MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT: YEAR 2011

Dodson East
Phillips County, Montana

Prepared for:

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

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CONFLUENCE
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December 2011

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MDT Project Number: NH 1-8(15)454F
Control Number: 1516

USACE: NWO-2004-90-518

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Cover: Looking east from the west edge of the west wetland cell.

1. INTRODUCTION

The Dodson East Wetland Mitigation 2011 Monitoring Report presents the results of the first year of post-construction monitoring at the Dodson East mitigation site. The Montana Department of Transportation (MDT) wetland mitigation project is located in Sections 1 and 2, Township 30 North, Range 27 East, Phillips County, Montana. The property is located approximately four miles east of Dodson on US Highway 2 (Figure 1).

The wetland conservation easement area encompasses approximately 14.9 fenced acres, situated north of the Milk River and Highway 2 and south of the railroad. Figures 2 and 3 in Appendix A show the 2011 Monitoring Activity Locations and 2011 Mapped Site Features, respectively. The MDT Mitigation Monitoring Form, US Army Corps of Engineers (USACE) Wetland Determination Data Forms – Great Plains Region (USACE 2010), and the 2008 MDT Montana Wetland Assessment Method (MWAM) Forms (Berglund and McEldowney 2008) are included in Appendix B. Project area photographs are included in Appendix C.

The wetland mitigation site is located within Watershed 11, the Milk River Basin. Wetlands developed at this location were to provide compensatory mitigation for approximately 4.4 acres of wetland impacts associated with the planned reconstruction of 4.4 miles of US Highway 2 east of Dodson.

Two cells were constructed in 2008 to create at least 4.92 acres of shallow water (palustrine), emergent and aquatic bed wetland types. The bottom of the wetland cells was constructed with an undulating bottom below the plan elevation. At least 75 percent of the final elevations in the wetland area were to be at or below the plan elevation after the placement of salvaged wetland materials and topsoil (Department of the Army Permit No. 2004-90-518 dated July 22, 2004).

The performance standards listed in the Department of the Army Permit specified that the wetlands were to have at least 60 percent cover by desirable wetland species in the herbaceous layer after 3 years, and 75 percent cover after five years. Invasive and noxious species were to comprise no more than 10 percent of the relative cover, and should not dominate the vegetation in any extensive area of the mitigation wetland. The wetland was to be inundated or saturated to the surface continuously for at least 12.5 percent of the growing season in most years. Mitigation construction was to be initiated prior to or concurrent with impacts.

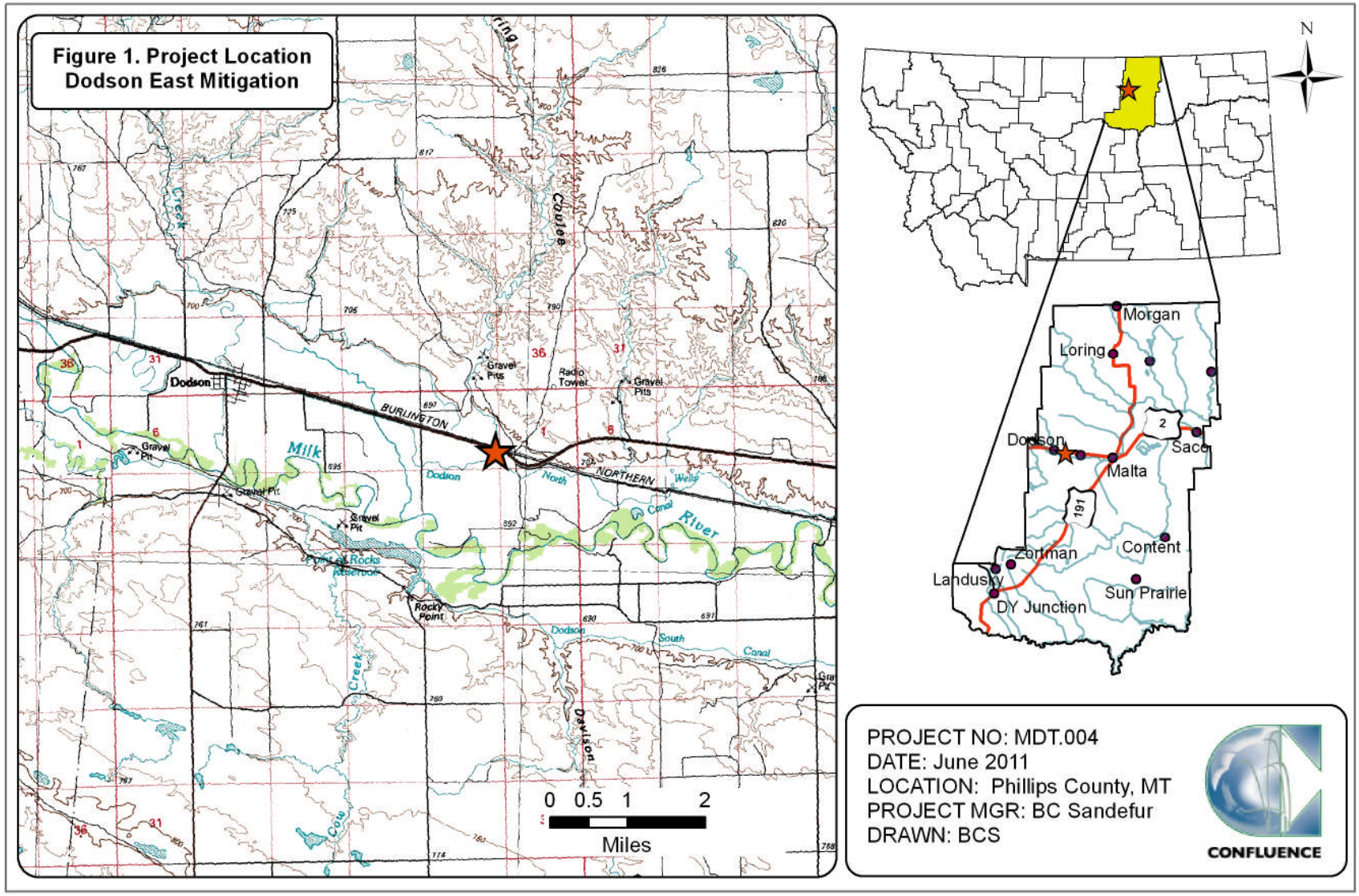

Figure 1. Project location of Dodson East Mitigation Site.

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2. METHODS

The first year of monitoring at Dodson East was completed on August 12, 2011. Information for the Mitigation Monitoring Form and Wetland Data Form was entered electronically in the field on a personal digital assistant (PDA) palmtop computer during the field investigation (Appendix B). Monitoring activity sites were located with a global positioning system (GPS) as shown on Figure 2 (Appendix A). Information collected included a wetland delineation, vegetation community mapping, vegetation transect monitoring, soil and hydrology data collection, bird and wildlife use documentation, photographs, and a non-engineering examination of the infrastructure established within the mitigation project area.

2.1. Hydrology

The presence of hydrological indicators as outlined on the Wetland Data Form was assessed at three data points established within the project area. The hydrologic indicators were evaluated according to features observed during the site visit. The data were recorded on the electronic Wetland Data Form (Appendix B). Hydrologic assessments allow the evaluation of mitigation goals addressing inundation/saturation requirements.

Technical criteria for wetland hydrology guidelines have been established as "permanent or periodic inundation, or soil saturation within 12 inches of the ground surface for a significant period (12.5 percent of the growing season) during the growing season" (USACE 2010). Systems with continuous inundation or saturation for greater than 12.5 percent of the growing season are classified as exhibiting wetland hydrology. The growing season is defined for purposes of this report as the number of days where there is a 50 percent probability that the minimum daily temperature is greater than or equal to 28 degrees Fahrenheit (USACE 2010). The growing season recorded for the predominant soil map units, Bigsag clay and Havre loam series, averages 110 days (USDA 2010). Areas defined as wetlands would require 14 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria.

Soil pits excavated during the wetland delineation were used to evaluate groundwater levels within 18 inches of the ground surface. The data was recorded on the Wetland Data Form (Appendix B).

2.2. Vegetation

The boundaries of dominant species-based vegetation communities were determined in the field during the active growing season and subsequently delineated on the 2011 aerial photograph (Figure 3, Appendix A). The percent cover of dominant species within a community type was estimated and recorded using the following values: 0 (less than 1 percent), 1 (1 to 5 percent), 2 (6 to10 percent), 3 (11 to 20 percent), 4 (21 to 50 percent), and 5 (greater than 50 percent) (Appendix B). Community types were named based on the predominant vegetation species that characterized each mapped polygon (Figure 3, Appendix).

Temporal changes in vegetation will be evaluated through annual assessments of static belt transects established in August 2011 (Figure 2, Appendix A). Vegetation composition was assessed and recorded along two vegetation belt transects (T-1 and T-2) approximately 10 feet wide and 244 and 207 feet long, respectively (Figure 2, Appendix A).

The transect locations were recorded with a resource-grade GPS unit. Spatial changes in the dominant vegetation communities were recorded along the stationed transect. The percent aerial cover of each vegetation species within the belt transect was estimated using the same values and cover ranges used for the polygon data on the aerial photograph (Figure 3, Appendix B). Photographs were taken at the endpoints of each transect during the monitoring event (Appendix C).

The location of noxious weeds was noted in the field and mapped on the aerial photo (Figure 3, Appendix A). The noxious weed species identified are color-coded. The locations are denoted with the symbol "**X**", "▲", or "■" representing 0 to 0.1 acre, .1 to 1 acre, or greater than 1 acre in extent, respectively. Cover classes are represented by T, L, M, or H, for less than 1 percent, 1 to 5 percent, 2 to 25 percent, and 25 to 100 percent, respectively.

