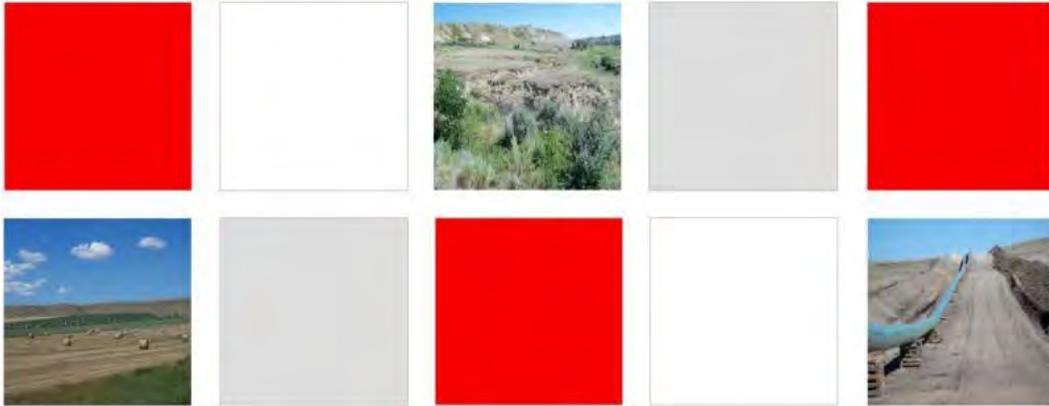


Appendix C
Natural Resources Survey Report



Great Plains Natural Gas Co.

**Fergus Falls Pipeline Replacement Project
Natural Resource Survey Report**

PRESENTED BY MERJENT, INC.

August 23, 2016

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INTRODUCTION

On behalf of Great Plains Natural Gas Co. (Great Plains), Merjent, Inc. (Merjent) conducted a natural resource survey and prepared this report for the Fergus Falls Pipeline Replacement Project (Project). The purpose of the Project is to maintain conformance with U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration regulations. After conducting integrity assessments of its pipelines, Great Plains determined the need to replace a segment of existing pipeline between its existing Fergus Falls town boarder station and its Green Plains ethanol tap. Approximately 3.0 miles of new 8-inch steel pipeline would be installed in new right-of-way in Sections 27, 28, 29, and 32, Township 133 North, Range 43 West, Otter Tail County, Minnesota. New pipeline pigging launcher and receiver facilities would also be constructed at the beginning and ending points of the replacement segment. Site location maps are provided in Appendix A.

METHODS

Merjent reviewed U.S. Geological Survey (USGS) 7.5 minute topographic quadrangle maps; U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps; Minnesota Protected Waters Inventory (PWI) maps; USGS National Hydrograph Data (NHD); and current and historical aerial photographs of the Project area using Google Earth. The U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) web soil survey was also reviewed (U.S. Department of Agriculture, 2016).

The presence/absence of wetlands was identified in the field using routine level 2 on-site delineation methods and criteria in accordance with the U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Determination Manual: Midwest Region (Version 2.0)* (Environmental Laboratory, 2010). The Project is within Land Resource Region M, Central Feed Grains and Livestock Region. Routine on-site delineation methods include characterization of vegetation, hydrology, and soils at the site. The USACE National Wetlands Plant List was used to describe the taxonomy of plants surveyed and their wetland indicator status (Lichvar, R.W., et. al., 2016). Determination of wetland type is based on the classification system developed by Cowardin et al. (Cowardin, et. al., 1979), Eggers and Reed (Eggers, S. D., Reed D. M., 2011), and Shaw and Fredine (Shaw, S. P., Fredine, C. G., 1959).

Waterbodies (i.e., ponds, creeks, streams, rivers) were identified by the presence of an ordinary high water mark (OHWM). Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; destruction of terrestrial vegetation; the presence of litter and debris; and watermarks on structures that are inundated during normal high water conditions. Streams were classified as perennial, intermittent, or ephemeral based on field observations and review of depth to water table and flood frequency data available from the USDA NRCS. The OHWM typically represents the potential limits of the USACE jurisdiction. The USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

General and focused surveys were conducted, traversing the entire Project area to search for wetlands, waterbodies, and sensitive species habitats. These field surveys were conducted on May 31 and August 15, 2016. Wetlands, waterbodies, and natural resource features surveyed are depicted on the maps in Appendix A.

Merjent reviewed the National Climate Data Center, National Oceanic and Atmospheric Administration and Minnesota Climatology Working Group climatological data (National Oceanic and Atmospheric Administration, 2016; University of Minnesota, 2016). Table 1 indicates monthly recorded rainfall for the 3 months prior to field surveys relative to the long term precipitation averages recorded at the Fergus Fall Municipal Airport. Precipitation data indicates that field conditions during the time of field survey were drier than average in May and wetter than average in August.

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Departure From Normal
March	0.34	1.08	-0.74
April	2.13	1.50	+0.63
May	1.80	2.76	-0.96
Total	4.27	5.34	-1.07(-20%)
June	2.30	1.94	+0.36
July	5.65	5.75	-0.10
August 1 - 15	4.47	2.25	+2.22
Total	12.42	9.94	+2.48 (+24%)

RESULTS

General Landscape Characterization

The Project is within Land Resource Region M, Central Feed Grains and Livestock Region and is further defined by its presence within the Rolling Till Prairies – 102A Major Land Resource Area (MLRA). The Project lies within a stagnation moraine associated with the Big Stone Moraine Complex deposited by the Des Moines Lobe approximately 14,000 years ago. Physiography of this area is nearly level to rolling topography with a difference in elevation commonly ranging from 10 to 50 feet. The steeper slopes occur on the sides of drainages and on breaks adjacent to some of the larger tributaries. Drainage in the area is ill-defined and depressions including prairie pothole lakes, ponds, and marshes are common. Most of the area is covered by 100 to 400 feet of glacial drift or till and is underlain by Cretaceous Pierre Shale (U.S. Department of Agriculture, 2006).

Climate

Annual precipitation in the Project area ranges from 25 to 30 inches, with 11 to 13 inches occurring during the growing-season. Rainfall typically occurs as high-intensity, convective thunderstorms during the summer. Precipitation in winter occurs mostly as snow. The average annual temperature is 38 to 45 degrees Fahrenheit (4 to 7 degrees Celsius). Growing-season length is approximately 147 to 152 days (Midwest Climate Center, 1992).

Vegetation and Landcover

Using the Minnesota Department of Natural Resources (MDNR) ecological classification system, the Project is within the Prairie Parkland Province, North Central Glaciated Plains Section, and Minnesota River Prairie Subsection. The pre-settlement vegetation was primarily tallgrass prairie, with many islands of wet prairie (Kratz and Jensen 1983, Marschner, 1974). Forests of silver

maple (*Acer saccharinum*), elm (*Ulmus americana*), eastern cottonwood (*Populus deltoides*), and willow (*Salix spp.*) grew on floodplains along the Minnesota River and other streams. Portions of the Big Stone Moraine supported dry and dry-mesic prairie (Wheeler et al. 1992). Little bluestem (*Schizachyrium scoparium*) was generally the dominant grass; other major mid-height grasses were side-oats grama (*Bouteloua curtipendula*), prairie dropseed (*Sporobolus heterolepis*), porcupine grass (*Stipa spartea*), and plains muhly (*Muhlenbergia cuspidata*). Presently agriculture is the dominant land use.

Wetlands

A total of 16 wetlands were delineated within the Environmental Survey Area for the Project. Table 2 identifies the wetland identification number; classification including Cowardin, Eggers & Reed, and Circular 39; and the acres within the Environmental Survey Area. Where wetlands are a complex of classifications, each type is presented individually in the table. Topographic maps showing the location of each wetland is provided in Appendix A. Topographic based maps including soil survey data are provided in Appendix B. Photos for each wetland and corresponding upland point are provided in Appendix C. Datasheets for each wetland and corresponding upland point are provided in Appendix D.

Feature ID	Cowardin	Eggers & Reed	Circular 39	Acres Within Environmental Survey Area
133n43w27-w01a	PEM	Fresh (Wet) Meadow	Type 2	1.77
133n43w27-w01b	PSS	Shrub-Carr	Type 6	0.03
133n43w27-w01c	PSS	Shrub-Carr	Type 6	0.04
133n43w27-w01d	PEM	Deep Marsh	Type 4	0.13
133n43w28-w01a	PEM	Fresh (Wet) Meadow	Type 2	0.08
133n43w28-w02a	PEM	Fresh (Wet) Meadow	Type 2	0.31
133n43w28-w02b	PEM	Shallow Marsh	Type 3	0.07
133n43w28-w03a	PEM	Fresh (Wet) Meadow	Type 2	0.15
133n43w28-w03b	PEM	Shallow Marsh	Type 3	0.06
133n43w28-w04a	PSS	Shrub-Carr	Type 6	0.13
133n43w28-w04b	PEM	Deep Marsh	Type 4	0.37
133n43w28-w04c	PEM	Fresh (Wet) Meadow	Type 2	0.69
133n43w28-w05a	PEM	Fresh (Wet) Meadow	Type 2	1.45
133n43w28-w05b	PEM	Deep Marsh	Type 4	0.27
133n43w28-w05c	PEM	Deep Marsh	Type 4	0.26
133n43w28-w05d	PUB	Shallow, Open Water	Type 5	2.65
133n43w28-w05e	PEM	Deep Marsh	Type 4	0.18
133n43w28-w05f	PEM	Deep Marsh	Type 4	0.07
133n43w28-w06a	PFO	Hardwood Swamp	Type 7	0.18
133n43w28-w06b	PUB	Shallow, Open Water	Type 5	1.09
133n43w28-w06c	PEM	Shallow Marsh	Type 3	2.64
133n43w29-w01a	PEMC	Fresh (Wet) Meadow	Type 2	0.90
133n43w29-w01b	PEMC	Shallow Marsh	Type 3	0.19
133n43w29-w02	PEMC	Fresh (Wet) Meadow	Type 2	0.15
133n43w29-w03	PEMC	Seasonally Flooded Basin	Type 1	0.19
133n43w30-w01	PEM	Shallow Marsh	Type 3	0.12
133n43w30-w02	PEM	Fresh (Wet) Meadow	Type 2	0.67

Table 2
Wetlands Within the Environmental Survey Area of the Fergus Falls Replacement Project

Feature ID	Cowardin	Eggers & Reed	Circular 39	Acres Within Environmental Survey Area
133n43w30-w03	PEM	Shallow Marsh	Type 3	7.08
133n43w30-w04a	PEMC	Shallow Marsh	Type 3	7.47
133n43w30-w04b	PEMB	Fresh (Wet) Meadow	Type 2	2.15
133n43w30-w05	PEM	Fresh (Wet) Meadow	Type 2	0.06
133n43w30-w06	PEM	Fresh (Wet) Meadow	Type 2	0.09

Field surveys conducted for the Project identified palustrine emergent wetlands (PEM) within the Environmental Survey Area to be predominantly disturbed and composed of reed canary grass (*Phalaris arundinacea*) and hybrid cattail (*Typha X glauca*). Palustrine scrub-shrub (PSS) wetlands included wild plum (*Prunus americana*) and sandbar willow (*Salix interior*). Palustrine forested (PFO) wetlands consisted of eastern cottonwood (*Populus deltoids*), pussy willow (*Salix discolor*) and sandbar willow. Palustrine unconsolidated bottom wetlands (PUB) within the survey area included semi-permanently flooded shallow open water.

Adjacent upland was predominantly cultivated cropland planted in soybeans (*Glycine max*) and corn (*Zea mays*). Upland grassland within the survey area consisted primarily of non-native species including smooth brome (*Bromus inermis*) and Kentucky bluegrass (*Poa pratensis*). However, within the Fergus Falls State Wildlife Management Area (WMA), big bluestem (*Andropogon gerardii*), a native species of grass, was also present.

A planted grove was present within the WMA bordering County Highway 88 and was composed of balsam fir (*Abies balamea*), red maple (*Acer negundo*), Russian olive (*Eleagnus angustifolia*), Tartarian honeysuckle (*Lonicera tatarica*), and eastern red-cedar (*Juniperus virginiana*). A row of planted trees and shrubs were also present within the WMA along Deerfield Drive and consisted of green ash (*Fraxinus pennsylvanica*), white spruce (*Picea glauca*), Tartarian honeysuckle, Russian olive, eastern red-cedar, and common buckthorn (*Rhamnus cathartica*).

Waterbodies

A total of five waterbodies were delineated within the Environmental Survey Area for the Project. Table 3 identifies the waterbody identification number, Cowardin classification, and the waterbody acreage or stream length within the Environmental Survey Area. Aerial photo based maps showing the location of each waterbody is provided in Appendix A. Topographic based maps including soil survey data are provided in Appendix B. Photos for each waterbody are provided in Appendix C. Datasheets are provided in Appendix D.

Table 3
Waterbodies Within the Environmental Survey Area of the Fergus Falls Replacement Project

Feature_ID	Cowardin Classification	Feature Type	Waterbody Area (acres)/ Stream length(feet) within Environmental Survey Area
133n43w27-w01	L2UBG	Pond	0.71
133n43w27-s01	Ditch	Perennial	304.43
133n43w27-s02	Ditch	Intermittent	113.85
133n43w30-s01	R4SB	Intermittent	351.63
133n43w30-s02	Ditch	Ephemeral	130.65

Hydrology

The Fergus Falls Pipeline Replacement Project is within the City of Fergus Falls – Otter Tail River and the Pelican River hydrologic units. The western portion of the Project commencing from approximately 215 feet east of 170th Avenue is within the Pelican River hydrologic unit and is drained by the Pelican River, which flows generally south to its confluence with the Otter Tail River west of the city of Fergus Falls. The eastern 2.45 miles of the Project is within the Fergus Falls – Otter Tail River hydrologic unit and is drained by the Otter Tail River, which flows generally eastward to its confluence with the Red River of the North in the city of Wahpeton, North Dakota. The mean annual flow volume is approximately 253.3 cubic feet per second (cfs) at the watershed outlet.

