MONTANA DEPARTMENT OF TRANSPORTATION
WETLAND MITIGATION MONITORING REPORT: YEAR 2012

McGinnis Meadows
Lincoln County, Montana



Prepared for:

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December 2012

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CCI Project No: MDT.004

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1. INTRODUCTION

The McGinnis Meadows 2012 Wetland Mitigation Monitoring Report presents the results of the third year of post-construction monitoring at the McGinnis Meadows mitigation site. The Montana Department of Transportation (MDT) wetland mitigation project is located in Section 33, Township 26 North, Range 28 West, Lincoln County, Montana (Figure 1). McGinnis Meadows is located approximately seven miles south of the US Highway 2 corridor on two parcels that encompass 33 acres of an historic hay field and pasture (Figure 2, Appendix A). McGinnis Creek, a tributary to the Fisher River, bisects the parcels. Figures 2 and 3 (Appendix A) show the Monitoring Activity Locations and Mapped Site Features, respectively. Figure 4 delineates the Wetland Assessment Areas (AAs). The MDT Mitigation Site Monitoring Form, US Army Corps of Engineers (USACE) Wetland Determination Data Forms (USACE 2010), and the 2008 MDT Montana Wetland Assessment Method (MWAM) forms (Berglund and McEldowney 2008) are included in Appendix B. Representative photographs are included in Appendix C and the Project Plan Sheet is included in Appendix D.

The wetland restoration project lies within the boundaries of Watershed 1 - Kootenai River Basin. Wetlands developed at this location provide compensatory mitigation for wetland impacts associated with transportation projects in the Missoula District. The McGinnis Meadows site was selected after an extensive search of potential wetland and stream restoration sites by MDT within the Kootenai River Watershed in cooperation with a consortium of Conservation Districts known as the Montana Watersheds Incorporated (MWI). The consortium consisted of the Lincoln, Sanders, and Flathead County Conservation Districts with technical assistance from the US Department of Agriculture (USDA), and Natural Resource Conservation Service (NRCS) centers in Bozeman, Kalispell, Libby, and Eureka. The wetland and stream restoration project will aid in improving the flood storage, stream length, and fisheries habitat of McGinnis Creek, and will improve the overall wildlife, riparian, and wetland habitats impacted by past agricultural practices within the McGinnis Creek watershed.

Project goals are the restoration/re-establishment of approximately 0.8 acres of riparian habitat and 17.3 acres of degraded wetlands, creation of 2.9 acres of new emergent wetlands, enhancement of 1.74 acres of existing emergent wetland and an intermittent drainage, preservation of 0.3 acres of existing riparian communities along McGinnis Creek, and protection of 2.2 acres of upland buffer. The project credit ratios approved by the USACE Permit Number NWO-2008-03130-MTH are presented in Section 3.9. The MDT also seeks to obtain approximately 8,835 stream credits for the restoration of 2,850 linear feet of McGinnis Creek. The approved performance standards (MDT 2009) are listed below.

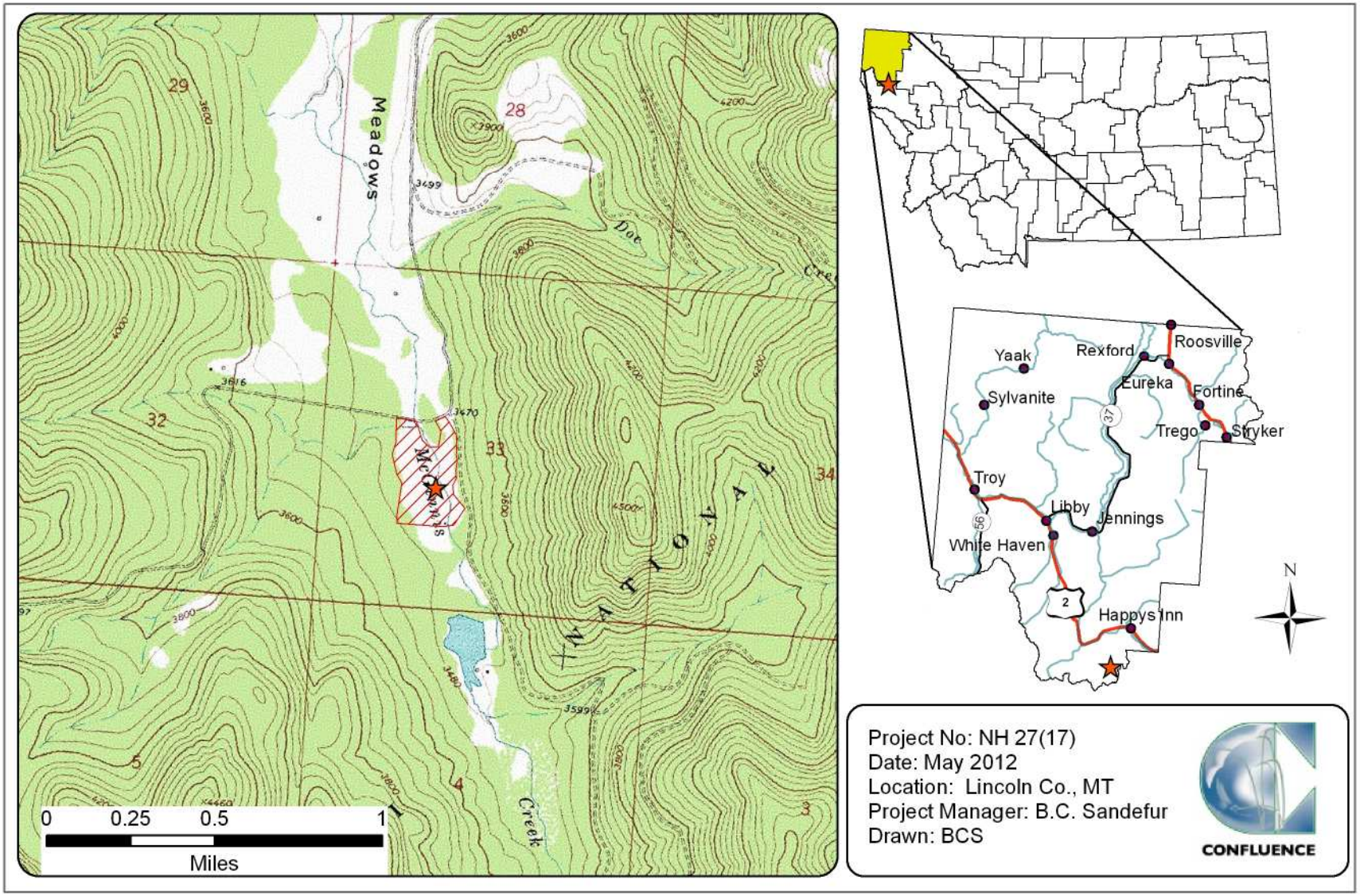


Figure 1. Project location of McGinnis Meadows Wetland Mitigation Site.

1. **Wetland Characteristics**: All restored, created, enhanced, and preserved wetlands within the project limits will meet the three parameter criteria for hydrology, vegetation, and soils established for determining wetland areas as outlined in the *1987 Corps of Engineers Wetlands Delineation Manual for the Determination of Wetlands* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0*)* (USACE 2010).
    a) **Wetland Hydrology Success** will be achieved where wetland hydrology is present as per the technical guidelines in the 1987 wetland manual and 2010 regional supplement. Soil saturation will be present for at least 12.5 percent of the growing season.
    b) **Hydric Soil Success** will be achieved where hydric soil conditions are present (per the most recent NRCS definitions for hydric soil) or appear to be forming, the soil is sufficiently stable to prevent erosion, and the soil is able to support plant cover. Soil profile development will be documented during the course of the monitoring period to determine if wetland areas are exhibiting characteristics of hydric soils per current guidance. Since typical hydric soil indicators may require long periods to form, a lack of distinctive hydric soil features will not be considered a failure if hydrologic and vegetation success are achieved.
    c) **Hydrophytic Vegetation Success** will be achieved where aerial cover of facultative or wetter species is greater than or equal to 70 percent and Montana State-listed noxious weeds do not exceed 5 percent cover.

    The following concept of "dominance", as defined in the 1987 USACE manual, will be applied during future routine wetland determinations in created/restored wetlands: "*Subjectively determine the dominant species by estimating those having the largest relative basal area (woody overstory), greatest height (woody understory), greatest percentage of aerial cover (herbaceous understory), and/or greatest number of stems (woody vines).*"
        i. Woody Plants – Plantings will be considered successful where they exceed 50 percent survival after five years. The natural colonization of woody plant species from nearby sources is anticipated once the grazing, haying, and construction activities are removed from the site. The rate and extent of natural woody plant colonization will be dependent on factors such as habitat availability, beaver activity, seed sources, and other natural selection factors.

2. **Open Water:** It is the intent of the project to provide open water during the spring and early summer within excavated depressions. Open water will be considered successful and creditable.

3. **McGinnis Creek Channel Restoration Success** will be evaluated in terms of revegetation success.
    a) Revegetation along the new McGinnis Creek channel corridor will be considered successful when banks are vegetated with a majority of deep-rooting riparian and wetland plant species.
    b) The intent of the stream restoration is to allow the stream to migrate naturally within the floodplain and to give it enough room to move and stabilize itself within the site.

4. **Upland Buffer Success** will be achieved when the noxious weeds do not exceed 5 percent of cover within the buffer areas on site. Any area within the creditable buffer zone disturbed by project construction must have at least 50 percent aerial cover of non-weed species by the end of the monitoring period.

5. **Weed Control** will be based upon annual monitoring of the site to determine weed species and degree of infestation within the site, and control measures based upon the monitoring results will be implemented by MDT to minimize and/or eliminate the intrusion of State Listed Noxious weed species within the site. The MDT is currently managing the property to control relic weed problems prior to the initiation of wetland construction activities within the site.

6. **Fencing** of the proposed mitigation site has been installed around the perimeter of the site to protect the integrity of the wetland from disturbance. Fencing installed along the perimeter of the site was designed to be “wildlife friendly to allow for wildlife movement into and out of the wetland complex.

2. METHODS

The third monitoring event was completed on August 2, 2012. Information collected during the field investigation has been documented on the Mitigation Monitoring Form and Wetland Determination Data Form (Appendix B). Monitoring activity locations were located with a global positioning system (GPS) (Figure 2, Appendix A). Information collected during this site visit included a wetland delineation, vegetation community mapping, vegetation transect monitoring, soil and hydrology data, stream channel cross-sectional surveys, bird and wildlife use documentation, photographs, and a non-engineering examination of the infrastructure established within the mitigation project area.

2.1. Hydrology

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 (usually 14 days or 12.5 percent or more during the growing season) (Environmental Laboratory 1987).” Systems with continuous inundation or saturation for greater than 12.5 percent of the growth

period are considered wetlands. The growth period 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 (Environmental Laboratory 1987). The growth period recorded for the meteorological station at Libby 32 SSE, Montana (245020), located approximately 20 miles northwest of the project site, extends from June 13 to September 1 for a total of 81 days (NRCS 2010). Areas defined as wetlands would require 10 days of inundation or saturation within 12 inches of the ground surface to meet the hydrology criteria and performance standards.

Hydrologic indicators as outlined on the Wetland Determination Data Form were documented at five data points established within the project area, according to features observed during the site visit. Groundwater levels were measured in three monitoring wells with a Solinst Water Level Meter. The well locations are shown on Figure 2 (Appendix A).

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 2012 aerial photograph (Figure 3, Appendix A). The percent cover of dominant species within a community type was estimated and recorded on the monitoring form using the following ranges: 0 (less than 1 percent), 1 (1 to 5 percent), 2 (6 to 10 percent), 3 (11 to 20 percent), 4 (21 to 50 percent), and 5 (greater than 50 percent) (Appendix B).

Temporal changes in vegetation will be evaluated through annual assessments of static belt transects established in summer, 2010 (Figure 2, Appendix A). Vegetation composition was assessed and recorded along two vegetation belt transects approximately 10 feet wide and 504 feet (T-1) and 1000 feet long (T-2) (Figure 2, Appendix A). The transect locations were recorded with a GPS unit. Spatial changes in the dominant vegetation communities based on percent cover were recorded along the stationed transect. The percent aerial cover of each vegetation species within the belt transect was estimated using the same cover ranges listed for the community polygon data (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 2012 aerial photograph (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, 0.1 to 1.0 acre, or greater than 1.0 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, as listed on Figure 3 (Appendix A). The condition of the woody species installed onsite was evaluated during monitoring. Survival will be assessed annually.

2.3. Soil

Soil information was obtained from the *Soil Survey for Lincoln County Area* (USDA 2010) and *in situ* soil descriptions. Soil cores were excavated using a shovel and evaluated according to procedures outlined in the USACE 1987 manual and 2010 Regional Supplement. A description of the soil profile, including hydric indicators when present, was recorded on the Wetland Determination Data Form for each profile (Appendix B).

2.4. Wetland Delineation

Waters of the US including jurisdictional wetlands and special aquatic sites were delineated throughout the project area in accordance with criteria established in the 1987 USACE wetland manual and the 2010 Regional Supplement. In order to delineate a representative area as wetland, the technical criteria for hydrophytic vegetation, hydric soil, and wetland hydrology, as described in the 1987 Manual, must be satisfied. The name and indicator status of plant species were derived from the Draft 2012 National Wetland Plant List (NWPL) (Lichvar and Kartesz. 2009). Previous years' reports used the 1988 National List of Plant Species that Occur in Wetlands: Northwest Region 9 (Reed 1988). The 2012 NWPL scientific plant names were used in this report. Many common names used in the 2012 NWPL appear incomplete or erroneous. When used in this report, 2012 NWPL common names that appear to be incomplete or erroneous are provided with parenthetical clarification. For example, the common given name for the plant *Agrostis exarata* in the 2012 NWPL is "spiked bent". As this is likely an error, this species' common name would be reported here as "spiked bent (grass)".

The Routine Level-2 On-site Determination Method (Environmental Laboratory 1987) was used to delineate jurisdictional areas within the project boundaries. Five wetland data points (Figure 2 in Appendix A) were evaluated in 2012 to help define the wetland/upland boundary. The information was recorded electronically on the Wetland Determination 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. When 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, or special aquatic site, i.e. mud flat. In the case of constructed mitigation wetlands, hydric soils do not have to be present based on the timeframe required for soil development. The wetland boundary was identified on the 2012 aerial photography. Wetland areas reported were determined using GIS methods.

2.5. Wildlife

Observations of mammal, reptile, amphibian, and bird use within the project area 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 incidental to other required activities. Direct sampling methods, such as snap traps, live traps, and pitfall traps, were not used. A comprehensive list of animal species observed from 2010 to 2012 was compiled for this report.

2.6. Functional Assessment

The 2008 MDT MWAM was used to evaluate functions and values on the site from 2010 to 2012. 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).

An MDT MWAM form was completed for four Assessment Areas (AAs) within the McGinnis Meadows mitigation site. The site was divided into four AAs including: Creation (excavated cells), Restoration (re-establishment and rehabilitation area), Enhancement (existing emergent wetland), and Preservation (existing riverine wetlands).

2.7. Photo Documentation

Monitoring at photo points provided supplemental information documenting wetland and upland conditions, site trends, current land uses surrounding the site, and the vegetation transect conditions. Photographs were taken at established photo points throughout the mitigation site during the 2012 site visit (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 2012 monitoring season. Points were collected using WAAS-enabled differential correction satellites, typically improving resolution to sub-meter accuracy. The collected data were then transferred to a personal computer, imported into GIS, and presented in Montana State Plane Single Zone NAD 83 meters. Site features and survey points that were located with GPS included fence boundaries, photograph points, transect endpoints, and wetland data points.

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. The examination was cursory and did not constitute an engineering-level structural inspection.

3. RESULTS

3.1. Hydrology

Climate data from the Libby weather station recorded an average total annual precipitation rate of 24.54 inches from 1910 to 2012 (WRCC 2012). Annual precipitation for 2009, 2010, and 2011 was 19.74, 22.01, and 22.64 inches, respectively. Average precipitation for the period of record from January to July was 13.86 inches. Precipitation totals recorded from January to July in 2010, 2011, and 2012 were 11.65 inches, 15.05 inches, and 16.2 inches, respectively (WRCC 2012). In general, the area around the project area exhibited above-average precipitation in 2011 and 2012 prior to and during the growing season.

The project site was historically drained, filled, and leveled for agricultural purposes in the early to mid 1900's. The McGinnis Creek corridor was channelized during the same timeframe, substantially altering the natural floodplain of the property. Mitigation construction activities included the construction of a new McGinnis Creek channel with wide meanders across the entire site. The creek bisects the project area. The McGinnis Creek watershed is approximately 10.2 square miles in area. The hydrologic connection between the creek and associated floodplain resulted in an elevated local groundwater table along the drainage. Overbank flooding events recharge surface depressions excavated within the floodplain along McGinnis Creek throughout the mitigation site. Groundwater, precipitation, overbank flooding of McGinnis Creek, and surface runoff from ephemeral drainages on adjacent slopes of the Kootenai National Forest maintain wetland hydrology throughout McGinnis Meadows. The constructed depressions were excavated to a depth that would intercept the peak seasonal groundwater elevation.

The average depth of surface water in areas of inundation across the site in 2012 was estimated at 1.0 foot with a range of surface water depths from 0.0 to 3.5 feet. Approximately 15 percent of the entire site was inundated during the August site investigation, including the aquatic macrophytes/open water community and McGinnis Creek. The average depth at the emergent vegetation and open water boundary was 1.5 feet.

Groundwater levels were measured in three onsite wells (Table 1 and Figure 2, Appendix A) located within areas that were originally delineated as wetlands in 2005 and 2006. Groundwater elevations were more than 1.0 foot below the ground surface (bgs) in 2010 (Table 1). Groundwater levels were higher overall in 2011 and less than 1.0 foot bgs at Well 1 in 2011. Groundwater depths were lower in July 2012, ranging between 1.9 feet and 3.3 feet bgs.

Table 1. Groundwater depths measured in Wells 1, 2 and 3 from 2010 to 2012.