2.3. Soil

Soil information was obtained via the *Soil Survey for Phillips County Area* (USDA 2010) and *in situ* soil descriptions. Soil cores were excavated using a hand auger and evaluated according to procedures outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and 2010 Regional Supplement. A description of the soil profile, including hydric soil indicators when present, was recorded on the Wetland Data Form for each profile (Appendix B).

2.4. Wetland Delineation

Waters of the U.S. including special aquatic sites and jurisdictional wetlands were delineated throughout the project area in accordance with criteria established in the 2010 Regional Supplement. The technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology must be satisfied to delineate a representative area as jurisdictional. The indicator status of vegetation was derived from the National List of Plant Species that Occur in Wetlands: Northern Plains Region 4 (Reed 1988). The Routine Level-2 On-site Determination Method (Environmental Laboratory 1987) was used to delineate jurisdictional areas within the project boundaries. The information was recorded electronically on the Wetland Data Form (Appendix B).

The wetland boundary was determined in the field based on changes in plant communities and/or hydrology, and changes in soil characteristics. Topographic relief boundaries within the project area were also examined and cross referenced with soil and vegetation communities as supportive information for the delineation. Vegetation composition, soil characteristics, and hydrology were assessed at likely wetland and adjacent upland locations. If all three parameters

met the criteria, the area was designated as wetland and mapped by vegetation community type. If any one of the parameters did not exhibit positive wetland indicators, the area was determined to be upland unless the site was classified as an atypical situation, potential problem area for vegetation, soil or hydrology, or special aquatic site, i.e., mudflat, based on the guidance in the 2010 Regional Supplement. The wetland boundary was delineated on the 2011 aerial photo and digitized into Geographic Information System (GIS) format. Wetland areas reported were estimated using GIS methodology.

2.5. Wildlife

Observations and other positive indicators of use of mammal, reptile, amphibian, and bird species were recorded on the wetland monitoring form during the site visit. Indirect use indicators, including tracks, scat, burrow, eggshells, skins, and bones, were also recorded. These signs were recorded while traversing the site for other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive wildlife species list of species observed in 2011 was compiled.

2.6. Functional Assessment

The 2008 MWAM (Berglund and McEldowney 2008) was used to evaluate functions and values on the site in 2011. This method provides an objective means of assigning wetlands an overall rating and provides regulators a means of assessing mitigation success based on wetland functions. Functions are self-sustaining properties of a wetland ecosystem that exist in the absence of society and relate to ecological significance without regard to subjective human values (Berglund and McEldowney 2008). Field data for this assessment were collected during the site visit. The wetland assessment area (AA) encompassed the two wetland cells and the pre-existing wetland located between the cells (Appendix B).

2.7. Photo Documentation

Photo documentation at established photo points provided supplemental information on wetland and upland conditions, trends, current land use surrounding the site, and the vegetation transects. Photographs were taken during the site visit at six established photo points (Appendix C). Photo point locations were recorded with a resource grade GPS unit (Figure 2, Appendix A).

2.8. GPS Data

Site features and survey points were collected with a resource grade Thales Pro Mark III GPS unit during the 2011 monitoring season. Points were collected using WAAS-enabled, differential correction satellites, typically improving resolution to sub-meter accuracy. The GPS data were subsequently exported into GIS and drawn in Montana State Plane Single Zone NAD 83 meters. In addition to GPS, some site features within the site were hand-mapped onto an aerial photograph, then digitized. Site features and survey points that were mapped included fence boundaries, photograph points, transect beginnings and

endings, wetland boundaries, and vegetation community boundaries (Figures 2 and 3, Appendix A).

2.9. Maintenance Needs

Channels, engineered structures, fencing, and other features were examined during the site visit for obvious signs of breaching, damage, or other problems. This was a cursory examination and did not constitute an engineering-level structural inspection.

3. RESULTS

3.1. Hydrology

Climate data from the meteorological station at Dodson Coop, Montana (242438), recorded average annual precipitation rates of 10.96 inches from August 1883 thru December 2010 (WRCC 2011). Annual precipitation in 2010 was 15.0 inches, 4.04 inches above the 127 year average. Total precipitation from January to June 2011 at the Malta weather station was 12.43 inches (NCDC 2011).

The wetland cells were inundated during the 2011 site visit. The east cell exhibited deeper water and less vegetation cover than the west cell. The average depth was 2.0 feet and the range of depths was 0.5 to 3.0 feet. Approximately 55 percent of the site was inundated. The shoreline of the cells adjacent to the open water was saturated to the ground surface. The depth of water at the emergent vegetation/open water boundary was approximately 0.8 inches. The site has potential to receive inundation from high water events along the ephemeral drainage.

Three data points were sampled to determine the wetland and upland boundaries, DE-1 to DE-3. Data point DE-1 was located in upland community 3. Sample point DE-2 was located within wetland community 5. Data point DE-3 was located at the edge of the west pond in upland community 3. A single secondary indicator of wetland hydrology, surface soil cracks, was observed at DE-1 and DE-3. Upland community 3 is dominated by Nuttall's alkaligrass, a species with a FACW indicator status. The associate species were predominantly upland. The area may develop wetland characteristics over time. Data point DE-2 exhibited saturation to the ground surface, an algal mat or crust, and surface soil cracks, primary indicators of wetland hydrology.

3.2. Vegetation

Monitoring year 2011 marked the first year of monitoring on the Dodson East wetland mitigation site. The purpose of the first year of monitoring was to establish a baseline for monitoring and to describe the vegetation types and cover classes of the wetland mitigation area. Forty-one plant species were observed site wide in 2011 (Table 1). Vegetation plant communities were identified by plant dominance and composition, topography, and hydrology. The communities and associated species composition are listed on the Mitigation

Table 1. Vegetation species observed in 2011 at the Dodson East Wetland Mitigation Site.

SCIENTIFIC NAME	COMMON NAME	REGION 4 INDICATOR STATUS[1]
Agropyron cristatum	crested wheatgrass	NL
Agropyron repens	quackgrass	FAC
Agropyron smithii	wheatgrass,western	FACU
Agropyron trachycaulum	wheatgrass,slender	FACU
Algae, green	algae, green	NL
Alisma plantago-aquatica	water-plantain,broad-leaf	OBL
Alopecurus pratensis	foxtail,meadow	FACW
Asclepias speciosa	milkweed,showy	FAC
Avena fatua	wild oat	NL
Axyris amaranthoides	Russian pigweed	NL
Buchloe dactyloides	grass,buffalo	FACU-
Carex praegracilis	sedge,clustered field	FACW
Carex vulpinoidea	sedge,fox	OBL
Chenopodium album	goosefoot,white	FAC
Distichlis spicata	saltgrass,seashore	NI
Elaeagnus angustifolia	olive,Russian	FAC-
Eleocharis palustris	spikerush,creeping	OBL
Elymus canadensis	wild-rye,nodding	FACU
Elymus cinereus	wild-rye,Basin	NI
Erigeron annuus	fleabane,white-top	FACU
Festuca sp.		NL
Grindelia squarrosa	gumweed,curly-cup	UPL
Heliomeris multiflora	showy goldeneye	NL
Hordeum jubatum	barley,fox-tail	FACW
Kochia scoparia	summer-cypress,Mexican	FAC
Lactuca serriola	lettuce,prickly	FACU
Lepidium perfoliatum	pepper-grass,clasping	FACU
Melilotus alba	sweetclover,white	FACU-
Melilotus officinalis	sweetclover,yellow	FACU-
Polygonum arenastrum	oval-leaf knotweed	NL
Puccinellia nuttalliana	grass,Nuttall's alkali	OBL
Rumex crispus	dock,curly	FACW
Scirpus acutus	bulrush,hard-stem	OBL
Scirpus americanus	bulrush,Olney's	OBL
Scirpus maritimus	bulrush,saltmarsh	NI
Solidago canadensis	golden-rod,Canada	FACU
Sonchus arvensis	sowthistle,field	FAC
Spartina pectinata	cordgrass,prairie	FACW
Thlaspi arvense	penny-cress,field	NI
Typha latifolia	cattail,broad-leaf	OBL

[1]Region 4 (Northern Great Plains): (Reed 1988).

Monitoring Form in Appendix B. The community boundaries are drawn on Figure 3 in Appendix A.

The wetland cells were seeded with a wetland mix consisting of slender wheatgrass (*Agropyron trachycaulum*), alkali bulrush (*Scirpus maritimus*), Western wheatgrass (*Agropyron smithii*), Great Basin wildrye (*Elymus cinereus*), and Nuttall's alkaligrass (*Puccinellia nuttaliana*). Salvaged wetland sod and soil were used as a seed bank to assist in revegetating the site. Woody species were not planted.

Six vegetation communities, two upland and four wetland, were identified in 2011. The communities were upland community Type 1 – *Agropyron* spp., wetland community Type 2 – *Scirpus* spp., upland community Type 3 – *Puccinellia nuttalliana, w*etland community Type 4 – *Alopecurus pratensis,* wetland community Type 5 – *Alisma plantago-aquatica/Scirpus spp*., and wetland community Type 6 – Aquatic Macrophytes.

Upland community Type 1 – *Agropyron* spp. characterized the upland buffer surrounding the constructed wetland cells. Crested wheatgrass (*Agropyron cristatum*), Western wheatgrass (*Agropyron smithii*), quackgrass (*Agropyron repens*), slender wheatgrass (*Agropyron trachycaulum*), curly-cup gumweed (*Grindelia squarrosa*), and clasping pepper-grass (*Lepidium perfoliatum*) dominated the vegetation cover.

Wetland community Type 2 – *Scirpus* spp. was found on the perimeter of the east cell. The dominant species were alkali bulrush (*Scirpus maritimus*), hard-stem bulrush (*Scirpus acutus*), and Nuttall's alkaligrass. Green algae (a protist) were observed on the water surface at the edge of the open water. Between 50 and 79 percent of the community was covered with vegetative species, with between 21 and 50 percent bare ground.