Primary wetland hydrology indicators met during the wetland delineation for the Project were High Water Table (A2) and Saturation (A3). Secondary indicators of wetland hydrology were Geomorphic Position (D2), Drainage Patterns (B10), and FAC-Neutral Test (D5). Upland areas failed to meet wetland indicators defined in the respective USACE regional supplements. Field recorded hydrology data for each wetland and corresponding upland point are provided in the data sheets in Appendix D.

Soils

Well- to moderately well-drained loamy soils formed in gray calcareous till of Des Moines lobe origin are dominant. This fine-loamy till is characterized by more than 18 percent clay, typically less than 50 percent sand, and a high content of shale. Most of the area is comprised of Udolls and Aquolls on relatively level topography, generally with 15 feet or less of local relief. Dry prairie soils (primarily Ustolls) are also present on level to gently rolling topography which occupy convex knobs on the landscape (U.S. Department of Agriculture, 2001). Table 4 identifies soils mapped within the Environmental Survey Area.

Map Unit ID	Map Unit Name	Acres with the Survey Area
1016	Udorthents, loamy (cut and fill land)	3.60
1237	Lakepark-Parnell, occasionally ponded, complex, 0 to 2 percent slopes	26.71
1239	Quam silty clay loam, occasionally ponded, 0 to 1 percent slopes	11.48
184	Hamerly loam	3.31
26	Aazdahl clay loam	8.52
290	Rothsay silt loam	19.48
34	Parnell silty clay loam, occasionally ponded, 0 to 1 percent slopes	5.22
494	Darnen loam, moderately wet	3.35
497	Hantho silt loam	2.19
902B	Hokans-Buse complex, 2 to 6 percent slopes	72.66
903C2	Barnes-Buse complex, 6 to 12 percent slopes, moderately eroded	27.85
969C2	Zell-Rothsay complex, 6 to 12 percent slopes, eroded	16.68
W	Water	0.15

Hydric soil indicators met most often during the wetland delineation for the Project were Redox Dark Surface (F6), Depleted below Dark Surface (A11), and Loamy Mucky Mineral (F1). Upland areas either failed to meet hydric soil criteria, wetland criteria for vegetation, or hydrology as defined in the respective USACE regional supplements. Field recorded soils data for each wetland and respective upland point are provided in the data sheets in Appendix D.

Federal and State Protected Species

A desktop analysis and field-based habitat assessment for federally- and state-listed species was conducted for the Project within the Environmental Study Area. The desktop analysis was conducted prior to field surveys to further identify potential habitats within the Project Environmental Study Area, such that field-based habitat assessments could be conducted in targeted areas.

The USFWS Environmental Conservation Online System: *Information for Planning and Conservation* (USFWS, 2015) was accessed to obtain information regarding federally listed species or designated critical habitat that may be present within the Project's Environmental Survey Area. This information does not represent a comprehensive survey, but rather acknowledges the potential presence of listed species within the Environmental Survey Area. The USFWS identifies one threatened and one endangered species that have the potential to occur within the Project Environmental Survey Area (see Table 5). However, no critical habitat for these species is currently identified within the Environmental Survey Area.

Merjent reviewed the MDNR Natural Heritage Information System for information on Minnesota's rare plants, animals, native plant communities, Sites of Biodiversity Significance, and other rare features that are known to occur within one mile of the Project Environmental Survey Area. Available data describing the life history, critical habitat, and conservation measures associated with each species were reviewed. Such data was retrieved from sources including the USFWS Endangered Species Database, NatureServe Explorer Online Encyclopedia of Life, MDNR Rare Species Guide, and relevant scientific journals and publications (see References). Table 5 provides a summary of this review.

Species Name	Status	Habitat Description	Suitable Habitat Present (Yes/No)
Mollusks			
Black Sandshell <i>Ligumia recta</i>	State Special Concern	Riffle and run areas of medium to large rivers in areas dominated by sand or gravel. Two National Heritage Inventory (NHI) occurrence are from the Otter Tail River. One live specimen found in 1994, only dead specimens observed in 2004.	No
Fluted-shell <i>Lasmigona costa</i>	State Threatened	Medium to large rivers dominated by gravel substrates in areas with swift currents and water that is at least 0.6 m deep. Two NHI occurrence are from the Otter Tail River. Three live specimen found in 1994, only one dead specimen observed in 2004.	No
Mammals			
Northern Long Eared Bat <i>Myotis septentrionalis</i>	Federal Endangered	Hibernates in caves and mines; roosts and forages in upland forests.	Yes

Species Name	Status	Habitat Description	Suitable Habitat Present (Yes/No)
Gray Wolf <i>Canis lupus</i>	Federal Threatened	Wide range of habitat, forests, plains, prairies, agricultural areas, swamps, and barren lands	Yes
Plants			
Small White Lady's-slipper <i>Cypripedium candidum</i>	State Special Concern	Deep-soil mesic prairies and wet prairies, certain types of sedge meadows, and calcareous. Does not occur in habitats with a history of livestock grazing or crop production. The soils are primarily calcareous till or lacustrine clays, or occasionally fibric, sedge-derived peat. One NHI record indicates many <i>C. candidum</i> observed within a WPA approximately one mile north of the project area in 1980.	No

Field surveys conducted for the Project on May 31, 2016 included a survey for the Small white lady's slipper. The Environmental Survey Area did not include any areas of mesic or wet prairies, sedge meadows, or calcareous fens. All areas were actively or previously cultivated agricultural land or disturbed by urban development. No suitable habitat or plants were identified within the Project area.

Raptor Surveys

To assess the potential for impact to raptors, field surveys for the Project included a 0.5-mile line of site raptor nest survey. No raptor, bald eagle, or golden eagle nests were observed during these surveys. However, two bald eagles and one red-tailed hawk were present within the Environmental Survey Area. According to review of MDNR NHI data, no bald or golden eagle or other raptors are documented as nesting within one mile of the Project area.

Wildlife

Some of the major wildlife species present in the vicinity of the Project are white-tailed deer, beaver, mink, pheasant, gray partridge, Canada goose, mallard, blue-winged teal, wood duck, northern shoveler, pintail, ruddy duck, widgeon, redhead, canvasback, chestnut-collared longspur, marbled godwit, and upland plover. Species observed during field surveys for the Project are presented in Table 6.

Common Name	Scientific Name
Birds	
Canada Goose	<i>Branta canadensis</i>
American Crow	<i>Corvus brachyrhynchos</i>
American Goldfinch	<i>Spinus tristis</i>
American Robin	<i>Turdus migratorius</i>
American White Pelican	<i>Pelecanus erythrorhynchos</i>
Bald Eagle	<i>Haliaeetus leucocephalus</i>
Baltimore Oriole	<i>Icterus galbula</i>
Bank Swallow	<i>Riparia riparia</i>

Common Name	Scientific Name
Barn Swallow	<i>Hirundo rustica</i>
Blue-winged Teal	<i>Anas discors</i>
Bobolink	<i>Dolichonyx oryzivorus</i>
Brown Thrasher	<i>Toxostoma rufum</i>
Brown-headed Cowbird	<i>Molothrus ater</i>
Chipping Sparrow	<i>Spizella passerina</i>
Clay-colored Sparrow	<i>Spizella pallida</i>
Common Grackle	<i>Quiscalus quiscula</i>
Common Nighthawk	<i>Chordeiles minor</i>
Common Yellowthroat	<i>Geothlypis trichas</i>
Double-crested Cormorant	<i>Phalacrocorax auritus</i>
Eurasian Collared-Dove	<i>Streptopelia decaocto</i>
European Starling	<i>Sturnus vulgaris</i>
Gadwall	<i>Anas strepera</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Great Blue Heron	<i>Ardea herodias</i>
Great Egret	<i>Ardea alba</i>
Green Heron	<i>Butorides virescens</i>
Herring Gull	<i>Larus argentatus</i>
Horned Lark	<i>Eremophila alpestris</i>
House Sparrow	<i>Passer domesticus</i>
House Wren	<i>Troglodytes aedon</i>
Killdeer	<i>Charadrius vociferus</i>
Least Flycatcher	<i>Empidonax minimus</i>
Mallard	<i>Anas platyrhynchos</i>
Mourning Dove	<i>Zenaida macroura</i>
Red-tailed Hawk	<i>Buteo jamaicensis</i>
Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Ring-necked Duck	<i>Aythya collaris</i>
Rock Pigeon (Feral Pigeon)	<i>Columba livia</i>
Ruddy Duck	<i>Oxyura jamaicensis</i>
Sedge Wren	<i>Cistothorus platensis</i>
Song Sparrow	<i>Melospiza melodia</i>
Tree Swallow	<i>Tachycineta bicolor</i>
Trumpeter Swan	<i>Cygnus buccinator</i>
Turkey Vulture	<i>Cathartes aura</i>
Yellow Warbler	<i>Setophaga petechia</i>
Yellow-headed Blackbird	<i>Xanthocephalus xanthocephalus</i>
Mammals, Reptiles, and Amphibians	
White-tailed deer	<i>Odocoileus virginianus</i>
Raccoon (secondary observation)	<i>Procyon lotor</i>
Gray squirrel	<i>Sciurus carolinensis</i>
Painted turtle	<i>Chrysemys picta</i>
Plains garter snake	<i>Thamnophis radix</i>

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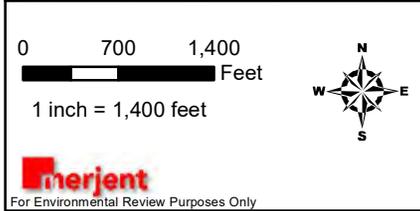
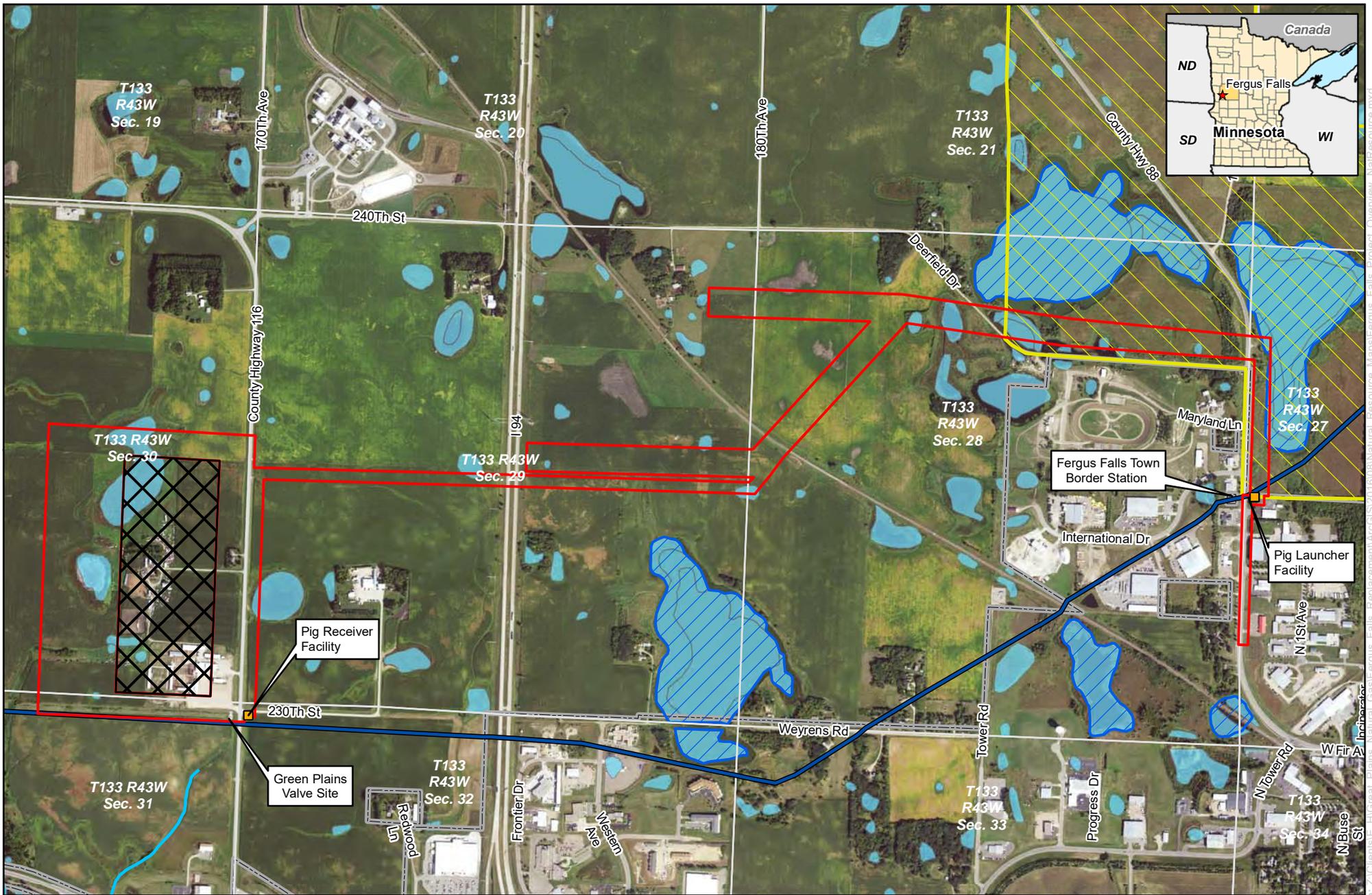
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APPENDIX A
Site Location Maps



Great Plains Natural Gas Co.
Fergus Falls Pipe Replacement
 Otter Tail County, Minnesota

