |

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): 8"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

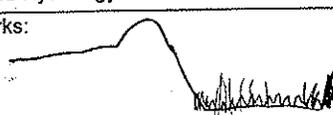
Dead, Turkey Vulture, BB-rapies 30' flocks

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/25/11  
 Applicant/Owner: MOT State: MT Sampling Point: API  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S1, T1N, R26E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: R2EM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks:  steep sided canal ~15' across no wetland veg. past 1 foot from side	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover.				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u><i>Typha latifolia</i></u> <u>cattails</u> <u>70</u> <input checked="" type="checkbox"/> <u>OBL</u> 2. <u><i>Rorippa nasturtium-aquaticum</i></u> <u>30</u> <input checked="" type="checkbox"/> <u>(OBL)</u> 3. <u><i>Solanum elaeagnifolium</i></u> <u>bitter-wort</u> <u>2</u> <u>FACU</u> 4. <u><i>Mimulus guttatus</i></u> <u>monkey flower</u> <u>2</u> <u>OBL</u> 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: parts of the canal all cattail etc. mostly nightshade & watercress w/ Aquatic bed  
 \*Watercress – aquatic plant but not listed

SOIL

Sampling Point: ROAD 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	2.5Y4/2	100					silty clay	
3-10	10YR 4/2	90	10YR 4/6	10	C	kn		Redox + depl.
			Gley 1, 4N	5	C	M		↓
10-16	2.5Y4/1		Gley 1, 4N	15	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No \_\_\_\_\_ Depth (inches): 0  
 Water Table Present? Yes  No \_\_\_\_\_ Depth (inches): 5  
 Saturation Present? (includes capillary fringe) Yes  No \_\_\_\_\_ Depth (inches): 0

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 1' from edge

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass (5M) City/County: Yellowstone Sampling Date: 8/25/11  
 Applicant/Owner: MDT State: MT Sampling Point: AD2  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): 2 Slope (%): 2  
 Subregion (LRR): B Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Irrigated hay field</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover .				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Hay - unknown / cut 6" high</u> <u>UPL</u> 2. <u>(prairie + CR wheat grass?)</u> 3. <u>(timothy nearby)</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_ 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks: \_\_\_\_\_

SOIL

Sampling Point: AD 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/2						clay	
8-12	2.5Y 4/2	95	2.5Y 4/3	5			clay	faint color change

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                             | <input type="checkbox"/> Sandy Gleyed Matrix (S4)      | <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)  |
| <input type="checkbox"/> Histic Epipedon (A2)                      | <input type="checkbox"/> Sandy Redox (S5)              | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)  |
| <input type="checkbox"/> Black Histic (A3)                         | <input type="checkbox"/> Stripped Matrix (S6)          | <input type="checkbox"/> Dark Surface (S7) (LRR G)  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                     | <input type="checkbox"/> Loamy Mucky Mineral (F1)      | <input type="checkbox"/> High Plains Depressions (F16)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR F)            | <input type="checkbox"/> Loamy Gleyed Matrix (F2)      | <input type="checkbox"/> (LRR H outside of MLRA 72 & 73)  |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)              | <input type="checkbox"/> Depleted Matrix (F3)          | <input type="checkbox"/> Reduced Vertic (F18)   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)         | <input type="checkbox"/> Redox Dark Surface (F6)       | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Thick Dark Surface (A12)                  | <input type="checkbox"/> Depleted Dark Surface (F7)    | <input type="checkbox"/> Very Shallow Dark Surface (TF12)   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                  | <input type="checkbox"/> Redox Depressions (F8)        | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) | <input type="checkbox"/> High Plains Depressions (F16) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)      | <input type="checkbox"/> (MLRA 72 & 73 of LRR H)       |   |

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

none

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Surface Soil Cracks (B6)                   |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)    |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                    |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry-Season Water Table (C2)                | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | <input type="checkbox"/> (where tilled)                             |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> (where not tilled)                         | <input type="checkbox"/> Crayfish Burrows (C8)                      |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)  |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     | <input type="checkbox"/> Geomorphic Position (D2)                   |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> FAC-Neutral Test (D5)                      |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)          |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

moist - irrigated hay field

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MDT State: MT Sampling Point: AF-1 (07)  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S7, T14, R27E  
 Landform (hillslope, terrace, etc.): Flat plain Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

### SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>low area, linear swale</u>	

### VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus deltoides</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover.				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Rhus typhina</u> <u>skunk bush</u>	<u>&gt; 1</u>	<input checked="" type="checkbox"/>	<u>NI</u>	Total % Cover of: _____ Multiply by: _____
2. <u>Salix fragilis</u> <u>crack willow</u>	<u>&gt; 1</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	OBL species _____ x 1 = _____
3. <u>Symphoricarpos occidentalis</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	FACW species <u>60</u> x 2 = <u>120</u>
4. _____	_____	_____	_____	FAC species <u>20</u> x 3 = <u>60</u>
5. _____	_____	_____	_____	FACU species <u>40</u> x 4 = <u>160</u>
_____ = Total Cover				UPL species <u>30</u> x 5 = <u>150</u>
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Column Totals: _____ (A) _____ (B)
1. <u>Phalaris arundinacea</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	Prevalence Index = B/A = $\frac{49}{15} = 3.2$
2. <u>Cirsium arvense</u> <u>C. sp.</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. _____	_____	_____	_____	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	<input type="checkbox"/> 2 - Dominance Test is >50%
_____ = Total Cover				<input type="checkbox"/> 3 - Prevalence Index is $\leq 3.0^1$
_____ = Total Cover				<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
_____ = Total Cover				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
_____ = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

Remarks:

$\frac{15}{49} = 3.2$   
 $\frac{45}{40}$

**SOIL**

Sampling Point: AF1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10 YR 3/2	100					loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: none

**HYDROLOGY**

Wetland Hydrology Indicators:	
<b>Primary Indicators (minimum of one required; check all that apply)</b> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<b>Secondary Indicators (minimum of two required)</b> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MDT State: MT Sampling Point: AF2(07)  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S7, T1N, R27E  
 Landform (hillslope, terrace) etc.: flood plain Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-5  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEO wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Braided channel connects w/wetland D-8 (2007)</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus deltoides</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)
2. <u>Salicagathus angustifolia/R. oliv.</u>	<u>5</u>		<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<u>35</u> = Total Cover.				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: BC chickadee, junco, rock dove, wren, f warbler, R-S flicker, winter wren, Am 3-toed P. dorsalis

**SOIL**

Sampling Point: AF2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10 YR 3/2						loam	
2-5	10 YR 3/3						clay loam	
5-18	10 YR 3/2	60	2.5YR 4/6	40	C	M/PL	clay loam	redox
18+	" "	" "	" "	" "	" "	" "	clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input checked="" type="checkbox"/> Drift Deposits (B3)	(where not tilled)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	
	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
	<input checked="" type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input checked="" type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 18"  
 (not indicator > 12")

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
~ 15' from water edge in braided channel

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MOT State: MT Sampling Point: DP ASI  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S7, T1N, R27E  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2-4%  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: R2ZM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: <u>Side channel of Yellowstone.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover.				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)	1. _____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)	1. <u>Carex sp., no flower</u>	<u>80</u>	<input checked="" type="checkbox"/> (OBL) <sup>1</sup>	
2. <u>Sagittaria palustris, spike rush</u>	<u>30</u>	<input checked="" type="checkbox"/> OBL		
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	1. _____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks:  
\*in water; no flower, wide base  shape leaves (sl. ?)

**SOIL**

Sampling Point: AG1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	10YR 2/1						sand	
1-8	2.5Y 3/1	80	5YR 4/6	20	C	M	sandy clay	redox
8-18	2.5Y 3/1	50	5YR 4/6	50	C	M	sandy clay	"

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): 4  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MDP State: MT Sampling Point: AG2  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S7, T1N, R27E  
 Landform (hillslope, terrace, etc.): flood plain Local relief (concave convex none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Elaeagnus angustifolia, R. olive</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-) _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
_____ = Total Cover.				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum</b> (Plot size: _____)				
1. <u>R. sp. smooth brans</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Z. sp. spurge</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				
<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>				

Remarks: Open, silv, R. sp. total  
fish

**SOIL**

Sampling Point: A62

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-8</u>	<u>10YR 3/2</u>	<u>100</u>					<u>sandy clay loam</u>	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></p> <p><input type="checkbox"/> Histosol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5) (LRR F)</p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p> <p><input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 &amp; 73 of LRR H)</p>	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <p><input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR G)</p> <p><input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 &amp; 73)</p> <p><input type="checkbox"/> Reduced Vertic (F18)</p> <p><input type="checkbox"/> Red Parent Material (TF2)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p> <p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
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**Restrictive Layer (if present):**

Type: hard pan

Depth (inches): 8

Hydric Soil Present? Yes  No

Remarks: NONE

**HYDROLOGY**

<p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p> <p><input type="checkbox"/> Salt Crust (B11)</p> <p><input type="checkbox"/> Aquatic Invertebrates (B13)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p> <p><input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)</p>
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**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: NONE

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MBT State: MT Sampling Point: AG3  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S7, T1N, R27E  
 Landform (hillslope, terrace, etc.): Flood plain Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-3  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: R2EM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil , or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>flood plain breaks through low area</u> <u>waters of US, fluvial sediments of channels.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover .				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> * 1. <u>Carex sp. (stipata?)</u> <u>100</u> <input checked="" type="checkbox"/> <u>OBL</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_\_\_ 2 - Dominance Test is >50%  
 \_\_\_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: \* No flower – in low areas of stream channels

SOIL

Sampling Point: AG3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	2.5Y 3/2						Sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Flood plain, in stream channel, vegetated recently deposited materials/fluvial sediments hydric by definition

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MOT State: MT Sampling Point: DP AH1  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S18, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-5  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PSS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (if no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Small Riparian area - joins large wetland to the east.</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u><i>S. laeagnus angustifolia</i></u> <u>Roluo</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>5</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>6</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<u>20</u> = Total Cover.				
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. <u><i>S. angustifolia</i></u> <u>Roluo</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
5. _____				
<u>20</u> = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u><i>Typha latifolia</i></u> <u>Cattail</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u><i>Zizaniopsis laevigatum</i></u> <u>Horsetail</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. <u><i>Rumex acetosella</i></u> <u>Sheep sorrel</u>	<u>5</u>			
4. <u><i>Carex sp</i></u> <u>(stipitata)</u>	<u>5</u>	<input checked="" type="checkbox"/>	<u>(OBL)</u>	
5. <u><i>Bromus inermis</i></u>	<u>35</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: \_\_\_\_\_

SOIL

Sampling Point: AH1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10 YR 2/2						clay loam faint redox	
5-12	10 YR 4/1	50	2.5 YR 3/6	50	C	R/m	clay loam some dept / redox	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: brightest red yet

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: flows east to larger wetland

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MKT State: MT Sampling Point: DPAH2  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S18, T1N, R27E  
 Landform (hillslope, terrace etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%) 2-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No  (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Ag. field</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ = Total Cover .				<b>Prevalence Index worksheet:</b> <table style="width:100%;"> <tr> <td>Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A = _____</td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FACU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
Total % Cover of:	Multiply by:																			
OBL species _____	x 1 = _____																			
FACW species _____	x 2 = _____																			
FAC species _____	x 3 = _____																			
FACU species _____	x 4 = _____																			
UPL species _____	x 5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover																				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Bromus inermis</u> <u>100%</u> <u>UPL</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover																				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover																				
% Bare Ground in Herb Stratum _____ _____ = Total Cover																				
Remarks: _____																				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_ 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

SOIL

Sampling Point: AH2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR 3/3							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):  
 Type: hand pan  
 Depth (inches): 5

Hydric Soil Present? Yes  No

Remarks:  
None

HYDROLOGY

Wetland Hydrology Indicators:	Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
none

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/12  
 Applicant/Owner: MDT State: MT Sampling Point: OPAL1  
 Investigator(s): L. Stajis, G. Rand Section, Township, Range: 317, 11N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-3  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>RR ditch N</u>	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: _____)				<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover .				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum</b> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Phalaris arundinacea</u>	<u>100%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum</b> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				

Remarks: \_\_\_\_\_

Hydrophytic Vegetation Present? Yes  No \_\_\_\_\_

SOIL

Sampling Point: AE 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
1-9	10YR 2/1							
9-12	10YR 4/3							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: no redox features

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one required; check all that apply)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 08/26/11  
 Applicant/Owner: MOT State: MT Sampling Point: A12  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-3  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P5M wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>RR ditch north of tracks</u> <u>Depression - no surface outlet or inlet</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover.				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Typha latifolia</u> <u>30</u> <input checked="" type="checkbox"/> <u>OBL</u> 2. <u>Carex arvensis</u> <u>C. White</u> <u>20</u> <input checked="" type="checkbox"/> <u>FACU</u> 3. <u>Agrostis alba</u> <u>Red top</u> <u>25</u> <input checked="" type="checkbox"/> <u>FACW</u> 4. _____ <u>grass</u> <u>15</u> _____ 5. <u>Coryza canadensis</u> <u>hard wood</u> <u>10</u> _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum <u>5%</u> _____ = Total Cover				

Remarks: \_\_\_\_\_

SOIL

Sampling Point: AI 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/1						sandy loam	
4-8	2.5Y 4/2	85	7.5Y 6	15	C	RM	loamy sand dep/red	
8-16	2.5Y 4/2	75	7.5Y 6	25	C	M	loamy sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

<b>Wetland Hydrology Indicators:</b>		<b>Secondary Indicators (minimum of two required)</b>
<b>Primary Indicators (minimum of one required; check all that apply)</b>		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): 14 1/2  
(includes capillary fringe) top low

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: flows west toward P, connects

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MBT State: MT Sampling Point: AK  
 Investigator(s): L. Stigis, G. Rand Section, Township, Range: S19, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): (none) Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2M

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Wetland in gravel pit, near wetland W - small</u> <u>Does not include new gravel pit pond fringe area</u> <u>no upland plot - gravel pit, depression</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Eleocharis angustifolia/R.olive</u>	<u>20%</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>20</u> = Total Cover.				
Sapling/Shrub Stratum (Plot size: _____)				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Herb Stratum (Plot size: _____)				
1. <u>Typha latifolia</u>	<u>100%</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: \_\_\_\_\_  
Cliff Sullivan





SOIL

Sampling Point: DD-C-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No \_\_\_\_\_

Remarks:

*No soil - canal edge. Rocks & gravel only.*

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No \_\_\_\_\_ Depth (inches): 12" +  
 Water Table Present? Yes  No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

*Canal; flowing north*

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MDOT State: MT Sampling Point: DP-D-1  
 Investigator(s): G. Rand Section, Township, Range: S11, T1N, R16E  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): \_\_\_\_\_  
 Subregion (LRR): \_\_\_\_\_ Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Recently dry ditches in cultivated field 2-3' wide</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Phalaris arundinacea</u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. <u>Bomus inermis</u>	<u>10</u>	_____	<u>NI</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: \_\_\_\_\_

SOIL

Sampling Point: DP-D-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2	95	5YR 4/3	5	C	PL	Silt loam	
4-9	2.5Y 2/3	90	2.5YR 3/4	10	C	PL	Silt clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: River rock/cobble  
 Depth (inches): 7"

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

recently dug ditch. Assume hydrology is present earlier in growing season.

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

*Wetland length ~ 1/2 size  
 Filled in.  
 Visual confirmation 8/26/2011*

Project Site: <u>Billings Bypass</u>	Date: <u>8/23/2007</u>
Applicant/Owner: <u>Montana Department of Transportation</u>	County: <u>Yellowstone</u>
Investigator: <u>DMKR, SLPA</u>	State: <u>MT</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>Wetland</u>
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>C1</u>
Is Area a Potential Problem Area? (if needed, explain on reverse) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Plot ID: <u>D9A</u>

**VEGETATION**

Dominant Plant Species	Percent	Stratum	Indicator	Dominant Plant Species	Percent	Stratum	Indicator
1 Nebraska sedge ( <i>Carex nebrascensis</i> )	60%	H	OBL	8	%		
2 Salix sp.	5%	H	NI	9	%		
3 Three-square bulrush ( <i>Scirpus pungens</i> )	20%	H	OBL	10	%		
4 Curly dock ( <i>Rumex crispus</i> )	10%	H	FACW	11	%		
5 Canada thistle ( <i>Cirsium arvense</i> )	5%	H	FACU	12	%		
6	%			13	%		
7	%			14	%		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: 100% of the dominant vegetation is hydrophytic.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input checked="" type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No recorded data available	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input checked="" type="checkbox"/> Drainage Patterns in Wetlands	<b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12" <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input checked="" type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (explain in remarks)
Field Observations: Depth of Surface Water: _____ (In.) Depth to Free Water in Pit: _____ (In.) Depth to Saturated Soil: _____ (In.)		

Remarks: Soil is moist, not saturated. Wetland hydrology is present.

**SOILS**

Map Unit Name (Series and Phase): <u>Ha - Haverson loam, 0 to 1 percent slopes</u>	Drainage Class: <u>Well drained</u>	Circle
Taxonomy (Subgroup): _____	Field Observations Confirm Mapped Type? <input type="checkbox"/> Yes <input type="checkbox"/> No	

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-14		10YR 4/2	10YR 2/1	Many, small, faint	Loam
			7.5YR 4/6	Many, large, distinct	

<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors <input type="checkbox"/> Concretions <input type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Other (explain in remarks)
---	---	---

Remarks: Meets criteria for hydric soil.

**WETLAND DETERMINATION**

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

Remarks: Canal seepage is source of hydrology for this wetland.



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

Project Site: <u>Billings Bypass</u> Applicant/Owner: <u>Montana Department of Transportation</u> Investigator: <u>DMKR, SLPA</u>	Date: <u>8/23/2007</u> County: <u>Yellowstone</u> State: <u>MT</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Is Area a Potential Problem Area? (if needed, explain on reverse) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Community ID: <u>Upland</u> Transect ID: <u>C1</u> Plot ID: <u>D9B</u>

**VEGETATION**

Dominant Plant Species	Percent	Stratum	Indicator	Dominant Plant Species	Percent	Stratum	Indicator
1 Tumble mustard ( <i>Sisymbrium altissimum</i> )	15%	H	UPL	8	%		
2 Smooth brome ( <i>Bromus inermis</i> )	30%	H	NL	9	%		
3 Claspng pepperweed ( <i>Lepidium perfoliatum</i> )	10%	H	FACU	10	%		
4 Cheatgrass ( <i>Bromus tectorum</i> )	10%	H	NL	11	%		
5	%			12	%		
6	%			13	%		
7	%			14	%		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 0%

Remarks: Dominant vegetation is not hydrophytic.

**HYDROLOGY**

<input type="checkbox"/> Recorded Data (describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No recorded data available Field Observations: Depth of Surface Water: _____ (In.) Depth to Free Water in Pit: _____ (In.) Depth to Saturated Soil: _____ (In.)	<b>Wetland Hydrology Indicators:</b> <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands	<b>Secondary Indicators (2 or more required):</b> <input type="checkbox"/> Oxidized Root Channels in Upper 12" <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (explain in remarks)
Remarks: No hydrologic indicators.		

**SOILS**

Map Unit Name (Series and Phase): <u>Ha - Haverson loam, 0 to 1 percent slopes</u> Taxonomy (Subgroup): _____	Drainage Class: Well drained <span style="float: right;">Circle</span> Field Observations Confirm Mapped Type? Yes <input type="checkbox"/> No <input type="checkbox"/>				
<b>Profile Description:</b>					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-7		10YR 3/2			Sandy loam
<b>Hydric Soil Indicators:</b> <input type="checkbox"/> Histosol <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Gleyed or Low-Chroma Colors <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Concretions <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Other (explain in remarks)					
Remarks: No hydric soils.					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Remarks: Does not meet criteria for wetland.	