Upland community Type 3 – *Puccinellia nuttalliana* was located on the terrace of the north side of the east cell and along the perimeter of the west cell. The community may transition from upland to wetland in subsequent years. Although the indicator status of Nuttall's alkaligrass is facultative wet (FACW), the soil and hydrology did not meet the wetland criteria. Dominant species included foxtail barley (*Hordeum jubatum*), clasping pepperweed, crested wheatgrass, and slender wheatgrass.

Wetland community Type 4 – *Alopecurus pratensis* characterized the existing wetland located between the cells. The project plan sheet indicated that there was an ephemeral drainage that flowed through this area. The creek was not flowing or evident during the 2011 investigation. Meadow foxtail (*Alopecurus pratensis*), broad-leaf cattail (*Typha latifolia*), prairie cordgrass (*Spartina pectinata*), and field sowthistle (*Sonchus arvensis*) dominated the plant community. Fox sedge (*Carex vulpinoidea*), clustered field sedge (*Carex praegracilis*), hard-stem bulrush, and alkali bulrush were present at 1 to 5 percent.

Wetland community Type 5 – *Alisma plantago-aquatica/Scirpus spp*. was identified within 4.4 acres of the west cell. The percent cover of emergent vegetation within the west cell was approximately 70 percent higher than in the east cell. Common water plantain (*Alisma plantago-aquatic*), alkali bulrush, hardstem bulrush, three-square bulrush (*Scirpus americanus*), and green algae were the predominant species.

Wetland community Type 6 – Aquatic macrophytes characterized 2.37 acres of the open water area of the east cell. The community was classified as an aquatic bed vegetation class generally defined as being dominated by plants "that grow principally on or below the surface of the water for most of the growing season in almost all years (aquatic macrophytes) (Cowardin et al. 1979)." The Montana Natural Heritage Program (MTNHP) website further defines the Palustrine Aquatic Bed Class (PAB) as having aquatic plants at greater than 30 percent cover and water depths of greater than 0.5 meter (and less than 2 meters) (MTNHP 2011). The community encompassed hard stem bulrush and aquatic macrophytes consisting of *Myriophyllum* spp. (water milfoil species). Green algae (protist kingdom) were also observed on the water surface. The water levels in the cell ranged from one to three feet deep in early August 2011.

Data collected on Transect 1 (Monitoring Form, Appendix B) were summarized in tabular and graphic formats (Table 2, Charts 1 and 2, respectively). Photographs of the beginning and end of Transect 1 are included on Page C-3 of Appendix C. The transect intersected wetland communities Type 2 and Type 6 and upland communities Type 1 and Type 3. Hydrophytic vegetation communities dominated 65.2 percent of Transect 1. Community 3 – *Puccinellia nuttalliana* may develop wetland characteristics if the duration and extent of saturation in the community increases.

The data for Transect 2 (Monitoring Form, Appendix B) is summarized on Table 3 and Charts 3 and 4. Photographs of the transect are shown on page C-3 of Appendix C. Wetland community 5 – *Alisma plantago-aquatic*/*Scirpus* spp. dominated 96.6 percent of the transect intervals. Upland community 3 characterized the shoreline of the constructed wetland cell.

No Priority 2B noxious weeds were identified at the site in 2011. Approximately ten Russian olive (*Elaegnus angustifolia*) trees were observed in the northwest corner of the project area inside the fenced mitigation boundary. Russian olive is considered a Priority 3 weed that has the potential to have significant negative impacts. The state recommends research, education and prevention to minimize the spread of the regulated plant. Field sowthistle (*Sonchus arvensis*) and field pennycress (*Thlaspi arvense*) were observed in communities 1, 3 and 4. Field pennycress is an annual that initially invades bare areas (construction sites), eventually decreasing over time without chemical or mechanical controls.

Table 2. Data summary for Transect 1 in 2011 at the Dodson East Wetland Mitigation Site.

Monitoring Year	2011
Transect Length (feet)	244
Vegetation Community Transitions along Transect	4
Vegetation Communities along Transect	4
Hydrophytic Vegetation Communities along Transect	2
Total Vegetative Species	19
Total Hydrophytic Species	9
Total Upland Species	10
Estimated % Total Vegetative Cover	60
% Transect Length Comprising Hydrophytic Vegetation Communities	65.2
% Transect Length Comprising Upland Vegetation Communities	34.8
% Transect Length Comprising Unvegetated Open Water	0.0
% Transect Length Comprising Bare Substrate	0.0

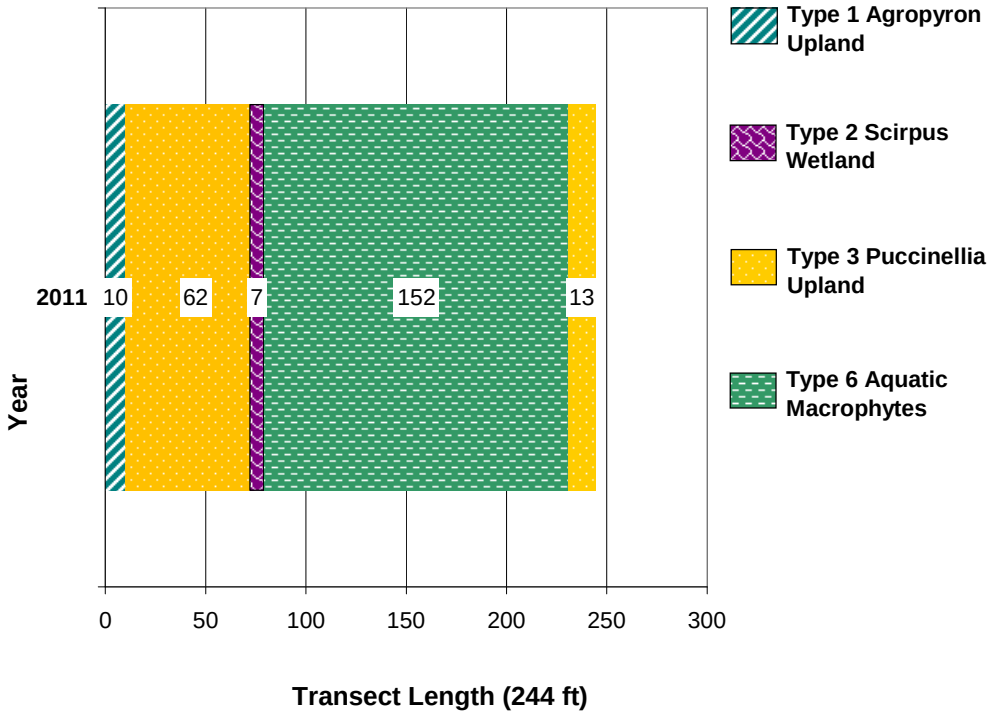

Chart 1.Transect map showing community types on Transect 1, East Cell in 2011 from beginning (0 feet) to end (244 feet) at the Dodson East Wetland Mitigation Site.

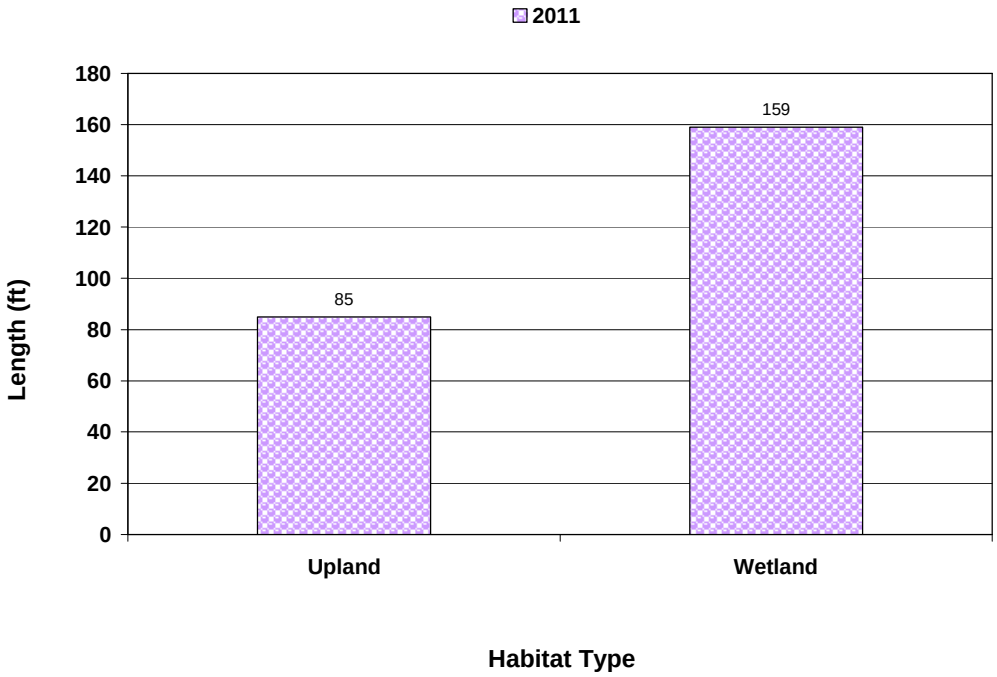

Chart 2. Length of habitat types within Transect 1, East Cell in 2011 at the Dodson East Wetland Mitigation Site.

Table 3. Data summary for Transect 2 in 2011 at the Dodson East Wetland Mitigation Site.