Environmental Survey Area	Fergus Falls Wildlife Management Area
Non-Project Area	NWI Wetland
Existing Pipeline	Section Boundary
NHD Waterbody	City of Fergus Falls
PWI Waterbody	

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Source: 2:\Clients\121\Great Plains\Natural Gas\121\Natural Gas\121\Replacement\ArcGIS\121\Natural_Resource_Map\sw_ergus_falls_Project_Overview_MapResource.mxd Date: 01/10/2016



0 175 350 Feet
1 inch = 350 feet

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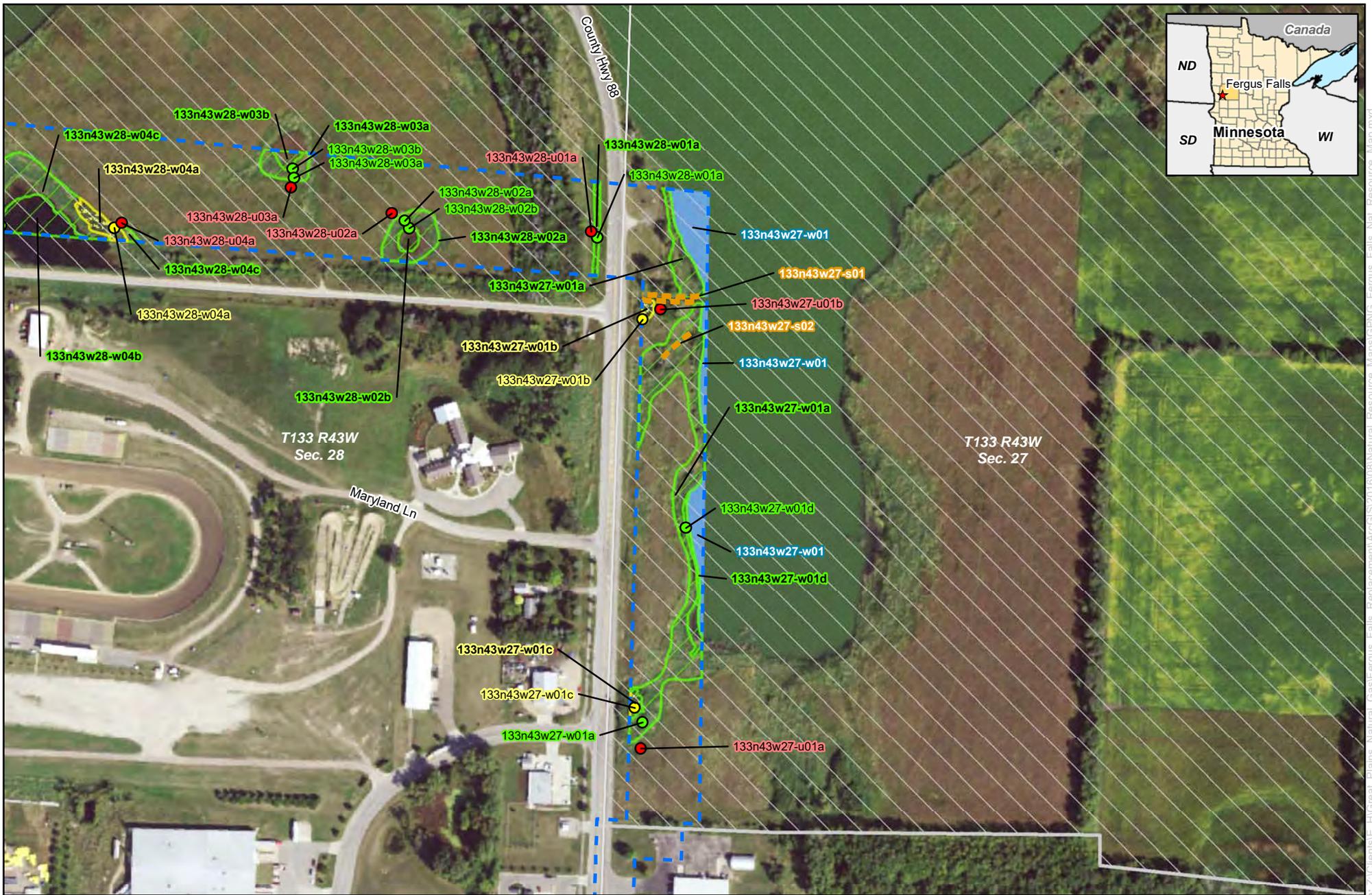
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Figure 1

Great Plains Natural Gas Co. Fergus Falls Pipeline Replacement Project Otter Tail County, Minnesota

<ul style="list-style-type: none"> Survey Corridor Fergus Falls Wildlife Management Area Section Boundary Field Surveyed Stream Type Ditch R4SB 	Field Surveyed Wetland Classification <ul style="list-style-type: none"> PEM PFO PSS PUB L2UB Waterbody 	USACE Point <ul style="list-style-type: none"> PEM PFO PSS PUB Upland
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0 175 350 Feet
1 inch = 350 feet

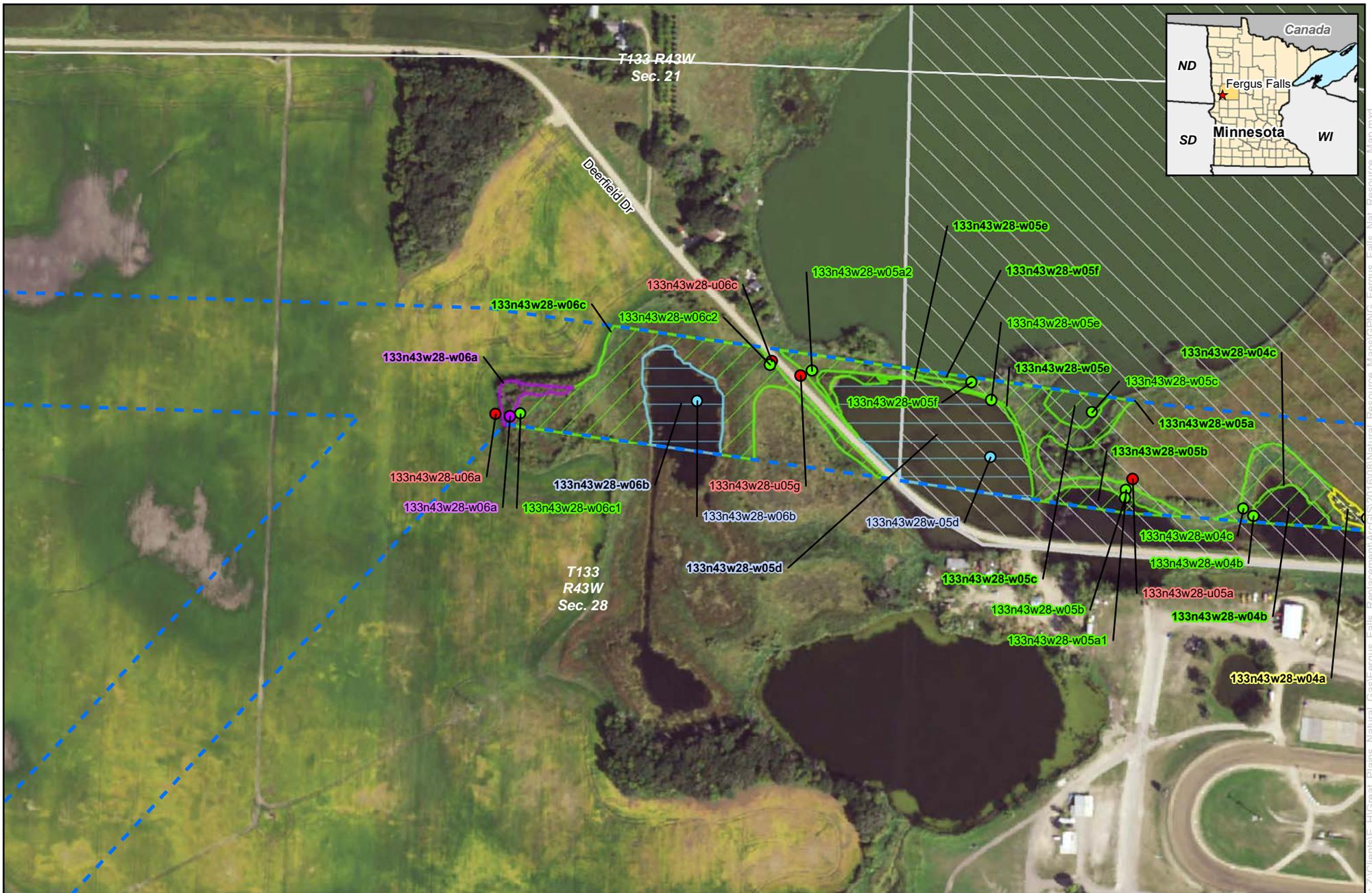
merjent
For Environmental Review Purposes Only

Page 2 of 7

Figure 1
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota

<ul style="list-style-type: none"> Survey Corridor Fergus Falls Wildlife Management Area Section Boundary Field Surveyed Stream Type Ditch R4SB 	Field Surveyed Wetland Classification <ul style="list-style-type: none"> PEM PFO PSS PUB L2UB Waterbody 	USACE Point <ul style="list-style-type: none"> PEM PFO PSS PUB Upland
---	--	--

Source: Z:\Clients\14_H\Great_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS\20160608Natural_Resource_Maps\GPNG_Fergus_Falls_Nat_Resource_Map.mxd Date: 01/17/2016



0 175 350 Feet
1 inch = 350 feet

merjent
For Environmental Review Purposes Only

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Figure 1

Great Plains Natural Gas Co. Fergus Falls Pipeline Replacement Project

Otter Tail County, Minnesota

Survey Corridor	Field Surveyed Wetland Classification	USACE Point
Fergus Falls Wildlife Management Area	PEM	PFO
Section Boundary	PFO	PSS
Field Surveyed Stream Type	PSS	PUB
Ditch	PUB	Upland
R4SB	L2UB Waterbody	

Date: 01/17/2016 Source: Z:\Clients\IE_H\Creat_Plains_Natural_Gas\Fergus_Falls_Replacement\A\GIS\2016\08\Natural_Resource_Maps\GPNG_Fergus_Falls_Nat_Resource_Map.mxd



0 175 350 Feet
1 inch = 350 feet

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Page 4 of 7

Figure 1
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota

<ul style="list-style-type: none"> Survey Corridor Fergus Falls Wildlife Management Area Section Boundary Field Surveyed Stream Type Ditch R4SB 	Field Surveyed Wetland Classification <ul style="list-style-type: none"> PEM PFO PSS PUB L2UB Waterbody 	USACE Point <ul style="list-style-type: none"> PEM PFO PSS PUB Upland
---	--	--

Date: (01/17/2016) Source: Z:\Clients\IE_H\Create_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS\2016\001Natural_Resource_Maps\CPNG\Fergus_Falls_Nat_Resource_Map.mxd



0 175 350 Feet
1 inch = 350 feet

merjent
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Figure 1
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota

<ul style="list-style-type: none"> Survey Corridor Fergus Falls Wildlife Management Area Section Boundary <p>Field Surveyed Stream Type</p> <ul style="list-style-type: none"> Ditch R4SB 	<p>Field Surveyed Wetland Classification</p> <ul style="list-style-type: none"> PEM PFO PSS PUB L2UB Waterbody 	<p>USACE Point</p> <ul style="list-style-type: none"> PEM PFO PSS PUB Upland
--	---	---

Source: Z:\Clients\IE_H\Creat_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS2016008Natural_Resource_Maps\CPNG_Fergus_Falls_Nat_Resource_Map.mxd Date: 01/17/2016



0 175 350 Feet
1 inch = 350 feet

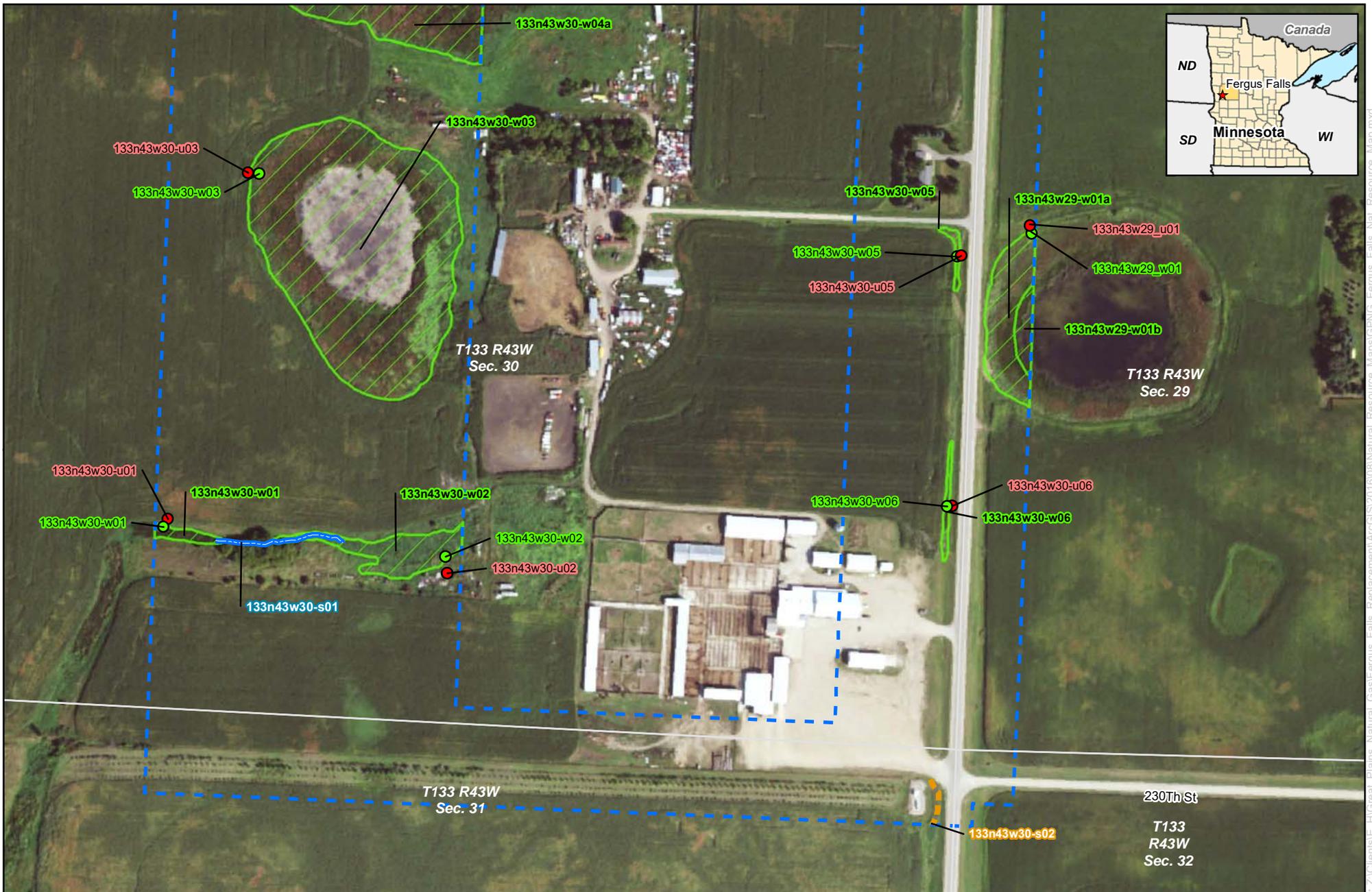
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For Environmental Review Purposes Only