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/24/11  
 Applicant/Owner: MOT State: MT Sampling Point: E1  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S13, T1N, R26E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave) convex, none): \_\_\_\_\_ Slope (%): 0.5  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2M

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>old gravel pit, 1980 Δ to ponds</u> <u>weedy buffer</u> <u>wildlife corridor from Yellowstone River</u>	
Upland plot - not dug - all gravel pit material use K2.	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Elaeagnus angustifolia/Rolive</u>	<u>2</u>		<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____				
3. <u>Populus deltoides Cottonwood</u>	<u>2</u>		<u>FAC</u>	
4. _____				
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. <u>Salix exigua salix sp</u>	<u>5</u>			
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Typha latifolia Cattails</u>	<u>90%</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 - Prevalence Index is ≤3.0 <sup>1</sup> _____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <u>Mentha arvensis mint</u>	<u>10</u>			
3. <u>Cirsium arvense C. thistle</u>	<u>15</u>			
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No _____
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: other location

**SOIL**

Sampling Point: Σ1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10 YR 3/1	100					loam silts	
4-10	10 YR 3/2	100					sandy loam	
10-16	10 YR 4/2	100			D	m	sand w/ cobble	
16+	"						→ cobble	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: Cobble

Depth (inches): 16

Hydric Soil Present? Yes  No

Remarks: no redox, H Sulfide

**HYDROLOGY**

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3) <u>12"</u>	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 2"

Water Table Present? Yes  No  Depth (inches): 14"

Saturation Present? Yes  No  Depth (inches): 8"

(includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Water source from irr. pipe from Lake Elmo - photo  
gated culvert > waterfall to Yellowstone River  
JD YES

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MOT State: MT Sampling Point: K2 (Upland)  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S12, T1N, R26E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): (none) Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>lawn area nearby</u>  <div style="text-align: right; font-size: 1.2em;"><u>2 photos</u></div>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Cottonwood P. deltoides</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2. <u>Russian olive E. angustifolia</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>60</u> = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>70</u> x 3 = <u>210</u> FACU species <u>25</u> x 4 = <u>100</u> UPL species <u>75</u> x 5 = <u>375</u> Column Totals: <u>170</u> (A) <u>685</u> (B)  Prevalence Index = B/A = <u>685/170</u>
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Russian olive</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
<u>10</u> = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.  <b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
1. <u>Rough fescue F. campestris</u>	<u>75</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
2. <u>Blue grass P. pratensis</u>	<u>25</u>	<input checked="" type="checkbox"/>	<u>FACU+</u>	
3. <u>Stony milkweed A. spicatus</u>	<u>75</u>	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100+</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: K2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10 YR 3/3						loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hardpan  
Depth (inches): 5"

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

Secondary Indicators (minimum of two required)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)
- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

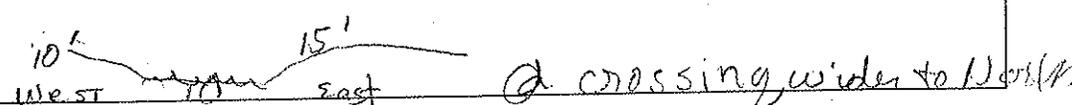
WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 08/24/11  
 Applicant/Owner: MDT State: MT Sampling Point: F1  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S12, T1N, R26E  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 5%  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2M

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (if no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	

Remarks: Creek 10' w. de  


**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size: <u>30</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Salix nigricans angustifolia, Rowley</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. _____				
3. _____				
4. _____				
<u>10</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)				Hydrophytic Vegetation Indicators: 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) 5 - Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Apocynum cannabinum / dogbane</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Phalaris arundinacea Reed canary grass</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
3. <u>Carex (stipita) Sedge - arched?</u>	<u>15</u>	<input checked="" type="checkbox"/>	<u>no flower (FAC)</u>	
4. _____				
5. <u>Agrostis alba Rattop</u>	<u>10%</u>		<u>FACW</u>	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: Wet 20' wide from creek - west side  
10' east side  
some grazing, camp spot near  
N. Siberian elm, skunk bush  
weedy buffer

SOIL

Sampling Point: F1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10 YR 4/2	100					loamy sand	
6-16	10 YR 4/2	75	7.5 YR 4/6	25	C	PL	sandy loam	w/ faint depletion

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: close enough

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2) ?
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Saturation + surface water in areas north

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/24/11  
 Applicant/Owner: MBT State: MT Sampling Point: F2  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S12, T1N, R26E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none) Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: UPL

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks: <u>15' W of wetland edge sandstone cliffs opposite (E) 30' high</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Poa pratensis</u> <u>K blue grass</u>	<u>90%</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Agrostis alba</u> <u>Redtop</u>	<u>10%</u>		<u>FACW</u>	<input type="checkbox"/> 2 - Dominance Test is >50%
3. <u>Equisetum laevigatum</u> <u>Ss. rush</u>	<u>10%</u>		<u>FAC</u>	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____ <u>Red top</u>	<u>&lt;2%</u>			<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes _____ No <input checked="" type="checkbox"/>
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: \_\_\_\_\_

US Army Corps of Engineers Great Plains – Version 2.0

SOIL

Sampling Point: F2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>0-4</u>	<u>10 YR 3/3</u>	<u>100%</u>						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR E)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**

Type: hard pan

Depth (inches): 4"

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



SOIL

Sampling Point: F3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 3/2						chylom	
2-8	2.5Y 3/2						loam clay	faint redox not sign.
8-14	2.5Y 4/1	60	2.5Y 6/6	40	DR	M	clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Plow Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)		
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5) <u>?</u> No
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 soil crack about 5+ away  
 hydrology from flooding 5 mile creek

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/24/11  
 Applicant/Owner: MOT State: MT Sampling Point: F4  
 Investigator(s): L. Stragis Section, Township, Range: S12, T1N, R26E  
 Landform (hillslope, terrace, etc.): floodplains Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2-4  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2W

Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.) out

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>area west of stream</u>	

**VEGETATION – Use scientific names of plants.**

Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: _____)				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____				
2. _____				
3. _____				
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>80</u> x 3 = <u>240</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species _____ x 5 = _____ Column Totals: <u>100</u> (A) <u>320</u> (B) Prevalence Index = B/A = <u>3.2</u>
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input checked="" type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Apocynum cannabinum / C. dogbane</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	
2. <u>Bromus inermis</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
3. <u>Poa sp</u>	<u>25</u>	<input type="checkbox"/>	<u>FACU</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>100</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: Dogbane overlap  
area in river oxbow, soils + hydro - hydric

SOIL

Sampling Point: F4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10 YR 3/1						loam	
6-12	10 YR 4/2		2.5 Y 5/4	25%	D	M	sandy loam	
			7.5 YR 4/1	10%	C	M	sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan  
Depth (inches): 12"

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: hydrology - flooding wack

wet this year check gauges / peat flow 2 of 10 years also see FB

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MBT State: MT Sampling Point: F1  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S1, T1N, R26E  
 Landform (hillslope, terrace, etc.): incised Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2-5  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PSE wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <p align="center"><i>similar to J waste ditch w/ irrigation underground <sup>swale</sup> 5 mile unnamed intermittent drainage w/ pond / use J2 for upland</i></p>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Russian olive <i>E. angustifolia</i></u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC+</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>5</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
5. _____	_____	_____	_____	
<u>20</u> = Total Cover				Prevalence Index worksheet:
1. <u>Russian olive <i>E. angustifolia</i></u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC+</u>	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
3. _____	_____	_____	_____	OBL species _____ x 1 = _____
4. _____	_____	_____	_____	FACW species _____ x 2 = _____
5. _____	_____	_____	_____	FAC species _____ x 3 = _____
<u>20</u> = Total Cover				FACU species _____ x 4 = _____
1. <u>Reed canary grass <i>Phalaris arundinacea</i></u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	UPL species _____ x 5 = _____
2. <u>Cattail <i>T. latifolia</i></u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	Column Totals: _____ (A) _____ (B)
3. <u>Am. speedwell <i>V. americana</i></u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	Prevalence Index = B/A = _____
4. <u>bullrush <i>S. microcarpus</i></u>	<u>25</u>	_____	_____	
5. _____	_____	_____	_____	Hydrophytic Vegetation Indicators:
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	_____ 2 - Dominance Test is >50%
8. _____	_____	_____	_____	_____ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
9. _____	_____	_____	_____	_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
10. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>100</u> = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: \_\_\_\_\_

SOIL

Sampling Point: I-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
5-6 6+ cobbles?	10 YR 2/1						mucky mineral	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):  
 Type: cobble  
 Depth (inches): 6"

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 2"

Water Table Present? Yes  No  Depth (inches): 2"

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
Similar to J, drainage + pond

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billing Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MOSP State: MT Sampling Point: J-1  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S11, T1N, R26E  
 Landform (hillslope, terrace, etc.): irr gully - incised Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2-5  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PSS wetland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes \_\_\_\_\_ No   
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	

Remarks: Wetland + water ~15 feet wide along length  
silt fence, geo fertile, silt fence - cobble laid in bed / \$10 soil pit  
Natural canyon - but modified w/ IRR use  
unpaired irrigation drainage > 5 mile w/ irrigation + waste ditch & underground source

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Plains Cottonwood P. deltoides</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-):	<u>5</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>5</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
4. _____				<b>Prevalence Index worksheet:</b>	
	<u>20</u> = Total Cover			Total % Cover of:	Multiply by:
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				OBL species	x 1 = _____
1. <u>Plains cottonwood P. deltoides</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	FACW species	x 2 = _____
2. _____				FAC species	x 3 = _____
3. _____				FACU-species	x 4 = _____
4. _____				UPL species	x 5 = _____
5. _____				Column Totals:	(A) _____ (B) _____
	<u>30</u> = Total Cover			Prevalence Index = B/A = _____	
<b>Herb Stratum (Plot size: _____)</b>				<b>Hydrophytic Vegetation Indicators:</b>	
1. <u>cattails T. latifolia</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	___ 1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Reed canary grass P. arundinacea</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	___ 2 - Dominance Test is >50%	
3. <u>Golden rod S. canadensis</u>	<u>15</u>			___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>	
4. <u>Amspectumbl V. americana</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. _____				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
6. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
7. _____				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____	
8. _____					
9. _____					
10. _____					
	<u>100+</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>					
1. _____					
2. _____					
<b>% Bare Ground in Herb Stratum _____</b>					

Remarks: \_\_\_\_\_



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass, Mary St City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MOT State: MT Sampling Point: 52  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S11, T1N, R26E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Wheat grass, Tit, A. intermedium</u> <u>50</u> <input checked="" type="checkbox"/> <u>UPL</u> 2. <u>Soft brome, B. mollis</u> <u>20</u> <input checked="" type="checkbox"/> <u>UPL</u> 3. <u>Field bind weed, C. arvensis</u> <u>40</u> <input checked="" type="checkbox"/> <u>UPL</u> 4. <u>Salsify, V. dubius</u> <u>75</u> _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_ 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks:

SOIL

Sampling Point: J2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 3/2							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**  
 Type: Hardpan  
 Depth (inches): 7"

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

<b>Wetland Hydrology Indicators:</b>	
<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (minimum of two required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

22 wetlands visited  
8/25/2011. Unchanged.

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

Project Site: <u>Billings Bypass</u>	Date: <u>8/21/2007</u>
Applicant/Owner: <u>Montana Department of Transportation</u>	County: <u>Yellowstone</u>
Investigator: <u>LXST, DAAR, DEJG</u>	State: <u>MT</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>Wetland</u>
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>B1 South/C1 North</u>
Is Area a Potential Problem Area? (if needed, explain on reverse) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Plot ID: <u>L2A</u>

USE L4B as upland DP

**VEGETATION**

Dominant Plant Species	Percent	Stratum	Indicator	Dominant Plant Species	Percent	Stratum	Indicator
1 Meadow foxtail ( <i>Alopecurus pratensis</i> )	90%	H	FACW	8	%		
2 Scirpus sp.	5%	H	OBL	9	%		
3 Smooth horsetail ( <i>Equisetum laevigatum</i> )	5%	H	FAC	10	%		
4	%			11	%		
5	%			12	%		
6	%			13	%		
7	%			14	%		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: A few Russian olive trees on perimeter. Grasses are closely grazed, a few heads found.  
100% of the dominant plant species are FAC or wetter, therefore vegetation is hydrophytic.

**HYDROLOGY**

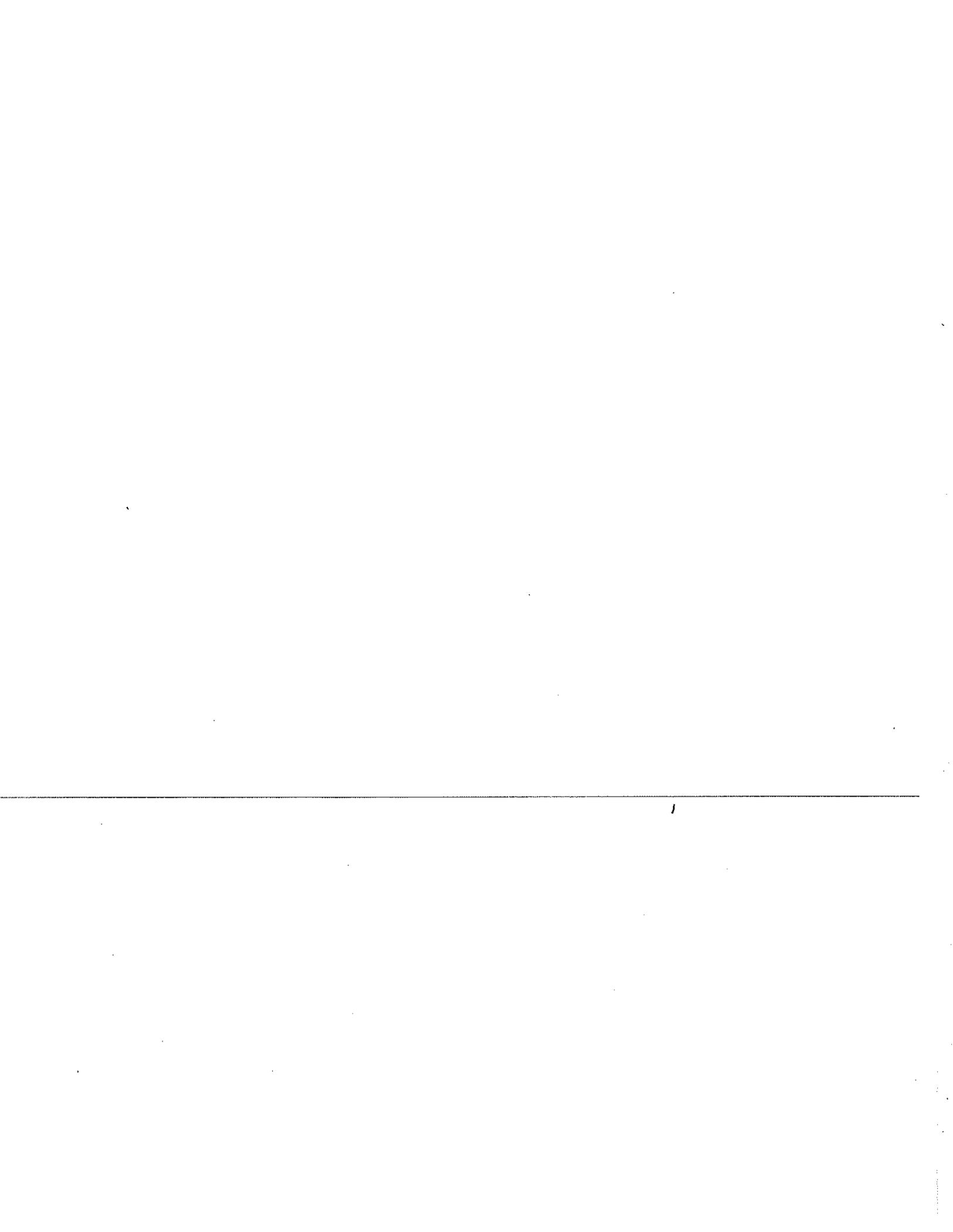
<input type="checkbox"/> Recorded Data (describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input checked="" type="checkbox"/> No recorded data available	<p>Wetland Hydrology Indicators:</p> <p><b>Primary Indicators:</b></p> <input checked="" type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands
<p><b>Field Observations:</b></p> Depth of Surface Water: <u>0-5</u> (In.) Depth to Free Water in Pit: <u>1</u> (In.) Depth to Saturated Soil: <u>0</u> (In.)	
<p><b>Secondary Indicators (2 or more required):</b></p> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12" <input type="checkbox"/> Water-Stained Leaves <input checked="" type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (explain in remarks)	
<p>Remarks: Portions inundated; portions saturated. Hydrology from controlled canal and overflow from west wetland.</p>	

**SOILS**

Map Unit Name (Series and Phase): <u>An - Alluvial land, wet</u>	Drainage Class: <u>Poorly drained</u>																								
Taxonomy (Subgroup): _____	Field Observations Confirm Mapped Type? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																								
<p>Profile Description:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Depth (inches)</th> <th>Horizon</th> <th>Matrix Color (Munsell Moist)</th> <th>Mottle Colors (Munsell Moist)</th> <th>Mottle Abundance/ Size/Contrast</th> <th>Texture, Concretions, Structure, etc.</th> </tr> </thead> <tbody> <tr> <td>0-4</td> <td>A</td> <td>2.5Y 4/2</td> <td></td> <td></td> <td>Clay loam</td> </tr> <tr> <td>4-14</td> <td>A/B</td> <td>2.5Y 4/2</td> <td>2.5Y 3/0</td> <td>Many, small, distinct</td> <td>Sand</td> </tr> <tr> <td></td> <td></td> <td></td> <td>7.5YR 4/6</td> <td>Prominent</td> <td></td> </tr> </tbody> </table>		Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.	0-4	A	2.5Y 4/2			Clay loam	4-14	A/B	2.5Y 4/2	2.5Y 3/0	Many, small, distinct	Sand				7.5YR 4/6	Prominent	
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.																				
0-4	A	2.5Y 4/2			Clay loam																				
4-14	A/B	2.5Y 4/2	2.5Y 3/0	Many, small, distinct	Sand																				
			7.5YR 4/6	Prominent																					
<p>Hydric Soil Indicators:</p> <input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime																									
<input type="checkbox"/> Reducing Conditions <input checked="" type="checkbox"/> Gleyed or Low-Chroma Colors <input type="checkbox"/> Concretions <input checked="" type="checkbox"/> Organic Streaking in Sandy Soils																									
<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Listed on National Hydric Soils List <input checked="" type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Other (explain in remarks)																									
<p>Remarks: Blackened char materials in top layer.</p>																									

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
Hydric Soils Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No			
<p>Remarks: Part of larger wetland to the west.</p>					



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

*L4 wetlands visited 8/25/11  
 wetland delineation boundary  
 adjusted. Grazing by  
 cattle in wetland.*

Project Site: <u>Billings Bypass</u>	Date: <u>8/22/2007</u>
Applicant/Owner: <u>Montana Department of Transportation</u>	County: <u>Yellowstone</u>
Investigator: <u>LXST, DMKR, DEJG</u>	State: <u>MT</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>Wetland</u>
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>B1</u>
Is Area a Potential Problem Area? (if needed, explain on reverse) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Plot ID: <u>L4A</u>

**VEGETATION**

Dominant Plant Species	Percent	Stratum	Indicator	Dominant Plant Species	Percent	Stratum	Indicator
1 Common sunflower ( <i>Helianthus annuus</i> )	5%	H	FACU	8	%		
2 Three-square bulrush ( <i>Scirpus pungens</i> )	50%	H	OBL	9	%		
3 Broadleaved cattail ( <i>Typha latifolia</i> )	80%	H	OBL	10	%		
4 Baltic rush ( <i>Juncus arcticus</i> )	10%	H	OBL	11	%		
5 Witchgrass ( <i>Panicum capillare</i> )	<5%	H	FAC	12	%		
6	%			13	%		
7	%			14	%		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100%

Remarks: Most of wetland is cattail, periphery is bulrush.  
 100% of the dominant plant species are FAC or wetter, therefore vegetation is hydrophytic.