Monitoring Year	**2011**
Transect Length (feet)	207
Vegetation Community Transitions along Transect	2
Vegetation Communities along Transect	2
Hydrophytic Vegetation Communities along Transect	1
Total Vegetative Species	8
Total Hydrophytic Species	6
Total Upland Species	2
Estimated % Total Vegetative Cover	75
% Transect Length Comprising Hydrophytic Vegetation Communities	96.6
% Transect Length Comprising Upland Vegetation Communities	3.4
% Transect Length Comprising Unvegetated Open Water	0.0
% Transect Length Comprising Bare Substrate	0.0

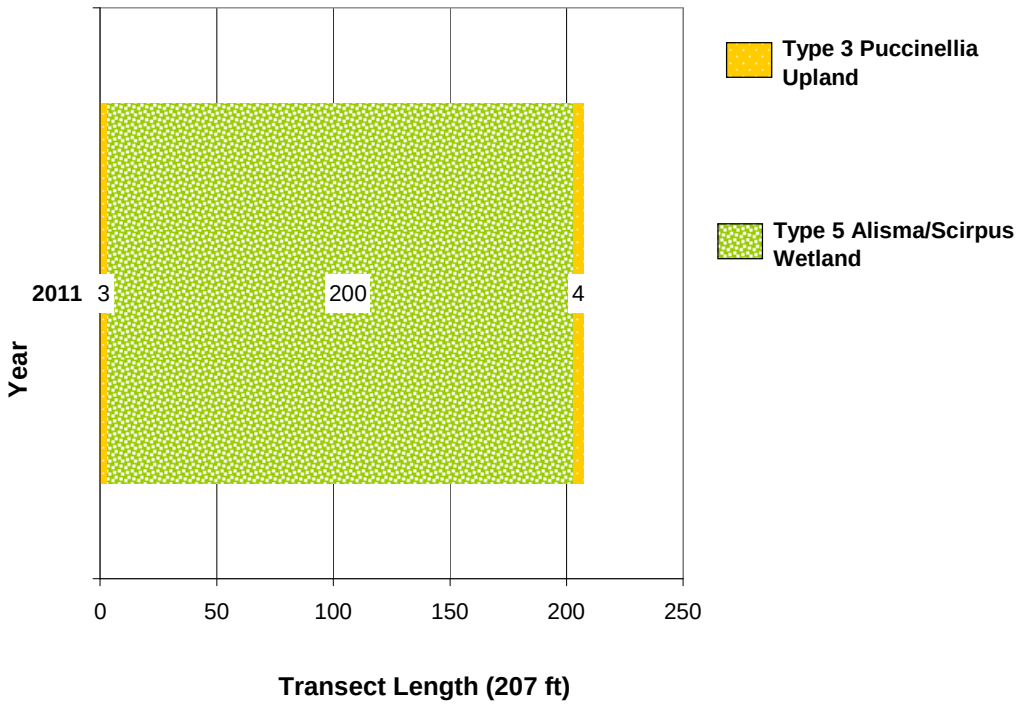

Chart 3. Transect map showing community types on Transect 2, West Cell in 2011 from beginning (0 feet) to end (207 feet) at the Dodson East Wetland Mitigation Site.

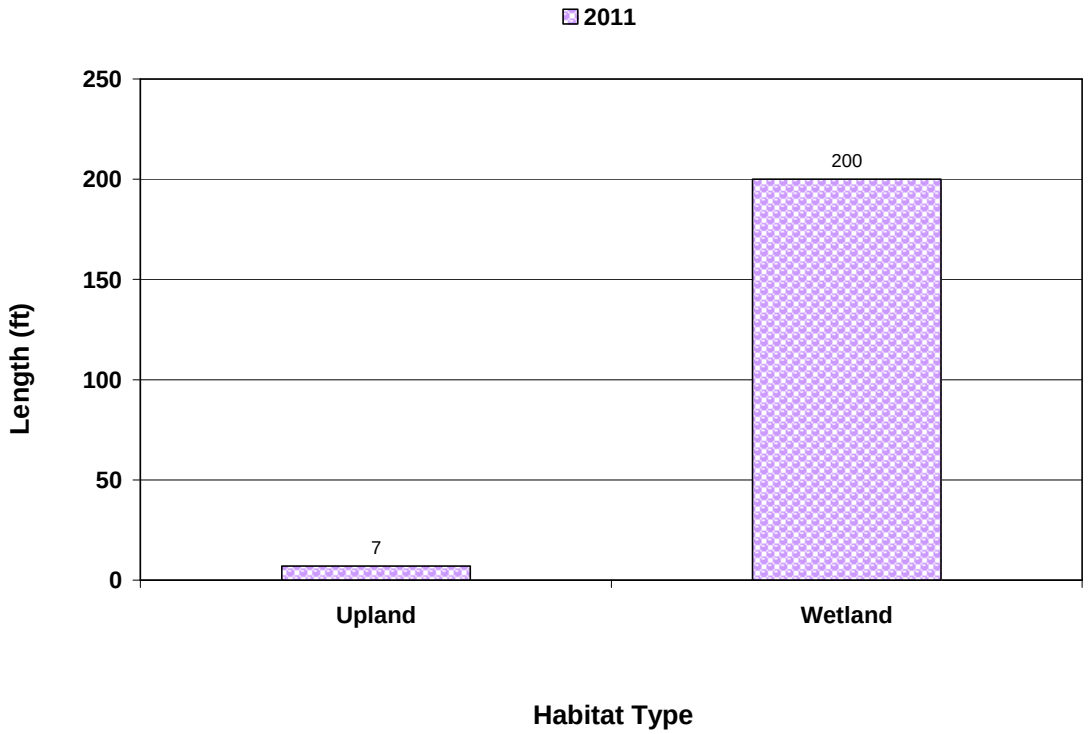

Chart 4. Length of habitat types within Transect 2, West Cell in 2011 at the Dodson East Wetland Mitigation Site.

3.3. Soil

The project site was mapped in the Phillips County Soil Survey (USDA 2011) within the Havre loam and Bigsag clay soil map units, both found on 0 to 2 percent slopes. The parent materials of these soils are alluvium and glaciolacustrine deposits, for the Havre loam and Big Sag clay soils, respectively. The soil types are found on floodplain landforms. The Bigsag clay is a poorly drained hydric soil, taxonomically classified as a poorly drained frigid Typic Halaquept. The Havre loam map unit has a hydric soil component, the Lallie loam, that is classified as a frigid Vertic Fluvaquent. The test pit soils generally confirmed the map units.

Data points DE-1 to DE-3 were sampled to verify the wetland and upland boundaries. Data point DE-1 was located in upland community 3. The soil was a silty clay loam (10 YR 4/2) without redoximorphic features. There were no positive hydric soil, wetland vegetation, or hydrology indicators at this sample point. Sample point DE-2 was located within wetland community 5. The soil was considered problematic as a result of recent development (construction in 2008). The soil exhibited a low chroma (10 YR 4/1) and no redox features. The texture was a dense silty clay loam. The data point met the wetland criteria for hydrophytic vegetation and hydrology. Data point DE-3 was located at the edge of the west pond in upland community 3. The soil was a silty clay loam with a low chroma (10 YR 4/2) and no redox features. The data point did not meet the criteria for wetland soil, vegetation or hydrology.

3.4. Wetland Delineation

Three data points, DE-1 to DE-3, were used to define the vegetation, soil, and hydrology of site wetlands (Figure 2, Appendix A, and Wetland Data Forms, Appendix B). The total wetland acreage delineated in 2011 was 7.3 acres consisting of emergent and aquatic bed vegetation classes (Table 4, Figure 3, Appendix B). An undisturbed upland buffer of 7.6 acres was maintained within the mitigation site.

Table 4. Total wetland and upland acres delineated in August 2011 at the Dodson East mitigation site.

WETLAND AND UPLAND HABITATS	2011 (acres)
Project Area	14.9
Created Wetland	7.3
Upland Buffer	7.6

3.5. Wildlife

A comprehensive list of bird and other wildlife species observed directly or indirectly during the 2011 monitoring visit is presented in Table 5 (Appendix B). Four bird species were observed directly during the first monitoring event including the American robin, killdeer, red-winged blackbird, and tree swallow. There are currently no nesting structures installed at the site.

Five Northern leopard frogs, a meadow vole, and tracks of a raccoon and white-tailed deer were seen onsite. The skin (ecdysis) of a plains gartersnake, a dead painted turtle, and a dead striped skunk were also observed.

Table 5. Wildlife species observed within the Dodson East Wetland Mitigation Site in 2011.

COMMON NAME	SCIENTIFIC NAME
AMPHIBIAN	
Northern Leopard Frog	*Rana pipiens*
BIRD	
American Robin	*Turdus migratorius*
Killdeer	*Charadrius vociferus*
Red-winged Blackbird	*Agelaius phoeniceus*
Tree Swallow	*Tachycineta bicolor*
MAMMAL	
Meadow Vole	*Microtus pennsylvanicus*
Raccoon	*Procyon lotor*
Striped Skunk	*Mephitis mephitis*
White-tailed Deer	*Odocoileus virginianus*
REPTILE	
Painted Turtle	*Chrysemys picta*
Plains Gartersnake	*Thamnophis radix*

3.6. Functional Assessment

The 2011 functional assessment provided a baseline to gauge functional changes at the mitigation site (Table 6). The assessment used the 2008 MDT MWAM (Berglund and McEldowney 2008, Appendix B). The wetland assessment area (AA) encompassed the west and east cells and the pre-existing wetland located between the cells.

The 7.3-acre AA was rated as a Category III wetland with 62 percent of the total possible points and 45.2 functional units. The ratings were high for short and long term surface water storage, production export/food chain support, and groundwater discharge/recharge and moderate for Montana Natural Heritage Program (MTNHP) Species Habitat, general wildlife habitat, flood attenuation, and sediment/shoreline stabilization. The great blue heron, an S3 species, was identified by the MTNHP in the township and range mapped for the site. The proximity of the highway and railroad grade may limit the value of the wildlife habitat. The value of the sediment/nutrient/toxicant removal and sediment/shoreline stabilization functions are expected to increase as the vegetation cover on the east cell increases.

Table 6. Functions and Values of the Dodson East Wetland Mitigation Site.