	Groundwater Depth (feet bgs)		
Well Number	**2010**	**2011**	**2012**
Well 1	1.5	0.7	1.9
Well 2	3.3	2.4	2.4
Well 3	3.7	2.8	3.3

Five data points were sampled in 2012 to assist in determining the wetland and upland boundaries (Figure 2, Appendix A and Monitoring Form, Appendix B). Data points M-1 to M-4 were located in areas that met the wetland criteria. Wetland hydrology indicators at M-1 included surface soil cracks and frost-heave hummocks. A dry season water table, geomorphic position, drainage pattern, and/or positive FAC-neutral test were observed at M-2, M-3, and M-4. Data points M-1 to M-3 were located in areas identified as upland in 2011 based on a lack of apparent hydrological indicators. Dry season groundwater tables were observed in the soil pits between 22 and 30 inches bgs in 2012. There were no hydrologic indicators observed at M-5. Other hydrologic indicators observed onsite included drift and sediment deposits.

Surface water flows through the McGinnis Meadows wetland mitigation site are dependent upon releases from a reservoir located less than one mile south of the project site. Two, 24-inch equalizing pipes and a lower culvert that serves as a drain through an impoundment control flow rates from the resevoir. The base of the new McGinnis Creek channel was constructed at a higher elevation than the incised, abandoned channel to facilitate overbank flow from the creek and to elevate groundwater elevations across the site. The fisheries habitat was improved by excavating pools in the outside channel bends. The stream banks of McGinnis Creek were minimally disturbed during construction and primarily vegetated with sod-forming field meadow-foxtail (*Alopecurus pratensis*) and reed canary grass (*Phalaris arundinacea*) throughout the project site. Reed canary grass has a plant stability rating of 9, where 1 is the lowest and 10 is the highest (Winward 2000). The existing vegetation on the banks of the restored channel is expected to provide long-term stability and allow minimal lateral stream migration across the site.

Three baseline stream cross-sections were surveyed in 2010 at permanent locations marked with bank pins to assess bank stability and lateral migration throughout the monitoring period. The cross-section locations are shown on Figure 2 (Appendix A). The stream cross-sections were resurveyed in 2011 and 2012. The results of all three surveys are presented on Charts 1 through 3. Photographs of the cross-sections from 2010 to 2012 are shown on pages C-12 through C-17 of Appendix C. The photos illustrate a notable increase in the vegetation cover since construction. Results of the cross-section surveys indicate that no major adjustments occurred at the permanent monitoring locations during the 2011 and 2012 spring runoff.

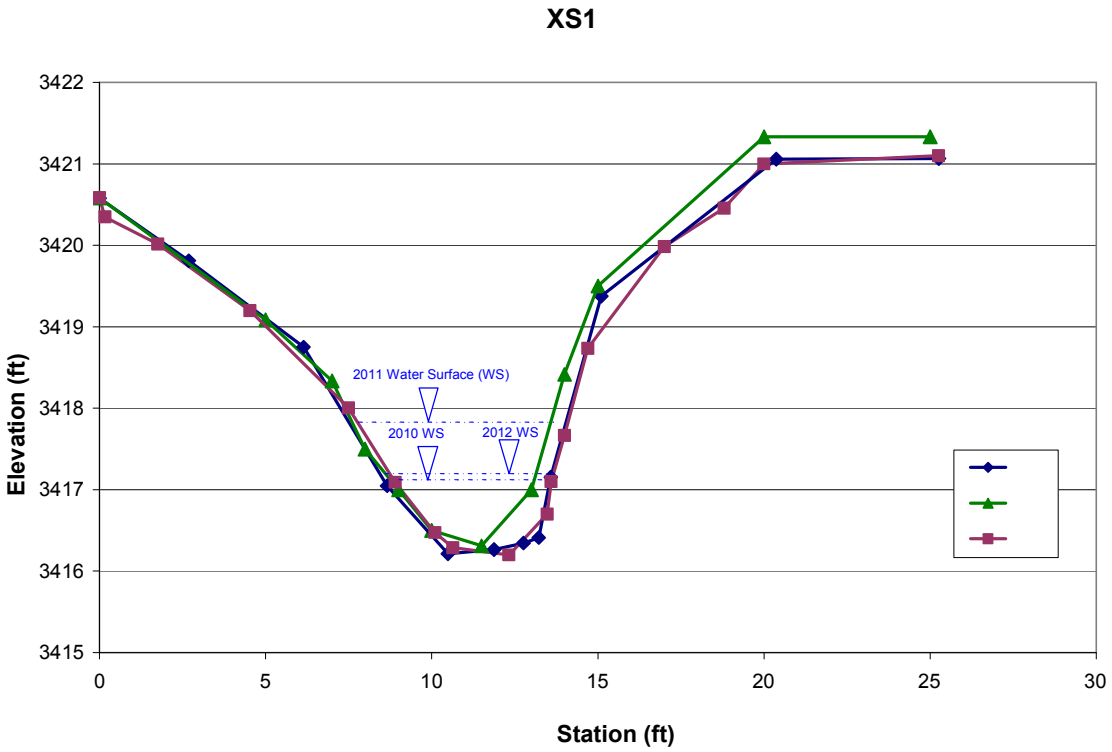


Chart 1. McGinnis Creek stream cross-section one.

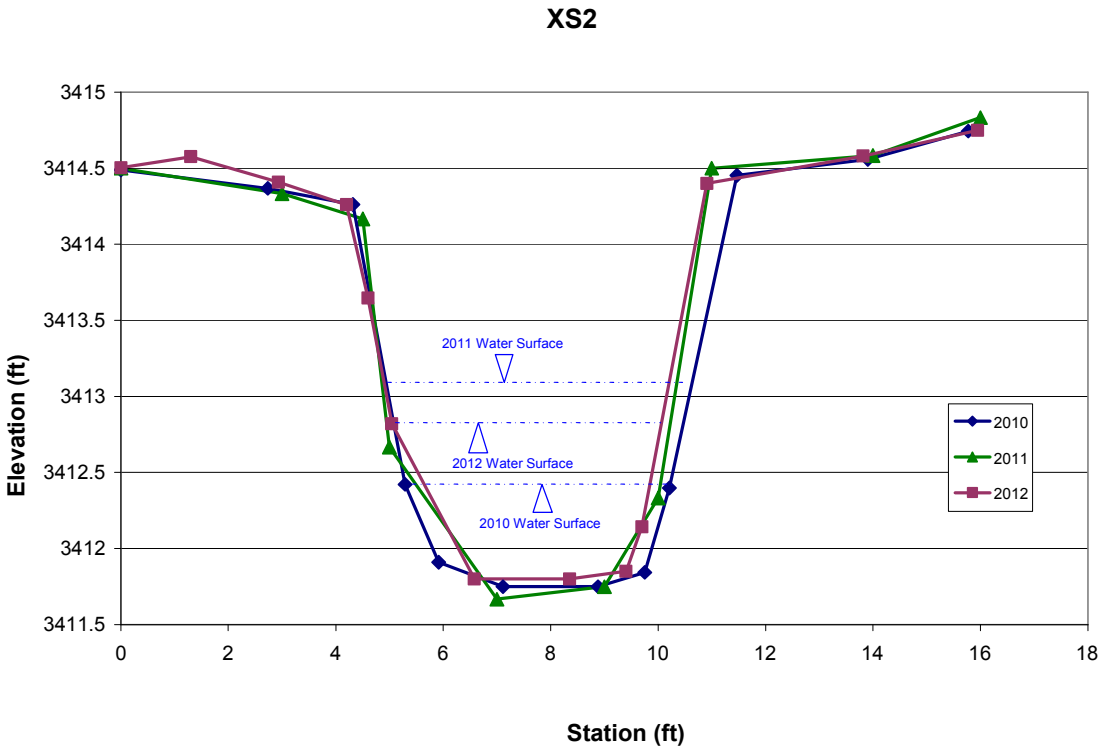


Chart 2. McGinnis Creek stream cross-section two.

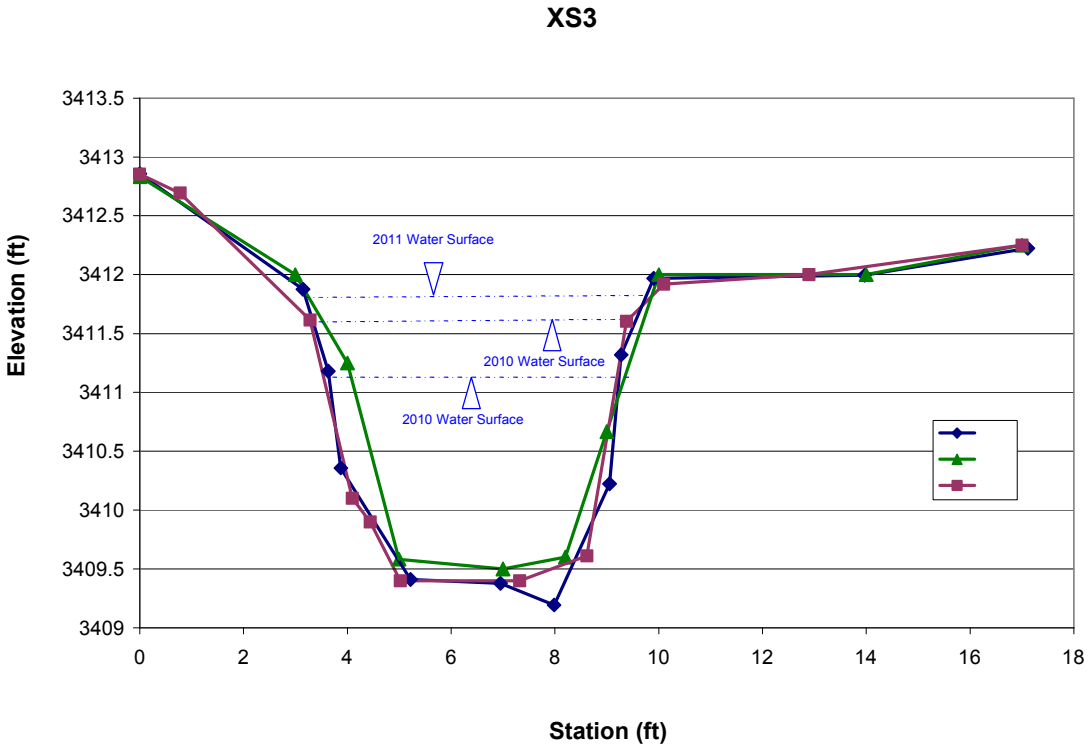


Chart 3. McGinnis Creek stream cross-section three.

3.2. Vegetation

Vegetation communities were delineated based on the dominant species as defined by topography, soil, and hydrology. The 147 plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012 are listed in Table 2 and on the Mitigation Monitoring Form (Appendix B). Ten vegetation communities were identified in 2012, including eight wetland types and two upland types (Figure 3 in Appendix A), and are described below

Wetland vegetation community Type 1 – *Alopecurus pratensis/Phalaris arundinacea* was identified within 5.03 acres adjacent to McGinnis Creek. Field meadow-foxtail (*Alopecurus pratensis*) dominated this community with less cover of reed canary grass (*Phalaris arundinacea*). Nineteen secondary species were observed within this community at five percent cover or less (Mitigation Monitoring Form – Appendix B).

Table 2. Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

Scientific Names	Common Names	WMVC Indicator Status[1]
Abies lasiocarpa	Subalpine Fir	FACU
Achillea millefolium	Common Yarrow	FACU
Agrostis gigantea	**Black Bent**	**FAC**
Agrostis scabra	Rough Bent	FAC
Agrostis stolonifera	Spreading Bent	FAC
Algae, brown	**Algae, Brown**	**NL**
Algae, green	Algae, Green	NL
Alnus incana	Speckled Alder	FACW
Alnus viridis	Sitka Alder	FACW
Alopecurus aequalis	Short-Awn Meadow-Foxtail	OBL
Alopecurus pratensis	Field Meadow-Foxtail	FAC
Amelanchier alnifolia	Saskatoon Service-Berry	FACU
Antennaria rosea	Rosy Pussytoes	UPL
Apera interrupta	Dense Silkybent	UPL
Arctostaphylos uva-ursi	Red Bearberry	FACU
Argentina anserina	Common Silverweed	OBL
Arnica chamissonis	Leafy Leopardbane	FACW
Aster sp.	Aster	NL
Beckmannia syzigachne	American Slough Grass	OBL
Berberis repens	Creeping Barberry	UPL
Bromus carinatus	California Brome	UPL
Bromus inermis	Smooth Brome	FAC
Calamagrostis canadensis	Bluejoint	FACW
Calamagrostis rubescens	Pinegrass	UPL
Campanula rotundifolia	Bluebell-Of-Scotland	FACU
Capsella bursa-pastoris	Shepherd's-Purse	FACU
Cardamine pensylvanica	Quaker Bittercress	FACW
Carex aquatilis	Leafy Tussock Sedge	OBL
Carex athrostachya	Slender-Beak Sedge	FACW
Carex bebbii	Bebb's Sedge	OBL
Carex microptera	Small-Wing Sedge	FACU
Carex nebrascensis	Nebraska Sedge	OBL
Carex pachystachya	Thick-Head Sedge	FAC
Carex petasata	Whitescale Sedge	UPL
Carex praticola	Northern Meadow Sedge	FACW
Carex sp.	Sedge	NL
Carex stipata	Stalk-Grain Sedge	OBL
Carex utriculata	Northwest Territory Sedge	OBL
Centaurea maculosa	Spotted Knapweed	UPL
Cerastium fontanum	Common Mouse-Ear Chickweed	FACU
Ceratophyllum demersum	Coon's-Tail	OBL
Chenopodium album	Lamb's-Quarters	FACU

[1]Draft NWPL 2012 (Lichvar and Kartesz 2009).
Species identified for the first time in 2012 are bolded.

Table 2 (Continued). Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

Scientific Names	Common Names	WMVC Indicator Status[1]
Cicuta douglasii	Western Water-Hemlock	OBL
Cirsium arvense	Canadian Thistle	FAC
Cirsium vulgare	Bull Thistle	FACU
Comarum palustre	Purple Marshlocks	OBL
Convolvulus arvensis	Field Bindweed	UPL
Crataegus douglasii	Black Hawthorn	FAC
Cynoglossum officinale	Gypsy-Flower	FACU
Dactylis glomerata	Orchard Grass	FACU
Deschampsia cespitosa	Tufted Hairgrass	FACW
Descurainia sophia	Herb Sophia	UPL
Eleocharis palustris	Common Spike-Rush	OBL
Elymus glaucus	Blue Wild Rye	FACU
Elymus repens	Creeping Wild Rye	FAC
Elymus trachycaulus	Slender Wild Rye	FAC
Epilobium ciliatum	Fringed Willowherb	FACW
Epilobium palustre	Marsh Willowherb	OBL
Equisetum arvense	Field Horsetail	FAC
Equisetum sp.	Horsetail	NL
Erysimum cheiranthoides	Worm-Seed Wallflower	FACU
Fragaria virginiana	Virginia Strawberry	FACU
Galium trifidum	Three-Petal Bedstraw	FACW
Galium triflorum	Fragrant Bedstraw	FACU
Geum macrophyllum	Large-Leaf Avens	FAC
Glyceria borealis	Small Floating Manna Grass	OBL
Glyceria grandis	American Manna Grass	OBL
Glyceria striata	Fowl Manna Grass	OBL
Gnaphalium palustre	Western Marsh Cudweed	FACW
Heracleum maximum	**American Cow-Parsnip**	**FAC**
Heracleum sphondylium	Eltrot	FAC
Hordeum brachyantherum	Meadow Barley	FACW
Juncus arcticus	**Arctic Rush**	**FACW**
Juncus articulatus	Joint-Leaf Rush	OBL
Juncus bufonius	Toad Rush	FACW
Juncus confusus	Colorado Rush	FAC
Juncus effusus	Lamp Rush	FACW
Juncus ensifolius	Dagger-Leaf Rush	FACW
Juncus longistylis	Long-Style Rush	FACW
Juncus nevadensis	Sierran Rush	FACW
Juncus tenuis	Lesser Poverty Rush	FAC
Larix occidentalis	Western Larch	FACU
Lemna minor	**Common Duckweed**	**OBL**
Maianthemum stellatum	Starry False Solomon's-Seal	FAC

[1]Draft NWPL 2012 (Lichvar and Kartesz 2009).
Species identified for the first time in 2012 are bolded.

Table 2 (Continued). Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

Scientific Names	Common Names	WMVC Indicator Status[1]
Medicago lupulina	Black Medick	FACU
Mentha arvensis	American Wild Mint	FACW
Mimulus guttatus	Seep Monkey-Flower	OBL
Montia linearis	Linear-Leaf Candy-Flower	FAC
Myosotis stricta	Strict Forget-Me-Not	UPL
Myriophyllum sp.	**Water-Milfoil**	**NL**
Myriophyllum spicatum	Eurasian Water-Milfoil	OBL
Packera pseudaurea	Streambank Groundsel	FACW
Penstemon confertus	Yellow Penstemon	UPL
Persicaria amphibia	Water Smartweed	OBL
Phalaris arundinacea	Reed Canary Grass	FACW
Phleum pratense	Common Timothy	FAC
Picea engelmannii	Engelmann's Spruce	FAC
Pinus contorta	Lodgepole Pine	FAC
Pinus ponderosa	Ponderosa Pine	FACU
Plantago major	Great Plantain	FAC
Poa palustris	Fowl Blue Grass	FAC
Poa pratensis	Kentucky Blue Grass	FAC
Poa sp.	Blue Grass	NL
Polygonum douglasii	Douglas' Knotweed	FACU
Populus tremuloides	Quaking Aspen	FACU
Potentilla gracilis	Graceful Cinquefoil	FAC
Potentilla norvegica	Norwegian Cinquefoil	FAC
Potentilla recta	Sulphur Cinquefoil	UPL
Potentilla sp.	**Cinquefoil**	**NL**
Prunella vulgaris	Common Selfheal	FACU
Pseudotsuga menziesii	Douglas-Fir	FACU
Puccinellia nuttalliana	Nuttall's Alkali Grass	FACW
Ranunculus aquatilis	White Water-Crowfoot	OBL
Rorippa palustris	Bog Yellowcress	OBL
Rosa woodsii	Woods' Rose	FACU
Rubus idaeus	Common Red Raspberry	FACU
Rumex acetosella	Common Sheep Sorrel	FACU
Rumex crispus	Curly Dock	FAC
Salix sp.	Willow	NL
Scirpus microcarpus	Red-Tinge Bulrush	OBL
Scutellaria galericulata	Hooded Skullcap	OBL
Senecio hydrophilus	Alkali-Marsh Ragwort	OBL
Silene menziesii	White Catchfly	FAC
Sisymbrium altissimum	Tall Hedge-Mustard	FACU
Sparganium emersum	**European Burr-Reed**	**OBL**
Stellaria longifolia	Long-Leaf Starwort	FACW

[1]Draft NWPL 2012 (Lichvar and Kartesz 2009).
Species identified for the first time in 2012 are bolded.