**HYDROLOGY**

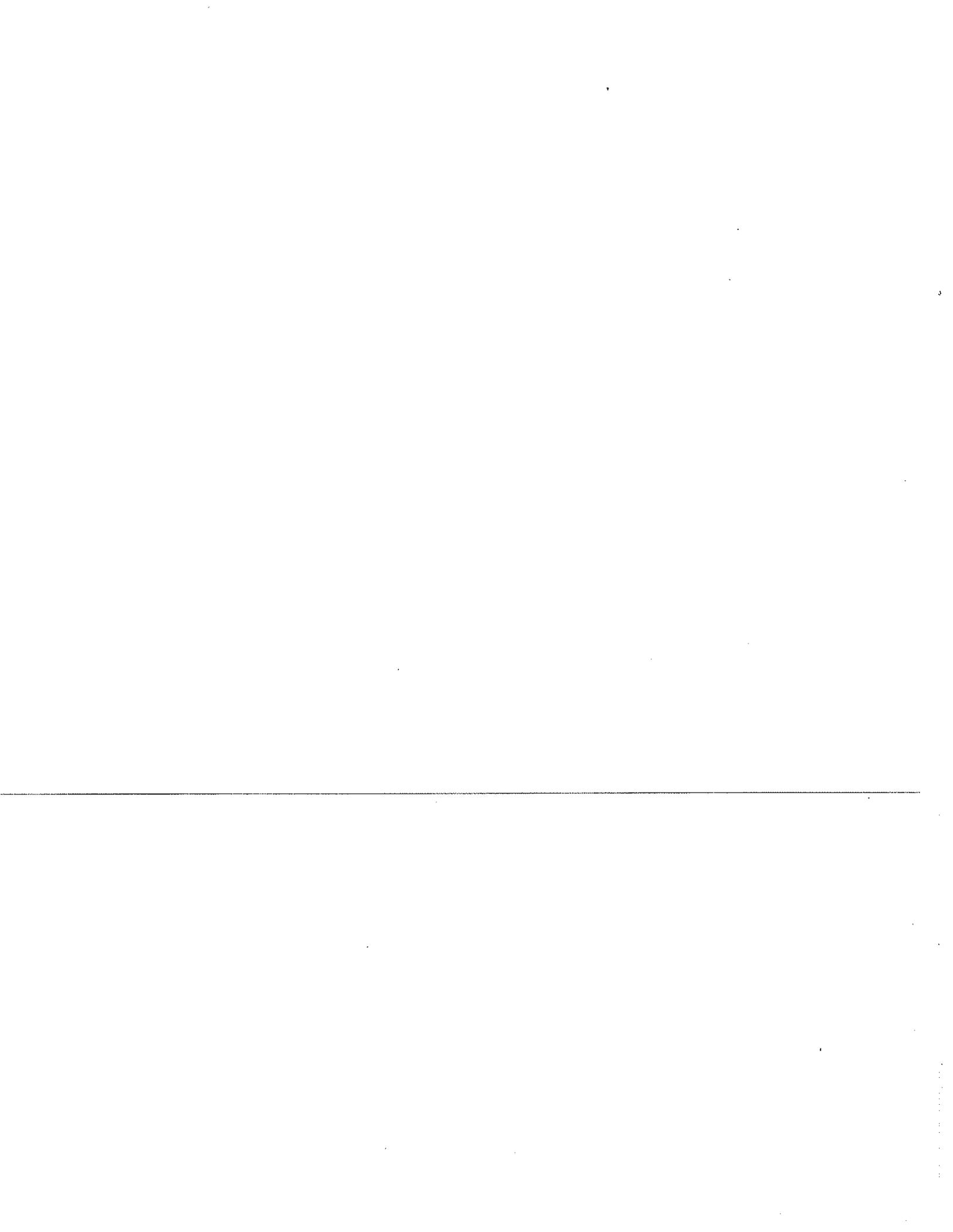
<input type="checkbox"/> Recorded Data (describe in Remarks) <input checked="" type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No recorded data available Field Observations: Depth of Surface Water: _____ (In.) Depth to Free Water in Pit: <u>8</u> (In.) Depth to Saturated Soil: <u>1</u> (In.)	Wetland Hydrology Indicators: <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input checked="" type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands	<b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12" <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (explain in remarks)
Remarks: Hydrology is present.		

**SOILS**

Map Unit Name (Series and Phase): <u>Am - Alluvial land, seeped</u>	Drainage Class: <u>Poorly drained</u> <span style="float:right">Circle</span>				
Taxonomy (Subgroup): _____	Field Observations Confirm Mapped Type? <input type="checkbox"/> Yes <input type="checkbox"/> No				
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-8		2.5Y 5/2	10YR 4/6 10YR 3/1	Common, medium, prominent Many, coarse, prominent	Sandy silt loam
Hydric Soil Indicators:					
<input type="checkbox"/> Histosol	<input checked="" type="checkbox"/> Reducing Conditions	<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils			
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Listed on National Hydric Soils List			
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> Concretions	<input checked="" type="checkbox"/> Listed on Local Hydric Soils List			
<input type="checkbox"/> Aquic Moisture Regime	<input checked="" type="checkbox"/> Organic Streaking in Sandy Soils	<input type="checkbox"/> Other (explain in remarks)			
Remarks: Meets criteria for hydric soil.					

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point Within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks: Small portion of larger wetland. No permission to access the rest; but visible.	



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

Project Site: <u>Billings Bypass</u>	Date: <u>8/22/2007</u>
Applicant/Owner: <u>Montana Department of Transportation</u>	County: <u>Yellowstone</u>
Investigator: <u>LXST, DAAR, DEJG</u>	State: <u>MT</u>
Do Normal Circumstances exist on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Community ID: <u>Upland</u>
Is the site significantly disturbed (Atypical Situation)? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Transect ID: <u>B1</u>
Is Area a Potential Problem Area? (if needed, explain on reverse) <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Plot ID: <u>L4B</u>

**VEGETATION**

Dominant Plant Species	Percent	Stratum	Indicator	Dominant Plant Species	Percent	Stratum	Indicator
1 Ballic rush ( <i>Juncus arcticus</i> )	50%	H	OBL	8	%		
2 White clover ( <i>Trifolium repens</i> )	20%	H	FACU	9	%		
3 Yellow sweet clover ( <i>Melilotus officinalis</i> )	%	H	FACU-	10	%		
4 Sonchus sp.	15%	H	NI	11	%		
5 Kentucky bluegrass ( <i>Poa pratensis</i> )	15%	H	FACU	12	%		
6	%			13	%		
7	%			14	%		

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

Remarks: Upland plot is not representative of the vegetation in grazed portion to the north, but is in the Hwy 312 right-of-way.  
 Dominant vegetation is not hydrophytic.

**HYDROLOGY**

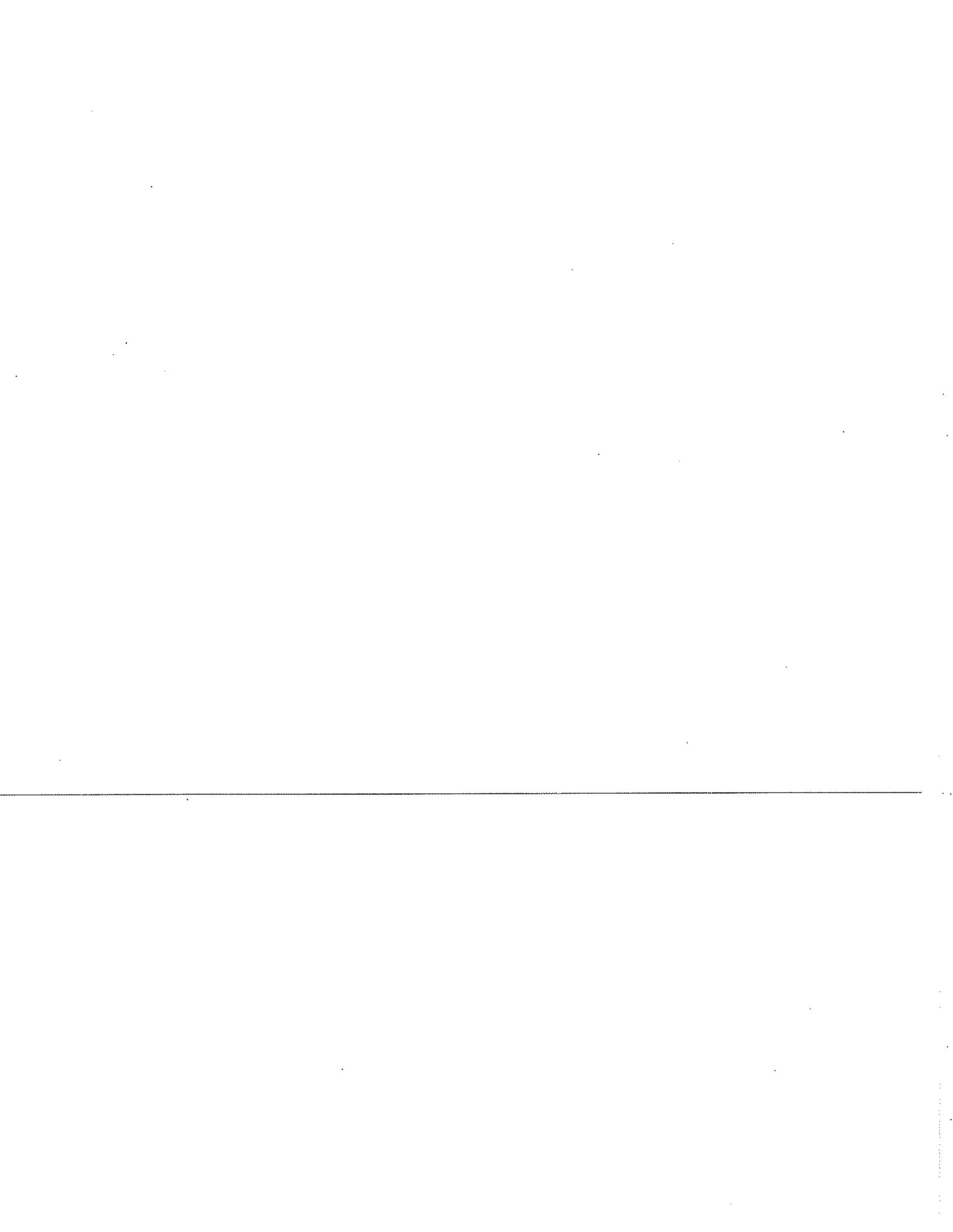
<input type="checkbox"/> Recorded Data (describe in Remarks) <input type="checkbox"/> Stream, Lake, or Tide Gauge <input type="checkbox"/> Aerial Photographs <input type="checkbox"/> Other <input type="checkbox"/> No recorded data available Field Observations: Depth of Surface Water: _____ (In.) Depth to Free Water in Pit: _____ (In.) Depth to Saturated Soil: _____ (In.)	Wetland Hydrology Indicators: <b>Primary Indicators:</b> <input type="checkbox"/> Inundated <input type="checkbox"/> Saturated in Upper 12 inches <input type="checkbox"/> Water Marks <input type="checkbox"/> Drift Lines <input type="checkbox"/> Sediment Deposits <input type="checkbox"/> Drainage Patterns in Wetlands	<b>Secondary Indicators (2 or more required):</b> <input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12" <input type="checkbox"/> Water-Stained Leaves <input type="checkbox"/> Local Soil Survey Data <input type="checkbox"/> FAC-Neutral Test <input type="checkbox"/> Other (explain in remarks)
Remarks: No wetland hydrology.		

**SOILS**

Map Unit Name (Series and Phase): <u>Am - Alluvial land, seeped</u>	Drainage Class: Poorly drained <span style="float: right;">Circle</span>				
Taxonomy (Subgroup): _____	Field Observations Confirm Mapped Type? Yes <input type="checkbox"/> No <input type="checkbox"/>				
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0-9		2.5Y 5/2			Silty sandy loam
Hydric Soil Indicators:		<input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors <input type="checkbox"/> Concretions <input type="checkbox"/> Organic Streaking in Sandy Soils		<input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input checked="" type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Other (explain in remarks)	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime		Remarks: Does not meet criteria for hydric soil.			

**WETLAND DETERMINATION**

Hydrophytic Vegetation Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	Is this Sampling Point Within a Wetland?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Wetland Hydrology Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No			
Hydric Soils Present?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No			
Remarks: ~20 feet east of data plot L4A. Location does not meet criteria for wetland.					



WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MDT State: MT Sampling Point: MI  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S 11, 12, T 1N, R 26E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2-3  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: Pem

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	

Remarks: Mary street irrigation ditch from 8' east to concrete wetland on edge, 7' @ beginning, 7' @ Hawthorne brook 3 wetland on edge. Crops North, road south.

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
= Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Red canary grass, P. arundinacea</u>	<u>100%</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	___ 2 - Dominance Test is >50%
3. _____	_____	_____	_____	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: (small fruited bullrush by beg @ 3/2) site not printed 10/11

SOIL

Sampling Point: M1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10 YR 3/2						silt loam	
6-16	10 YR 3/2	90	10 YR 4/6	10	C	M	sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: concentrations 4/6

HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)
Primary Indicators (minimum of one required; check all that apply)		
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): 6"

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0"

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: 10' wide ave  
 7' @ beginning by 3/2  
 IRRigation ditch - surface water pit 2 1/2' N of water

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MOT State: MT Sampling Point: M2  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S11+12, T1N, R26E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Canal N. of Mary Street</u> <u>Upland plot</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____				
3. _____				
4. _____				
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU-species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>\$</u>				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Smooth Brome</u> <i>Bromus</i>	<u>75</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
2. <u>Field bindweed</u> <i>C. arvensis</i>	<u>25</u>			
3. <u>Thistle</u> <i>Cirsium arvense</i>	<u>25</u>			
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: \_\_\_\_\_

SOIL

Sampling Point: M2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
<u>04</u>	<u>10 YR 3/3</u>						<u>loam</u>	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan  
Depth (inches): 4

Hydric Soil Present? Yes  No

Remarks:

on edge of wetland ~ 10' N

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Data Form I (revised) Routine wetland determination (1987 Corps Wetland Delineation Manual)

Visual confirmation  
8/25/2011  
wetland length expanded

Project/Site: Billings By-Pass Date: 9/18/07  
 Applicant/Owner: MDT County: Yellowstone  
 Investigator(s): SASW, ORG State: MT  
 S/T/R:

Do Normal Circumstances exist on the site? Yes  No  Community ID: PEM  
 Is the site significantly disturbed (atypical situation)? Yes  No  Transect ID: CI (Outside of alignment)  
 Is the area a potential Problem Area? Yes  No  Plot ID: O7 and O8A  
 Explanation of atypical or problem area: N/A

**VEGETATION** (for strata, indicate T = tree; S = shrub; H = herb; V = vine)

Dominant Plant Species	Stratum	% Cover	Indicator	Dominant Plant Species	Stratum	% Cover	Indicator
Reed canarygrass ( <i>Phalaris arundinacea</i> )	H	*100	FACW				

**HYDROPHYTIC VEGETATION INDICATORS:**

% of dominants OBL, FACW, and FAC 100%  
 Check all indicators that apply and explain below:  
 Visual observation of plant species growing in areas of prolonged inundation/saturation:  Physiological/reproductive adaptations   
 Morphological adaptations  Wetland plant database   
 Technical Literature  Personal knowledge of regional plant communities   
 Other (explain)   
 Hydrophytic vegetation present? Yes  No   
 Rationale for decision/remarks:

**HYDROLOGY**

Is it the growing season? Yes  No  Water Marks: Yes  No  Sediment Deposits: Yes  No   
 Based on soil temp (record temp \_\_\_\_\_) or Time of year other (explain) Drift Lines: Yes  No  Drainage Patterns: Yes  No   
 Depth of inundation: none Inches Oxidized Root (live roots) Channels <12 in. Yes  No  Local Soil Survey: Yes  No   
 Depth to free water in pit: none Inches FAC Neutral: Yes  No  Water-stained Leaves: Yes  No   
 Depth to saturated soil: surface Inches  
 Check all that apply and explain below: Stream, lake, or gauge data:  Other (explain):  
 Aerial photographs:  Other:   
 Wetland hydrology present? Yes  No   
 Rationale for decision/remarks:

**SOILS**  
 Map Unit Name An - Alluvial land, wet Drainage Class Poorly drained  
 (Series & Phase)  
 Taxonomy \_\_\_\_\_ Field observations confirm mapped type? Yes  No   
 (subgroup)

Profile Description						
Depth (inches)	Horizon	Matrix color (Munsell moist)	Mottle colors (Munsell moist)	Mottle abundance and contrast	Texture, concretions, structure, etc.	Drawing of soil profile (match description)
0 - 2		10YR 3/2			Silt loam	
2 - 16		Chart 1 4/N	5YR 4/6	Bright/abundant	Clay/silt	

**Hydric Soil Indicators:** (check all that apply)

<input type="checkbox"/> Histosol	<input type="checkbox"/> Matrix chroma $\leq$ 2 with mottles
<input type="checkbox"/> Histic Epipedon	<input type="checkbox"/> Mg or Fe Concretions
<input type="checkbox"/> Sulfidic Odor	<input type="checkbox"/> High Organic Content in Surface Layer of Sandy Soils
<input type="checkbox"/> Aquic Moisture Regime	<input type="checkbox"/> Organic Streaking in Sandy Soils
<input type="checkbox"/> Reducing Conditions	<input checked="" type="checkbox"/> Listed on National/Local Hydric Soils List
<input checked="" type="checkbox"/> Gleyed or Low-Chroma (=1) matrix	<input type="checkbox"/> Other (explain in remarks)

**Hydric soils present?** Yes  No   
 Rationale for decision/remarks:

**WETLAND DETERMINATION**

Hydrophytic vegetation present? Yes  No   
 Hydric soils present? Yes  No   
 Wetland hydrology present? Yes  No  Is the sampling point within a wetland? Yes  No

**Rationale/Remarks:** DP located along drainage canal near/adjacent to the Yellowstone River below sandstone bluffs. Aquatic snails observed in ditch. Other parts of wetland dominated by willow, sedges, Russian olive, and alder.

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MDT State: MT Sampling Point: P-1  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S 18+19, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2-5  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	

Remarks: Irr. ditch perpendicular to Coulson Rd. Source of water not discernable - underground from south flow → north  
32' Ditch ~ 20' wetland ~ 2'  
did cattails @ beg + end, use R2 S. upland photos N, S

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Russian olive <i>S. angustifolia</i></u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
4. _____	_____	_____	_____	
<u>20</u> = Total Cover				<b>Prevalence Index worksheet:</b>
Sapling/Shrub Stratum (Plot size: _____)				Total % Cover of: _____ Multiply by: _____
1. <u>current <i>Ribes</i> sp?</u>	<u>&gt;5%</u>	_____	_____	OBL species _____ x 1 = _____
2. _____	_____	_____	_____	FACW species _____ x 2 = _____
3. _____	_____	_____	_____	FAC species _____ x 3 = _____
4. _____	_____	_____	_____	FACU species _____ x 4 = _____
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
_____ = Total Cover				Column Totals: _____ (A) _____ (B)
Herb Stratum (Plot size: _____)				Prevalence Index = B/A = _____
1. <u>Cattail <i>T. latifolia</i></u>	<u>60</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Thistle <i>C. arvense</i></u>	<u>15</u>	_____	<u>FACU+</u>	
3. <u>R. leucis <i>E. scabra</i></u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: lots of wildlife - carp in ditch - along ditch  
car w/ - bohemian, yellow w/  
Am Gold-F, Sandhill Crane, MDC, AMPH, S&F, PWRP, flycatcher

SOIL

Sampling Point: P1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/2	95	5YR 4/6	5	PL	m	shly clay	redox
6-40	10YR 4/2	75%	5YR 4/6	20	C	m	clay	redox
			(white)	5	C	m		shales/bedrock /
			Gley 5/2	10	C	m		
10-16	same as above		no white,	5YR 4/6			40%	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: white soil deposits - unknown origins

HYDROLOGY

Wetland Hydrology Indicators:	Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <u>NA</u>	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3) <u>NA</u>	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 36"

Water Table Present? Yes  No  Depth (inches): —

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 20"

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: surface water 3' from d. side flat white flowing north

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 8/26/11  
 Applicant/Owner: MDT State: MT Sampling Point: AJ (P)  
 Investigator(s): L. Stragis Section, Township, Range: S 18(N), TIN, R 27E  
 Landform (Hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: PSM  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: \_\_\_\_\_

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: RR wetland south, part of "P" wetland  
not full assessment - used cattails / only endpoints GPS'd, used aerial

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:														
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are <u>OBL</u> , FACW, or FAC: <u>100</u> (A/B)														
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
_____ = Total Cover .				<b>Prevalence Index worksheet:</b> <table style="width:100%; border: none;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species _____</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x 2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x 3 = _____</td> </tr> <tr> <td>FAGU species _____</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> </table> Prevalence Index = B/A = _____	Total % Cover of:	Multiply by:	OBL species _____	x 1 = _____	FACW species _____	x 2 = _____	FAC species _____	x 3 = _____	FAGU species _____	x 4 = _____	UPL species _____	x 5 = _____	Column Totals: _____	(A) _____ (B) _____
Total % Cover of:	Multiply by:																	
OBL species _____	x 1 = _____																	
FACW species _____	x 2 = _____																	
FAC species _____	x 3 = _____																	
FAGU species _____	x 4 = _____																	
UPL species _____	x 5 = _____																	
Column Totals: _____	(A) _____ (B) _____																	
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
_____ = Total Cover																		
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status															
1. <u>Typha latifolia</u>	<u>100</u>	<input checked="" type="checkbox"/>	<u>OBL</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
5. _____	_____	_____	_____															
6. _____	_____	_____	_____															
7. _____	_____	_____	_____															
8. _____	_____	_____	_____															
9. _____	_____	_____	_____															
10. _____	_____	_____	_____															
_____ = Total Cover																		
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status															
1. _____	_____	_____	_____															
2. _____	_____	_____	_____															
_____ = Total Cover																		
% Bare Ground in Herb Stratum _____																		

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_ 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks: \_\_\_\_\_



WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billings Bypass / Johnson 1 City/County: Yellowstone Sampling Date: 7/13  
 Applicant/Owner: MOT State: MT Sampling Point: R7  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S17, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): (none) Slope (%): 0-1  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWL classification: PCM / Riparium (in some local)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>joins wetland P, flows west</u> <u>water ~ 2 ft wide in center, vegetation fringe</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Cat tail</u> <u>T. latifolia</u>	<u>80</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
2. <u>Andromeda bush</u> <u>S. acutus</u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>Small fruited bush</u> <u>S. microcarpus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u> = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: vegetation as fringe

SOIL

Sampling Point: R1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10 YR 3/1						clay loam	
6-10	10 YR 3/1	90					clay loam	
			<del>10 YR 1/5N 2/1</del>					
10+	Gley	1/5N 100				M		vertical streaking