Function and Value Parameters from the 2008 Montana Wetland Assessment Method	2011
Listed/Proposed T&E Species Habitat	Low (0.0)
MTNHP Species Habitat	Mod (0.5)
General Wildlife Habitat	Mod (0.7)
General Fish/Aquatic Habitat	NA
Flood Attenuation	Mod (0.6)
Short and Long Term Surface Water Storage	High (1.0)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)
Sediment/Shoreline Stabilization	Mod (0.7)
Production Export/Food Chain Support	High (0.8)
Groundwater Discharge/Recharge	High (1.0)
Uniqueness	Low (0.2)
Recreation/Education Potential (bonus points)	NA
Actual Points/Possible Points	**6.2/ 10**
% of Possible Score Achieved	**62.0%**
Overall Category	**III**
Total Acreage of Assessed Wetlands within Site Boundaries	**7.29**
Functional Units (acreage x actual points)	**45.2**

3.7. Photo Documentation

Photographs taken at photo points one through seven (PP1 through PP7; Figure 2, Appendix A) are shown on pages C-1 to C-3 of Appendix C. Transect end points are shown on page C-3 and photographs of the data points are included on page C-4.

3.8. Maintenance Needs

No Priority 2B noxious weeds were identified at the site in 2011. Approximately ten Russian olive trees were observed in the northwest corner of the project area. Russian olive is considered a Priority 3 weed that has the potential to have significant negative impacts. The state recommends research, education and prevention to minimize the spread of the regulated plant. Measures should be taken to ensure that Russian olive seedlings do not establish within this mitigation site. There are no nesting structures or inlet/outlet structures controlling water levels installed at the site.

3.9. Current Credit Summary

Based on the delineation completed in 2011, the total wetland acreage was 7.3 acres consisting of emergent and aquatic bed wetland vegetation classes. An undisturbed upland buffer of 7.6 acres was maintained within the mitigation site. Credit ratios for the site were assumed to be approximately 1:1 for created wetlands based on the requirement in the permit to create 4.92 acres of wetland for 4.4 acres of wetland impact (Table 7). There was 7.63 acres of upland on the site in 2011and 1.52 acres of upland buffer credit calculated at a 5:1 ratio.

The performance standards listed in Department of the Army Permit Number 2004-90-518 specified that the wetlands were to have at least 60 percent cover by desirable wetland species in the herbaceous layer after 3 years, and 75 percent cover after five years. Invasive and noxious species were to comprise no more than 10 percent of the relative cover, and not dominate the vegetation in any extensive area of the mitigation wetland. The wetland was to be inundated or saturated to the surface continuously for at least 12.5 percent of the growing season in most years.

The site was constructed in 2008. The wetland acreage requirement of at least 4.92 acres has been met. The cover of emergent vegetation and aquatic macrophytes currently exceeds 60 percent in the west cell. The cover of the emergent and aquatic macrophyte vegetation in the open water areas and shoreline of the east cell is approximately 60 percent. There were no noxious weeds observed at the site in 2011 although Russian olive is an aggressive Priority 3 weed that warrants eradication to prevent the spread of the plant.

Table 7. Summary of wetland credits as of 2011.

WETLAND	2011 (acres)	Credit Ratio	2011 Credit Acres
Created Wetland	7.29	1:1	7.29
Upland Buffer	7.63	5:1	1.53
Total			**8.82**

4. REFERENCES

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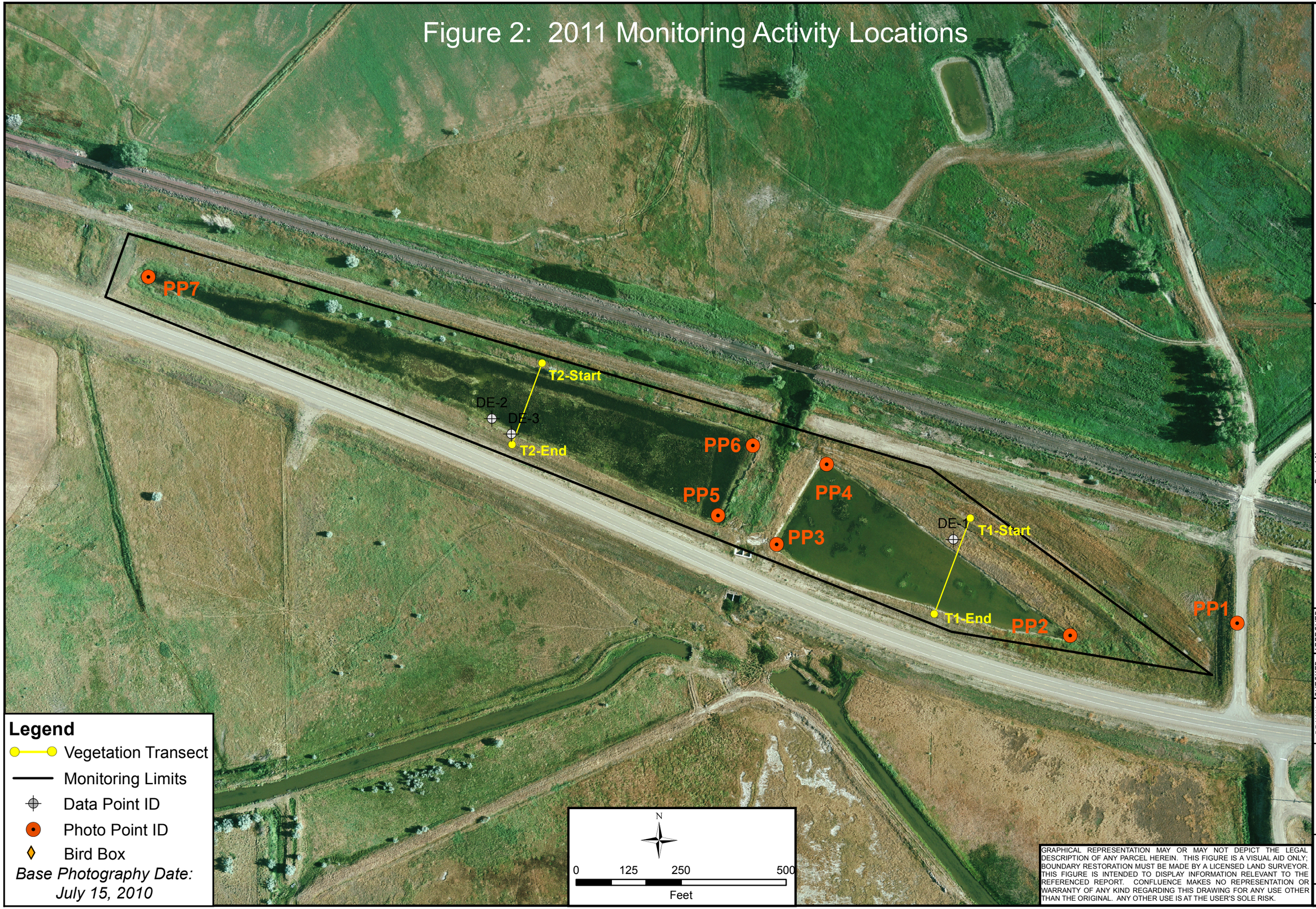
Appendix A

Figure 2 – 2011 Monitoring Activity Locations
Figure 3 – 2011 Mapped Site Features

MDT Wetland Mitigation Monitoring
Dodson East
Phillips County, Montana

Figure 2: 2011 Monitoring Activity Locations



Legend

- Vegetation Transect
- Monitoring Limits
- Data Point ID
- Photo Point ID
- Bird Box

Base Photography Date: July 15, 2010

GRAPHICAL REPRESENTATION MAY OR MAY NOT DEPICT THE LEGAL DESCRIPTION OF ANY PARCEL HEREIN. THIS FIGURE IS A VISUAL AID ONLY; BOUNDARY RESTORATION MUST BE MADE BY A LICENSED LAND SURVEYOR. THIS FIGURE IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

LOCATION: Phillips Co., MT

PROJECT NO: MDT.004

FILE: DodsonEast/Monitor2011.mxd

Project Name: Dodson East Mitigation Site

Drawing Title: 2011 Monitoring Activity Locations

DRAWN	CHECKED	APPROVED
BV	BCS	JL

SCALE: Noted

Drawn: September 22, 2011

PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 2

REV -

Figure 3: 2011 Mapped Site Features

Vegetation Community Types

1 Agropyron spp.
2 Scirpus spp.
3 Puccinellia nuttalliana
4 Alopecurus pratensis
5 Alisma plantago-aquatica/Scirpus spp.
6 Aquatic macrophytes

Acreages

Project Area	14.9 acres
Upland Buffer	7.6 acres
Created Wetlands	7.3 acres

Legend

Monitoring Limits
Wetland Limits
Vegetation Communities

Base Photography Date: August 17, 2011

N

0 125 250 500
Feet

GRAPHICAL REPRESENTATION MAY OR MAY NOT DEPICT THE LEGAL DESCRIPTION OF ANY PARCEL HEREIN. THIS FIGURE IS A VISUAL AID ONLY; BOUNDARY RESTORATION MUST BE MADE BY A LICENSED LAND SURVEYOR. THIS FIGURE IS INTENDED TO DISPLAY INFORMATION RELEVANT TO THE REFERENCED REPORT. CONFLUENCE MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND REGARDING THIS DRAWING FOR ANY USE OTHER THAN THE ORIGINAL. ANY OTHER USE IS AT THE USER'S SOLE RISK.