Page 6 of 7

Figure 1
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota

<ul style="list-style-type: none"> Survey Corridor Fergus Falls Wildlife Management Area Section Boundary Field Surveyed Stream Type Ditch R4SB 	Field Surveyed Wetland Classification <ul style="list-style-type: none"> PEM PFO PSS PUB L2UB Waterbody 	USACE Point <ul style="list-style-type: none"> PEM PFO PSS PUB Upland
---	--	--

Date: (01/17/2016) Source: Z:\Clients\IE_H\Creat_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS2016\001Natural_Resource_Maps\CPNG_Fergus_Falls_Nat_Resource_Map.mxd



0 175 350 Feet
1 inch = 350 feet

merjent
For Environmental Review Purposes Only

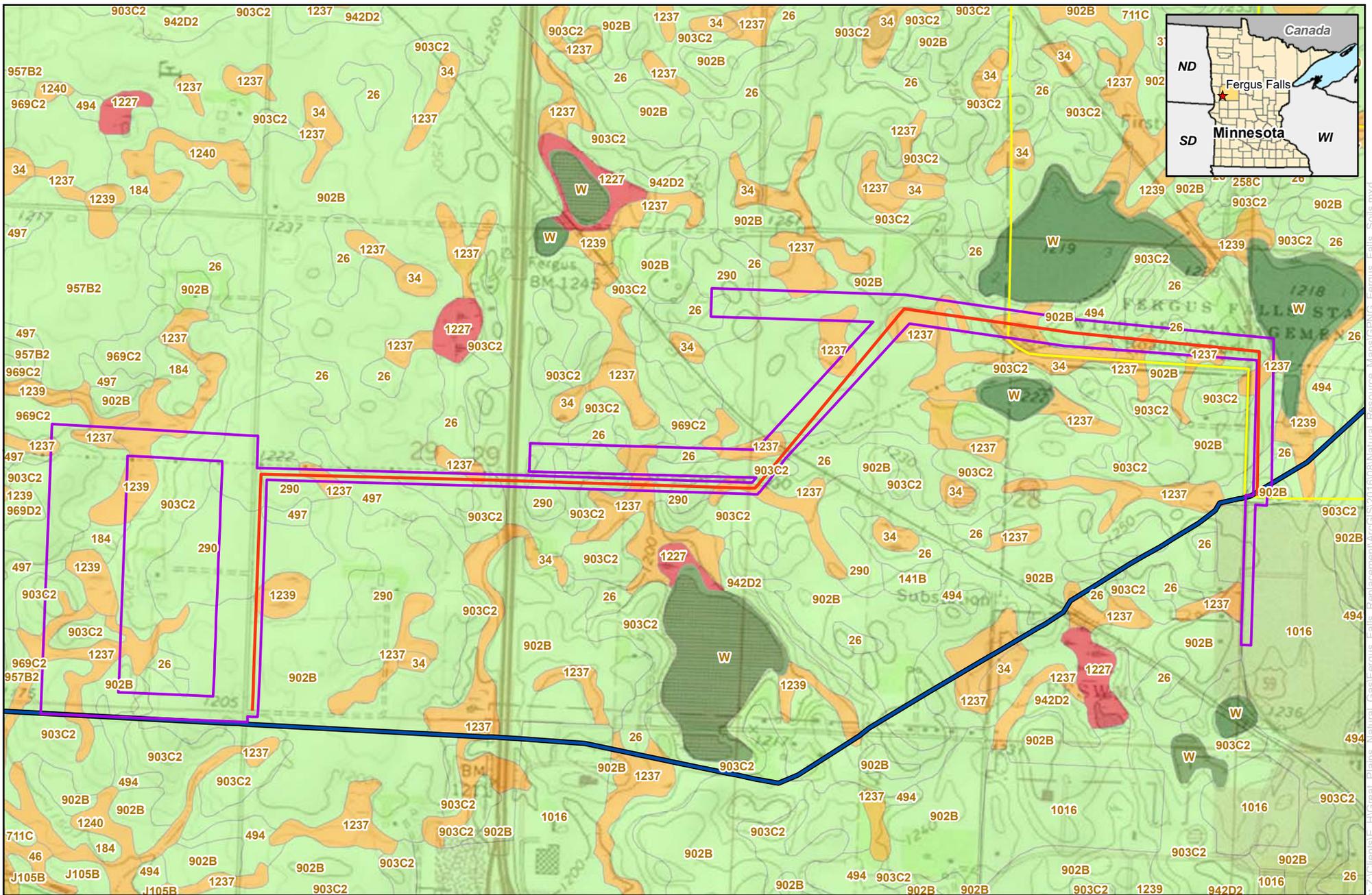
Page 7 of 7

Figure 1
Great Plains Natural Gas Co.
Fergus Falls Pipeline Replacement Project
Otter Tail County, Minnesota

<ul style="list-style-type: none"> Survey Corridor Fergus Falls Wildlife Management Area Section Boundary Field Surveyed Stream Type Ditch R4SB 	Field Surveyed Wetland Classification <ul style="list-style-type: none"> PEM PFO PSS PUB L2UB Waterbody 	USACE Point <ul style="list-style-type: none"> PEM PFO PSS PUB Upland
---	--	--

Source: Z:\Clients\IE_H\Creat_Plains_Natural_Gas\Fergus_Falls_Replacement\ArcGIS\2016\08\Natural_Resource_Maps\CHPVG_Fergus_Falls_Nat_Resource_Map.mxd Date: 01/17/2016

APPENDIX B
Soil Survey Maps



0 700 1,400 Feet
1 inch = 1,400 feet

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For Environmental Review Purposes Only

Great Plains Natural Gas Co.
Fergus Falls Pipe Replacement
Soils Map
 Otter Tail County, Minnesota

<ul style="list-style-type: none"> — Replacement Segment — Existing Pipeline Environmental Study Area Fergus Falls Wildlife Management Area 	<p>Soil Hydric Rating</p> <ul style="list-style-type: none"> Hydric (100%) Hydric (66 to 99%) Hydric (33 to 65%) Hydric (1 to 32%) Not Hydric (0%)
--	---

Date: 01/06/2010 Source: Z:\Clients\E_H\Great_Plains_Natural_Gas\Fergus_Falls_Pipe_Replacement\work\csl\2010\Natural_Resource_Maps\GRVNC_Maps\GRVNC_Fergus_Falls_Soils.mxd

APPENDIX C
Site Photographs

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PSS wetland 133n43w27-w01b



PEM wetland 133n43w27-w01a



PEM wetland 133n43w27-w01d



PEM wetland 133n43w27-w01d



PEM wetland 133n43w28-w01a



PEM wetland 133n43w28-w01a

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PEM wetland 133n43w28-w02a



PEM wetland 133n43w28-w02a



PEM wetland 133n43w28-w02b



PEM wetland 133n43w28-w02b



PEM wetland 133n43w28-w03a



PEM wetland 133n43w28-w03a

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PEM wetland 133n43w28-w03b



PEM wetland 133n43w28-w03b



PSS wetland 133n43w28-w04a



PSS wetland 133n43w28-w04a



PEM wetland 133n43w28-w04b



PEM wetland 133n43w28-w04b

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PEM wetland 133n43w28-w04c



PEM wetland 133n43w28-w04c



PEM wetland 133n43w28-w05a



PEM wetland 133n43w28-w05a



PEM wetland 133n43w28-w05b



PEM wetland 133n43w28-w05b

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PEM wetland 133n43w28-w05c



PEM wetland 133n43w28-w05d



PUB wetland 133n43w28-w05d



PEM wetland 133n43w28-w05e



PEM wetland 133n43w28-w05f



PEM wetland 133n43w28-w05a
(west corner)

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PEM wetland 133n43w28-w05a
(west corner)



PFO wetland 133n43w28-w06a



PFO wetland 133n43w28-w06a



PEM wetland 133n43w28-w06c



PEM wetland 133n43w28-w06c



PEM wetland 133n43w28-w06c

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PEM wetland 133n43w28-w06c



PUB wetland 133n43w28-w06b



PUB wetland 133n43w28-w06b



PEM wetland 133n43w29-w01a;
east



PEM wetland 133n43w29-w01a;
north



Upland 133n43w29-u02; NW1
identified as wetland

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



Upland 133n43w29-u02; NWI
identified as wetland



Upland 133n43w29-u03; NWI
identified as wetland



Upland 133n43w29-u03; NWI
identified as wetland



PEM wetland 133n43w30-w01a;
south



Upland 133n43w30-u01a; north



PEM wetland 133n43w30-w02a;
north

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



Upland 133n43w30-u02a; south



PEM wetland 133n43w30-w03a;
east



Upland 133n43w30-u03a; north



PEM wetland 133n43w30-w04a;
north



Upland 133n43w30-u04a; east



PEM wetland 133n43w30-w05a;
north

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



PEM wetland 133n43w30-w06a



Stream 133n43w30-s01; west



Stream 133n43w30-s01;
cross stream



Stream 133n43w30-s01; east



Stream 133n43w30-s02; west



PEM wetland 133n43w29-w01a;
south

GREAT PLAINS NATURAL GAS COMPANY Fergus Falls Pipeline Replacement Project
Wetland Delineation and Stream Assessment Photos



Upland 133n43w29-u01; north



PEM wetland 133n43w29-w02; east



Upland 133n43w29-u02; west



PEM wetland 133n43w29-w03;
west



Non-NWI Upland
133n43w29-u04; east



I 94 west side facing east

APPENDIX D
Data Forms

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w27-w01a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-27
 Landform (hillslope, terrace, etc.): Toeslope Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.304778 Long: -96.091222 Datum: WGS84
 Soil Map Unit Name: Aazdahl clay loam NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: Feature is a wet meadow sloping towards open water within a WMA grassland. Vegetation is dominated by reed canary grass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. <u>Salix interior</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>5</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>80</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

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: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 85 x 2 = 170
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 85 (A) 170 (B)
 Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Remarks: (Include photo numbers here or on a separate sheet.) Community is reed canary grass dominated swale leading to an open waterbody.	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
---	--

SOIL

Sampling Point: 133n43w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR	2/1	100					MMI	Clayey.
6-18	10YR	2/1	100					CL	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
---	--

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Remarks:
Soil is a mucky mineral underlain by clay loam.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>8</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>5</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Open water is present elsewhere in the wetland.	

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w27-u01a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-27
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): VC
 Slope (%): 3-7% Lat: 46.304592 Long: -96.091225 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The upland point is dominated by smooth brome and Kentucky bluegrass and located between a road and a large wetland complex.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. <u>Salix interior</u>	<u>2</u>	<u>N</u>	<u>FACW</u>	
2. <u>Fraxinus pennsylvanica</u>	<u>2</u>	<u>N</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>4</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Bromus inermis</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Poa pratensis</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>60</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 4 x 2 = 8
 FAC species 20 x 3 = 60
 FACU species 40 x 4 = 160
 UPL species 0 x 5 = 0
 Column Totals: 64 (A) 228 (B)
 Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Remarks: (Include photo numbers here or on a separate sheet.) Community is dominated by smooth brome and Kentucky bluegrass.	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
---	--

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w27-w01b
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 27
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 30 Lat: 46.307725 Long: -96.091381 Datum: _____
 Soil Map Unit Name Lakepark-Parnell, occasionally flooded, complex, 0 to 2 % slope NWI Classification: PSS

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1					Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	
2					Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3					Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4						
5						
		<u>0</u>	= Total Cover			
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				Prevalence Index Worksheet	
1	<u>Salix amygdaloides</u>	<u>95</u>	<u>Y</u>	<u>FACW</u>	Total % Cover of:	
2	<u>Populus deltoides</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	OBL species <u>0</u> x 1 = <u>0</u>	
3					FACW species <u>205</u> x 2 = <u>410</u>	
4					FAC species <u>5</u> x 3 = <u>15</u>	
5					FACU species <u>0</u> x 4 = <u>0</u>	
		<u>100</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
					Column totals <u>210</u> (A) <u>425</u> (B)	
					Prevalence Index = B/A = <u>2.02</u>	
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators:	
1	<u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	<input type="checkbox"/> Rapid test for hydrophytic vegetation	
2	<u>Solidago gigantea</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Dominance test is >50%	
3					<input checked="" type="checkbox"/> Prevalence index is ≤3.0*	
4					Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5					Problematic hydrophytic vegetation* (explain)	
6						
7						
8						
9						
10						
		<u>110</u>	= Total Cover			
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>Y</u>	
1						
2						
		<u>0</u>	= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w27-w01b

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p> <p> </p> <p>*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic</p>
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<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> Y </u></p>
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Remarks:
Soils could not be sampled due to the presence of underground utilities; however, soil survey mapped location as hydric soils, and due to landscape position and dominance of hydrophytic vegetation, soils are assumed to be hydric.