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)

- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No \_\_\_\_\_ Depth (inches): 6"  
 Water Table Present? Yes  No \_\_\_\_\_ Depth (inches): 10"  
 Saturation Present? (includes capillary fringe) Yes  No \_\_\_\_\_ Depth (inches): 0"

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/13/11  
 Applicant/Owner: MDT State: MT Sampling Point: R2  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S17, T1N, R27E  
 Landform (hillslope, terrace, etc.): 1 Local relief (concave, convex, none): (none) Slope (%): 0  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No _____ Hydric Soil Present? Yes _____ No _____ Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:  <p align="center"><u>irrigated meadow</u></p>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Smooth brome B. inermis</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
2. <u>Soft brome B. mollis</u>	<u>30</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	
3. <u>Meadow foxtail alopecurus pratensis</u>	<u>10</u>	<input type="checkbox"/>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100+</u> = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**

\_\_\_ 1 - Rapid Test for Hydrophytic Vegetation

\_\_\_ 2 - Dominance Test is >50%

\_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>

\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks:  
White tail Fish in Q

SOIL

Sampling Point: R2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/1	95	10YR 4/6	5	C	PL	silt clay	
8-14	10YR 3/1	65	(white) 2.5YR 4/6	20i 15	C	M	silt clay	see photo

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
	<input type="checkbox"/> Drainage Patterns (B10)
	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)
	<input type="checkbox"/> Crayfish Burrows (C8)
	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
	<input type="checkbox"/> Geomorphic Position (D2)
	<input type="checkbox"/> FAC-Neutral Test (D5)
	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
 probably flooded, irrigated from ditches

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/13/11  
 Applicant/Owner: MST State: MT Sampling Point: DD-51  
 Investigator(s): L. Shagis, G. Rand Section, Township, Range: S17, T19, R20; T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): \_\_\_\_\_  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P5M / (some riparian locations)

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Ditch along Gulson Rd, 3' wide exposed soil, W234, 5' wide @ base w/ wetland - no buffer, no water, B233 see Wetland G</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b>				
1. <u>Red-osier dogwood, Cornus sericea</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
<b>Herb Stratum (Plot size: _____)</b>				
1. <u>Phalaris arundinacea</u>	<u>70</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
2. <u>C. trichosperma</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>FACU+</u>	
3. <u>C. goldenrod</u>	<u>5</u>	_____	_____	
4. <u>Curly dock</u>	<u>≤5</u>	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				

Remarks: Other: Ash overhanging ditch

SOIL

Sampling Point: JP 5-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	10YR 5/2	90	10YR 2/1	10	A	M	silt loam	streaking
6-10"	"	95	10YR 5/2	5	C	M	sandy silt loam	(S6)

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input checked="" type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)
<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_  
 Hydric Soil Present? Yes  No

Remarks: *streaking has a combination of textures but (S.G.) streaking starting within 6"*

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:  
 Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_  
 Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: *Dry ditch; constructed channel b/n RR & Coulson Rd.*

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/13  
 Applicant/Owner: MDT State: MT Sampling Point: 52  
 Investigator(s): L. Stragis, G. Ramd Section, Township, Range: S17, 19, 20 T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): 02  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2M

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	

Remarks:  
see S1 looks like water shut off, see hydric soils p 2

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Red Canary Grass</u> <i>Parthenocissis</i> <u>100%</u> <input checked="" type="checkbox"/> <u>FACW</u>	_____	_____	_____	<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. <u>curly dock</u> <u>5%</u>	_____	_____	_____	<input type="checkbox"/> 2 - Dominance Test is >50%
3. _____	_____	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks:

SOIL

Sampling Point: DP52

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-4"	10YR 2/1	100					silt clay loam
4-8"	10YR 4/2	100					sandy loam
8"+	10YR 4/2	50%	10YR 4/2	50	C	M	clay loam mixed layer

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No \_\_\_\_\_

Remarks: *not quite there as hydric soil, but other data plots (2) for the wetland canal met the criteria with S6 or F3 lacking redox concentrations*

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No \_\_\_\_\_

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: *Dry ditch, headgate nearby - no evidence of recent use*

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass/Johnson 1 City/County: Yellowstone Sampling Date: 7/13/11  
 Applicant/Owner: MBT State: MT Sampling Point: DP01(S)  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S 17, 19, 20 T1N R21E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: Some  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P5m/Riparian  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>water absent in this large canal</u> <div style="text-align: right;"><u>same as wetland S</u></div>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Reed canary grass Parundinca</u> <u>90</u> <input checked="" type="checkbox"/> <u>FACW</u> 2. <u>Meadow foxtail Alopecurus pratensis</u> <u>10</u> _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_\_\_ 2 - Dominance Test is >50%  
 \_\_\_\_\_ 3 - Prevalence Index is ≤3.0!  
 \_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks:  
Corridor for wildlife  
Den + tracks + coyote scat, bare ground @ base

SOIL

Sampling Point: Q1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 4/1	100					clay loam	
6-16	10YR 4/2	70	10YR 4/1	20				streaks of dark gray above
			7.5YR 4/6	10	C	m	dry loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4) *in culvert area*
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1) *@ culvert*
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

*Dry ditch, cracked soil 230E*

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/13/11  
 Applicant/Owner: not State: MT Sampling Point: T-1  
 Investigator(s): L. Straggis, G. Rand Section, Township, Range: S19, T1N, R27E  
 Landform (hillslope, terrace, etc.): IV Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2-3  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2M

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? no Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? no (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>ditch between intersection</u> <div style="text-align: right;"><u>photos S 236 N 237</u></div>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Reed canary grass, Parundinaca</u> <u>100</u> <input checked="" type="checkbox"/> <u>FACW</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_\_\_ 2 - Dominance Test is >50%  
 \_\_\_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes  No \_\_\_\_\_

Remarks:

SOIL

Sampling Point: 71

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-10	10 YR 2/1	90	7.5 5/6	10	C	M	Silt loam	redox
10-16	10 YR 4/5	80%	10 YR 2/1	10	C	M	Silt loam	or gley (black)
			7.5 5/6	10	C	M		redox

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)  | <input type="checkbox"/> Surface Soil Cracks (B6)                                  |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Aquatic Invertebrates (B13)                                   | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)                   |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                                    | <input type="checkbox"/> Drainage Patterns (B10)                                   |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry-Season Water Table (C2)                                   | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled) | <input type="checkbox"/> Crayfish Burrows (C8)                                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                 | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                 |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Thin Muck Surface (C7)  | <input type="checkbox"/> Geomorphic Position (D2)                                  |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Other (Explain in Remarks)                                    | <input type="checkbox"/> FAC-Neutral Test (D5)                                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)                         |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  |  |

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 6 1/2  
 Water Table Present? Yes  No  Depth (inches): 10 1/2  
 Saturation Present? Yes  No  Depth (inches): 0  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billing Bypass City/County: Yellowstone Sampling Date: 7/13  
 Applicant/Owner: MBT State: MT Sampling Point: 7-2  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S19 T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is >3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
_____ = Total Cover				
Herb Stratum (Plot size: _____)				
1. <u>Smooth brome</u> <u>B. inermis</u> <u>100</u> <u>upl</u>				
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

SOIL

Sampling Point: I 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR	3/2	10Y					

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: hard pan  
Depth (inches): 5

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13) nd
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/13/11  
 Applicant/Owner: MST State: MT Sampling Point: T-3  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S19, T1N, R27E  
 Landform (hillslope, terrace, etc.): depression Local relief (concave) convex, none: \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: Pem

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes \_\_\_\_\_ No   
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <p style="font-size: 1.2em;">Surrounded by Interstate intersection photo N 235</p> <p style="font-size: 1.2em; margin-left: 200px;">wetlands connected to T1 and N1 by culvert</p>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Red canary grass, <i>Parum dimeria</i> 100%</u> <input checked="" type="checkbox"/> <u>FACW</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks:  
pit 5' from edge of water

SOIL

Sampling Point: 13

**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/1	90	7.5Y 5/6	10	C	M	Silty clay	redox below 2"
4-16	10YR 4/1	80	10YR 3/1	10	C	M	"	
			7.5Y 6	5	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.    <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

**Restrictive Layer (if present):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>		<b>Secondary Indicators (minimum of two required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

**Field Observations:**

Surface Water Present? Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>12"</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): <u>0"</u>	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Culverts from T1 - dead end here

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MSTO State: MT Sampling Point: N1 (Wetlands)  
 Investigator(s): L. Stragis, J. Gage Section, Township, Range: S19, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: Pcm

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Low spot @ on ramp ↘ US-90 from Johnson Lane N, W intersection between culverts, between on ramp + Hwy, flow S → N</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Cattail, T. latifolia</u> <u>70</u> <input checked="" type="checkbox"/> <u>OBL</u> 2. <u>Reed canary grass, Parundinaceae</u> <u>20</u> <input checked="" type="checkbox"/> <u>FACW</u> 3. <u>Shorea milkweed, A. speciosa</u> <u>10</u> _____ 4. <u>Cowbird dock, R. crispus</u> <u>5</u> _____ 5. <u>Poa, bluegrass P. pratensis</u> <u>10</u> _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
% Bare Ground in Herb Stratum _____				

**Hydrophytic Vegetation Indicators:**  
 1 - Rapid Test for Hydrophytic Vegetation  
 2 - Dominance Test is >50%  
 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)  
<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes  No \_\_\_\_\_

Remarks: \_\_\_\_\_

SOIL

Sampling Point: N1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5"	10YR 2/1						sandy loam	
5-14	10YR 3/2	70	Gley 3/N	30			sandy clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input checked="" type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2) <u>NA &gt;12"</u>	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Water-Stained Leaves (B9)		

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 2

Water Table Present? Yes  No  Depth (inches): 16

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: flow S→N intersection on ramp 2 culverts

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/14/11  
 Applicant/Owner: MDT State: MT Sampling Point: N 2  
 Investigator(s): L. Stages & Gase Section, Township, Range: S19 T14 R27E Wetlands  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): CG Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>See N 1</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)  Total Number of Dominant Species Across All Strata: _____ (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Bluegrass, P. pratensis</u> <u>40</u> <u>UPL</u> 2. <u>Tart wheat A. intermedium</u> <u>30</u> <u>1</u> 3. <u>Smooth brome B. uncinata</u> <u>30</u> <u>1</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				
Remarks: _____				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>				

SOIL

Sampling Point: N2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR	3/2						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):  
 Type: hard pan  
 Depth (inches): 5 in

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

<b>Wetland Hydrology Indicators:</b>		
<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_ (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:  
None

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Billings Bypass, Johnson 2 City/County: Yellowstone Sampling Date: 7/13/11  
 Applicant/Owner: MOT State: MT Sampling Point: W-1  
 Investigator(s): L. Stragis, G. Randal Section, Township, Range: S19, T1N, R21E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PEM

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <p style="font-size: 1.2em;">ditch E of wetland w/ Johnson lane                  Representational veg of entire wetland d <span style="float: right;">large wetland complex</span></p>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Russian olive <i>E. angustifolia</i></u>	<u>10</u>	<input checked="" type="checkbox"/>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)				<b>Prevalence Index worksheet:</b>
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Cattail <i>Typha latifolia</i></u>	<u>90</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
3. _____	_____	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks:  
 photo 245-246  
 Common yellow flowered, yellow, R-W Blvd,  
 US Army Corps of Engineers Great Plains – Version 2.0

SOIL

Sampling Point: U1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	2/1							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> (LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	<input type="checkbox"/> (MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):  
 Type: fill 6"+  
 Depth (inches): \_\_\_\_\_  
 Hydric Soil Present? Yes  No

Remarks:  
hard pan - road fill

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> (where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:  
 Surface Water Present? Yes  No  Depth (inches): 6  
 Water Table Present? Yes  No  Depth (inches): 6  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0"  
 Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Billings Bypass Johnson 2 City/County: Yellowstone Sampling Date: 7/13  
 Applicant/Owner: MTOT State: MT Sampling Point: W3  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S19, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2M

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No  Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	
Remarks: extensive cattail wetland edge of cattails > open water photo S 240, S 241 -> separate wetland S	

**VEGETATION - Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): _____ (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: _____ (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
4. _____	_____	_____	_____	
_____ = Total Cover				
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
_____ = Total Cover				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Cattails</u> <u>T. latifolia</u>	<u>100%</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	<input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2. _____	_____	_____	_____	_____ 2 - Dominance Test is >50%
3. _____	_____	_____	_____	_____ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____	_____	_____	_____	_____ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____	_____	_____	_____	Yes <input checked="" type="checkbox"/> No _____
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks:  
 Am Goldfinch, G-B heron, + Western Kingbird, Eastern Kingbird, Barn Swallows, cliff sw, Indigo  
 US Army Corps of Engineers Great Plains - Version 2.0

SOIL

Sampling Point: V3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2 1/2	10YR 3/1	100%					silt loam	
2-10	10YR 2/1	100					mucky mineral	
10+	same							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                             | <input type="checkbox"/> Sandy Gleyed Matrix (S4)      | <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)  |
| <input type="checkbox"/> Histic Epipedon (A2)                      | <input type="checkbox"/> Sandy Redox (S5)              | <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)  |
| <input type="checkbox"/> Black Histic (A3)                         | <input type="checkbox"/> Stripped Matrix (S6)          | <input type="checkbox"/> Dark Surface (S7) (LRR G)  |
| <input checked="" type="checkbox"/> Hydrogen Sulfide (A4)          | <input type="checkbox"/> Loamy Mucky Mineral (F1)      | <input type="checkbox"/> High Plains Depressions (F16)  |
| <input checked="" type="checkbox"/> Stratified Layers (A5) (LRR F) | <input type="checkbox"/> Loamy Gleyed Matrix (F2)      | (LRR H outside of MLRA 72 & 73)   |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)              | <input type="checkbox"/> Depleted Matrix (F3)          | <input type="checkbox"/> Reduced Vertic (F18)   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)         | <input type="checkbox"/> Redox Dark Surface (F6)       | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Thick Dark Surface (A12)                  | <input type="checkbox"/> Depleted Dark Surface (F7)    | <input type="checkbox"/> Very Shallow Dark Surface (TF12)   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                  | <input type="checkbox"/> Redox Depressions (F8)        | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) | <input type="checkbox"/> High Plains Depressions (F16) | <sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic. |
| <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)      | (MLRA 72 & 73 of LRR H)                                |   |

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

Secondary Indicators (minimum of two required)

- |  |   |   |
|--|---|---|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                           | <input type="checkbox"/> Surface Soil Cracks (B6)                   |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Aquatic Invertebrates (B13)                | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)    |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 | <input type="checkbox"/> Drainage Patterns (B10)                    |
| <input checked="" type="checkbox"/> Water Marks (B1)               | <input type="checkbox"/> Dry-Season Water Table (C2)                | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) | (where tilled)  |
| <input type="checkbox"/> Drift Deposits (B3)                       | (where not tilled)  | <input type="checkbox"/> Crayfish Burrows (C8)                      |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)              | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)  |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     | <input type="checkbox"/> Geomorphic Position (D2)                   |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 | <input type="checkbox"/> FAC-Neutral Test (D5)                      |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   | <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)          |

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 3"  
 Water Table Present? Yes  No  Depth (inches): 3"  
 Saturation Present? Yes  No  Depth (inches): 0"  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass Johnson 2 City/County: Yellowstone Sampling Date: 7/3/11  
 Applicant/Owner: met State: MT Sampling Point: V-1 with W  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S19 T1N, R27 E  
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): (none) Slope (%): 0  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area <sup>1</sup> within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>man-made berms/terrace, wetter w/cattails west excavated depression photo W,E 244,243</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Russian olive, Z. angustifolia</u>	<u>30%</u>	<u>yes</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>quackgrass, A. repens</u>	<u>10</u>	_____	_____	
2. <u>blow-hillrush, S. microcarpa</u>	<u>50</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
3. <u>hardstem bullrush, S. acutus</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>OBL</u>	
4. <u>showy milkweed, A. speciosa</u>	<u>5</u>	_____	_____	
5. <u>cinqufoil, Potentilla sp.</u>	<u>2.5</u>	_____	_____	
6. <u>hoary cress, Cardaria draba</u>	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	_____ = Total Cover
% Bare Ground in Herb Stratum _____				

Remarks:

SOIL

Sampling Point: V1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features			Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>				
0-5	3/2 10YR	90	7.5YR 4/6	10	C	m	silty clay loam		
5-6	10YR 2/1	85%	7.5YR 4/6	15	C	m	sand		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: 6 - heavy rock cobbles

Depth (inches): 6"

Hydric Soil Present? Yes  No

Remarks:

excavated

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled) NO
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 5

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

F → flows east

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billing BP Johnson 2 City/County: Yellowstone Sampling Date: 7/13/14  
 Applicant/Owner: MKT State: MT Sampling Point: V2 (W)  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S19, T1N, R27E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 0  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: upland  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Terrace, from road bed, access</u> <u>photo 243E, 242W</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Bunch WG Agropyron spicatum 10%</u> <u>FACU</u> 2. <u>ph. grass B. tectorum 90%</u> <u>UPL</u> 3. <u>sedge Carex sp 5%</u> 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> _____				

**Hydrophytic Vegetation Indicators:**  
 \_\_\_ 1 - Rapid Test for Hydrophytic Vegetation  
 \_\_\_ 2 - Dominance Test is >50%  
 \_\_\_ 3 - Prevalence Index is ≤3.0<sup>1</sup>  
 \_\_\_ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 \_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No

Remarks: \_\_\_\_\_



**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass Mary Street City/County: Yellowstone Sampling Date: 7/12/11  
 Applicant/Owner: MBT State: MT Sampling Point: Y1  
 Investigator(s): L. Stragis, G. Rand Section, Township, Range: S11, T1N, R26E  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): none Slope (%): 0-2  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: P2m

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present?  Yes \_\_\_\_\_ No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (if needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Ditch ~ 5' wide</u> <u>use 2.2 as upland</u>	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Cottonwood</u> <i>Populus deltoides</i>	<u>10</u>	<input checked="" type="checkbox"/>	<u>EAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>3</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: _____)</b> 1. <u>Cottonwood</u> <i>P. deltoides</i> <u>20</u> <input checked="" type="checkbox"/> <u>FAC</u>				
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<b>Herb Stratum (Plot size: _____)</b> 1. <u>Woolly sedge</u> <i>C. lanuginosa</i> <u>80%</u> <input checked="" type="checkbox"/> <u>FAC</u> 2. <u>Curly dock</u> <i>R. crispus</i> <u>10</u> _____				
3. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b> 1. _____ 2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: \_\_\_\_\_

SOIL

Sampling Point: DP-9-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6"	10YR2/2						clay	
6-14"	10YR4/2	50	10YR5/2	45	D	M	clay	
14"	10Y5/2		7.5YR5/6	5	C	M	slty clay	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup>Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 cm Mucky Peat or Peat (S2) (LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) (MLRA 72 & 73 of LRR H)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)

- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry-Season Water Table (C2)
- Oxidized Rhizospheres on Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres on Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: Recently dry ditch; No water, no flow - possibly toward 3/2

**WETLAND DETERMINATION DATA FORM – Great Plains Region**

Project/Site: Billings Bypass City/County: Yellowstone Sampling Date: 7/10/11  
 Applicant/Owner: MDOT State: MT Sampling Point: DP-2-2 (Upland DP for)  
 Investigator(s): G. Rand, L. Stragis Section, Township, Range: S10, T1N, R26E  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 2%  
 Subregion (LRR): G Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: \_\_\_\_\_ NWI classification: Upland

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? No Are "Normal Circumstances" present? Yes  No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? No (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Malvus (ornamental)</u>	<u>50</u>	<input checked="" type="checkbox"/>		Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: _____ (B)
3. _____				
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
_____ = Total Cover				
Herb Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Smooth Brome B. tectorum</u>	<u>20</u>	<input checked="" type="checkbox"/>	<u>UPL</u>	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Taraxacum sp.</u>	<u>15</u>	<input checked="" type="checkbox"/>		
3. <u>Ampelodesmos sp. repens</u>	<u>25</u>			
4. <u>Trifolium</u>	<u>20</u>			
5. <u>Poa pratensis - bluegrass</u>	<u>40</u>	<input checked="" type="checkbox"/>	<u>FACU</u>	
6. _____				
7. <u>Ornamental plum</u>	<u>25</u>			
8. _____				
9. _____				
10. _____				
_____ = Total Cover				
Woody Vine Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____				
2. _____				
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

Remarks: \_\_\_\_\_



MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199

3. Evaluation Date: Mo 08 Day 09 Yr 2011 4. Evaluator(s): L. Stragis 5. Wetlands/Site #(s): P, AC

6. Wetland Location(s): i. Legal: T 1 N or S; R 27 E or W; S 18 and 19; T 1 N or S; R 27 E or W; S 7; ii. Approx. Stationing or Mileposts: \_\_\_\_\_

iii. Watershed: L0070007 Watershed Name, County: UPPER Yellowstone, Pompeys Pillar Yellowstone County

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

10. Classification of Wetland and Aquatic Habitats in AA Fringe wetlands along supply/waste ditch

wetland P  
AC

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	E, I, D, A	P	20%
R	EM SS	E, I, D A	P	

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:  
 i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	<u>high disturbance</u>	high disturbance

Comments: (types of disturbance, intensity, season, etc.): irrigation ditches excavated, impounded, & diked, shrub trees 20%

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Canada thistle, Russian olive

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: commercial & agricultural use

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
<u>2 (or 1 if forested) classes</u>	<u>M</u>	NA	NA	NA
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

Comments: mostly emergent, 20% Russian olive

**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) \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

<i>Highest Habitat Level</i>	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<i>Functional Points and Rating</i>	1H	.9H	.8M	.7M	.3L	.1L	<u>0L</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) \_\_\_\_\_
- Incidental habitat (list species)                (S) gibbet blue heron
- No usable habitat                                    S \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

<i>Highest Habitat Level</i>	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> <i>Functional Points and Rating</i>	1H	.8H	<u>.7M</u>	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> <i>Functional Points and Rating</i>	.9H	.7M	.6M	.5M	.2L	.1L	0L

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

**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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent **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])

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

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW) \_\_\_ Warm Water (WW) \_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
<b>FWP Tier I fish species</b>	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
<b>FWP Tier II or Native Game fish species</b>	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
<b>FWP Tier III or Introduced Game fish</b>	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
<b>FWP Non-Game Tier IV or No fish species</b>	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)  
 a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** NA **Comments:** carp in ditch (spawning activity)

**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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
% of flooded wetland classified as forested and/or scrub/shrub									
AA contains <b>no outlet or restricted outlet</b>	.1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 – 2.2	Entrenched ER = 1.0 – 1.4		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 acre feet			≤1 acre foot		
	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	.1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:**

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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								
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F)	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: cattail + Russian olive

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y **(N)** If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. **Final Score and Rating:** .6M **Comments:** Buffer area - mowed hayfield

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

- i. **Discharge Indicators**
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- ii. **Recharge Indicators**
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: controlled irrigation supply/waste ditch seep out of ditch visible



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): P and AC

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	M	.7	1		*
C. General Wildlife Habitat	m	.5	1		*
D. General Fish Habitat			NA		
E. Flood Attenuation	L	.2	1		
F. Short and Long Term Surface Water Storage			NA		
G. Sediment/Nutrient/Toxicant Removal			NA		
H. Sediment/Shoreline Stabilization	m	.7	1		*
I. Production Export/Food Chain Support	m	.6	1		*
J. Groundwater Discharge/Recharge			NA		143iii * see comment
K. Uniqueness	L	.1	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		2.8	7		
Percent of Possible Score			40 %		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**  
 Percent of possible score > 80% (round to nearest whole #).

**Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)  
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**  
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**  
 Score of .9 or 1 functional point for General Fish Habitat; **or**  
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**  
 Score of .9 functional point for Uniqueness; **or**  
 Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)  
 "Low" rating for Uniqueness; **and**  
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**  
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II **III** IV

## MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199  
 3. Evaluation Date: Mo. 09 Day 23 Yr. 2011 4. Evaluator(s): L. Shagis 5. Wetlands/Site #(s): AF, AG  
 6. Wetland Location(s): i. Legal: T 1 N or S; R 27 E or W; S 7 ; T \_\_\_ N or S; R \_\_\_ E or W; S \_\_\_ ;  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_  
 iii. Watershed: L0070007 Watershed Name, County: Upper Yellowstone; Pompey's Hill; Yellowstone Co

7. a. Evaluating Agency: MDT 8. Wetland size: (total acres) 15 acres (visually estimated) each  
 b. Purpose of Evaluation: \_\_\_\_\_ (measured, e.g. by GPS [if applies])  
 1.  Wetlands potentially affected by MDT project  
 2.  Mitigation wetlands; pre-construction  
 3.  Mitigation wetlands; post-construction  
 4.  Other \_\_\_\_\_  
 9. Assessment area (AA): (acres, 15 acres (visually estimated)  
 see instructions on determining AA) \_\_\_\_\_ (measured, e.g. by GPS [if applies])

**10. Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	UB		PP	70
S	EM		"	60
	SS		"	30
	FO		"	25

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

**12. General condition of AA:**

I. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): noxious weed = 5/15% roads east of AA = gravel pit & cultivated crops, some roads

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Canada thistle, reed canarygrass

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Yellowstone River flood plain wetland

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	<u>H</u>	NA	NA	<u>NA</u>
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

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 whooping crane - during migration
  - No usable habitat                                    S \_\_\_\_\_

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 Bald eagle foraging trees
  - Secondary habitat (list species)                D S Bald eagle, great blue heron, Bats
  - Incidental habitat (list species)                D S Peregrine falcon
  - No usable habitat                                    S \_\_\_\_\_

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

<i>Highest Habitat Level</i>	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> <i>Functional Points and Rating</i>	1H	.8H	<del>.7M</del>	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> <i>Functional Points and Rating</i>	<u>.9H</u>	.7M	<u>.6M</u>	.5M	.2L	.1L	0L

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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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])

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

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW)  Warm Water (WW)  Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y(N)** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? **(Y) N** If yes, add 0.1 to the adjusted score in i or iia above: .9 + 0.1 = 1.0

iii. Final Score and Rating: 1.0 E Comments: Yellowstone River

**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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2	Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)? **Y (N)** Comments: Flooded areas mostly emergent veg.

**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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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								
Evidence of flooding / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: *Some areas of wetland A6 is mostly sand/gravel*

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
P/P	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
S/I	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L
T/E/A																		

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y **(N)** If yes, add 0.1 to the score in ii above and adjust rating accordingly: *weedy upland of*

iv. **Final Score and Rating:** .9H **Comments:**

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

i. **Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps 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
- Shallow water table and the site is saturated to the surface
- Other: \_\_\_\_\_

ii. **Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains Inlet but no outlet
- Stream is a known "losing" stream; discharge volume decreases
- Other: \_\_\_\_\_



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): AF, AG

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	H	.8	1		
B. MT Natural Heritage Program Species Habitat	H	.9	1		*
C. General Wildlife Habitat	H	.9	1		*
D. General Fish Habitat	E	1.0	1		*
E. Flood Attenuation	M	.5	1		
F. Short and Long Term Surface Water Storage	H	.8	1		
G. Sediment/Nutrient/Toxicant Removal	M	.4	1		
H. Sediment/Shoreline Stabilization	H	1.0	1		*
I. Production Export/Food Chain Support	H	.9	1		*
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	H	.8	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		8.0	10		
Percent of Possible Score			80%		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**  
 Percent of possible score > 80% (round to nearest whole #).

**Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)  
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**  
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**  
 Score of .9 or 1 functional point for General Fish Habitat; **or**  
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**  
 Score of .9 functional point for Uniqueness; **or**  
 Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)  
 "Low" rating for Uniqueness; **and**  
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**  
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I **II** III IV

## MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56/55 Control #: 4199  
 3. Evaluation Date: Mo. 9 Day 14 Yr. 2011 4. Evaluator(s): L. Stajis 5. Wetlands/Site #(s): AH  
 6. Wetland Location(s): i. Legal: T 1 N or S; R 27 E or W; S 18 ; T \_\_\_ N or S; R \_\_\_ E or W; S \_\_\_  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_  
 iii. Watershed: 10070007 Watershed Name, County: Upper Yellowstone, Pompey's Bluff, Yellowstone Co.

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

**10. Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>S</u>	<u>PSS</u>		<u>SI</u>	<u>40</u>
	<u>EM</u>		<u>SI</u>	<u>60</u>

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

**12. General condition of AA:**

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	moderate disturbance	moderate disturbance	<u>high disturbance</u>
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): located within a grazed pit site, og. site in the center

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: NA  
 iii. Provide brief descriptive summary of AA and surrounding land use/habitat: see above

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	<u>M</u>	NA	NA	NA
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

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

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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                                      S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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)																				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW)\_\_\_ Warm Water (WW)\_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal																		
<b>FWP Tier I fish species</b>	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
<b>FWP Tier II or Native Game fish species</b>	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
<b>FWP Tier III or Introduced Game fish</b>	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
<b>FWP Non-Game Tier IV or No fish species</b>	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** \_\_\_\_\_ **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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2	Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

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

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA								
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: receives sediment from gravel pit + ag use

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

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings (circle))

General Fish Habitat Rating (14D.III.)	General Wildlife Habitat Rating (14C.III.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) Vegetated Upland Buffer (VUB): Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y (N) If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. Final Score and Rating: .4M Comments: surrounded by ag use + gravel pit

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

- i. Discharge Indicators
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- ii. Recharge Indicators
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: \_\_\_\_\_



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): AH

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	0	1		
C. General Wildlife Habitat	L	.1	1		
D. General Fish Habitat	---		NA		
E. Flood Attenuation	---		NA		
F. Short and Long Term Surface Water Storage	---		NA		
G. Sediment/Nutrient/Toxicant Removal	M	.7	1		
H. Sediment/Shoreline Stabilization	M	.6	1		
I. Production Export/Food Chain Support	M	.4	1		
J. Groundwater Discharge/Recharge	---		N		
K. Uniqueness	L	.2	1		
L. Recreation/Education Potential (bonus points)	---		NA		
Totals:		20	7		
Percent of Possible Score			28%		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**  
 Percent of possible score > 80% (round to nearest whole #).

**Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)  
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**  
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**  
 Score of .9 or 1 functional point for General Fish Habitat; **or**  
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**  
 Score of .9 functional point for Uniqueness; **or**  
 Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)  
 "Low" rating for Uniqueness; **and**  
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**  
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II III **IV**

## MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billing Bypass 2. MDT Project #: 56(55) Control #: 4199  
 3. Evaluation Date: Mo. 9 Day 23 Yr. 2011 4. Evaluator(s): L. Stigis 5. Wetlands/Site #(s): AK, AI  
 6. Wetland Location(s): i. Legal: T 1 N or S; R 27 E or W; S 19 ; T \_\_\_ N or S; R \_\_\_ E or W; S \_\_\_ ;  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_  
 iii. Watershed: LOO 70007 Watershed Name, County: Upper Yellowstone; Park; Billings

7. a. Evaluating Agency: MDT 8. Wetland size: (total acres) 2.1 ac (visually estimated)  
 b. Purpose of Evaluation: \_\_\_\_\_ (measured, e.g. by GPS [if applies])  
 1.  Wetlands potentially affected by MDT project  
 2.  Mitigation wetlands; pre-construction  
 3.  Mitigation wetlands; post-construction  
 4.  Other \_\_\_\_\_  
 9. Assessment area (AA): (acres, 2.1 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 Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
D	PEM	AI	SI	100

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

**12. General condition of AA:**

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): middle of gravel pit / AI - RR Row

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species:

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: see above

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

Existing # of "Cowardin" Vegetated Classes In AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	<u>M</u>	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

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 \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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                                      S \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

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

**Minimal** (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 rating. Structural diversity is from #13.

For class cover to be considered evenly distributed, the most and least prevalent 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	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)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW) \_\_\_ Warm Water (WW) \_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
<b>FWP Tier I fish species</b>	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
<b>FWP Tier II or Native Game fish species</b>	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
<b>FWP Tier III or Introduced Game fish</b>	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
<b>FWP Non-Game Tier IV or No fish species</b>	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** NA **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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4	
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:**

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains no or restricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

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

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

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

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.III.)	General Wildlife Habitat Rating (14C.III.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y **N** If yes, add 0.1 to the score in ii above and adjust rating accordingly.

iv. Final Score and Rating: .2L

Comments: Upland buffer not vegetated

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

- i. Discharge Indicators**
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- ii. Recharge Indicators**
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: \_\_\_\_\_

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands <u>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</u>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information			N/A	

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) Y N (if 'Yes' continue with the evaluation; if 'No' then circle **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

A1 isolated wetland in middle of gravel yard that is operational, probably a remnant of wetland "W" W

A2 isolated wetland in RR ROW

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S):

AK, AI

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	0	1		
C. General Wildlife Habitat	L	0.2	1		
D. General Fish Habitat			NA		
E. Flood Attenuation			NA		
F. Short and Long Term Surface Water Storage	L	3	1		*
G. Sediment/Nutrient/Toxicant Removal	H	8	1		*
H. Sediment/Shoreline Stabilization			NA		
I. Production Export/Food Chain Support	L	2	1		
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	L	2	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		17	7		
Percent of Possible Score			34%		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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
- Percent of possible score > 80% (round to nearest whole #).

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

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; or
- Score of .9 or 1 functional point for General Wildlife Habitat; or
- Score of .9 or 1 functional point for General Fish Habitat; or
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat and General Fish/Aquatic Habitat; or
- Score of .9 functional point for Uniqueness; or
- Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)

- "Low" rating for Uniqueness; and
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above)

I    II    III    **IV**

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199  
 3. Evaluation Date: Mo. 8 Day 9 Yr. 2011 4. Evaluator(s): G. Rand 5. Wetlands/Site #(s): Wetland C and AD  
 6. Wetland Location(s): I. Legal: T 4 (N or S; R 26 (E or W; S 11); T 1 N or S; R 26 (E or W; S 1);  
 II. Approx. Stationing or Mileposts: South half of SW 1/4  
 III. Watershed: 10070007 Watershed Name, County: Upper Yellowstone Pompaux Pillar  
Yellowstone County

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

### 10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>R</u>	<u>EM</u>	<u>A, I</u>	<u>PP</u>	<u>100</u>
<u>R</u>	<u>EM</u>	<u>S, A</u>	<u>PP</u>	<u>100</u>

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

### 12. General condition of AA:

I. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	<u>high disturbance</u>

Comments: (types of disturbance, intensity, season, etc.): Drainage canal w/ adjacent rock berms

II. Prominent noxious, aquatic nuisance, & other exotic vegetation species:

III. Provide brief descriptive summary of AA and surrounding land use/habitat: Adjacent to pasture cultivated fields.

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	M	NA	NA
1 class, but not a monoculture	M	←NO	<u>L</u>
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA

Comments: Wetland C is an artificial irrigation canal that supports wetland plants.

**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

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 Possible use for foraging by birds water birds. fish presence unknown
  - No usable habitat                                    S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

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

**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
- Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent vegetated classes must be within 20% of each other in terms of their percent composition of the AA (see #10). Abbreviations for surface water durations are as follows: P/P = permanent/perennial; S/I = seasonal/intermittent; T/E = temporary/ephemeral; and A = absent [see instructions for further definitions of these terms])

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

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle NA here and proceed to 14E.)

Type of Fishery: Cold Water (CW) \_\_\_ Warm Water (WW) \_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

I. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Aquatic hiding / resting / escape cover																		
Thermal cover optimal / suboptimal																		
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

II. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? Y N If yes, reduce score in I above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? Y N If yes, add 0.1 to the adjusted score in I or IIa above: \_\_\_\_\_

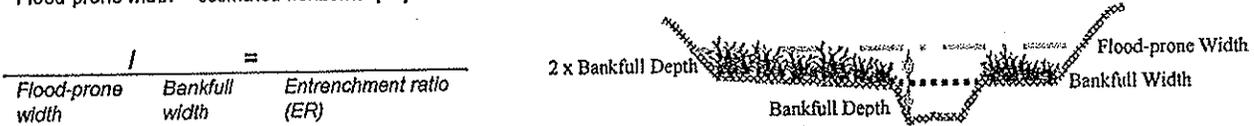
III. Final Score and Rating: \_\_\_\_\_ Comments: Fish may be present, but are not desirable.

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 14F.)

I. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
% of flooded wetland classified as forested and/or scrub/shrub									
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2	Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

II. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

I. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments: Wetland fringe does not provide water storage

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

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 14H does not apply, circle **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: Wetland plants emergent only. Banks eroded so plants play little part in bank stabilization.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) Vegetated Upland Buffer (VUB): Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y **N** If yes, add 0.1 to the score in ii above and adjust rating accordingly.

iv. Final Score and Rating: .3L Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

- i. Discharge indicators
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- ii. Recharge indicators
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: \_\_\_\_\_



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S):

Wetland C  
and Wetland AD

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	NA	NA	1		
B. MT Natural Heritage Program Species Habitat	L	0.1	1		
C. General Wildlife Habitat	L	0.1	1		
D. General Fish Habitat	NA	NA	NA		
E. Flood Attenuation	L	0.1	1		
F. Short and Long Term Surface Water Storage	NA	NA	NA		
G. Sediment/Nutrient/Toxicant Removal	M	0.4	1		*
H. Sediment/Shoreline Stabilization	NA	NA	NA		
I. Production Export/Food Chain Support	L	0.3	1		*
J. Groundwater Discharge/Recharge	L	0.1	1		
K. Uniqueness	L	0.2	1		
L. Recreation/Education Potential (bonus points)	NA	NA	NA		
Totals:		1.3	8		
Percent of Possible Score			16.25 %		

**Category I Wetland:** (must satisfy one of the following criteria; otherwise 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
- Percent of possible score > 80% (round to nearest whole #).

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

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; or
- Score of .9 or 1 functional point for General Wildlife Habitat; or
- Score of .9 or 1 functional point for General Fish Habitat; or
- "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or
- Score of .9 functional point for Uniqueness; or
- Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)

- "Low" rating for Uniqueness; and
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above)

I    II    III    **IV**

## MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199

3. Evaluation Date: Mo. 8 Day 9 Yr. 2011 4. Evaluator(s): G. Rand 5. Wetlands/Site #(s): Wetland D

6. Wetland Location(s): i. Legal: T 1 (N) or S; R 2 1/2 (E) or W; S 11; T 11 N or S; R 11 E or W; S 11  
 ii. Approx. Stationing or Mileposts: South half of SW 1/4

iii. Watershed: 10070007 Watershed Name, County: Upper Yellowstone Pompeys Pillar Yellowstone County

7. a. Evaluating Agency: MDT;  
 b. Purpose of Evaluation:  
 1.  Wetlands potentially affected by MDT project  
 2.  Mitigation wetlands; pre-construction  
 3.  Mitigation wetlands; post-construction  
 4.  Other \_\_\_\_\_  
 8. Wetland size: (total acres) < 0.1 (visually estimated)  
 \_\_\_\_\_ (measured, e.g. by GPS [if applies])  
 9. Assessment area (AA): (acres, < 0.1 (visually estimated)  
 see instructions on determining AA) \_\_\_\_\_ (measured, e.g. by GPS [if applies])

Narrow drainage ditch

**10. Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>R</u>	<u>EM</u>	<u>A</u>	<u>TE</u>	<u>100</u>

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

**12. General condition of AA:**

i. Disturbance: (use matrix below to determine [circle] appropriate response -- see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	<u>high disturbance</u>

Comments: (types of disturbance, intensity, season, etc.): Drainage ditch in cultivated field

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: reed canary grass

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: cultivated field

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

Existing # of "Cowardin" Vegetated Classes In AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	M	NA	NA
1 class, but not a monoculture	M	← NO	L
1 class, monoculture (1 species comprises ≥90% of total cover)	<u>L</u>	NA	NA

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

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 could provide ephemeral foraging habitat for some birds  
 No usable habitat                                 S

ii. Rating (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

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

**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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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)																				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12)	E	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	M	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)

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

Comments:

14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle NA here and proceed to 14E.)

Type of Fishery: Cold Water (CW) \_\_\_ Warm Water (WW) \_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? Y N If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? Y N If yes, add 0.1 to the adjusted score in i or i/a above: \_\_\_\_\_

iii. Final Score and Rating: \_\_\_\_\_ 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 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

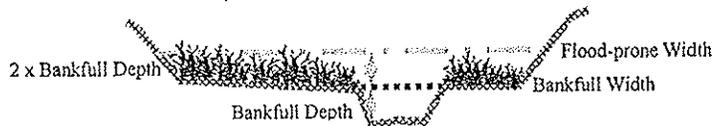
Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains no outlet or restricted outlet	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

Entrenchment ratio (ER) estimation - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.

4, 3' = 1.33

Flood-prone width / Bankfull width = Entrenchment ratio (ER)



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4	
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

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

Uncertain about frequency. Documented higher.