LOCATION: Phillips Co., MT
PROJECT NO: MDT.004
FILE: DodsonEast/Veg2011.mxd

Project Name
Dodson East Mitigation Site

Drawing Title
2011 Mapped Site Features

DRAWN BV | CHECKED BCS | APPROVED JJ
SCALE: Noted
Drawn: September 22, 2011
PROJ MGR: B Sandefur

CONFLUENCE
consulting incorporated

Figure 3

REV -

Appendix B

2011 MDT Wetland Mitigation Site Monitoring Form
2011 USACE Wetland Determination Data Form – Great Plains Region
2011 MDT Montana Wetland Assessment Form

MDT Wetland Mitigation Monitoring
Dodson East
Phillips County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: Dodson-East Assessment Date/Time 8/12/2011 8:35:10 AM

Person(s) conducting the assessment: B. Vaughn/B.Schultz

Weather: overcast, breezy, 75 Location: approx. 4 miles E of Dodson

MDT District: Glendive Milepost:

Legal Description: T 30N R 27E Section(s) 1 and 2

Initial Evaluation Date: 8/12/2011 Monitoring Year: 1 #Visits in Year: 1

Size of Evaluation Area: 14.9 (acres)

Land use surrounding wetland:

Agricultural (grazing), Hwy 2 on south boundary

HYDROLOGY

Surface Water Source: Spring creek flood event, groundwater, surface runoff and precip.

Inundation: ☑ Average Depth: 2 **(ft)** Range of Depths: 0.5 to 3.0 **(ft)**

Percent of assessment area under inundation: 55 %

Depth at emergent vegetation-open water boundary: 0.8 **(ft)**

If assessment area is not inundated then are the soils saturated within 12 inches of surface: Yes

Other evidence of hydrology on the site (ex. – drift lines, erosion, stained vegetation, etc**:**

Surface soil cracks, saturation w/in 12 inches bgs where not inundated, algal mat.

Groundwater Monitoring Wells

Record depth of water surface below ground surface, in feet.

Well ID	Water Surface Depth (ft)
No Wells	

Additional Activities Checklist:

☑ Map emergent vegetation-open water boundary on aerial photograph.

☑ Observe extent of surface water during each site visit and look for evidence of past surface water elevations (drift lines, erosion, vegetation staining, etc.)

☐ Use GPS to survey groundwater monitoring well locations, if present.

Hydrology Notes:

Both constructed wetland cells inundated. Vegetation cover more well-developed on west cell.

VEGETATION COMMUNITIES

Site Dodson-East

(Cover Class Codes **0** = < 1%, **1** = 1-5%, **2** = 6-10%, **3** = 11-20%, **4** = 21-50% , **5** = >50%)

* Indicates accepted spp name not on '88 list.

Community # 1 **Community Type:** Agropyron spp. / **Acres** 6.74

Species	Cover class	Species	Cover class
Agropyron cristatum	5	Agropyron repens	1
Agropyron smithii	2	Agropyron trachycaulum	1
Alopecurus pratensis	1	Axyris amaranthoides	0
Bare ground	2	Elaeagnus angustifolia	0
Elymus canadensis	0	Elymus cinereus	2
Erigeron annuus	1	Festuca spp.	1
Grindelia squarrosa	3	Hordeum jubatum	2
Kochia scoparia	0	Lactuca serriola	0
Lepidium perfoliatum	3	Melilotus alba	1
Melilotus officinalis	1	Puccinellia nuttalliana	2
Rumex crispus	0	Thlaspi arvense	1

Comments:

Community # 2 **Community Type:** Scirpus spp. / **Acres** 0.22

Species	Cover class	Species	Cover class
Agropyron smithii	0	Algae, green	3
Bare ground	4	Buchloe dactyloides	1
Distichlis spicata	1	Eleocharis palustris	0
Hordeum jubatum	1	Polygonum arenastrum	0
Puccinellia nuttalliana	2	Rumex crispus	0
Scirpus acutus	2	Scirpus maritimus	3

Comments:

Community characterizing east wetland cell. Deeper water and vegetation cover less developed than west wetland cell. Isolated Scirpus plants interspersed in open water.

Community # 3 **Community Type:** Puccinellia nuttalliana / **Acres** 0.9

Species	Cover class	Species	Cover class
Agropyron cristatum	2	Agropyron smithii	1
Agropyron trachycaulum	2	Alopecurus pratensis	0
Asclepias spp.	1	Avena fatua	0
Chenopodium album	0	Elymus canadensis	0
Elymus cinereus	0	Festuca sp.	0
Heliomeris multiflora	0	Hordeum jubatum	3
Lactuca serriola	0	Lepidium perfoliatum	3
Melilotus alba	0	Puccinellia nuttalliana	5
Rumex crispus	1	Scirpus maritimus	0
Sonchus arvensis	0	Spartina pectinata	1

Comments:

Community # 4 **Community Type:** Alopecurus pratensis / **Acres** 0.26

Species	Cover class	Species	Cover class
Agropyron trachycaulum	1	Alopecurus pratensis	5
Asclepias speciosa	1	Buchloe dactyloides	0
Carex praegracilis	1	Carex vulpinoidea	1
Elaeagnus angustifolia	1	Hordeum jubatum	1
Lactuca serriola	1	Puccinellia nuttalliana	1
Rumex crispus	1	Scirpus acutus	1
Scirpus maritimus	1	Solidago canadensis	1
Sonchus arvensis	2	Spartina pectinata	2
Typha latifolia	2		

Comments:

Existing wetland community located between cells where spring creek previously flowed through site. No defined creek channel observed during site visit.

Community # 5 **Community Type:** Alisma plantago-aquatica / Scirpus spp. **Acres** 4.45

Species	Cover class	Species	Cover class
Algae, green	3	Alisma plantago-aquatica	5
Alopecurus pratensis	1	Open water	3
Puccinellia nuttalliana	1	Scirpus acutus	3
Scirpus americanus	1	Scirpus maritimus	4
Spartina pectinata	1		

Comments:

Community characterizes west wetland cell. Cell exhibits more well-developed emergent vegetation cover than east cell.

Community # 6 **Community Type:** Aquatic Macrophytes / **Acres** 2.38

Species	Cover class	Species	Cover class
Algae, green	4	Open water	5
Scirpus acutus	1		

Comments:

Aquatic bed wetland community encompasses majority of east cell.

Total Vegetation Community Acreage **14.95**

(Note: some area within the project bounds may be open water or other non-vegetative ground cover.)

VEGETATION TRANSECTS

Site: Dodson-East Date: 8/12/2011 8:35:10 AM

Transect Number: 1 **Compass Direction from Start:** 225

Interval Data:

Ending Station 10 **Community Type:** Agropyron spp. /

Species	Cover class	Species	Cover class
Agropyron cristatum	5	Agropyron smithii	2
Agropyron trachycaulum	0	Kochia scoparia	1
Lepidium perfoliatum	0		

Ending Station 72 **Community Type:** Puccinellia nuttalliana /

Species	Cover class	Species	Cover class
Agropyron cristatum	1	Agropyron trachycaulum	1
Avena fatua	0	Chenopodium album	1
Elymus cinereus	0	Festuca sp.	0
Hordeum jubatum	2	Lactuca serriola	0
Lepidium perfoliatum	3	Puccinellia nuttalliana	4
Rumex crispus	0		

Ending Station 79 **Community Type:** Scirpus spp. /

Species	Cover class	Species	Cover class
Agropyron smithii	0	Bare ground	5
Scirpus maritimus	1		

Ending Station 231 **Community Type:** Aquatic Macrophytes /

Species	Cover class	Species	Cover class
Algae, green	3	Open water	5
Scirpus acutus	0		

Ending Station 244 **Community Type:** Puccinellia nuttalliana /

Species	Cover class	Species	Cover class
Agropyron trachycaulum	3	Elymus canadensis	2
Hordeum jubatum	3	Melilotus alba	2
Puccinellia nuttalliana	5	Sonchus arvensis	0

Transect Notes:

Transect traverses east cell. Less emergent vegetation than west cell. Intersects aquatic bed comm.

Transect Number: 2 **Compass Direction from Start:** 195

Interval Data:

Ending Station 3 **Community Type:** Pucccinellia nuttalliana /

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Puccinellia nuttalliana	1
Spartina pectinata	4		

Ending Station 203 **Community Type:** Alisma plantago-aquatica / Scirpus spp.

Species	Cover class	Species	Cover class
Alisma plantago-aquatica	5	Bare ground	1
Open water	4	Scirpus maritimus	2
Sonchus arvensis	0		

Ending Station 207 **Community Type:** Puccinellia nuttalliana /

Species	Cover class	Species	Cover class
Hordeum jubatum	0	Melilotus alba	1
Puccinellia nuttalliana	5	Scirpus maritimus	1
Sonchus arvensis	3		

Transect Notes:

T-2 traverses west wetland cell. Emergent vegetation cover well-developed.

PLANTED WOODY VEGETATION SURVIVAL

Dodson-East

Comments

Site vegetated with seeded and salvaged wetland communities. No woody species planted.

Dodson-East

WILDLIFE

Birds

Were man-made nesting structures installed? No

If yes, type of structure: _____

How many? _____

Are the nesting structures being used? No

Do the nesting structures need repairs? No

Nesting Structure Comments:

Species	#Observed	Behavior	Habitat
American Robin	1	FO	MA, UP
Killdeer	1	FO	MA, OW
Red-winged Blackbird	1	FO	MA
Tree Swallow	2	L	MA, OW, UP

Bird Comments

BEHAVIOR CODES

BP = One of a breeding pair **BD** = Breeding display **F** = Foraging **FO** = Flyover **L** = Loafing **N** = Nesting

HABITAT CODES

AB = Aquatic bed **SS** = Scrub/Shrub **FO** = Forested **UP** = Upland buffer **I** = Island

WM = Wet meadow **MA** = Marsh **US** = Unconsolidated shore **MF** = Mud Flat **OW** = Open Water

Mammals and Herptiles

Species	# Observed	Tracks	Scat	Burrows	Comments
Meadow Vole	1	No	No	No	
Northern Leopard Frog	5	No	No	No	
Painted Turtle	1	No	No	No	dead
Plains Gartersnake	1	No	No	No	skin
Raccoon		Yes	No	No	
Striped Skunk	1	No	No	No	dead
White-tailed Deer		Yes	No	No	

Wildlife Comments:

Dodson-East

PHOTOGRAPHS

Take photographs of the following permanent reference points listed in the check list below. Record the direction of the photograph using a compass. When at the site for the first time, establish a permanent reference point by setting a ½ inch rebar or fencepost extending 2-3 feet above ground. Survey the location with a resource grade GPS and mark the location on the aerial photograph.

Photograph Checklist:

☑ One photograph for each of the four cardinal directions surrounding the wetland.

☑ At least one photograph showing upland use surrounding the wetland. If more than one upland exists then take additional photographs.

☑ At least one photograph showing the buffer surrounding the wetland.

☑ One photograph from each end of the vegetation transect, showing the transect.

Photo #	Latitude	Longitude	Bearing	Description
1234-1236	48.381271	-108.169556	270	pp2 pano
1237-1240	48.381256	-108.168114	270	pp1 pano facing due west
1241-1244	48.38237	-108.172127	135	pp 4 pano
1245-1248	48.382488	-108.17276	225	pp6 pano
1249-1253	48.381912	-108.173187	315	pp5 pano
1254-1257	48.381775	-108.172714	45	pp3 pano
1258	48.381935	-108.170784	225	start T-1
1259	48.381813	-108.170914	45	DE-1
1261	48.381588	-108.171402	0	end T-1 facing n
1262-1264	48.383705	-108.178825	90	pp7 pano
1269	48.383026	-108.174873	195	start T-2
1270	48.382523	-108.17514	15	end T-2
1271	48.38261	-108.175194	0	DE-2
1272	48.382599	-108.175377	315	DE-3

Comments:

Dodson-East

ADDITIONAL ITEMS CHECKLIST

Hydrology

☑ Map emergent vegetation/open water boundary on aerial photos.
☑ Observe extent of surface water. Look for evidence of past surface water elevations (e.g. drift lines, vegetation staining, erosion, etc).

Photos

☑ One photo from the wetland toward each of the four cardinal directions
☑ One photo showing upland use surrounding the wetland.
☑ One photo showing the buffer around the wetland
☑ One photo from each end of each vegetation transect, toward the transect

Vegetation

☑ Map vegetation community boundaries

☑ Complete Vegetation Transects

Soils

☑ Assess soils

Wetland Delineations

☑ Delineate wetlands according to applicable USACE protocol (1987 form or Supplement)
☑ Delineate wetland – upland boundary onto aerial photograph.

Wetland Delineation Comments

Functional Assessments

☑ Complete and attach full MDT Montana Wetland Assessment Method field forms.

Functional Assessment Comments:

Maintenance

Were man-made nesting structure installed at this site? No

If yes, do they need to be repaired?

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

Were man-made structures built or installed to impound water or control water flow

into or out of the wetland? No

If yes, are the structures in need of repair?

If yes, describe the problems below.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Dodson-East Mitigation Site City/County: Phillips Sampling Date: 8/12/2011

Applicant/Owner: MDT State: Montana Sampling Point: DE-1

Investigator(s): B.Vaughn, B. Schultz Section, Township, Range: 1 30 N 27 E

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat Slope (%): _____

Subregion (LRR): LRR F Lat: 48.38183 Long: -108.170875 Datum: WGS 84

Soil Map Unit Name: Havre loam, 0-2% 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 ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Data point located within Comm. 3. Vegetation meets prevalence index although not dominance test. Hydrophytic veg not considered present based on lack of soil and hydrology primary indicators. Community is marginal for wetland characteristics. May develop into wetland over time.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Puccinellia nuttalliana	45	☑	FACW
2. Lepidium perfoliatum	10	☑	FACU
3. Hordeum jubatum	5	☐	FACW
4. Elymus cinereus	2	☐	NI
5. Agropyron trachycaulum	5	☐	FACU
6. Agropyron smithii	5	☐	FACU
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
	72 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	70 (A)		180 (B)

Prevalence Index = B/A = 2.57143

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: Vegetation meets prevalence index but there are no hydric soil or primary wetland hydrology indicators.

SOIL

Sampling Point: DE-1

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100					Silty Clay Loam	
7-13	10YR 4/2	100					Silty Clay Loam	clay increases with depth

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

- ☐ 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)

[3]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: Low chroma (4/2) but no redox features.

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: Single secondary indicator - surface soil cracks.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Dodson-East Mitigation Site | City/County: Phillips | Sampling Date: 8/12/2011

Applicant/Owner: MDT | State: Montana | Sampling Point: DE-2

Investigator(s): B.Vaughn, B.Schultz | Section, Township, Range: 1 30N 27E

Landform (hillslope, terrace, etc.): Flat | Local relief (concave, convex, none): flat | Slope (%): _____

Subregion (LRR): LRR F | Lat: 48.3825683333333 | Long: -108.17519 | Datum: WGS 84

Soil Map Unit Name: Havre loam 0-2% | 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 ☑ No ☐

Hydric Soil Present? Yes ☑ No ☐

Wetland Hydrology Present? Yes ☑ No ☐

Is the Sampled Area within a Wetland? Yes ☑ No ☐

Remarks: Data point located at edge of Comm.5 Located 0.5 ft vertically from inundation and 3 ft horizontally.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. Scirpus maritimus	45	☑	OBL
2. Puccinellia nuttalliana	45	☑	FACW
3. Sonchus arvensis	15	☐	FAC
4. Alisma plantago-aquatica	3	☐	OBL
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
	108 = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	47	x 1 =	47
FACW species	45	x 2 =	90
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	107 (A)		182 (B)

Prevalence Index = B/A = 1.7

Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☐ 2 - Dominance Test is >50%

☑ 3 - Prevalence Index is ≤3.0[1]

☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☑ No ☐

Remarks: Scirpus maritimus OBL Nationally and in Region 9. Considered NI in Region 4.

SOIL

Sampling Point: DE-2

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 4/2	100					Silty Clay Loam	organic decomposition. recently cons
7-15	10YR 4/1						Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

- ☐ 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)

[3]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: Problematic soil as a result of recent development (construction). Low chroma although no redox features.

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): 0

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks: Tight clay soil limited migration of groundwater into test pit during investigation time frame.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Dodson-East Mitigation Site | City/County: Phillips | Sampling Date: 8/12/2011

Applicant/Owner: MDT | State: Montana | Sampling Point: DE-3

Investigator(s): B.Vaughn, B. Schultz | Section, Township, Range: 2 30N 27E

Landform (hillslope, terrace, etc.): Terrace | Local relief (concave, convex, none): flat | Slope (%):

Subregion (LRR): LRR F | Lat: 48.38267 | Long: -108.175378333333 | Datum: WGS 84

Soil Map Unit Name: Havre loam 0-2 % | 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 ☐	No ☑	**Is the Sampled Area within a Wetland?** Yes ☐ No ☑
Hydric Soil Present?	Yes ☐	No ☑	
Wetland Hydrology Present?	Yes ☐	No ☑	

Remarks: Data point located in Comm.3. Community may be transitioning to wetland based on cover of Puc nut. Currently does not meet wetland criteria for soil and hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Indicator Status
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft)			
1. Puccinnellia nuttalliana	45	☑	FACW
2. Sonchus arvensis	10	☑	FAC
3. Grindelia squarrosa	7	☐	UPL
4. Scirpus maritimus	10	☑	NI
5. Melilotus officinalis	10	☑	FACU-
6. Agropyron trachycaulum	7	☐	FACU
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
	89 = Total Cover		
Woody Vine Stratum (Plot size:)			
1.	0	☐	
2.	0	☐	
	0 = Total Cover		

% Bare Ground in Herb Stratum 15

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	10	x 3 =	30
FACU species	17	x 4 =	68
UPL species	7	x 5 =	35
Column Totals:	79 (A)		223 (B)

Prevalence Index = B/A = 2.82278

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☑ 3 - Prevalence Index is ≤3.0[1]
- ☐ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ☐ No ☑

Remarks: Although sample plot vegetation meets prevalence index, there are no primary indicators of hydric soil and wetland hydrology. Consequently, did not meet wetland vegetation criteria.

SOIL

Sampling Point: DE-3

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/2	100					Silty Clay Loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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[3]:

- ☐ 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)

[3]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: Low chroma but no redox features.

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: Single secondary indicator.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name Dodson-East **2. MDT project#** NH 1-8(15)454F **Control#** 1516

3. Evaluation Date 8/11/2011 **4. Evaluators** B.Vaughn, B.Schultz **5. Wetland/Site# (s)** Wetland Cell Creation

6. Wetland Location(s): **T** 30 N **R** 27E **Sec1** 1 **T** **R** **Sec2** 2

Approx Stationing or Mileposts

Watershed 10050004 **Watershed/County** Lower Missouri River Watershed/Phillips County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 7.29

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 7.29

☐ **Mitigation Wetlands: pre-construction**

How assessed: Measured e.g. by GPS

☑ **Mitigation Wetlands: post construction**

☐ **Other**

10. Classification of Wetland and Aquatic Habitats in AA

HGM Class (Brinson)	Class (Cowardin)	Modifier (Cowardin)	Water Regime	% of AA
Depressional	Emergent Wetland	Excavated	Permanent/Perennial	67
Depressional	Aquatic Bed	Excavated	Permanent/Perennial	33

11. Estimated Relative Abundance 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	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)

Mitigation site is located between Hwy 2 and railroad. Surrounding land is agricultural/grazing. Wetland cells (particularly the east cell) were constructed in 2008.

ii. Prominent noxious, aquatic nuisance, other exotic species:

Exotic species (non-noxious)-Sonchus arvensis.

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

AA encompasses two wetland cells constructed between highway and railroad. A spring creek (not apparent during site visit) historically bisected the two cells. A small remnant of an existing wetland that lies between the two cells was included in the AA.

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	M	<NO	YES>	L
1 class, monoculture (1 species comprises>=90% of total cover)	L	NA	NA	NA

Comments: Emergent and aquatic bed classes

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 (check 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 [check] 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	.8H	.7M	.3L	.1L	0L

Sources for documented use Nothing was documented by USFWS for this county.

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

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

Primary or critical habitat (list species)	◉ D ◉ S	
Secondary habitat (list Species)	○ D ◉ S	Great blue heron (S3)
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 [check] the functional points and rating)

Highest Habitat Level	doc/primary	sus/primary	doc/secondary	sus/secondary	doc/incidental	sus/incidental	None
S1 Species: *Functional Points and Rating*	1H	.8H	.7M	.6M	.2L	.1L	0L
S2 and S3 Species: *Functional Points and Rating*	.9H	.7M	.6M	.5M	.2L	.1L	0L

Sources for documented use MTNHP identified the heron for this Township and Range

14C. General Wildlife Habitat Rating:

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

Moderate

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

iii. Rating (use the conclusions from i and ii above and the matrix below to arrive at [check] 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 Evidence of use by painted turtle, plains gartersnake, deer, raccoon, and birds.

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 check ☑ **NA** here and proceed to 14E.)

i. Habitat Quality and Known / Suspected Fish Species in AA (use matrix to arrive at [check the functional points and rating)

Duration of surface water in AA	Permanent / Perennial						Seasonal / Intermittent						Temporary / Ephemeral					
Aquatic hiding / resting / escape cover	Optimal		Adequate		Poor		Optimal		Adequate		Poor		Optimal		Adequate		Poor	
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:* **Modified Rating**

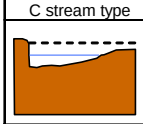
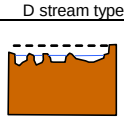
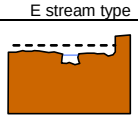
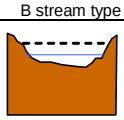
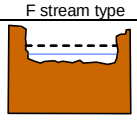
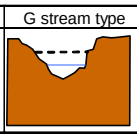
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

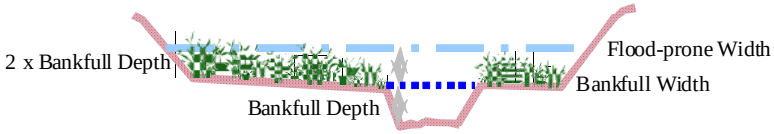
iii. Final Score and Rating: 0 NA **Comments:** Depression cells w/o surface water inlet or outlet.

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, click ☑ **NA** here and proceed to 14F.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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		
% of flooded wetland classified as forested and/or scrub/shrub	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

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
						



Floodrpone width / **Bankfull width** = **Entrenchment ratio**

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 (check)? **Y** ◯ **N** ◉

Comments: Area subject to inundation from spring creek channel overflow during flood events. Floodprone width and bankfull width not recorded for spring creek channel, assumed E-type stream.

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, click ☐ **NA** here and proceed to 14G.)

i. Rating (Working from top to bottom, use the matrix below to arrive at [check] 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		
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**	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 cells inundated by groundwater and precipitation during August site visit. Assumes approximately 7 acres of wetland flooded to a depth of 2 feet.

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, click ☐ **NA** here and proceed to 14H.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: Cover of wetland veg (emergent and aquatic macrophytes) exceeds 70%. Depression w/o outlet.

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, click ☐ **NA** here and proceed to 14I.)

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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: Vegetation cover of Scirpus higher in west cell. Cells subject to wave action.

14I. Production Export/Food Chain Support:

i. Level of Biological Activity (synthesis of wildlife and fish habitat ratings [check])

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 [check] 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	1E	.7H	.8H	.5M	.6M	.4M	.9H	.6M	.7H	.4M	.5M	.3L	.8H	.6M	.6M	.4M	.3L	.2L
S/I	.9	.6M	.7H	.4	.5M	.3L	.8H	.5M	.6M	.3L	.4M	.2L	.7H	.5M	.5M	.3L	.3L	.2L
T/E/A	.8	.5M	.6M	.3	.4M	.2L	.7H	.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:* **Modified Rating** .8H

Comments: Surface outlet via culvert under highway. Bordered by highway and railroad. Buffer <50 ft.

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 [check] the functional points and rating)

	Duration of saturation at AA Wetlands *FROM GROUNDWATER DISCHARGE OR WITH WATER THAT IS RECHARGING THE GROUNDWATER SYSTEM*			
Criteria	P/P	S/I	T	None
Groundwater Discharge or Recharge	1H	.7M	.4M	.1L
Insufficient Data/Information			NA	

Comments: Wetland cells inundated during August investigation.

14K. Uniqueness:

i. Rating (working from top to bottom, use the matrix below to arrive at [check] 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		
Estimated relative abundance (#11)	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	.7H	.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: (check) **Y** ○ **N** ◉ (if 'Yes' continue with the evaluation; if 'No' then click ☑ **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 [check] 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:

Limited access from highway and limited upland within fence. Remainder of mitigation site is flooded.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Wetland Cell Creation

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	0	☐
B. MT Natural Heritage Program Species Habitat	M	.5	1	3.645	☐
C. General Wildlife Habitat	M	.7	1	5.103	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.6	1	4.374	☐
F. Short and Long Term Surface Water Storage	H	1	1	7.29	☑
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	5.103	☑
H. Sediment/Shoreline Stabilization	M	.7	1	5.103	☐
I. Production Export/Food Chain Support	H	.8	1	5.832	☐
J. Groundwater Discharge/Recharge	H	1	1	7.29	☑
K. Uniqueness	L	.2	1	1.458	☐
L. Recreation/Education Potential (bonus points)	NA	0	NA	0	☐
Totals:		6.2	10	45.198	
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:
(check appropriate category based on the criteria outlined

I	II	III	IV

Appendix C

Project Area Photographs

MDT Wetland Mitigation Monitoring
Dodson East
Phillips County, Montana

Photo Point 1 – *Photo 1*
Bearing: 270 Degrees

Location: Looking west at mitigation site.
Taken in 2011

Photo Point 2 – *Photo 1*
Bearing: 270 degrees

Location: Looking west from east edge of east cell.
Taken in 2011

Photo Point 3 – *Photo 1*
Bearing: 45 degrees

Location: Looking northeast at east cell.
Taken in 2011

Photo Point 4 – *Photo 1*
Bearing: 135 Degrees

Location: Looking southeast at east cell and Highway 2.
Taken in 2011

Photo Point 5 – *Photo 1*
Bearing: 315 Degrees

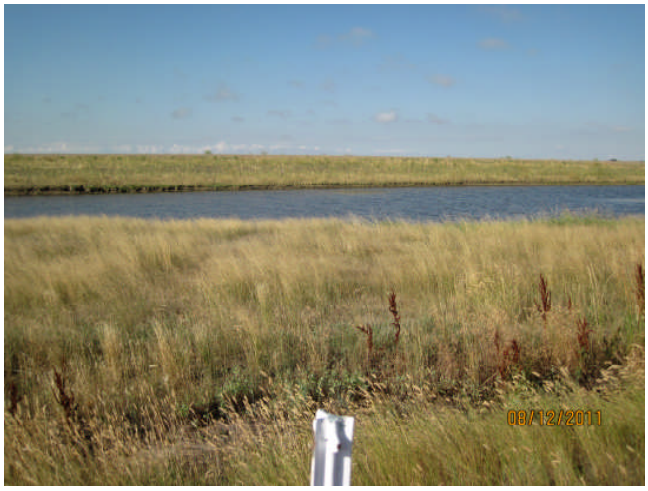
Location: Looking northwest at west cell.
Taken in 2011

Photo Point 6 – *Photo 1*
Bearing: 225 Degrees

Location: Looking southwest at west cell.
Taken in 2011

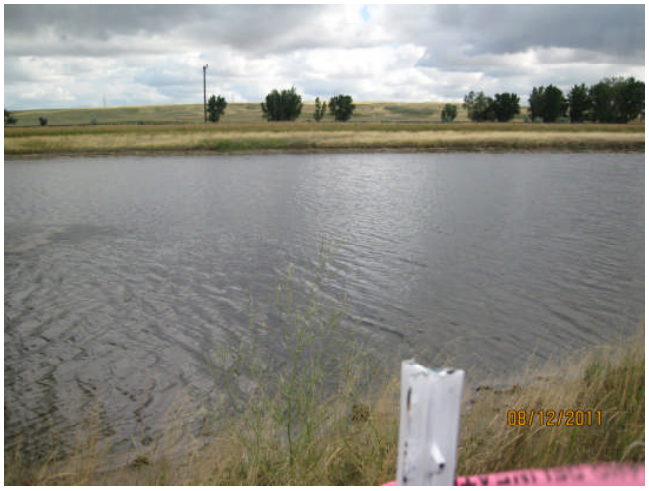
Photo Point 7 – *Photo 1*
Bearing: 90 Degrees

Location: Looking east at west edge of west cell.
Taken in 2011



Transect 1 – Beginning
Bearing: 225 Degrees

Location: East cell (north).
Taken in 2011



Transect 1 – *End*
Bearing: 0 Degrees

Location: East cell (south).
Taken in 2011

Transect 2 – Beginning
Bearing: 195 Degrees

Location: West cell (north)
Taken in 2011

Transect 2 – *End*
Bearing: Degrees

Location: West cell (south)
Taken in 2011

Data Point – *DE-1*
Bearing: 45 Degrees
Location: East cell (northeast)
Taken in 2011

Data Point 2 – *DE-2*
Bearing: 0 Degrees
Location: West cell (northeast)
Taken in 2011

Data Point 3 – *DE-3*
Bearing: 315 Degrees
Location: West cell (northeast)
Taken in 2011