HYDROLOGY

Wetland Hydrology Indicators:

<p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input checked="" type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input checked="" type="checkbox"/> Geomorphic Position (D2)</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> Y </u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w27-u01b
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 27
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None
 Slope (%): 0-2 Lat: 46.307804 Long: -96.091198 Datum: _____
 Soil Map Unit Name Lakepark-Parnell, occasionally flooded, complex, 0 to 2 % slope\NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil X, or hydrology _____ significantly disturbed? Are "normal circumstances" present? No
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? No

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)
 Spoil from ditch present.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet
1 <u>Fraxinus pennsylvanica</u>	20	Y	FACW	
2 _____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3 _____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>20</u> = Total Cover				
Sapling/Shrub stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3 _____	_____	_____	_____	FACW species <u>30</u> x 2 = <u>60</u>
4 _____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5 _____	_____	_____	_____	FACU species <u>100</u> x 4 = <u>400</u>
<u>0</u> = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
				Column totals <u>130</u> (A) <u>460</u> (B)
				Prevalence Index = B/A = <u>3.54</u>
Herb stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:
1 <u>Elymus repens</u>	90	Y	FACU	
2 <u>Cirsium arvense</u>	10	N	FACU	_____ Dominance test is >50%
3 <u>Echinocystis lobata</u>	5	N	FACW	_____ Prevalence index is ≤3.0*
4 <u>Phalaris arundinacea</u>	5	N	FACW	_____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
5 _____	_____	_____	_____	_____ Problematic hydrophytic vegetation* (explain)
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>110</u> = Total Cover				
Woody vine stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w27-u01b

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-7	10YR 2/1	100					Silty Clay	
7-21	2.5Y 5/2	90	10YR 5/8	10	C	M	Clay	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					
<input type="checkbox"/> Water-Stained Leaves (B9)					

Field Observations: Surface water present? Yes _____ No <u> X </u> Depth (inches): _____ Water table present? Yes _____ No <u> X </u> Depth (inches): _____ Saturation present? Yes _____ No <u> X </u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w01a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CL
 Slope (%): 0-2% Lat: 46.308321 Long: -96.091895 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: The feature is a wet roadside ditch with no defined bed or bank. Vegetation is dominated by reed canary grass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix discolor</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Salix interior</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>15</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Typha angustifolia</u>	<u>15</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Carex atherodes</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4. <u>Equisetum arvense</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>70</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
 Total Number of Dominant Species Across All Strata: 4 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 25 x 1 = 25
 FACW species 55 x 2 = 110
 FAC species 5 x 3 = 15
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 85 (A) 150 (B)
 Prevalence Index = B/A = 1.76

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
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Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by reed canary grass, narrow leaved cattail, and willow saplings with thatch covering much of the ground.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u01a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): VC
 Slope (%): 26-60% Lat: 46.308327 Long: -96.091959 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is on a slope leading to a wet ditch alongside a road.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix interior</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>10</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Medicago sativa</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Lotus corniculatus</u>	<u>15</u>	<u>Y</u>	<u>FACU</u>	
4. <u>Poa pratensis</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
5. <u>Galium boreale</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
6. <u>Cirsium arvense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>70</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 4 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 30 x 2 = 60
 FAC species 15 x 3 = 45
 FACU species 35 x 4 = 140
 UPL species 0 x 5 = 0
 Column Totals: 80 (A) 245 (B)
 Prevalence Index = B/A = 3.06

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Remarks: (Include photo numbers here or on a separate sheet.) Sample point is dominated by reed canary grass, alfalfa, and bird's-foot trefoil.	Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
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WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w02a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308376 Long: -96.093985 Datum: WGS84
 Soil Map Unit Name: Lakepark loam NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: The feature is a small depression of cattail surrounded by a fringe of reed canary grass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Phalaris arundinacea</u>	<u>85</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Typha X glauca</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>90</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>5</u>	x 1 = <u>5</u>
FACW species <u>85</u>	x 2 = <u>170</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>90</u> (A)	<u>175</u> (B)

Prevalence Index = B/A = 1.94

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0¹
- 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Sample point is dominated by reed canary grass.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u02a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CC
 Slope (%): 3-7% Lat: 46.308411 Long: -96.094077 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is located on a dry slope in a WMA grassland and dominated by Kentucky bluegrass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Poa pratensis</u>	<u>85</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>90</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		

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: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: Multiply by:
 OBL species 0 x 1 = 0
 FACW species 5 x 2 = 10
 FAC species 85 x 3 = 255
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 90 (A) 265 (B)
 Prevalence Index = B/A = 2.94

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by Kentucky bluegrass.

SOIL

Sampling Point: 133n43w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-12	10YR	2/1	100					CL	
12-18	10YR	3/2	100					C	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix.				
Hydric Soil Indicators:			Indicators for Problematic Hydric Soils³:						
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)			<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)			<input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)			
						³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
Restrictive Layer (if observed):									
Type: _____									
Depth (inches): _____									
						Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>			
Remarks:									
No hydric soil indicators were observed.									

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	
Field Observations:		
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
		Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		
No indicators of wetland hydrology were observed.		

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w03a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308646 Long: -96.095107 Datum: WGS84
 Soil Map Unit Name: Aazdahl clay loam NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: The feature is a small depression of cattail surrounded by a fringe of reed canary grass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Phalaris arundinacea</u>	<u>85</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Typha X glauca</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
3. <u>Persicaria amphibia</u>	<u>2</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>92</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				

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: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 7 x 1 = 7
 FACW species 85 x 2 = 170
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 92 (A) 177 (B)
 Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
--

Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by reed canary grass.

SOIL

Sampling Point: 133n43w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	2/1	100					MMI	Clayey.
4-14	10YR	2/1	100					CL	
14-20	10YR	4/2	85	7.5YR	4/6	15	C	M	C

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input checked="" type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
--	--

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Remarks:
The soil surface is mucky.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>10</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>4</u> (includes capillary fringe)	
Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Lower areas of the wetland contain surface water.	

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u03a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308566 Long: -96.095153 Datum: WGS84
 Soil Map Unit Name: Aazdahl clay loam NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is located on a dry slope in a WMA grassland and dominated by Kentucky bluegrass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Poa pratensis</u>	<u>85</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>90</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		

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: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 5 x 2 = 10
 FAC species 85 x 3 = 255
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 90 (A) 265 (B)
 Prevalence Index = B/A = 2.94

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)

Community is dominated by Kentucky bluegrass.

SOIL

Sampling Point: 133n43w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-14	10YR	2/1	100					CL	
14-20	10YR	4/2	98	10YR	4/6	2	C	M	C
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix.				
Hydric Soil Indicators:					Indicators for Problematic Hydric Soils³:				
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)					<input type="checkbox"/> Coast Prairie Redox (A16)				
<input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Sandy Redox (S5)					<input type="checkbox"/> Dark Surface (S7)				
<input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Stripped Matrix (S6)					<input type="checkbox"/> Iron-Manganese Masses (F12)				
<input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Mucky Mineral (F1)					<input type="checkbox"/> Very Shallow Dark Surface (TF12)				
<input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> Loamy Gleyed Matrix (F2)					<input type="checkbox"/> Other (Explain in Remarks)				
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Matrix (F3)					³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.				
<input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Redox Dark Surface (F6)									
<input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Depleted Dark Surface (F7)									
<input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Redox Depressions (F8)									
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)									
Restrictive Layer (if observed):									
Type: _____									
Depth (inches): _____					Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: Soils are hydric; however the plant community and hydrology indicate the area is upland.									

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		
Field Observations:			
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: No indicators of wetland hydrology were observed.			

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w04a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308228 Long: -96.096980 Datum: WGS84
 Soil Map Unit Name: Barnes-Langhei complex, 6 to 12 percent slopes, eroded NWI classification: PEMC

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: The sample point is located in a shrub-dominated wetland on the edge of a deep marsh. Vegetation is dominated by sandbar willow.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix interior</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>70</u> = Total Cover			
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Urtica dioica</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>55</u> = Total Cover			
Woody Vine Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

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: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 125 x 2 = 250
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 125 (A) 250 (B)
 Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: (Include photo numbers here or on a separate sheet.)
Community is dominated by sandbar willow and reed canary grass.

SOIL

Sampling Point: 133n43w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)	%	%	Color (moist)	%	Type ¹	Loc ²		
0-20	10YR	2/1	100					CL	
20-26	10YR	4/2	95	7.5YR	4/6	5	C	M	C
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix.				
Hydric Soil Indicators:					Indicators for Problematic Hydric Soils³:				
<input type="checkbox"/> Histosol (A1)					<input type="checkbox"/> Sandy Gleyed Matrix (S4)				
<input type="checkbox"/> Histic Epipedon (A2)					<input type="checkbox"/> Sandy Redox (S5)				
<input type="checkbox"/> Black Histic (A3)					<input type="checkbox"/> Stripped Matrix (S6)				
<input type="checkbox"/> Hydrogen Sulfide (A4)					<input type="checkbox"/> Loamy Mucky Mineral (F1)				
<input type="checkbox"/> Stratified Layers (A5)					<input type="checkbox"/> Loamy Gleyed Matrix (F2)				
<input type="checkbox"/> 2 cm Muck (A10)					<input type="checkbox"/> Depleted Matrix (F3)				
<input type="checkbox"/> Depleted Below Dark Surface (A11)					<input type="checkbox"/> Redox Dark Surface (F6)				
<input checked="" type="checkbox"/> Thick Dark Surface (A12)					<input type="checkbox"/> Depleted Dark Surface (F7)				
<input type="checkbox"/> Sandy Mucky Mineral (S1)					<input type="checkbox"/> Redox Depressions (F8)				
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)					<input type="checkbox"/> Coast Prairie Redox (A16)				
					<input type="checkbox"/> Dark Surface (S7)				
					<input type="checkbox"/> Iron-Manganese Masses (F12)				
					<input type="checkbox"/> Very Shallow Dark Surface (TF12)				
					<input type="checkbox"/> Other (Explain in Remarks)				
					³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.				
Restrictive Layer (if observed):								Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Type: _____									
Depth (inches): _____									
Remarks: Redox was observed in a depleted matrix below a thick dark surface.									

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)		
Field Observations:		Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Saturation Present? (includes capillary fringe)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks: Lower areas of the wetland contain surface water.			

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u04a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308278 Long: -96.096938 Datum: WGS84
 Soil Map Unit Name: Barnes-Langhei complex, 6 to 12 percent slopes, eroded 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is located on a dry slope in a WMA grassland and dominated by smooth brome and American plum.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. <u>Prunus americana</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Salix interior</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Bromus inermis</u>	<u>65</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Apocynum cannabinum</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Phalaris arundinacea</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
_____ = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 15 x 2 = 30
 FAC species 10 x 3 = 30
 FACU species 65 x 4 = 260
 UPL species 15 x 5 = 75
 Column Totals: 105 (A) 395 (B)
 Prevalence Index = B/A = 3.76

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
--

Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by smooth brome and American plum.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w05a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308377 Long: -96.099548 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: The sample point is located in a reed canary grass fringe of a deep marsh within a WMA grassland.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Phalaris arundinacea</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>90</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		

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: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: Multiply by:
 OBL species 0 x 1 = 0
 FACW species 90 x 2 = 180
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 90 (A) 180 (B)
 Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by reed canary grass.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u05a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308444 Long: -96.099515 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is located on a dry slope in a WMA grassland and dominated by Kentucky bluegrass and reed canary grass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Poa pratensis</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Bromus inermis</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>80</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 66.67 (A/B)

Prevalence Index worksheet:
 Total % Cover of: Multiply by:
 OBL species 0 x 1 = 0
 FACW species 20 x 2 = 40
 FAC species 40 x 3 = 120
 FACU species 20 x 4 = 80
 UPL species 0 x 5 = 0
 Column Totals: 80 (A) 240 (B)
 Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Remarks: (Include photo numbers here or on a separate sheet.) Community is dominated by Kentucky bluegrass, reed canary grass, and smooth brome.	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
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SOIL

Sampling Point: 133n43w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR	3/2	100					CL	
10-18	10YR	6/4	100					SC	
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.					² Location: PL=Pore Lining, M=Matrix.				
Hydric Soil Indicators:					Indicators for Problematic Hydric Soils³:				
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Sandy Gleyed Matrix (S4)					<input type="checkbox"/> Coast Prairie Redox (A16)				
<input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Sandy Redox (S5)					<input type="checkbox"/> Dark Surface (S7)				
<input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Stripped Matrix (S6)					<input type="checkbox"/> Iron-Manganese Masses (F12)				
<input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Loamy Mucky Mineral (F1)					<input type="checkbox"/> Very Shallow Dark Surface (TF12)				
<input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> Loamy Gleyed Matrix (F2)					<input type="checkbox"/> Other (Explain in Remarks)				
<input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Matrix (F3)					³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.				
<input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Redox Dark Surface (F6)									
<input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Depleted Dark Surface (F7)									
<input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Redox Depressions (F8)									
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)									
Restrictive Layer (if observed):									
Type: _____									
Depth (inches): _____					Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/>				
Remarks:									
No hydric soil indicators were observed.									

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Gauge or Well Data (D9)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Other (Explain in Remarks)	
Field Observations:		
Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
		Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:		
Remarks:		
No indicators of wetland hydrology were observed.		