14G. Sediment/Nutrient/Toxicant Retention and Removal: (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

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 14H does not apply, circle **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. Rating (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. Modified Rating (NOTE: Modified score cannot exceed 1 or be less than 0.1.) Vegetated Upland Buffer (VUB): Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y **N** If yes, add 0.1 to the score in ii above and adjust rating accordingly:

iv. Final Score and Rating: 2L Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- The AA is a slope wetland
- Springs or seeps 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
- Shallow water table and the site is saturated to the surface
- Other: \_\_\_\_\_

ii. Recharge Indicators

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: \_\_\_\_\_





FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S):

Wetland D-M S

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	NA	1.0	1		
B. MT Natural Heritage Program Species Habitat	L	0.1	1		
C. General Wildlife Habitat	L	0.1	1		
D. General Fish Habitat	NA	NA	NA		
E. Flood Attenuation	L	0.2	1		
F. Short and Long Term Surface Water Storage	L	0.2	1		
G. Sediment/Nutrient/Toxicant Removal	M	0.5	1		
H. Sediment/Shoreline Stabilization	L	0.1	1		
I. Production Export/Food Chain Support	L	0.2	1		
J. Groundwater Discharge/Recharge	NA	NA	NA		
K. Uniqueness	L	0.2	1		
L. Recreation/Education Potential (bonus points)	NA	NA	NA		
Totals:		1.5	9		
Percent of Possible Score			16.6 %		

**Category I Wetland:** (must satisfy one of the following criteria; otherwise 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
- Percent of possible score > 80% (round to nearest whole #).

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

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; or
- Score of .9 or 1 functional point for General Wildlife Habitat; or
- Score of .9 or 1 functional point for General Fish Habitat; or
- "High" to "Exceptional" ratings for both General Wildlife Habitat and General Fish/Aquatic Habitat; or
- Score of .9 functional point for Uniqueness; or
- Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)

- "Low" rating for Uniqueness; and
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above)

I    II    III    **IV**



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

1. Project Name: Billings Bypass 2. Project #: NCPD 56(55) Control #: 4199

3. Evaluation Date: Mo. 09 Day 18 Yr. 2007 4. Evaluator(s): DMKR, SLPA 5. Wetlands/Site #(s): D9

6. Wetland Location(s): I. Legal: T 1 N N or S; R 27 E E or W, S 17/18 T N or S R E or W; S

II. Approx. Stationing or Mileposts: W of Coulson Rd.

III. Watershed: Upper Yellowstone River - Pompeys Pillar GPS Reference No. (if applies) 108°24'16.661"W 45°50'12.912"N

Other Location Information: \_\_\_\_\_

7. a. Evaluating Agency: David Evans & Associates, Inc. 8. Wetland size: (total acres) \_\_\_\_\_ (visually estimated)

b. Purpose of Evaluation: \_\_\_\_\_ 0.67 acres (measured, e.g. by GPS (if applies))

1.  Wetlands potentially affected by MDT project
  2.  Mitigation wetlands; pre-construction
  3.  Mitigation wetlands; post-construction
  4.  Other
9. Assessment area (AA, tot., ac.) 2011 = 10000 Lacoue (visually estimated)  
 (see instructions on determining AA) 0.67 acres (measured, e.g. by GPS (if applies))

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depressional	P		EM	J		100

Abbreviations: System: Palaustine (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 (LV); Subsystem: Littoral (L); 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 (x), 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 similarity classified sites within the same Major Montana Watershed Basin, see definitions)

(circle one) Unknown Rare Common **Abundant**

Comments: Wetland occurs at the bottom of a small drainage just north of the freeway.

12. General condition of AA:

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

Conditions with 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, cleaning or hydrological alteration, high road or building density
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but moderately grazed or hayed or selectively logged; or has been subject to relatively minor 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, cleaning, or hydrological alteration; high road or building density	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Moderately grazed, regulated hydrology.

ii. Prominent weedy, alien, and introduced species (including those not domesticated, feral): (list) \_\_\_\_\_

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Fringe wetland associated with an unnamed ditch.

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

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

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

## SECTION PERTAINING TO FUNCTIONS AND VALUES ASSESSMENT

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

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

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

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

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

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

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

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

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

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
<b>Functional Points and Rating</b>	1 (H)	.9 (H)	.8 (M)	.7 (M)	.5 (L)	.3 (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 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	E	H	E	E	E	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 exception (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 IDEQ 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])

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(M)	.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)	.6(M)	.8(H)	.6(H)	.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].)

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%	
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 = exception, 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 vegetation 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
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	.7M	.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**

ii. **Recharge 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

- 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 are present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments:

**14K. Uniqueness**

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

Replacement potential	AA contains fen, bog, warm springs or mature (> 80 yr old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
	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 AA a known rec./ed. Site: Y  (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

(If Yes, go to II, then proceed to IV; if No, then rate as [circle]  Low [0.1])

IV. **Rating** (use matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, 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)

**FUNCTION & VALUE SUMMARY & OVERALL RATING**

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points & Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0	1	
B. MT Natural Heritage Program Species Habitat	L	0	1	
C. General Wildlife Habitat	L	0.1	1	
D. General Fish/Aquatic Habitat	NA	NA	NA	
E. Flood Attenuation	L	0.1	1	
F. Short and Long Term Surface Water Storage	L	0.1	1	
G. Sediment/Nutrient/Toxicant Removal	M	0.7	1	
H. Sediment/Shoreline Stabilization	M	0.7	1	
I. Production Export/Food Chain Support	L	0.2	1	
J. Groundwater Discharge/Recharge	NA	NA	NA	
K. Uniqueness	L	0.1	1	
L. Recreation/Education Potential	L	0.1	1	
Totals:	L	2.1	10	=0.21 or 21%

**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 .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.

Wetland visited 8/26/11

~ 1/2 of wetland filled in. No other changes

Rating unchanged



## MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billing's Bypass 2. MDT Project #: 56(55) Control #: 4199

3. Evaluation Date: Mo. 9 Day 03 Yr. 2011 4. Evaluator(s): L. Strogis 5. Wetlands/Site #(s): E

6. Wetland Location(s): i. Legal: T 10 or S; R 24E or W; S 12; T     N or S; R     E or W; S    ;  
ii. Approx. Stationing or Mileposts:    

iii. Watershed: 1007000-7 Watershed Name, County: Upper Yellowstone; Pompeys Pillar; Yellowstone Co.

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

8. Wetland size: (total acres) ~1 acre (visually estimated)  
    (measured, e.g. by GPS [if applies])

9. Assessment area (AA): (acres, ~1 acre (visually estimated)  
see instructions on determining AA)     (measured, e.g. by GPS [if applies])

### 10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>D</u>	<u>S M E</u>	<u>1 D</u>	<u>PP</u>	<u>90</u>
	<u>FO</u>	<u>E 1 D</u>	<u>PP</u>	<u>10</u>
	<u>SS</u>	<u>E 1 D</u>	<u>PP</u>	<u>5</u>

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

### 12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

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

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Russian olive, reed canary grass, Canada thistle

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Rural residential, diked roadways, old gravel pit ponds, hayed

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	<u>H</u>	NA	NA	<u>NA</u>
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

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 \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 great blue heron
  - Incidental habitat (list species)             D S hoary bat
  - No usable habitat                                 S \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	<u>.6M</u>	<u>.5M</u>	.2L	.1L	0L

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

**Minimal** (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 -landowner

ii. **Wildlife habitat features** (Working from top to bottom, circle appropriate AA attributes in matrix to arrive at rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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)																				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	<u>H</u>	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)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) \_\_\_ Warm Water (WW)  Use the CW or WW guidelines in the user manual to complete the matrix

i. **Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat?  **N** If yes, reduce score in i above by 0.1: 4

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish?  **N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

iii. **Final Score and Rating:** 4M Comments: gravel pit pond

**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 14F.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type	

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)?  **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 to 14G.)

i. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

controlled water levels by gates

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains <b>no or restricted outlet</b>	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: outlet controlled gates, pit

**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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F)	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: cattails

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y **(N)** If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. **Final Score and Rating:** .6M Comments: mowing/haying

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

- i. **Discharge Indicators**
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- ii. **Recharge Indicators**
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: \_\_\_\_\_

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	.1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments: Fed from irrigation waste ditch

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) Y **N** (if 'Yes' continue with the evaluation; if 'No' then circle **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

NA

General Site Notes

Summary: Gravel pit ponds from 1980, wildlife corridor w/ 5 mile creek, water canal, irrigation waste ditch, leaves site > Yellowstone River, buffer - ready for hayfields

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): E

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	M	.6	1		
C. General Wildlife Habitat	M	.7	1		X
D. General Fish Habitat	M	.5	1		
E. Flood Attenuation			NA		
F. Short and Long Term Surface Water Storage	M	.4	1		
G. Sediment/Nutrient/Toxicant Removal	H	.8	1		X
H. Sediment/Shoreline Stabilization	H	1.0	1		X
I. Production Export/Food Chain Support	M	.6	1		
J. Groundwater Discharge/Recharge	H	1.0	NA		X
K. Uniqueness	M	.5	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		5.1	9.0		
Percent of Possible Score			56%		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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
- \_\_\_ Percent of possible score > 80% (round to nearest whole #).

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

- \_\_\_ Score of 1 functional point for MT Natural Heritage Program Species Habitat; or
- \_\_\_ Score of .9 or 1 functional point for General Wildlife Habitat; or
- \_\_\_ Score of .9 or 1 functional point for General Fish Habitat; or
- \_\_\_ "High" to "Exceptional" ratings for **both** General Wildlife Habitat and General Fish/Aquatic Habitat; or
- \_\_\_ Score of .9 functional point for Uniqueness; or
- \_\_\_ Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)

- \_\_\_ "Low" rating for Uniqueness; and
- \_\_\_ Vegetated wetland component < 1 acre (do not include upland vegetated buffer); and
- \_\_\_ Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II III IV

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199  
 3. Evaluation Date: Mo. 9 Day 03 Yr. 2001 4. Evaluator(s): L. Stajis 5. Wetlands/Site #(s): F, X  
 6. Wetland Location(s): i. Legal: T 10 N or S; R 260 E or W; S 12 ; T 10 N or S; R 260 E or W; S 11 ;  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_  
 iii. Watershed: L027000-7 Watershed Name, County: Upper Yellowstone; Pompeys Pillar  
Yellowstone CO

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

### 10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
F	R		PP	10
	EM	F	PP	180
	SS	F		10
X	S		PP	20
	EM		PP	80
	SS		PP	20

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

### 12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	moderate disturbance	<u>moderate disturbance</u>	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): edge of agricultural areas, some haying + pasture

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Red canarygrass, Siberian elm

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: agricultural, 5 mile creek

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	<u>H</u>	NA	NA	<u>NA</u>
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

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

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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 great blue heron, bats
- Incidental habitat (list species)             D S \_\_\_\_\_
- No usable habitat                                 S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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)																				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW)  Warm Water (WW)  Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier I fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier II or Native Game fish species	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Tier III or Introduced Game fish	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L
FWP Non-Game Tier IV or No fish species																		

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc. - specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: pool + riffles in natural stream

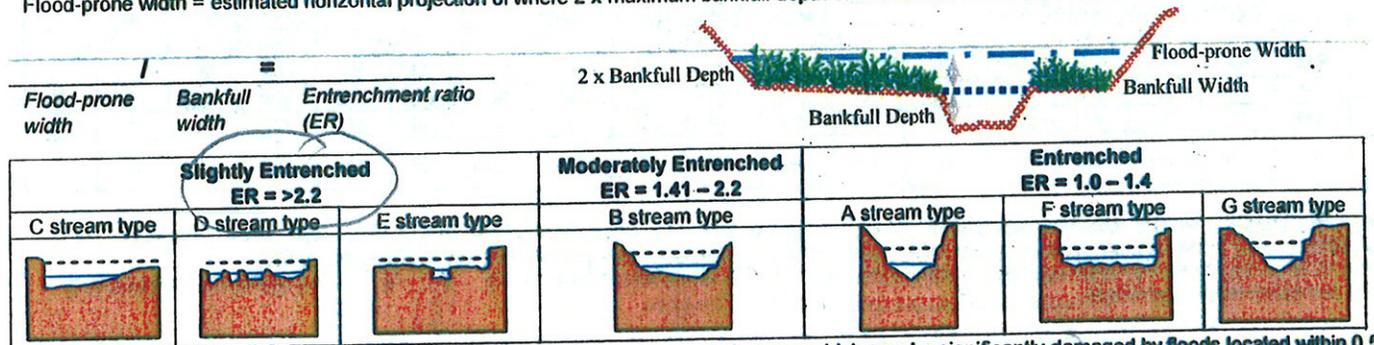
**iii. Final Score and Rating:** .8H Comments:

**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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
% of flooded wetland classified as forested and/or scrub/shrub	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains no outlet or restricted outlet	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L
AA contains unrestricted outlet									

**Entrenchment ratio (ER) estimation** - see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

Comments:

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments:

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

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
P/P	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
S/I	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L
T/E/A																		

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y** **N** If yes, add 0.1 to the score in ii above and adjust rating accordingly: weedy buffer

iv. **Final Score and Rating:** .8H **Comments:**

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

**i. Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps 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
- Shallow water table and the site is saturated to the surface
- Other: \_\_\_\_\_

**ii. Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: \_\_\_\_\_

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands <u>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</u>			
	P/P	S/L	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec.ed. site: (circle) Y N (if 'Yes' continue with the evaluation; if 'No' then circle NA here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

NA

General Site Notes

Summary: 5 mile creek wetland receives water from waste ditch as wildlife corridor buffer - hay + pasture, woody.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): F

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	M	6	1		
C. General Wildlife Habitat	M	7	1		
D. General Fish Habitat	H	8	1		*
E. Flood Attenuation	M	5	1		
F. Short and Long Term Surface Water Storage	M	4	1		
G. Sediment/Nutrient/Toxicant Removal	H	9	1		*
H. Sediment/Shoreline Stabilization	H	1.0	1		*
I. Production Export/Food Chain Support	H	8	1		*
J. Groundwater Discharge/Recharge			N/A		
K. Uniqueness	M	5	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		6.2	10		
Percent of Possible Score			62 %		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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
- \_\_\_ Percent of possible score > 80% (round to nearest whole #).

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

- \_\_\_ Score of 1 functional point for MT Natural Heritage Program Species Habitat; or
- \_\_\_ Score of .9 or 1 functional point for General Wildlife Habitat; or
- \_\_\_ Score of .9 or 1 functional point for General Fish Habitat; or
- \_\_\_ "High" to "Exceptional" ratings for **both** General Wildlife Habitat and General Fish/Aquatic Habitat; or
- \_\_\_ Score of .9 functional point for Uniqueness; or
- \_\_\_ Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)

- \_\_\_ "Low" rating for Uniqueness; and
- \_\_\_ Vegetated wetland component < 1 acre (do **not** include upland vegetated buffer); and
- \_\_\_ Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II **III** IV

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 52(55) Control #: 4199  
 3. Evaluation Date: Mo 08 Day 08 Yr. 2011 4. Evaluator(s): J. Stragis 5. Wetlands/Site #(s): I; J; R; AA  
 6. Wetland Location(s): i. Legal: T 1 N or S; R 26 E or W; S 11; T 1 N or S; R 270 E or W; S 17  
 ii. Approx. Stationing or Mileposts: AA: T11, R26E, S12  
 iii. Watershed: L0070007 Watershed Name, County: Upper Yellowstone from pipe Pillar Yellowstone County

7. a. Evaluating Agency: MDT  
 b. Purpose of Evaluation:  
 1.  Wetlands potentially affected by MDT project  
 2.  Mitigation wetlands; pre-construction  
 3.  Mitigation wetlands; post-construction  
 4.  Other \_\_\_\_\_  
 8. Wetland size: (total acres) 41.0 (visually estimated) each (measured, e.g. by GPS [if applies])  
 9. Assessment area (AA): (acres, 8ac (visually estimated) see instructions on determining AA) (measured, e.g. by GPS [if applies])  
*AA contains wetlands of lateral, wide A1-BAC - very narrow and long*

**10. Classification of Wetland and Aquatic Habitats in AA**

I=J  
R?  
AA?

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	SM	A, S	S1	<2%
	SS	A, S	S1	<2%
R	Sm	AS	S1	<2%
S	Sm	A, S, I	S1	100

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:  
 i. Disturbance: (use matrix below to determine [circle] appropriate response -- see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	<b>high disturbance</b>	high disturbance

Comments: (types of disturbance, intensity, season, etc.): heavily hayed, graded

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: see secondary grasses, field bind weed  
 iii. Provide brief descriptive summary of AA and surrounding land use/habitat: agricultural

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	<b>M</b>	NA	NA	<b>NA</b>
1 class, but not a monoculture	M	←NO	YES→	L
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

Comments: areas other than hayfields are <2% (wetlands) give AA and narrow

**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)

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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                                 (S)

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	(0L)

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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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)													(S/I)							
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	(S/I)	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12)	E	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	M	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)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW) \_\_\_\_\_ Warm Water (WW) \_\_\_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** NA **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 14F.) *-controlled irrigation*

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
% of flooded wetland classified as forested and/or scrub/shrub									
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4	
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 acre feet			≤1 acre foot		
	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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:**

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains no or restricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F)	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	(L)
E/H	H	H	M
M	H	M	M
L	M	M	L
(N/A)	H	M	(L)

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y (N) If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. **Final Score and Rating:** .3L

Comments: buffer heavily mowed

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

i. **Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps 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
- Shallow water table and the site is saturated to the surface
- Other: \_\_\_\_\_

ii. **Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known "losing" stream; discharge volume decreases
- Other: \_\_\_\_\_

waste ditch to 5 mile creek, but often no surface connectivity.



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S):

T, J, R (and X)

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	0	1		
C. General Wildlife Habitat	L	.1	1		
D. General Fish Habitat			NA		
E. Flood Attenuation			NA		
F. Short and Long Term Surface Water Storage			NA		
G. Sediment/Nutrient/Toxicant Removal	M	.4	1		*
H. Sediment/Shoreline Stabilization	H	.9	1		*
I. Production Export/Food Chain Support	L	.3	1		*
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	L	.1	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		1.8	7		
Percent of Possible Score			26 %		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**
- Percent of possible score > 80% (round to nearest whole #).

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

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above)

I    II    III    **IV**

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

1. Project Name: Billings Bypass 2. Project #: NCPD 56(55) Control #: 4199

3. Evaluation Date: Mo. 08 Day 21 Yr. 2007 4. Evaluator(s): DARR, DEJG, DMKR 5. Wetlands/Site #(s): L2  
 LXST

6. Wetland Location(s): I. Legal: T 2 N N or S; R 27 E E or W; S 6 T N or S R E or W; S

II. Approx. Stationing or Mileposts: East of Hwy 312; Alignments B2, C1, C3.

III. Watershed: Upper Yellowstone River - Pompeys Pillar GPS Reference No. (if applies) 108°25'28.221"W 45°52'7.318"N

Other Location Information: Sevenmile Creek

7. a. Evaluating Agency: David Evans & Associates, Inc. 8. Wetland size: (total acres) (visually estimated)

b. Purpose of Evaluation: 0.22 acres (measured, e.g. by GPS (if applies))

1.  Wetlands potentially affected by MDT project
  2.  Mitigation wetlands; pre-construction
  3.  Mitigation wetlands; post-construction
  4.  Other
9. Assessment area (AA, tot., ac.) 0.22 acres 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, firs col.: USFWS according to Cowardin [1979] rem. cols.)

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depressional	P		EM	B, C		100

**Abbreviations:** System: Palaustine (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 (LV); 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 (x), 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 similarity classified sites within the same Major Montana Watershed Basin, see definitions)

(circle one) Unknown Rare **Common** Abundant

Comments: Wetland occurs at the bottom of a small drainage just north of the freeway.

12. **General condition of AA:**

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

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

Comments: (types of disturbance, intensity, season, etc.): Heavily grazed.

ii. Prominent weedy, alien, and introduced species (including those not domesticated, feral): (list)

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Canal overflow into natural depression. Surrounding habitat is alfalfa/corn farmland. Wetland is in heavily grazed area.

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

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

Comments:

## SECTION PERTAINING TO FUNCTIONS AND VALUES ASSESSMENT

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

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

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

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

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

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

### 14B. Habitat for plant or animals rated S1, S2, or S3 by the Montana Natural Heritage Program : (not including species listed 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	<del>Northern leopard frog (Rana pipiens)</del> <u>not a species of concern in 2011</u>
Secondary habitat (list species)	D	S	_____
Incidental habitat (list species)	D	S	_____
No usable habitat	D	S	_____

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

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

Sources for documented use (e.g., observations, records, etc.): Observed during DEA 8/21/07 field visit.

### 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 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	E	H	E	E	E	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 exception (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 IDEQ 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])

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(M)	.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)	.6(M)	.8(H)	.6(H)	.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].)

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%	
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: Not on TMDL list, however signs of high nutrients from cattle excrement and surrounding farmland was apparent.