Table 2 (Continued). Comprehensive list of plant species identified at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

Scientific Names	Common Names	WMVC Indicator Status[1]
Symphoricarpos albus	Common Snowberry	FACU
Symphyotrichum laeve	Smooth Blue American-Aster	FACU
Symphyotrichum lanceolatum	White Panicled American-Aster	OBL
Tanacetum vulgare	Common Tansy	FACU
Taraxacum officinale	Common Dandelion	FACU
Thlaspi arvense	Field Penny-Cress	UPL
Tragopogon dubius	Yellow Salsify	UPL
Trifolium aureum	Golden Clover	UPL
Trifolium hybridum	Alsike Clover	FAC
Trifolium repens	White Clover	FAC
Triglochin maritima	Seaside Arrow-Grass	OBL
Typha latifolia	Broad-Leaf Cat-Tail	OBL
Urtica dioica	Stinging Nettle	FAC
Vaccinium caespitosum	Dwarf Blueberry	FAC
Verbascum thapsus	Great Mullein	FACU
Veronica americana	American-Brooklime	OBL
Veronica peregrina	Neckweed	OBL
Veronica scutellata	Grass-Leaf Speedwell	OBL
Veronica serpyllifolia	Thyme-Leaf Speedwell	FAC
Viola adunca	Hook-Spur Violet	FAC
Viola sp.	Violet	NL

[1]Draft NWPL 2012 (Lichvar and Kartesz 2009).
Species identified for the first time in 2012 are bolded.

Wetland community Type 2 – Aquatic Macrophytes/Open Water has developed within 2.04 acres of the deeper contours of the excavated depressions. Vegetation species within the inundated areas included reed canary grass, American mannagrass (*Glyceria grandis*), green algae, Northwest Territory sedge (*Carex utriculata*), and 16 other species with a trace cover class.

Upland Type 4 – *Picea engelmannii/Alopecurus pratensis* represented two small upland forests totaling 0.69 acres in the southeast corner of the property that contained a high percent cover of Canadian thistle (*Cirsium arvense*). Woody species included Englemann's spruce (*Picea engelmannii*), lodgepole pine *(Pinus contorta*), Woods' rose (*Rosa woodsii*), and common snowberry (*Symphoricarpos albus*). Field meadow-foxtail and reed canary grass dominated the understory.

Wetland community Type 5 – *Phalaris arundinacea/Alnus incana* was a 1.9-acre scrub-shrub speckled alder (*Alnus incana*) and black hawthorn (*Crataegus douglasii*) community located near the southwest property corner. Reed canary grass and field meadow-foxtail, both aggressive native species, dominated the understory. Northern Territory sedge, Nebraska sedge (*Carex nebrascensis*),

American cow-parsnip (*Heracleum maximum*), and red-tinge bulrush (*Scirpus microcarpus*) were identified within the community.

Wetland Type 6 – *Carex utriculata* was identified in a small 0.07 acre remnant ditch located in the southwest property corner. Northwest Territory sedge dominated the community.

Wetland community Type 7 – *Phalaris arundinacea/Alopecurus pratensis* dominated the 16.42 acres adjacent to the pre-existing wetlands throughout the site. This community was split between wetland and upland habitat based on the presence and absence of various hydric and hydrologic indicators throughout this community. A detailed investigation of this community in 2012 showed this entire community qualified as wetland in 2012. Data points M-1 to M-3 were excavated within this community to evaluate the soil and hydrological conditions. The entire community was classified as wetland in 2012. Reed canary grass and field meadow-foxtail dominated the community with less than five percent cover of 24 additional species.

Wetland Type 11 – *Alnus incana*/*Phalaris arundinacea* was identified on the 0.53-acre ditch (abandoned McGinnis channel) that traverses the property north to south. Speckled alder, reed canary grass, Northwest Territory sedge, red-tinge bulrush, field meadow-foxtail, and green algae dominated the vegetation.

Upland community Type 14 – *Alopecurus pratensis*/*Psuedotsuga menziesii* was located within 0.9 acres in the southwest corner of the project site. Douglas-fir (*Psuedotsuga menziesii*), lodgepole pine, and western larch (*Larix occidentalis*) dominated the overstory. Woody species present within the understory included common snowberry, speckled alder, and subalpine fir (*Abies lasiocarpa*). Field meadow-foxtail dominated the herbaceous understory.

Upland community Type 16 – *Phalaris arundinacea*/Soil mounds was defined on 0.28 acres in 2012 to characterize the soil mounds created to provide woody species habitat. The community contained reed canary grass, Canadian thistle, field meadow-foxtail, and great mullein (*Verbascum thapsus*). A majority of the woody species planted on the mounds did not survive.

Wetland community Type 17 – *Glyceria grandis/Carex* spp. characterized 4.15 acres of the excavated depressions that exhibited a drier moisture regime than the adjacent open water of Community 2. The community was renamed in 2012 from community Type 13 – *Deschampsia* cespitosa/*Glyceria grandis* to reflect an increase in the prevalence of sedge species and decrease in the prevalence of tufted hairgrass. American mannagrass, Nebraska sedge, slender-beak sedge (*Carex arthrostachya*), Bebb's sedge (*Carex bebbii*), northern meadow sedge (*Carex praticola*), thick-head sedge (*Carex pachystachya*), stalk-grain sedge (*Carex stipata*), and Northwest Territory sedge, tufted hairgrass (*Deschampsia cespitosa)*, Canadian thistle, common spike-rush (*Eleocharis palustris*), Colorado

rush (*Juncus confusus*), and reed canary grass dominated the diverse community.

Polygon 15 in Figure 3 (Appendix A) represents 0.75 acres identified as waters of the US within the ordinary high water mark (OHWM) of the McGinnis Creek channel.

Table 3 and Charts 4 and 5 summarize the data collected in 2012 for transect T-1. The transect intersects two excavated wetland basins and four communities, including upland Type 1 - *Alopecurus pratensis/Phalaris arundinacea*, wetland Type 2 –Aquatic Macrophytes/Open Water, wetland Type 7 – *Phalaris arundinacea/Alopecurus pratensis*, and wetland Type 17 – *Glyceria grandis/Carex* spp. The cover of sedge species increased on the transect in 2012, which was reflected by the transition from 2011 wetland Type 13 – *Deschampsia/Glyceria* to 2012 wetland Type 17 – *Glyceria/Carex* spp. The extent of inundation in the constructed depressions decreased from 2011 to 2012. The percent of hydrophytic species on Transect 1 increased from 91.9 percent in 2011 to 93.7 percent in 2012. Areas on the transect that were categorized as bare ground and/or unvegetated open water in 2010 developed into emergent and aquatic bed wetland communities in 2011. The cover of wetland plants continued to increase in 2012.

Table 2. Data summary for transect T-1 in from 2010 to 2012 at the McGinnis Meadows Wetland Mitigation Site.

Monitoring Year	**2010**	**2011**	**2012**
Transect Length (feet)	**504**	**504**	**504**
Vegetation Community Transitions along Transect	5	7	5
Vegetation Communities along Transect	2	4	4
Hydrophytic Vegetation Communities along Transect	0	3	3
Total Vegetative Species	43	59	41
Total Hydrophytic Species	30	37	30
Total Upland Species	13	22	11
Estimated % Total Vegetative Cover	60	80	95
% Transect Length Comprising Hydrophytic Vegetation Communities	0.0	91.9	93.7
% Transect Length Comprising Upland Vegetation Communities	75.4	8.1	6.3
% Transect Length Comprising Unvegetated Open Water	24.6	0.0	0.0
% Transect Length Comprising Bare Substrate	29.3*	0.0	0.0

*Percent Bare Substrate calculated from total length of Type 3 along transect multiplied by bare ground cover in Type 3 community.

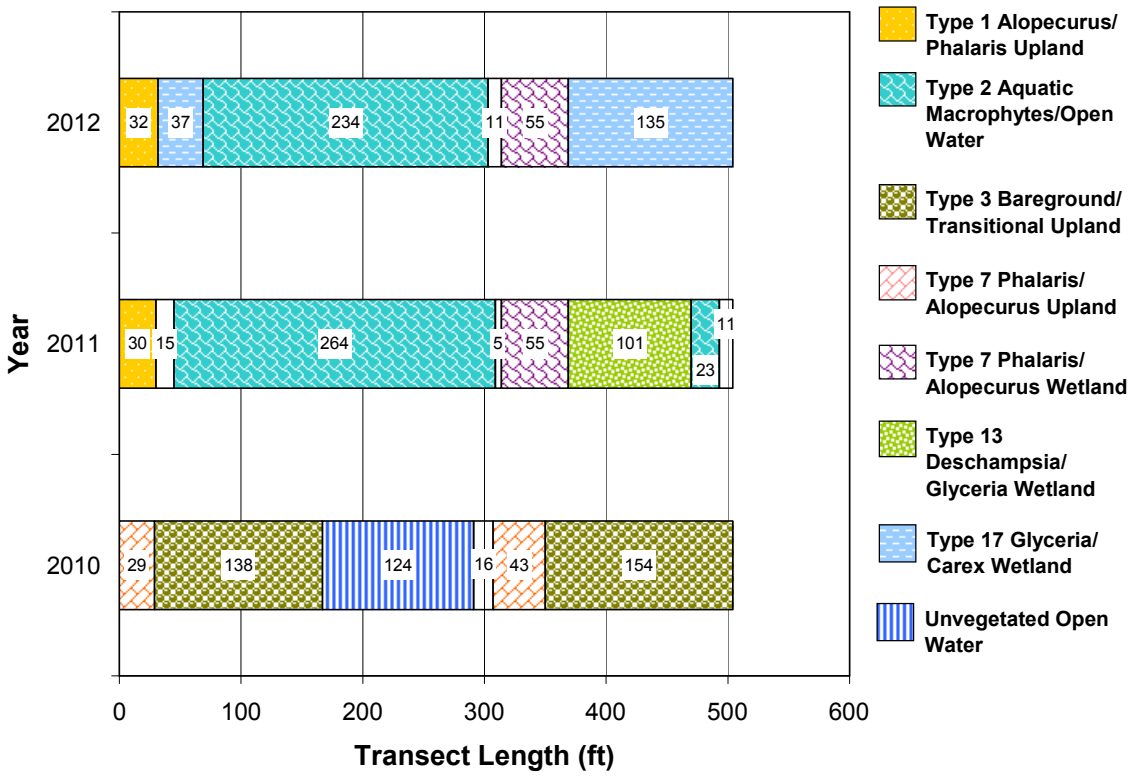


Chart 4. Transect map showing community types on transect T-1 from 2010 to 2012 from start (0 feet) to finish (504 feet).

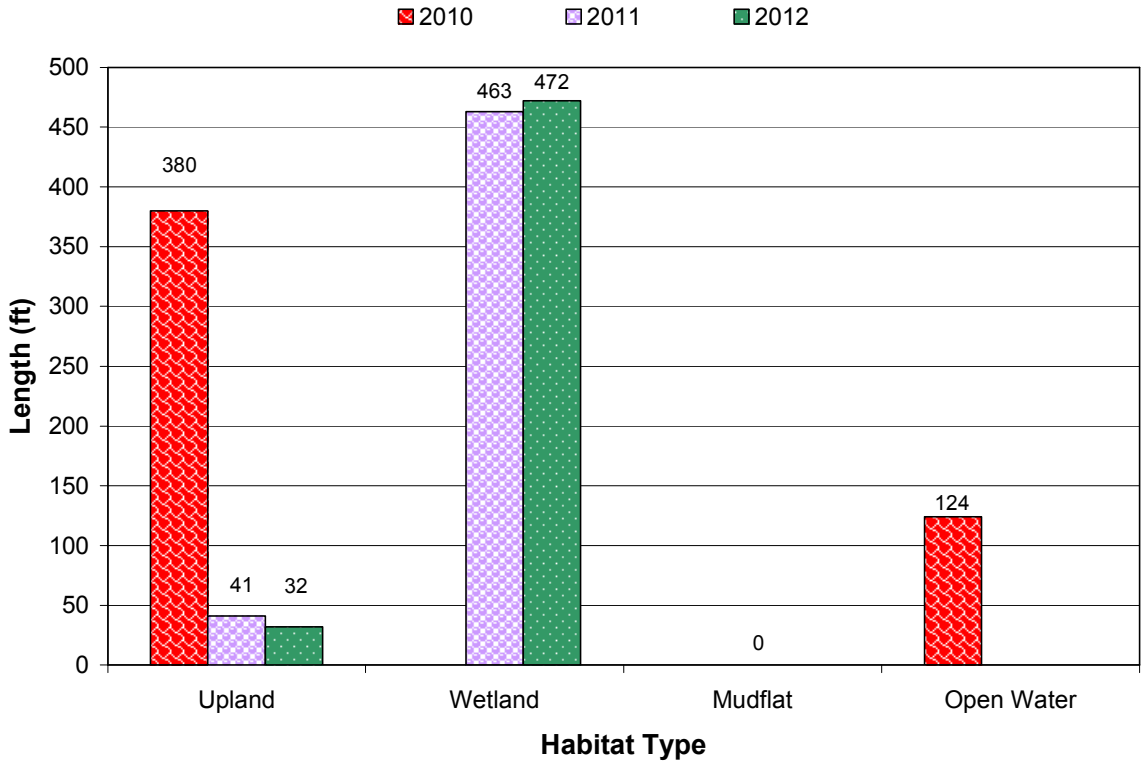


Chart 5. Length of habitat types within transect T-1 from 2010 to 2012.

Transect T-2 was 1000 feet in length and extended from the center of the property north to the site boundary. The transect crossed the waters of the US associated with the constructed McGinnis Creek channel and two wetland communities in 2012, including Type 7 – *Phalaris arundinacea/Alopecurus pratensis* and Type 17 – *Glyceria grandis/Carex* spp. The first interval identified in 2011 as upland Type 7 – Phalaris/Arundinacea was redefined as a wetland community in 2012 based on the presence of hydrophytic vegetation, hydric soil, and wetland hydrological indicators. The extent of open water and the associated aquatic macrophyte community (Type 2) decreased from 2011 to 2012. The American mannagrass and sedge community (Type 17) developed in areas that had been inundated in 2011. The seven- and ten-foot intervals of open water shown on Chart 6 represent the McGinnis Creek crossings. Hydrophytic vegetation communities accounted for 98.3 percent of this transect.

Table 3. Data summary for transect T-2 from 2010 to 2012 at the McGinnis Meadows Wetland Mitigation Site.

Monitoring Year	**2010**	**2011**	**2012**
Transect Length (feet)	**1000**	**1000**	**1000**
Vegetation Community Transitions along Transect	14	18	12
Vegetation Communities along Transect	4	5	2
Hydrophytic Vegetation Communities along Transect	3	4	2
Total Vegetative Species	44	49	22
Total Hydrophytic Species	29	38	19
Total Upland Species	15	11	3
Estimated % Total Vegetative Cover	60	80	95
% Transect Length Comprising Hydrophytic Vegetation Communities	63.5	91.0	98.3
% Transect Length Comprising Upland Vegetation Communities	34.6	7.8	0.0
% Transect Length Comprising Unvegetated Open Water	1.9	1.2	1.7
% Transect Length Comprising Bare Substrate	5*	0.0	0.0

*Percent Bare Substrate calculated from total length of Type 3 along transect multiplied by bare ground cover in Type 3 community.

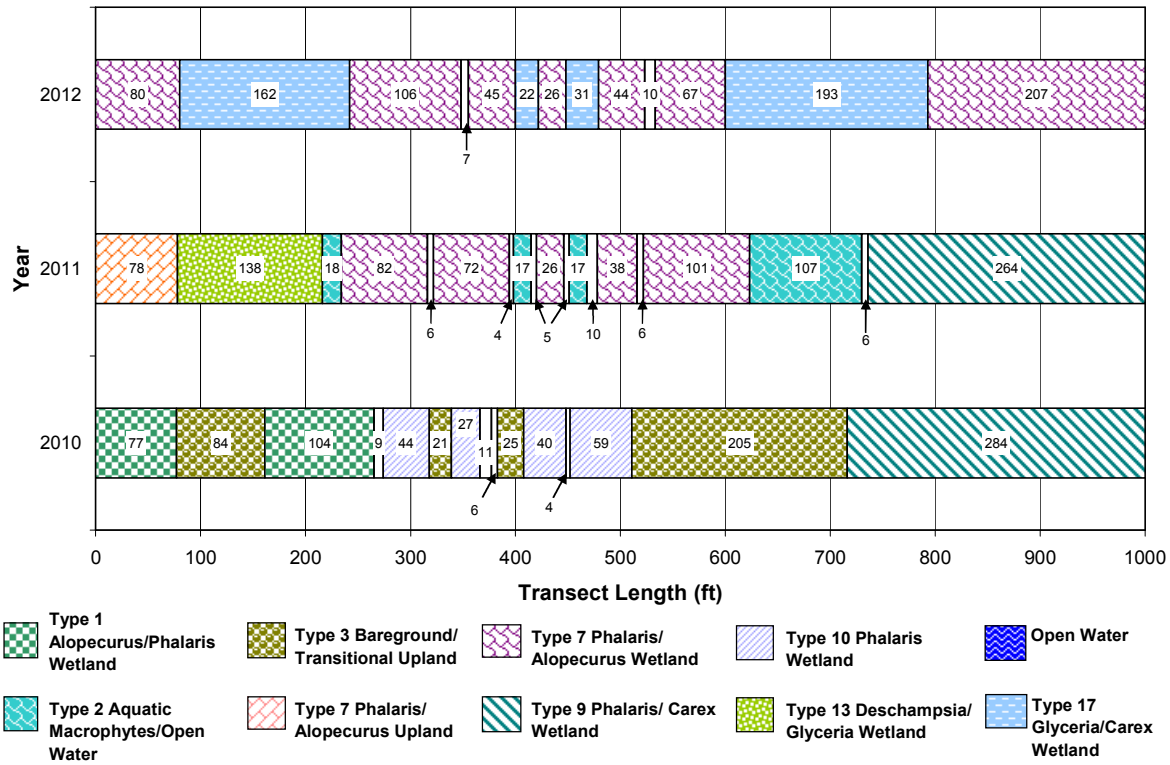


Chart 6. Transect map showing community types on transect T-2 from 2010 to 2012 from start (0 feet) to finish (1000 feet).