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w05g
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.309158 Long: -96.102988 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: The sample point is located in a reed canary grass fringe surrounding a deep marsh within a WMA grassland.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Sparganium eurycarpum</u>	<u>20</u>	<u>N</u>	<u>OBL</u>	
3. <u>Schoenoplectus fluviatilis</u>	<u>2</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>102</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

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: 100.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: Multiply by:
 OBL species 22 x 1 = 22
 FACW species 80 x 2 = 160
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 102 (A) 182 (B)
 Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
--

Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by reed canary grass.

SOIL

Sampling Point: 133n43w2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)									
Depth (inches)	Matrix			Redox Features				Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type ¹	Loc ²		
0-7	10YR	2/1	100					MP	
7-18	10YR	5/1	70	10YR	6/8	30	C	M/PL	C

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input checked="" type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Coast Prairie Redox (A16) <input type="checkbox"/> Dark Surface (S7) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)
--	--

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
---	---

Remarks:
An organic layer is underlain by a depleted matrix.

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input checked="" type="checkbox"/> Surface Water (A1) <input checked="" type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
Field Observations: Surface Water Present? Yes _____ No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>7</u> Saturation Present? Yes <input checked="" type="checkbox"/> No _____ Depth (inches): <u>3</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Lower areas of the wetland contain surface water.	

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u05g
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CL
 Slope (%): 8-15% Lat: 46.309106 Long: -96.103026 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is located on a dry slope along a roadside and dominated by Kentucky bluegrass and reed canary grass.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Poa pratensis</u>	<u>40</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>85</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>40</u>	x 2 = <u>80</u>
FAC species <u>40</u>	x 3 = <u>120</u>
FACU species <u>5</u>	x 4 = <u>20</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>85</u> (A)	<u>220</u> (B)

Prevalence Index = B/A = 2.59

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No _____

Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by Kentucky bluegrass and reed canary grass.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w06a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308728 Long: -96.106130 Datum: WGS84
 Soil Map Unit Name: Lakepark loam NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: The sample point is located in the forested fringe of a shallow marsh between a corn field and a gravel road. Vegetation is dominated by large pussy willow and reed canary grass.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Salix discolor</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.00</u> (A/B)
2. <u>Populus deltoides</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
3. _____				
4. _____				
5. _____				
<u>35</u> = Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>120</u> x 2 = <u>240</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>130</u> (A) <u>270</u> (B) Prevalence Index = B/A = <u>2.08</u>
<u>15</u> = Total Cover				
1. <u>Salix discolor</u>	<u>10</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Salix interior</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. _____				
<u>15</u> = Total Cover				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ ___ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<u>80</u> = Total Cover				
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
<u>80</u> = Total Cover				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
<u>0</u> = Total Cover				
1. _____				
2. _____				

Remarks: (Include photo numbers here or on a separate sheet.)

Community is dominated by pussy willow and reed canary grass.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u06a
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.308763 Long: -96.106293 Datum: WGS84
 Soil Map Unit Name: Lakepark loam 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is in a dry area of a corn field.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Zea mays</u>	<u>10</u>	<u>Y</u>	<u>NI</u>	
2. <u>Cirsium arvense</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>12</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 0 x 3 = 0
 FACU species 2 x 4 = 8
 UPL species 0 x 5 = 0
 Column Totals: 2 (A) 8 (B)
 Prevalence Index = B/A = 4.00

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
--

Remarks: (Include photo numbers here or on a separate sheet.)
 Point is in a corn field.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-w06c
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.309197 Long: -96.103421 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: The sample point is located in a reed canary grass fringe of a shallow marsh between a corn field and a gravel road.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Sparganium eurycarpum</u>	<u>20</u>	<u>N</u>	<u>OBL</u>	
3. <u>Schoenoplectus fluviatilis</u>	<u>2</u>	<u>N</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>102</u>	= Total Cover		
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u>	= Total Cover		

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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>22</u>	x 1 = <u>22</u>
FACW species <u>80</u>	x 2 = <u>160</u>
FAC species <u>0</u>	x 3 = <u>0</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>102</u> (A)	<u>182</u> (B)

Prevalence Index = B/A = 1.78

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Remarks: (Include photo numbers here or on a separate sheet.) Sample point is dominated by reed canary grass.	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
--	---

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n43w28-u06c
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-28
 Landform (hillslope, terrace, etc.): Shoulder Local relief (concave, convex, none): VL
 Slope (%): 16-25% Lat: 46.309229 Long: -96.103378 Datum: WGS84
 Soil Map Unit Name: Barnes-Buse complex, 2 to 6 percent slopes NWI classification: _____

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: The point is located on a dry slope along a road and dominated by reed canary grass and smooth brome.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Bromus inermis</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Poa pratensis</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
4. <u>Cirsium arvense</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>82</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 50.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 40 x 2 = 80
 FAC species 5 x 3 = 15
 FACU species 37 x 4 = 148
 UPL species 0 x 5 = 0
 Column Totals: 82 (A) 243 (B)
 Prevalence Index = B/A = 2.96

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present?	Yes <input checked="" type="checkbox"/> No _____
--	--

Remarks: (Include photo numbers here or on a separate sheet.)
 Community is dominated by smooth brome and reed canary grass.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 8/15/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w29-u01
 Investigator(s): KA/JLK Section, Township, Range: T133NR43W Sec. 29
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): LL
 Slope (%): 5 Lat: 46.300669 Long: -96.133108 Datum: _____
 Soil Map Unit Name Rothsay silt loam NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>15</u> x 4 = <u>60</u> UPL species <u>50</u> x 5 = <u>250</u> Column totals <u>95</u> (A) <u>370</u> (B) Prevalence Index = B/A = <u>3.89</u>
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: ___ Rapid test for hydrophytic vegetation ___ Dominance test is >50% ___ Prevalence index is ≤3.0* ___ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) ___ Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Glycine max</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
2	<u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Abutilon theophrasti</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4	<u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5	<u>Sonchus arvensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6					
7					
8					
9					
10					
		<u>95</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>N</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w29-u01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0 - 13	10YR 2/1	100					silty clay loam	
13 - 21	10YR 5/1	100					silty clay loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input checked="" type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p>
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u>Y</u></p>
--	--------------------------------------

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:		
<p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</p>

<p>Field Observations:</p> <p>Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u>N</u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n42w29-05
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-29
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CC
 Slope (%): 3-7% Lat: 46.304769 Long: -96.114464 Datum: WGS84
 Soil Map Unit Name: Aazdahl clay loam NWI classification: PEMA

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

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: The point is located in a mapped NWI wetland where no evidence of a wetland exists. Potential wetland may exist to the north outside the survey area.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
	<u>0</u> = Total Cover			
<u>Herb Stratum</u> (Plot size: <u>5</u>)				
1. <u>Glycine max</u>	<u>5</u>	<u>Y</u>	<u>NI</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
	<u>5</u> = Total Cover			
<u>Woody Vine Stratum</u> (Plot size: <u>30</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
	<u>0</u> = Total Cover			

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

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

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrophytic Vegetation
 2 - Dominance Test is >50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Soybean crop appears healthy.

WETLAND DETERMINATION DATA FORM – Midwest Region

Project/Site: Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 2016-05-31
 Applicant/Owner: Great Plains Natural Gas State: MN Sampling Point: 133n42w29-u06
 Investigator(s): ARK/CPF Section, Township, Range: 133N-43W-29
 Landform (hillslope, terrace, etc.): Footslope Local relief (concave, convex, none): CC
 Slope (%): 0-2% Lat: 46.304121 Long: -96.121106 Datum: WGS84
 Soil Map Unit Name: Rothsay silt loam NWI classification: PEMA

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

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: The sample point is located in a mapped NWI wetland where no evidence of a wetland exists. Crops appear healthy.	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb Stratum (Plot size: <u>5</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Glycine max</u>	<u>5</u>	<u>Y</u>	<u>NI</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>5</u> = Total Cover				
Woody Vine Stratum (Plot size: <u>30</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>0</u> = Total Cover				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 0.00 (A/B)

Prevalence Index worksheet:
 Total % Cover of: _____ Multiply by: _____
 OBL species 0 x 1 = 0
 FACW species 0 x 2 = 0
 FAC species 0 x 3 = 0
 FACU species 0 x 4 = 0
 UPL species 0 x 5 = 0
 Column Totals: 0 (A) 0 (B)
 Prevalence Index = B/A = 0

Hydrophytic Vegetation Indicators:
 ___ 1 - Rapid Test for Hydrophytic Vegetation
 ___ 2 - Dominance Test is >50%
 ___ 3 - Prevalence Index is ≤3.0¹
 ___ 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 ___ Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)
Soybean crop appears healthy. Last year's corn stubble reflects a normal harvest.

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-w01a
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Depression/swale Local relief (concave, convex, none): Concave
 Slope (%): 30 Lat: 46.298211 Long: -96.142155 Datum: _____
 Soil Map Unit Name Lakepark-Parnell, occasionally flooded, complex, 0 to 2 % slope \WVI Classification: PEMC Type 3

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1	_____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A)	
2	_____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)	
3	_____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)	
4	_____	_____	_____	_____		
5	_____	_____	_____	_____		
		<u>0</u> = Total Cover				
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet	
1	_____	_____	_____	_____	Total % Cover of:	
2	_____	_____	_____	_____	OBL species <u>60</u> x 1 = <u>60</u>	
3	_____	_____	_____	_____	FACW species <u>50</u> x 2 = <u>100</u>	
4	_____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5	_____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
		<u>0</u> = Total Cover			UPL species <u>0</u> x 5 = <u>0</u>	
					Column totals <u>110</u> (A) <u>160</u> (B)	
					Prevalence Index = B/A = <u>1.45</u>	
Herb stratum	(Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic Vegetation Indicators:	
1	<u>Typha angustifolia</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	<input type="checkbox"/> Rapid test for hydrophytic vegetation	
2	<u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Dominance test is >50%	
3	<u>Urtica dioica</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence index is ≤3.0*	
4	_____	_____	_____	_____	Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5	_____	_____	_____	_____	Problematic hydrophytic vegetation* (explain)	
6	_____	_____	_____	_____		
7	_____	_____	_____	_____		
8	_____	_____	_____	_____		
9	_____	_____	_____	_____		
10	_____	_____	_____	_____		
		<u>110</u> = Total Cover			*Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
Woody vine stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Hydrophytic vegetation present? <u>Y</u>	
1	_____	_____	_____	_____		
2	_____	_____	_____	_____		
		<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-w01a

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-23	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
--	--	--	--	--	--

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:
 Not able to observe soils deeper than 23 inches. Redox assumed to be present below dark surface.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes <u>X</u> No _____ Depth (inches): <u>4</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-u01a
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
 Slope (%): 0-5 Lat: 46.298277 Long: -96.142098 Datum: _____
 Soil Map Unit Name Lakepark-Parnell, occasionally flooded, complex, 0 to 2 % slope \WVI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1	_____	_____	_____	_____	Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)	
2	_____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>3</u> (B)	
3	_____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4	_____	_____	_____	_____		
5	_____	_____	_____	_____		
		<u>0</u>	= Total Cover			
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				Prevalence Index Worksheet	
1	_____	_____	_____	_____	Total % Cover of:	
2	_____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3	_____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4	_____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5	_____	_____	_____	_____	FACU species <u>80</u> x 4 = <u>320</u>	
		<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>	
		<u>80</u>			Column totals <u>80</u> (A) <u>320</u> (B)	
					Prevalence Index = B/A = <u>4.00</u>	
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators:	
1	<u>Bromus inermis</u>	<u>50</u>	<u>Y</u>	<u>FACU</u>	____ Rapid test for hydrophytic vegetation	
2	<u>Chenopodium album</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	____ Dominance test is >50%	
3	<u>Glycine max</u>	<u>20</u>	<u>Y</u>	<u>NI</u>	____ Prevalence index is ≤3.0*	
4	<u>Taraxacum officinale</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)	
5	_____	_____	_____	_____	____ Problematic hydrophytic vegetation* (explain)	
6	_____	_____	_____	_____	____ *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
7	_____	_____	_____	_____		
8	_____	_____	_____	_____		
9	_____	_____	_____	_____		
10	_____	_____	_____	_____		
		<u>100</u>	= Total Cover			
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>N</u>	
1	_____	_____	_____	_____		
2	_____	_____	_____	_____		
		<u>0</u>	= Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-u01a

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-20	10YR 3/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p>
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> N </u></p>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

<p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <p><input type="checkbox"/> Surface Water (A1)</p> <p><input type="checkbox"/> High Water Table (A2)</p> <p><input type="checkbox"/> Saturation (A3)</p> <p><input type="checkbox"/> Water Marks (B1)</p> <p><input type="checkbox"/> Sediment Deposits (B2)</p> <p><input type="checkbox"/> Drift Deposits (B3)</p> <p><input type="checkbox"/> Algal Mat or Crust (B4)</p> <p><input type="checkbox"/> Iron Deposits (B5)</p> <p><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</p> <p><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</p> <p><input type="checkbox"/> Water-Stained Leaves (B9)</p>	<p><u>Secondary Indicators (minimum of two required)</u></p> <p><input type="checkbox"/> Aquatic Fauna (B13)</p> <p><input type="checkbox"/> True Aquatic Plants (B14)</p> <p><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</p> <p><input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)</p> <p><input type="checkbox"/> Presence of Reduced Iron (C4)</p> <p><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</p> <p><input type="checkbox"/> Thin Muck Surface (C7)</p> <p><input type="checkbox"/> Gauge or Well Data (D9)</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>	<p><input type="checkbox"/> Surface Soil Cracks (B6)</p> <p><input type="checkbox"/> Drainage Patterns (B10)</p> <p><input type="checkbox"/> Dry-Season Water Table (C2)</p> <p><input type="checkbox"/> Crayfish Burrows (C8)</p> <p><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</p> <p><input type="checkbox"/> Stunted or Stressed Plants (D1)</p> <p><input type="checkbox"/> Geomorphic Position (D2)</p> <p><input type="checkbox"/> FAC-Neutral Test (D5)</p>
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<p>Field Observations:</p> <p>Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____</p> <p>Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> N </u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-w02a
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 0-5 Lat: 46.298077 Long: -96.139148 Datum: _____
 Soil Map Unit Name Lakepark-Parnell, occasionally flooded, complex, 0 to 2 % slope \WVI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across all Strata: <u>3</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u> = Total Cover			Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.00</u>
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				
1					
2					
3					
4					
5					
		<u>0</u> = Total Cover			
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u>	<u>50</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Phragmites australis</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Urtica dioica</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4					
5					
6					
7					
8					
9					
10					
		<u>100</u> = Total Cover			
Woody vine stratum	(Plot size: <u>30 ft</u>)				
1					
2					
		<u>0</u> = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-w02a

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-23	10YR 2/1	100					Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:
 Watertable present at 17 inches. Could not observe deeper than 23 inches. Redox assumed to be present below the

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>17</u> Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>3</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-u02a
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear
 Slope (%): 20 Lat: 46.297959 Long: -96.139129 Datum: _____
 Soil Map Unit Name Lakepark-Parnell, occasionally flooded, complex, 0 to 2 % slope \WVI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil X, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

Soil has been moved and piled.