**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 = exception, 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 vegetation 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		
	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	.3L
S/I	.9H	.8H	.8H	.7M	.7M	.6M	.8H	.7M	.7M	.7M	.6M	.5M	.6M	.5M	.5M	.3L	.3L	.3L	.2L
T/E/A	.8H	.7M	.7M	.6M	.6M	.5M	.7M	.6M	.6M	.5M	.5M	.4M	.5M	.4M	.4M	.2L	.2L	.2L	.1L

Comments:

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

i. Discharge Indicators

ii. Recharge 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

- 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 are present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments:

**14K. Uniqueness**

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

Replacement potential	AA contains fen, bog, warm springs or mature (> 80 yr old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
	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 AA a known rec./ed. Site: Y  (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

(If Yes, go to II, then proceed to IV; if No, then rate as [circle] Low [0.1])

IV. **Rating** (use matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, 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)

**FUNCTION & VALUE SUMMARY & OVERALL RATING**

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points & Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0	1	
B. MT Natural Heritage Program Species Habitat	HL	X0	1	
C. General Wildlife Habitat	L	0.1	1	
D. General Fish/Aquatic Habitat	NA	NA	NA	
E. Flood Attenuation	L	0.1	1	
F. Short and Long Term Surface Water Storage	M	0.4	1	X
G. Sediment/Nutrient/Toxicant Removal	M	0.4	1	X
H. Sediment/Shoreline Stabilization	NA	NA	NA	
I. Production Export/Food Chain Support	M	0.4	1	
J. Groundwater Discharge/Recharge	H	1	1	X
K. Uniqueness	L	0.2	1	
L. Recreation/Education Potential	L	0.1	1	
Totals:	L	<del>3.3</del> 4.3	10	=0.43 or 43% 33%

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

Wetland visited 8/25/11

wetland unchanged.

N. leopard frog not a species of concern in 2011

Rating changed to IV



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

1. Project Name: Billings Bypass 2. Project #: NCPD 56(55) Control #: 4199

3. Evaluation Mo: 08 Day: 22 Yr: 2007 4. Evaluator(s): DARR, DMKR, LXST 5. Wetlands/Site #(s): L4  
Date

6. Wetland Location(s): I. Legal: T 1 N or S; R 26 E or W; S 1 T N or S R E or W; S

II. Approx. Stationing or Mileposts: East and West of Hwy 312; Alignments B2, C1, C3.

III. Watershed: Upper Yellowstone River - Pompeys Pillar GPS Reference No. (if applies) 108°25'44.324"W 45°52'7.677"N

Other Location Information:

7. a. Evaluating Agency: David Evans & Associates, Inc. 8. Wetland size: (total acres) 0.64 acres (visually estimated)  
 b. Purpose of Evaluation: (measured, e.g. by GPS (if applies))  
 1.  Wetlands potentially affected by MDT project  
 2.  Mitigation wetlands; pre-construction 9. Assessment area (AA, tot., ac.) (visually estimated)  
 3.  Mitigation wetlands; post-construction (see instructions on determining AA) ~ 10 acres (measured, e.g. by GPS (if applies))  
 4.  Other

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

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Depressional	P		EM	B, C		85
Riverine	R	2	EM	G		15

Abbreviations: System: Palaustine (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 (LV); 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 (x), 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 similarity classified sites within the same Major Montana Watershed Basin, see definitions)

(circle one) Unknown Rare **Common** Abundant

Comments: Wetland occurs at the bottom of a small drainage just north of the freeway.

12. General condition of AA:

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

Conditions with 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, cleaning or hydrological alteration, high road or building density
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but moderately grazed or hayed or selectively logged; or has been subject to relatively minor 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, cleaning, or hydrological alteration; high road or building density	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Grazing and agricultural use of ditch.

ii. Prominent weedy, alien, and introduced species (including those not domesticated, feral): (list) Cattails, reed canarygrass.

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: Canal overflow and seepage into natural depression. Canal continues under highway and flows SE through farmland. Appears to connect to wetland L2.

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

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

Comments:

## SECTION PERTAINING TO FUNCTIONS AND VALUES ASSESSMENT

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

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

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

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

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

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

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

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.):

### 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 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	E	H	E	E	E	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 exception (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 IDEQ 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])

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(M)	.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: Farm located to the south, however banks of ditch are too high to flood.

**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)	.6(M)	.8(H)	.6(H)	.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].)

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%	
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 = exception, 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 vegetation 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
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	.7M	.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

ii. Recharge 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

- 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 are present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments:

**14K. Uniqueness**

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

Replacement potential	AA contains fen, bog, warm springs or mature (> 80 yr old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
	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:** 1. Is AA a known rec./ed. site: Y  (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   
(If Yes, go to II, then proceed to IV; if No, then rate as [circle] Low [0.1])

iv. Rating (use matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, 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)

**FUNCTION & VALUE SUMMARY & OVERALL RATING**

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points & Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0	1	
B. MT Natural Heritage Program Species Habitat	L	0	1	
C. General Wildlife Habitat	L	0.1	1	
D. General Fish/Aquatic Habitat	NA	NA	NA	
E. Flood Attenuation	L	0.1	1	
F. Short and Long Term Surface Water Storage	M	0.4	1	
G. Sediment/Nutrient/Toxicant Removal	H	0.9	1	✓
H. Sediment/Shoreline Stabilization	H	1	1	✓
I. Production Export/Food Chain Support	M	.4	1	
J. Groundwater Discharge/Recharge	H	1	1	0
K. Uniqueness	L	0.2	1	
L. Recreation/Education Potential	L	0.1	1	
Totals:	L	4.2	11	=0.38 or 38%

**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 .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.

Wetland L4 visited 8/25/11  
 Wetland boundary adjusted.  
 Cattle grazing in wetland.  
 Rating unchanged



## MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199  
 3. Evaluation Date: Mo 08 Day 22 Yr. 2011 4. Evaluator(s): L. Stojas 5. Wetlands/Site #(s): M  
 6. Wetland Location(s): i. Legal: T 1 N or S; R 26 (E) or W; S 11+12; T      N or S; R      E or W; S     ;  
 ii. Approx. Stationing or Mileposts:       
 iii. Watershed: 10072007 Watershed Name, County: Upper Yellowstone, Pompeys Pillar  
Yellowstone Co.

7. a. Evaluating Agency: MDT;  
 b. Purpose of Evaluation:  
 1.  Wetlands potentially affected by MDT project  
 2.  Mitigation wetlands; pre-construction  
 3.  Mitigation wetlands; post-construction  
 4.  Other       
 8. Wetland size: (total acres) 2.1 (visually estimated)      (measured, e.g. by GPS [if applies])  
 9. Assessment area (AA): (acres, 2.1 (visually estimated)      (measured, e.g. by GPS [if applies])  
Irrigation supply ditch, wetland on banks

**10. Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
R	EM	I, D, F, EA	SI	60

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

12. General condition of AA:  
 i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	<u>high disturbance</u>

Comments: (types of disturbance, intensity, season, etc.): Irrigation supply ditch, crops north, road south + parallel

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: random grass

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: ag + developed

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?	Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA
2 (or 1 if forested) classes	M	NA	NA
1 class, but not a monoculture	M	←NO	L
1 class, monoculture (1 species comprises ≥90% of total cover)	<u>L</u>	NA	NA

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

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
Functional Points and Rating	1H	.9H	.8M	.7M	.3L	.1L	<u>0L</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 \_\_\_\_\_
- No usable habitat                                    S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	<u>0L</u>
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	<u>0L</u>

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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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								<u>Low</u>			
	Even				Uneven				Even				Uneven				<u>Even</u>			
Class cover distribution (all vegetated classes)																				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	<u>S/I</u>	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	<u>L</u>	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)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW) \_\_\_\_\_ Warm Water (WW) \_\_\_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** NA **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 14F.) irrigation ditch

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 – 2.2		Entrenched ER = 1.0 – 1.4	
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:**

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	Yes	No	Yes	No	Yes	No	Yes	No
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: ditch above cropland and roadway

**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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: reed canary grass on ditch banks

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
P/P	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	.3L	.2L
S/I	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L
T/E/A																		

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y **(N)** If yes, add 0.1 to the score in ii above and adjust rating accordingly:

iv. **Final Score and Rating:** .2L **Comments:** outlet = end use in agricultural fields

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

**i. Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps 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
- Shallow water table and the site is saturated to the surface
- Other: \_\_\_\_\_

**ii. Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: \_\_\_\_\_

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands <b>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</b>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) Y N (if 'Yes' continue with the evaluation; if 'No' then circle **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

General Site Notes

Controlled irrigation supply ditch between cultivated or heavily mowed hayfields.

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): M

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	0	1		
C. General Wildlife Habitat	L	.1	1		
D. General Fish Habitat			NA		
E. Flood Attenuation			NA		
F. Short and Long Term Surface Water Storage			NA		
G. Sediment/Nutrient/Toxicant Removal			NA		
H. Sediment/Shoreline Stabilization	H	.9	1		*
I. Production Export/Food Chain Support	L	.2	1		*
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	L	.1	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		1.3	6		
Percent of Possible Score			22 %		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**  
 Percent of possible score > 80% (round to nearest whole #).

**Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)  
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**  
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**  
 Score of .9 or 1 functional point for General Fish Habitat; **or**  
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**  
 Score of .9 functional point for Uniqueness; **or**  
 Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)  
 "Low" rating for Uniqueness; **and**  
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**  
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II III **IV**

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

1. Project Name: Billings Bypass 2. Project #: NCPD 56(55) Control #: 4199

3. Evaluation Date Mo. 09 Day 19 Yr. 2007 4. Evaluator(s): G. Rand 5. Wetlands/Site #(s) 07 0

6. Wetland Location(s): I. Legal: T 01 N or S: North R 27 East E or W: S 7 T 1 N or S R 1 E or W: S 1

II. Approx. Stationing or Mileposts: \_\_\_\_\_

III. Watershed: Upper Yellowstone River -- Pompeys Pillar GPS Reference No. (if applies) 108°24'53.064"W 45°50'52.222"N

Other Location Information: Miller-McGill Ditch adjacent to Yellowstone River

7. a. Evaluating Agency: \_\_\_\_\_ 8. Wetland size: (total acres) 0.35 acres (visually estimated)  
 b. Purpose of Evaluation: 2 acres (measured, e.g. by GPS (if applies))

- 1.  Wetlands potentially affected by MDT project
  - 2.  Mitigation wetlands; pre-construction
  - 3.  Mitigation wetlands; post-construction
  - 4.  Other
9. Assessment area (AA, tot., ac.) 2.0000 Visually estimated  
 (see instructions on determining AA) 1 acre (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] rem. cols.)

HGM Class	System	Subsystem	Class	Water Regime	Modifier	% of AA
Riverine	R	2	UB	G	x	90
Slope	P		EM	C		10

Abbreviations: System: Palaustine (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 (LV); Subsystem: Limnetic (2); Classes: RB, UB, AB; Subsystem: Littoral (4); Classes: RB, UB, AB, US, EM; System: Rivenne (R); Subsystem: Lower Perennial (3); 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 (x), Impounded (i), Diked (d), Partly Drained (pd), Farmed (f), Artificial (a); HGM Classes: Rivenne, Depressional, Slope, Mineral Soil Flats, Organic Soil Flats, Lacustrine Fringe

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

Comments: (types of disturbance, intensity, season, etc.): Wetland is part of Miller and McGill Ditch. Ditch appears to be maintained.

II. Prominent weedy, alien, and introduced species (including those not domesticated, feral): (list) Cattail, reed canarygrass

III. Provide brief descriptive summary of AA and surrounding land use/habitat: Ditch drains to Yellowstone River approx. 500 feet downstream of proposed crossing point. Ditch is at base of cliff and separate from river by long spit of land (artificial fill?); recent fill at connection with river, but still probably receives backflow at high water.

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

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

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

## SECTION PERTAINING TO FUNCTIONS AND VALUES ASSESSMENT

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

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

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

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

Highest Habitat Level	doc./primary	sus./primary	doc./secondary	sus./secondary	doc./incidental	sus./incidental	none
<i>Functional Points and Rating</i>	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)

II. 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	Northern leopard frog
No usable habitat	D	S	

III. **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
<i>Functional Points and Rating</i>	1 (H)	.9 (H)	.8 (M)	.7 (M)	.5 (L)	.3 (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 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 #121)	E	E	E	H	E	E	E	H	E	E	E	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #121)	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 #121)	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 exception (E), high (H), moderate (M), or low (L) quality rating.

Duration of surface water in AA	Permanent/Perennial			Seasonal/Intermittent			Temporary/Ephemeral		
<i>Cover - % of waterbody in AA containing cover objects such as submerged logs, large rocks &amp; boulders, overhanging banks, floating-leaved vegetation, etc.</i>	> 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 IDEQ 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		
<i>% of flooded wetland classified as forested, scrub/shrub, or both</i>	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(M)	.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: Houses present within 0.5 mile but too high to flood.

**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		
<i>Duration of surface water at wetlands within the AA</i>	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)	.6(M)	.8(H)	.6(H)	.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).

<i>Sediment, nutrient, and toxicant input levels within AA</i>	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.			
<i>% cover of wetland vegetation in AA</i>	≥ 70%		< 70%		≥ 70%		< 70%	
<i>Evidence of flooding or ponding in AA</i>	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 = exception, 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 vegetation 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	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	.7M	.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

Comments:

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

i. **Discharge Indicators**

ii. **Recharge 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

- 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 are present	.1 (L)
Available Discharge/Recharge information inadequate to rate AA D/R potential	N/A (Unknown)

Comments:

**14K. Uniqueness**

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

Replacement potential	AA contains fen, bog, warm springs or mature (> 80 yr old) forested wetland or plant association listed as "S1" by the MNHP			AA does not contain previously cited rare types and structural diversity (#13) is high or contains plant association listed as "S2" by the MNHP			AA does not contain previously cited rare types or associations and structural diversity (#13) is low-moderate		
	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 AA a known rec./ed. Site? 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 matrix below to arrive at [circle] the functional points and rating [H = high, M = moderate, 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)

**FUNCTION & VALUE SUMMARY & OVERALL RATING**

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units; (Actual Points & Estimated AA Acreage)
A. Listed/Proposed T&E Species Habitat	L	0	1	
B. MT Natural Heritage Program Species Habitat	L	0.3	1	
C. General Wildlife Habitat	L	0.3	1	
D. General Fish/Aquatic Habitat	L	0.3	1	
E. Flood Attenuation	L	0.2	1	
F. Short and Long Term Surface Water Storage	L	0.3	1	
G. Sediment/Nutrient/Toxicant Removal	L	0.3	1	
H. Sediment/Shoreline Stabilization	L	0.2	1	
I. Production Export/Food Chain Support	L	0.3	1	
J. Groundwater Discharge/Recharge	NA	NA	NA	
K. Uniqueness	L	0.1	1	
L. Recreation/Education Potential	L	0.1	1	
Totals:	L	2.4	11	= .22 or 22%

**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 .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.

Wetland visually confirmed 8/25/11  
 Boundary extended  
 Rating unchanged



# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199  
 3. Evaluation Date: Mo. 08 Day 09 Yr 2011 4. Evaluator(s): L. Striggs 5. Wetlands/Site #(s): 3 (C) Coulson Ditch  
 6. Wetland Location(s): i. Legal: T 1 (N or S; R 27 (E or W; S 17, 19, 20); T \_\_\_ N or S; R \_\_\_ E or W; S \_\_\_;  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_  
 iii. Watershed: 10070007 Watershed Name, County: Upper Yellowstone, Pompeys Pillar  
Yellowstone Co.

7. a. Evaluating Agency: MDT 8. Wetland size: (total acres) 4 acres (visually estimated) for 1/2 mile, 1/6 wide  
 b. Purpose of Evaluation: (measured, e.g. by GPS [if applies])  
 1.  Wetlands potentially affected by MDT project over 1.5 miles long in study area - continues beyond.  
 2.  Mitigation wetlands; pre-construction  
 3.  Mitigation wetlands; post-construction  
 4.  Other \_\_\_\_\_  
 9. Assessment area (AA): (acres, 8 acres (visually estimated)  
 see instructions on determining AA) \_\_\_\_\_ (measured, e.g. by GPS [if applies])

**10. Classification of Wetland and Aquatic Habitats in AA**

Coulson Ditch - major irrigation canal - dry wetland assumed to be used later as outlet fringe  
 Abbreviations: (see manual for definitions)

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>S</u>	<u>SM</u>	<u>E, I, A, SI</u>		

**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

**12. General condition of AA:**

i. Disturbance: (use matrix below to determine [circle] appropriate response -- see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	<u>high disturbance</u>	high disturbance

Comments: (types of disturbance, intensity, season, etc.): excavated & diked irrigation canal

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: reed canary grass, Canada thistle, Russian olive

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: AA has irrigation canal w/ wetland fringe surrounding area - local road ways, mowed hayfields, waste areas w/ weeds

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA		NA
2 (or 1 if forested) classes	M	NA		NA
1 class, but not a monoculture	<u>(M)</u>	←NO	<u>YES</u>	<u>(L)</u>
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA		NA

Comments: shrubs and trees but < 20%.



**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW)      Warm Water (WW)      Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
Thermal cover optimal / suboptimal	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
<b>FWP Tier I fish species</b>	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
<b>FWP Tier II or Native Game fish species</b>	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
<b>FWP Tier III or Introduced Game fish</b>	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
<b>FWP Non-Game Tier IV or No fish species</b>	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** NA **Comments:** dry ditch

**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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)

Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2			Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type			A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

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

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains <b>no or restricted outlet</b>	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L
AA contains <b>unrestricted outlet</b>								

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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of <u>wetland</u> streambank or shoreline by species with stability ratings of ≥6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: *rich canopy grass*

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	(L)
E/H	H	H	M
M	H	M	M
L	M	M	L
(N/A)	H	M	(L)

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y N** If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. **Final Score and Rating:** \_\_\_\_\_ **Comments:** *when water present*

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

- I. Discharge Indicators**
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- II. Recharge Indicators**
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: \_\_\_\_\_



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): S(2) Coulson Ditch

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	1	1		
C. General Wildlife Habitat	L	3	1		
D. General Fish Habitat			NA		
E. Flood Attenuation			NA		
F. Short and Long Term Surface Water Storage			NA		
G. Sediment/Nutrient/Toxicant Removal			NA		
H. Sediment/Shoreline Stabilization	H	.9	1		
I. Production Export/Food Chain Support	L	3	1		
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	L	1	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		1.7	6		
Percent of Possible Score			28 %		

see general notes p. 5

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**
- Percent of possible score > 80% (round to nearest whole #).

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

- Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**
- Score of .9 or 1 functional point for General Wildlife Habitat; **or**
- Score of .9 or 1 functional point for General Fish Habitat; **or**
- "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**
- Score of .9 functional point for Uniqueness; **or**
- Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)

- "Low" rating for Uniqueness; **and**
- Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**
- Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above)

I

II

III

IV

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billings Bypass 2. MDT Project #: 56(55) Control #: 4199

3. Evaluation Date: Mo 08 Day 08 Yr. 2011 4. Evaluator(s): L Stragis 5. Wetlands/Site #(s): T, (N)

6. Wetland Location(s): i. Legal: T 1 N or S; R 27E or W; S 19; T     N or S; R     E or W; S    ; ii. Approx. Stationing or Mileposts:    

iii. Watershed: 10070007 Watershed Name, County: Upper Yellowstone, Pompeys Pillar Yellowstone Co.

7. a. Evaluating Agency: MOT; 8. Wetland size: (total acres) < 1 acre (visually estimated) each (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): (acres, 2/acre (visually estimated) include 3 wetlands see instructions on determining AA)     (measured, e.g. by GPS [if applies])

*3 small wetlands connected by culverts in I-90 intersection, totaling 2/acre*

*Overlaid*

**10. Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>D</u>	<u>EM</u>	<u>E1A</u>	<u>SI</u>	<u>40</u>
<u>S</u>	<u>EM</u>	<u>E1A</u>	<u>SI</u>	<u>60</u>

Abbreviations: (see manual for definitions)

**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);

**Cowardin 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)

**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)

**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

(Circle one)      Unknown      Rare      Common      Abundant

12. General condition of AA:

i. Disturbance: (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	<u>high disturbance</u>

Comments: (types of disturbance, intensity, season, etc.): within intersection of US 90 + Johnson road on ramps

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: reed canarygrass, showy milkweed

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: I-90 intersection, commercial, residential

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
<u>1 class, but not a monoculture</u>	<u>(M)</u>	←NO	<u>YES</u> →	<u>(L)</u>
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

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 \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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                                 S \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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	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)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW) \_\_\_\_\_ Warm Water (WW) \_\_\_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** NA **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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type		A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile downstream of the AA (circle)?** **Y N** **Comments:** hydrology from storm water

**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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:**

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA								
AA contains <b>no or restricted outlet</b>	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: *toxicants expected from highway stormwater flows, sediment visible*

**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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of <u>wetland</u> streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
(≥ 65%)	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: *Cattails & reeds are very grass 90-100%*

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	(L)
E/H	H	H	M
M	H	M	M
L	M	M	L
(N/A)	H	M	(L)

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y (N) If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. **Final Score and Rating:** .3L **Comments:** *Buffer is highway ROW - mowed + weed control probably score should be lower*

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

- i. **Discharge Indicators**
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- ii. **Recharge Indicators**
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: \_\_\_\_\_



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): T(N), AA

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	0	1		
C. General Wildlife Habitat	L	0.1	1		
D. General Fish Habitat			NA		
E. Flood Attenuation	M	.5	1		*
F. Short and Long Term Surface Water Storage	L	.3	1		*
G. Sediment/Nutrient/Toxicant Removal	L	.3	1		*
H. Sediment/Shoreline Stabilization	H	.9	1		*
I. Production Export/Food Chain Support	L	.3	1		see comment Mitig.
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	L	.1	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		2.5	9		
Percent of Possible Score		27	%		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**  
 Percent of possible score > 80% (round to nearest whole #).

**Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)  
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**  
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**  
 Score of .9 or 1 functional point for General Fish Habitat; **or**  
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**  
 Score of .9 functional point for Uniqueness; **or**  
 Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)  
 "Low" rating for Uniqueness; **and**  
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**  
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II III **IV**

**MDT Montana Wetland Assessment Form (revised March 2008)**

1. Project Name: Billings Bypass 2. MDT Project #: 56 (55) Control #: 4199

3. Evaluation Date: Mo. 08 Day 10 Yr. 2011 4. Evaluator(s): J. Stages 5. Wetlands/Site #(s): U1 (AV)

6. Wetland Location(s): i. Legal: T L N or S; R 27 E or W; S 19 ; T \_\_\_ N or S; R \_\_\_ E or W; S \_\_\_ ;  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_

iii. Watershed: 1007007 Watershed Name, County: Upper Yellowstone, Pompey's Pillar, Yellowstone Co.

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

8. Wetland size: (total acres) 60 (visually estimated)  
 \_\_\_\_\_ (measured, e.g. by GPS [if applies])

9. Assessment area (AA): (acres, 60 (visually estimated)  
 see instructions on determining AA) \_\_\_\_\_ (measured, e.g. by GPS [if applies])

*Large wetland w/ some open water ponds*

**10. Classification of Wetland and Aquatic Habitats in AA**

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>S</u>	<u>P2M1</u>		<u>PP</u>	<u>100</u>

Abbreviations: (see manual for definitions)  
**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);  
**Cowardin 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)  
**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)  
**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

**12. General condition of AA:**

i. Disturbance: (use matrix below to determine [circle] appropriate response -- see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	moderate disturbance	moderate disturbance	<u>high disturbance</u>
AA cultivated or heavily grazed or logged; subject to relatively substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	high disturbance

Comments: (types of disturbance, intensity, season, etc.): Commercial gravel pits, Railroad corridor, cultivated.

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: Russian olive, hoary cress, showy milkweed

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: see above

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	<u>(M)</u>	←NO	YES→	<u>(L)</u>
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

Comments: has FO +SS but <20%

**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)** Large enough for whooping crane use during migration
- No usable habitat                                 S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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)** Great blue heron
- Incidental habitat (list species)             **(D)** **(S)** Baldpate
- No usable habitat                                 S

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	<b>(doc/secondary)</b>	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	<b>(.6M)</b>	.5M	.2L	.1L	0L

Sources for documented use (e.g. observations, records, etc.): observed flyover 7/13/2011

**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

**Minimal** (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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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								<b>(Low)</b>			
	Even				Uneven				Even				Uneven				<b>(Even)</b>			
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	<b>(E)</b>	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	<b>(L)</b>	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)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

Type of Fishery: Cold Water (CW) \_\_\_ Warm Water (WW)  Use the CW or WW guidelines in the user manual to complete the matrix

i. **Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

ii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: 3

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: unknown

iii. **Final Score and Rating:** 3 **Comments:** no fish species known

**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 14F.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth elevation intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4	
C stream type	D stream type	E stream type	B stream type	A stream type	F stream type	G stream type

ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

i. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:**

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA								
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

Comments: due to gravel pits - 4 on spot / 10 on bank

**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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥6 (see Appendix F)	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments:

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	L
E/H	H	H	M
M	H	M	M
L	M	M	L
N/A	H	M	L

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "absent" [see instructions for further definitions of these terms].)

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

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? **Y N** If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. **Final Score and Rating:** \_\_\_\_\_ **Comments:** \_\_\_\_\_

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

**i. Discharge Indicators**

- The AA is a slope wetland
- Springs or seeps 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
- Shallow water table and the site is saturated to the surface
- Other: \_\_\_\_\_

**ii. Recharge Indicators**

- Permeable substrate present without underlying impeding layer
- Wetland contains inlet but no outlet
- Stream is a known 'losing' stream; discharge volume decreases
- Other: \_\_\_\_\_



FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): W/and V

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	.1	1		
B. MT Natural Heritage Program Species Habitat	M	.6	1		*
C. General Wildlife Habitat	L	.3	1		
D. General Fish Habitat	L	.3	1		
E. Flood Attenuation	M	.6	1		*
F. Short and Long Term Surface Water Storage	H	.9	1		*
G. Sediment/Nutrient/Toxicant Removal	M	.5	1		
H. Sediment/Shoreline Stabilization			NA		
I. Production Export/Food Chain Support	M	.6	1		*
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	L	.2	1		
L. Recreation/Education Potential (bonus points)	L	.05	NA		
Totals:		4.15	9		
Percent of Possible Score			46 %		

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**  
 Percent of possible score > 80% (round to nearest whole #).

**Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)  
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**  
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**  
 Score of .9 or 1 functional point for General Fish Habitat; **or**  
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**  
 Score of .9 functional point for Uniqueness; **or**  
 Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)  
 "Low" rating for Uniqueness; **and**  
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**  
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II **III** IV

# MDT Montana Wetland Assessment Form (revised March 2008)

1. Project Name: Billing Pumps 2. MDT Project #: 56(55) Control #: 4199

3. Evaluation Date: Mo. 08 Day 09 Yr. 2011 4. Evaluator(s): J. Stragis 5. Wetlands/Site #(s): Y, Z

6. Wetland Location(s): i. Legal: T 10 N or S; R 26 E or W; S 10, 11 ; T \_\_\_ N or S; R \_\_\_ E or W; S \_\_\_ ;  
 ii. Approx. Stationing or Mileposts: \_\_\_\_\_

iii. Watershed: 10010007 Watershed Name, County: Upper Yellowstone, Pampays Pillar Yellowstone Co

7. a. Evaluating Agency: MDT ;

8. Wetland size: (total acres) 2.1 (visually estimated) each  
 \_\_\_\_\_ (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): (acres, 2.1 (visually estimated) each  
 see instructions on determining AA) \_\_\_\_\_ (measured, e.g. by GPS [if applies])

**10. Classification of Wetland and Aquatic Habitats in AA**

*tiny wetlands @ hwy 312/hwy 87 intersection, culverted not connected, irrigation ditches*

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
<u>S</u>	<u>EM</u>	<u>SA</u>	<u>SI</u>	<u>70%</u>
	<u>SS</u>			<u>&gt;20</u>
	<u>FO</u>			<u>&gt;10</u>

Abbreviations: (see manual for definitions)

**HGM Classes:** Riverine (R), Depressional (D), Slope (S), Mineral Soil Flats (MSF), Organic Soil Flats (OSF), Lacustrine Fringe (LF);

**Cowardin 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)

**Modifiers:** Excavated (E), Impounded (I), Diked (D), Partly Drained (PD), Farmed (F), Artificial (A)

**Water Regimes:** Permanent / Perennial (PP), Seasonal / Intermittent (SI), Temporary / Ephemeral (TE)

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

(Circle one)      Unknown      Rare      Common      Abundant

**12. General condition of AA:**

i. **Disturbance:** (use matrix below to determine [circle] appropriate response – see instructions for Montana-listed noxious weed and aquatic nuisance vegetation species (ANVS) lists)

Conditions within AA	Predominant conditions adjacent to (within 500 feet of) AA		
	Managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or buildings; and noxious weed or ANVS cover is ≤15%.	Land not cultivated, but may be moderately grazed or hayed or selectively logged; or has been subject to minor clearing; contains few roads or buildings; noxious weed or ANVS cover is ≤30%.	Land cultivated or heavily grazed or logged; subject to substantial fill placement, grading, clearing, or hydrological alteration; high road or building density; or noxious weed or ANVS cover is >30%.
AA occurs and is managed in predominantly natural state; is not grazed, hayed, logged, or otherwise converted; does not contain roads or occupied buildings; and noxious weed or ANVS cover is ≤15%.	low disturbance	low disturbance	moderate disturbance
AA not cultivated, but may be 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; noxious weed or ANVS cover is ≤30%.	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; or noxious weed or ANVS cover is >30%.	high disturbance	high disturbance	<u>high disturbance</u>

Comments: (types of disturbance, intensity, season, etc.): highway intersection

ii. Prominent noxious, aquatic nuisance, & other exotic vegetation species: NA

iii. Provide brief descriptive summary of AA and surrounding land use/habitat: transportation, agriculture, commercial

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

Existing # of "Cowardin" Vegetated Classes in AA	Initial Rating	Is current management preventing (passive) existence of additional vegetated classes?		Modified Rating
≥3 (or 2 if 1 is forested) classes	H	NA	NA	NA
2 (or 1 if forested) classes	M	NA	NA	NA
1 class, but not a monoculture	<u>M</u>	←NO	<u>YES→</u>	<u>L</u>
1 class, monoculture (1 species comprises ≥90% of total cover)	L	NA	NA	NA

Comments: contains shrubs + trees but <20%

**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 \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

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

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                                     S \_\_\_\_\_

ii. **Rating** (use the conclusions from i above and the matrix below to arrive at [circle] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
<b>S1 Species:</b> Functional Points and Rating	1H	.8H	.7M	.6M	.2L	.1L	0L
<b>S2 and S3 Species:</b> Functional Points and Rating	.9H	.7M	.6M	.5M	.2L	.1L	0L

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):

- |  |   |
|--|---|
| <p><b>Substantial</b> (based on any of the following [check]):</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> observations of abundant wildlife #s or high species diversity (during any period)</li> <li><input type="checkbox"/> abundant wildlife sign such as scat, tracks, nest structures, game trails, etc.</li> <li><input type="checkbox"/> presence of extremely limiting habitat features not available in the surrounding area</li> <li><input type="checkbox"/> interviews with local biologists with knowledge of the AA</li> </ul> | <p><b>Minimal</b> (based on any of the following [check]):</p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> few or no wildlife observations during peak use periods</li> <li><input checked="" type="checkbox"/> little to no wildlife sign</li> <li><input checked="" type="checkbox"/> sparse adjacent upland food sources</li> <li><input type="checkbox"/> interviews with local biologists with knowledge of the AA</li> </ul> |
|--|---|

- 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 rating. Structural diversity is from #13. For class cover to be considered evenly distributed, the most and least prevalent 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)																				
Duration of surface water in ≥ 10% of AA	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A	P/P	S/I	T/E	A
Low disturbance at AA (see #12i)	E	E	E	H	E	E	H	H	E	H	H	M	E	H	M	M	E	H	M	M
Moderate disturbance at AA (see #12i)	H	H	H	H	H	H	H	M	H	H	M	M	H	M	M	L	H	M	L	L
High disturbance at AA (see #12i)	M	M	M	L	M	M	L	L	M	M	L	L	M	L	L	L	L	L	L	L

iii. **Rating** (use the conclusions from i and ii above and the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

**14D. General Fish 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 used by fish, fish use is not restorable due to habitat constraints, or is not desired from a management perspective [such as fish entrapped in a canal], then circle **NA** here and proceed to 14E.)

**Type of Fishery:** Cold Water (CW) \_\_\_\_\_ Warm Water (WW) \_\_\_\_\_ Use the CW or WW guidelines in the user manual to complete the matrix

**i. Habitat Quality and Known / Suspected Fish Species in AA** (use matrix to arrive at [circle] the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
Aquatic hiding / resting / escape cover	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S	O	S
FWP Tier I fish species	1E	.9H	.8H	.7M	.6M	.5M	.9H	.8H	.7M	.6M	.5M	.4M	.7M	.6M	.5M	.4M	.3L	.3L
FWP Tier II or Native Game fish species	.9H	.8H	.7M	.6M	.5M	.5M	.8H	.7M	.6M	.5M	.4M	.4M	.6M	.5M	.4M	.3L	.2L	.2L
FWP Tier III or Introduced Game fish	.8H	.7M	.6M	.5M	.5M	.4M	.7M	.6M	.5M	.4M	.4M	.3L	.5M	.4M	.3L	.2L	.2L	.1L
FWP Non-Game Tier IV or No fish species	.5M	.5M	.5M	.4M	.4M	.3L	.4M	.4M	.4M	.3L	.3L	.2L	.2L	.2L	.2L	.1L	.1L	.1L

Sources used for identifying fish sp. potentially found in AA:

**ii. Modified Rating (NOTE:** Modified score cannot exceed 1 or be less than 0.1)

a) Is fish use of the AA significantly reduced by a culvert, dike, or other man-made structure or activity or is the waterbody included on the current final MDEQ list of waterbodies in need of TMDL development with listed "Probable Impaired Uses" including cold or warm water fishery or aquatic life support, or do aquatic nuisance plant or animal species (see Appendix E) occur in fish habitat? **Y N** If yes, reduce score in i above by 0.1: \_\_\_\_\_

b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? **Y N** If yes, add 0.1 to the adjusted score in i or iia above: \_\_\_\_\_

**iii. Final Score and Rating:** NA **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 14F.)

**i. Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

Estimated or Calculated Entrenchment (Rosgen 1994, 1996)	Slightly entrenched - C, D, E stream types			Moderately entrenched - B stream type			Entrenched-A, F, G stream types		
	75%	25-75%	<25%	75%	25-75%	<25%	75%	25-75%	<25%
AA contains <b>no outlet or restricted outlet</b>	1H	.9H	.6M	.8H	.7M	.5M	.4M	.3L	.2L
AA contains <b>unrestricted outlet</b>	.9H	.8H	.5M	.7M	.6M	.4M	.3L	.2L	.1L

**Entrenchment ratio (ER) estimation** – see User's Manual for additional guidance. Entrenchment ratio = (flood-prone width)/(bankfull width)  
 Flood-prone width = estimated horizontal projection of where 2 x maximum bankfull depth intersects the floodplain on each side of the stream.



Slightly Entrenched ER = >2.2			Moderately Entrenched ER = 1.41 - 2.2		Entrenched ER = 1.0 - 1.4		
C stream type	D stream type	E stream type	B stream type		A stream type	F stream type	G stream type

**ii. Are ≥10 acres of wetland in the AA subject to flooding AND are man-made features which may be significantly damaged by floods located within 0.5 mile 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 to 14G.)

**i. Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. 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			1.1 to 5 acre feet			≤1 acre foot		
	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	1H	.9H	.8H	.8H	.6M	.5M	.4M	.3L	.2L
Wetlands in AA flood or pond < 5 out of 10 years	.9H	.8H	.7M	.7M	.5M	.4M	.3L	.2L	.1L

**Comments:**

**14G. Sediment/Nutrient/Toxicant Retention and Removal:** (Applies to wetlands with potential to receive 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 to 14H.)

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])

Sediment, nutrient, and toxicant input levels within AA	AA receives or surrounding land use with potential to deliver levels of sediments, nutrients, or compounds at levels 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 / ponding in AA								
AA contains no or restricted outlet	1H	.8H	.7M	.5M	.5M	.4M	.3L	.2L
AA contains unrestricted outlet	.9H	.7M	.6M	.4M	.4M	.3L	.2L	.1L

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 14H does not apply, circle **NA** here and proceed to 14I.)

i. **Rating** (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

% Cover of wetland streambank or shoreline by species with stability ratings of ≥ 6 (see Appendix F).	Duration of surface water adjacent to rooted vegetation		
	Permanent / Perennial	Seasonal / Intermittent	Temporary / Ephemeral
≥ 65%	1H	.9H	.7M
35-64%	.7M	.6M	.5M
< 35%	.3L	.2L	.1L

Comments: small cottonwoods and wooley sedge.

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

i. **Level of Biological Activity** (synthesis of wildlife and fish habitat ratings [circle])

General Fish Habitat Rating (14D.iii.)	General Wildlife Habitat Rating (14C.iii.)		
	E/H	M	(L)
E/H	H	H	M
M	H	M	M
L	M	M	L
(N/A)	H	M	(L)

ii. **Rating** (Working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating. Factor A = acreage of vegetated wetland component in the AA; Factor B = level of biological activity rating from above (14I.i.); 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, S/I, and T/E are as previously defined, and A = "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	.7M	.8H	.5M	.6M	.4M	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
P/P	.9H	.6M	.7M	.4M	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.5M	.5M	.3L	(.3L)	.2L
S/I	.8H	.5M	.6M	.3L	.4M	.2L	.7M	.4M	.5M	.2L	.3L	.1L	.6M	.4M	.4M	.2L	.2L	.1L
T/E/A																		

iii. **Modified Rating** (NOTE: Modified score cannot exceed 1 or be less than 0.1.) **Vegetated Upland Buffer (VUB):** Area with ≥ 30% plant cover, ≤ 15% noxious weed or ANVS cover, and that is not subjected to periodic mechanical mowing or clearing (unless for weed control).

a) Is there an average ≥ 50 foot-wide vegetated upland buffer around ≥ 75% of the AA circumference? Y (N) If yes, add 0.1 to the score in ii above and adjust rating accordingly: \_\_\_\_\_

iv. **Final Score and Rating:** 3 **Comments:** end use agricultural, highway + ag use in buffer

**14J. Groundwater Discharge/Recharge:** (check the appropriate indicators in i & ii below)

- i. Discharge Indicators**
- The AA is a slope wetland
  - Springs or seeps 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
  - Shallow water table and the site is saturated to the surface
  - Other: \_\_\_\_\_

- ii. Recharge Indicators**
- Permeable substrate present without underlying impeding layer
  - Wetland contains inlet but no outlet
  - Stream is a known 'losing' stream; discharge volume decreases
  - Other: \_\_\_\_\_

iii. Rating (use the information from i and ii above and the table below to arrive at [circle] the functional points and rating)

Criteria	Duration of saturation at AA Wetlands <u>FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM</u>			
	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information	N/A			

Comments:

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [circle] the functional points and rating)

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

Comments:

14L. Recreation/Education Potential: (affords "bonus" points if AA provides recreation or education opportunity)

i. Is the AA a known or potential rec./ed. site: (circle) Y N (if 'Yes' continue with the evaluation; if 'No' then circle **NA** here and proceed to the overall summary and rating page)

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

iii. Rating (use the matrix below to arrive at [circle] the functional points and rating)

Known or Potential Recreation or Education Area	Known	Potential
Public ownership or public easement with general public access (no permission required)	.2H	.15H
Private ownership with general public access (no permission required)	.15H	.1M
Private or public ownership without general public access, or requiring permission for public access	.1M	.05L

Comments:

**General Site Notes** irrigation ditches - end use agriculture  
 V+Z → passing thru highway intersection  
 No water in wetland  
 all small isolated wetland  
 Alt → ditch to large wetlands outside of AA

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): 4, 2

Function & Value Variables	Rating	Actual Functional Points	Possible Functional Points	Functional Units: (Actual Points x Estimated AA Acreage)	Indicate the four most prominent functions with an asterisk (*)
A. Listed/Proposed T&E Species Habitat	L	0	1		
B. MT Natural Heritage Program Species Habitat	L	0	1		
C. General Wildlife Habitat	L	.1	1		
D. General Fish Habitat			NA		
E. Flood Attenuation			NA		
F. Short and Long Term Surface Water Storage			NA		
G. Sediment/Nutrient/Toxicant Removal			NA		
H. Sediment/Shoreline Stabilization	H	.9	1		*
I. Production Export/Food Chain Support	L	.3	1		*
J. Groundwater Discharge/Recharge			NA		
K. Uniqueness	L	.1	1		
L. Recreation/Education Potential (bonus points)			NA		
Totals:		1.4	6		
Percent of Possible Score			23 %		

See general notes - irr ditch

**Category I Wetland:** (must satisfy **one** of the following criteria; otherwise 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**  
 Percent of possible score > 80% (round to nearest whole #).

**Category II Wetland:** (Criteria for Category I not satisfied **and** meets any **one** of the following criteria; otherwise go to Category IV)  
 Score of 1 functional point for MT Natural Heritage Program Species Habitat; **or**  
 Score of .9 or 1 functional point for General Wildlife Habitat; **or**  
 Score of .9 or 1 functional point for General Fish Habitat; **or**  
 "High" to "Exceptional" ratings for **both** General Wildlife Habitat **and** General Fish/Aquatic Habitat; **or**  
 Score of .9 functional point for Uniqueness; **or**  
 Percent of possible score > 65% (round to nearest whole #).

**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; otherwise go to Category III)  
 "Low" rating for Uniqueness; **and**  
 Vegetated wetland component < 1 acre (do not include upland vegetated buffer); **and**  
 Percent of possible score < 35% (round to nearest whole #).

OVERALL ANALYSIS AREA RATING: (circle appropriate category based on the criteria outlined above) I II III **IV**

MDT attempts to provide accommodation for any known disability that may interfere with a person participating in any service, program or activity of the Department. Alternative accessible formats of this information will be provided upon request. For further information, call 406.444.7228 or TTY (800.335.7592) or call Montana Relay at 711.