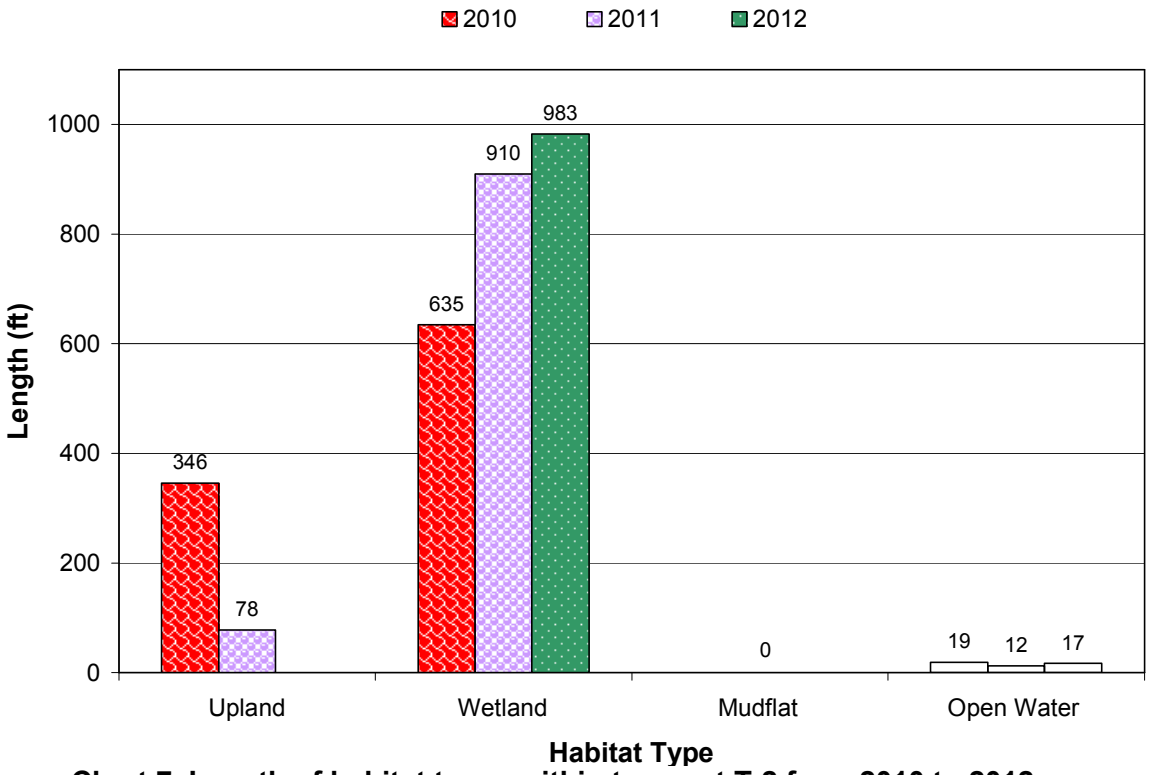


Chart 7. Length of habitat types within transect T-2 from 2010 to 2012.

Canadian thistle and gypsy flower (*Cynoglossum officinale*, called houndstongue on 1988 list), both Priority 2B noxious weeds, were identified at the McGinnis Creek Mitigation Site. Twenty-nine Canadian thistle infestations were observed across the site. Infestations ranged in size from less than 0.1 acre to 1.0 acre in size with cover classes ranging from trace (less than 1 percent) to high (25 to 100 percent cover). Canadian thistle has invaded areas that were disturbed during construction. One infestation of gypsy flower was mapped in the northwest quarter of the site. The infestation size was less than 0.1 acre and the cover class was 1.0 to 5.0 percent.

Skeletons of numerous containerized woody plants were observed across the site in 2010 following the initial planting effort. The majority had been installed on upland islands across the enhancement area. Sub-standard planting techniques, intensive wildlife browse and hoofed traffic severely impacted the survival of the woody plants. Initial survival rates were estimated at less than 10 percent. Additional woody species were planted in spring, 2011. One hundred and fifty (150) alder (*Alnus* sp.), fifteen quaking aspen (*Populus tremuloides*), and fifteen planted willows were observed alive in 2012. No red-osier dogwoods or birch (*Betula* sp.) were noted within the planting clusters. Numerous existing alder plants and quaking aspen were observed throughout the site. The height and density of reed canary grass site-wide obscured many of the smaller woody saplings, complicating the survival assessment.

3.3. Soil

The project site is mapped in the Lincoln County Soil Survey (USDA 2010) as Fluvents, found on floodplains in mixed alluvium. These soil types are excessively drained, gravelly silt loams taxonomically classified as sandy, mixed, frigid Typic Udifluvents that are considered hydric.

Five test pits were profiled throughout the McGinnis Meadows mitigation site in 2012. Test pits M-1 to M-4 met the three wetland criteria. The soil at M-1 was a very dark brown (10YR 2/2) clay loam with yellowish brown (10YR 5/6) redox concentrations in the matrix. The soil matrix color was the same as M-1 for M-2, M-3, and M-4. The redox concentrations at M-2 and M-4 were dark yellowish brown (10 YR 4/6). The color and chroma of the redox features at M-3 was dark yellowish brown (10 YR 4/4). The redox dark surface observed at M-1 to M-4 was a positive indication of hydric soil. The loam soil at M-5 was grayish brown (10 YR 5/2) without redox concentrations and exhibited no hydric soil indicators. In general, the soils evaluated within the McGinnis Meadows project area did not confirm the NRCS mapped series.

3.4. Wetland Delineation

Five data points were sampled in 2012 to define the vegetation, soil, and hydrology of site wetlands (Figure 2, Appendix A). The Wetland Determination Data Forms are included in Appendix B. The August 2, 2012, delineation identified and mapped a total of 25.12 acres of aquatic habitat and 0.75 acres of stream habitat within the 32.75-acre project area. The 4.48-acre increase in

wetland acreage from 2011 to 2012 was the result of wetland development in upland community Type 7 – *Phalaris/Alopecurus* and upland community Type 1 – *Alopecurus/Phalaris.* Aquatic habitat on the site included the aquatic bed wetland community (Type 2) that has developed in the constructed depressions in 2011 and 2012. The MDT seeks to obtain approximately 8,835 stream credits for the restoration of 2,850 linear feet (0.75 acres) of McGinnis Creek associated with the area below the OHWM of the channel.

Table 4. Total wetland and stream habitat acres delineated from 2010 to 2012 at the McGinnis Meadows Wetland Mitigation Site.

Habitat Type	2010 (ac)	2011 (ac)	2012 (ac)
Unvegetated Open Water	1.00	0.00	0.00
Wetlands	18.22	20.64	25.12
Total Wetland Habitat	**19.22**	**20.64**	**25.12**
McGinnis Creek - open water	0.75	0.75	0.75
Total Stream Habitat	**0.75**	**0.75**	**0.75**

3.5. Wildlife

Table 5 is a comprehensive list of animal species observed directly or indirectly from 2010 to 2012 (Mitigation Monitoring Form, Appendix B). Species identified in 2012 included 24 bird species, two Columbia spotted frogs (*Rana luteiventris*), two Richarson's ground squirrels (*Spermophilus richardsonii*), a Western toad (*Bufo boreas)*, numerous deer (*Odocoileus* sp.) beds, and elk (*Cervus* sp.) and moose (*Alces* sp.) tracks and scat.

Table 5. Wildlife species observed at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

COMMON NAME	SCIENTIFIC NAME
AMPHIBIANS	
Columbia Spotted Frog	***Rana luteiventris***
Western Toad	***Bufo boreas***
BIRDS	
Alder Flycatcher	***Empidonax alnorum***
American Robin	***Turdus migratorius***
American Three-toed Woodpecker	***Picoides dorsalis***
Bald Eagle	***Haliaeetus leucocephalus***
Bank Swallow	*Riparia riparia*
Black-billed Magpie	*Pica hudsonia*
Bufflehead	***Bucephala albeola***
Calliope Hummingbird	***Stellula calliope***
Canada Goose	*Branta canadensis*
Cedar Waxwing	***Bombycilla cedrorum***

Species identified in 2012 are bolded.

Table 5 (continued). Wildlife species observed at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

COMMON NAME	SCIENTIFIC NAME
BIRDS	
Common Merganser	***Mergus merganser***
Common Raven	*Corvus corax*
Common Sandpiper	
Eastern Kingbird	***Tyrannus tyrannus***
Evening Grosbeak	***Coccothraustes vespertinus***
Gadwall	*Anas strepera*
Gray Catbird	***Dumetella carolinensis***
Great Blue Heron	***Ardea herodias***
Mallard	***Anas platyrhynchos***
Mountain Bluebird	*Sialia currucoides*
Northern Flicker	***Colaptes auratus***
Northern Harrier	***Circus cyaneus***
Red-tailed Hawk	*Buteo jamaicensis*
Red-winged Blackbird	***Agelaius phoeniceus***
Song Sparrow	***Melospiza melodia***
Sora	***Porzana carolina***
Spotted Sandpiper	***Actitis macularius***
Tree Swallow	***Tachycineta bicolor***
Turkey Vulture	***Cathartes aura***
Unknown Flycatcher	
Western Tanager	***Piranga ludoviciana***
Wilson's Snipe	*Gallinago delicata*
Wood Duck	***Aix sponsa***
Yellow Warbler	***Dendroica petechia***
MAMMALS	
Deer Sp.	
Elk or Wapiti	***Cervus canadensis***
Gray Wolf	*Canis lupus*
Moose	***Alces americanus***
Richardson's Ground Squirrel	***Spermophilus richardsonii***
Striped Skunk	***Mephitis mephitis***
White-tailed Deer	*Odocoileus virginianus*
REPTILES	
Common Gartersnake	*Thamnophis sirtalis*

Species identified in 2012 are bolded.

3.6. Functional Assessment

Functional assessments were completed on four AAs from 2010 to 2012 using the 2008 MWAM (Table 6). The MWAM forms are included in Appendix B. The four AAs were divided into creation (excavated cells – 6.42 acres), restoration (re-establishment and rehabilitation – 17.08 acres), enhancement (existing emergent wetland – 1.32 acres), and preservation (existing riverine wetlands – 0.30 acres) (Figure 4 in Appendix A). The acreage of the Restoration AA

increased from 12.60 acres in 2011 to 17.08 acres in 2012, primarily as a result of wetland development in former upland community Types 1 and 7.

According to the 2005 baseline site evaluation, wetlands on the site were highly disturbed from grazing, leveling, channel straightening and the resultant impacts to hydrology. Wetlands were rated as Category III by David, Evans & Associates using the 1999 MDT Wetland Assessment Method.

Approximately 6.19 acres of wetlands have developed within the created cells that were located in areas identified as uplands in the baseline delineation. The cover of wetland vegetation within the footprints of the excavated cells increased rapidly from 2010 to 2012 as documented in the site photographs and was a general factor for increased functional units. The creation AA received 69.0 percent of the total possible points, an increase of 2.5 percent since 2011. Ratings in the general wildlife, Montana Natural Heritage Program species habitat, and recreation/education potential categories increased in 2012 as a result of substantial wildlife observations and documented sightings of S3 species such as great blue heron and pileated woodpecker. Ratings were excellent for general wildlife habitat and high for short and long-term surface water storage, production export/food chain support, groundwater discharge/recharge, and recreation/education potential.

The acreage of the restoration AA increased 4.48 acres in 2012. The restoration/rehabilitation of the existing wet meadow received 79.1 percent of the total possible with excellent ratings for general wildlife habitat and production export/food chain support and high ratings for general fish habitat, short and long term surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, groundwater discharge/recharge, and recreation/education potential. The approximate 1.5 percent increase over 2011 was the result of substantial wildlife sightings, documented sightings of S3 species, and an increase in the cover of streambank species with high stability ratings.

The 1.32-acre enhancement AA received 50.0 percent of the total possible points in 2012, an increase of 9.4 percentage points from 2011. The increase was the result of greater wildlife use and improvement in production export/food chain support. The survival of the woody species planted in 2009 was low owing to intensive wildlife browse. The woody plants installed in spring 2011 are expected to enhance the mitigation site by broadening the structural diversity.

The preservation AA for the existing riverine wetlands along the abandoned ditch was identified in the USACE-approved mitigation plan as 0.30 acres in size. Since 2010, the wetland fringe along the abandoned ditch has been delineated as 0.53 acres. It has been assumed that the wetland fringe along this ditch has expanded due to increased water levels resulting from the ditch plugs. The difference between the original 0.30 acres and the current 0.53 acres (0.23

Table 6. Functions and Values at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

Function and Value Parameters 2008 MDT Montana Wetland Assessment Method[1]	2010 Creation (Excavated Cells)	2011 Creation (Excavated Cells)	2012 Creation (Excavated Cells)	2010 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)	2011 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)	2012 Restoration (Re-establishment and Rehabilitation-Existing wet meadow)	2010 Enhancement (Existing emergent wetland)	2011 Enhancement (Existing emergent wetland)	2012 Enhancement (Existing emergent wetland)	2010 Preservation (Existing riverine wetlands)	2011 Preservation (Existing riverine wetlands)	2012 Preservation (Existing riverine wetlands)
Listed/Proposed T&E Species Habitat	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)	Low (0.3)
MTNHP Species Habitat	Low (0.1)	Low (0.1)	Low (0.2)	Mod (0.6)	Mod (0.6)	Mod (0.6)	Low (0.1)	Low (0.1)	Low (0.2)	Low (0.1)	Low (0.1)	Low (0.2)
General Wildlife Habitat	Low (0.3)	High (0.9)	Exc. (1.0)	Mod (0.7)	High (0.9)	Exc. (1.0)	Mod (0.5)	Mod (0.5)	High (0.9)	Mod (0.7)	High (0.9)	Exc. (1.0)
General Fish/Aquatic Habitat	NA	NA	NA	Mod (0.7)	High (0.8)	High (0.8)	NA	NA	NA	NA	NA	NA
Flood Attenuation	Mod (0.6)	Mod (0.6)	Mod (0.6)	Mod (0.5)	High (0.8)	Mod (0.5)	Mod (0.6)	Mod (0.6)	Mod (0.6)	High (0.9)	High (0.9)	High (0.9)
Short and Long Term Surface Water Storage	Low (0.3)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	Low (0.3)	Low (0.1)	Low (0.1)	Mod (0.4)	High (0.8)	High (0.8)
Sediment/Nutrient/Toxicant Removal	Mod (0.7)	Mod (0.7)	Mod (0.7)	High (0.9)	High (0.9)	High (0.9)	High (1.0)	High (0.8)	High (0.8)	High (1.0)	High (1.0)	High (1.0)
Sediment/Shoreline Stabilization	NA	Mod (0.7)	Mod (0.7)	Low (0.3)	Mod (0.7)	High (1.0)	NA	NA	NA	High (1.0)	High (1.0)	High (1.0)
Production Export/ Food Chain Support	Low (0.3)	High (0.8)	High (0.8)	High (0.9)	Exc. (1.0)	Exc. (1.0)	Mod (0.4)	Low (0.3)	Mod (0.5)	Mod (0.5)	Mod(0.7)	Mod(0.7)
Groundwater Discharge/Recharge	Mod (0.7)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	High (1.0)	Mod (0.7)	NA	NA	High (1.0)	High (1.0)	High (1.0)
Uniqueness	Low (0.1)	Mod (0.4.)	Mod (0.4.)	Low (0.3)	Mod (0.4)	Mod (0.4)	Low (0.3)	Mod (0.4)	Mod (0.4)	Low (0.3)	Mod (0.4)	Mod (0.4)
Recreation/Education Potential (bonus points)	Low (0.05)	High (0.15)	High (0.20)	Low (0.05)	High (0.15)	High (0.20)	Low (0.05)	High (0.15)	High (0.20)	Low (0.05)	High (0.15)	High (0.2)
Actual Points / Possible Points	**3.45/9**	**6.65 / 10**	**6.90 / 10**	**7.25/11**	**8.55 / 11**	**8.70 / 11**	**4.25/9**	**3.25 / 8**	**41007.00**	**6.25/10**	**7.25 / 10**	**7.50 / 10**
% of Possible Score Achieved	**38.3**	**66.5**	**69.0**	**65.9**	**77.7**	**79.1**	**47.2**	**40.6**	**50.0**	**62.5**	**72.5**	**75.0**
Overall Category	**III**	**II**	**II**	**III**	**II**	**II**	**III**	**III**	**III**	**III**	**II**	**II**
Acreage of Assessed Aquatic Habitats within Easement (ac)	**0.20**	**6.42**	**6.42**	**16.57**	**12.60**	**17.08**	**1.74**	**1.32**	**1.32**	**0.30**	**0.30**	**0.30**
Functional Units (acreage x actual points).	**0.69**	**42.69**	**44.30**	**120.13**	**107.73**	**148.60**	**7.40**	**4.29**	**5.28**	**1.88**	**2.18**	**2.25**

[1]Berglund and McEldowney 2008 MDT MWAM.

acres) has been included in the creation AA to maintain congruence between the approved mitigation plan and original credit ratios. Therefore, the preservation AA assesses the 0.30 acres directly along the plugged ditch. This AA received 75.0 percent of the total points in 2012. An increase in wildlife sightings site wide in 2012 resulted in a 2.5 percent increase over 2011. The AA received excellent ratings in general wildlife habitat and high ratings for flood attenuation, short and long term surface water storage, sediment/nutrient/toxicant removal, sediment/shoreline stabilization, groundwater discharge/recharge, and recreation/education potential.

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-8 of Appendix C. Transect end points are shown on page C-9 and C-10. The stream cross-sections are presented on pages C-11 through C-17 and photos of data points are included on pages C-18.

3.8. Maintenance Needs

Canadian thistle and gypsy flower (aka houndstongue, *Cynoglossum officinale*), both Priority 2B noxious weeds, were identified at the McGinnis Creek Mitigation Site (Figure 3 in Appendix A). Twenty-nine Canadian thistle infestations were observed across the site. Infestations ranged in size from less than 0.1 acre to 1.0 acre in size with cover classes ranging from trace (less than 1 percent) to high (25 to 100 percent cover). Canadian thistle has invaded areas that were disturbed during construction. One infestation of gypsy flower was mapped in the northwest quarter of the site. The MDT has an ongoing weed assessment and management program for their mitigation sites.

No man-made nesting structures have been installed on site. The mitigation site design relied on the excavation of shallow depressions to intercept groundwater, increased hydrologic connectivity with McGinnis Creek and the adjacent floodplain, and the passive increase in the local water table. Therefore, water control structures were not a part of the design. The majority of fencing surrounding the perimeter of the site was intact; however, a short stretch of fencing (~30ft) had been knocked down between the site and the adjacent landowner to the west and should be repaired. Other maintenance needs include continued implementation of the ongoing weed management plan.

3.9. Current Credit Summary

Goals for the McGinnis Meadows mitigation project included the restoration of approximately 0.8 acres of riparian/stream habitat on McGinnis Creek and 17.3 acres of degraded wetlands. Credit was to be awarded for creation of 2.9 acres of emergent wetlands and enhancement of 1.74 acres of existing emergent wetland and an intermittent drainage. Preservation of 0.3 acres of existing riparian communities along the abandoned McGinnis Creek corridor and maintenance of 2.2 acres of upland buffer provided additional wetland credits. The project credit ratios approved by the USACE and the calculated credit acreages from 2010 to 2012 are shown on Table 7.

The areas delineated as wetlands within the created cells met the criteria for vegetation, soil, and hydrology. The cover of wetland plants increased significantly from less than 50 percent in 2012 to 95 percent in 2012. The acreage of the created wetland cells has exceeded the anticipated 2.90 acres proposed in the 2009 MDT Mitigation Plan by 3.52 acres. The 2012 credits calculated for this AA are 6.42 acres.

Approximately 17.08 acres of wetland were identified within the restoration (rehabilitation) AA in 2012. The restored area included the pre-existing impaired reed canary grass wet meadow. The estimated credit acres for restoration were 11.39 in 2012 based on a 1.5:1, restoration to impact, credit ratio. This represents a 2.99-acre increase since 2011.

The proposed 0.30 credit acres for preservation presented in the Mitigation Plan were used to calculate the allowable credit estimates. Preservation credits in 2012 were 0.08 acres based on a 4:1 preservation to impact ratio.

The enhancement AA included the existing emergent wetland along the south and southwest boundary of the property upgradient from the channel restoration area. The 2011 and 2012 wetland delineation defined 1.32 acres of wetland within this AA. Applying the USACE approved 3:1 credit ratio to this area netted 0.44 acres of wetland credit in 2012.

The restored McGinnis Creek channel encompassed 0.75 acre of riverine habitat. The MDT seeks to obtain approximately 8,835 stream credits for the restoration of 2,850 linear feet of McGinnis Creek associated with the area below the OHWM of the channel. The acreage was excluded from the wetland credit totals summarized on Table 9.

The success criteria stipulating 70 percent cover of wetland plants was met site-wide in 2012. The vegetation cover in the upland buffer also exceeded 50 percent. The cover of weed species in the site wetlands was less than five percent and satisfied the performance standard for pertaining to Montana State-listed noxious weed cover not exceeding 5 percent cover. The weed cover in the upland buffer is currently succeeding but near the margin of failure regarding the success criteria for five percent or less cover by noxious weeds. The woody plants installed in 2011 are still developing. The success criteria of a long term, 50 percent survival rate for woody vegetation has not yet been met. Photographs of the cross-sections in Appendix C illustrate the increase in the percent cover and diversity of the vegetation along the banks of the restored channel and satisfy the McGinnis Creek channel restoration success criteria pertaining to well-vegetated banks with a majority of deep-rooting riparian and wetland plant species. The total mitigation credits calculated for the McGinnis Meadows Wetland Mitigation Site in 2012 was 18.76 credit acres, an increase of 2.98 credits since 2011.

Table 7. Summary of Wetland Credits at the McGinnis Meadows Wetland Mitigation Site from 2010 to 2012.

Proposed Mitigation Activity	Compensatory Mitigation Type	COE Mitigation Ratios	Proposed Acres	Final Credit Estimate (Acres)	2010 Delineated Acreage	2010 Credit (acres)	2011 Delineated Acreage	2011 Credit (acres)	2012 Delineated Acreage	2012 Credit (acres)
Creation of palustrine emergent depression wetlands through shallow excavation.	Creation	1:1	2.90	2.90	0.20	0.20	6.42	6.42	6.42	6.42
Restoration/Re-establishment of the McGinnis Creek Channel and wetland fringe.	Restoration (Re-Establishment)	1:1	0.80	0.80	0.75*	0.75*	0.75*	0.75*	0.75*	0.75*
Rehabilitation of existing impaired wet meadow wetlands.	Restoration (Rehabilitation)	1.5:1	17.30	11.53	16.57	11.05	12.60	8.40	17.08	11.39
Enhancement of existing emergent wetland upgradient of channel restoration.	Enhancement	3:1	1.74	0.58	1.74	0.58	1.32	0.44	1.32	0.44
Preservation of existing wetlands within abandoned McGinnis Creek reaches.	Preservation	4:1	0.30	0.08	0.30	0.08	0.30	0.08	0.30	0.08
Maintenance of upland buffer averaging 50 feet in length on site perimeter.	Upland Buffer	5:1	2.20	0.44	2.20	0.44	2.20	0.44	2.20	0.44
Total				**16.33**	**21.01**	**12.34**	**22.84**	**15.78**	**27.32**	**18.76**

*Stream Credit being sought for McGinnis Creek, acreage excluded from total.

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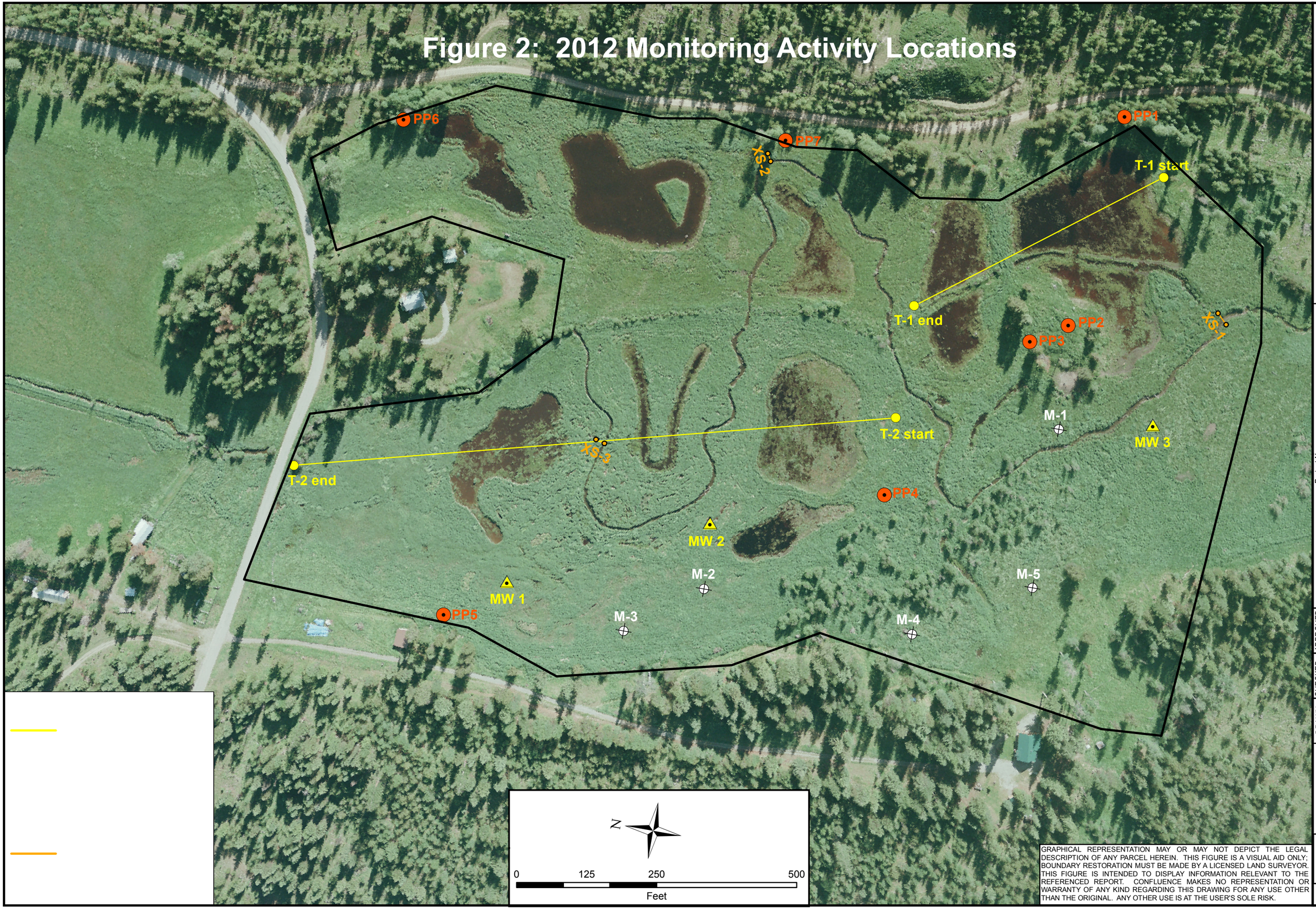
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Appendix A

Project Area Maps – Figures 2, 3, and 4

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

Figure 2: 2012 Monitoring Activity Locations



LOCATION: Lincoln Co., MT

PROJECT NO: STPX-NH 27(17)

FILE: McGinnis/Monitor2012.mxd

Project Name: McGinnis Meadows Mitigation Site

Drawing Title: 2012 Monitoring Activity Locations

DRAWN	CHECKED	APPROVED
BCS	BV	JJ

SCALE: Noted

Drawn: September 17, 2012

PROJ MGR: B Sandefur

CONFLUENCE consulting incorporated

Figure 2

REV -

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.

Figure 3: 2012 Mapped Site Features

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.

Cynoglossum officinale
Cirsium arvense
Infestation Size
X = <0.1 acre

Cover Class
T = Trace (<1% cover)
L = Low (1-5% cover)
M = Moderate (5-25% cover)

Vegetation Community Types

1. Alopecurus pratensis/Phalaris arundinacea
2. Aquatic Macrophytes/Open Water
4. Picea engelmannii/Alopecurus pratensis
5. Phalaris arundinacea/Alnus incana
6. Carex utriculata
7. Phalaris arundinacea/Alopecurus pratensis
11. Alnus incana/Phalaris arundinacea
14. Alopecurus pratensis/Pseudotsuga menziesii
16. Phalaris arundinacea/Soil Mounds
17. Glyceria grandis/Carex spp.

Acreages

Project Area	32.75 acres
Gross Wetlands	25.87 acres
McGinnis Creek	0.75 acres
Net Wetlands	25.12 acres
Uplands	6.88 acres

N

0 125 250 500
Feet

LOCATION: Lincoln Co., MT
PROJECT NO: STPX-NH 27(17)
FILE: McGinnis/Veg2012.mxd

Project Name
McGinnis Meadows Mitigation Site

Drawing Title
2012 Mapped Site Features

DRAWN	CHECKED	APPROVED
BCS	BV	JJ

SCALE: Noted
Drawn: September 17, 2012
PROJ MGR: B Sandefur

CONFLUENCE
consulting incorporated

Figure 3

REV -

Figure 4: 2012 Wetland Credit Areas

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.

Legend

- Monitoring Limits
- 2012 Creation
- 2012 Enhancement
- 2012 Preservation
- 2012 Restoration
- Stream Restoration

AA Acreages

Gross Wetlands	25.12 acres
Restoration	17.08 acres
Enhancement	1.32 acres
Preservation	0.30 acres
Creation	6.42 acres
McGinnis Creek	0.75 acres

N

0 125 250 500

Feet

LOCATION: Lincoln Co., MT

DATE: December 12, 2011

FILE: McGinnis/WetCredit2012.mxd

Project Name: McGinnis Meadows Mitigation Site

Drawing Title: 2012 Wetland Assessment Areas

DRAWN BCS	CHECKED BV	APPROVED JJ	
SCALE: Noted			
PROJ NO: MDT.004			
PROJ MGR: B Sandefur			

CONFLUENCE consulting incorporated

Figure 4

REV -

Appendix B

2012 MDT Wetland Mitigation Site Monitoring Form
2012 USACE Wetland Determination Data Forms
2012 MDT Montana Wetland Assessment Method Forms

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana

MDT WETLAND MITIGATION SITE MONITORING FORM

Project Site: McGinnis Meadows Assessment Date/Time 8/2/2012 8:15:35 AM

Person(s) conducting the assessment: B Sandefur, E Sandefur

Weather: Overcast & mild Location: 7 miles S. of US 2

MDT District: Missoula Milepost: NA

Legal Description: T 26N R 28W Section(s) 33

Initial Evaluation Date: 7/16/2010 Monitoring Year: 3 #Visits in Year: 1

Size of Evaluation Area: 32.75 (acres)

Land use surrounding wetland:

Hay production and grazing, rural residential, USFS property (forest)

HYDROLOGY

Surface Water Source: Groundwater & precipitation, flooding events from McGinnis Creek

Inundation: ☑ Average Depth: 1 **(ft)** Range of Depths: 0-3.5 **(ft)**

Percent of assessment area under inundation: 15 %

Depth at emergent vegetation-open water boundary: 1.5 **(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**:**

FAC-neutral, seasonal high water table, drift and sediment deposits, frost-heave hummocks, surface soil cracks

Groundwater Monitoring Wells

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

Well ID	Water Surface Depth (ft)
MW-1	1.9
MW-2	2.4
MW-3	3.3

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:

VEGETATION COMMUNITIES

Site McGinnis Meadows

(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:** Alopecurus pratensis / Phalaris arundinacea **Acres:** 5.03

Species	Cover class	Species	Cover class
Achillea millefolium	0	Alopecurus pratensis	5
Carex nebrascensis	0	Carex utriculata	0
Cirsium arvense	1	Crataegus douglasii	0
Cynoglossum officinale	0	Elymus repens	0
Epilobium ciliatum	0	Geum macrophyllum	0
Mentha arvensis	0	Mimulus guttatus	0
Phalaris arundinacea	2	Pinus contorta	0
Poa pratensis	0	Populus tremuloides	0
Rumex crispus	0	Stellaria longifolia	0
Taraxacum officinale	0	Urtica dioica	1
Verbascum thapsus	0		

Comments:

Community # 2 **Community Type:** Aquatic macrophytes / Open Water **Acres:** 2.04

Species	Cover class	Species	Cover class
Algae, green	2	Alopecurus aequalis	0
Aquatic macrophytes	4	Carex nebrascensis	0
Carex stipata	0	Carex utriculata	1
Cirsium arvense	0	Eleocharis palustris	0
Equisetum arvense	0	Geum macrophyllum	0
Glyceria grandis	2	Juncus articulatus	0
Juncus confusus	0	Juncus ensifolius	0
Lemna minor	0	Mentha arvensis	0
Mimulus guttatus	0	Open Water	5
Persicaria amphibia	0	Phalaris arundinacea	2
Scirpus microcarpus	0	Typha latifolia	0

Comments:

Community # 4 **Community Type:** Picea engelmannii / Alopecurus pratensis **Acres:** 0.69

Species	Cover class	Species	Cover class
Achillea millefolium	1	Alopecurus pratensis	5
Cirsium arvense	3	Elymus repens	2
Equisetum arvense	0	Fragaria virginiana	0
Medicago lupulina	0	Phalaris arundinacea	3
Picea engelmannii	4	Pinus contorta	1
Pinus ponderosa	1	Poa pratensis	1
Rosa woodsii	0	Rumex crispus	0
Symphoricarpos albus	1	Taraxacum officinale	0

Comments:

Community # 5 **Community Type:** Phalaris arundinacea / Alnus incana **Acres:** 1.9

Species	Cover class	Species	Cover class
Algae, green	1	Alnus incana	4
Carex nebrascensis	1	Carex utriculata	1
Cirsium arvense	1	Crataegus douglasii	2
Heracleum maximum	1	Mentha arvensis	0
Phalaris arundinacea	4	Rumex crispus	0
Scirpus microcarpus	1	Urtica dioica	0

Comments:

Community # 6 **Community Type:** Carex utriculata / **Acres:** 0.07

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Carex utriculata	5
Phalaris arundinacea	2	Poa palustris	0

Comments:

Community # 7 Community Type: Phalaris arundinacea / Alopecurus pratensis **Acres:** 16.42

Species	Cover class	Species	Cover class
Agrostis gigantea	0	Agrostis stolonifera	0
Alnus incana	0	Alopecurus pratensis	3
Carex athrostachya	0	Carex pachystachya	0
Carex stipata	0	Carex utriculata	0
Cirsium arvense	1	Cynoglossum officinale	0
Epilobium ciliatum	0	Erysimum cheiranthoides	0
Galium trifidum	0	Geum macrophyllum	0
Gnaphalium palustre	0	Heracleum maximum	0
Mentha arvensis	0	Phalaris arundinacea	5
Plantago major	0	Potentilla gracilis	0
Rumex crispus	0	Scirpus microcarpus	0
Taraxacum officinale	0	Urtica dioica	0
Veronica americana	0	Viola sp.	0

Comments:

Community # 11 Community Type: Alnus incana / Phalaris arundinacea **Acres:** 0.53

Species	Cover class	Species	Cover class
Algae, brown	0	Algae, green	1
Alnus incana	4	Alopecurus pratensis	1
Carex stipata	0	Carex utriculata	2
Cirsium arvense	0	Epilobium ciliatum	0
Erysimum cheiranthoides	0	Geum macrophyllum	0
Heracleum maximum	0	Juncus confusus	0
Juncus ensifolius	0	Mentha arvensis	0
Phalaris arundinacea	5	Rumex crispus	0
Scirpus microcarpus	1		

Comments:

Community # 14 Community Type: Alopecurus pratensis / Pseudotsuga menziesii **Acres:** 0.9

Species	Cover class	Species	Cover class
Abies lasiocarpa	0	Achillea millefolium	0
Agrostis stolonifera	0	Alnus incana	1
Alopecurus pratensis	5	Calamagrostis canadensis	0
Fragaria virginiana	0	Larix occidentalis	2
Maianthemum stellatum	0	Phalaris arundinacea	1
Pinus contorta	2	Poa pratensis	1
Pseudotsuga menziesii	4	Symphoricarpos albus	1

Comments:

Community # 16 **Community Type:** Phalaris arundinacea / Soil Mounds **Acres:** 0.28

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Bare Ground	0
Cirsium arvense	3	Phalaris arundinacea	5
Verbascum thapsus	1		

Comments:

Community # 17 **Community Type:** Glyceria grandis / Carex spp. **Acres:** 4.15

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alnus incana	0
Alopecurus aequalis	0	Alopecurus pratensis	0
Aster sp.	0	Bare Ground	2
Beckmannia syzigachne	0	Calamagrostis canadensis	0
Carex athrostachya	0	Carex bebbii	1
Carex nebrascensis	1	Carex pachystachya	0
Carex praticola	0	Carex stipata	0
Carex utriculata	0	Cirsium arvense	1
Deschampsia cespitosa	1	Eleocharis palustris	1
Epilobium ciliatum	0	Equisetum arvense	0
Erysimum cheiranthoides	0	Geum macrophyllum	0
Glyceria grandis	4	Gnaphalium palustre	0
Juncus arcticus	0	Juncus articulatus	0
Juncus bufonius	0	Juncus confusus	1
Juncus effusus	0	Juncus ensifolius	0
Juncus longistylis	0	Juncus tenuis	0
Mentha arvensis	0	Mimulus guttatus	0
Myriophyllum sp.	0	Open Water	2
Persicaria amphibia	0	Phalaris arundinacea	1
Phleum pratense	0	Plantago major	0
Poa palustris	0	Potentilla sp.	0
Rumex crispus	0	Scirpus microcarpus	0
Sparganium emersum	0	Trifolium repens	0
Typha latifolia	0	Verbascum thapsus	0
Veronica americana	0		

Comments:

Total Vegetation Community Acreage **32.01**

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

VEGETATION TRANSECTS

Site: McGinnis Meadows Date: 8/2/2012 8:15:35 AM

Transect Number: 1 **Compass Direction from Start:** 318

Interval Data:

Ending Station 32 **Community Type:** Alopecurus pratensis / Phalaris arundinacea

Species	Cover class	Species	Cover class
Alopecurus pratensis	5	Cirsium arvense	1
Mentha arvensis	1	Taraxacum officinale	1
Verbascum thapsus	0		

Ending Station 69 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Alopecurus pratensis	0	Carex bebbii	1
Cirsium arvense	1	Eleocharis palustris	2
Glyceria grandis	3	Juncus confusus	1
Juncus ensifolius	1	Mimulus guttatus	1

Ending Station 303 **Community Type:** Aquatic macrophytes / Open Water

Species	Cover class	Species	Cover class
Algae, green	2	Aquatic macrophytes	2
Eleocharis palustris	1	Glyceria grandis	1
Open Water	5	Persicaria amphibia	0
Scirpus microcarpus	0		

Ending Station 314 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Carex athrostachya	0
Carex pachystachya	1	Carex stipata	1
Glyceria grandis	4	Juncus confusus	1
Juncus longistylis	1	Persicaria amphibia	1

Ending Station 369 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alnus incana	1	Alopecurus pratensis	2
Cirsium arvense	1	Erysimum cheiranthoides	0
Mentha arvensis	0	Phalaris arundinacea	5
Poa pratensis	1	Scirpus microcarpus	1

Ending Station 504 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	1	Algae, green	1
Alnus incana	1	Alopecurus aequalis	0
Alopecurus pratensis	1	Aster sp.	0
Bare Ground	3	Carex athrostachya	1
Carex nebrascensis	1	Carex stipata	1
Carex utriculata	1	Cirsium arvense	0
Deschampsia cespitosa	2	Eleocharis palustris	1
Epilobium ciliatum	0	Equisetum arvense	0
Geum macrophyllum	0	Glyceria grandis	4
Juncus bufonius	1	Juncus confusus	1
Juncus ensifolius	1	Juncus longistylis	1
Myriophyllum sp.	1	Open Water	4
Plantago major	0	Potentilla sp.	0
Rumex crispus	0	Scirpus microcarpus	1
Sparganium emersum	0	Typha latifolia	1

Transect Notes:

Transect Number: 2 **Compass Direction from Start:** 330

Interval Data:

Ending Station 80 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	2	Carex athrostachya	0
Phalaris arundinacea	5		

Ending Station 242 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Agrostis stolonifera	0	Alopecurus pratensis	1
Bare Ground	2	Calamagrostis canadensis	1
Carex athrostachya	2	Carex nebrascensis	2
Carex stipata	1	Cirsium arvense	0
Eleocharis palustris	1	Glyceria grandis	4
Juncus arcticus	1	Juncus confusus	2
Juncus longistylis	1	Phalaris arundinacea	2
Sparganium emersum	0	Typha latifolia	1

Ending Station 348 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Carex athrostachya	0
Erysimum cheiranthoides	0	Phalaris arundinacea	5
Rumex crispus	0		

Ending Station 355 **Community Type:** Open Water /

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 400 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Phalaris arundinacea	5

Ending Station 422 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Carex nebrascensis	2	Carex stipata	1
Glyceria grandis	5	Juncus arcticus	1
Juncus confusus	0	Juncus longistylis	1
Open Water	2	Phalaris arundinacea	0

Ending Station 448 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Phalaris arundinacea	5		

Ending Station 479 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Eleocharis palustris	3	Glyceria grandis	4
Juncus effusus	0	Juncus longistylis	1
Open Water	4	Phalaris arundinacea	1

Ending Station 523 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Phalaris arundinacea	5		

Ending Station 533 **Community Type:** Open Water /

Species	Cover class	Species	Cover class
Open Water	5		

Ending Station 600 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Phalaris arundinacea	5		

Ending Station 793 **Community Type:** Glyceria grandis / Carex spp.

Species	Cover class	Species	Cover class
Bare Ground	3	Carex praticola	0
Eleocharis palustris	1	Glyceria grandis	4
Juncus longistylis	1	Mentha arvensis	0
Open Water	3	Phalaris arundinacea	2
Typha latifolia	1		

Ending Station 1000 **Community Type:** Phalaris arundinacea / Alopecurus pratensis

Species	Cover class	Species	Cover class
Alopecurus pratensis	1	Cirsium arvense	0
Mentha arvensis	0	Phalaris arundinacea	5

Transect Notes:

PLANTED WOODY VEGETATION SURVIVAL

McGinnis Meadows

Planting Type	#Planted	#Alive	Notes
Alnus sp.	360	150	
Betula sp.	100	0	
Cornus stolinifera	100	0	
Populus tremuloides	180	15	
Salix sp.	100	15	

Comments

Planted woody species were heavily browsed and trampled following planting in 2010. Additional woody planting occurred in 2011. Existing alders and aspen were observed throughout the site. No dogwoods or birch were observed within planting clusters. Thorough assessment of woody planting/survival made extremely difficult due to the proliferation of Phalaris arundinacea, often exceeding 6ft in height.

McGinnis Meadows

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
Alder Flycatcher	1	F	FO, SS
American Robin	5	F, L	FO, SS, UP, WM
American Three-toed Wood	2	F	FO
Bald Eagle	3	F, FO	OW, UP, WM
Bufflehead	1	F	AB, OW
Calliope Hummingbird	2	F, FO	FO, SS, WM
Cedar Waxwing	8	L	FO, SS
Common Merganser	1	F	AB, OW
Eastern Kingbird	3	F	FO, SS
Evening Grosbeak	25	F, L	SS, WM
Gray Catbird	3	L	OW, SS, WM
Great Blue Heron	1	F	AB, OW
Mallard	10	F, FO	AB, OW, WM
Northern Flicker	4	FO	FO
Northern Harrier	1	FO	OW
Red-winged Blackbird	25	F, FO, L	SS, UP, WM
Song Sparrow	7	F, L	SS
Sora	2	F	AB, OW
Spotted Sandpiper	2	F	AB, US
Tree Swallow	20	F, L	FO, SS
Turkey Vulture	3	F, FO	OW, SS, UP
Western Tanager	1	L	FO, SS
Wood Duck	3	F	AB, OW

Yellow Warbler	3	F	FO, SS

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
Columbia Spotted Frog	2	No	No	No	
Deer Sp.		Yes	Yes	No	Numerous deer beds
Elk or Wapiti		Yes	Yes	No	
Moose		Yes	Yes	No	
Richardson's Ground Squirrel	2	Yes	No	Yes	
Striped Skunk		No	No	No	smell
Western Toad	1	No	No	No	

Wildlife Comments:

McGinnis Meadows

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
9663	47.964336666667	-115.2186566667		M-1
9665	47.965835	-115.2204133333		M-2
9666	47.966165	-115.220855		M-3
9667	47.964786666667	-115.2203683333		M-4
9668	47.964271666667	-115.219825		M-5
9670-73	47.964584	-115.2164	250	PP-1
9674	47.964211	-115.21666	318	T-1, start
9680	47.965134	-115.217987	42	T-1, end
9682-87	47.964561	-115.218163	285	PP-3
9688-93	47.964512	-115.217896	140	PP-2
9695-9702	47.965092	-115.219429	15	PP-4
9704	47.965126	-115.218857	343	T-2, start
9706				T-2, end
9708-9716	47.966888	-115.220978	90	PP-5
9717-23	47.967838	-115.217644	180	PP-6
9725-27	47.963615	-115.217552		XS-1, up
9728-30	47.963615	-115.217552		XS-1, dwn
9731-33	47.965557	-115.218948		XS-3, down
9734-36	47.965557	-115.218948		XS-3, up
9737-45	47.966015	-115.217171		PP-7
9746-48	47.965961	-115.217216		XS-2, up
9749-51	47.965961	-115.217216		XS-2, down

Comments:

McGinnis Meadows

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 – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows | City/County: Lincoln | Sampling Date: 8/2/2012

Applicant/Owner: MDT | State: MT | Sampling Point: M-1

Investigator(s): B Sandefur | Section, Township, Range: S 33 T 26N R 28W

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

Subregion (LRR): LRR E | Lat: 47.9643366666667 | Long: -115.218656666667 | Datum: WGS84

Soil Map Unit Name: Fluvents | 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 in veg com 7, previously called upland in 2011 based on lack of apparent hydro indicators.

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: 5ft)			
1. Alopecurus pratensis	30	☑	FAC
2. Phalaris arundinacea	60	☑	FACW
3. Cirsium arvense	5	☐	FAC
4. Mentha arvensis	5	☐	FACW
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = 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: 2 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	65	x 2 =	130
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		235 (B)

Prevalence Index = B/A = 2.35

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)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ 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:

SOIL

Sampling Point: M-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
0-6	10YR 2/2	100					Clay Loam	
6-15	10YR 2/2	80	10YR 5/6	20	C	M	Clay Loam	
15-20	10YR 4/2	90	10YR 4/6	10	C	M	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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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:

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)
- ☑ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☑ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ☐ No ☑ Depth (inches): _____

Water Table Present? Yes ☐ No ☑ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ☐ No ☑ Depth (inches): _____

Wetland Hydrology Present? Yes ☑ No ☐

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

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows City/County: Lincoln Sampling Date: 8/2/2012

Applicant/Owner: MDT State: MT Sampling Point: M-2

Investigator(s): B Sandefur Section, Township, Range: S 33 T 26N R 28W

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): LRR E Lat: 47.965835 Long: -115.220413333333 Datum: WGS84

Soil Map Unit Name: Andic Dystrochrepts 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 called upland in 2011 based on lack of hydro indicators. Area with dry season water table in 2012.

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: 5ft)			
1. Mentha arvensis	5	☐	FACW
2. Phalaris arundinacea	90	☑	FACW
3. Agrostis stolonifera	5	☐	FAC
4. Carex utriculata	5	☐	OBL
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	105 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	5	x 1 =	
FACW species	95	x 2 =	190
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		210 (B)

Prevalence Index = B/A = 2

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)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ 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:

SOIL

Sampling Point: M-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
0-8	10YR 2/2	100					Clay Loam	
8-20	10YR 2/2	95	10YR 4/6	5	C	M	Clay Loam	
20-26	10YR 2/2	80	10YR 4/6	20	C	M	Loam	Peaty layers below 20in.

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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:

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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☑ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

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:

Soils saturated at 22in. Watertable @ 26in immediately after excavation, assume watertable would have increased to with 24 in. of ground surface given sufficient time for equilibration.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows City/County: Lincoln Sampling Date: 8/2/2012

Applicant/Owner: MDT State: MT Sampling Point: M-3

Investigator(s): B Sandefur Section, Township, Range: S 33 T 26N R 28W

Landform (hillslope, terrace, etc.): Valley bottom Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): LRR E Lat: 47.966165 Long: -115.220855 Datum: WGS84

Soil Map Unit Name: Andic Dystrochrepts 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 called upland in 2011 based on lack of hydro indicators. Area with dry season water table, peaty soils ~20in.

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: 5ft)			
1. Phalaris arundinacea	85	☑	FACW
2. Agrostis gigantea	5	☐	FAC
3. Potentilla gracilis	5	☐	FAC
4. Carex pachystachya	5	☐	FAC
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	85	x 2 =	170
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		215 (B)

Prevalence Index = B/A = 2.15

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)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ 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:

SOIL

Sampling Point: M-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
0-12	10YR 2/2	90	10YR 4/4	3	C	M	Clay Loam	also depletions (10 Y/R 5/1) 5%.
12-22	10YR 2/2	75	10YR 4/6	5	C	M	Clay Loam	~20% peat content.

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (**except MLRA 1**)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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:

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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4A, and 4B**)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (**LRR A**)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☑ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

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:

No signs of surface hydro, area endo-saturated within 12in of surface during seasonally high water table. Water table observed within bottom of soil pit, approx. 22in below ground surface.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows City/County: Lincoln Sampling Date: 8/2/2012

Applicant/Owner: MDT State: MT Sampling Point: M-4

Investigator(s): B Sandefur Section, Township, Range: S 33 T 26N R 28W

Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): LRR E Lat: 47.9647866666667 Long: -115.220368333333 Datum: WGS84

Soil Map Unit Name: Andic Dystrochrepts 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 along toe of slope. Hydro likely supplied by groundwater from hillside and seasonal high watertable during high flows through McGinnis Creek.

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: 5ft)			
1. Phalaris arundinacea	100	☑	FACW
2.	0	☐	
3.	0	☐	
4.	0	☐	
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2

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)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ 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:

SOIL

Sampling Point: M-4

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
0-12	10YR 2/2	95	10YR 4/6	5	C	M	Loam	
12-22	10YR 2/2	90	10YR 6/2	5	D	M	Silt Loam	peaty material in layer
22-32	10YR 2/2	90	10YR 4/4	5	C	M	Loam	also depletions, soils saturated ~ 28in.
32-36	10YR 2/1	95	10YR 6/2	5	D	M		

[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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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:

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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☑ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☑ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

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:

Water table at 30in below ground surface during dry season.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: McGinnis Meadows City/County: Lincoln Sampling Date: 8/2/2012

Applicant/Owner: MDT State: MT Sampling Point: M-5

Investigator(s): B Sandefur Section, Township, Range: S 33 T 26N R 28W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): LRR E Lat: 47.9642716666667 Long: -115.219825 Datum: WGS84

Soil Map Unit Name: Andic Dystrochrepts 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 in veg com 1 along slight rise in topo.

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: 5ft)			
1. Phalaris arundinacea	10	☐	FACW
2. Alopecurus pratensis	80	☑	FAC
3. Achillea millefolium	5	☐	FACU
4. Cynoglossum officinale	5	☐	FACU
5.	0	☐	
6.	0	☐	
7.	0	☐	
8.	0	☐	
9.	0	☐	
10.	0	☐	
11.	0	☐	
	100 = 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: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 1 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	
FACW species	10	x 2 =	20
FAC species	80	x 3 =	240
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3

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)
- ☐ 5 - Wetland Non-Vascular Plants[1]
- ☐ 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:

SOIL

Sampling Point: M-5

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
0-10	10YR 3/3	100					Silt Loam	
10-12	10YR 5/2	100					Loam	Thin lens of light horizon.
12-18	10YR 3/2	95	10YR 5/2	5	D	M	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)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ 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:

Does not qualify as F7, Depleted Dark Surface, as there are less than 20 percent redox depletions.

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)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) **(LRR A)**
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) **(LRR A)**
- ☐ Frost-Heave Hummocks (D7)

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:

No hydro signs.

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#**

3. Evaluation Date 8/2/2012 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** Creation

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River Watershed/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 6.42

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 6.42

☐ **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	Aquatic Bed	Excavated	Permanent/Perennial	60
Depressional	Emergent Wetland	Excavated	Seasonal/Intermittant	40

11. Estimated Relative Abundance Common

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)

AA includes several depression areas that were excavated within uplands. Similar to 2011, many of these depressions were ponded in 2012 with 0.2 to1 foot of standing water. The edges were dominated by emegent vegetation in mudflat areas. These edges are seasonally ponded.

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

Cirsium arvense

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

AA includes several depressions created within uplands in 2009. Surrounding land use includes low density residential, moderate road density, and forested habitat.

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: Aquatic bed and emergent wetland classes present

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	Grizzly bear, Canada lynx
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 USFWS, observation of grizzly bear by adjacent landowner.

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	
Incidental habitat (list species)	◉ D ◯ S	Pileated woodpecker (S3), Great Blue Heron (S3)
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 MNHP listed for Lincoln County, GBH observed onsite.

14C. General Wildlife Habitat Rating:

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

Substantial

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 AA connected to wilderness habitat.

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**

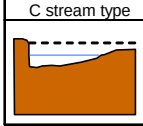
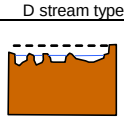
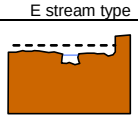
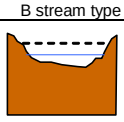
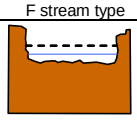
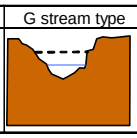
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

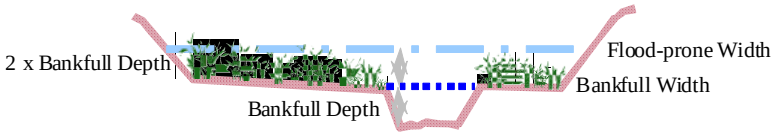
iii. Final Score and Rating: 0 NA **Comments:**

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 18 **/** **Bankfull width** 6 **=** **Entrenchment ratio** 3

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: Excavated depression hydrologically connected to periodic overbank flooding along McGinnis Creek.

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: Depressions located along floodplain of McGinnis Creek, assumes 6.42 acres flooded to a minimal depth of one foot.

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:

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: Assumes perennial open water areas 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: AA closed depression with no outlet, appear to be perennially saturated.

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: Wetland intercepts groundwater table

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:

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:

Public ownership - no permission required. Signs of hunting identified during 2012 field survey.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): 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	.3	1	1.926	☐
B. MT Natural Heritage Program Species Habitat	L	.2	1	1.284	☐
C. General Wildlife Habitat	E	1	1	6.42	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.6	1	3.852	☐
F. Short and Long Term Surface Water Storage	H	1	1	6.42	☑
G. Sediment/Nutrient/Toxicant Removal	M	.7	1	4.494	☑
H. Sediment/Shoreline Stabilization	M	.7	1	4.494	☐
I. Production Export/Food Chain Support	H	.8	1	5.136	☐
J. Groundwater Discharge/Recharge	H	1	1	6.42	☑
K. Uniqueness	M	.4	1	2.568	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	1.284	☐
Totals:		6.9	10	44.298	
Percent of Possible Score			**69** %		

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

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#**

3. Evaluation Date 8/2/2012 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** Enhancement

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River Watershed/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 1.32

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 1.32

☐ **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		Temporary/Ephemeral	100

11. Estimated Relative Abundance Common

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)

Area includes existing emergent wetland along intermittent drainage.

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

Cirsium arvense

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

AA includes existing emergent wetland. Surrounding land use includes residential, moderate road density, and forested habitat.

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:

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	Grizzly bear, Canada lynx
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 USFWS, observation of grizzly bear by adjacent landowner.

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	
Incidental habitat (list species)	◉ D ○ S	Pileated woodpecker (S3), Great Blue Heron (S3)
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

14C. General Wildlife Habitat Rating:

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

Substantial

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

- [x] observations of abundant wildlife #s or high species diversity (during any period)
- [x] 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 AA connected to wilderness habitat.

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 [x] **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**

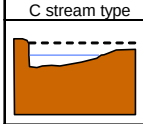
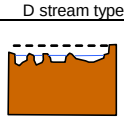
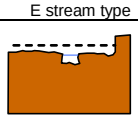
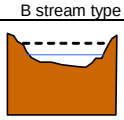
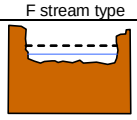
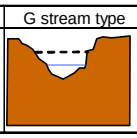
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

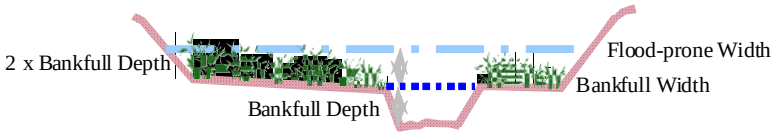
iii. Final Score and Rating: 0 NA **Comments:**

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 18 **/** **Bankfull width** 6 **=** **Entrenchment ratio** 3

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 periodic overbank flooding from restored McGinnis Creek.

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: AA small in size.

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: Well vegetated by sedge with no 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:

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** .5M

Comments:

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☐ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☐ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☐ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [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: AA with ephemeral hydrology during spring.

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:

Public ownership - no permission required. Signs of hunting identified during 2012 field survey.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Enhancement

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	.3	1	0.396	☑
B. MT Natural Heritage Program Species Habitat	L	.2	1	0.264	☐
C. General Wildlife Habitat	H	.9	1	1.188	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	M	.6	1	0.792	☑
F. Short and Long Term Surface Water Storage	L	.1	1	0.132	☐
G. Sediment/Nutrient/Toxicant Removal	H	.8	1	1.056	☑
H. Sediment/Shoreline Stabilization	NA	0	0	0	☐
I. Production Export/Food Chain Support	M	.5	1	0.66	☐
J. Groundwater Discharge/Recharge	NA	0	0	0	☐
K. Uniqueness	M	.4	1	0.528	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	0.264	☐
Totals:		4	8	5.28	
Percent of Possible Score			**50** %		

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

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#**

3. Evaluation Date 8/2/2012 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** Preservation

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River Watershed/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 0.3

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 0.3

☐ **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
Riverine	Scrub-Shrub Wetland	Impounded	Permanent/Perennial	50
Riverine	Emergent Wetland		Permanent/Perennial	50

11. Estimated Relative Abundance Common

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)

All disturbance from excavation adequately revegetated.

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

Cirsium arvense

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

AA includes abandonded ditch (McGinnis Creek) when McGinnis Creek planform was restored. Ditch community runs north-south through the property. AA encompassed within McGinnis Meadows conservation easement. Surrounding habitat include undisturbed upland areas and other AAs.

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: Scrub/shrub, emergent

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	Grizzly bear, Canada lynx
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 USFWS, observation of grizzly bear by adjacent landowner.

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	
Incidental habitat (list species)	◉ D ◯ S	Pileated woodpecker (S3), Great Blue Heron (S3)
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

14C. General Wildlife Habitat Rating:

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

Substantial

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

- [x] observations of abundant wildlife #s or high species diversity (during any period)
- [x] 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 AA connected to wilderness habitat.

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 [x] **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**

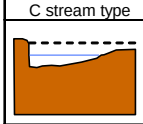
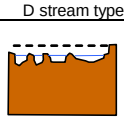
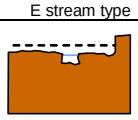
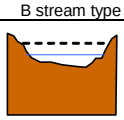
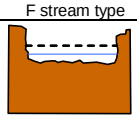
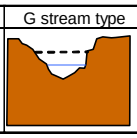
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

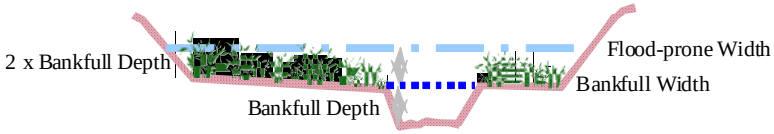
iii. Final Score and Rating: 0 NA **Comments:**

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 18 **/** **Bankfull width** 6 **=** **Entrenchment ratio** 3

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: AA subject to periodic overbank flow from McGinnis Creek.

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: AA includes abandonded ditch with potential to store several feet of surface water in areas (0.30ac x ~4ft).

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: Well-vegetated with restricted outlet (ditch plugs).

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:

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** .7M

Comments: AA 0.3-acre, no surface outlet and well-vegetated buffer.

14J. Groundwater Discharge/Recharge: (check the appropriate indicators in i & ii below)

i. Discharge Indicators

- ☐ The AA is a slope wetland
- ☐ Springs or seeps are known or observed
- ☐ Vegetation growing during dormant season/drought
- ☑ Wetland occurs at the toe of a natural slope
- ☐ Seeps are present at the wetland edge
- ☑ AA permanently flooded during drought periods
- ☐ Wetland contains an outlet, but no inlet
- ☑ Shallow water table and the site is saturated to the surface
- ☐ Other:

ii. Recharge Indicators

- ☐ Permeable substrate present without underlying impeding layer
- ☐ Wetland contains inlet but no outlet
- ☐ Stream is a known 'losing' stream; discharge volume decreases
- ☐ Other:

iii. Rating (use the information from i and ii above and the table below to arrive at [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: Shallow water table contributes surface water to abandoned ditch.

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:

Public ownership - no permission required. Signs of hunting identified during 2012 field survey.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Preservation

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	.3	1	0.09	☐
B. MT Natural Heritage Program Species Habitat	L	.2	1	0.06	☐
C. General Wildlife Habitat	E	1	1	0.3	☑
D. General Fish Habitat	NA	0	0	0	☐
E. Flood Attenuation	H	.9	1	0.27	☐
F. Short and Long Term Surface Water Storage	H	.8	1	0.24	☐
G. Sediment/Nutrient/Toxicant Removal	H	1	1	0.3	☑
H. Sediment/Shoreline Stabilization	H	1	1	0.3	☑
I. Production Export/Food Chain Support	M	.7	1	0.21	☐
J. Groundwater Discharge/Recharge	H	1	1	0.3	☑
K. Uniqueness	M	.4	1	0.12	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	0.06	☐
Totals:		7.5	10	2.25	
Percent of Possible Score			**75** %		

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

MDT Montana Wetland Assessment Form (revised March 2008)

1. Project name McGinnis Meadows **2. MDT project#** NH 27(17) **Control#**

3. Evaluation Date 8/2/2012 **4. Evaluators** B Sandefur **5. Wetland/Site# (s)** Restoration

6. Wetland Location(s): **T** 26N **R** 28W **Sec1** 33 **T** **R** **Sec2**

Approx Stationing or Mileposts NA

Watershed 17010102 **Watershed/County** Kootenai River Watershed/Lincoln County

7. Evaluating Agency Confluence for MDT

8. Wetland size acres 17.08

Purpose of Evaluation

How assessed: Measured e.g. by GPS

☐ **Wetlands potentially affected by MDT project**

9. Assesssment area (AA) size (acres) 17.08

☐ **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
Riverine	Emergent Wetland		Permanent/Perennial	5
Depressional	Emergent Wetland		Permanent/Perennial	95

11. Estimated Relative Abundance Common

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)

All areas disturbded during construction entirely revegetated.

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

Cirsium arvense

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

AA includes previously delineated wetland areas within easement boundary. AA decreased in size in 2011 due to marginal wetland indicators through portions of this AA identified in 2010. These wetlands were again added to the AA in 2012 based on positive wetland hydology indicators. Adjacent land use to AA includes low density residential, moderate road density and forested habitat.

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:

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	Grizzly bear, Canada lynx
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 USFWS, observation of grizzly bear by adjacent landowner.

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	Westslope cutthroat trout, Columbia River red-band trout (S1)
Incidental habitat (list species)	○ D ◉ S	Great Blue Heron (S3)
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 MFWP surveyed, MNHP listed for Lincoln County.

14C. General Wildlife Habitat Rating:

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

Substantial

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

- [x] observations of abundant wildlife #s or high species diversity (during any period)
- [x] 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
- [x] 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 AA connected to wilderness habitat.

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.) Cold Water

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**

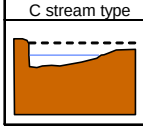
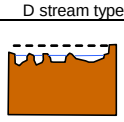
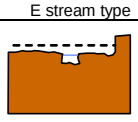
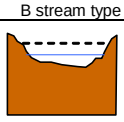
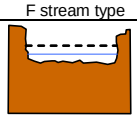
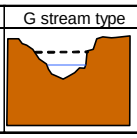
b) Does the AA contain a documented spawning area or other critical habitat feature (i.e., sanctuary pool, upwelling area, etc.- specify in comments) for native fish or introduced game fish? ◯ **Y** ◉ **N** *If yes, add 0.1 to the adjusted score in* ***i*** *or* ***iia*** *above:*
Modifed Rating

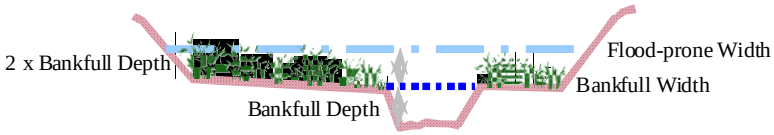
iii. Final Score and Rating: .8 H **Comments:**

14E. Flood Attenuation: (Applies only to wetlands subject to flooding via in-channel or overbank flow. If wetlands in AA are not flooded from in-channel or overbank flow, 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 18 **/** **Bankfull width** 6 **=** **Entrenchment ratio** 3

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: Residential house located directly north of AA; elevated above flooplain and not subject to flooding. Road and culvert located directly downstream.

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: Greater than 5 acre feet capacity across 17 acre wetland.

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: Area receives surface runoff during precipitation events.

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: Open water areas subject to wave action, streambank subject to erosion. The entire streambank is well-vegetated and open water areas with greater than 65% vegetation cover.

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** 1 E

Comments: AA 17 acres in size, well-vegetated with high biological activity.

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: Increased water table elevation saturates majority of AA to surface.

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:

Public ownership - no permission required. Signs of hunting identified during 2012 field survey.

General Site Notes

FUNCTION & VALUE SUMMARY & OVERALL RATING FOR WETLAND/SITE #(S): Restoration

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	.3	1	5.124	☐
B. MT Natural Heritage Program Species Habitat	M	.6	1	10.248	☐
C. General Wildlife Habitat	E	1	1	17.08	☐
D. General Fish Habitat	H	.8	1	13.664	☐
E. Flood Attenuation	M	.5	1	8.54	☐
F. Short and Long Term Surface Water Storage	H	1	1	17.08	☑
G. Sediment/Nutrient/Toxicant Removal	H	.9	1	15.372	☑
H. Sediment/Shoreline Stabilization	H	1	1	17.08	☐
I. Production Export/Food Chain Support	E	1	1	17.08	☑
J. Groundwater Discharge/Recharge	H	1	1	17.08	☑
K. Uniqueness	M	.4	1	6.832	☐
L. Recreation/Education Potential (bonus points)	H	.2	NA	3.416	☐
Totals:		8.7	11	148.596	
Percent of Possible Score			**79.09** %		

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
McGinnis Meadows
Lincoln County, Montana



Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2010**



Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2010**



Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2011**



Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2011**



Photo Point 1 – *Photo 1* **Location:** PP1
Bearing: 250 degrees **Taken in 2012**



Photo Point 1 – *Photo 2* **Location:** PP1
Bearing: 270 degrees **Taken in 2012**



Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2010**



Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2010**



Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2011**



Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2011**



Photo Point 1 – *Photo 3* **Location:** PP1
Bearing: 300 degrees **Taken in 2012**



Photo Point 2 – *Photo 1* **Location:** PP2
Bearing: 85 degrees **Taken in 2012**



Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2010**



Photo Point 2 – *Photo 3* **Location:** PP2
Bearing: 140 degrees **Taken in 2010**



Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2011**



Photo Point 2 – *Photo 3* **Location:** PP2
Bearing: 140 degrees **Taken in 2011**



Photo Point 2 – *Photo 2* **Location:** PP2
Bearing: 110 degrees **Taken in 2012**



Photo Point 2 – *Photo 3* **Location:** PP2
Bearing: 140 degrees **Taken in 2012**



Photo Point 2 – *Photo 4* **Location:** PP2
Bearing: 180 degrees **Taken in 2010**



Photo Point 2 – *Photo 4* **Location:** PP2
Bearing: 180 degrees **Taken in 2011**



Photo Point 2 – *Photo 4* **Location:** PP2
Bearing: 180 degrees **Taken in 2012**



Photo Point 3 – *Photo 1*
Bearing: 300-10 degrees

Location: PP3
Taken in 2010



Photo Point 3 – *Photo 1*
Bearing: 300-10 degrees

Location: PP3
Taken in 2011



Photo Point 3 – *Photo 1*
Bearing: 300-10 degrees

Location: PP3
Taken in 2012



Photo Point 4 – *Photo 1*
Bearing: 310-90 degrees

Location: PP4
Taken in 2010



Photo Point 4 – *Photo 1*
Bearing: 310-90 degrees

Location: PP4
Taken in 2011



Photo Point 4 – *Photo 1*
Bearing: 310-90 degrees

Location: PP4
Taken in 2012



Photo Point 5 – *Photo 1*
Bearing: 80-180 degrees

Location: PP5
Taken in 2010



Photo Point 5 – *Photo 1*
Bearing: 80-180 degrees

Location: PP5
Taken in 2011



Photo Point 5 – *Photo 1*
Bearing: 80-180 degrees

Location: PP5
Taken in 2012



Photo Point 6 – *Photo 1*
Bearing: 180-260 degrees

Location: PP6
Taken in 2010



Photo Point 6 – *Photo 1*
Bearing: 180-260 degrees

Location: PP6
Taken in 2011



Photo Point 6 – *Photo 1*
Bearing: 180-260 degrees

Location: PP6
Taken in 2012



Photo Point 7 – *Photo 1*
Bearing: 180-240 degrees

Location: PP7
Taken in 2010



Photo Point 7 – *Photo 1*
Bearing: 180-240 degrees

Location: PP7
Taken in 2011



Photo Point 7 – *Photo 1*
Bearing: 180-240 degrees

Location: PP7
Taken in 2012



Transect 1 – *Start* **Location:** T-1
Bearing: 330 degrees **Taken in 2010**



Transect 1 – *Finish* **Location:** T-1
Bearing: 150 degrees **Taken in 2010**



Transect 1 – *Start* **Location:** T-1
Bearing: 330 degrees **Taken in 2011**



Transect 1 – *Finish* **Location:** T-1
Bearing: 150 degrees **Taken in 2011**



Transect 1 – *Start* **Location:** T-1
Bearing: 330 degrees **Taken in 2012**



Transect 1 – *Finish* **Location:** T-1
Bearing: 150 degrees **Taken in 2012**



Transect 2 – *Start* **Location:** T-2
Bearing: 0 Degrees **Taken in 2010**



Transect 2 – *Finish* **Location:** T-2
Bearing: 180 Degrees **Taken in 2010**



Transect 2 – *Start* **Location:** T-2
Bearing: 0 Degrees **Taken in 2011**



Transect 2 – *Finish* **Location:** T-2
Bearing: 180 Degrees **Taken in 2011**



Transect 2 – *Start* **Location:** T-2
Bearing: 0 Degrees **Taken in 2012**



Transect 2 – *Finish* **Location:** T-2
Bearing: 180 Degrees **Taken in 2012**



Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2010**



Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2010**



Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2011**



Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2011**



Cross-Section 1 – *Photo 1* **Location:** XS-1 downstream
Bearing: 275 degrees **Taken in 2012**



Cross-Section 1 – *Photo 2* **Location:** XS-1 downstream
Bearing: 290 degrees **Taken in 2012**



Cross-Section 1 – *Photo 3*
Bearing: 110 Degrees

Location: XS-1 upstream
Taken in 2010



Cross-Section 1 – *Photo 3*
Bearing: 110 Degrees

Location: XS-1 upstream
Taken in 2011



Cross-Section 1 – *Photo 3*
Bearing: 110 Degrees

Location: XS-1 upstream
Taken in 2012



Cross-Section 2: *Photo 1*
Bearing: 70 Degrees

Location: XS-2 upstream
Taken in 2010



Cross-Section 2: *Photo 1*
Bearing: 70 Degrees

Location: XS-2 upstream
Taken in 2011



Cross-Section 2: *Photo 1*
Bearing: 70 Degrees

Location: XS-2 upstream
Taken in 2012



Cross-Section 2 – *Photo 2*
Bearing: 350 Degrees

Location: XS-2 downstream
Taken in 2010



Cross-Section 2 – *Photo 2*
Bearing: 350 Degrees

Location: XS-2 downstream
Taken in 2011



Cross-Section 2 – *Photo 2*
Bearing: 350 Degrees

Location: XS-2 downstream
Taken in 2012



Cross-Section 3 – *Photo 1*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2010



Cross-Section 3 – *Photo 1*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2011



Cross-Section 3 – *Photo 2*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2011



Cross-Section 3 – *Photo 1*
Bearing: 270 Degrees

Location: XS-3 upstream
Taken in 2012



Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2010



Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2011



Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2012



Cross-Section 3 – *Photo 2*
Bearing: 90 Degrees

Location: XS-3 downstream
Taken in 2012



Data Point M-1
Bearing:

Location: Community 7
Taken in 2012



Data Point M-2
Bearing:

Location: Community 7
Taken in 2012



Data Point M-3
Bearing:

Location: Community 7
Taken in 2012



Data Point M-4
Bearing:

Location: Community 7
Taken in 2012



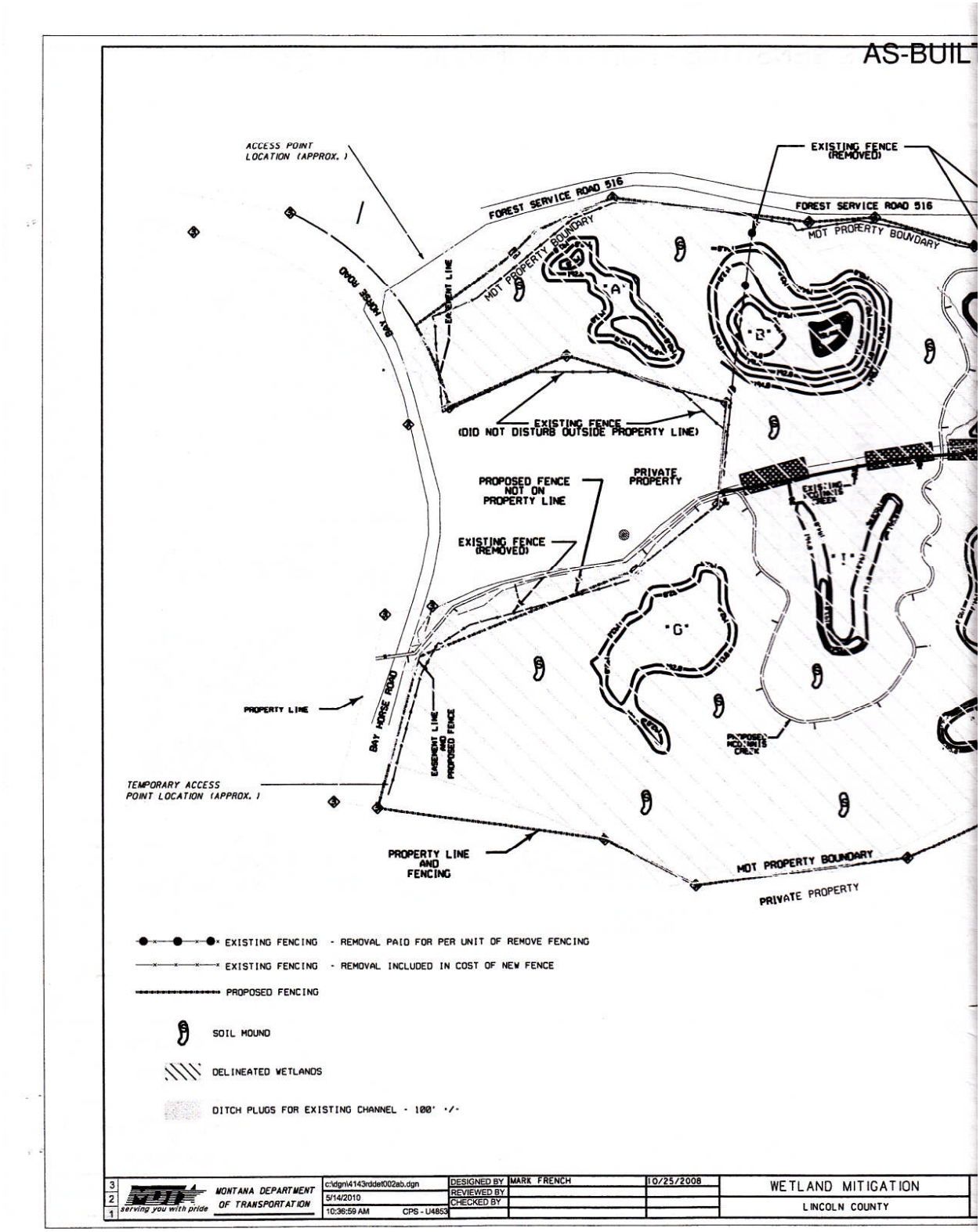
Data Point M-5
Bearing:

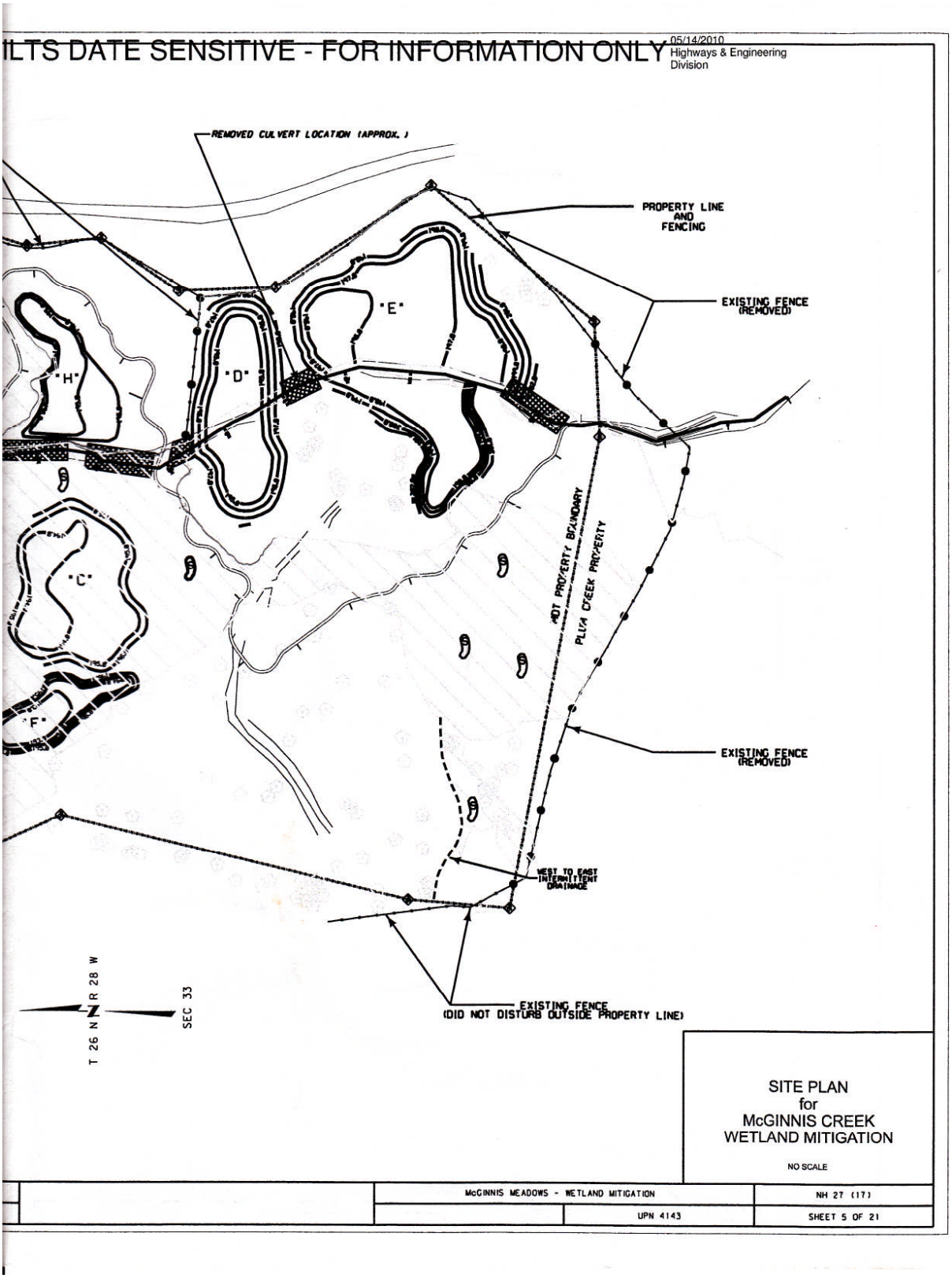
Location: Community 1
Taken in 2012

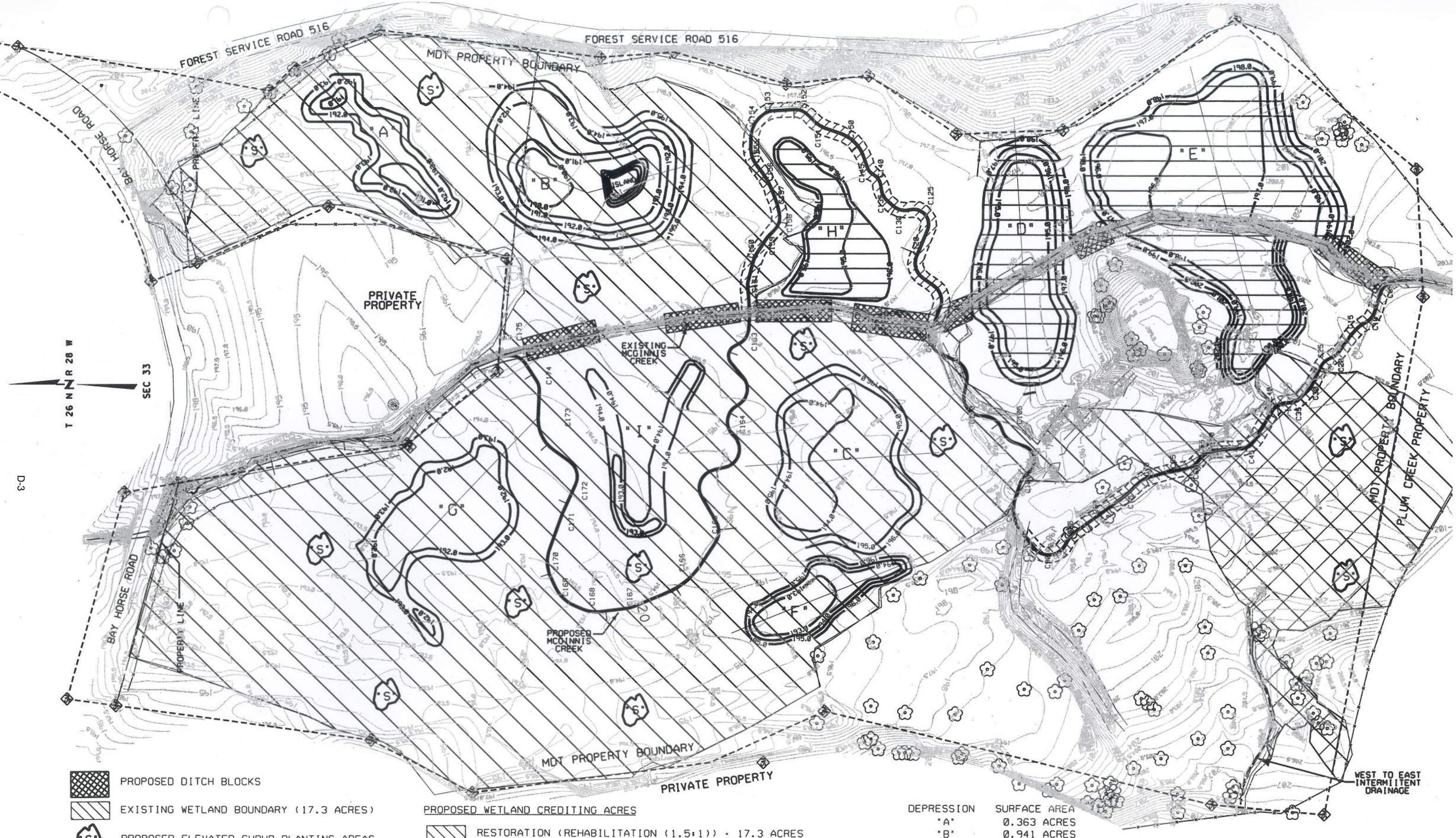
Appendix D

Project Plan Sheet

MDT Wetland Mitigation Monitoring
McGinnis Meadows
Lincoln County, Montana


AS-BUIL
ACCESS POINT LOCATION (APPROX.)
FOREST SERVICE ROAD 516
EXISTING FENCE (REMOVED)
FOREST SERVICE ROAD 516
MDT PROPERTY BOUNDARY
BAY HORSE ROAD
EASEMENT LINE
MDT PROPERTY BOUNDARY
"A"
"B"
EXISTING FENCE (DID NOT DISTURB OUTSIDE PROPERTY LINE)
PROPOSED FENCE NOT ON PROPERTY LINE
PRIVATE PROPERTY
EXISTING FENCE (REMOVED)
"G"
PROPERTY LINE
BAY HORSE ROAD
EASEMENT LINE AND PROPOSED FENCE
TEMPORARY ACCESS POINT LOCATION (APPROX.)
PROPERTY LINE AND FENCING
MDT PROPERTY BOUNDARY
PRIVATE PROPERTY
EXISTING FENCING - REMOVAL PAID FOR PER UNIT OF REMOVE FENCING
EXISTING FENCING - REMOVAL INCLUDED IN COST OF NEW FENCE
PROPOSED FENCING
SOIL MOUND
DELINEATED WETLANDS
DITCH PLUGS FOR EXISTING CHANNEL - 100' +/-
MONTANA DEPARTMENT OF TRANSPORTATION
serving you with pride
c:\dgn\4143rddet002ab.dgn
5/14/2010
10:36:59 AM
CPS - U4853
DESIGNED BY MARK FRENCH
REVIEWED BY
CHECKED BY
10/25/2008
WETLAND MITIGATION
LINCOLN COUNTY


ILTS DATE SENSITIVE - FOR INFORMATION ONLY
05/14/2010
Highways & Engineering Division
REMOVED CULVERT LOCATION (APPROX.)
PROPERTY LINE AND FENCING
EXISTING FENCE (REMOVED)
"E"
"D"
"H"
"C"
"F"
MDT PROPERTY BOUNDARY
PLUM CREEK PROPERTY
EXISTING FENCE (REMOVED)
WEST TO EAST INTERMITTENT DRAINAGE
EXISTING FENCE (DID NOT DISTURB OUTSIDE PROPERTY LINE)
T 26 N R 28 W
SEC 33
SITE PLAN
for
McGINNIS CREEK
WETLAND MITIGATION
NO SCALE
McGINNIS MEADOWS - WETLAND MITIGATION
NH 27 (17)
UPN 4143
SHEET 5 OF 21



PROPOSED DITCH BLOCKS

EXISTING WETLAND BOUNDARY (17.3 ACRES)

PROPOSED ELEVATED SHRUB PLANTING AREAS

1,306.79' - LINEAR LENGTH OF - EXISTING STREAM
2,845.78' - LINEAR LENGTH OF - PROPOSED STREAM

PROPOSED WETLAND CREDITING ACRES

RESTORATION (REHABILITATION (1.5:1)) - 17.3 ACRES

WETLAND CREATION (1:1) - 2.90 ACRES (DEPRESSIONS D,E&H)

WETLAND/STREAM RESTORATION (RE-ESTABLISHMENT (1:1)) - 0.80 ACRES

WETLAND ENHANCEMENT (3:1) - 1.74 ACRES

DEPRESSION	SURFACE AREA
"A"	0.363 ACRES
"B"	0.941 ACRES
"C"	0.844 ACRES
"D"	0.861 ACRES
"E"	1.626 ACRES
"F"	0.276 ACRES
"G"	0.632 ACRES
"H"	0.413 ACRES
"I"	0.224 ACRES
TOTAL	6.18 ACRES

SCALE - 1' = 120'

0 60 120 240 360

FIGURE A: CONCEPTUAL PLAN