VEGETATION -- Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
1 <u>Acer negundo</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>5</u> = Total Cover				
Sapling/Shrub stratum (Plot size: <u>15 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>105</u> x 4 = <u>420</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>110</u> (A) <u>435</u> (B) Prevalence Index = B/A = <u>3.95</u>
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
<u>0</u> = Total Cover				
Herb stratum (Plot size: <u>5 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	
1 <u>Bromus inermis</u>	<u>90</u>	<u>Y</u>	<u>FACU</u>	
2 <u>Arctium minus</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
3 <u>Euphorbia esula</u>	<u>5</u>	<u>N</u>	<u>NI</u>	
4 <u>Solidago canadensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5 _____	_____	_____	_____	
6 _____	_____	_____	_____	
7 _____	_____	_____	_____	
8 _____	_____	_____	_____	
9 _____	_____	_____	_____	
10 _____	_____	_____	_____	
<u>110</u> = Total Cover				
Woody vine stratum (Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
<u>0</u> = Total Cover				

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 _____ Dominance test is >50%
 _____ Prevalence index is ≤3.0*
 _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-u02a

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 3/1	100					Silty Clay Loam	
5-15	5Y 6/4	90	10 YR 5/8	10	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils:
<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Dark Surface (S7) (LRR K, L)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Other (explain in remarks)
<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	

*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)	Secondary Indicators (minimum of two required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Water-Stained Leaves (B9)	
<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Stunted or Stressed Plants (D1)	
<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> FAC-Neutral Test (D5)	

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-w03
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 0-5 Lat: 46.300832 Long: -96.141275 Datum: _____
 Soil Map Unit Name Quam silty clay loam, occasionally ponded, 0 to 1 % slopes NWI Classification: PEMC Type 3

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3	_____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				Prevalence Index Worksheet
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	OBL species <u>50</u> x 1 = <u>50</u>
3	_____	_____	_____	_____	FACW species <u>50</u> x 2 = <u>100</u>
4	_____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5	_____	_____	_____	_____	FACU species <u>5</u> x 4 = <u>20</u>
		<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>
					Column totals <u>105</u> (A) <u>170</u> (B)
					Prevalence Index = B/A = <u>1.62</u>
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Typha angustifolia</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	
2	<u>Urtica dioica</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Phalaris arundinacea</u>	<u>20</u>	<u>N</u>	<u>FACW</u>	
4	<u>Cirsium arvense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5	_____	_____	_____	_____	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
		<u>105</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30 ft</u>)				
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-w03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-16	10YR 2/1	100					Silty Clay	
16-22	10YR 2/1	95	10YR 6/2	5			Silty Clay	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input checked="" type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic			

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)	<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
<input type="checkbox"/> Water-Stained Leaves (B9)					

Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes <u>X</u> No _____ Depth (inches): <u>2</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-u03
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Linear
 Slope (%): 20 Lat: 46.300824 Long: -96.141394 Datum: _____
 Soil Map Unit Name Quam silty clay loam, occasionally ponded, 0 to 1 % slopes NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3	_____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				Prevalence Index Worksheet
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3	_____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4	_____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>
5	_____	_____	_____	_____	FACU species <u>5</u> x 4 = <u>20</u>
		<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>
					Column totals <u>5</u> (A) <u>20</u> (B)
					Prevalence Index = B/A = <u>4.00</u>
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Glycine max</u>	<u>50</u>	<u>Y</u>	<u>NI</u>	
2	<u>Amaranthus spp.</u>	<u>30</u>	<u>Y</u>	<u>NI</u>	
3	<u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
		<u>85</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>N</u>
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-u03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-5	10YR 2/1	100					Silty Clay	
5-23	10YR 2/1	50	10YR 4/1	40	C	M	Silty Clay	
5-23			10YR 5/8	10	C	M	Silty Clay	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one is required; check all that apply)			Secondary Indicators (minimum of two required)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)			
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)			
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)			
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)				
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)					
<input type="checkbox"/> Water-Stained Leaves (B9)					

Field Observations: Surface water present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water table present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Saturation present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-w04a
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 0-5 Lat: 46.304568 Long: -96.137532 Datum: _____
 Soil Map Unit Name Barnes-Buse complex, 6 to 12 % slopes, moderately eroded NWI Classification: PEMB Type 3

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>1</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u> = Total Cover			
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				Prevalence Index Worksheet Total % Cover of: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>110</u> x 2 = <u>220</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>120</u> (A) <u>230</u> (B) Prevalence Index = B/A = <u>1.92</u>
1					
2					
3					
4					
5					
		<u>0</u> = Total Cover			
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u>	<u>100</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Typha angustifolia</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3	<u>Urtica dioica</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4					
5					
6					
7					
8					
9					
		<u>120</u> = Total Cover			
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>Y</u>
1					
2					
		<u>0</u> = Total Cover			

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-w04a

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-9	10YR 2/1	100					Silty Clay	
9-18	10YR 2/1	85	10YR 7/1	10	C	M	Silty Clay	
9-18			10YR 6/1	5	C	M	Silty Clay	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)		Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)	
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u>Y</u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input checked="" type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		Secondary Indicators (minimum of two required) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)		<input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)	
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Field Observations: Surface water present? Yes _____ No <u>X</u> Depth (inches): _____ Water table present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation present? Yes <u>X</u> No _____ Depth (inches): <u>0</u> (includes capillary fringe)	Indicators of wetland hydrology present? <u>Y</u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-u04a
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None
 Slope (%): 0-5 Lat: 46.3044 Long: -96.137242 Datum: _____
 Soil Map Unit Name Barnes-Buse complex, 6 to 12 % slopes, moderately eroded NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet	
1	_____	_____	_____	_____		Number of Dominant Species that are OBL, FACW, or FAC: <u>0</u> (A)
2	_____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>1</u> (B)	
3	_____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>0.00%</u> (A/B)	
4	_____	_____	_____	_____		
5	_____	_____	_____	_____		
		<u>0</u> = Total Cover				
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				Prevalence Index Worksheet	
1	_____	_____	_____	_____		Total % Cover of:
2	_____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>	
3	_____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>	
4	_____	_____	_____	_____	FAC species <u>0</u> x 3 = <u>0</u>	
5	_____	_____	_____	_____	FACU species <u>0</u> x 4 = <u>0</u>	
		<u>0</u> = Total Cover				UPL species <u>0</u> x 5 = <u>0</u>
						Column totals <u>0</u> (A) <u>0</u> (B)
						Prevalence Index = B/A = _____
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic	
1	<u>Zea mays</u>	<u>50</u>	<u>Y</u>	<u>NI</u>		
2	_____	_____	_____	_____		
3	_____	_____	_____	_____		
4	_____	_____	_____	_____		
5	_____	_____	_____	_____		
6	_____	_____	_____	_____		
7	_____	_____	_____	_____		
8	_____	_____	_____	_____		
9	_____	_____	_____	_____		
10	_____	_____	_____	_____		
		<u>50</u> = Total Cover				
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>N</u>	
1	_____	_____	_____	_____		
2	_____	_____	_____	_____		
		<u>0</u> = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-u04a

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		
0-12	10YR 2/1	100					Silty Clay Loam	
12-23	10YR 2/1	95	10YR 7/2	5	C	M	Silty Clay Loam	

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Gauge or Well Data (D9) <input type="checkbox"/> Other (Explain in Remarks)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5)
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Field Observations: Surface water present? Yes _____ No <u> X </u> Depth (inches): _____ Water table present? Yes _____ No <u> X </u> Depth (inches): _____ Saturation present? Yes _____ No <u> X </u> Depth (inches): _____ (includes capillary fringe)	Indicators of wetland hydrology present? <u> N </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-w05
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave
 Slope (%): 30 Lat: 46.300417 Long: -96.133869 Datum: _____
 Soil Map Unit Name Rothsay Silt Loam NWI Classification: PEMB Type 2

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>20</u> x 1 = <u>20</u> FACW species <u>30</u> x 2 = <u>60</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>55</u> (A) <u>100</u> (B) Prevalence Index = B/A = <u>1.82</u>
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation <u>X</u> Dominance test is >50% <u>X</u> Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
2	<u>Carex pellita</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>	
3	<u>Sonchus arvensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4					
5					
6					
7					
8					
9					
10					
		<u>55</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>Y</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-w05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p>
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> Y </u></p>
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Remarks:
Soils could not be sampled as the sample location is within a roadside ditch with high probability for underground utilities; however, due to landscape position and dominance of hydrophytic vegetation, soils are assumed to be hydric.

HYDROLOGY

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
<input type="checkbox"/> Water-Stained Leaves (B9)		

<p>Field Observations:</p> <p>Surface water present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p> <p>Water table present? Yes <input type="checkbox"/> No <input type="checkbox"/> Depth (inches): _____</p> <p>Saturation present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u> 0 </u></p> <p>(includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> Y </u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-u05
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
 Slope (%): 45 Lat: 46.30043 Long: -96.133826 Datum: _____
 Soil Map Unit Name Rothsay Silt Loam NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS

(If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		<u>0</u> = Total Cover			Prevalence Index Worksheet Total % Cover of: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>55</u> x 3 = <u>165</u> FACU species <u>55</u> x 4 = <u>220</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>110</u> (A) <u>385</u> (B) Prevalence Index = B/A = <u>3.50</u>
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
3	_____	_____	_____	_____	
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		<u>0</u> = Total Cover			
Herb stratum	(Plot size: <u>5 ft</u>)				
1	<u>Poa pratensis</u>	<u>55</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Bromus inermis</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	
3	<u>Solidago canadensis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4	<u>Asclepias syriaca</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5	<u>Euphorbia esula</u>	<u>5</u>	<u>N</u>	<u>NI</u>	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
		<u>115</u> = Total Cover			
Woody vine stratum	(Plot size: <u>30 ft</u>)				
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
		<u>0</u> = Total Cover			

Hydrophytic Vegetation Indicators:
 _____ Rapid test for hydrophytic vegetation
 _____ Dominance test is >50%
 _____ Prevalence index is ≤3.0*
 _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet)
 _____ Problematic hydrophytic vegetation* (explain)
 *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic

Hydrophytic vegetation present? N

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-u05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p>
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> N </u></p>
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Remarks:
Soils could not be sampled as the sample location is within a roadside ditch with high probability for underground utilities; however, due to landscape position and dominance of non-hydrophytic vegetation, soils are assumed to be non-hydric.

HYDROLOGY

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
<input type="checkbox"/> Water-Stained Leaves (B9)		

<p>Field Observations:</p> <p>Surface water present? Yes _____ No <u> X </u> Depth (inches): _____</p> <p>Water table present? Yes _____ No <u> X </u> Depth (inches): _____</p> <p>Saturation present? Yes _____ No <u> X </u> Depth (inches): _____</p> <p>(includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> N </u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-w06
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): Concave
 Slope (%): 5 Lat: 46.298592 Long: -96.133871 Datum: _____
 Soil Map Unit Name Hokans-Buse complex, 2 to 6 % slopes NWI Classification: PEM Type 2

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>Y</u>	Is the sampled area within a wetland? <u>Y</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>Y</u>	
Indicators of wetland hydrology present? <u>Y</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet Number of Dominant Species that are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across all Strata: <u>2</u> (B) Percent of Dominant Species that are OBL, FACW, or FAC: <u>100.00%</u> (A/B)
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		Prevalence Index Worksheet Total % Cover of: OBL species <u>80</u> x 1 = <u>80</u> FACW species <u>35</u> x 2 = <u>70</u> FAC species <u>5</u> x 3 = <u>15</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>0</u> x 5 = <u>0</u> Column totals <u>125</u> (A) <u>185</u> (B) Prevalence Index = B/A = <u>1.48</u>
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				
1					
2					
3					
4					
5					
		<u>0</u>	= Total Cover		
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid test for hydrophytic vegetation <input checked="" type="checkbox"/> Dominance test is >50% <input checked="" type="checkbox"/> Prevalence index is ≤3.0* Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Typha angustifolia</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	
2	<u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3	<u>Carex pellita</u>	<u>20</u>	<u>N</u>	<u>OBL</u>	
4	<u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	
5	<u>Sonchus arvensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6	<u>Persicaria pensylvanica</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
7					
8					
9					
10					
		<u>125</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>Y</u>
1					
2					
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-w06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

Hydric Soil Indicators: <input type="checkbox"/> Histisol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)	<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	Indicators for Problematic Hydric Soils: <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (explain in remarks)
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric soil present? <u> Y </u>
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Remarks:
 Soils could not be sampled as the sample location is within a roadside ditch with high probability for underground utilities; however, due to landscape position and dominance of hydrophytic vegetation, soils are assumed to be hydric.

HYDROLOGY

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
<input type="checkbox"/> Water-Stained Leaves (B9)		

Field Observations: Surface water present? Yes _____ No _____ Depth (inches): _____ Water table present? Yes _____ No _____ Depth (inches): _____ Saturation present? Yes <u> X </u> No _____ Depth (inches): <u> 0 </u> (includes capillary fringe)	Indicators of wetland hydrology present? <u> Y </u>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Midwest Region

Project/Site Fergus Falls Pipeline Replacement Project City/County: Otter Tail Sampling Date: 5/31/2016
 Applicant/Owner: Great Plains Natural Gas Company State: MN Sampling Point: 133n43w30-u06
 Investigator(s): OTG/JLK Section, Township, Range: T133NR43W Sec. 30
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex
 Slope (%): 45 Lat: 46.298594 Long: -96.133828 Datum: _____
 Soil Map Unit Name Hokans-Buse complex, 2 to 6 % slopes NWI Classification: _____

Are climatic/hydrologic conditions of the site typical for this time of the year? Y (If no, explain in remarks)
 Are vegetation _____, soil _____, or hydrology _____ significantly disturbed? Are "normal circumstances" present? Yes
 Are vegetation _____, soil _____, or hydrology _____ naturally problematic? present? Yes

SUMMARY OF FINDINGS (If needed, explain any answers in remarks.)

Hydrophytic vegetation present? <u>N</u>	Is the sampled area within a wetland? <u>N</u> If yes, optional wetland site ID: _____
Hydric soil present? <u>N</u>	
Indicators of wetland hydrology present? <u>N</u>	

Remarks: (Explain alternative procedures here or in a separate report.)

VEGETATION -- Use scientific names of plants.

Tree Stratum	(Plot size: <u>30 ft</u>)	Absolute % Cover	Dominant Species	Indicator Status	Dominance Test Worksheet
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	Total Number of Dominant Species Across all Strata: <u>2</u> (B)
3	_____	_____	_____	_____	Percent of Dominant Species that are OBL, FACW, or FAC: <u>50.00%</u> (A/B)
4	_____	_____	_____	_____	
5	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		
Sapling/Shrub stratum	(Plot size: <u>15 ft</u>)				Prevalence Index Worksheet
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	OBL species <u>0</u> x 1 = <u>0</u>
3	_____	_____	_____	_____	FACW species <u>0</u> x 2 = <u>0</u>
4	_____	_____	_____	_____	FAC species <u>45</u> x 3 = <u>135</u>
5	_____	_____	_____	_____	FACU species <u>50</u> x 4 = <u>200</u>
		<u>0</u>	= Total Cover		UPL species <u>0</u> x 5 = <u>0</u>
					Column totals <u>95</u> (A) <u>335</u> (B)
					Prevalence Index = B/A = <u>3.53</u>
Herb stratum	(Plot size: <u>5 ft</u>)				Hydrophytic Vegetation Indicators: _____ Rapid test for hydrophytic vegetation _____ Dominance test is >50% _____ Prevalence index is ≤3.0* _____ Morphological adaptations* (provide supporting data in Remarks or on a separate sheet) _____ Problematic hydrophytic vegetation* (explain) *Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic
1	<u>Poa pratensis</u>	<u>45</u>	<u>Y</u>	<u>FAC</u>	
2	<u>Bromus inermis</u>	<u>35</u>	<u>Y</u>	<u>FACU</u>	
3	<u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4	<u>Cirsium arvense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5	<u>Trifolium repens</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6	_____	_____	_____	_____	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
9	_____	_____	_____	_____	
10	_____	_____	_____	_____	
		<u>95</u>	= Total Cover		
Woody vine stratum	(Plot size: <u>30 ft</u>)				Hydrophytic vegetation present? <u>N</u>
1	_____	_____	_____	_____	
2	_____	_____	_____	_____	
		<u>0</u>	= Total Cover		

Remarks: (Include photo numbers here or on a separate sheet)

SOIL

Sampling Point: 133n43w30-u06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type*	Loc**		

*Type: C = Concentration, D = Depletion, RM = Reduced Matrix, MS = Masked Sand Grains. **Location: PL = Pore Lining, M = Matrix

<p>Hydric Soil Indicators:</p> <p><input type="checkbox"/> Histisol (A1)</p> <p><input type="checkbox"/> Histic Epipedon (A2)</p> <p><input type="checkbox"/> Black Histic (A3)</p> <p><input type="checkbox"/> Hydrogen Sulfide (A4)</p> <p><input type="checkbox"/> Stratified Layers (A5)</p> <p><input type="checkbox"/> 2 cm Muck (A10)</p> <p><input type="checkbox"/> Depleted Below Dark Surface (A11)</p> <p><input type="checkbox"/> Thick Dark Surface (A12)</p> <p><input type="checkbox"/> Sandy Mucky Mineral (S1)</p> <p><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</p>	<p><input type="checkbox"/> Sandy Gleyed Matrix (S4)</p> <p><input type="checkbox"/> Sandy Redox (S5)</p> <p><input type="checkbox"/> Stripped Matrix (S6)</p> <p><input type="checkbox"/> Loamy Mucky Mineral (F1)</p> <p><input type="checkbox"/> Loamy Gleyed Matrix (F2)</p> <p><input type="checkbox"/> Depleted Matrix (F3)</p> <p><input type="checkbox"/> Redox Dark Surface (F6)</p> <p><input type="checkbox"/> Depleted Dark Surface (F7)</p> <p><input type="checkbox"/> Redox Depressions (F8)</p>	<p>Indicators for Problematic Hydric Soils:</p> <p><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</p> <p><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</p> <p><input type="checkbox"/> Iron-Manganese Masses (F12) (LRR K, L, R)</p> <p><input type="checkbox"/> Very Shallow Dark Surface (TF12)</p> <p><input type="checkbox"/> Other (explain in remarks)</p>
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*Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic

<p>Restrictive Layer (if observed):</p> <p>Type: _____</p> <p>Depth (inches): _____</p>	<p>Hydric soil present? <u> N </u></p>
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Remarks:
Soils could not be sampled as the sample location is within a roadside ditch with high probability for underground utilities; however, due to landscape position and dominance of non-hydrophytic vegetation, soils are assumed to be non-hydric.

HYDROLOGY

Wetland Hydrology Indicators:		
<u>Primary Indicators (minimum of one is required; check all that apply)</u>		<u>Secondary Indicators (minimum of two required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Aquatic Fauna (B13)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> True Aquatic Plants (B14)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)	<input type="checkbox"/> Stunted or Stressed Plants (D1)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Gauge or Well Data (D9)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		
<input type="checkbox"/> Water-Stained Leaves (B9)		

<p>Field Observations:</p> <p>Surface water present? Yes _____ No <u> X </u> Depth (inches): _____</p> <p>Water table present? Yes _____ No <u> X </u> Depth (inches): _____</p> <p>Saturation present? Yes _____ No <u> X </u> Depth (inches): _____</p> <p>(includes capillary fringe)</p>	<p>Indicators of wetland hydrology present? <u> N </u></p>
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Describe recorded data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:



Great Plains Natural Gas - Fergus Falls Pipeline Replacement Project Waterbody Form

Feature ID: 133n43w27-s01 Inspection Date: 5/31/2016
 Waterbody Name: Ditch State: MN
 Staff Initials: OTG/JLK County: Otter Tail
 Latitude: 46.307868 Longitude: -96.090928
 Cowardin: R2UB Flow Regime: Perennial
 Associated wetland(s)? (check if yes) % Riparian Vegetation: _____

Left Bank Height (ft): 5 Left Bank Slope (°): 80
 Right Bank Height (ft): 3 Right Bank Slope (°): 45
 OHWM Height (ft): 1.5 Top of Bank Width (ft): 25
 OHWM Width (ft): 10 Water Clarity: Turbid
 OHWM Criteria: _____ Avg. Water Depth (ft): 1.5
 Primary Substrate: Silt Flow Rate (ft/s): 0.08
 Flow Direction: _____

Unique Features (Check all that apply):

- | | | | |
|---|--|---|---|
| <input type="checkbox"/> Unstable Banks | <input type="checkbox"/> Headcutting | <input type="checkbox"/> Erosion | <input type="checkbox"/> Pools |
| <input type="checkbox"/> Rock Outcrop | <input type="checkbox"/> Gravel Bars/Islands | <input type="checkbox"/> Cutoff Channels | <input type="checkbox"/> Dam |
| <input type="checkbox"/> Riffles/Runs | <input type="checkbox"/> Riprap | <input type="checkbox"/> Buildings | <input type="checkbox"/> Seeps |
| <input type="checkbox"/> Bridge | <input type="checkbox"/> Diversion/Intake | <input type="checkbox"/> Steep Sideslopes | <input type="checkbox"/> Other (Explain): _____ |

Dominant Plant Species

- Fraxinus pennsylvanica
- Picea pungens
- Lonicera tatarica
- _____
- _____

Photos (List Photo ID):

- _____

Potential Jurisdictional Assessment (Check if applicable):

- | | |
|--|---|
| <input type="checkbox"/> Traditional Navigable Water (TNW) | <input type="checkbox"/> Relatively Permanent Water |
| <input type="checkbox"/> Defined Bed/Bank | <input type="checkbox"/> Other: _____ |

Notes:



Great Plains Natural Gas - Fergus Falls Pipeline Replacement Project Waterbody Form

Feature ID: 133n43w30-s01 Inspection Date: 5/31/2016
Waterbody Name: _____ State: MN
Staff Initials: OTG/JLK County: Otter Tail
Latitude: 46.298153 Longitude: -96.140982
Cowardin: R4SB Flow Regime: Ephemeral
Associated wetland(s)? (check if yes) % Riparian Vegetation: _____

Left Bank Height (ft): 15 Left Bank Slope (°): 45
Right Bank Height (ft): 10 Right Bank Slope (°): 20
OHWM Height (ft): 7 Top of Bank Width (ft): 50
OHWM Width (ft): 34 Water Clarity: Clear
OHWM Criteria: _____ Avg. Water Depth (ft): 0.4
Primary Substrate: Silt Flow Rate (ft/s): 0.08
Flow Direction: W

- Unique Features (Check all that apply):
- | | | | |
|---|--|---|---|
| <input type="checkbox"/> Unstable Banks | <input type="checkbox"/> Headcutting | <input type="checkbox"/> Erosion | <input type="checkbox"/> Pools |
| <input type="checkbox"/> Rock Outcrop | <input type="checkbox"/> Gravel Bars/Islands | <input type="checkbox"/> Cutoff Channels | <input type="checkbox"/> Dam |
| <input type="checkbox"/> Riffles/Runs | <input type="checkbox"/> Riprap | <input type="checkbox"/> Buildings | <input type="checkbox"/> Seeps |
| <input type="checkbox"/> Bridge | <input type="checkbox"/> Diversion/Intake | <input type="checkbox"/> Steep Sideslopes | <input type="checkbox"/> Other (Explain): _____ |

Dominant Plant Species Photos (List Photo ID):

1. <u>Fraxinus pennsylvanica</u>	_____
2. <u>Acer negundo</u>	_____
3. <u>Leonurus cardiaca</u>	_____
4. <u>Arctium minus</u>	_____
5. <u>Bromus inermis</u>	_____

Potential Jurisdictional Assessment (Check if applicable):

<input type="checkbox"/> Traditional Navigable Water (TNW)	<input type="checkbox"/> Relatively Permanent Water
<input type="checkbox"/> Defined Bed/Bank	<input type="checkbox"/> Other: _____

Notes:



Great Plains Natural Gas - Fergus Falls Pipeline Replacement Project Waterbody Form

Feature ID: 133n43w30-s02 Inspection Date: 5/31/2016
 Waterbody Name: _____ State: MN
 Staff Initials: OTG/JLK County: Otter Tail
 Latitude: 46.296532 Longitude: -96.133889
 Cowardin: R4SB Flow Regime: Ephemeral
 Associated wetland(s)? (check if yes) % Riparian Vegetation: _____

Left Bank Height (ft): 19 Left Bank Slope (°): 90
 Right Bank Height (ft): 19 Right Bank Slope (°): 90
 OHWM Height (ft): 7 Top of Bank Width (ft): 39
 OHWM Width (ft): 27 Water Clarity: No Water
 OHWM Criteria: _____ Avg. Water Depth (ft): _____
 Primary Substrate: Sand Flow Rate (ft/s): _____
 Flow Direction: S

Unique Features (Check all that apply):

- | | | | |
|---|--|---|---|
| <input type="checkbox"/> Unstable Banks | <input type="checkbox"/> Headcutting | <input type="checkbox"/> Erosion | <input type="checkbox"/> Pools |
| <input type="checkbox"/> Rock Outcrop | <input type="checkbox"/> Gravel Bars/Islands | <input type="checkbox"/> Cutoff Channels | <input type="checkbox"/> Dam |
| <input type="checkbox"/> Riffles/Runs | <input type="checkbox"/> Riprap | <input type="checkbox"/> Buildings | <input type="checkbox"/> Seeps |
| <input type="checkbox"/> Bridge | <input type="checkbox"/> Diversion/Intake | <input type="checkbox"/> Steep Sideslopes | <input type="checkbox"/> Other (Explain): _____ |

Dominant Plant Species

1. _____
2. _____
3. _____
4. _____
5. _____

Photos (List Photo ID):

- _____

Potential Jurisdictional Assessment (Check if applicable):

- | | |
|--|---|
| <input type="checkbox"/> Traditional Navigable Water (TNW) | <input type="checkbox"/> Relatively Permanent Water |
| <input type="checkbox"/> Defined Bed/Bank | <input type="checkbox"/> Other: _____ |

Notes: