

WETLAND DELINEATION AND WATERBODY CROSSING REPORT

BakkenLink Pipeline

Billings, Dunn, McKenzie, Stark and Williams Counties
North Dakota

Prepared for:

BakkenLink Pipeline LLC

October, 2011



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ENVIRONMENTAL • ENGINEERING • LAND SURVEYING

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1.0 SCOPE OF WORK

This project identified and delineated the extent of isolated wetlands and waterbody/stream crossings within an approximate 200-foot-wide corridor of the proposed BakkenLink Pipeline. The BakkenLink Pipeline (Pipeline) is a crude oil pipeline system consisting of approximately 144 miles of 8-inch and 12-inch steel crude oil pipeline extending from multiple receipt points in Billings, Dunn, McKenzie, Stark and Williams Counties, North Dakota, interconnecting with a new Rail Facility at Fryburg, North Dakota (Appendix A).

Table 1. Summary of BakkenLink Pipeline Survey Corridor

County	Civil Township	TWP	RNG	Section(s)
Billings	Unorganized Territory	139	100	2, 10, 11
Billings	Unorganized Territory	140	100	35, 36
Billings	Unorganized Territory	141	99	3, 10, 15, 22, 27, 34
Billings	Unorganized Territory	142	99	3, 10, 15, 22, 27, 34
Billings	Unorganized Territory	143	99	1, 2, 10, 11, 15, 22, 27, 34
Billings	Unorganized Territory	144	99	1, 2, 11, 14, 23, 24, 25, 26, 35
Dunn	Unorganized Territory	145	95	19, 20, 21
Dunn	Unorganized Territory	145	96	24, 25, 26, 27, 28, 29, 30
Dunn	Unorganized Territory	145	97	25, 31, 32, 33, 34, 35, 36
McKenzie	Unorganized Territory	145	98	7, 18, 19, 20, 28, 29, 33, 34, 35, 36
McKenzie	Unorganized Territory	146	99	1, 12, 13, 24, 25, 36
McKenzie	Unorganized Territory	147	98	7, 18
McKenzie	Unorganized Territory	147	99	1, 12, 13, 24, 25, 36
McKenzie	Unorganized Territory	148	99	3, 10, 11, 14, 23, 24, 25, 36
McKenzie	Unorganized Territory	149	98	6, 7, 18, 19, 30, 31
McKenzie	Grail	150	95	6, 7, 18
McKenzie	Unorganized Territory	150	96	13, 14, 15, 16, 17, 18
McKenzie	Unorganized Territory	150	97	13, 14, 15, 16, 17, 18
McKenzie	Unorganized Territory	150	98	13, 21, 22, 23, 24, 27, 28, 29, 31, 32
McKenzie	Unorganized Territory	151	95	30, 31
McKenzie	Blue Butte	151	96	1, 12, 13, 24, 25
McKenzie	Keene	152	96	1, 12, 13, 24, 25, 36
McKenzie	Elm Tree	153	95	3, 4, 9, 10, 15, 16, 21, 28, 33
McKenzie	Elm Tree	154	95	34
Stark	Unorganized Territory	140	99	6, 7, 14, 15, 16, 17, 18, 19, 30, 31
Williams	Unorganized Territory	154	95	5, 8, 9, 16, 21, 27, 28
Williams	Dry Fork	155	95	5, 8, 17, 20, 29, 32

The Pipeline is located across the Missouri Plateau, Little Missouri Badlands and Coteau Slope physiographic regions. The pipeline traverses five watersheds including Lake Sakakawea (HUC 10110101), the Lower Little Missouri (HUC 10110205), the Knife River (HUC 10130201), the Upper Heart River (HUC 10130202), and the Middle Little Missouri River (HUC 10110203). The topography of the Route varies from level agricultural fields, rolling pasturelands, and rugged badlands terrain. Most of the stream flow along the Route is as a result of patterns in precipitation, evapotranspiration, soils, and topography. Although these flows can vary, the highest stream flows generally occur in spring and early summer as a result of snowmelt, rainfall on melting snow, or heavy rainfall on saturated soils.

Wetlands with seasonal water regimes contained prairie cordgrass (*Spartina pectinata*), cattails (*Typha* spp.), and water smartweed (*Polygonum amphibium*). Many of the pothole wetlands in the native prairie areas contain fowl bluegrass (*Poa palustris*), prairie cordgrass, wooly sedge (*Carex lanuginosa*), water smartweed and baltic rush (*Juncus balticus*). The intermittent stream drainages typically were predominately prairie cordgrass, wooly sedge, foxtail barley (*Hordium jubatum*) and curly doc (*Rumex crispus*).

The wetland and waterbody crossing field delineations were conducted between the dates of August 3 and October 7, 2011, by biologists of Carlson McCain, Inc.

2.0 PROCEDURES

The wetland field delineation was conducted in accordance with the U.S. Army Corps of Engineers (USACE) 1987 *Wetland Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (Manual).

Wetland areas were systematically evaluated by using numerous observation points to define their boundaries. The frequency of observation points was increased in transitional areas between uplands and lower areas to accurately identify wetland boundaries based on soils, vegetation, hydrology, and landscape. Boundaries were digitally recorded with a Trimble GeoXH Global Positioning System (GPS).

Isolated wetlands were documented with an observation point where paired upland and wetland soil observation points were evaluated. The Wetland Determination Data Form of the Great Plains Manual was completed for the observation points. Stream crossing identified by USGS 100K streams layer and by traversing the route were delineated to the extents of the wetland vegetation and data recorded on Waterbody Crossing Data Forms.

Existing vegetation was classified using hydrophytic vegetation criteria outlined in the Manual and the *National List of Plant Species that Occur In Wetlands: 1996 National Summary* (Kartesz, 1996), and *National list of plant species that occur in wetlands: North Plains (Region 4)* (Reed 1988). Hydric soil indicators were determined using the *Field Indicators of Hydric Soils in the United States; Guide for Identifying and Delineating Hydric Soils, Version 7.0* (USDA-NRCS, 2010). Hydrology was determined on-site by observation of hydrologic indicators. Aerial photography was used to assist hydrologic determinations.

Field conditions and existing resource information were used to identify and delineate wetlands and waterbody crossings within the project areas. National Aerial Imagery Program (NAIP) 2009 and 2010 aerial photographs, USGS 100K streams, U.S. Fish and Wildlife Service National Wetland Inventory data (USFWS, 2011), and the digital soil survey of Billings, Dunn, McKenzie, Stark and Williams County (USDA-NRCS, 2011), were consulted prior to the wetland field delineation.

3.0 RESULTS

Forty-five wetlands considered isolated depression or swale wetlands and eighty-six areas identified as intermittent or perennial stream crossings were delineated along the proposed route (Appendix A). These total approximately 11.64 acres of wetlands (within the 200-foot evaluated corridor) and approximately 19,787 feet of liner stream crossings (this includes 12,321 feet across the Missouri River/Lake Sakakawea). The delineated wetlands are summarized in Table 2. Perennial (P) and intermittent (I) stream waterbody crossings are summarized in Table 3. The route crosses four perennial streams: The Missouri River (Lake Sakakawea), Cherry Creek, Northfork Creek, and two crossings of the Little Missouri River.

Climatic conditions were considered typical prior to and during the evaluation. A description of the delineated wetlands and documentation of the vegetation, hydrology, and hydric soils were recorded on the associated USACE Wetland Determination Data Forms (Appendix B) and are identified by a site identification and observation point number (i.e. 34156095-w1) on maps and tables. Stream crossings are recorded on Waterbody Data Sheets (Appendix C) and are identified by site identification and observation point number (i.e. 34156095-s1).

In some areas, multiple routes were considered during the field delineation. Wetlands delineated along these routes are depicted on the figures in Appendix A; however, only wetlands crossed by the proposed route are tabulated in the summary tables. In addition, permission to survey was not available on some tracts during the course of the field delineation. Potential wetland and waterbody crossings on these tracts were digitized electronically using the USFWS NWI wetland dataset, USGS 100K stream dataset, aerial photography and extensive field knowledge of area. These wetlands are identified on the figures as “NWI Wetlands” and denoted in the summary tables as not field verified. Permission to survey has been granted on several of these tracts, but the field data was not available at the time of this report. Data from the field survey on these tracts will be incorporated into an addendum to this report.

Table 2. Wetland Identification and Characteristics (Field) Summary of Wetlands

Wetland ID	Figure	NWI	Acres	SEC	TWP	RNG
25155095-w1	2	PEMC	0.1237	25	155	95
25155095-w2	2	PEMC	0.0303	25	155	95
32155095-w1	3	PEMC	0.0091	32	155	95
04154095-w1	3	PEMC	0.1801	4	154	95
09154095-w3	4	PEMC	0.2908	9	154	95
09154095-w2	4	PEMA	0.0619	9	154	95
09154095-w1	4	PEMC	0.4556	9	154	95
04153095-w1	6	PEMC	0.0151	4	153	95
04153095-w2	6	PEMC	0.0495	4	153	95
16153095-w3*	6	PEMA	0.3138	16	153	95
16153095-w4*	6	PEMA	0.1785	16	153	95
16153095-w5*	6	PEMA	0.0850	16	153	95
16153095-w6*	6	PEMA	0.2295	16	153	95
28153095-w1*	7	PEMA	2.9411	28	153	95
24152096-w1	9	PABFh	0.0307	24	152	96

Wetland ID	Figure	NWI	Acres	SEC	TWP	RNG
36152096-w1	10	PEMA	0.0091	36	152	96
12151096-w1	10	PEMA	0.0220	12	151	96
13151096-w1	11	PEMA	0.2043	13	151	96
13151096-w2	11	PEMA	0.0374	13	151	96
25151096-w1	11	PEMC	0.0914	25	151	96
30151096-w1	12	PEMCh	0.1339	30	151	93
18150095-w1	13	PEMA	0.0526	18	150	95
14150099-w1*	14	PABFh	0.6960	14	150	99
06149098-w1a	20	PABGh/PEMCh	0.0014	6	149	98
06149098-w1b	20	PABGh/PEMCh	0.4194	6	149	98
24147099-w1	26	PEMB	0.0300	24	148	99
25146099-w1	28	PABFh	0.1172	25	146	99
25146099-w2	29	PABFh	0.2861	25	146	99
18145098-w2	30	PABF	0.2247	18	145	98
18145098-w1	30	PABFh	0.1961	18	145	98
28145099-w1	31	PEMCh	0.6459	28	145	99
29145098-w1	31	PUSCh	0.0782	29	145	98
36145098-w1	32	PEMCh	0.3625	36	145	98
31145097-w1	33	PUSCh	0.1537	31	145	97
25145097-w2*	35	PEMA	0.3752	25	145	97
25145097-w1*	35	PEMA	0.0434	25	145	97
29145096-w1	35	PABFh	0.4198	29	145	96
26145096-w1	36	PEMC	0.2123	26	145	96
14144099-w1	38	PEMC/PABFh	1.3478	14	144	99
14144099-w2	39	PABFh	0.0219	14	144	99
27142099-w1	44	PABF	0.0636	27	142	99
34142099-w1	45	PEMC	0.0089	34	142	99
22141099-w1	46	PEMA	0.1305	22	141	99
19140099-w1	48	PEMC	0.0862	19	140	99
15140099-w1	50	PABFh	0.1703	15	140	99
Totals		45	11.64			

*not field verified

Table 3. Summary of Delineated Waterbody (Stream) Crossings

Waterbody ID	Figure	Waterbody Name	Type	Stream Crossing Width (ft)	SEC	TWP	RNG
31156095-s1	1	Unnamed tributary to Dry Fork Creek	I	11	31	156	95
07155095-s1	2	Unnamed tributary to Dry Fork Creek	I	18	7	155	95
20155095-s1	2	Unnamed tributary to Dry Fork Creek	I	7	20	155	95
29155095-s1*	2	Dry Fork Creek	I	17	29	155	95
33155095-s1	3	Unnamed tributary to Dry Fork Creek	I	50	33	155	95
04154095-s5	3	Unnamed tributary to Dry Fork Creek	I	40	4	154	95
04154095-s4	3	Unnamed tributary to Dry Fork Creek	I	219	4	154	95
04154095-s3	3	Unnamed tributary to Dry Fork Creek	I	0	4	154	95
04154095-s2	3	Unnamed tributary to Dry Fork Creek	I	23	4	154	95
04154095-s1	3	Unnamed tributary to Dry Fork Creek	I	0	4	154	95
Lake Sak	4, 5	Missouri River/Lake Sakakawea	P	12,321	21, 27, 28, & 34	154	95
10153095-s1	6	Unnamed tributary to Lake Sakakawea	I	10	10	153	95
33153095-s1	7	Unnamed tributary to Sand Creek	I	650	33	153	95
13152096-s1	9	Unnamed tributary to Sand Creek	I	170	13	152	96
12151096-s1	10	Unnamed tributary to Clear Creek	I	70	12	151	96
25151096-s1	12	Unnamed tributary to Handy Water Creek	I	15	25	151	96
06150095-s2	12	Unnamed tributary to Dry Creek	I	10	6	150	95
06150095-s1	12	Unnamed tributary to Dry Creek	I	560	6	150	95
18150096-s3	13	Unnamed tributary to Dry Creek	I	57	18	150	96
18150096-s4	13	Unnamed tributary to Dry Creek	I	58	18	150	96
18150096-s2	13	Unnamed tributary to Dry Creek	I	41	18	150	96
15150096-s2	14	Unnamed tributary to North Fork Creek	I	7	15	150	96
15150096-s1	14	Unnamed tributary to North Fork Creek	I	214	15	150	96
16150096-s1*	14	Unnamed tributary to North Fork Creek	I	183	16	150	96
14150097-s1	16	Unnamed tributary to North Fork Creek	P	42	14	150	97
14150097-s2	16	Unnamed tributary to North Fork Creek	I	213	14	150	97
15150097-s2	16	Northfork Creek	P	70	15	150	97
15150097-s1*	16	Unnamed tributary to North Fork Creek	I	98	15	150	98
18150097-s1	17	Unnamed tributary to North Fork Creek	I	89	18	150	97
23150098-s1	18	Cherry Creek	P	84	23	150	98
24150098-s1	18	Northfork Creek	P	118	24	150	98
24150098-s2	18	Northfork Creek	P	126	24	150	98
28150098-s1	19	Unnamed tributary to Cherry Creek	I	81	28	150	98
06149098-s1	20	Unnamed tributary to NCherry Creek	I	136	6	149	98
18149098-s1	21	Spring Creek	I	10	19	149	98
31149098-s1	22	Unnamed tributary to Spring Creek	I	11	31	149	98
36148099-s3	24	Little Missouri River	I	928	36	148	99
24146099-s1*	28	Unnamed tributary to Ranch Creek	I	11	24	146	99
25146099-s1*	29	Unnamed tributary to Ranch Creek	I	25	25	146	99
36146099-s1	29	Unnamed tributary to Ranch Creek	I	53	36	146	99

Waterbody ID	Figure	Waterbody Name	Type	Stream Crossing Width (ft)	SEC	TWP	RNG
01145099-s3	29	Unnamed tributary to Ranch Creek	I	23	1	145	99
12145099-s1	30	Unnamed tributary to Ranch Creek	I	41	12	145	99
18145098-s1*	30	Unnamed tributary to Charlie Bob Creek	I	31	18	145	98
34145098-s1	32	Little Knife River	I	15	34	145	98
32145097-s1	33	Unnamed tributary to Little Knife River	I	129	32	145	97
33145097-s1	33	Unnamed tributary to Little Knife River	I	26	33	145	97
36145098-s2	33	Unnamed tributary to Little Knife River	I	13	36	145	98
34145097-s1	34	Unnamed tributary to Little Knife River	I	60	34	145	97
36145097-s1	34	Unnamed tributary to Little Knife River	I	75	36	145	97
25145097-s1*	35	Unnamed tributary to Little Knife River	I	38	25	145	97
28145096-s1*	35	Unnamed tributary to Spring Creek	I	55	28	145	96
25145096-s1	36	Unnamed tributary to Murphy Creek	I	91	25	145	96
27145096-s1	36	Unnamed tributary to Spring Creek	I	19	27	145	96
01144099-s1	38	Beicegel Creek	I	150	1	144	99
11144099-s1	38	Unnamed tributary to Beicegel Creek	I	23	11	144	99
25144099-s1	39	Unnamed tributary to Knife River	I	106	25	144	99
25144099-s2	39	Unnamed tributary to Knife River	I	32	25	144	99
35144099-s1	40	Unnamed tributary to Knife River	I	100	35	144	99
35144099-s2	40	Unnamed tributary to Knife River	I	28	35	144	99
35144099-s3	40	Unnamed tributary to Knife River	I	210	35	144	99
10143099-s1*	41	Unnamed tributary to Whitetail Creek	I	74	10	143	99
15143099-s1	41	Unnamed tributary to Whitetail Creek	I	24	15	143	99
27143099-s1	42	Unnamed tributary to Spring Creek	I	240	27	143	99
04143099-s1	42	Unnamed tributary to Spring Creek	I	21	34	143	99
34143099-s2	42	Unnamed tributary to Spring Creek	I	77	34	143	99
31142099-s1	43	Unnamed tributary to Spring Creek	I	5	31	142	99
27142099-s1	44	Unnamed tributary to Green River	I	28	27	142	99
27142099-s2	44	Unnamed tributary to Green River	I	17	27	142	99
34142099-s1	45	Unnamed tributary to Green River	I	37	34	142	99
15141099-s1	46	Unnamed Tributary to South Fork Green River	I	48	15	141	99
22141099-s1	46	South Fork Green River	I	180	22	141	99
22141099-s4	46	South Fork Green River	I	32	22	141	99
22141099-s2	46	South Fork Green River	P	47	22	141	99
22141099-s3	46	Unnamed Tributary to South Fork Green River	I	38	22	141	99
06040099-s1	47	Unnamed tributary to South Fork Creek	I	31	6	140	99
17140099-s1	48	Unnamed tributary to Heart River	I	20	17	140	99
19140099-s3	48	Heart River (upper reach)	I	44	19	140	99
16140099-s1	49	Unnamed tributary to North Creek	I	14	16	140	99
15140099-s1	50	Unnamed tributary to North Creek	I	77	15	140	99
19140099-s2	51	Heart River (upper reach)	I	8	19	140	99
30140099-s1	51	Unnamed tributary to Heart River	I	129	30	140	99
19140099-s1	51	Unnamed tributary to Heart River	I	129	30	140	99
02139100-s3	51	Unnamed tributary to Heart River	I	65	2	139	100

Waterbody ID	Figure	Waterbody Name	Type	Stream Crossing Width (ft)	SEC	TWP	RNG
02139100-s4	52	Unnamed tributary to Heart River	I	170	2	139	100
02139100-s2	52	Unnamed tributary to Heart River	I	33	2	139	100
02139100-s1	52	Unnamed tributary to Heart River	I	88	7	139	100
Totals				86	19,787		

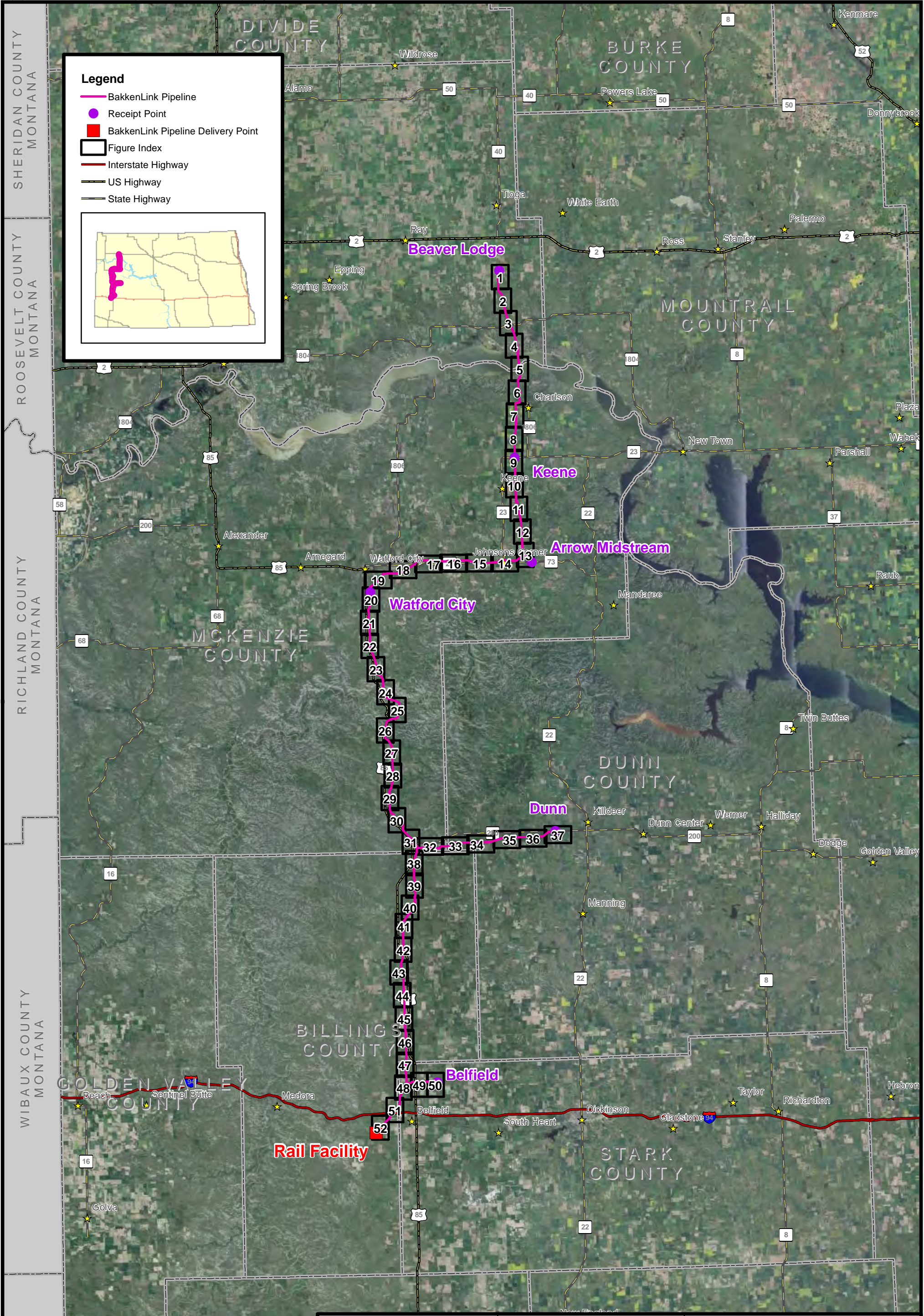
*not field verified

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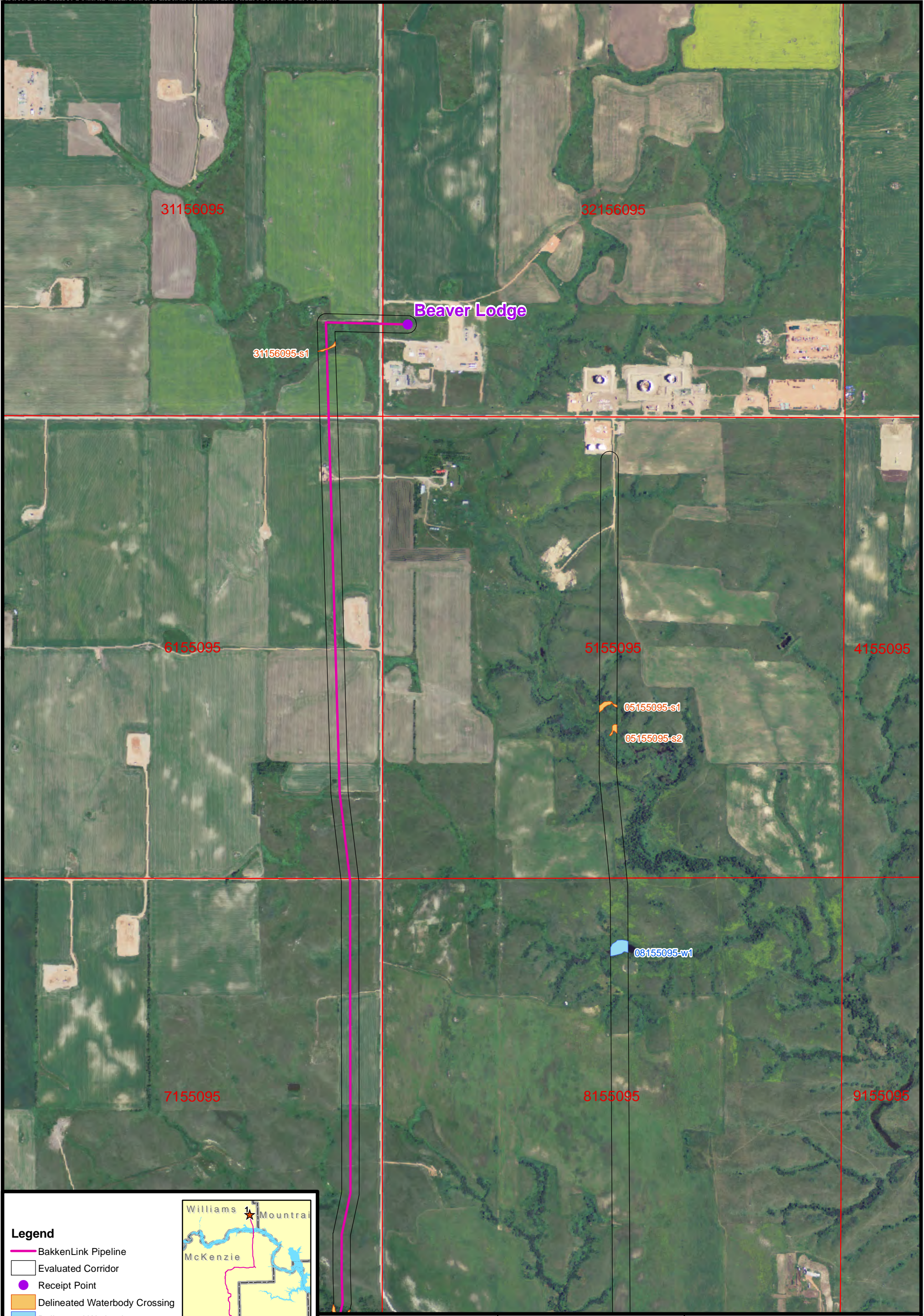
Appendix A

Figures










1:633,600 1 inch = 10 miles
 0 2.5 5 10 Miles
 Source: NAIP Orthophoto 2010
 Date: October 2011

Index Sheet
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

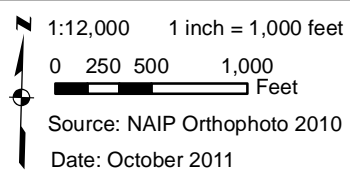
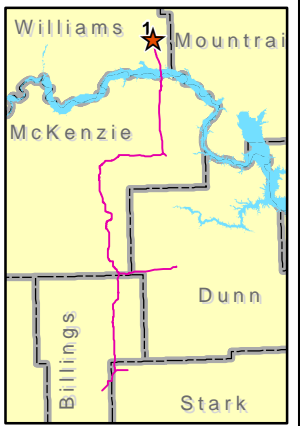
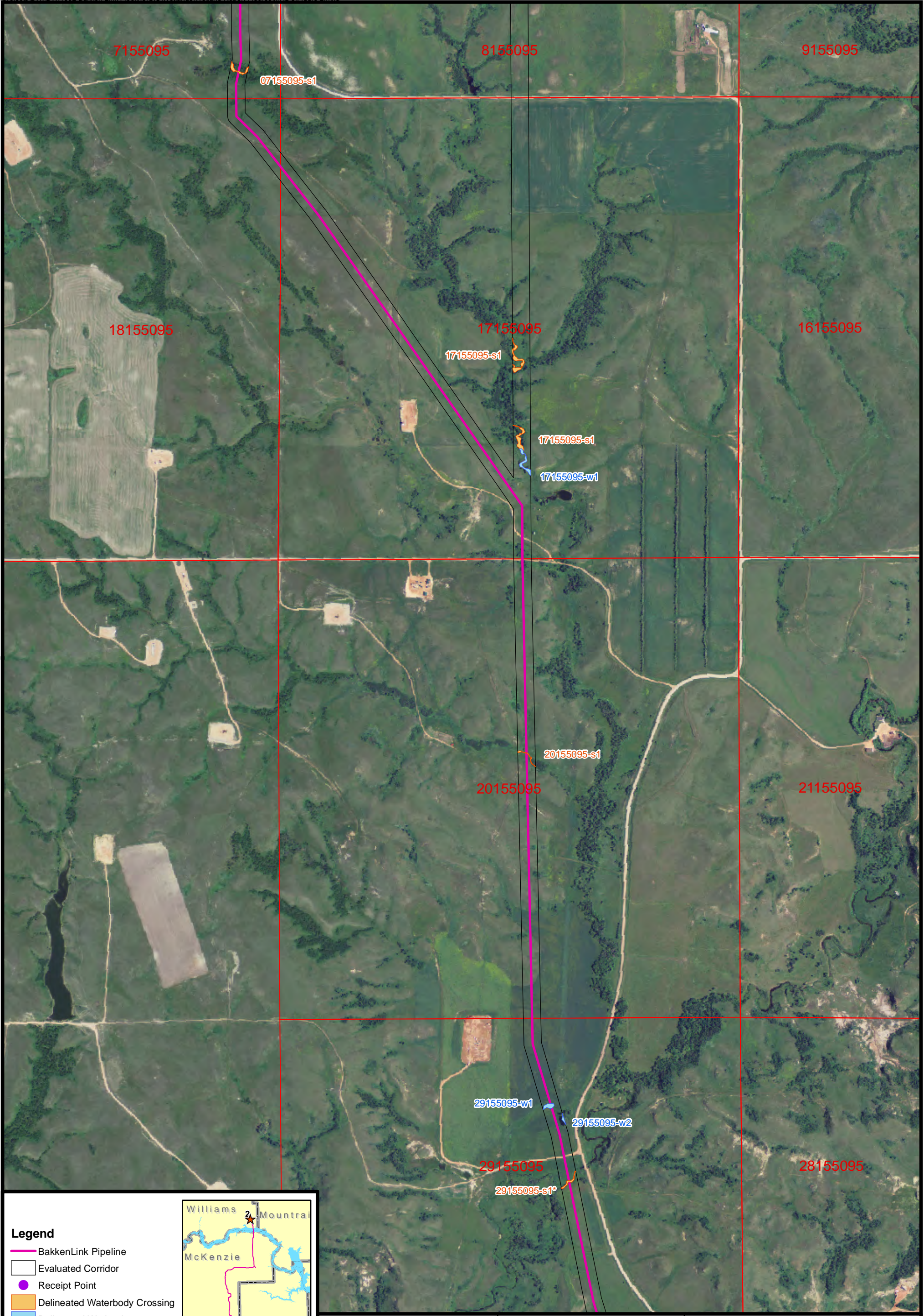


FIGURE 1
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

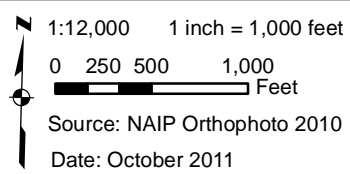
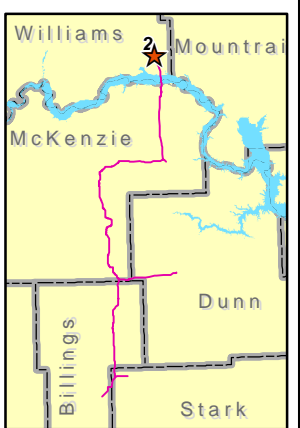
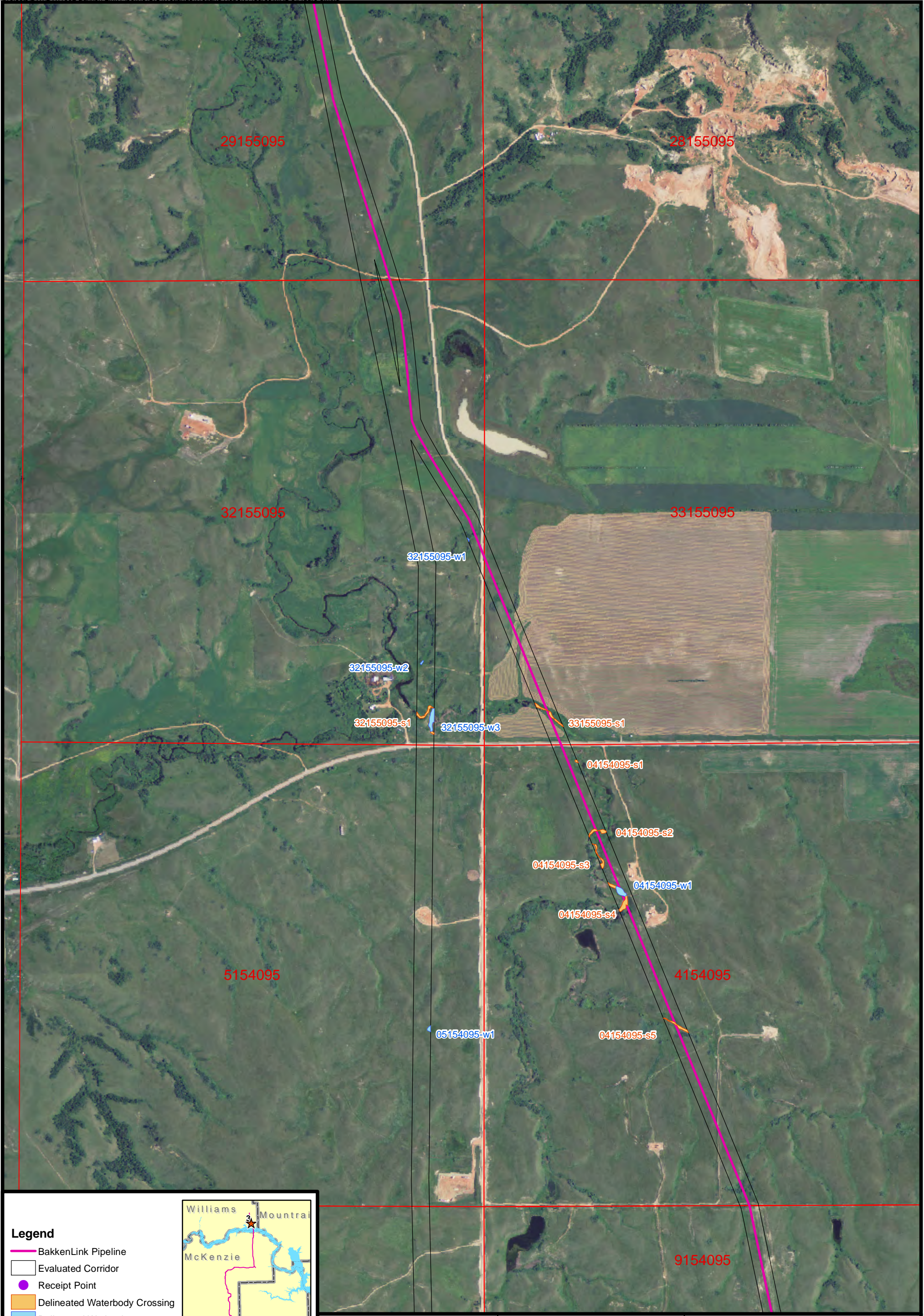







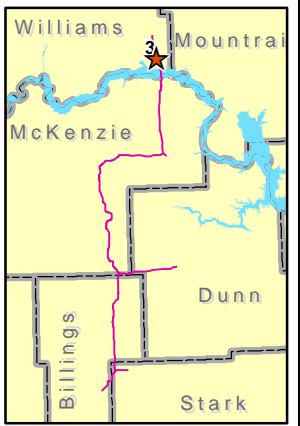


FIGURE 2
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



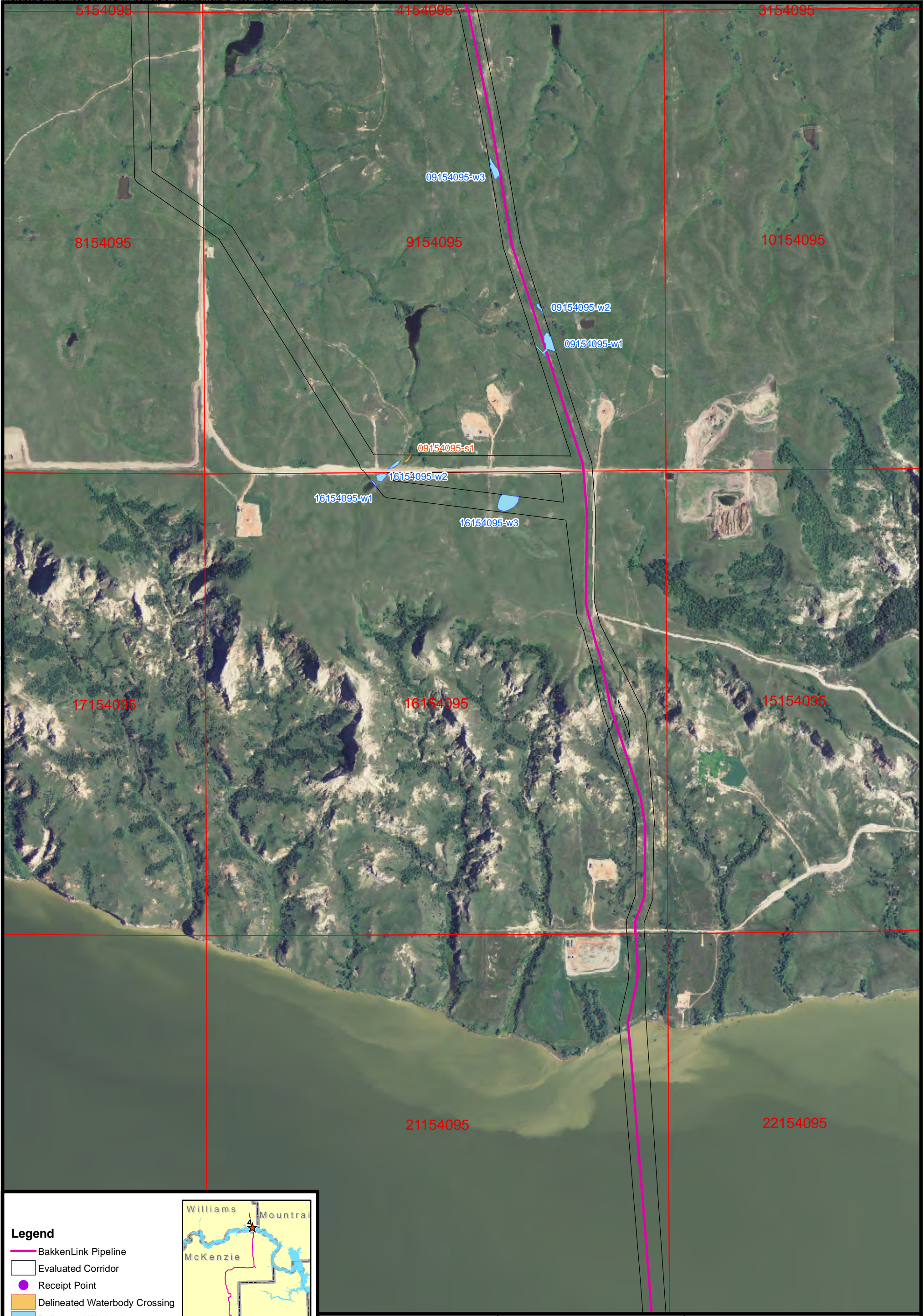
Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range



1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 3
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

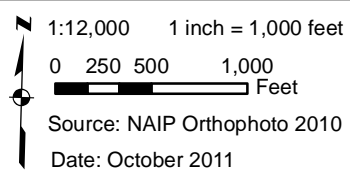
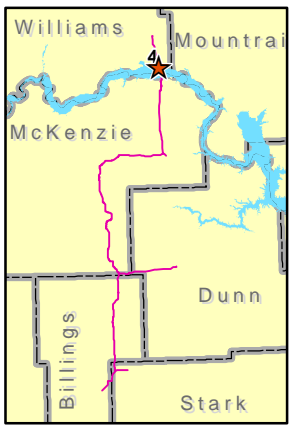
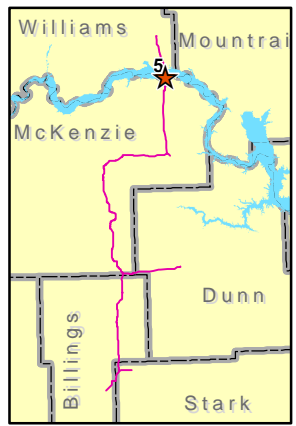


FIGURE 4
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

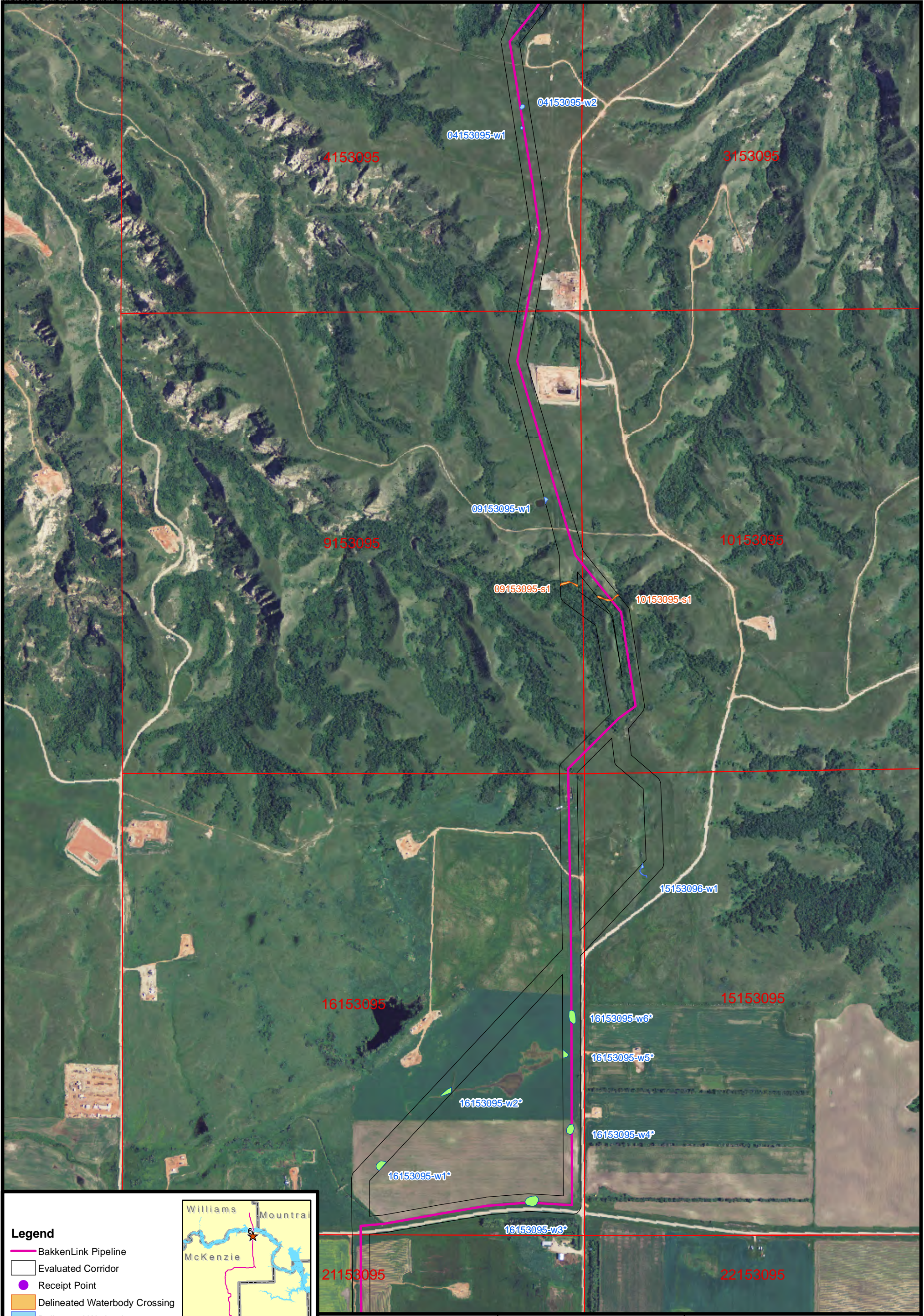


- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range



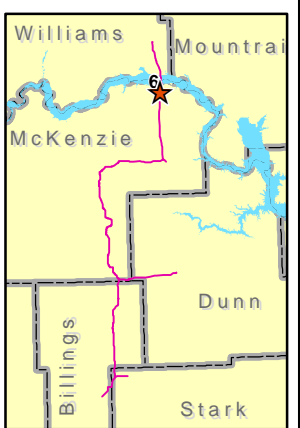
1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 5
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



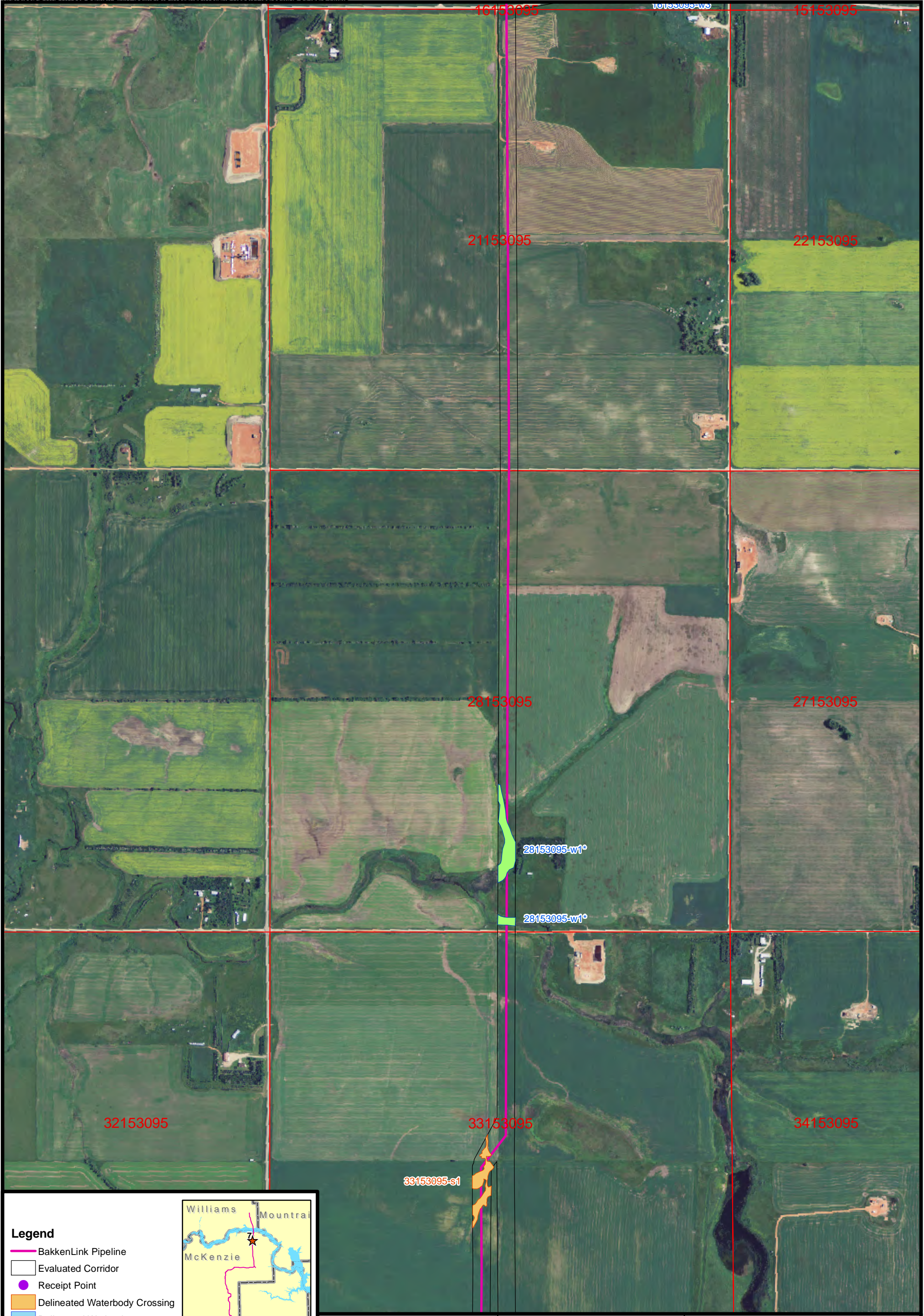
Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

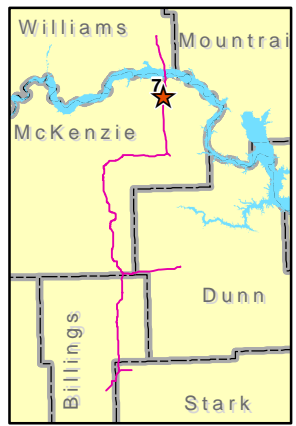


1:12,000 1 inch = 1,000 feet
 0 250 500 1,000
 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 6
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

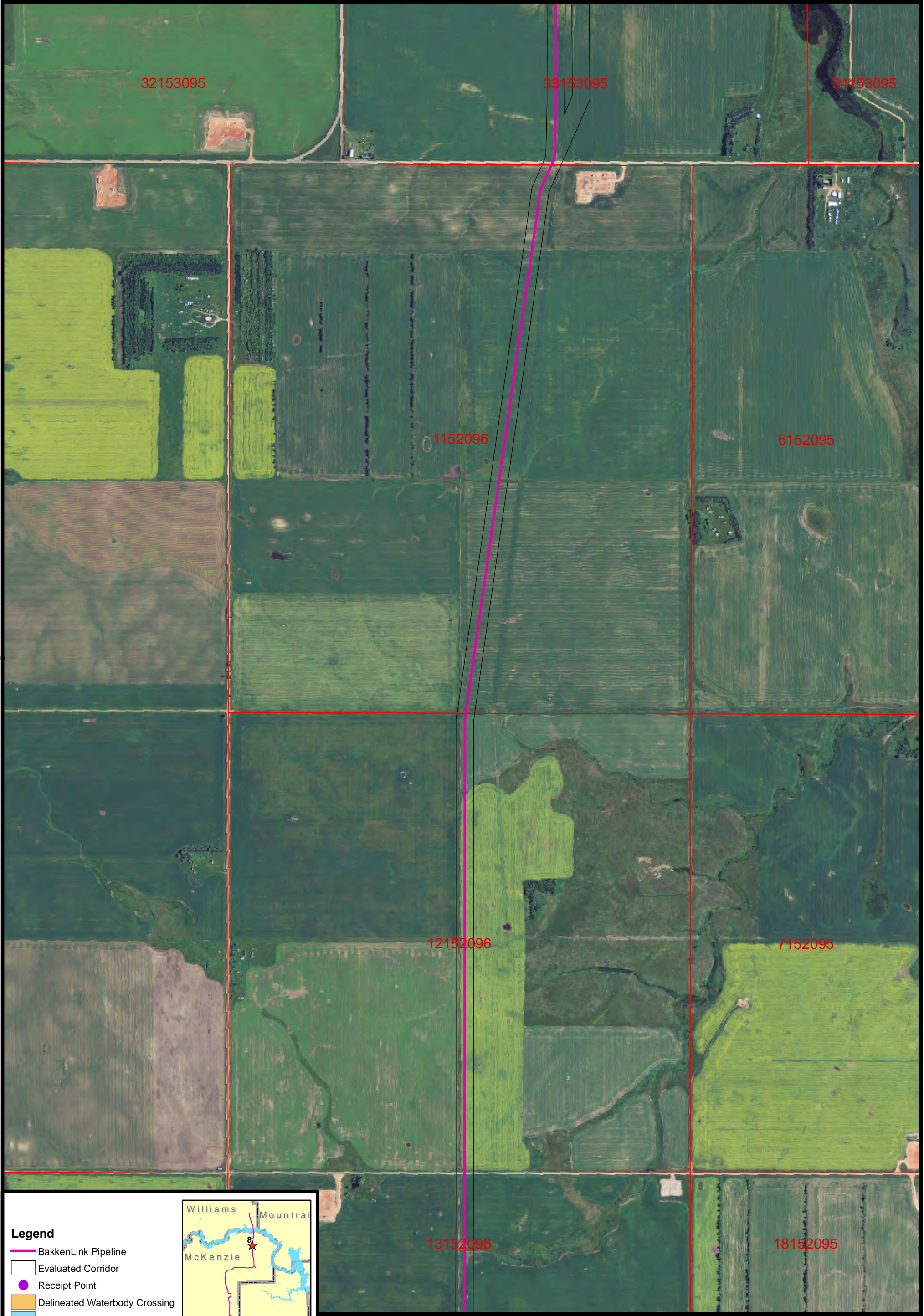


- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range



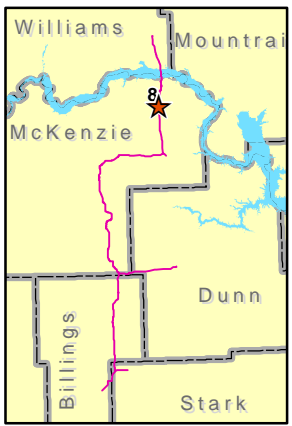
1:12,000 1 inch = 1,000 feet
 0 250 500 1,000
 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 7
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



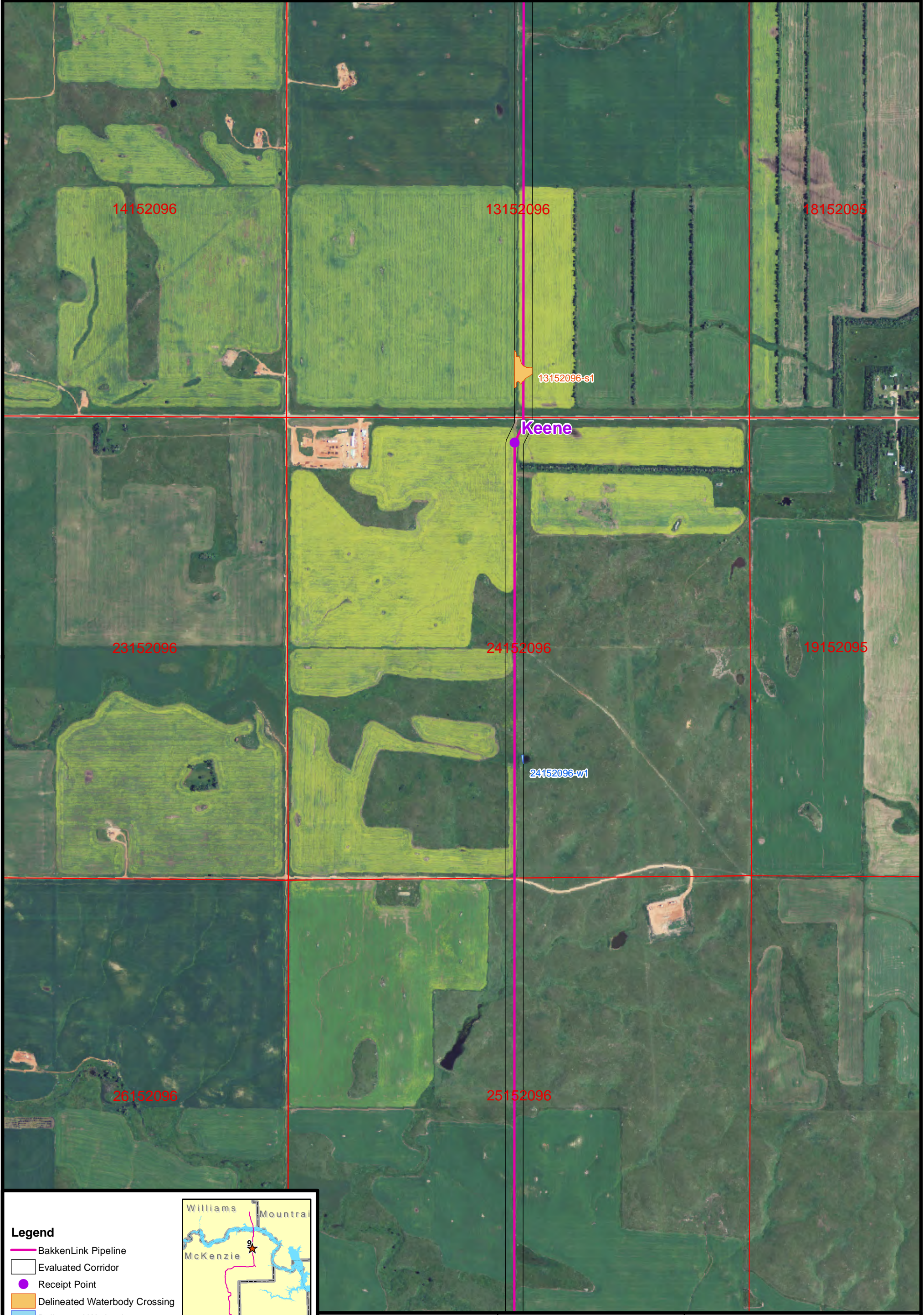
Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



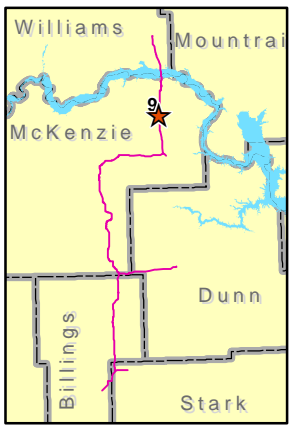
N 1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 8
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



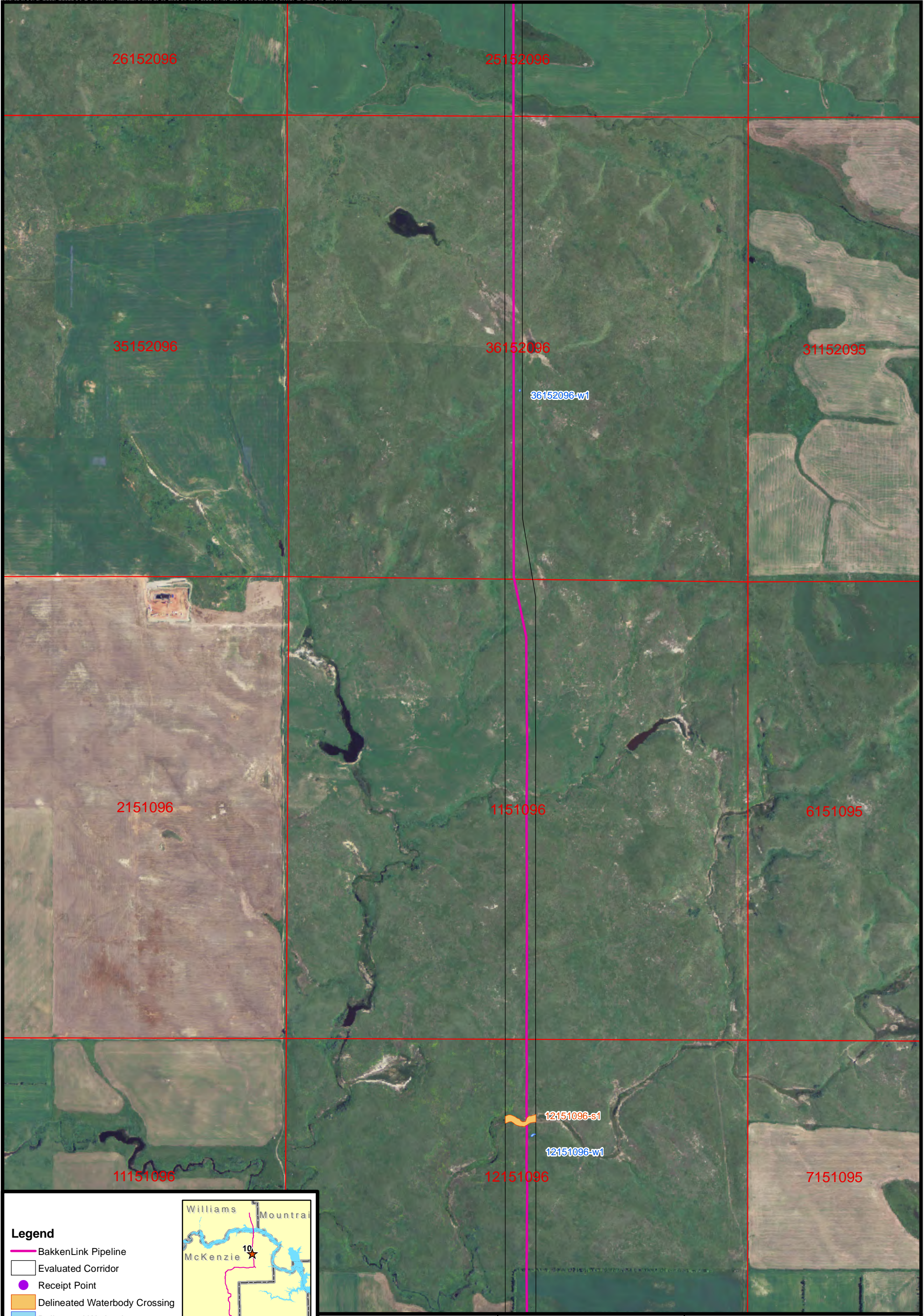
Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range










N 1:12,000 1 inch = 1,000 feet
0 250 500 1,000
Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 9
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

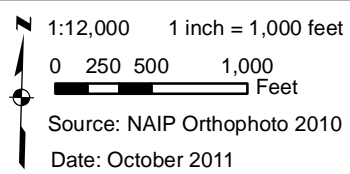
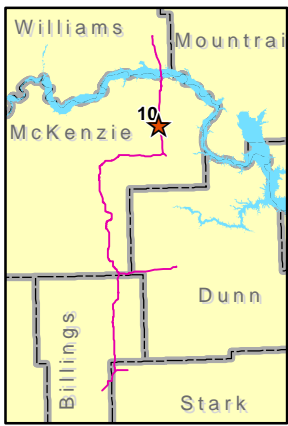
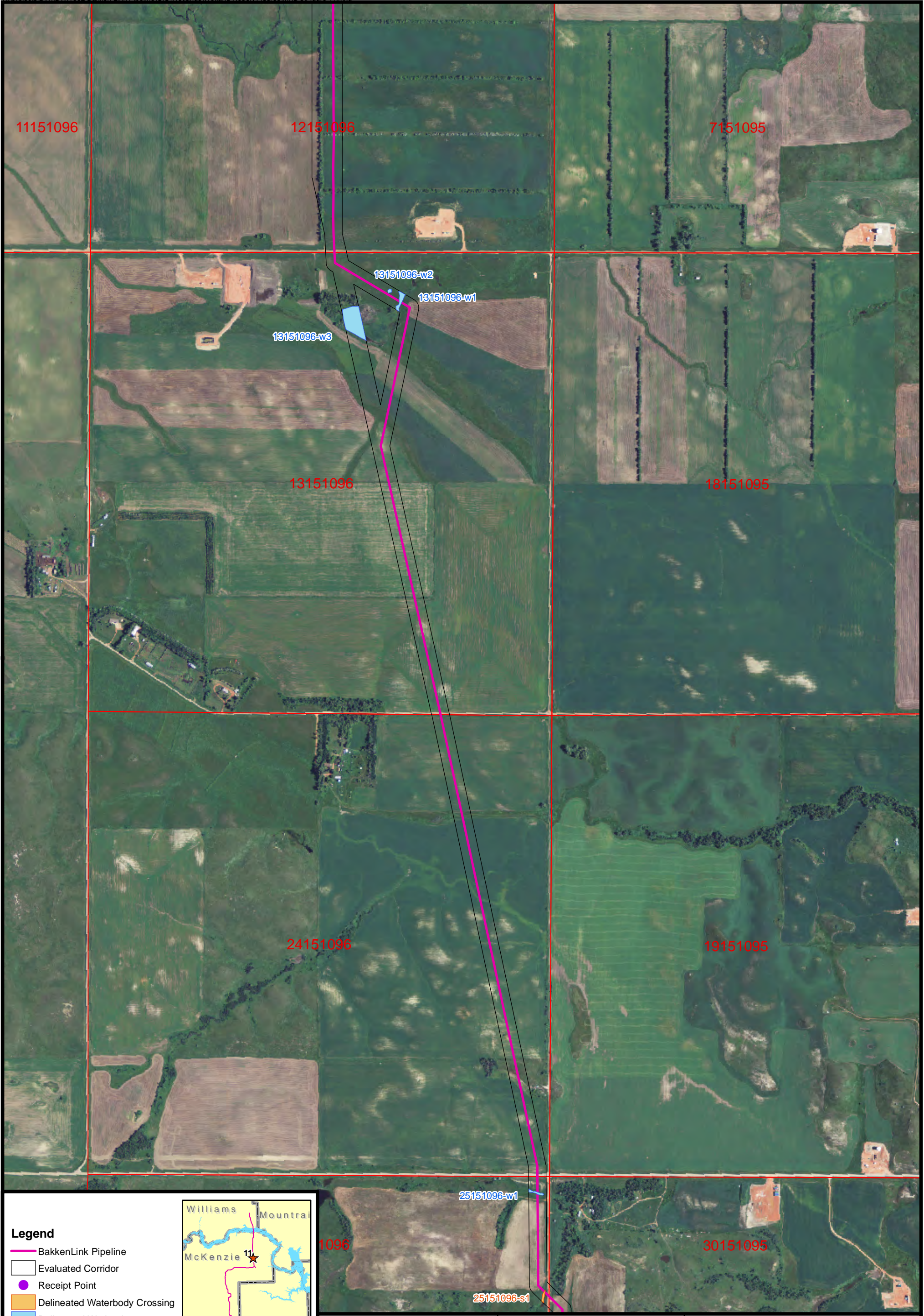


FIGURE 10
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

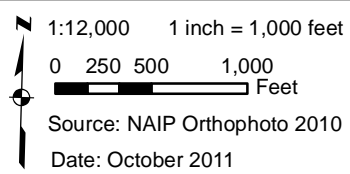
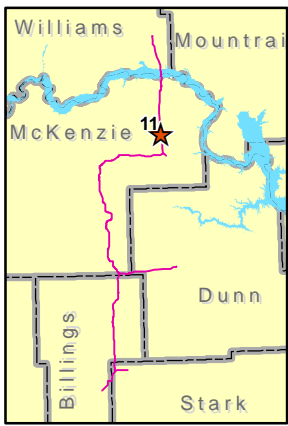
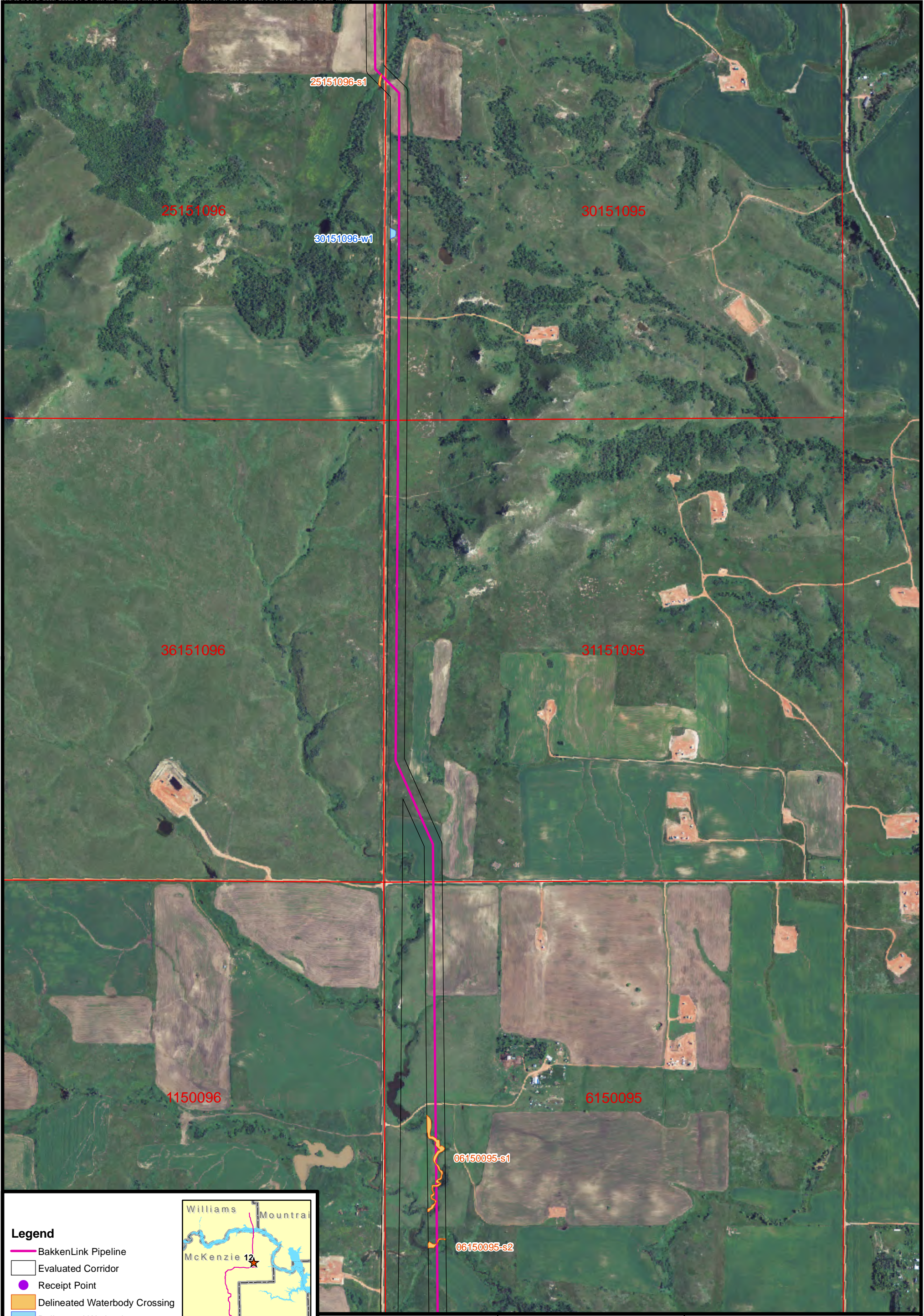


FIGURE 11
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



25151096-s1

25151096

30151096-w1

30151095

36151096

31151095

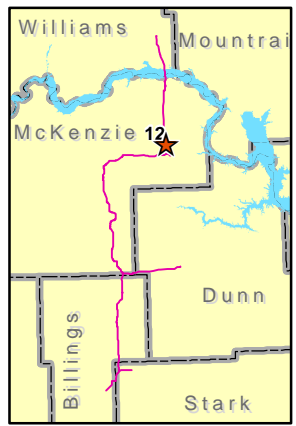
1150096

6150095

06150095-s1

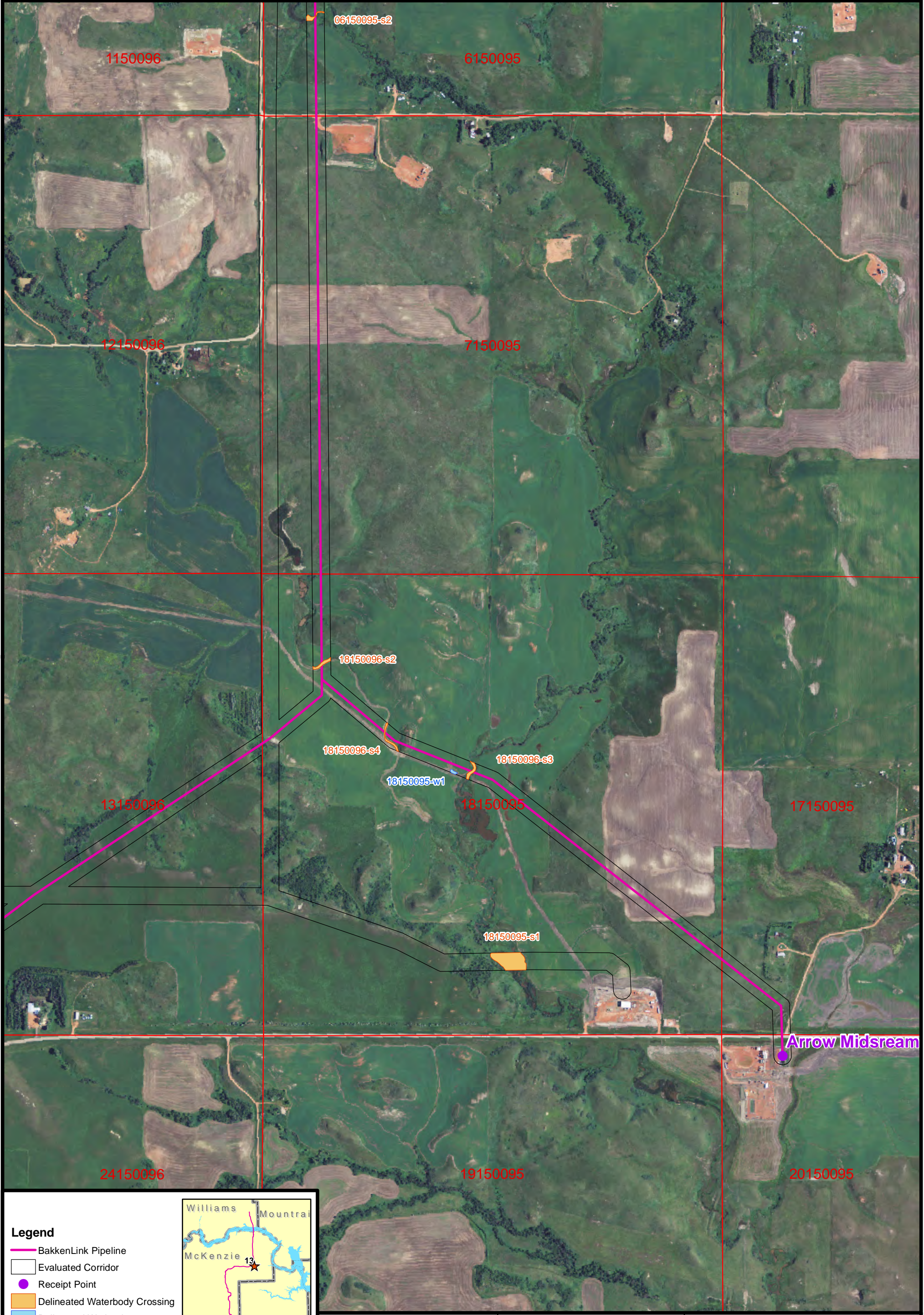
06150095-s2

- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 12
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

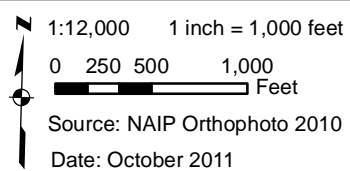
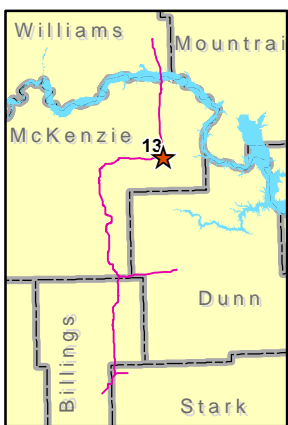
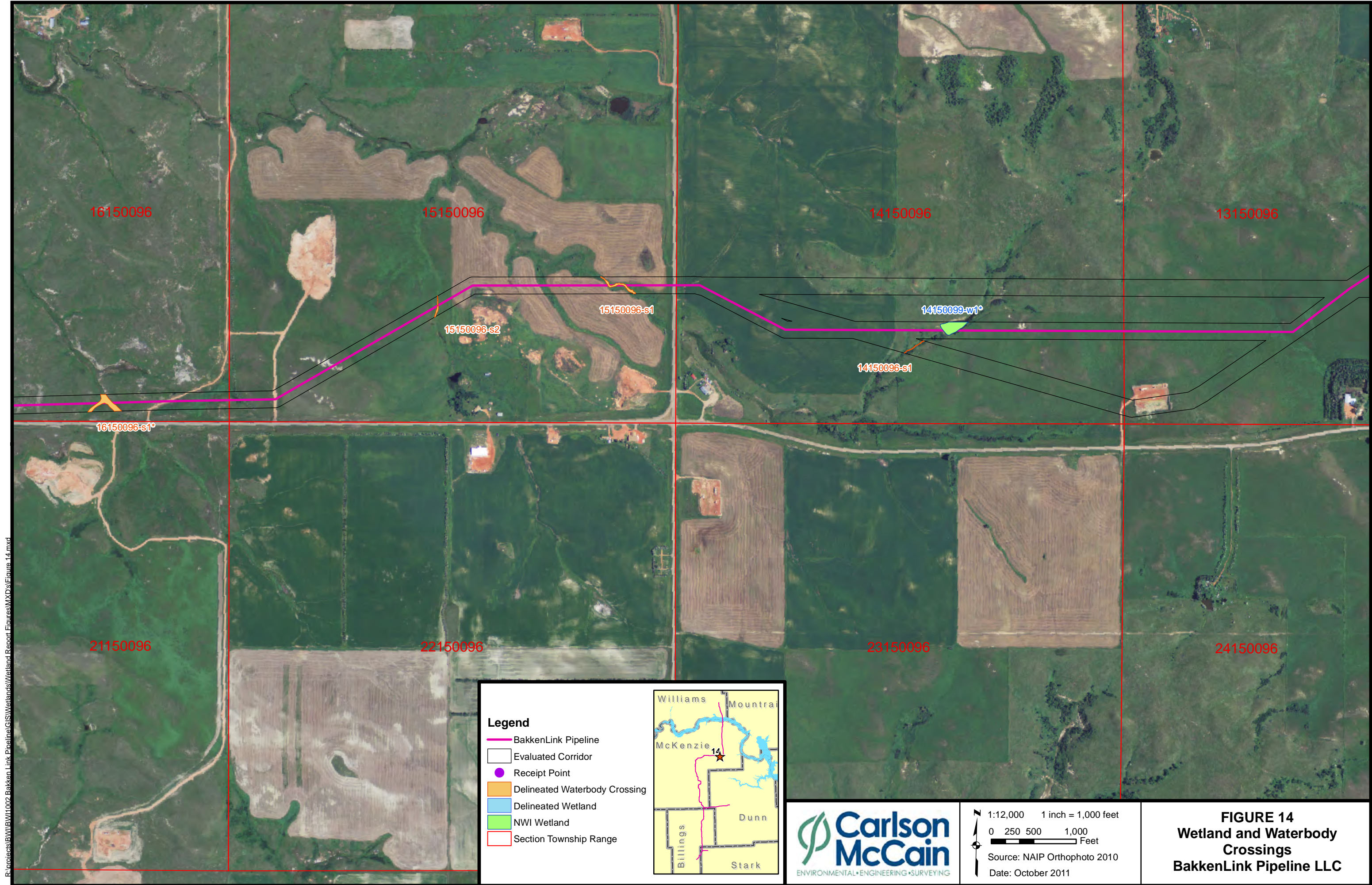


FIGURE 13
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



R:\projects\BIBW\1002 Bakken Link Pipeline\GIS\Wetlands\Wetland Report Figures\MXD\Figure 14.mxd

Legend

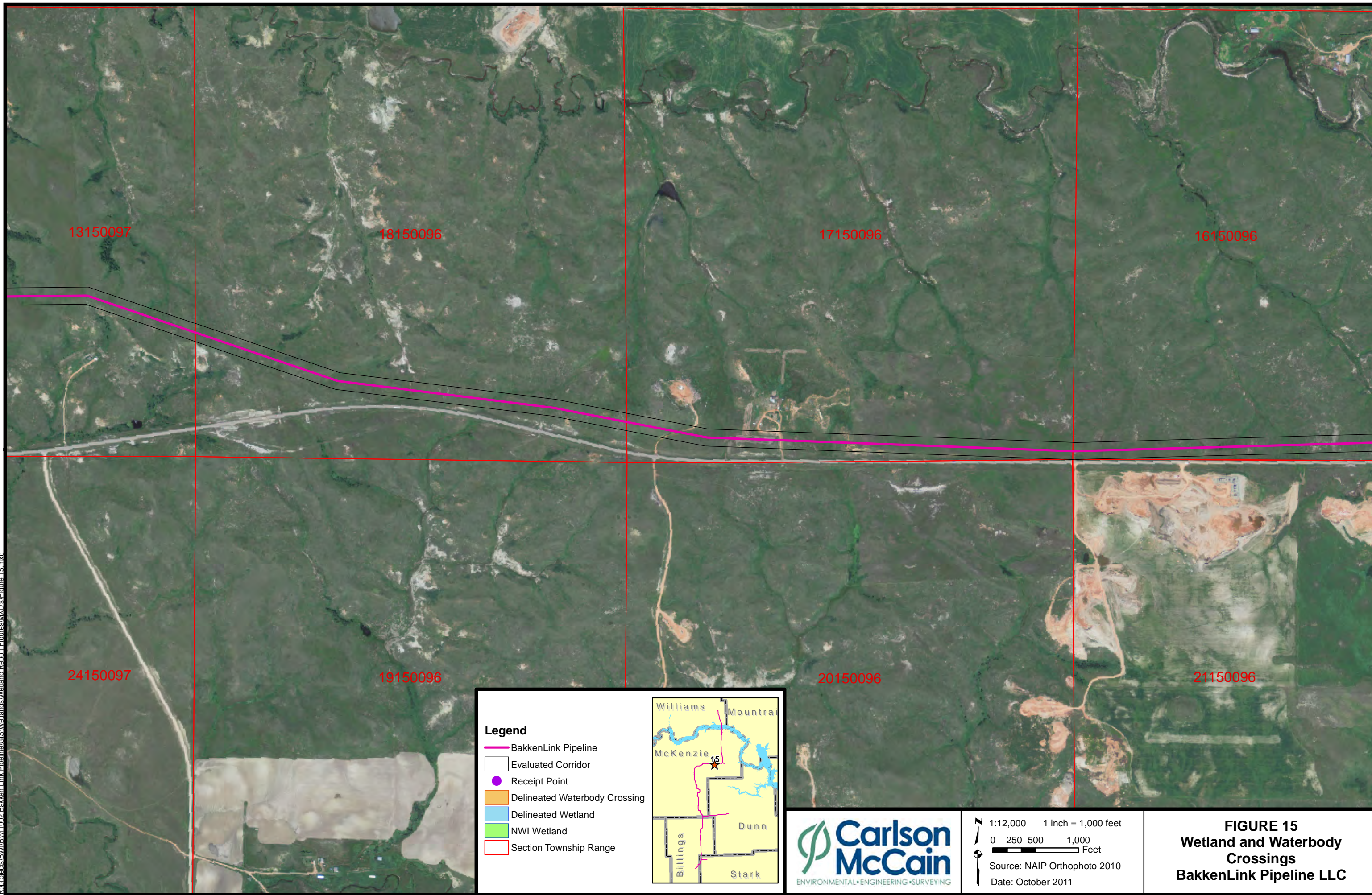
- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 14
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BakkenLink\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD\Figure_15.mxd



Legend

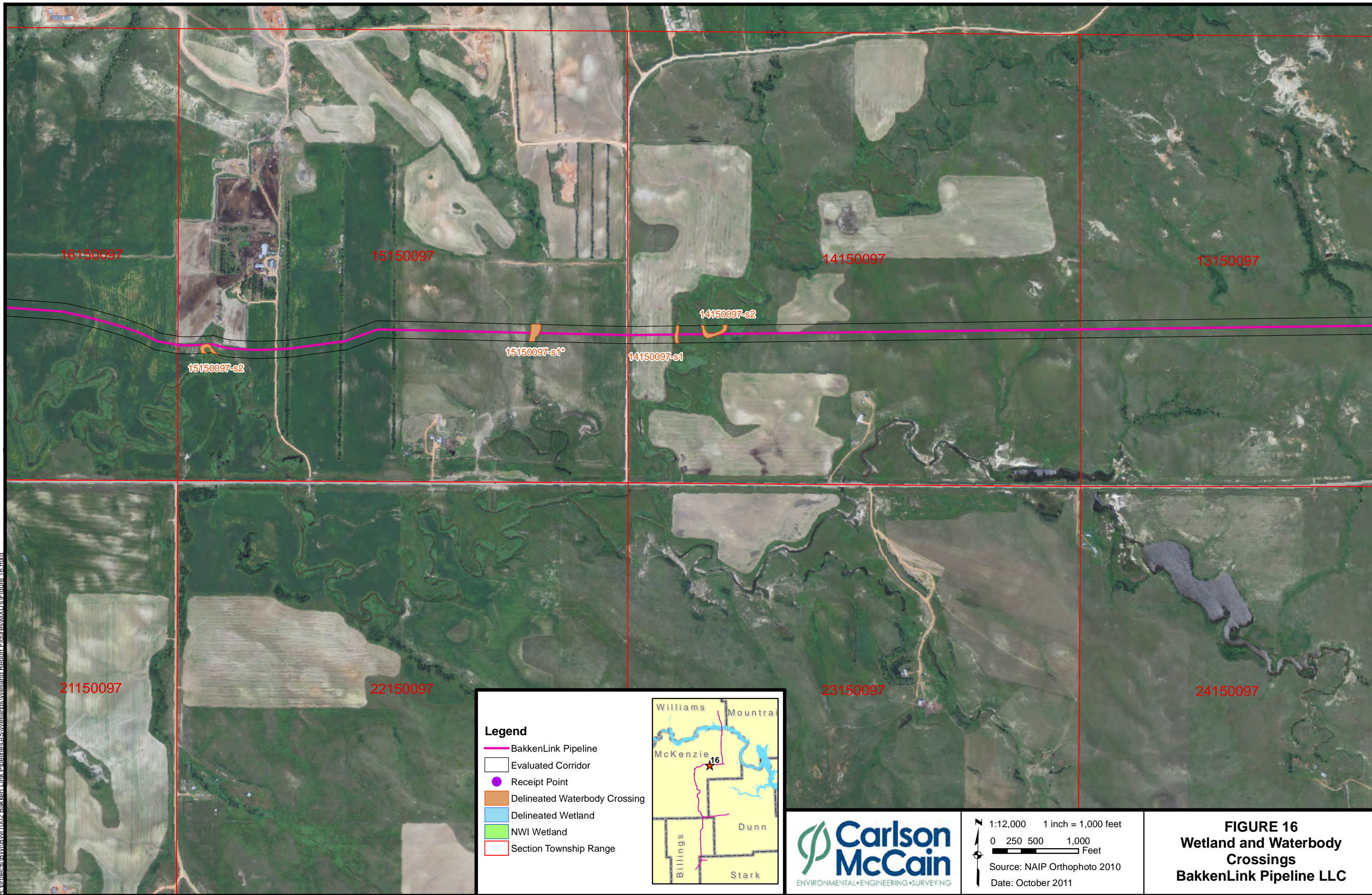
- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

**Carlson
McCain**
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1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 15
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIBW\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD\Figure_16.mxd



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



1:12,000 1 inch = 1,000 feet

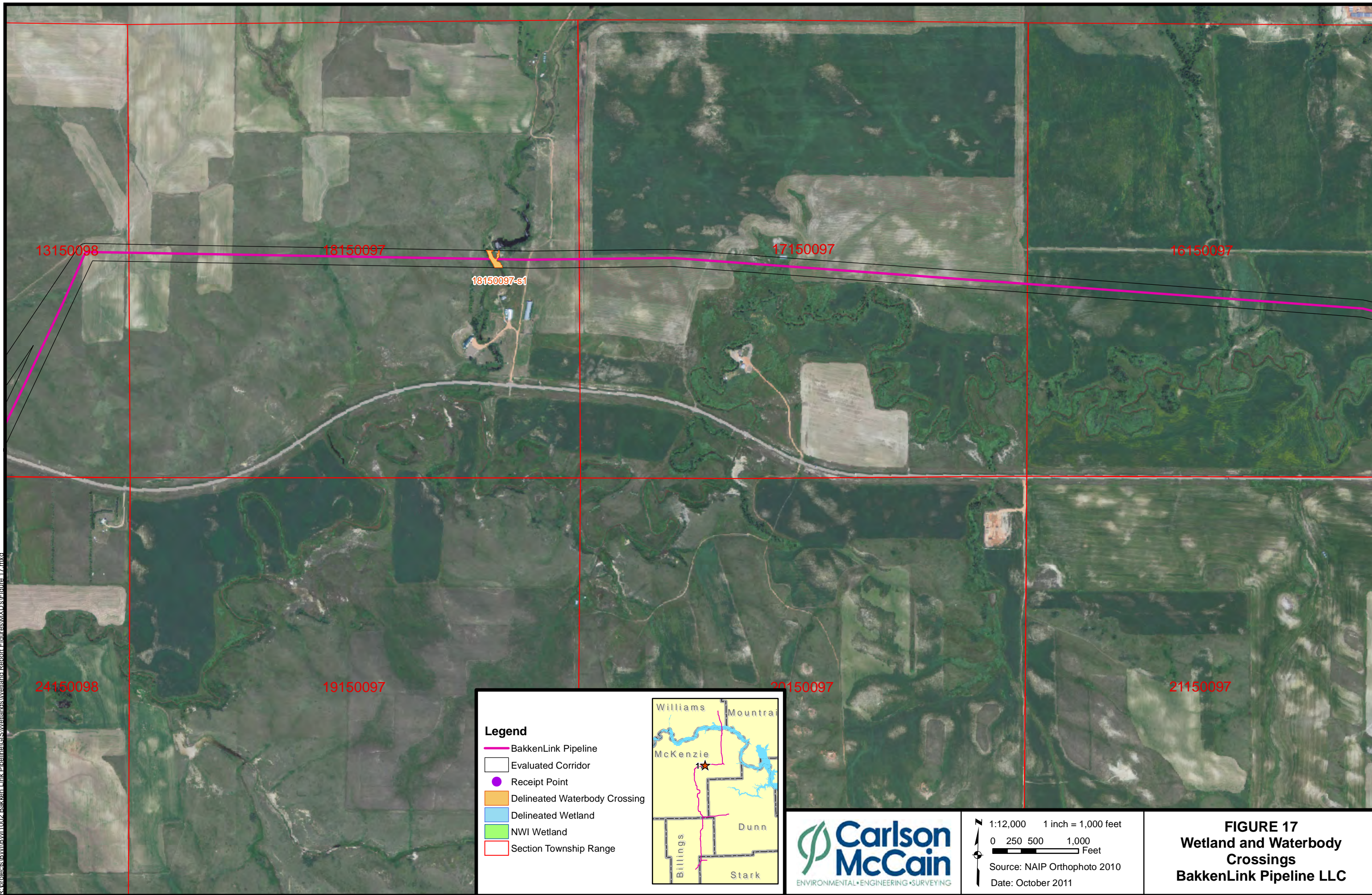
0 250 500 1,000 Feet

Source: NAIP Orthophoto 2010

Date: October 2011

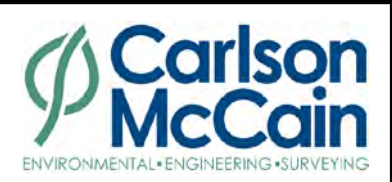
FIGURE 16
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIB\BIB\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD\Figure_17.mxd



Legend

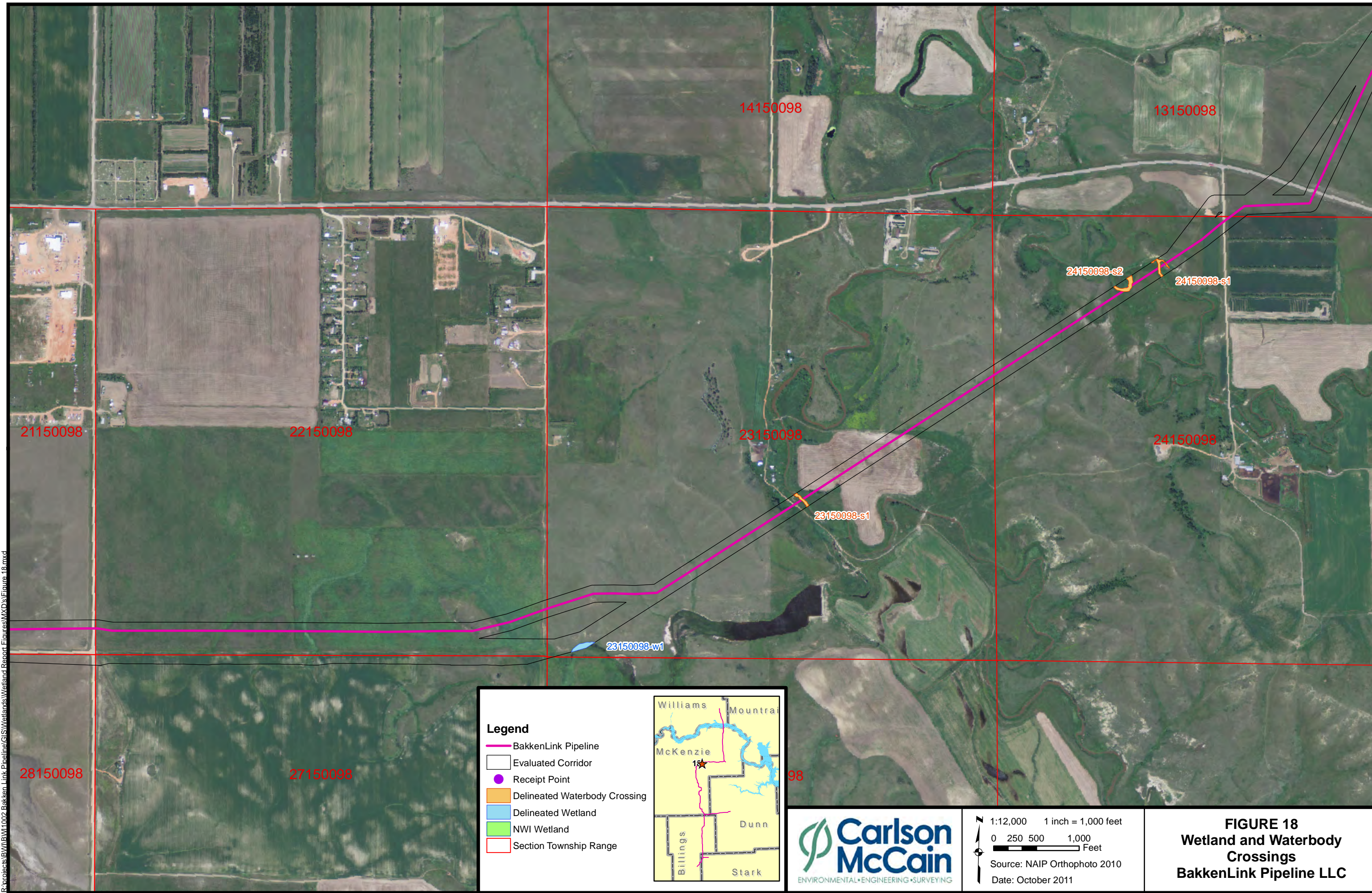
- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 17
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\B\W\B\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD\Figure_18.mxd



Legend

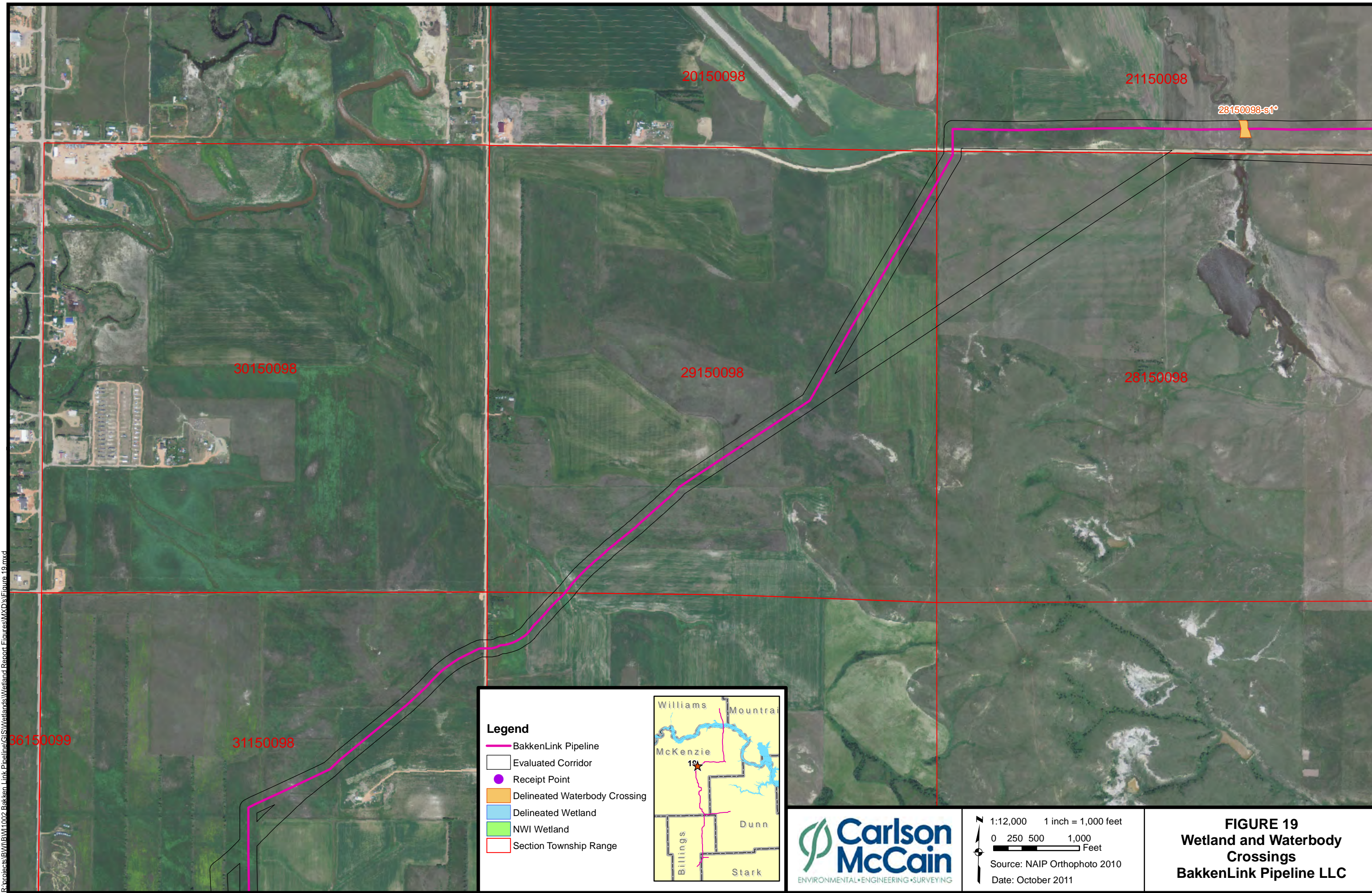
- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 18
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIBWI\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD's\Figure_19.mxd



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

Williams Mountra

McKenzie

19

Billings Dunn

Stark



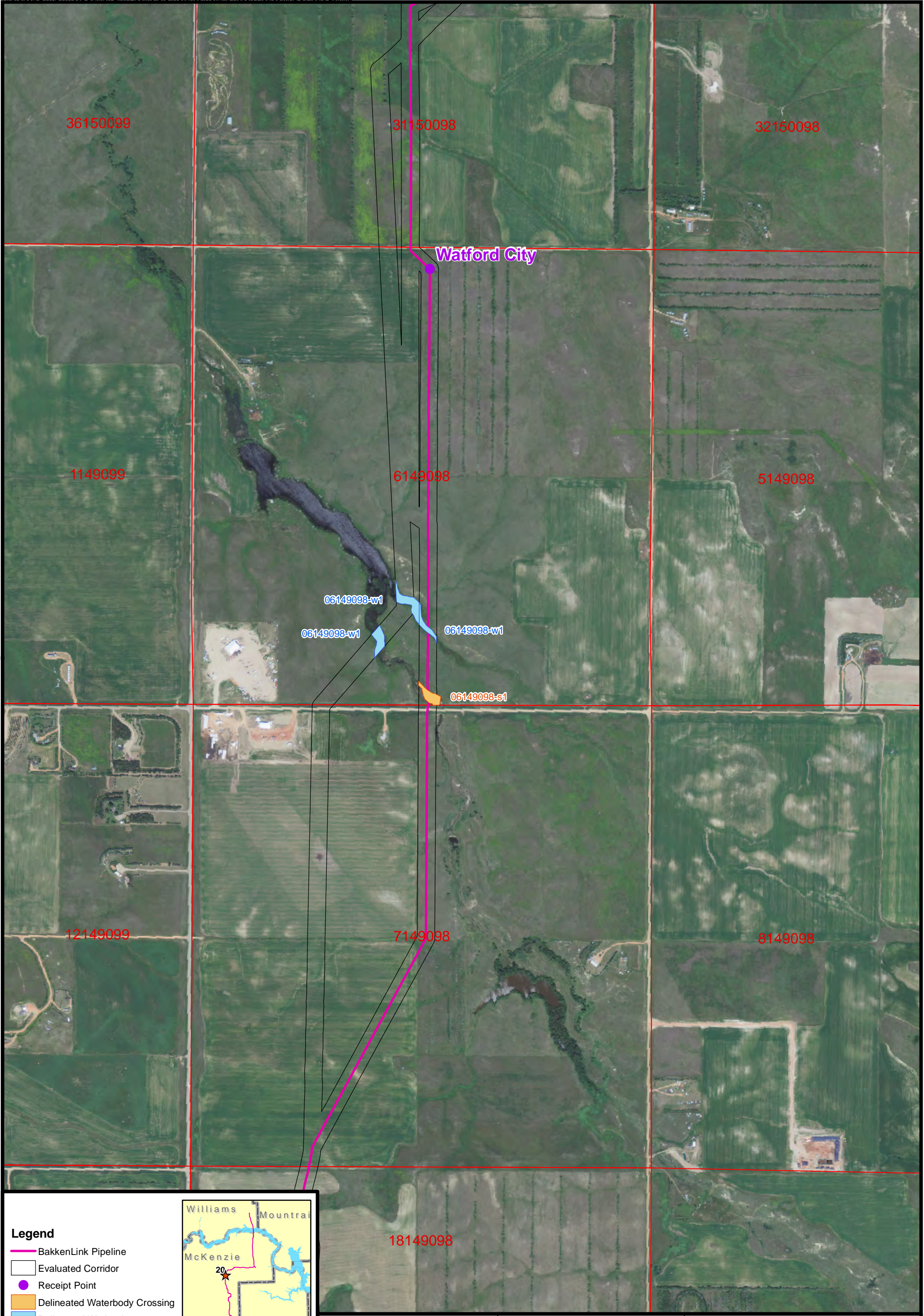
1:12,000 1 inch = 1,000 feet

0 250 500 1,000 Feet

Source: NAIP Orthophoto 2010

Date: October 2011

FIGURE 19
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

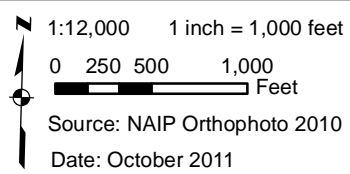
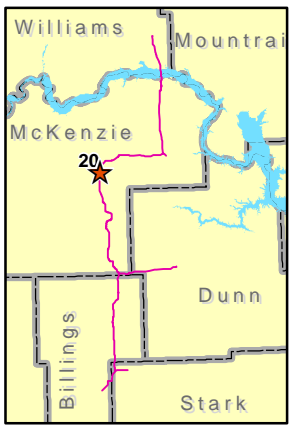
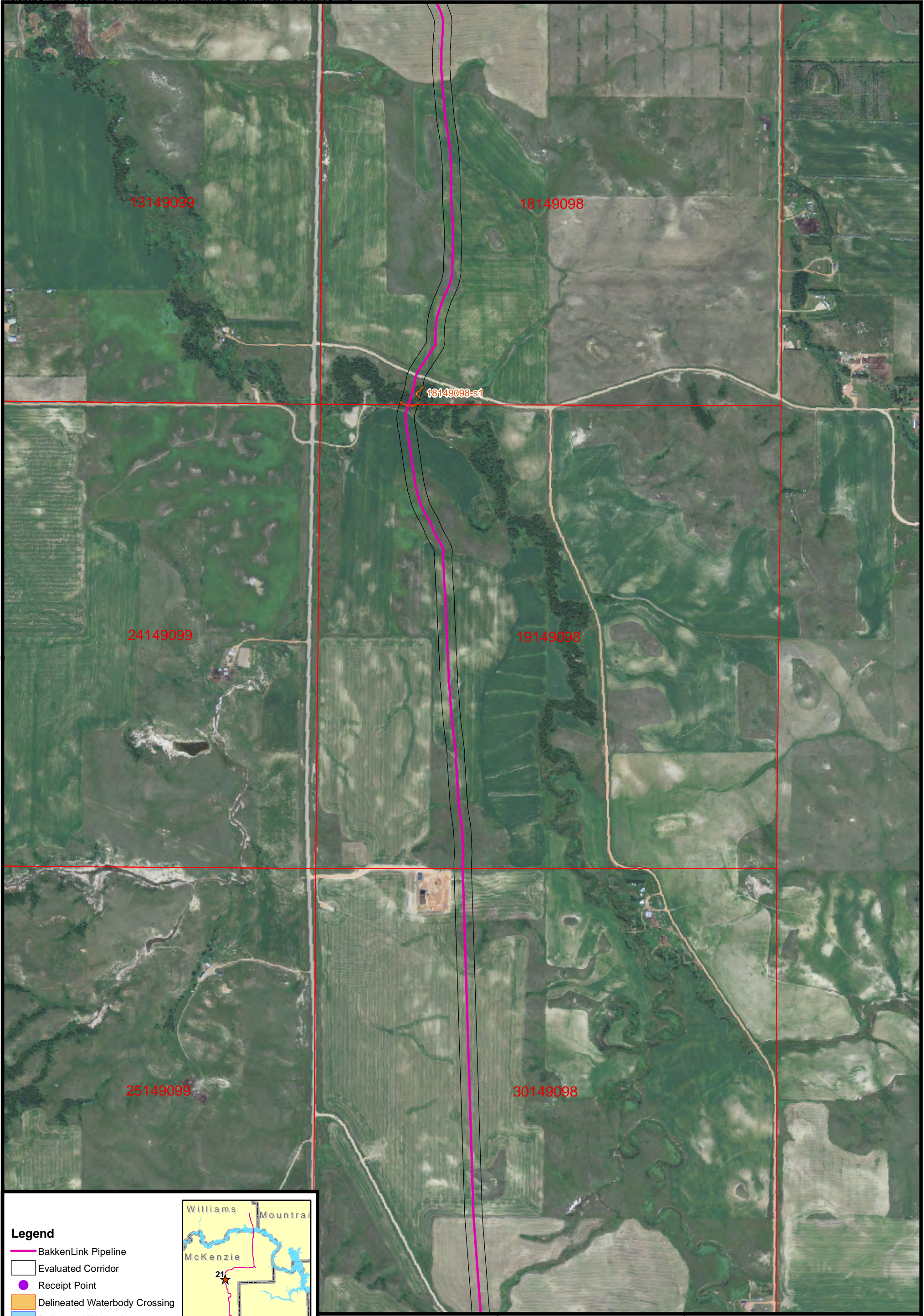
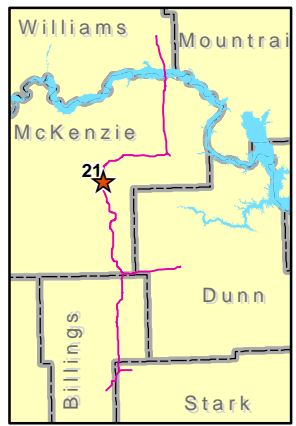


FIGURE 20
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

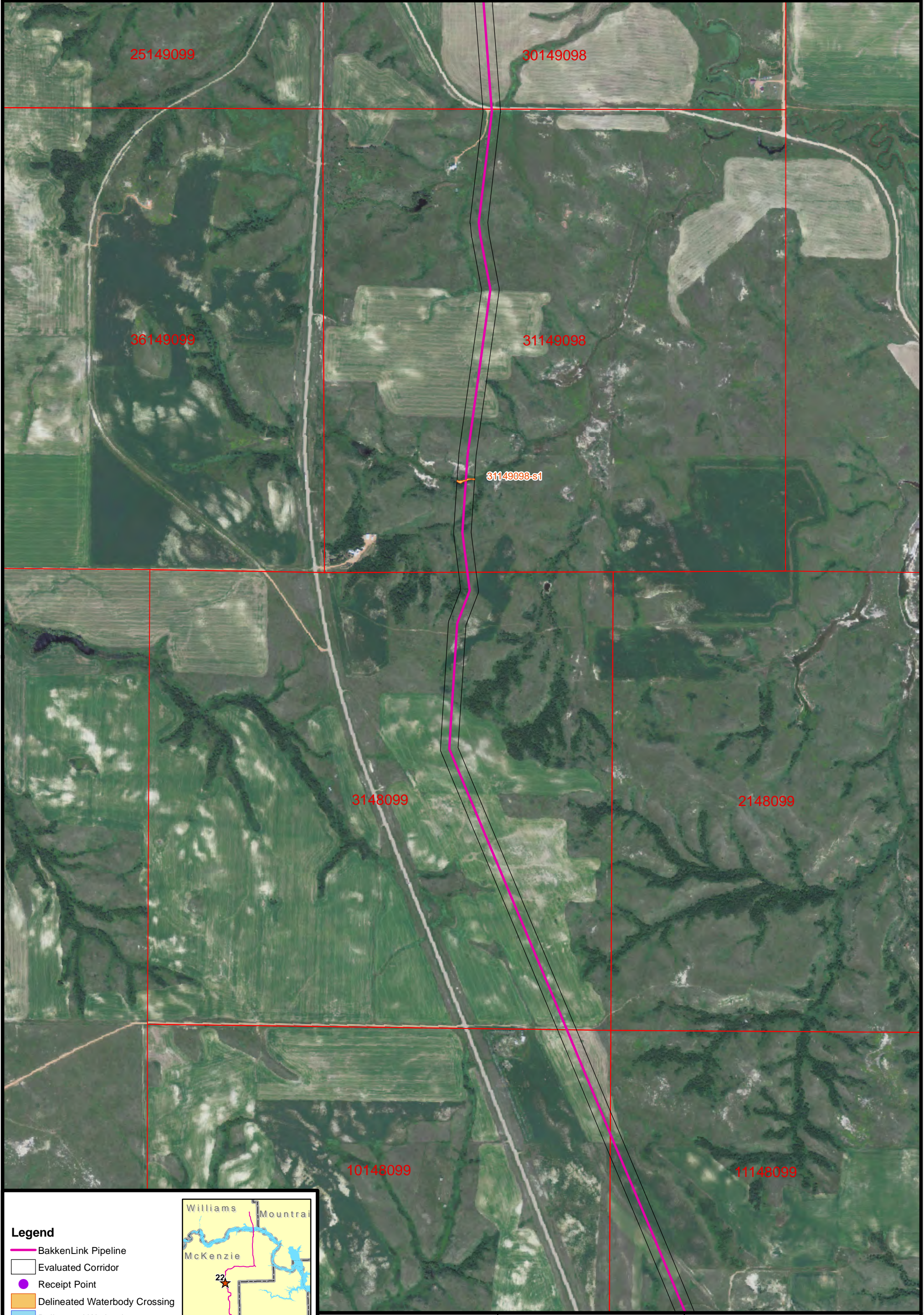


- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range










1:12,000 1 inch = 1,000 feet
 0 250 500 1,000
 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 21
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

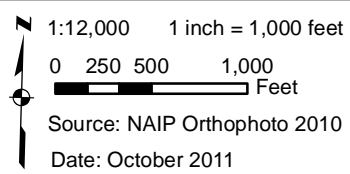
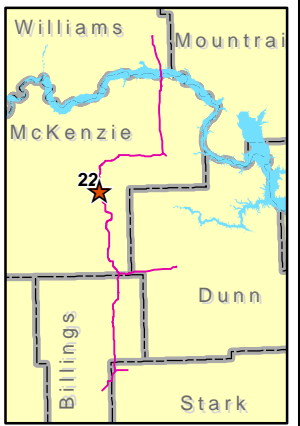
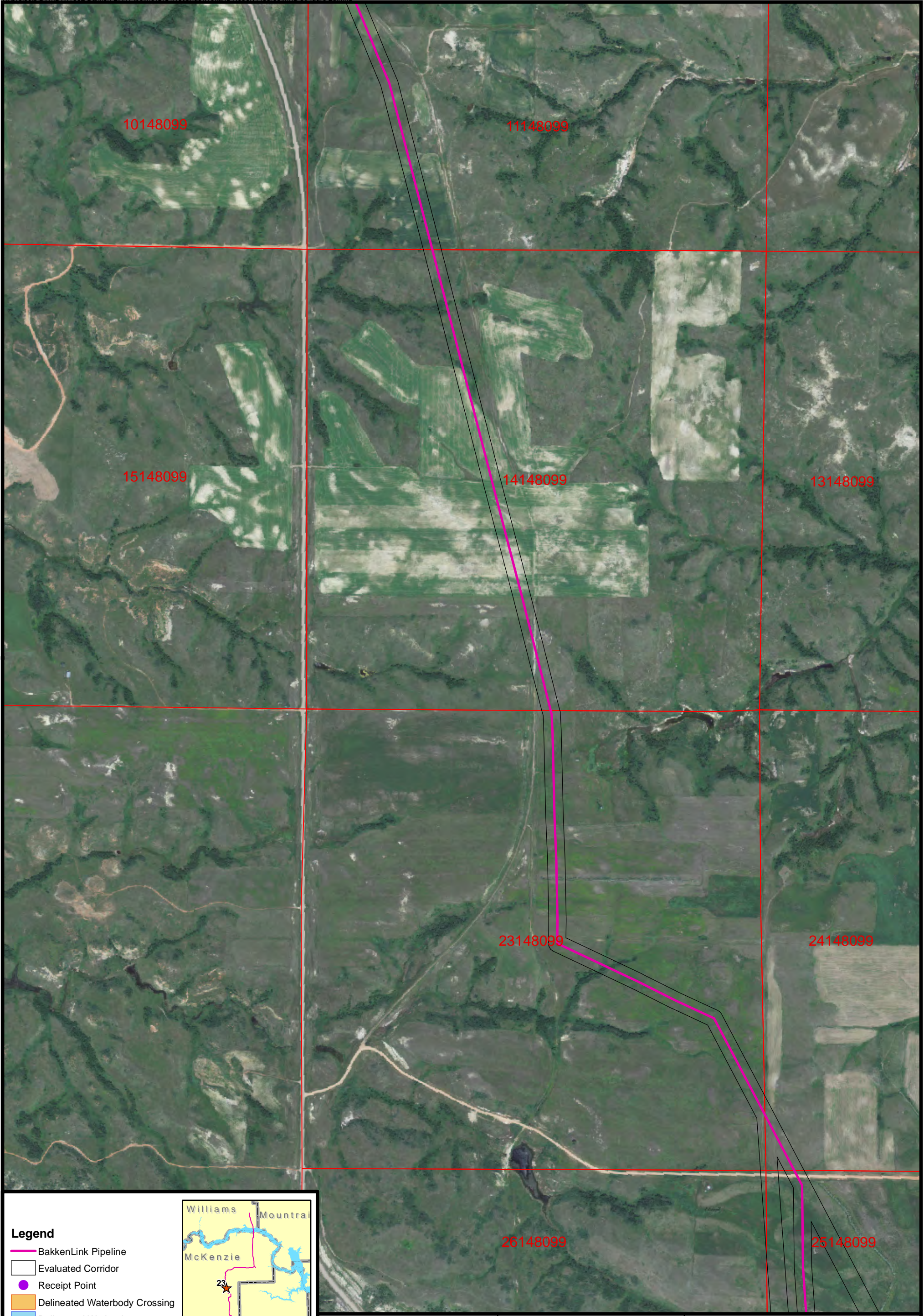
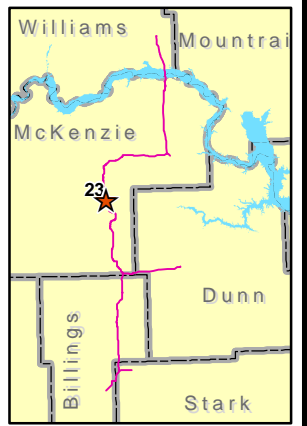


FIGURE 22
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

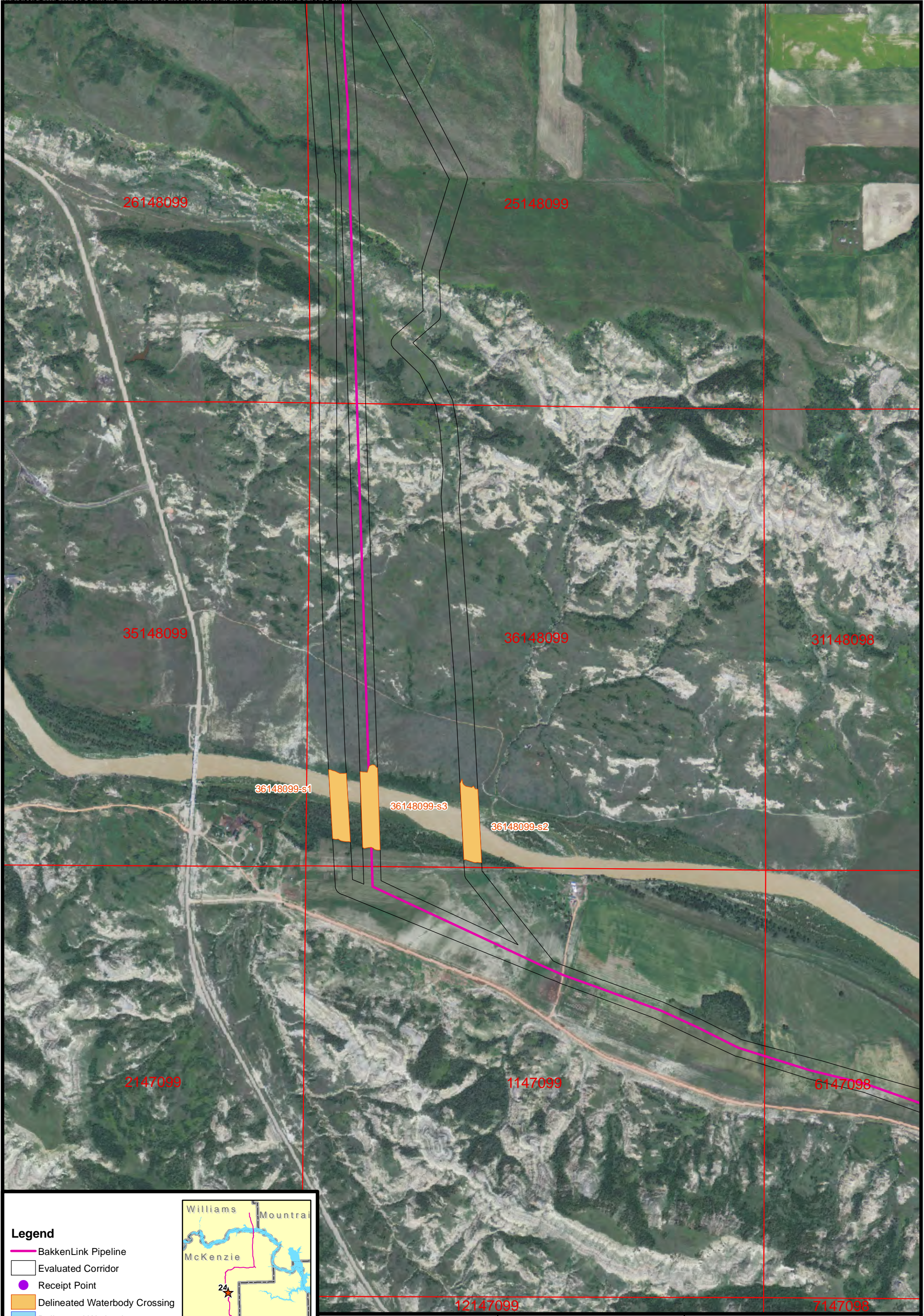


- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range



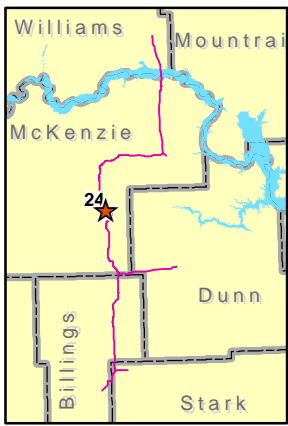
1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 23
Wetland and Waterbody Crossings
BakkenLink Pipeline LLC



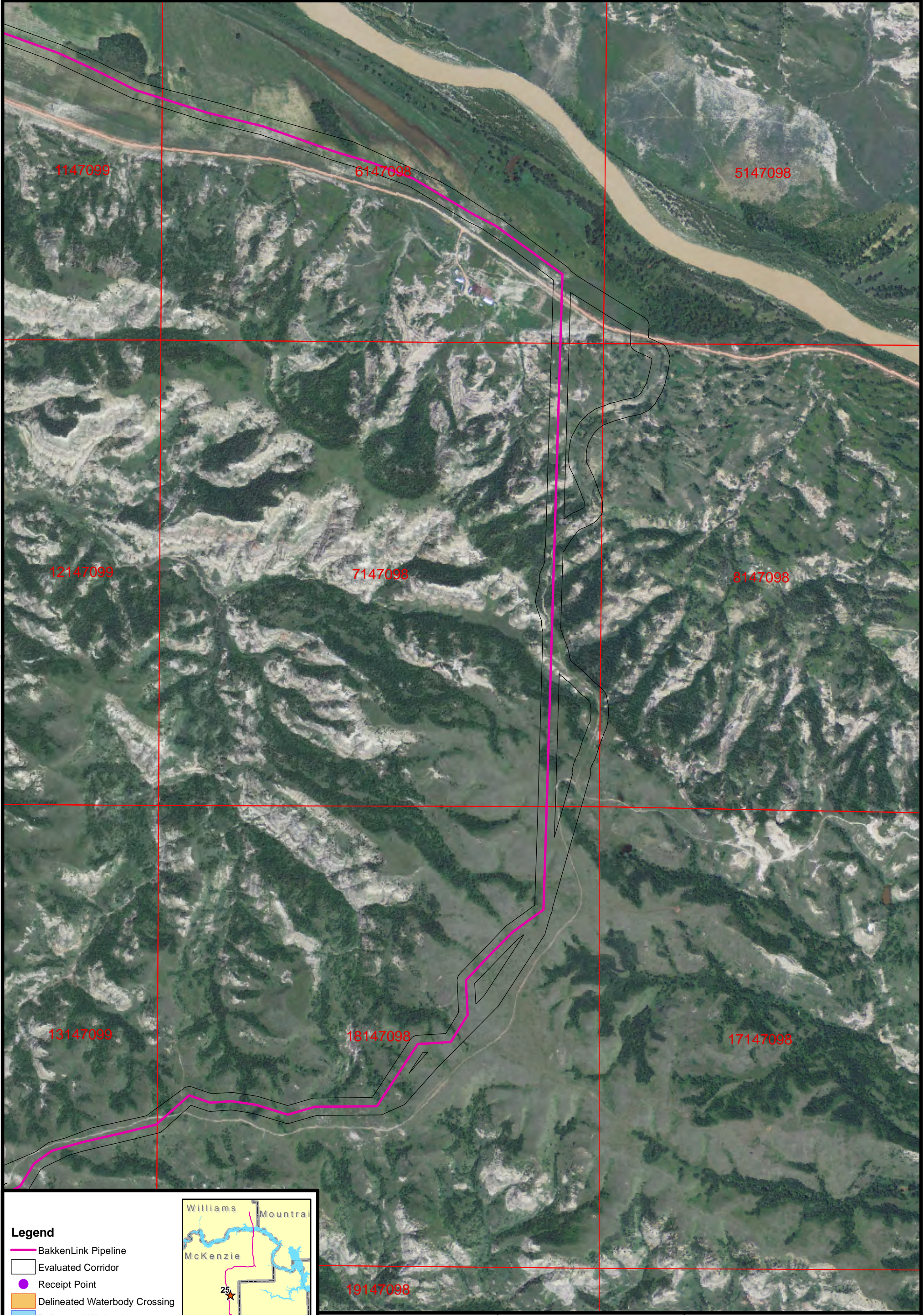
Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range










1:12,000 1 inch = 1,000 feet
 0 250 500 1,000
 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 24
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

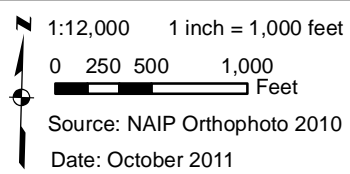
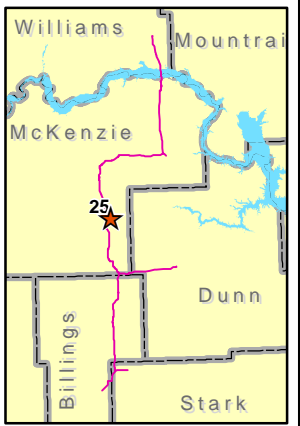
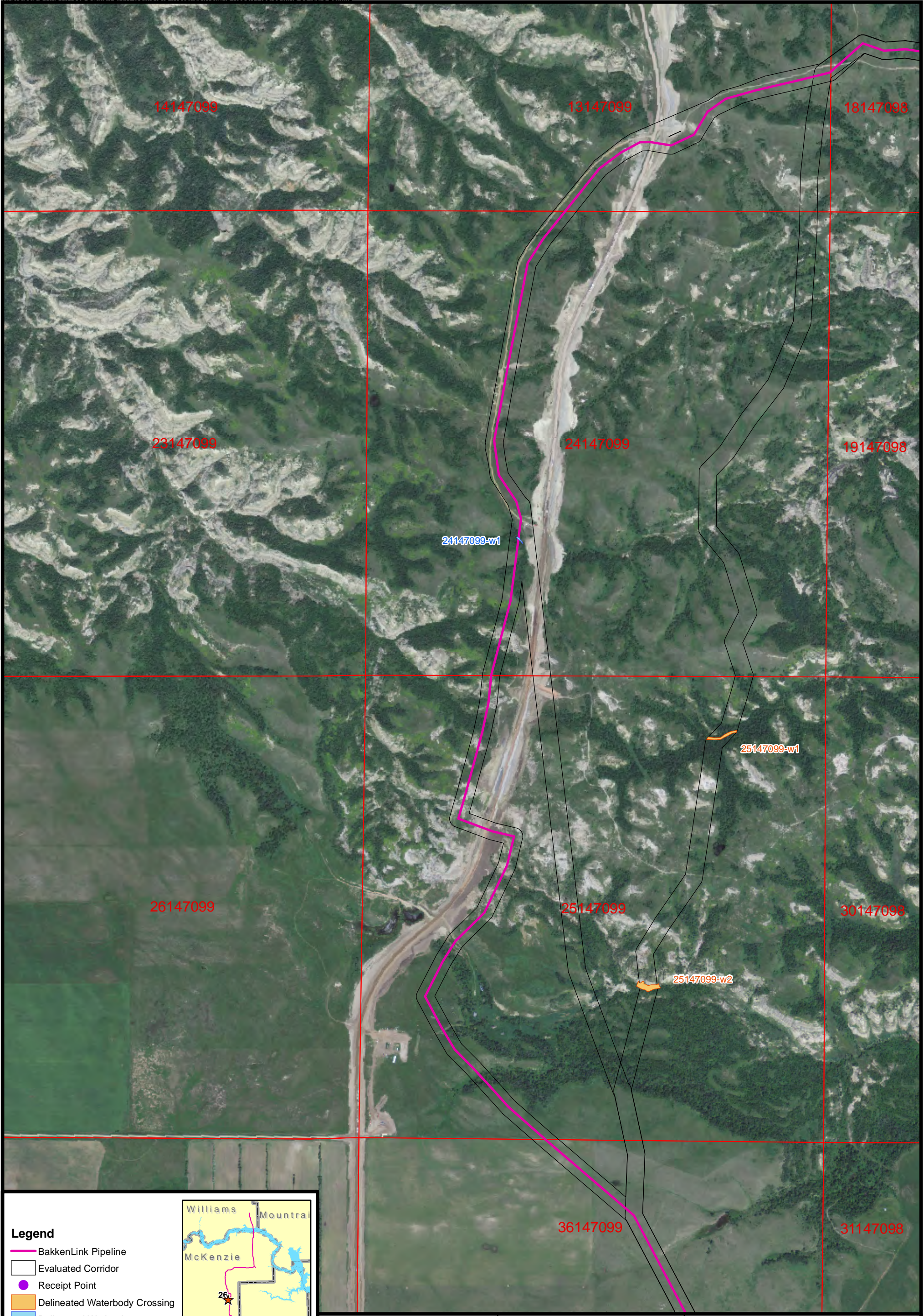







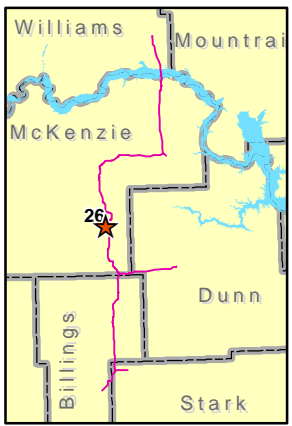


FIGURE 25
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



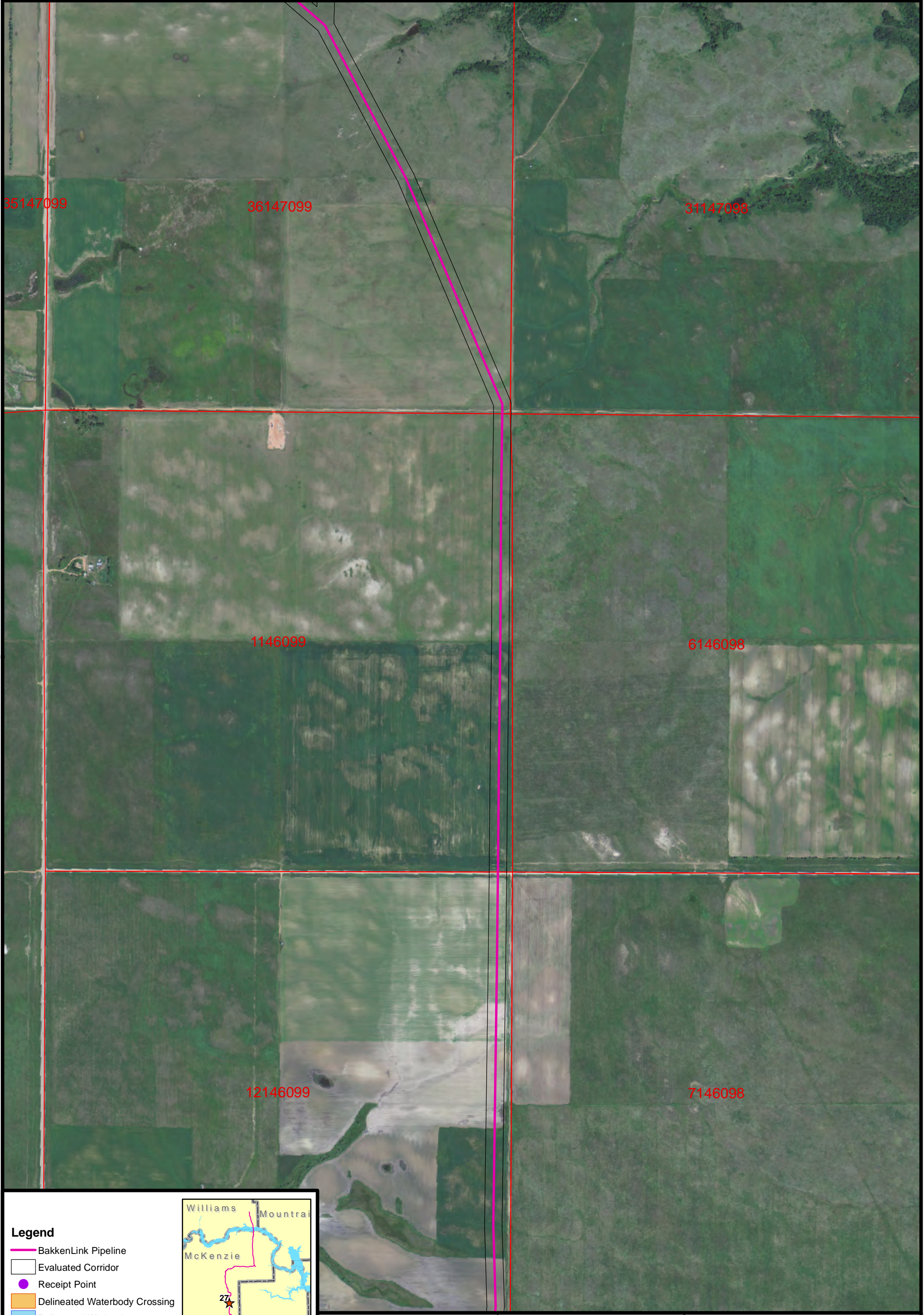
Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range



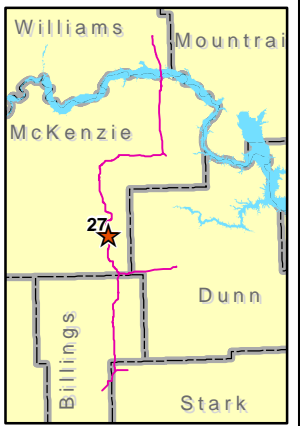
1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 26
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



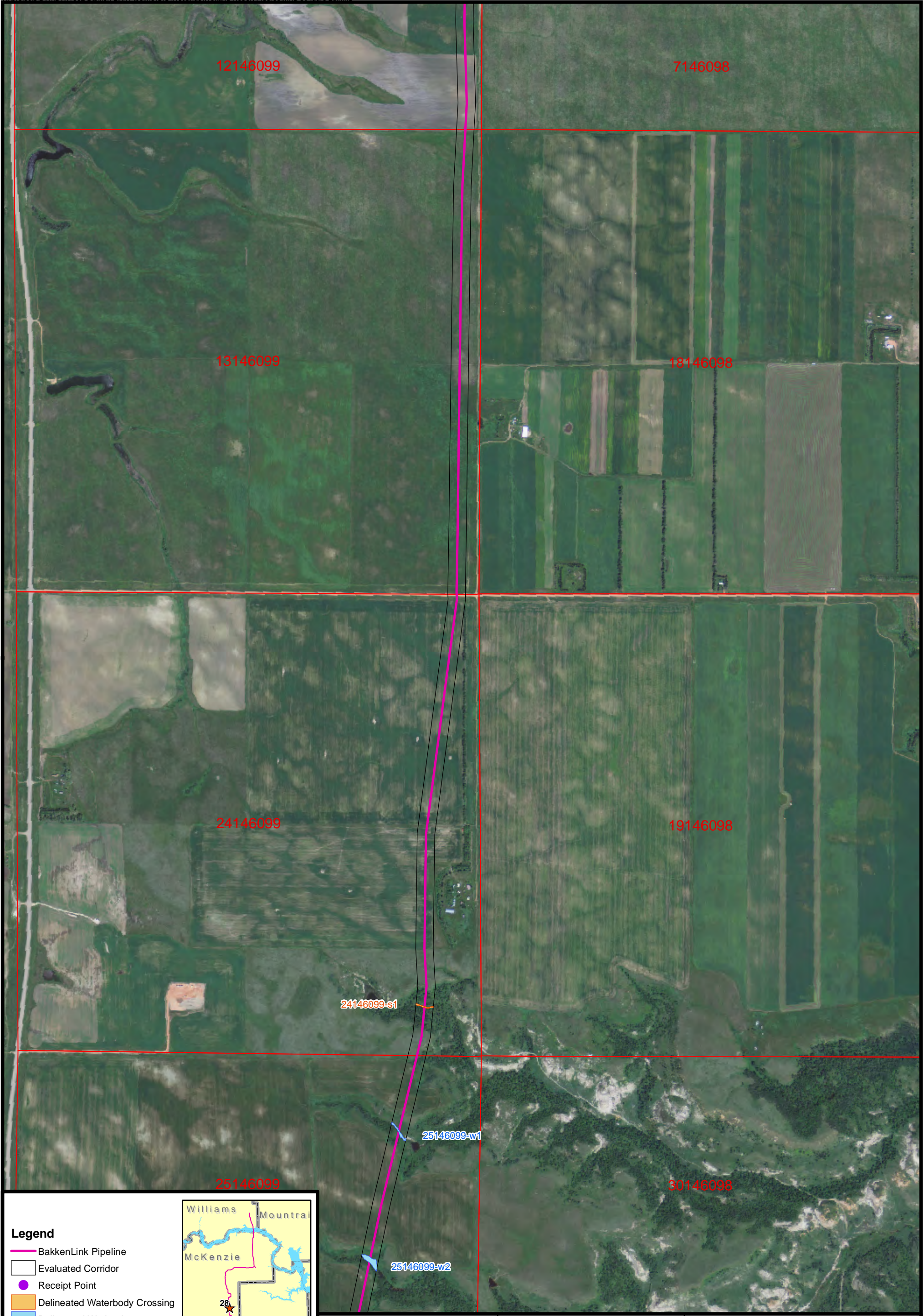
Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



N 1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 27
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

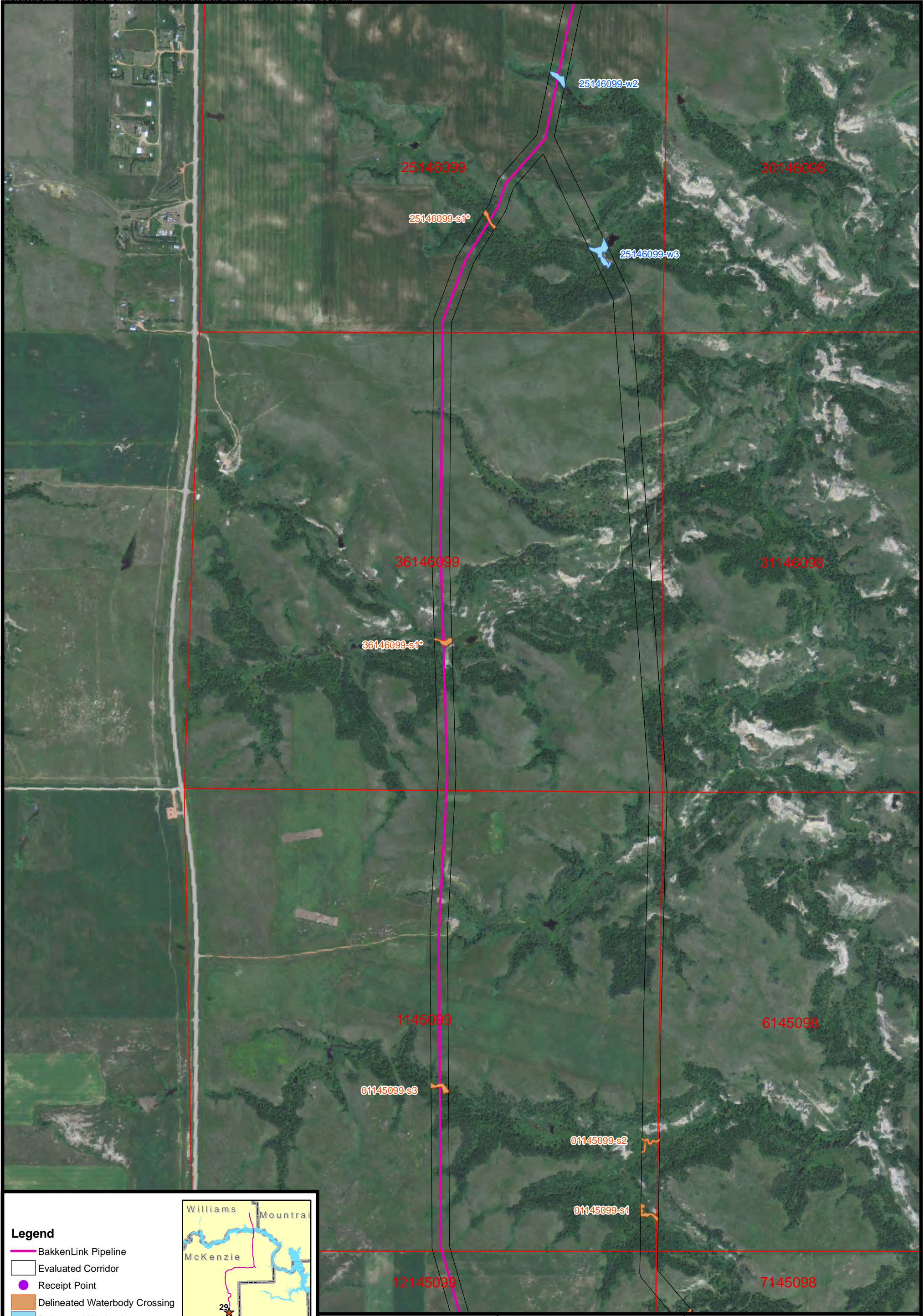
- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

Williams Mountrail
McKenzie
28
Dunn
Stark
Billings

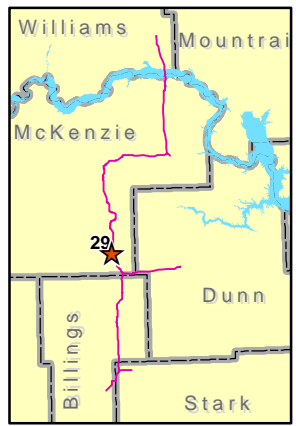
**Carlson
McCain**
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1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 28
Wetland and Waterbody Crossings
BakkenLink Pipeline LLC

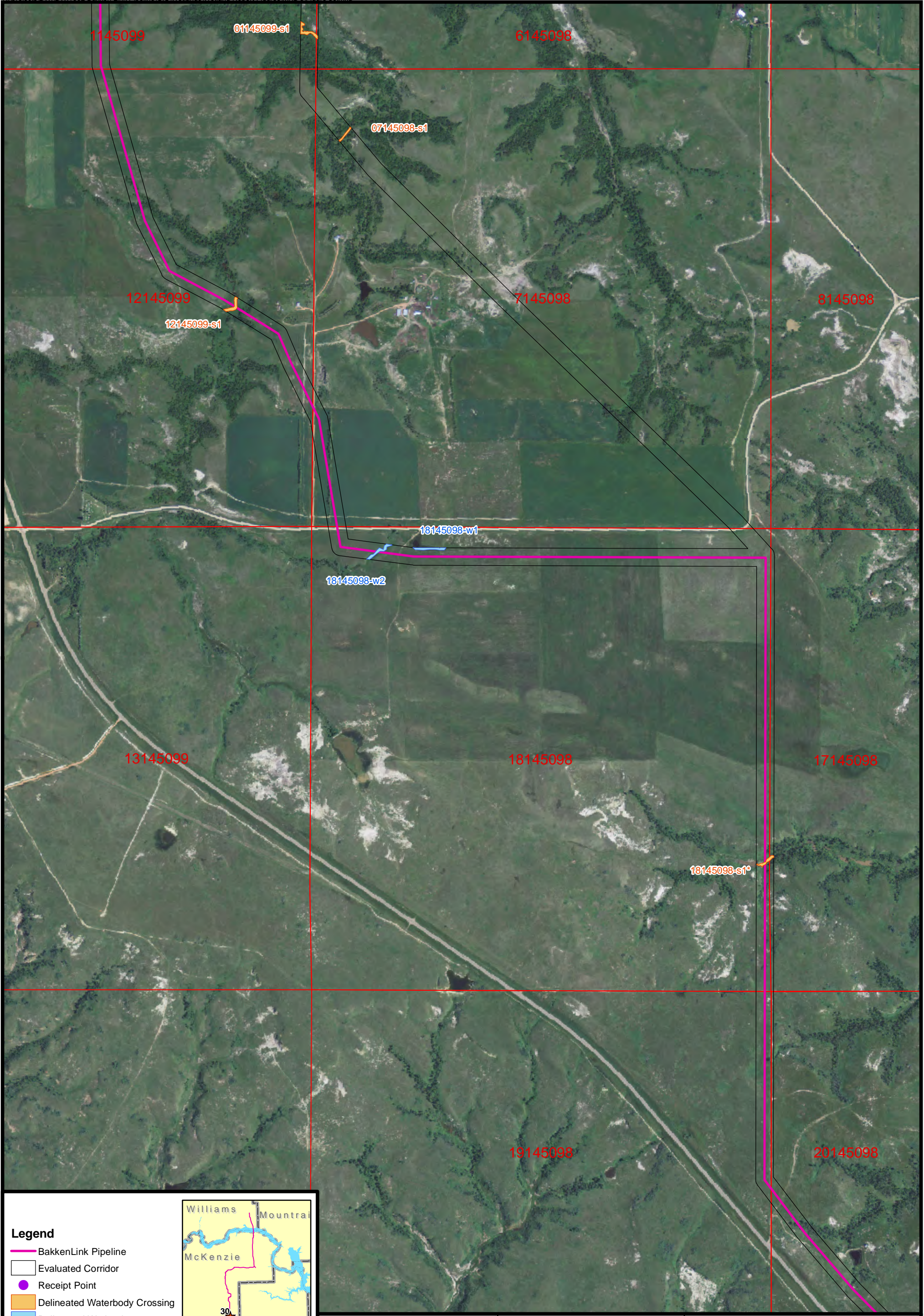


- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range










1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 29
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

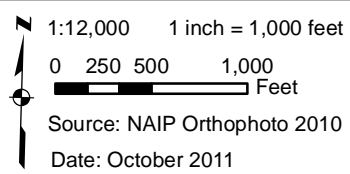
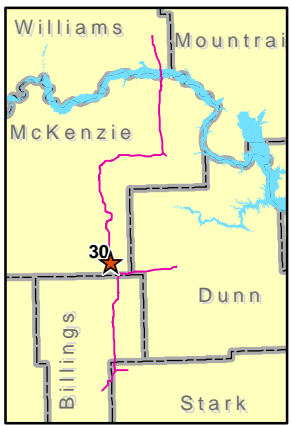
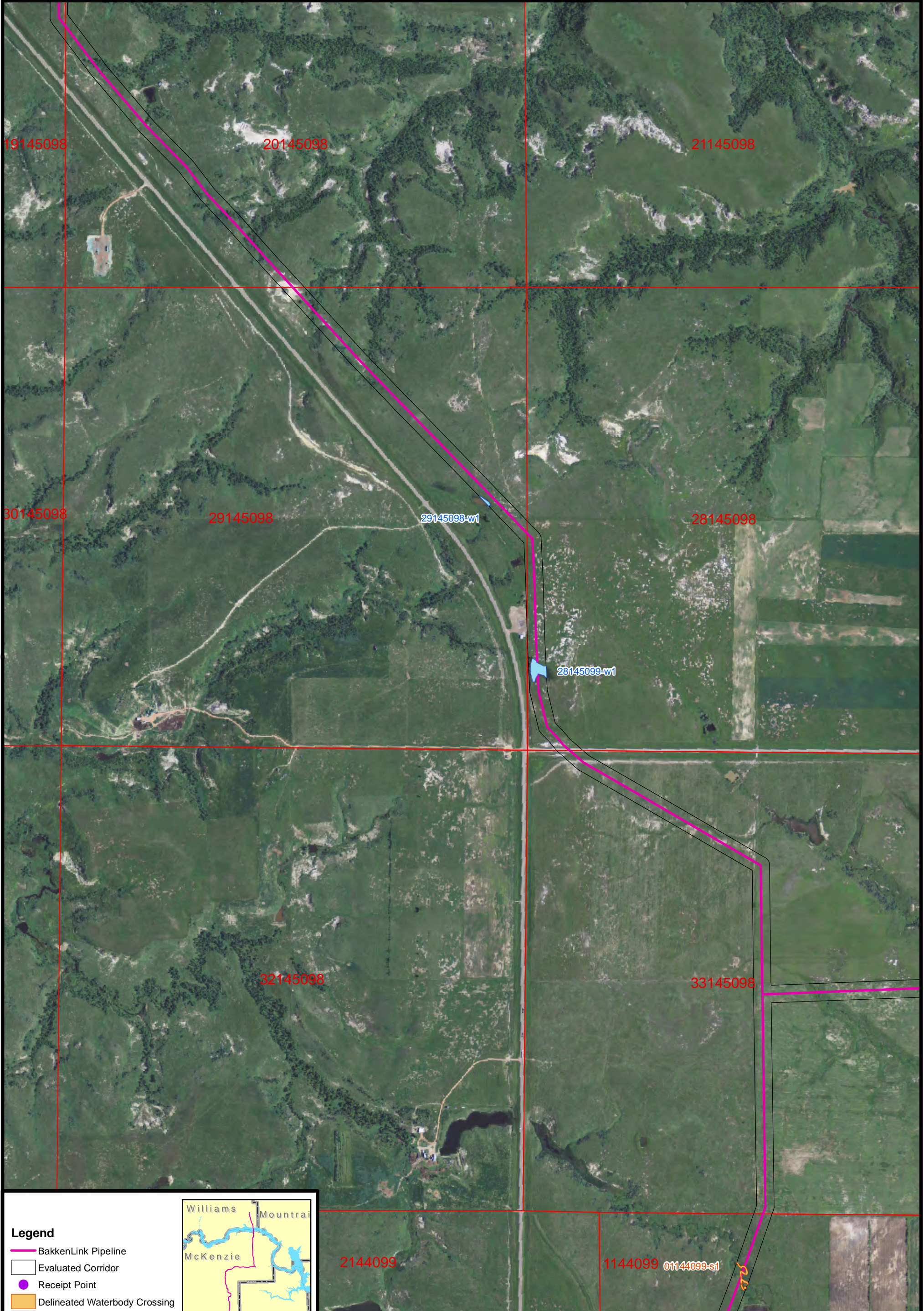
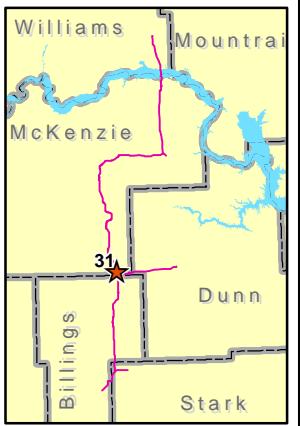


FIGURE 30
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

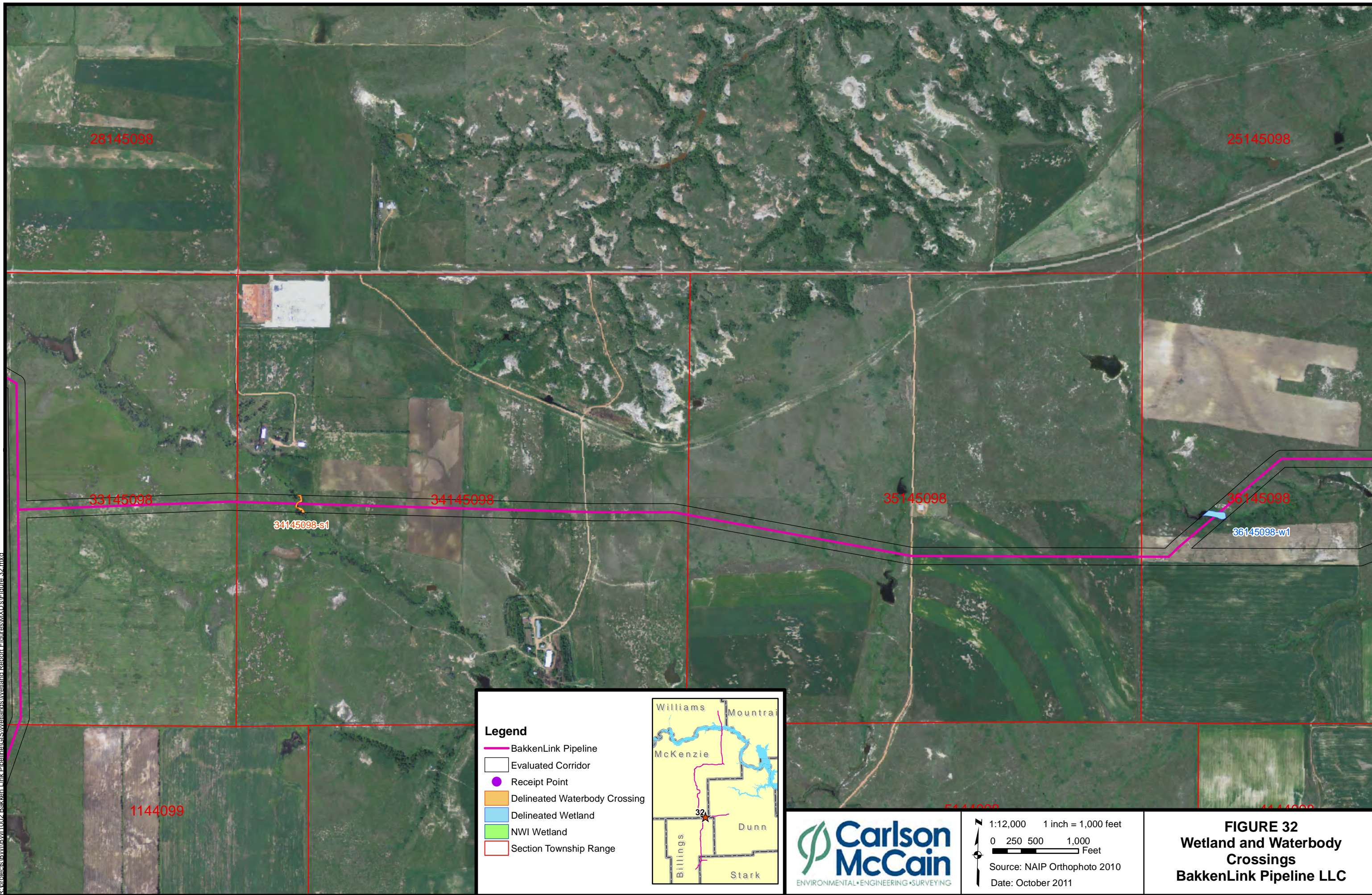
- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 31
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIBW\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report\Figures\MXD's\Figure_32.mxd



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

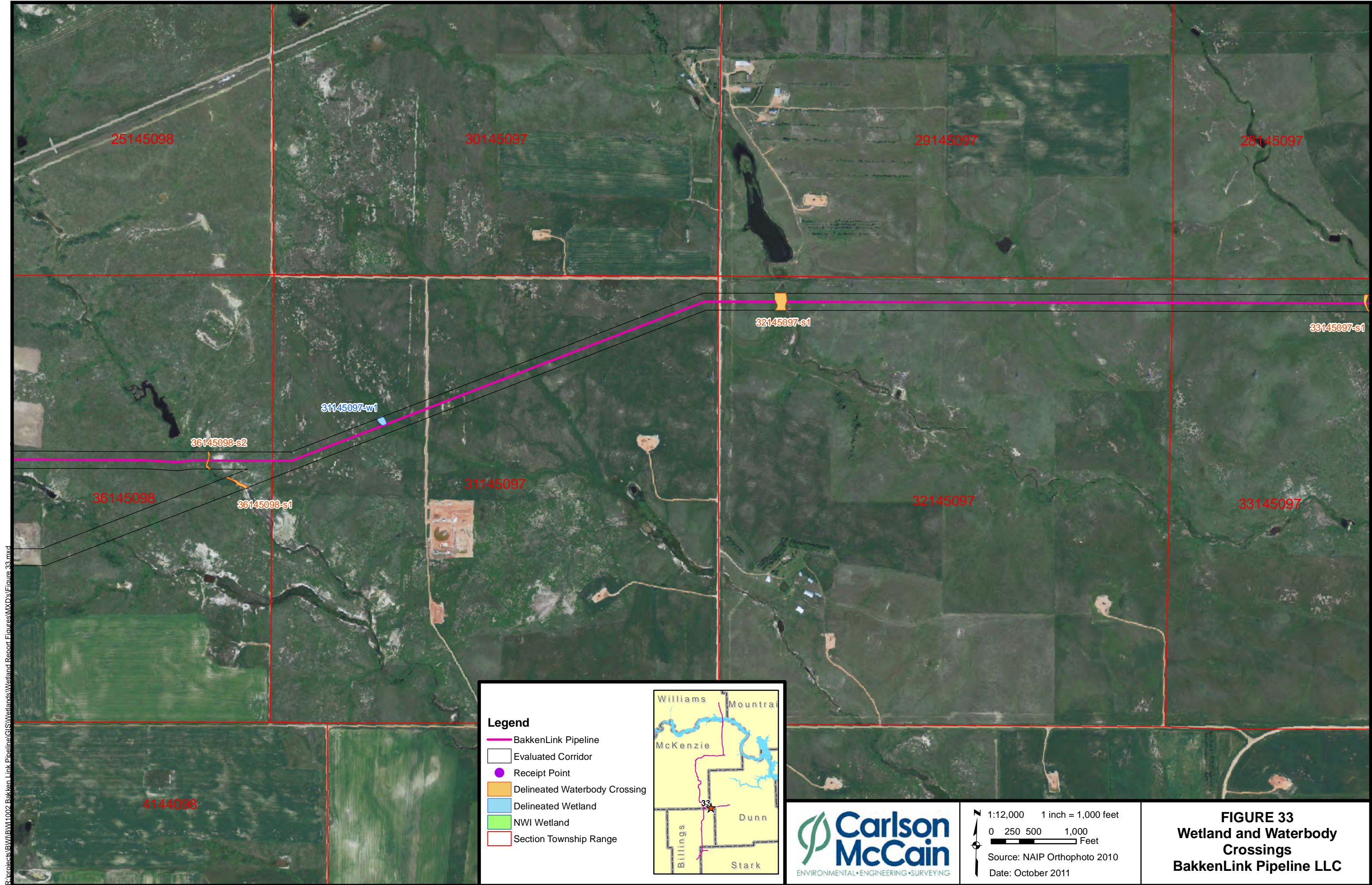
Williams Mountrail
McKenzie
Billings Stark
Dunn

32



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 32
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



R:\projects\BIBWI1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD's\Figure_33.mxd

Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

Inset Map Labels: Williams, Mountrail, McKenzie, Billings, Stark, Dunn

Inset Map Number: 33



1:12,000 1 inch = 1,000 feet

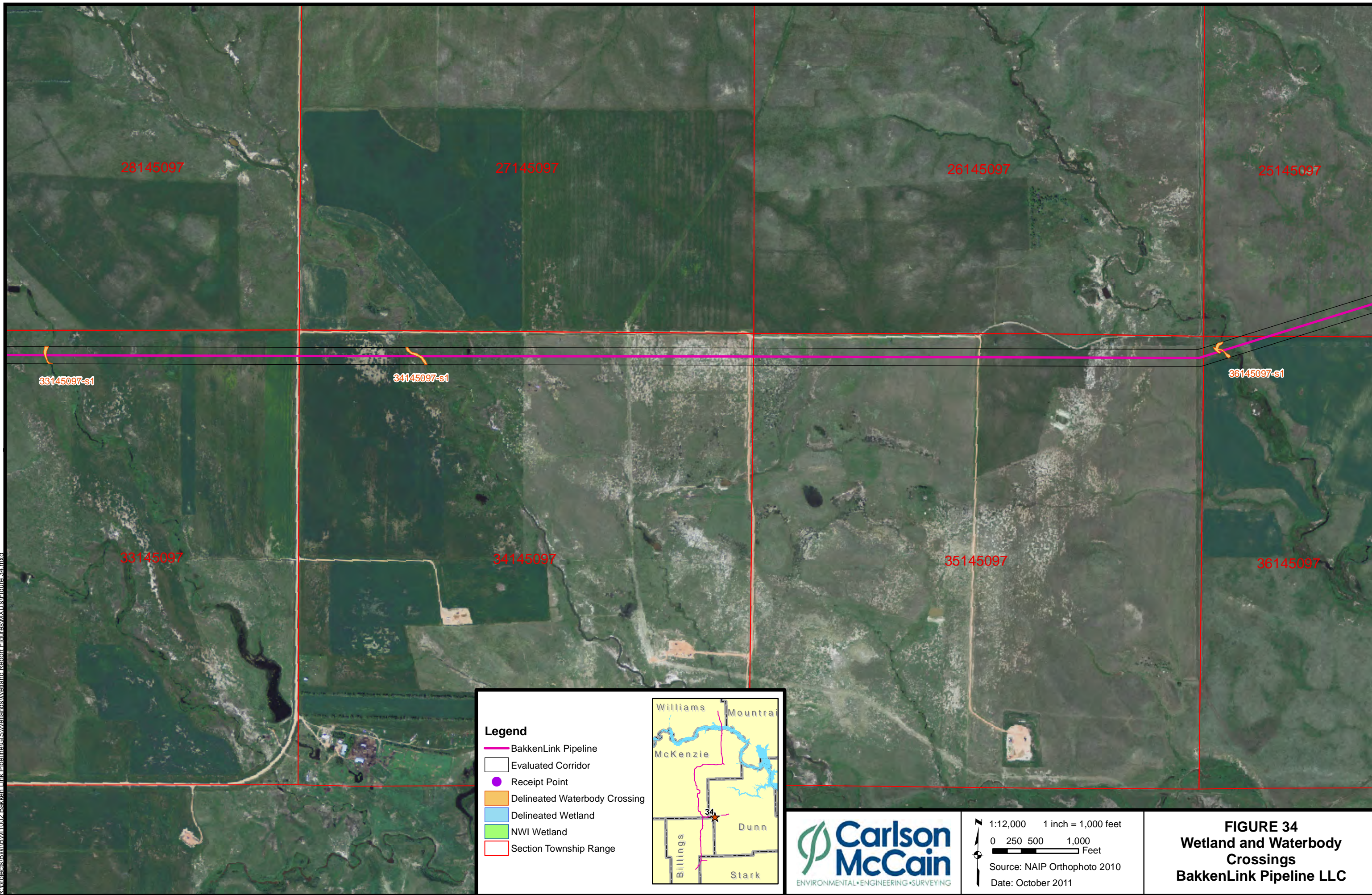
0 250 500 1,000 Feet

Source: NAIP Orthophoto 2010

Date: October 2011

FIGURE 33
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIB\BIB\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD\Figure_34.mxd



Legend

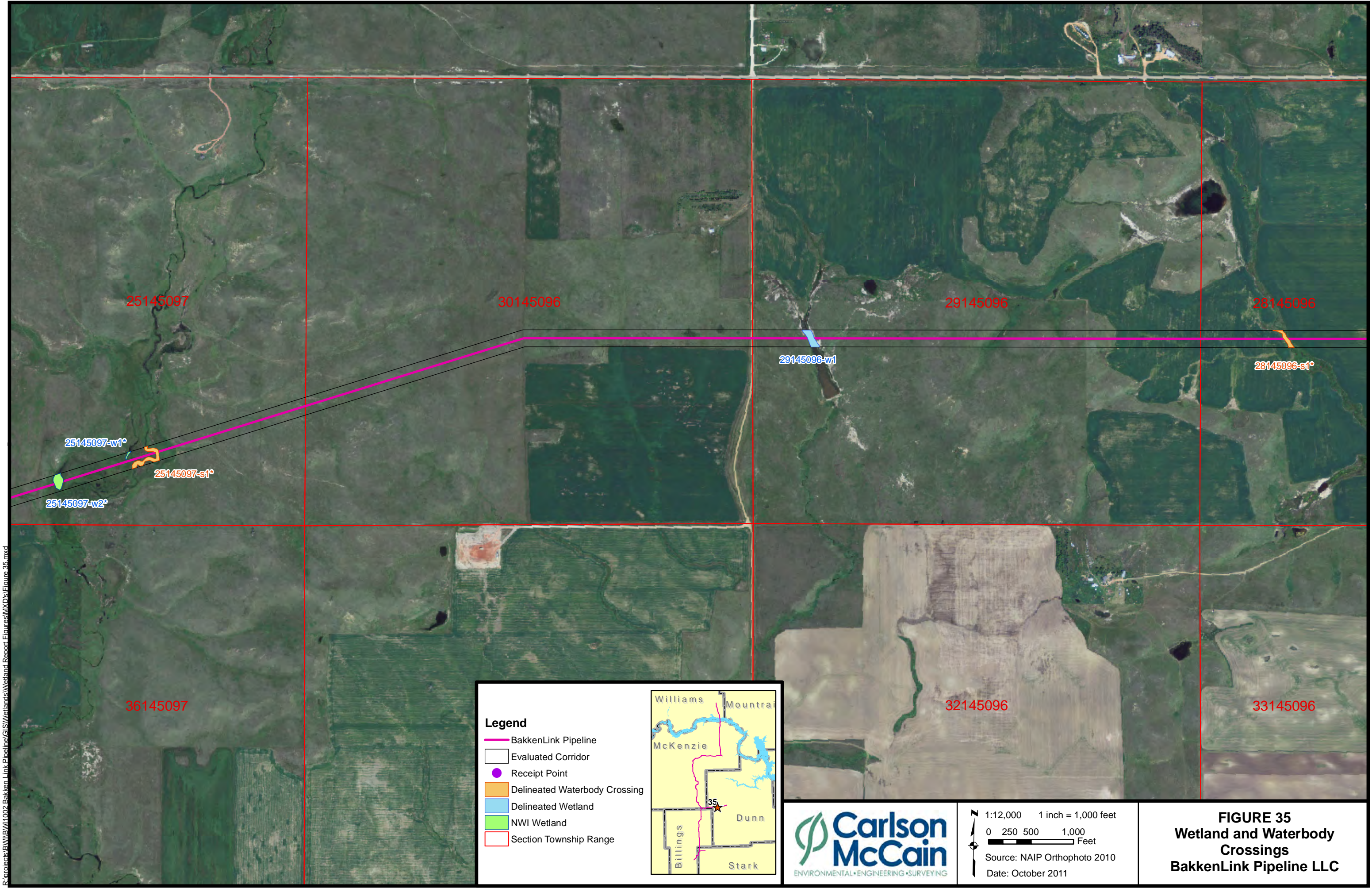
- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 34
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIB\BIB11002_Bakken_Link Pipeline\GIS\Wetlands\Wetland Report Figures\MXD's\Figure 35.mxd



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

Williams Mountrail
McKenzie
Billings Dunn
Stark

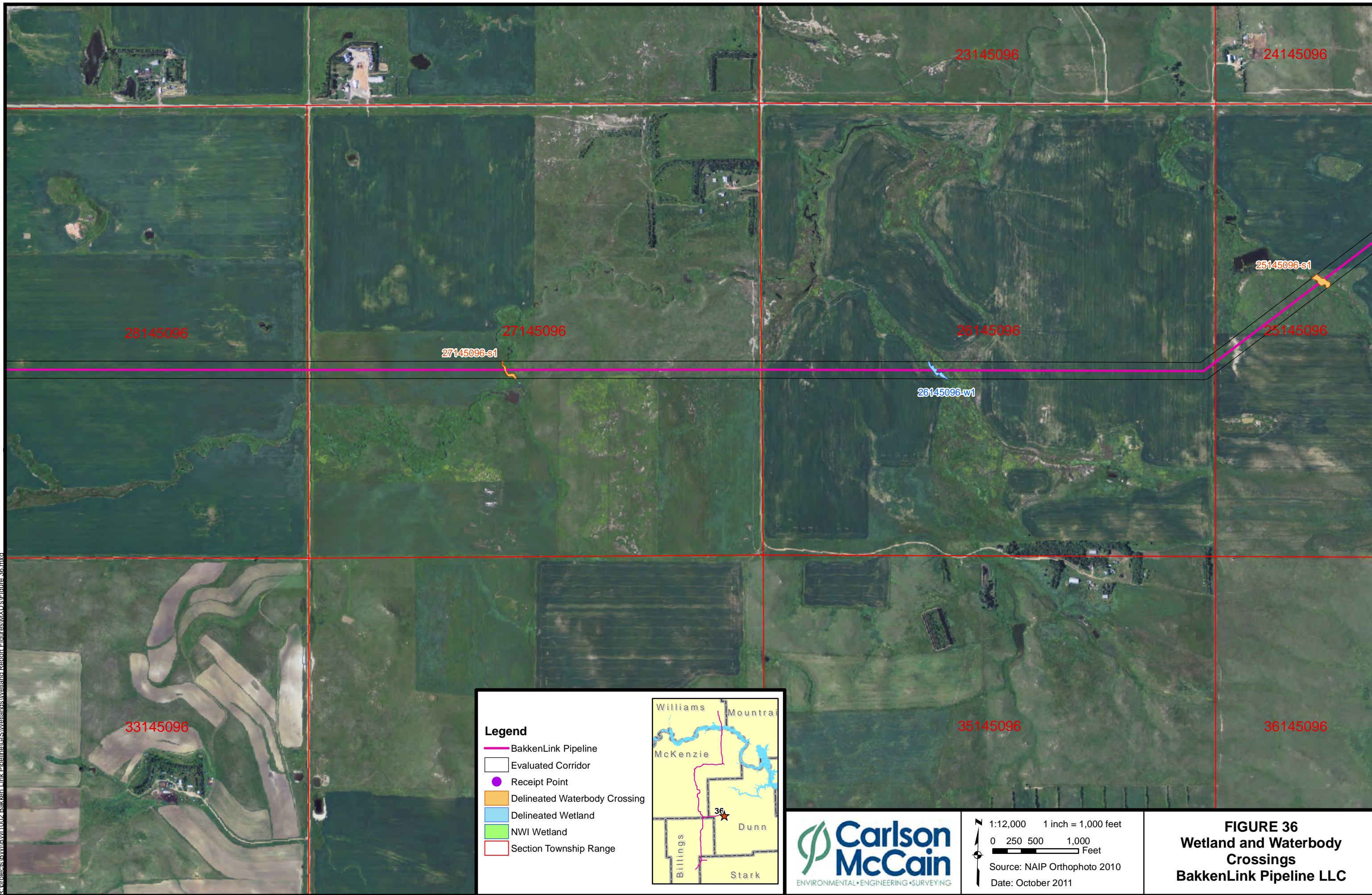
35



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 35
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIBWI\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD's\Figure_36.mxd



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

Williams Mountrail
McKenzie
Billings Stark
Dunn

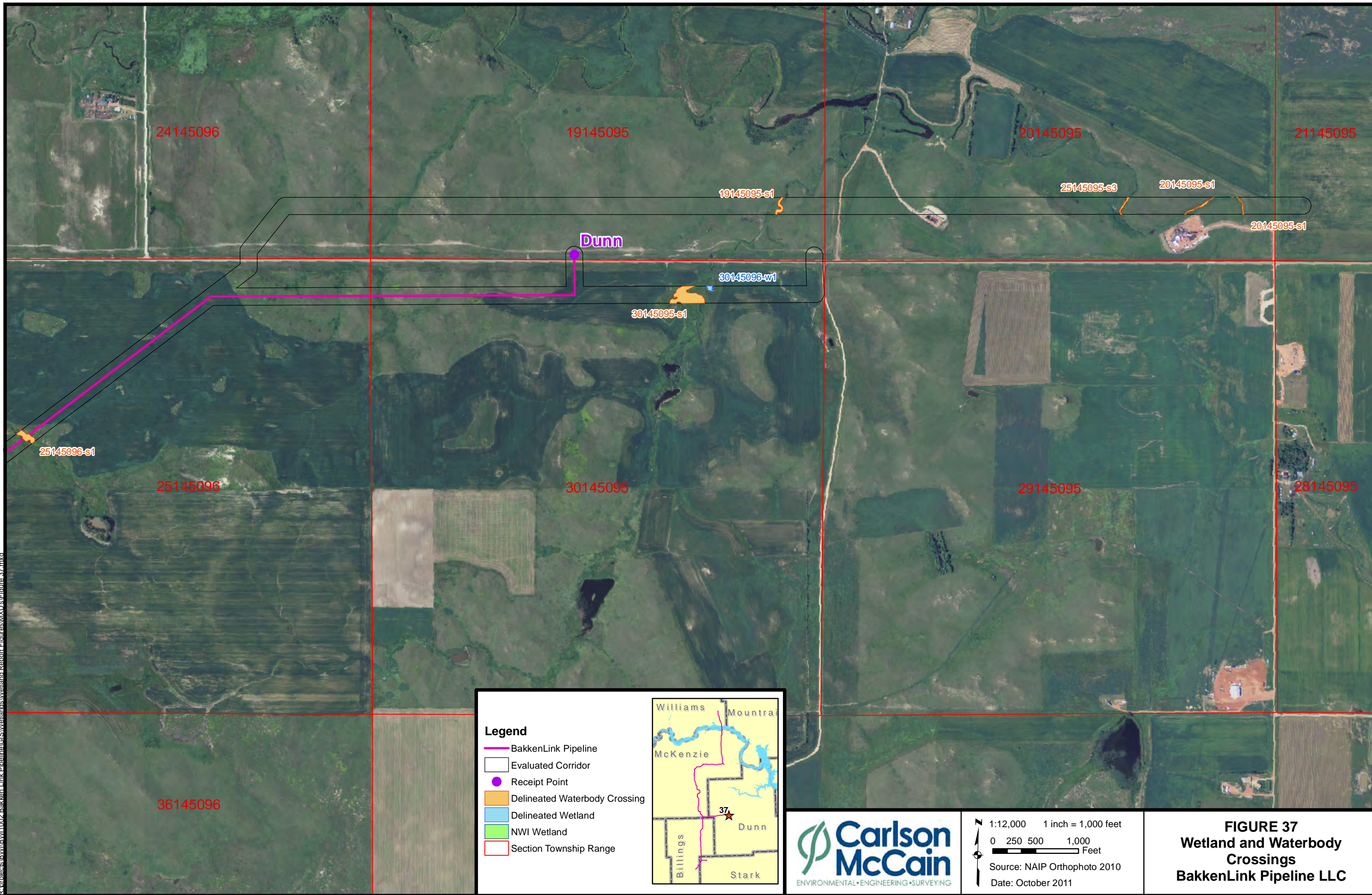
36



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 36
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

R:\projects\BIB\BIB\1002_Bakken_Link_Pipeline\GIS\Wetlands\Wetland_Report_Figures\MXD's\Figure_37.mxd

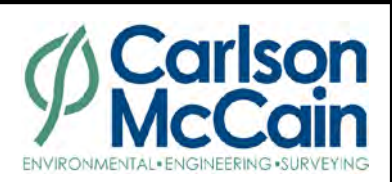


Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

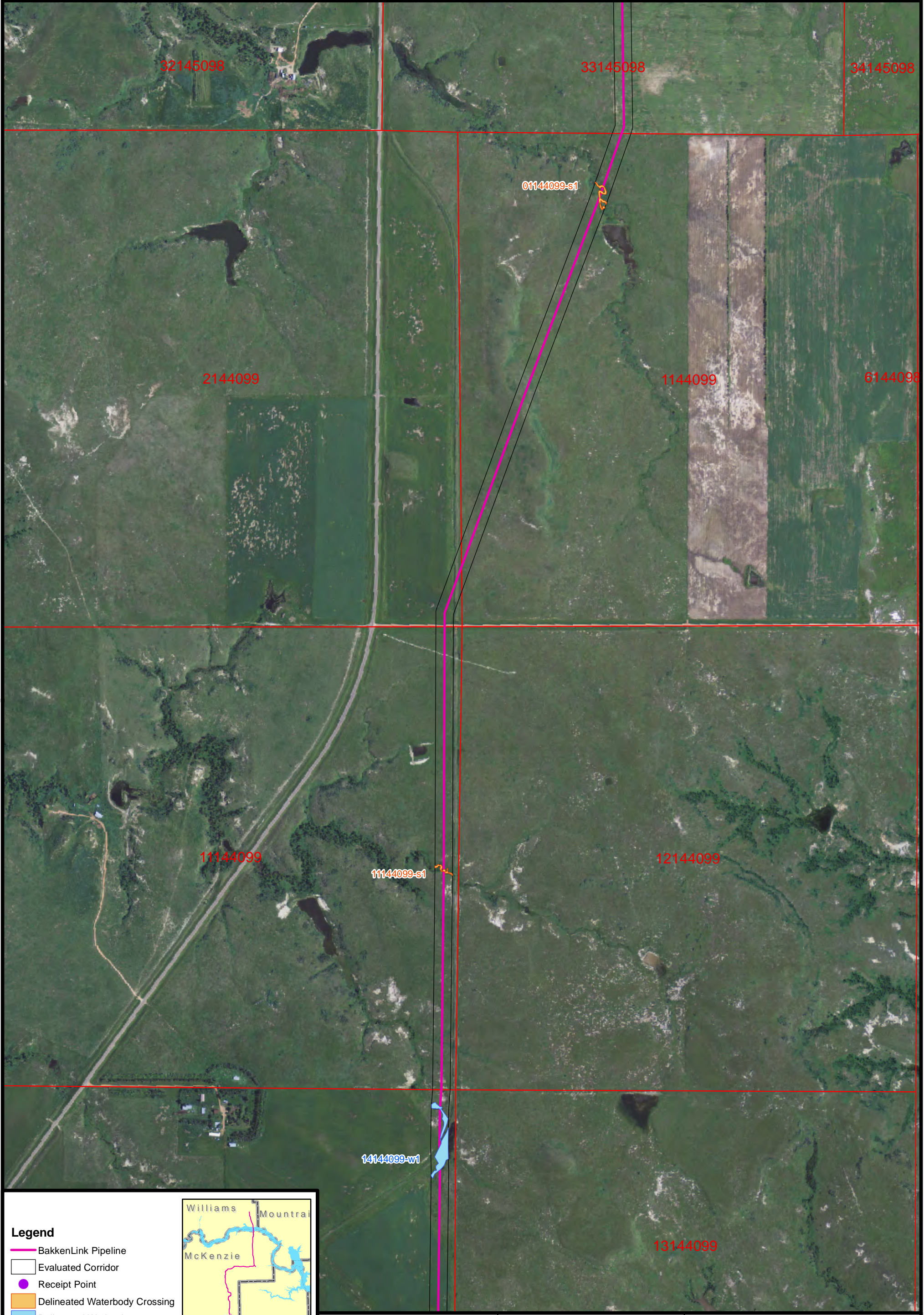
Williams Mountrail
McKenzie
Billings Stark
Dunn

37










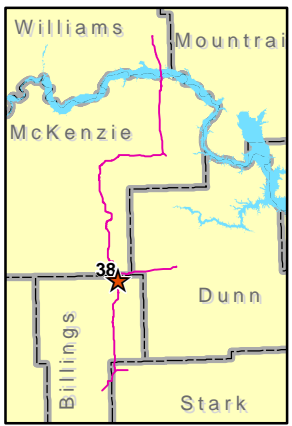
1:12,000 1 inch = 1,000 feet
 0 250 500 1,000 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 37
Wetland and Waterbody Crossings
BakkenLink Pipeline LLC



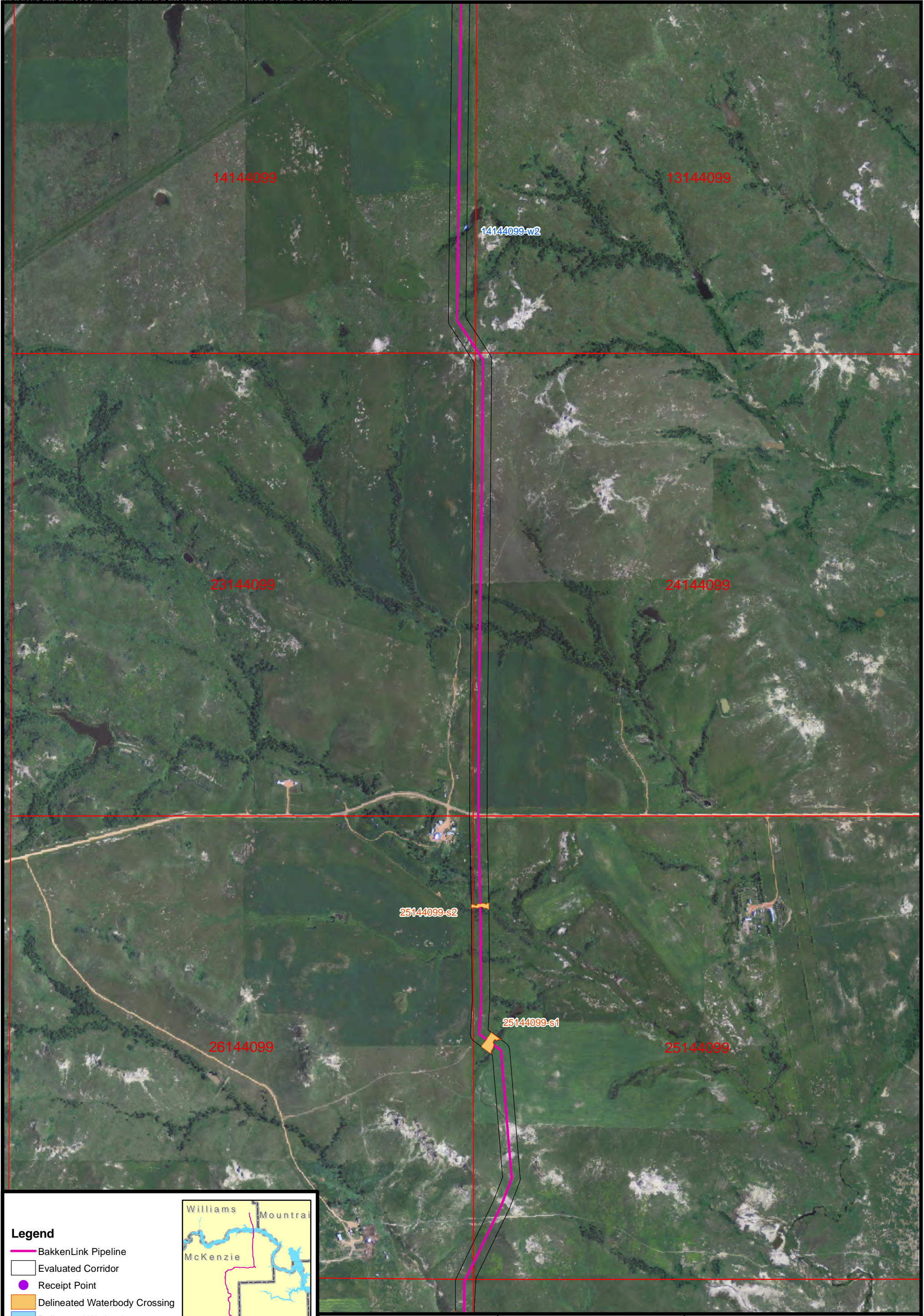
Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range










1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 38
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

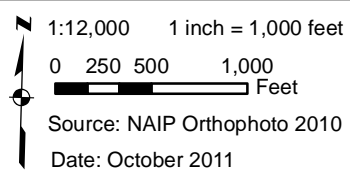
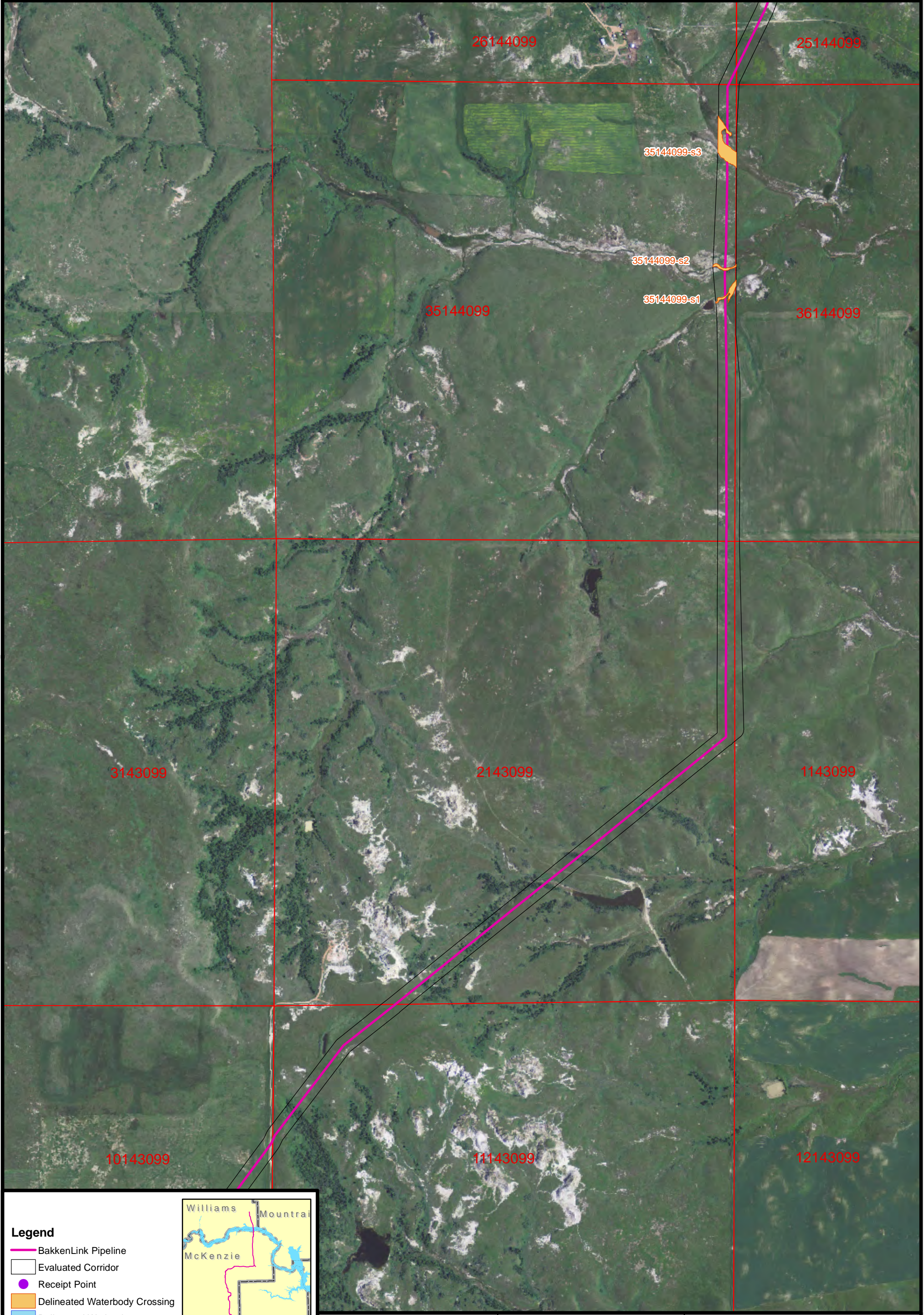







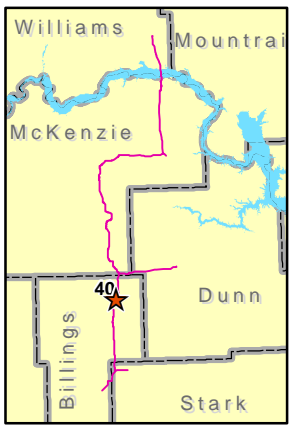


FIGURE 39
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



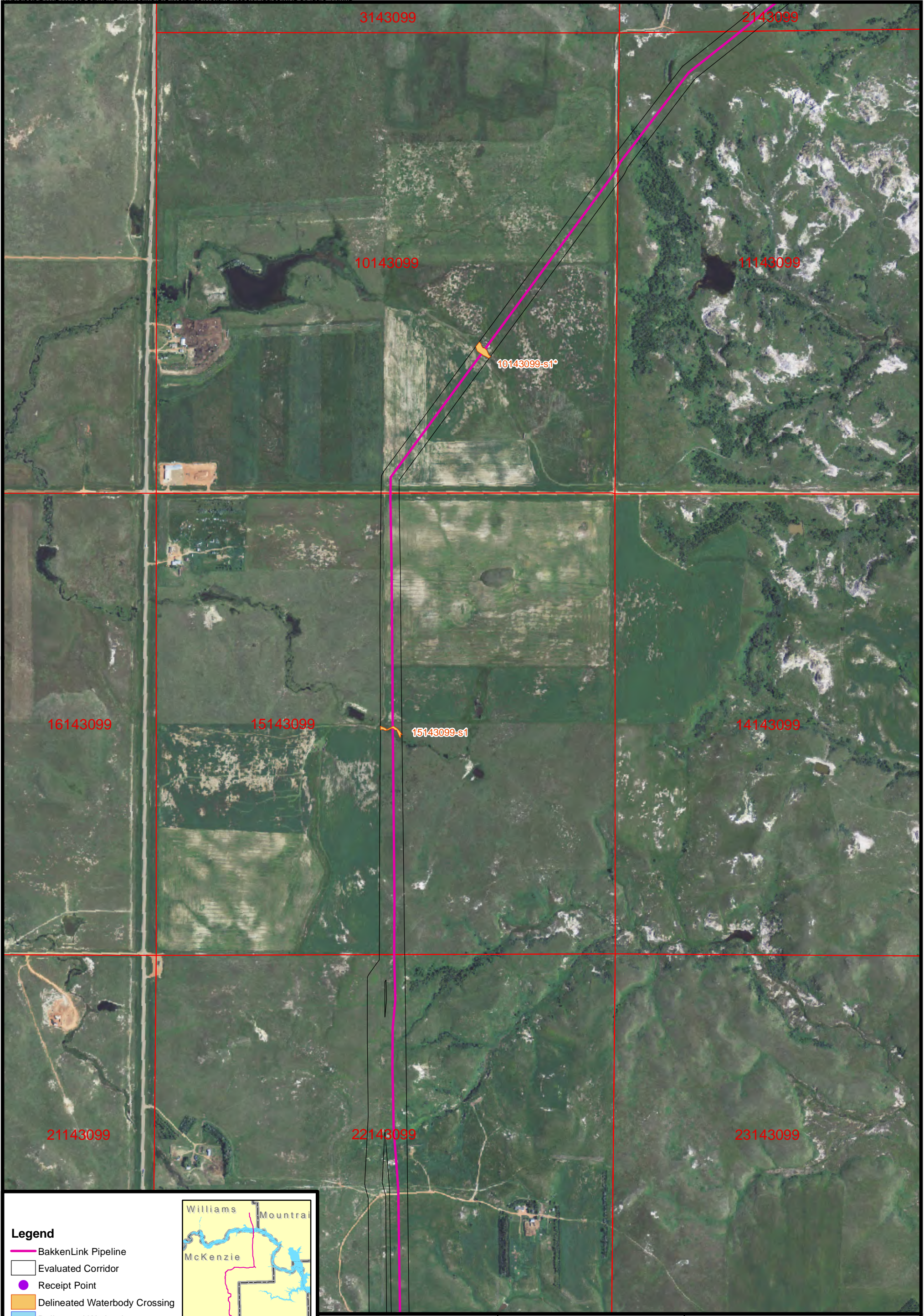
Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range



1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 40
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range

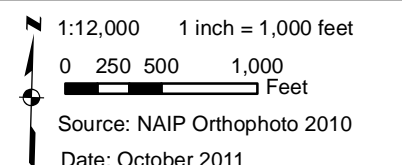
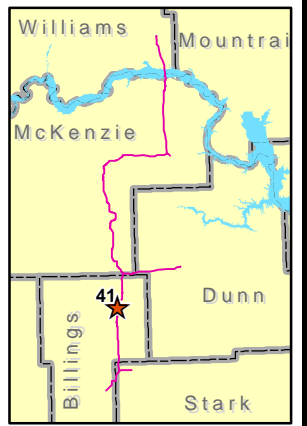
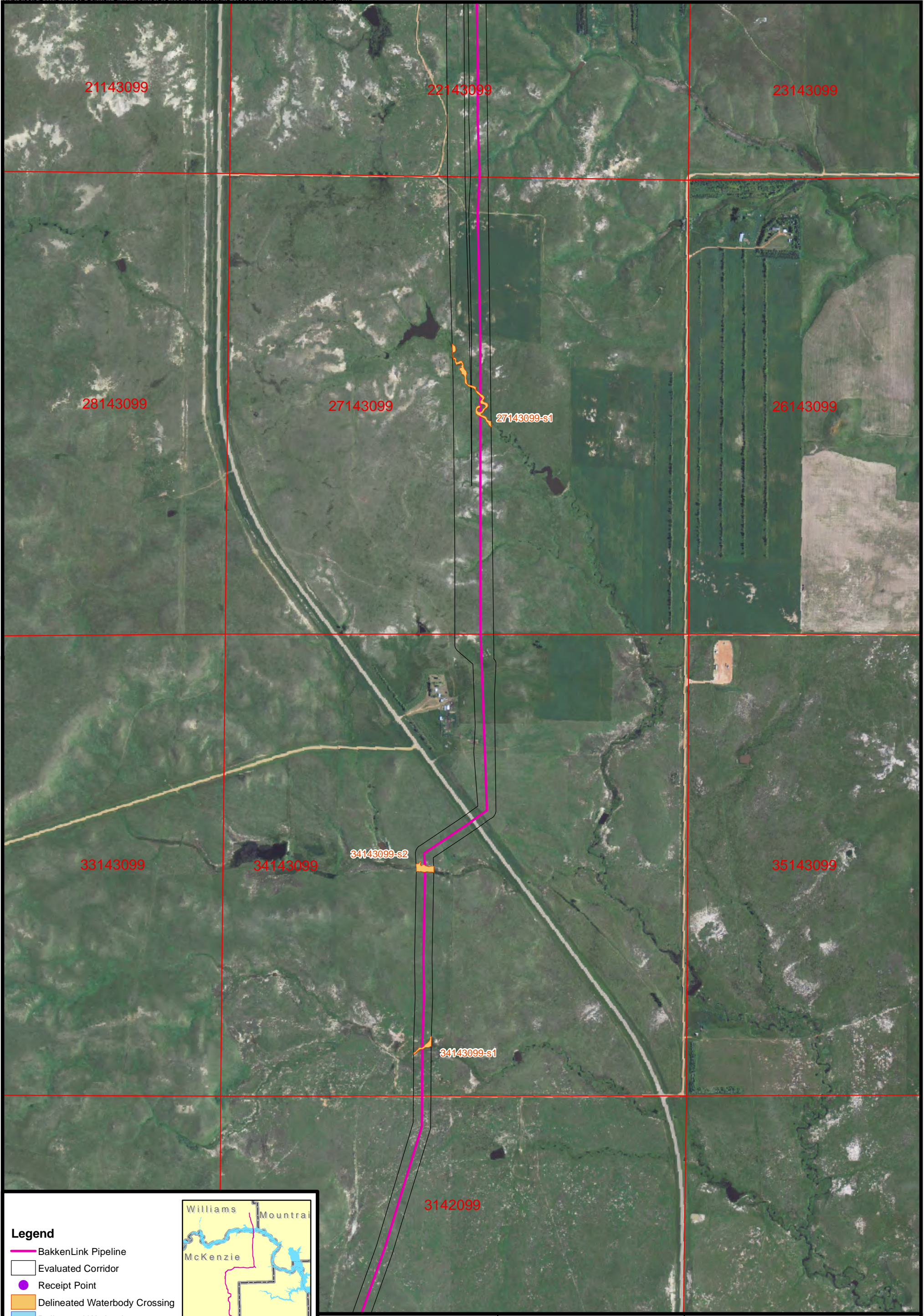

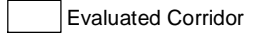
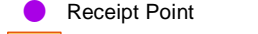
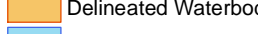
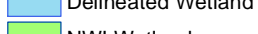
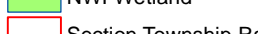

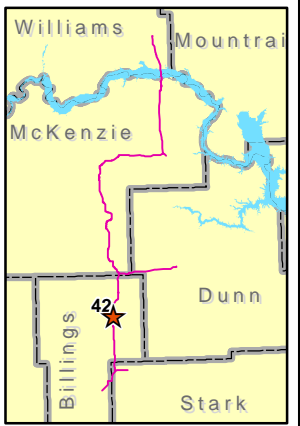


FIGURE 41
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



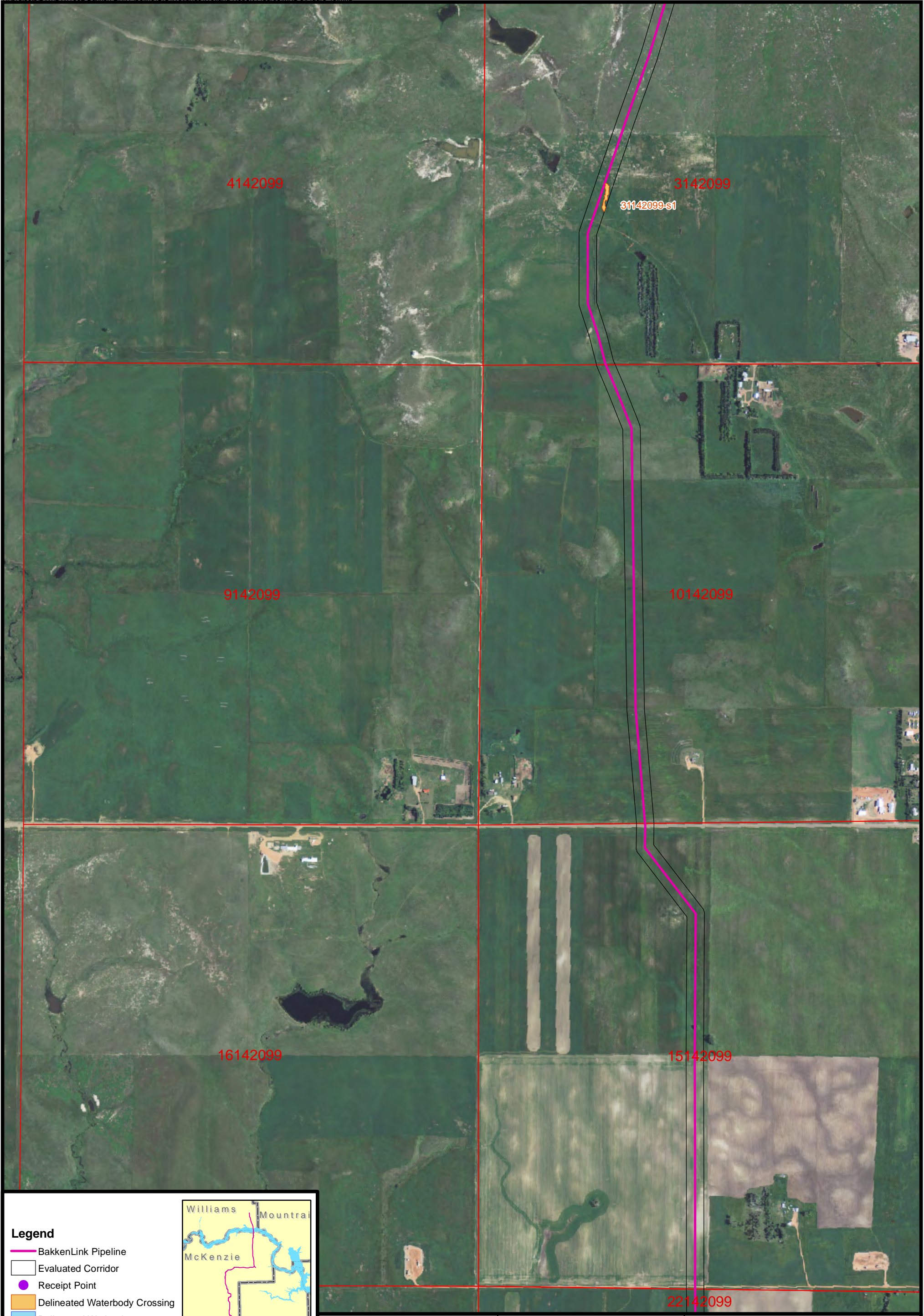
Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range










1:12,000 1 inch = 1,000 feet
0 250 500 1,000 Feet
Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 42
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

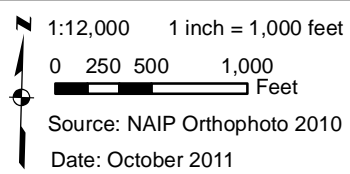
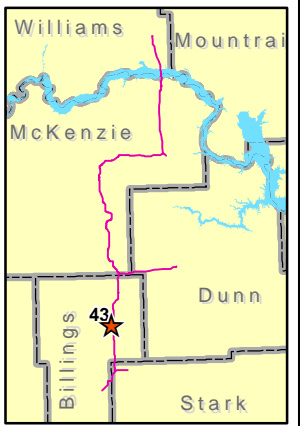
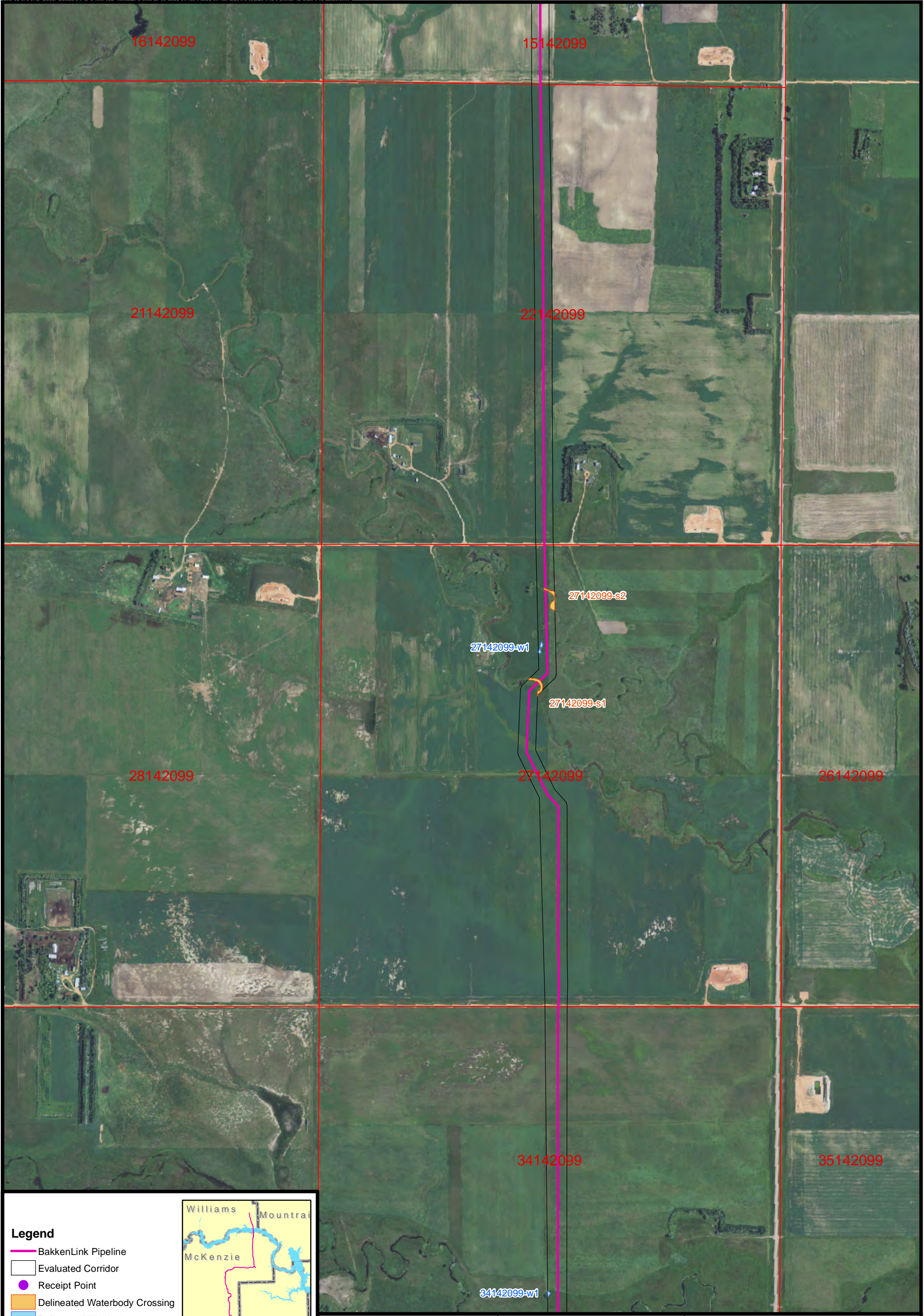


FIGURE 43
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

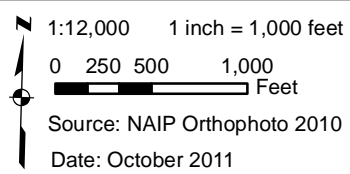
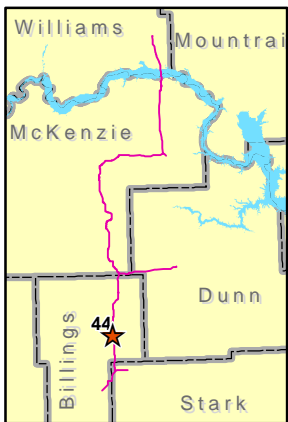









FIGURE 44
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

-  BakkenLink Pipeline
-  Evaluated Corridor
-  Receipt Point
-  Delineated Waterbody Crossing
-  Delineated Wetland
-  NWI Wetland
-  Section Township Range

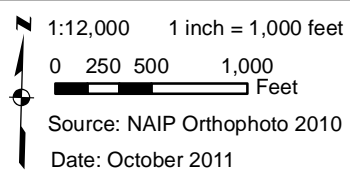
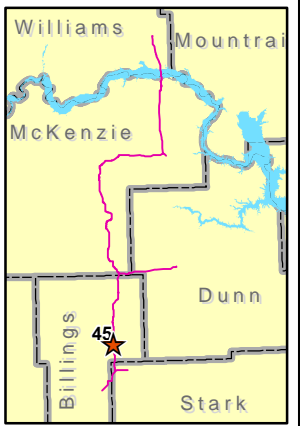
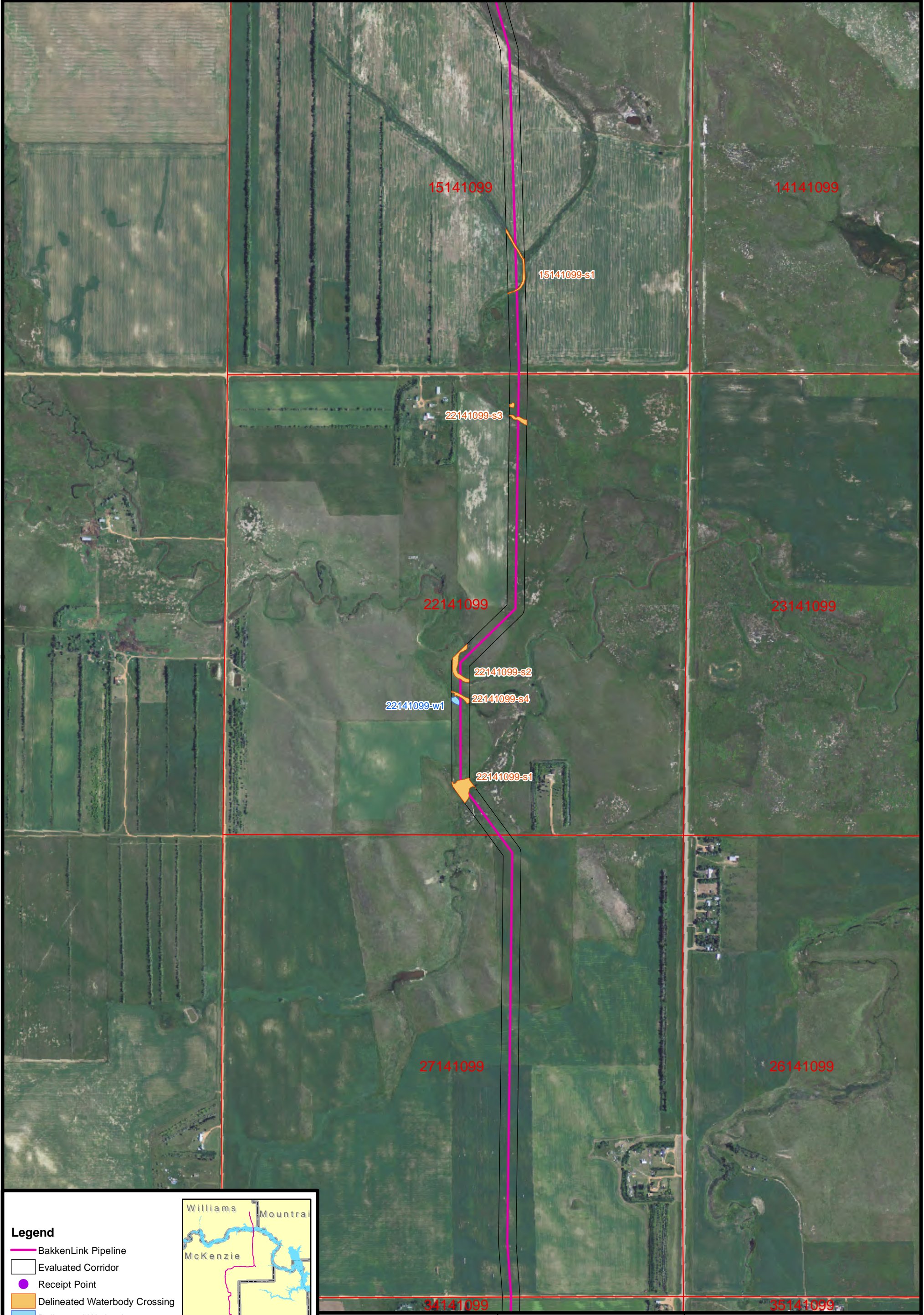
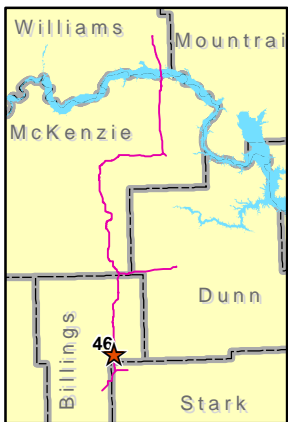


FIGURE 45
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



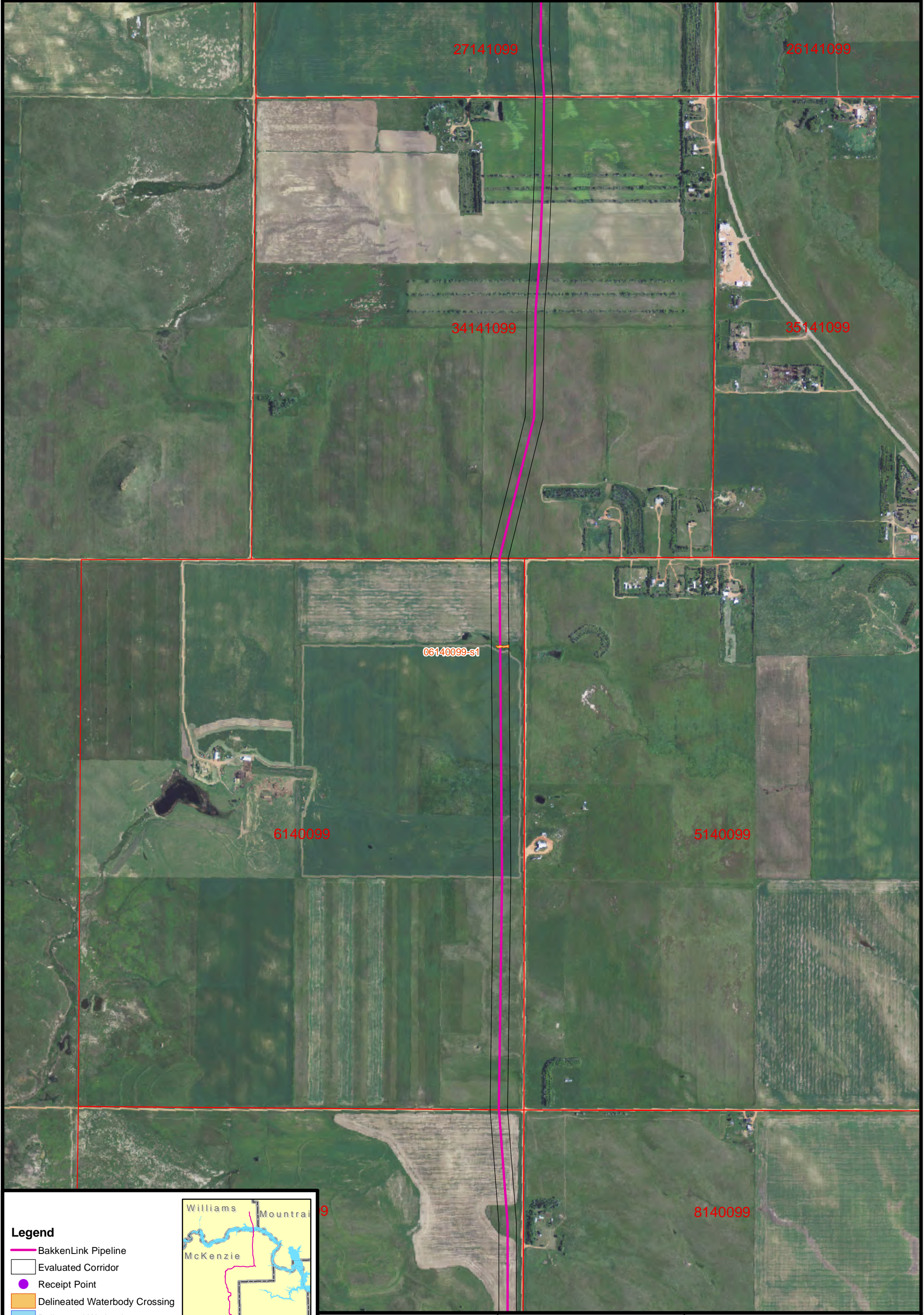
Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



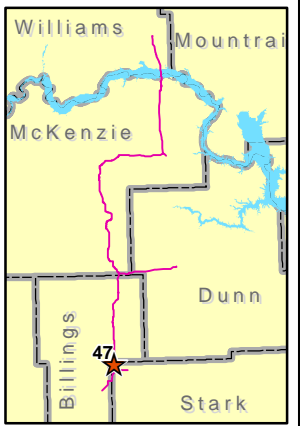
N 1:12,000 1 inch = 1,000 feet
0 250 500 1,000
Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 46
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



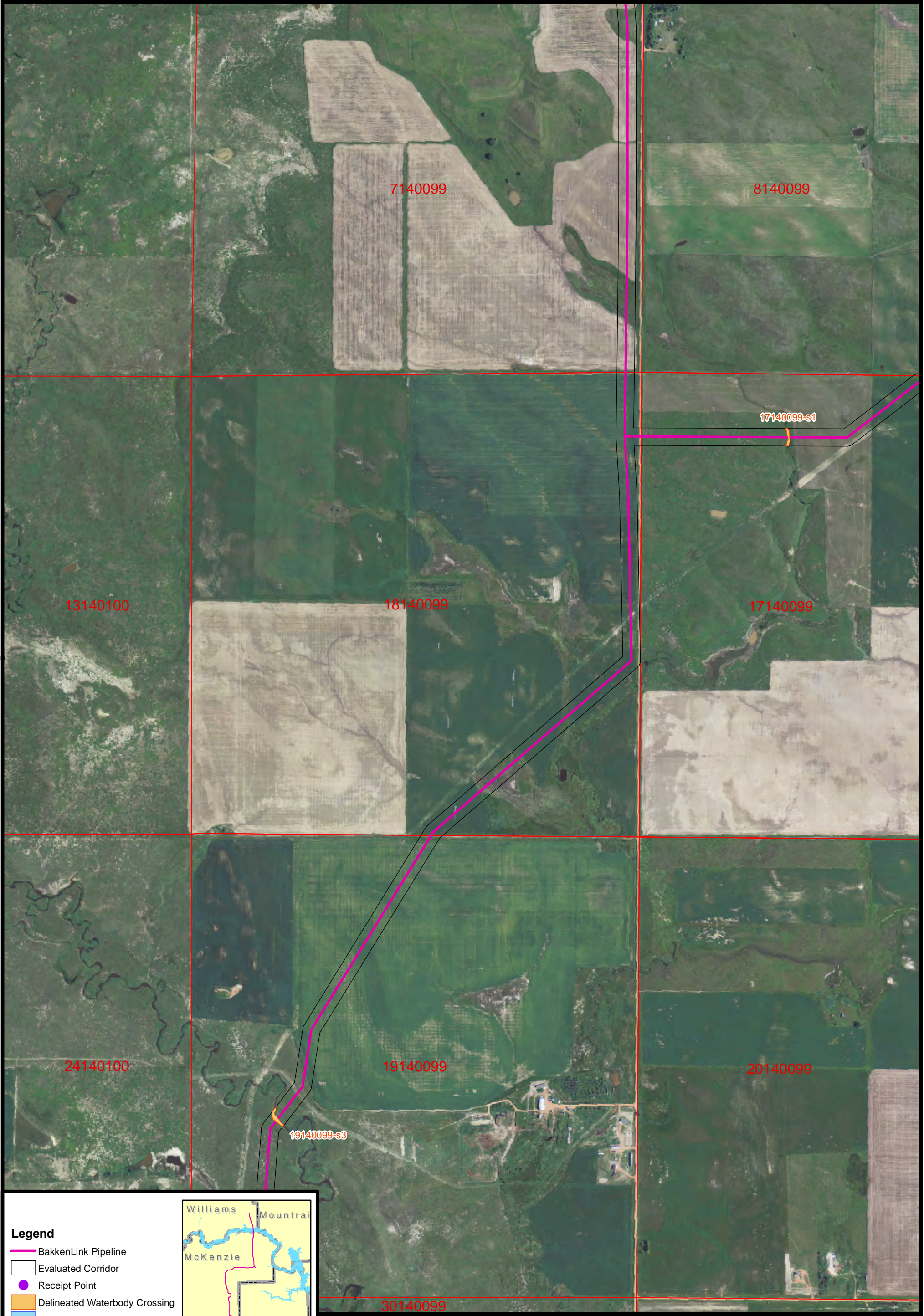
Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range



1:12,000 1 inch = 1,000 feet
 0 250 500 1,000
 Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 47
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

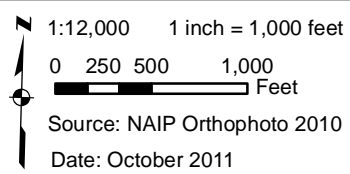
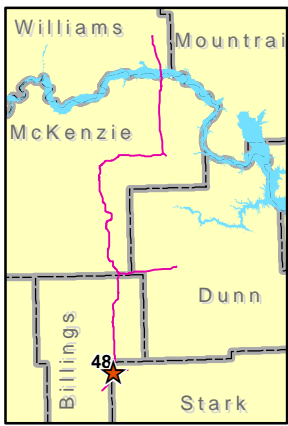


FIGURE 48
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

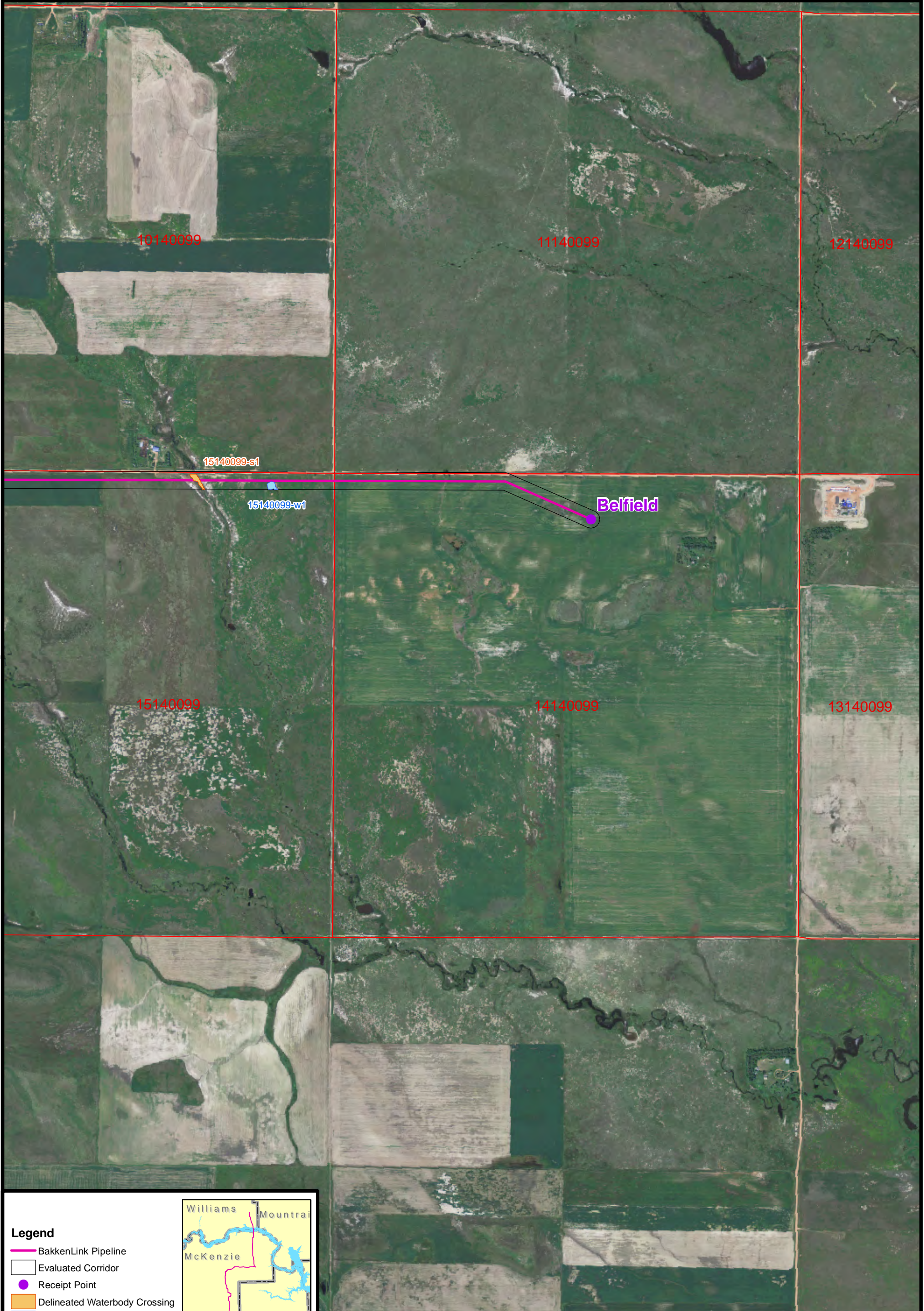
**Carlson
McCain**
ENVIRONMENTAL • ENGINEERING • SURVEYING

1:12,000 1 inch = 1,000 feet

0 250 500 1,000 Feet

Source: NAIP Orthophoto 2010
Date: October 2011

FIGURE 49
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

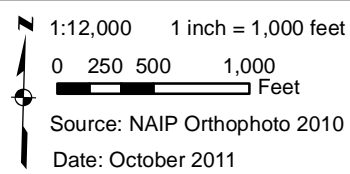
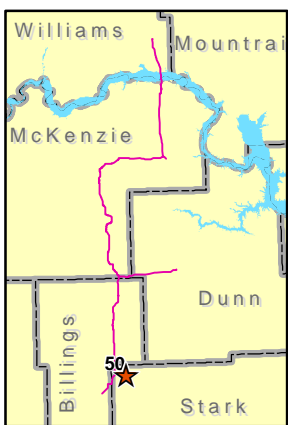
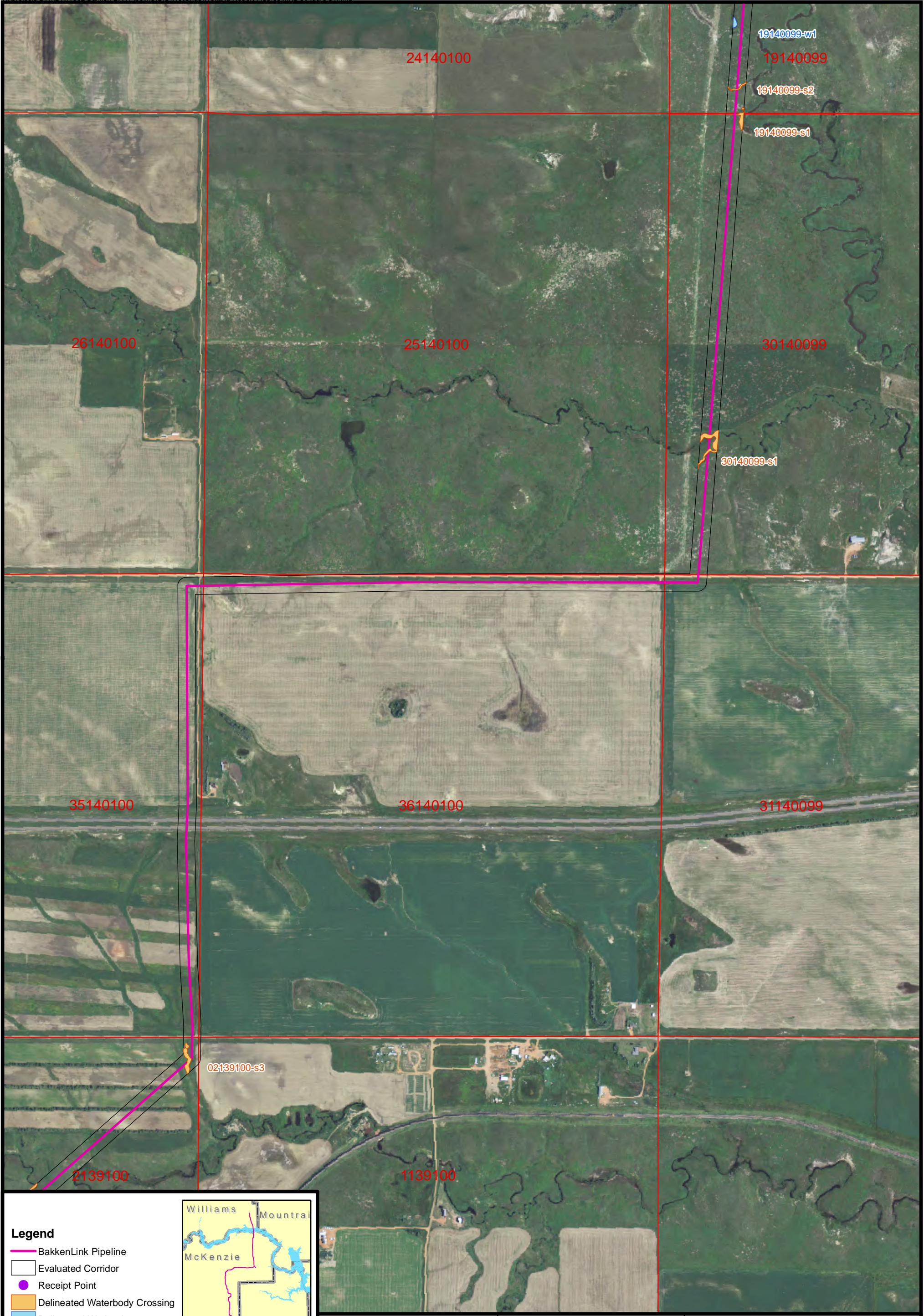
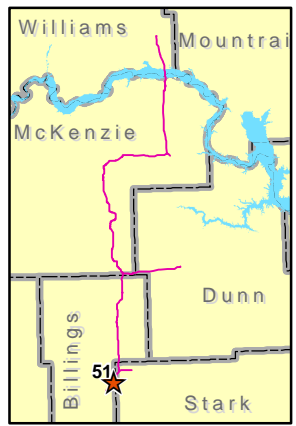


FIGURE 50
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



- Legend**
- BakkenLink Pipeline
 - Evaluated Corridor
 - Receipt Point
 - Delineated Waterbody Crossing
 - Delineated Wetland
 - NWI Wetland
 - Section Township Range



N 1:12,000 1 inch = 1,000 feet
0 250 500 1,000
Feet
 Source: NAIP Orthophoto 2010
 Date: October 2011

FIGURE 51
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC



Legend

- BakkenLink Pipeline
- Evaluated Corridor
- Receipt Point
- Delivery Point
- Delineated Waterbody Crossing
- Delineated Wetland
- NWI Wetland
- Section Township Range

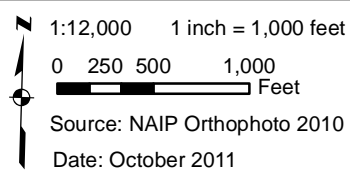
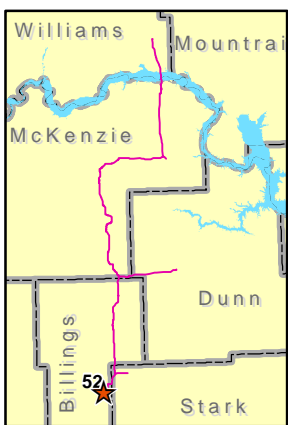


FIGURE 52
Wetland and Waterbody
Crossings
BakkenLink Pipeline LLC

Appendix B

USACE Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 08155095-u1
 Investigator(s): GWM Section, Township, Range: 08, 155, 095
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): plane Slope (%): 4
 Subregion (LRR): E Lat: 48.267762N Long: -102.925286W Datum: NAD 83
 Soil Map Unit Name: 2176 Zahl-Williams loams, 15 to 60 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: ')	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus inermis</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Artemisia ludoviciana</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Rosa arkansana</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

Remarks:

SOIL

Sampling Point: 08155095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-2	10YR 3/2	100	_____	_____	_____	_____	sil	_____
2-8	10YR 3/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 08155095-w1
 Investigator(s): GWM Section, Township, Range: 08. 155. 095
 Landform (hillslope, terrace, etc.): swale / stock dam Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.267669N Long: -102.925322W Datum: NAD 83
 Soil Map Unit Name: 2176 Zahl-Williams loams, 15 to 60 percent slopes NWI classification: PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Stock dam along swale.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Phalaris arundinacea</u>	<u>60</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Carex lanuginosa</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Symphoricarpos occidentalis</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 08155095-w1

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	_____	_____	_____	_____	sicl	_____
12-16	10YR 3/1	100	_____	_____	_____	_____	sicl	_____
16-24+	2.5Y 4/2	90	10YR 4/6	10	c	m	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> <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 checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|---|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 60
 Water Table Present? Yes No Depth (inches): 4
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

numerous pools all hydrologically connected

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 17155095-u1
 Investigator(s): GWM Section, Township, Range: 17, 155, 095
 Landform (hillslope, terrace, etc.): bench Local relief (concave, convex, none): plane Slope (%): 1
 Subregion (LRR): E Lat: 48.243900N Long: -102.925071W Datum: NAD 83
 Soil Map Unit Name: 2339-Amor-Zahl-Cabba loams, 9 to 25 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Agropyron smithii</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Poa pratensis</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Artemisia ludoviciana</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 32155095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-2	10YR 3/1	100	_____	_____	_____	_____	sil	_____
2-8	10YR 3/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 17155095-w1
 Investigator(s): GWM Section, Township, Range: 17, 155, 095
 Landform (hillslope, terrace, etc.): intermittent stream course Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.243952N Long: -102.925066W Datum: NAD 83
 Soil Map Unit Name: 2339 Amor-Zahl-Cabba loams, 9 to 25 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Deep pool in intermittent stream course. Sporadic pools along the course.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Spartina pectinata</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Juncus balticus</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Poa pratensis</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum 0				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 17155095-w1

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 3/1	90	7.5YR 5/6	10	ϕ	m	sicl	
6-12+	2.5Y 4/2	90	7.5YR 5/6	10	ϕ	m	sicl	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 12
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

numerous pools all hydrologically connected

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 29155095-u1
 Investigator(s): GWM Section, Township, Range: 29, 155, 095
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.223246N Long: -102.923248W Datum: NAD 83
 Soil Map Unit Name: 1021 Korchea loam, 0 to 2 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: ')				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>70</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Agropyron repens</u>	<u>10</u>	<u>no</u>	<u>FAC</u>	
3. <u>Cirsium arvense</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 29155095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-14	2.5Y 3/2	95	7.5YR 5/6	5	c	m	sicl	_____
14-15	2.5Y 3/2	70	7.5YR 5/6	30	c	m	sicl	_____
15-16	2.5Y 4/1	100	_____	_____	_____	_____	sicl	_____
16-18+	2.5Y 3/2	80	10YR 4/6	20	c	m	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 29155-95-w1
 Investigator(s): GWM Section, Township, Range: 29, 155, 095
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.99723N Long: -102.917593W Datum: NAD 83
 Soil Map Unit Name: 1021 Korchea loam, 0 to 2 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Shallow swale.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 67 (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Carex lanuginosa</u>	<u>40</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Hordeum jubatum</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Poa pratensis</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Potentilla anserina</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum 0				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 29155095-w2

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		
0-2	2.5Y 2.5/1	100	_____	_____	_____	_____	sicl	_____
2-10	2.5Y 3/1	100	_____	_____	_____	_____	sicl	_____
10-18+	2.5Y 4/2	90	7.5YR 5/6	10	c	m	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> <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"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|---|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 2
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 2915595-w2
 Investigator(s): GWM Section, Township, Range: 29, 155, 095
 Landform (hillslope, terrace, etc.): meander / depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.223246N Long: -102.923142W Datum: NAD 83
 Soil Map Unit Name: 1021 Korchea loam, 0 to 2 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Former meander of intermittent stream. Old beaver cuttings in wetland area.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: 15')	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. <u>Salix amygdaloides</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. <u>Fraxinus pennsylvanica</u>	<u>30</u>	<u>yes</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
60 = Total Cover				
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Taraxicum officinale</u>	<u>10</u>	<u>yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation <u>X</u> 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Typha angustifolia</u>	<u>10</u>	<u>yes</u>	<u>OBL</u>	
3. <u>Urtica dioica</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
30 = Total Cover				
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>70</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:

SOIL

Sampling Point: 29155095-w2

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		
0-2	2.5Y 2.5/1	100					sicl	
2-10	2.5Y 3/1	95	7.5YR 5/6	5	c	m	sicl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 32155095-u1
 Investigator(s): GWM Section, Township, Range: 32, 155, 095
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.203634N Long: -102.915266W Datum: NAD 83
 Soil Map Unit Name: 2032-Williams-Zahl loams 6 to 9 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Bromus inermis</u>	<u>70</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Poa pratensis</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
75				
Woody Vine Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>25</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 32155095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-12	10YR 3/1	100	_____	_____	_____	_____	sil	_____
12-18+	10YR 3/2	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 32155095-u2
 Investigator(s): GWM Section, Township, Range: 32, 155, 095
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.199693N Long: -102.917586W Datum: NAD 83
 Soil Map Unit Name: 2348 Korchea-Divide loams, channeled 0 to 2 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size:)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A) Total Number of Dominant Species Across All Strata: 4 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 25 (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot Size: 15')				
1. <u>Shepherdia argentea</u>	<u>15</u>	<u>yes</u>	<u>FACU</u>	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x1 = _____ FACW species x2 = _____ FAC species x3 = _____ FACU species x4 = _____ UPL species x5 = _____ Column Totals: (A) (B) Prevalence Index = B/A = _____
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>45</u>	<u>yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Cirsium arvense</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Aster simplex</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum 15				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks:				

SOIL

Sampling Point: 32155095-u2

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		
0-2	10YR 3/2	100	_____	_____	_____	_____	sil	_____
2-10+	10YR 3/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2) (LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 32155095-w1
 Investigator(s): GWM Section, Township, Range: 32. 155. 095
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.203575N Long: -102.915428w Datum: NAD 83
 Soil Map Unit Name: 2032 - Williams-Zahl loams 6 to 9 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: depression wetland that is currently dry and rimmed with hawthorn patches			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
<u>Herb Stratum (Plot Size: 5')</u>																				
1. <u>Typha latifolia</u>	<u>30</u>	<u>yes</u>	<u>OBL</u>																	
2. <u>Carex lanuginosa</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
<u>50</u> = Total Cover																				
<u>Woody Vine Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum <u>50</u>																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks:																				

SOIL

Sampling Point: 32155095-w1

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		
0-28+	2.5Y2.5/1	100	_____	_____	_____	_____	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Meets hydric definition.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 32155095-w2
 Investigator(s): GWM Section, Township, Range: 32, 155, 095
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.99723N Long: -102.917593W Datum: NAD 83
 Soil Map Unit Name: 2348 Korchea-Divide loams, channeled 0 to 2 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Former meander of the nearby intermittent stream			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
			= Total Cover	Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
			= Total Cover																	
<u>Herb Stratum (Plot Size: 5')</u>																				
1. <u>Spartina pectinata</u>	<u>70</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Chenopodium giganteum</u>	<u>10</u>	<u>no</u>	<u>UPL</u>																	
3. <u>Sonchus arvensis</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
4. <u>Aster simplex</u>	<u>10</u>	<u>no</u>	<u>FACW</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
			100																	
			= Total Cover																	
<u>Woody Vine Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
			= Total Cover																	
<u>% Bare Ground in Herb Stratum <u>0</u></u>																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks:																				

SOIL

Sampling Point: 32155095-w2

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					sicl	
4-8	2.5Y 4/2	98	10YR 4/6	2	c	m	sicl	
8-18+	2.5Y 4/2	90	7.5YR 5/6	10	c	m	sicl	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|---|---|
| <ul style="list-style-type: none"> <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"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|---|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 0.5
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 32155095-w3
 Investigator(s): GWM Section, Township, Range: 32. 155. 095
 Landform (hillslope, terrace, etc.): intermittent stream Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.198221N Long: -102.917138W Datum: NAD 83
 Soil Map Unit Name: 2348 Korchea-Divide loams, channeled 0 to 2 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Deep pool in intermittent stream course.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
<u>Herb Stratum (Plot Size: 5')</u>																				
1. <u>Spartina pectinata</u>	<u>100</u>	<u>yes</u>	<u>FACW</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
<u>100</u>			= Total Cover																	
<u>Woody Vine Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
_____			= Total Cover																	
<u>% Bare Ground in Herb Stratum <u>0</u></u>																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks:																				

SOIL

Sampling Point: 32155095-w3

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 3/1	100	_____	_____	_____	_____	sicl	_____
4-6	2.5Y 4/1	90	7.5YR 5/6	10	c	m	sicl	_____
6-8	2.5Y 2.5/1	100	_____	_____	_____	_____	sicl	_____
8-16	2.5Y 3/1	100	_____	_____	_____	_____	sicl	_____
16-20+	2.5Y 4/2	90	7.5YR 5/6	10	c	m	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Stratified layers along edge of intermittent stream.

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> <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 checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|---|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 4
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 8/25/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 04154095-u1
 Investigator(s): GWM Section, Township, Range: 04,154,095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 20
 Subregion (LRR): E Lat: 48.192743N Long: -102.908345W Datum: NAD 83
 Soil Map Unit Name: 2081 - Zahl-Williams loams, 9 to 15 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Bouteloua curtipendula</u>	<u>60</u>	<u>yes</u>	<u>FACU</u>																	
2. <u>Artemisia ludoviciana</u>	<u>20</u>	<u>yes</u>	<u>UPL</u>																	
3. <u>Stipa comata</u>	<u>10</u>	<u>no</u>	<u>UPL</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
<u>90</u>			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum <u>10</u>																				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Remarks:																				

SOIL

Sampling Point: 04154095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-6	10YR 3/3	100	_____	_____	_____	_____	sl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 04154095-w1
 Investigator(s): GWM Section, Township, Range: 16. 154. 095
 Landform (hillslope, terrace, etc.): intermittent stream Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.92720N Long: -102.908337W Datum: NAD 83
 Soil Map Unit Name: 2081 - Zahl-Williams loams, 9 to 15 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Deep pool in intermittent stream course.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum (Plot Size: _____)</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
<u>Herb Stratum (Plot Size: 5')</u>				
1. <u>Spartina pectinata</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Typha angustifolia</u>	<u>30</u>	<u>yes</u>	<u>OBL</u>	
3. <u>Hordeum jubatum</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
4. <u>Grindelia squarrosa</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
5. <u>Eleocharis palustris</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100	
			= Total Cover	
<u>Woody Vine Stratum (Plot Size: _____)</u>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 04154095-w1

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		
0-1	10YR 3/1	100					sicl	
1-4	2.5Y 4/2	80	10YR 4/6	20	c	m	sicl	
4-12+	2.5Y 4/2	90	10YR 4/6	10	c	m	sicl	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	(LRR H outside of MLRA 72 & 73)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)				Secondary Indicators (2 or more required)			
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)		<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drainage Patterns (B10)		<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)			
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)		(where tilled)			
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	(where not tilled)		<input type="checkbox"/> Crayfish Burrows (C8)			
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Presence of Reduced Iron (C4)		<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)			
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Other (Explain in Remarks)		<input checked="" type="checkbox"/> Geomorphic Position (D2)			
<input type="checkbox"/> Algal Mat or Crust (B4)				<input type="checkbox"/> FAC-Neutral Test (D5)			
<input type="checkbox"/> Iron Deposits (B5)				<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)			
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)							
<input type="checkbox"/> Water-Stained Leaves (B9)							

Field Observations:

Surface Water Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Depth (inches):	6
Water Table Present?	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Depth (inches):	0
Saturation Present? (includes capillary fringe)	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/>	Depth (inches):	0

Wetland Hydrology Present? Yes No

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 05154095-u1
 Investigator(s): GWM Section, Township, Range: 05.154.095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 20
 Subregion (LRR): E Lat: 48.188477N Long: -102.917256W Datum: NAD 83
 Soil Map Unit Name: 2081 - Zahl-Williams loams, 9 to 15 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
<u>Herb Stratum</u> (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>60</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Stipa viridula</u>	<u>30</u>	<u>yes</u>	<u>UPL</u>	
3. <u>Aster ericoides</u>	<u>10</u>	<u>no</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
<u>Woody Vine Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 05154095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100	_____	_____	_____	_____	sil	_____
4-17+	10YR 3/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 05154095-w1
 Investigator(s): GWM Section, Township, Range: 05 154 095
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.188359N Long: -102.917239W Datum: NAD 83
 Soil Map Unit Name: 2081 Zahl-Williams loams, 9 to 15 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: shallow depression			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
<u>Sapling/Shrub Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
<u>Herb Stratum (Plot Size: 5')</u>																				
1. Muhlenbergia asperfolia	15	no	FACW																	
2. Spartina pectinata	65	yes	FACW																	
3. Rumex crispus	20	yes	FACW																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
100			= Total Cover																	
<u>Woody Vine Stratum (Plot Size: _____)</u>																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum <u>0</u>																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks:																				

SOIL

Sampling Point: 05154095-w1

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 3/1	100					sil	
4-12+	2.5Y 4/1	90	7.5YR 5/6	10	c	m	sicl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Tonka

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): 6
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 6

Wetland Hydrology Present? Yes No

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

Remarks:

depression

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 09154095-u1
 Investigator(s): GWM Section, Township, Range: 09, 154, 095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.172069N Long: -102.898309W Datum: NAD 83
 Soil Map Unit Name: 2032-Williams-Zahl loams, 6 to 9 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>70</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Stipa comata</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Grindelia squarrosa</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 09154095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-4	10YR 3/1	100	_____	_____	_____	_____	sicl	_____
4-10	10YR 3/2	100	_____	_____	_____	_____	sicl	_____
10-16+	2.5Y 5/3	100	_____	_____	_____	_____	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 10

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 09154095-u2
 Investigator(s): GWM Section, Township, Range: 09. 154. 095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.173393N Long: -102.899013W Datum: NAD 83
 Soil Map Unit Name: 2081 Zahl-Williams loams 9 to 15 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
<u>Herb Stratum</u> (Plot Size: 5')				
1. <u>Andropogon scoparius</u>	<u>40</u>	<u>yes</u>	<u>UPL</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Aster ericoides</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
<u>Woody Vine Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 09154095-u2

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 3/2	100	_____	_____	_____	_____	sil	_____
6-12+	10YR 3/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 09154095-u3
 Investigator(s): GWM Section, Township, Range: 09. 154. 095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.178007N Long: -102.901015W Datum: NAD 83
 Soil Map Unit Name: 2032 Williams-Zahl loams, 6 to 9 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Bouteloua curtipendula</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Aster ericoides</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Artemisia frigida</u>	<u>20</u>	<u>yes</u>	<u>UPL</u>	
4. <u>Stipa viridula</u>	<u>10</u>	<u>no</u>	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<u>90</u> = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>10</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 09154095-u3

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 3/2	100	_____	_____	_____	_____	sil	_____
6-12+	2.5Y 4/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 09154095-w1
 Investigator(s): GWM Section, Township, Range: 09. 154. 095
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.172107N Long: -102.898295W Datum: NAD 83
 Soil Map Unit Name: 2032- Williams-Zahl loams, 6 to 9 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: shallow depression			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
<u>Herb Stratum</u> (Plot Size: 5')				
1. <u>Poa pratensis</u>	10	no	FACU	
2. <u>Typha latifolia</u>	30	yes	OBL	
3. <u>Agropyron canium</u>	20	yes	FAC	
4. <u>Hordeum jubatum</u>	20	yes	FACW	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
80			= Total Cover	
<u>Woody Vine Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum 20				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 09154095-w1

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		
0-9	10YR 2/1	100					sicl	
9-12	2.5Y 4/1	98	10YR 4/4	2	c	m	sicl	
12-16+	2.5Y 4/1	90	10YR 4/4	10	c	m	sicl	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Tonka

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 18
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

depression

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 09154095-w2
 Investigator(s): GWM Section, Township, Range: 09. 154. 095
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.173451N Long: -102.898927W Datum: NAD 83
 Soil Map Unit Name: 2081 Zahl-Williams loams, 9 to 15 percent slopes 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: shallow depression			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
<u>Herb Stratum</u> (Plot Size: 5')				
1. <u>Muhlenbergia asperfolia</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Typha latifolia</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
3. <u>Carex lanuginosa</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
4. <u>Agropyron smithii</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
5. <u>Poa pratensis</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100	
			= Total Cover	
<u>Woody Vine Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 09154095-w2

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		
0-26+	10YR 2/1	100	_____	_____	_____	_____	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks:
Dark soils mask redoximorphic features. Meets hydric definition

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations:

Surface Water Present? Yes No Depth (inches): 6

Water Table Present? Yes No Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 14

Wetland Hydrology Present? Yes No

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

Remarks:
depression

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 9/8/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 09154095-w3
 Investigator(s): GWM Section, Township, Range: 09. 154. 095
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.177971N Long: -102.901058W Datum: NAD 83
 Soil Map Unit Name: 2032- Williams-Zahl loams, 6 to 9 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: shallow depression			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Muhlenbergia asperfolia</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Typha latifolia</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
3. <u>Eleocharis palustris</u>	<u>40</u>	<u>yes</u>	<u>OBL</u>	
4. <u>Agropyron smithii</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100	
			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 09154095-w3

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		
0-2	10YR 2/1	100					sicl	
2-6	2.5Y 4/2	90	7.5YR 5/6	10	c	m	sicl	
6-7	10YR 2/1	60	7.5YR 5/6	10	c	m	sicl	
			2.5Y 4/1	30	d	m	sicl	
7-16+	2.5Y 4/1	90	7.5YR 5/6	10	c	m	sicl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Tonka

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 6
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

depression

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 8/25/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 16154095-u1
 Investigator(s): GWM Section, Township, Range: 16. 154. 095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.168081N Long: -102.906730W Datum: NAD 83
 Soil Map Unit Name: 2031-Williams-Zahl loams 3 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary. Observation point on slope of berm.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
<u>Herb Stratum</u> (Plot Size: 5')				
1. <u>Agropyron cristatum</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			80 = Total Cover	
<u>Woody Vine Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 16154095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

no soil sampe due to soil too hard to dig

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 8/25/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 16154095-u2
 Investigator(s): GWM Section, Township, Range: 16. 154. 095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.168026N Long: -102.906479W Datum: NAD 83
 Soil Map Unit Name: 2031-Williams-Zahl loams 3 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary. Observation point on slope of berm.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Agropyron smithii</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>60</u>			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>40</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 16154095-u2

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		
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:
no soil sampe due to soil too hard to dig

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 8/25/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 16154095-u3
 Investigator(s): GWM Section, Township, Range: 16. 154. 095
 Landform (hillslope, terrace, etc.): toeslope Local relief (concave, convex, none): plane Slope (%): 2
 Subregion (LRR): E Lat: 48.168383N Long: -102.900828W Datum: NAD 83
 Soil Map Unit Name: 2031-Williams-Zahl loams 3 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Upland comparison point above hydric boundary. Observation point on slope of berm.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</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>0</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>40</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
3. <u>Aster ericoides</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Psoralea argentea</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
5. <u>Stipa viridula</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100	
			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 16154095-u3

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		
0-2	10YR 3/1	100	_____	_____	_____	_____	sil	_____
2-6	10YR 3/2	100	_____	_____	_____	_____	sil	_____
6-16+	2.5Y 4/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 8/25/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 16154095-w1
 Investigator(s): GWM Section, Township, Range: 16. 154. 095
 Landform (hillslope, terrace, etc.): swale / stock pond Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.168052N Long: -102.906784W Datum: NAD 83
 Soil Map Unit Name: 2031 - Williams-Zahl loams, 3 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Stock dam in swale.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Rumex crispus</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Agropyron smithii</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
3. <u>Ranunculus scleratus</u>	<u>10</u>	<u>no</u>	<u>FAC</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
60			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 30%;">% Bare Ground in Herb Stratum <u>40</u></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 40%;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				% Bare Ground in Herb Stratum <u>40</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>												
% Bare Ground in Herb Stratum <u>40</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
Remarks:																				

SOIL

Sampling Point: 16154095-w1

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		
0-3	10YR 2/1	100					sil	
3-5	2.5Y 4/2	90	7.5YR 5/6	10	c	m	sil	
5-8+	Gley 4/5G	85					sicl	
	10YR 2/1	15					sicl	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes No Depth (inches): 60

Water Table Present? Yes No Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:
stock dam

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 8/25/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 16154095-w2
 Investigator(s): GWM Section, Township, Range: 16. 154. 095
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.168041N Long: -102.906449W Datum: NAD 83
 Soil Map Unit Name: 2031 - Williams-Zahl loams, 3 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Swale below stock dam.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Hordeum jubatum</u>	<u>85</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Chenopodium rubrum</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
3. <u>Agropyron smithii</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 16154095-w2

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		
0-2	10YR 2/1	40	_____	_____	_____	_____	sicl	_____
0-2	Gley 4/5G	60	_____	_____	_____	_____	sicl	_____
2-8	10YR 2/1	100	_____	_____	_____	_____	sicl	_____
8-30	10YR 3/1	100	_____	_____	_____	_____	sicl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Gley layer at surface. Meets hydric definition.

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes No Depth (inches): 3
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink City/County: Williams Sampling Date: 8/25/2011
 Applicant/Owner: Carlson State: ND Sampling Point: 16154095-w3
 Investigator(s): GWM Section, Township, Range: 16. 154. 095
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 48.167368N Long: -102.900794W Datum: NAD 83
 Soil Map Unit Name: 2081 - Zahl-Williams loams, 9 to 15 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: depression wetland with bulrush across basin			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Typha latifolia</u>	<u>60</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Poa pratensis</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
3. <u>Agropyron smithii</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>80</u>			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:

SOIL

Sampling Point: 16154095-w3

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					sicl	
6-16+	2.5Y 4/1	80	7.5YR 8/6	20	c	m	sicl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) **(LRR F)**
- 1 cm Muck (A9) **(LRR F, G, H)**
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2) **(LRR G, H)**
- 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) **(LRR I, J)**
- Coast Prairie Redox (A16) **(LRR F, G, H)**
- Dark Surface (S7) **(LRR G)**
- High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Tonka

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> <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 checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|--|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 24
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/8/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 04153095-w1
 Investigator(s): RK Section, Township, Range: 04-153-95
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): E Lat: 48.101799 Long: -102.895902 Datum: NAD 83
 Soil Map Unit Name: Zahl-Williams loams, 9 to 15 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: isolated, dry			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>Carex lanuginosa</u>	<u>40</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Juncus balticus</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Eleocharis compressa</u>	<u>20</u>	<u>N</u>	<u>OBL</u>	
4. <u>Typha latifolia</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
5. <u>Bromus inermis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: USFS Lands				

SOIL

Sampling Point: 04153095-w1

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		
0-8	2.5Y 4-2	98	10YR 5-6	2	c	pl	sl	
8-12	2.5Y 3-1	100					clay	hard clay layer

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Dry, top layer crumble, hard pack clay below

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> <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 checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|---|--|

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 12

Wetland Hydrology Present? Yes No

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

Remarks:

Temp wetland

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/8/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 04153095-u2
 Investigator(s): RK Section, Township, Range: 04-153-95
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): E Lat: 48.102331 Long: -102.895942 Datum: NAD 83
 Soil Map Unit Name: Zahl-Williams loams, 9 to 15 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>Bromus inermis</u>	<u>90</u>	_____	<u>FACU</u>	
2. <u>Artemisia ludoviciana</u>	<u>10</u>	_____	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u>			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
<u>upland</u>				

SOIL

Sampling Point: 04153095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-16	10YR 3-1	100	_____	_____	_____	_____	lo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
(LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3)
(where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3)
(where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/8/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 04153095-u1
 Investigator(s): RK Section, Township, Range: 04-153-95
 Landform (hillslope, terrace, etc.): mid-slope Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): E Lat: 48.101837 Long: -102.895853 Datum: NAD 83
 Soil Map Unit Name: Zahl-Williams loams, 9 to 15 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>80</u>	_____	<u>FACU</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>20</u>	_____	<u>UPL</u>	
3. <u>Solidago missouriensis</u>	<u>10</u>	_____	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
upland				

SOIL

Sampling Point: 04153095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-18	10YR 3-3	100	_____	_____	_____	_____	lo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 24152096-w1
 Investigator(s): RK & JS Section, Township, Range: 24-152-96
 Landform (hillslope, terrace, etc.): damed drainage, dugout Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): E Lat: 47.9668032487 Long: --102.908812339 Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg silt loams, 0 to 6 percent slopes NWI classification: PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: dugout, damed ephemeral drain			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Juncus balticus</u>	<u>60</u>	_____	<u>OBL</u>																	
2. <u>Eleocharis compressa</u>	<u>20</u>	_____	<u>OBL</u>																	
3. <u>Polygonum amphibium</u>	<u>10</u>	_____	<u>OBL</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
90			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
_____			= Total Cover																	
% Bare Ground in Herb Stratum 10																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				

Remarks:
Minimal wet veg along edge

SOIL

Sampling Point: 24152096-w1

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		
0-1	10YR 2-1	100						
1-10	2.5Y 4-1	95	10YR 4-4	5	RM	M	clay	
10-16+	2.5Y 5-1	98	10YR 4-6	2	RM	M	clay	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): 10
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:
stock dam

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 24152096-u1
 Investigator(s): RK & JS Section, Township, Range: 24-152-96
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): 6
 Subregion (LRR): E Lat: 47.96669138520 Long: --102.908829413 Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg silt loams, 0 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermus</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Medicago sativa</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
3. <u>Solidago missouriensis</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 24152096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-8	10YR 4-1	100	_____	_____	_____	_____	lo	_____
8-14+	10YR 3-1	100	_____	_____	_____	_____	lo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
 Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|---|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 36152096-w1
 Investigator(s): RK & JS Section, Township, Range: 36-152-96
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 12
 Subregion (LRR): E Lat: 47.9400563808 Long: --102.908871729 Datum: NAD 83
 Soil Map Unit Name: Zahl-Williams loams, 9 to 15 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 <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: isolated, perched			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <i>Spartina pectinata</i>	40	Y	FACW	
2. <i>Poa pratensis</i>	20	N	FACU	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum 40				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: Heavy livestock use				

SOIL

Sampling Point: 36152096-w1

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 3-1							
10-18	2.5Y 4-1	98	7.5YR 4-6	2	c	pl	clay/lo	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 36152096-u1
 Investigator(s): RK & JS Section, Township, Range: 36-152-96
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 15
 Subregion (LRR): E Lat: 47.94005638080 Long: --102.908871729 Datum: NAD 83
 Soil Map Unit Name: Zahl-Williams loams, 9 to 15 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>40</u>	_____	<u>FACU</u>	
2. <u>Stipa comata</u>	<u>20</u>	_____	<u>UPL</u>	
3. <u>Solidago missouriensis</u>	<u>10</u>	_____	<u>UPL</u>	
4. <u>Glycyrrhiza lepidota</u>	<u>10</u>	_____	<u>FACU</u>	
5. <u>Symphoricarpos occidentalis</u>	<u>20</u>	_____	<u>UPL</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
upland				

SOIL

Sampling Point: 36152096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-18	10YR 3-1	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 12151096-w1
 Investigator(s): RK & JS Section, Township, Range: 12-151-96
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): E Lat: 47.9166849286 Long: -102.908285183 Datum: NAD 83
 Soil Map Unit Name: Daqlum-Belfield complex, 0 to 6 percent slopes 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Perched above draw, Isolated			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Spartina pectinata</u>	<u>60</u>	<u>Y</u>	<u>FACW</u>																	
2. <u>Juncus balticus</u>	<u>20</u>	<u>N</u>	<u>OBL</u>																	
3. <u>Rumex crispus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>																	
4. <u>Poa pratensis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
100			= Total Cover																	
Hydrophytic Vegetation Indicators:																				
<input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation																				
_____ 2 - Dominance Test is >50%																				
_____ 3 – Prevalence Index is ≤3.0 ¹																				
_____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)																				
_____ Problematic Hydrophytic Vegetation ¹ (Explain)																				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 70%;">% Bare Ground in Herb Stratum _____</td> <td style="width: 30%; text-align: right;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				% Bare Ground in Herb Stratum _____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>															
% Bare Ground in Herb Stratum _____	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																			
Remarks:																				

SOIL

Sampling Point: 12151096-w1

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		
0-8	10YR 3-1	90	7.5YR 4-4	10	C	M	cl/lo	
8-14	2.5Y 3-1	95	7.5YR 4-4	5	C	M	cl/lo	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:
NWI

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 12151096-u1
 Investigator(s): RK & JS Section, Township, Range: 12-151-96
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): convex Slope (%): 3
 Subregion (LRR): E Lat: 47.9166074530 Long: -102.908196625 Datum: NAD 83
 Soil Map Unit Name: Daqlum-Belfield complex, 0 to 6 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>80</u>	_____	<u>FACU</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>10</u>	_____	<u>FACU</u>	
3. <u>Cirsium vulgare</u>	<u>5</u>	_____	<u>FACU</u>	
4. <u>Grindelia squarrosa</u>	<u>5</u>	_____	<u>UPL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
upland				

SOIL

Sampling Point: 12151096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-10	10YR 3-1	100	_____	_____	_____	_____	cl	_____
10-18	10YR 3-1	100	_____	_____	_____	_____	cl/lo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
(LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3)
(where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3)
(where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/20/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 13151096-w1
 Investigator(s): GC & MG Section, Township, Range: 13-151-96
 Landform (hillslope, terrace, etc.): rolling plain Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): F Lat: 47.54228882 Long: -102.54329759 Datum: NAD 83
 Soil Map Unit Name: Dimmick silty clay loam, 0 to 1 percent slopes 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
2. <u>Typha latifolia</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
3. <u>Alisma gramineum</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
4. <u>Juncus spp.</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
5. <u>Spartina pectinata</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
6. <u>Carex spp.</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
105			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				
concave				

SOIL

Sampling Point: 13151096-w1

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 2-1	100			C	M	SiLo	
10-18	10YR 2-1	90	10YR 4-4	10	C	M	SiLo	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 24
 Water Table Present? Yes No Depth (inches): 6
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 4

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 13151096-u3
 Investigator(s): RK & JS Section, Township, Range: 13-151-96
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 0-1
 Subregion (LRR): E Lat: 47.90354643410 Long: -102.907777345 Datum: NAD 83
 Soil Map Unit Name: Dimmick silty clay loam, 0 to 1 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Solidago missouriensis</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
3. <u>Cirsium arvensis</u>	<u>20</u>	<u>N</u>	<u>FACU</u>	
4. <u>Glycyrrhiza lepidota</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
upland				

SOIL

Sampling Point: 13151096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-8	10YR 2-1	100				lom	cl/lo	
8-14	10YR 2-1	60	2.5YR 4-1	40				

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
 Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|---|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

planted wildlife treeplot to the N

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/20/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 13151096-u2
 Investigator(s): GC & MG Section, Township, Range: 13-151-96
 Landform (hillslope, terrace, etc.): rolling plain Local relief (concave, convex, none): _____ Slope (%): 2
 Subregion (LRR): E Lat: 47.904439 Long: -102.905938 Datum: NAD83
 Soil Map Unit Name: Belfield-Grail silt clay loams 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>100</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>100</u>			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 13151096-u2

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 4-2	100	_____	_____	C	M	fineSaLo	_____
12-16	10YR 4-3	100	_____	_____	C	M	fineSaLo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/20/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 13151096-u1
 Investigator(s): GC & MG Section, Township, Range: 13-151-96
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): E Lat: 47.54228802 Long: -102.907784 Datum: NAD83
 Soil Map Unit Name: Belfield-Grail silt 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. <u>Crataegus rotundifolia</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>Bromus inermis</u>	<u>100</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
= Total Cover				
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 13151096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-8	10YR 4-2	100	_____	_____	C	M	fineSaLo	_____
8-16	10YR 4-3	100	_____	_____	C	M	fineSaLo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|---|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 13151096-w3
 Investigator(s): RK & JS Section, Township, Range: 13-151-96
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 47.9034946894 Long: -102.9077751813 Datum: NAD 83
 Soil Map Unit Name: Dimmick silty clay loam, 0 to 1 percent slopes 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: heavily vegetated, concave			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Phalaris arundinacea</u>	<u>30</u>	<u>Y</u>	<u>FACW+</u>	
2. <u>Spartina pectinata</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	
3. <u>Typha latifolia</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
4. <u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5. <u>Cirsium arvense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
6. <u>Bromus inermis</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 13151096-w1

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		
0-8	10YR 2-1	100					cl/lo	
8-18	2.5Y 5-1	98	7.5YR 4-6	2	D	Pl	clay	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 18+
 Water Table Present? Yes No Depth (inches): 2
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 2

Wetland Hydrology Present? Yes No

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

Remarks:

planted wildlife treeplot to the N
Damed to S

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/20/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 13151096-w2
 Investigator(s): GC & MG Section, Township, Range: 13-151-96
 Landform (hillslope, terrace, etc.): rolling plain Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): E Lat: 47.904081 Long: -102.905845 Datum: NAD83
 Soil Map Unit Name: Belfield-Grail silt 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Spartina pectinata</u>	10	N	FACW																	
2. <u>Juncus spp</u>	30	Y	OBL																	
3. <u>Rumex crispus</u>	10	N	FACW																	
4. <u>Carex spp.</u>	5	N	FACW																	
5. <u>Polygonum amphibium</u>	5	N	OBL																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
= Total Cover																				
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%;"> Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 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) </td> <td style="width: 50%; vertical-align: top;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>															
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																			
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
% Bare Ground in Herb Stratum <u>30</u>																				
Remarks:																				

SOIL

Sampling Point: 13151096-w2

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		
0-8	10YR 2-1	100			C	M	SiLo	
8-16	10YR 2-1	95	10YR 4-6	5	C	M	SiLo	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 8
 Water Table Present? Yes No Depth (inches): 6
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 4

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25151096-w1
 Investigator(s): RK & JS Section, Township, Range: 25-151-96
 Landform (hillslope, terrace, etc.): ditch Local relief (concave, convex, none): concave Slope (%): 2-6
 Subregion (LRR): E Lat: 47.8757606976 Long: -102.899202181 Datum: NAD 83
 Soil Map Unit Name: Belfield-Savage silty clay loams, 2 to 6 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Ditch, culverts under road to east			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Juncus balticus</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Scirpus validus</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
3. <u>Carex lanuginosa</u>	<u>10</u>	<u>N</u>	<u>OBL</u>	
4. <u>Agropyron repens</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	
5. <u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 25151096-w1

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		
0-1	10YR 2/1	100						
1-10	2.5Y 3/1	95	7.5YR 4-6	5	D	M	clay	
10-18	2.5Y 4/1	95	7.5YR 4-6	5	D	M	Clay	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³:
<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) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" 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"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

1 cm Muck (A9) (LRR I, J)
 Coast Prairie Redox (A16) (LRR F, G, H)
 Dark Surface (S7) (LRR G)
 High Plains Depressions (F16)
 (LRR H outside of MLRA 72 & 73)
 Reduced Vertic (F18)
 Red Parent Material (TF2)
 Very Shallow Dark Surface (TF 12)
 Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Water-Stained Leaves (B9)		

Field Observations:

Surface Water Present? Yes No Depth (inches): 1

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

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

Wetland Hydrology Present? Yes No

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

Remarks:
 Drainage in ditch to east

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25151096-u1
 Investigator(s): RK & JS Section, Township, Range: 25-151-96
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): E Lat: 47.8756892552 Long: -102.899195828 Datum: NAD 83
 Soil Map Unit Name: Belfield-Savage silty clay loams, 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>70</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Medicago sativa</u>	<u>20</u>	<u>N</u>	<u>UPL</u>	
3. <u>Helianthus rigidus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

upland

SOIL

Sampling Point: 25151096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-6	10YR 3-2	100	_____	_____	_____	_____	_____	_____
6-16	2.5 5-3	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input checked="" type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 30151096-w1
 Investigator(s): RK & JS Section, Township, Range: 30-151-96
 Landform (hillslope, terrace, etc.): Drainage damed Local relief (concave, convex, none): concave Slope (%): 20
 Subregion (LRR): E Lat: 47.8677847659 Long: -102.898018643 Datum: NAD 83
 Soil Map Unit Name: Brandenburg-Cabba-Dogtooth complex, 15 to 70 percent slopes NWI classification: PABI

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: dammed by road. 3-6 feet deep.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Typha latifolia</u>	<u>20</u>	<u>Y</u>	<u>OBL</u>																	
2. <u>wheat</u>	<u>10</u>	<u>N</u>	<u>UPL</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
= Total Cover																				
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 35%;">% Bare Ground in Herb Stratum <u>70</u></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 35%;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				% Bare Ground in Herb Stratum <u>70</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>												
% Bare Ground in Herb Stratum <u>70</u>				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
Remarks: Heavy livestock use																				

SOIL

Sampling Point: 30151096-w1

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		
0-2	2.5Y 5-1	40	2.5Y 3-1	60			silt/ muck	fine muck layer
2-14	2.5Y 5-2	98	10YR 5-4	2	C	pl	clay/lo	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|--|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 36+
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/1/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 30151096-u1
 Investigator(s): RK & JS Section, Township, Range: 30-151-96
 Landform (hillslope, terrace, etc.): Drainage damed Local relief (concave, convex, none): concave Slope (%): 15-70
 Subregion (LRR): E Lat: 47.8678193382 Long: -102.897971741 Datum: NAD 83
 Soil Map Unit Name: Brandenburg-Cabba-Dogtooth complex, 15 to 70 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: wheat field			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: <u>5'</u>)																				
1. <u>wheat</u>	<u>60</u>	<u>Y</u>	<u>UPL</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
= Total Cover																				
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum <u>40</u>																				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Remarks: upland																				

SOIL

Sampling Point: 30151096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-10	10YR 3-3	90	2.5YR 5-8	10	_____	_____	_____	Scoria
10-18	10YR 5-3	100	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
 Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 10/6/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 18150095-w1
 Investigator(s): MM & CT Section, Township, Range: 18-150-95
 Landform (hillslope, terrace, etc.): floodplane depression Local relief (concave, convex, none): concave Slope (%): ≤1
 Subregion (LRR): E Lat: 47.812452 Long: -102.889745 Datum: NAD83
 Soil Map Unit Name: Golva 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: crop field - has been cropped through in the past			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Kochia scoparia</u>	<u>10</u>	<u>Y</u>	<u>FAC</u>	
2. <u>Hordeum jubatum</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. <u>Crop residue</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>20</u>			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>80</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 18150095-w1

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	_____	_____	_____	M	ClyLm	_____
12-30	2.5Y 4-1	100	_____	_____	_____	M	Cly	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie Sampling Date: 10/6/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 18150095-u1
 Investigator(s): MM & CT Section, Township, Range: 18-150-96
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): E Lat: 47.812452 Long: -102889749 Datum: NAD83
 Soil Map Unit Name: Golva silt 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: crop field			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>crop residue</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>80</u>			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 18150095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-10	10YR 3-3	100	_____	_____	C	M	ClyLm	_____
10-22	10YR 3-1	100	_____	_____	C	M	Cly	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8-10-11
 Applicant/Owner: Quintana State: ND Sampling Point: 23150098-w1
 Investigator(s): RK & JS Section, Township, Range: 23-150-98
 Landform (hillslope, terrace, etc.): Former meander Local relief (concave, convex, none): concave Slope (%): 9-50
 Subregion (LRR): E Lat: 47.940049 Long: --102.908917 Datum: NAD 83
 Soil Map Unit Name: Beisigl-Flasher-Tally complex, 9 to 50 percent slopes 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Wet, NWI wetland drainage			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Spartina pectinata</u>	<u>80</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Carex spp.</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
3. <u>Hordeum jubatum</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 23150098-w1

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		
0-3	10YR 3-1	100					si	
3-11	2.5Y 3-1	90	7.5YR 3-4	10	c	m	si/lo	
11-24	2.5Y 4-2	60	2.5Y 5-1	40	rm	m	sandy	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 2
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

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

Remarks:

upper drainage to nwi class dam (PEMA)

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8-10-11
 Applicant/Owner: Quintana State: ND Sampling Point: 23150098-u1
 Investigator(s): RK & JS Section, Township, Range: 23-150-98
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): _____ Slope (%): 20
 Subregion (LRR): E Lat: 47.940049 Long: --102.908917 Datum: NAD 83
 Soil Map Unit Name: Beisigl-Flasher-Tally complex, 9 to 50 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>45</u>	_____	<u>FACU</u>	
2. <u>Andropogon gerardii</u>	<u>15</u>	_____	<u>FACU</u>	
3. <u>Elymus canadensis</u>	<u>15</u>	_____	<u>FACU</u>	
4. <u>Glycyrrhiza lepidota</u>	<u>15</u>	_____	<u>FACU</u>	
5. <u>Melilotus officinalis</u>	<u>10</u>	_____	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 23150098-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-2	10YR 3-2	100	_____	_____	_____	_____	sandy	_____
2-12+	2.5Y 4-4	100	_____	_____	_____	_____	sandy	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):	Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type: _____	
Depth (Inches): _____	
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" 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:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8-11-11
 Applicant/Owner: Quintana State: ND Sampling Point: 06149098-w1
 Investigator(s): RK & JS Section, Township, Range: 06-149-98
 Landform (hillslope, terrace, etc.): damed drainage Local relief (concave, convex, none): concave Slope (%): 3-6
 Subregion (LRR): E Lat: 47.749275 Long: -103.272171 Datum: NAD 83
 Soil Map Unit Name: Beisigl-Flasher-Tally complex, 9 to 50 percent slopes NWI classification: PEMFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Backup drainage on damed int. stream			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Typha latifolia</u>	<u>70</u>	_____	<u>OBL</u>	
2. <u>Juncus balticus</u>	<u>20</u>	_____	<u>OBL</u>	
3. <u>Hordeum jubatum</u>	<u>5</u>	_____	<u>FACW</u>	
4. <u>Carex spp.</u>	<u>5</u>	_____	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 06149098-w1

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		
0-3	10YR 3-1	100					silt/clay	
3-10	2.5y 4-1	95	7.5YR 4-6	2	c	pl	sand/clay	
10-18+	2.5Y 4-2	90	2.5YR 5-1	10	D	M	sand/clay	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> <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"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|---|--|

Field Observations:

Surface Water Present? Yes No Depth (inches): 0
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8-11-11
 Applicant/Owner: Quintana State: ND Sampling Point: 06149098-u1
 Investigator(s): RK & JS Section, Township, Range: 06-149-098
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): _____ Slope (%): 3-6
 Subregion (LRR): E Lat: 47.749275 Long: --103.272171 Datum: NAD 83
 Soil Map Unit Name: Beisigl-Flasher-Tally complex, 9 to 50 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>80</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Agropyron repens</u>	<u>10</u>	<u>N</u>	<u>FAC</u>	
3. <u>Bromus inermis</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
upland				

SOIL

Sampling Point: 06149098-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-6	10YR 3-2	100	_____	_____	_____	_____	silt/lo	_____
6-18+	2.5y 4-2	100	_____	_____	_____	_____	silt/clay	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/9/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 24147099-w1
 Investigator(s): RK Section, Township, Range: 24-147-99
 Landform (hillslope, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 1-3
 Subregion (LRR): E Lat: 47.535026 Long: -103.240748 Datum: NAD 83
 Soil Map Unit Name: Rhame-Arikara-Fleak complex, 9 to 50 percent slopes NWI classification: PEMB

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Drainage wetland, pool from Hwy 85 culvert Recent highway reconstruction has influenced wetland with fine clay sediment			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>Carex lanuginosa</u>	<u>5</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Typha latifolia</u>	<u>10</u>	<u>Y</u>	<u>OBL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<u>15</u> = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>85</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:
Fine sediment inhibiting veg growth

SOIL

Sampling Point: 24147099-w1

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	2.5Y 5-1	60	7.5YR 5-6	10	c	m	cl	
0-10	Gley1 5-1	40	7.5YR 5-6	10	c	m	cl	
10-14	2.5Y 5-2	70					s	
10-14	2.5Y 4-1	30					cl	
14-18	2.5Y 2-1	100					cl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> <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"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input checked="" type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|--|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 1

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/9/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 24147099-u1
 Investigator(s): RK Section, Township, Range: 24-147-99
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 15
 Subregion (LRR): E Lat: 47.535061 Long: -103.24068 Datum: NAD 83
 Soil Map Unit Name: Rhame-Arikara-Fleak complex, 9 to 50 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland - disturbed by highway construction			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>Bromus inermis</u>	<u>70</u>	<u>Y</u>	<u>FACU</u>	
2. <u>Symphoricarpos occidentalis</u>	<u>30</u>	<u>N</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 24147099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-14	10YR 5-2	100	_____	_____	_____	_____	sl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

upland

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/24/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25146099-w3
 Investigator(s): RK & JS Section, Township, Range: 25-146-099
 Landform (hillslope, terrace, etc.): dammed drain Local relief (concave, convex, none): concave Slope (%): 9
 Subregion (LRR): E Lat: 47.432071N Long: -103.229202W Datum: NAD 83
 Soil Map Unit Name: Boxwell-Cabbart-Arikara complex & Rhame-Arikara-Fleak complex, 9 to 50 percent slopes NWI classification: PABFh
 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Beaver dammed steep drainage, spring fed			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Typha angustifolia</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Scirpus acutus</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
3. <u>Juncus balticus</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
4. <u>Distichlis spicata var. stricta</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
5. <u>Hordeum jubatum</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
6. <u>Poa pratensis</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>10</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: Open water				

SOIL

Sampling Point: 25146099-w3

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		
0-1	10YR 2/1	100					scl	
1-18	2.5Y 5/1	95	7.5YR 5/6	5	RM	M	cl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Redox throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 18+
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

* est. depth of wetland. Multiple beaver dams. Spring upslope to south.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/24/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25146099-w2
 Investigator(s): RK & JS Section, Township, Range: 25-146-099
 Landform (hillslope, terrace, etc.): dammed drain Local relief (concave, convex, none): concave Slope (%): 9
 Subregion (LRR): E Lat: 47.432071N Long: -103.229202W Datum: NAD 83
 Soil Map Unit Name: Boxwell-Cabbart-Arikara complex, 9 to 50 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Beaver dams, not identified on NWI			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Spartina pectinata</u>	<u>70</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Polygonum hydropiperoides</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
3. <u>Cirsium arvense</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
4. <u>Bromus inermis</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 25146099-w2

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		
0-2	10YR 2/1	100					sl	
2-14	2.5Y 4/2	90	7.5YR 4/6	10	C	M	scl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 10+
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

* est. depth of wetland. Multiple beaver dams.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/24/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25146099-w1
 Investigator(s): RK & JS Section, Township, Range: 25-146-099
 Landform (hillslope, terrace, etc.): dammed drain Local relief (concave, convex, none): concave Slope (%): 9
 Subregion (LRR): E Lat: 47.441347N Long: -103.229923W Datum: NAD 83
 Soil Map Unit Name: Boxwell-Cabbart-Arikara complex, 9 to 50 percent slopes NWI classification: PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Beaver dammed steep drainage			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Spartina pectinata</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Carex lanuginosa</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
3. <u>Juncus balticus</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
4. <u>Scirpus acutus</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
5. <u>Glycyrrhiza lepidota</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
6. <u>Hordeum jubatum</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 25146099-w1

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		
0-8	10YR 2/1	100					sc	
8-18	2.5Y 4/1	90	7.5YR 5/6	10	C	PL	sc	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 12+
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

* est. depth of wetland. Multiple beaver dams. NWI - PABFh

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/4/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25145099-u3
 Investigator(s): RK & JS Section, Township, Range: 25-145-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 12
 Subregion (LRR): E Lat: 47.4320305N Long: -103.229150W Datum: NAD 83
 Soil Map Unit Name: Boxwell-Cabbart-Arikara complex & Rhame-Arikara-Fleak complex, 9 to 50 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparision			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>90</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Glycyrrhiza lepidota</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
3. <u>Solidago canadensis</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 25145099-u3

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		
0-16	10YR 3/2	100	_____	_____	_____	_____	sil	_____
16-20+	10YR 5/1	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/24/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25145099-u2
 Investigator(s): RK & JS Section, Township, Range: 25-145-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 12
 Subregion (LRR): E Lat: 47.437322N Long: -103.231531W Datum: NAD 83
 Soil Map Unit Name: Boxwell-Cabbart-Arikara complex, 9 to 50 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparision			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>90</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Glycyrrhiza lepidota</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
3. <u>Rubus idaeus</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 25145099-u2

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		
0-18	10YR 3/3	100					sil	
18+	2.5Y 5/4	80	10YR 3/3	20			sil	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)		<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)		<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)		<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)		<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)		(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)		<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)		<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)		<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)		<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations:

Surface Water Present?	Yes <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):	

Wetland Hydrology Present? Yes No

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/24/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 25145099-u1
 Investigator(s): RK & JS Section, Township, Range: 25-145-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 12
 Subregion (LRR): E Lat: 47.4414320N Long: -103.229891W Datum: NAD 83
 Soil Map Unit Name: Boxwell-Cabbart-Arikara complex, 9 to 50 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	50	yes	FACU	
2. <u>Agropyron smithii</u>	30	yes	FACU	
3. <u>Helianthus annuus</u>	10	no	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			90 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum 10				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 25145099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-14	10YR 5/3	100	_____	_____	_____	_____	cl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
(LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3)
(where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3)
(where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Dunn County Sampling Date: 8-31-11
 Applicant/Owner: Quintana State: ND Sampling Point: 30145095-w1
 Investigator(s): RK & JS Section, Township, Range: 30-145-95
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): E Lat: 47.3567211244 Long: -102.827716605 Datum: NAD 83
 Soil Map Unit Name: Straw loam, channeled, 0 to 2 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 <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: perched saline depression, spring feed			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Hordeum jubatum</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>																	
2. <u>Puccinellia nuttallianai</u>	<u>85</u>	<u>Y</u>	<u>OBL</u>																	
3. <u>Typha latifolia</u>	<u>5</u>	<u>N</u>	<u>OBL</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
100			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;"> Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 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) </td> <td style="width: 40%; vertical-align: top;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>															
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																			
% Bare Ground in Herb Stratum <u>0</u>																				
Remarks: Saline species dominant																				

SOIL

Sampling Point: 30145095-w1

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		
0-2	10YR 2-1	100					silt/clay	
2-10	2.5Y 4-1	98	7.5YR 5-6	2	c	pl	silt/clay	
10-14+	2.5Y 5-1	100					caly	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|---|--|
| <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|---|--|

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

concave, wet veg, cracks

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Dunn County Sampling Date: 8-31-11
 Applicant/Owner: Quintana State: ND Sampling Point: 30145095-u1
 Investigator(s): RK & JS Section, Township, Range: 30-145-95
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): E Lat: 47.3566260466 Long: -102.827619643 Datum: NAD 83
 Soil Map Unit Name: Straw loam, channeled, 0 to 2 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Medicago sativa</u>	<u>35</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Bromus inermis</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Sonchus arvensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
4. <u>Andropogon gerardii</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
upland				

SOIL

Sampling Point: 30145095-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-10	10YR 4-1	100					lo	
10-18+	10YR 3-1	40	2.5YR 6-3	60			lo/sand	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations:

Surface Water Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
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: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Dunn County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 26145096-w1
 Investigator(s): RK & JS Section, Township, Range: 26-145-96
 Landform (hillslope, terrace, etc.): shallow draw Local relief (concave, convex, none): concave Slope (%): 0-6
 Subregion (LRR): E Lat: 47.349096273 Long: -102.877768632 Datum: NAD 83
 Soil Map Unit Name: Rhoades silt loam, 0 to 6 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: NWI extends into pipeline corridor			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
			= Total Cover	Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
			= Total Cover																	
Herb Stratum (Plot Size: 5')																				
1. <u>Juncus balticus</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>																	
2. <u>Hordeum jubatum</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>																	
3. <u>Spartina pectinata</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>																	
4. <u>Agropyron repens</u>	<u>10</u>	<u>N</u>	<u>FAC</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
			100 = Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
			= Total Cover																	
% Bare Ground in Herb Stratum _____																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				

Remarks:

SOIL

Sampling Point: 26145096-w1

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		
0-2	10YR 3/1	100					lo	
2-8	2.5Y 4/1	90	7.5Y 5/4	2	RM	Pl	Clay/ Lo	
8-16	2.5Y 5-1	100						

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 10
 Water Table Present? Yes No Depth (inches):
 Saturation Present? (includes capillary fringe) Yes No Depth (inches):

Wetland Hydrology Present? Yes No

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

Remarks:

NWI PEMC extends

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Dunn County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 26145096-u1
 Investigator(s): RK & JS Section, Township, Range: 26-145-96
 Landform (hillslope, terrace, etc.): shallow draw Local relief (concave, convex, none): concave Slope (%): 0-6
 Subregion (LRR): E Lat: 47.34908492930 Long: -102.877706086 Datum: NAD 83
 Soil Map Unit Name: Rhoades silt loam, 0 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>80</u>	<u>Y</u>	<u>UPL</u>	
2. <u>Solidago rigida</u>	<u>15</u>	<u>N</u>	<u>UPL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				

Remarks:
upland

SOIL

Sampling Point: 26145096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-12	10YR 3-2	100	_____	_____	_____	_____	_____	_____
12-18	10YR 3-2	10	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

Upland reference

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Dunn County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 29145096-w1
 Investigator(s): RK & JS Section, Township, Range: 29-145-96
 Landform (hillslope, terrace, etc.): dam Local relief (concave, convex, none): concave Slope (%): 9
 Subregion (LRR): E Lat: 47.3490636793 Long: -102.947492294 Datum: NAD 83
 Soil Map Unit Name: Amor-Cabba loams, 9 to 15 percent slopes NWI classification: PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: NWI			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: <u>5'</u>)				
1. <u>Juncus balticus</u>	<u>70</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Hordeum jubatum</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
3. <u>Puccinellia nuttalliana</u>	<u>5</u>	<u>N</u>	<u>OBL</u>	
4. <u>Poa pratensis</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
95			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum <u>5</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: Saline edge				

SOIL

Sampling Point: 29145096-w1

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		
0-2	10YR 3/2	98	75YR 4-6	2	C	PL	sandy	
2-14	2.5Y 4/1	98	7.5YR 4-6	2	C	PL	sand/clay	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> <input checked="" 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 checked="" type="checkbox"/> Iron Deposits (B5) <input checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|---|--|

Field Observations:

Surface Water Present? Yes No Depth (inches): 6
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 6

Wetland Hydrology Present? Yes No

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

Remarks:
NWI

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Dunn County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 29145096-u1
 Investigator(s): RK & JS Section, Township, Range: 29-145-96
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): convex Slope (%): 9
 Subregion (LRR): E Lat: 47.34923125510 Long: -102.947767914 Datum: NAD 83
 Soil Map Unit Name: Amor-Cabba loams, 9 to 15 percent slopes NWI classification: PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Poa pratensis</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>																	
2. <u>Bouteloua gracilis</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>																	
3. <u>Puccinellia nuttalliana</u>	<u>10</u>	<u>N</u>	<u>OBL</u>																	
4. <u>Lotus purshianus</u>	<u>10</u>	<u>N</u>	<u>UPL</u>																	
5. <u>Grindelia squarrosa</u>	<u>5</u>	<u>N</u>	<u>UPL</u>																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
95			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"> 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) </td> <td style="width: 40%; vertical-align: top;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>															
Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																			
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
% Bare Ground in Herb Stratum <u>5</u>																				
Remarks:																				
upland																				

SOIL

Sampling Point: 29145096-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-6+	10YR 4/2	100	_____	_____	_____	_____	silt/lo	hard
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 31145097-w1
 Investigator(s): RK & JS Section, Township, Range: 31-145-097
 Landform (hillslope, terrace, etc.): dugout/dammed drain Local relief (concave, convex, none): concave Slope (%): 20
 Subregion (LRR): E Lat: 47.338485N Long: -103.093691W Datum: NAD 83
 Soil Map Unit Name: Cabba loam, 15 to 45 percent slopes NWI classification: PUSCh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: shallow upland drain that has been dugout & dammed			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Eleocharis quinqueflora</u>	<u>80</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Spartina pectinata</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
3. <u>Eleocharis parvula</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:

SOIL

Sampling Point: 31145097-w1

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		
0-8	2.5Y 4/2	80	10YR 5/6	20	D	M	l	
8-14	2.5Y 4/1	70	10YR 5/6	30	D	M	cl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Redox up to surface

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 4
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

Water levels low and receding.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 31145097-u1
 Investigator(s): RK & JS Section, Township, Range: 31-145-097
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 20
 Subregion (LRR): E Lat: 47.338545N Long: -103.093547W Datum: NAD 83
 Soil Map Unit Name: Cabba loam, 15 to 45 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Bromus inermis</u>	<u>100</u>	<u>yes</u>	<u>FACU</u>																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
100			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum _____																				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				

Remarks:

SOIL

Sampling Point: 31145097-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-13	10YR 5/3	100	_____	_____	_____	_____	↓	hard pack
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)	
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)	
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.	
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)		

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:	
Primary Indicators (minimum of one required; check all that apply)	Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)
<input type="checkbox"/> Salt Crust (B11)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Dry Season Water Table (C2)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
(where not tilled)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Thin Muck Surface (C7)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes No Depth (inches): 0

Water Table Present? Yes No Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: _____ Sampling Date: 9/19/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 18145098-w2
 Investigator(s): GC & MG Section, Township, Range: 18-145-98
 Landform (hillslope, terrace, etc.): drainage/depression Local relief (concave, convex, none): concave Slope (%): 25
 Subregion (LRR): E Lat: 47.385775 Long: -103.223287 Datum: NAD83
 Soil Map Unit Name: Boxwell-Cabbarart-Arikara complex, 9 to 50 percent slope 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 <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Spartina pectinata</u>	<u>90</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
3. <u>Carex spp.</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	
4. <u>Cirsium arvense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
5. <u>Mentha arvensis</u>	<u>15</u>	<u>N</u>	<u>FACW</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			125 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 18145098-w2

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			C	M	Lm	
4-10	10YR 2-1	90	10YR 4-6	10	C	M	Lm	
10-18	Gley1 4-10Y	90	10YR 4-6	10	C	M	ClyLm	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 4
 Water Table Present? Yes No Depth (inches): 15
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 12

Wetland Hydrology Present? Yes No

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

Remarks:

Top of Bank 60', water width 10'

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 9/19/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 18145098-w1
 Investigator(s): GC & MG Section, Township, Range: 18-145-98
 Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): concave Slope (%): 3
 Subregion (LRR): E Lat: 47.385745 Long: -103.220862 Datum: NAD83
 Soil Map Unit Name: Lefor fine sandy loam 0 to 6 percent slope 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 <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Lemna minor</u>	<u>50</u>	<u>Y</u>	<u>OBL</u>	Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Typha latifolia</u>	<u>25</u>	<u>Y</u>	<u>OBL</u>	
3. <u>Spartina pectinata</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Rumex crispus</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	
5. <u>Alisma gramineum</u>	<u>2</u>	<u>N</u>	<u>OBL</u>	
6. <u>Carex vulpinoidea</u>	<u>3</u>	<u>N</u>	<u>OBL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
105			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 18145098-w1

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	90	10YR 4-4	10	C	M	Lm	oxidized rhizospheres
12-18	10YR 2-1	90	10YR 4-6	10	C	M	Lm	oxidized rhizospheres

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input checked="" type="checkbox"/> Sediment Deposits (B2)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input checked="" type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): 6	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): 10	

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

Remarks: _____

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: _____ Sampling Date: 9/19/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 18145098-u2
 Investigator(s): GC & MG Section, Township, Range: 18-145-98
 Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): _____ Slope (%): 1
 Subregion (LRR): E Lat: 47.385897 Long: -103.222982 Datum: NAD83
 Soil Map Unit Name: Boxwell-Cabbarart-Arikara complex, 9 to 50 percent slope 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Solidago rigida</u>	<u>10</u>	<u>N</u>	<u>UPL</u>	Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Rosa woodsii</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
3. <u>Melilotus officinalis</u>	<u>30</u>	<u>Y</u>	<u>FACU-</u>	
4. <u>Buchloe dactyloides</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
5. <u>Artemisia cana</u>	<u>15</u>	<u>N</u>	<u>UPL</u>	
6. <u>Agropyron cristatum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
125			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 18145098-u2

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 4-2	100	_____	_____	C	M	fineSaLo	_____
6-10	10YR 5-2	100	_____	_____	C	M	fineSaLo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

Soil very compacted after 10"

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: _____ Sampling Date: 9/19/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 18145098-u1
 Investigator(s): GC & MG Section, Township, Range: 18-145-98
 Landform (hillslope, terrace, etc.): plain Local relief (concave, convex, none): _____ Slope (%): 1
 Subregion (LRR): E Lat: 47.385799 Long: -103.221046 Datum: NAD83
 Soil Map Unit Name: Lefor fine sandy loam 0 to 6 percent slope 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 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 Sampling Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>			
Remarks:			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Solidago rigida</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
2. <u>Cirsium arvense</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
3. <u>Melilotus officinalis</u>	<u>20</u>	<u>Y</u>	<u>FACU-</u>	
4. <u>Medicago sativa</u>	<u>50</u>	<u>Y</u>	<u>UPL</u>	
5. <u>Bromus inermis</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>	
6. <u>Agropyron cristatum</u>	<u>5</u>	<u>N</u>	<u>UPL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			110 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Indicators: _____ 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks:				
upland				

SOIL

Sampling Point: 18145098-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-6	2.5YR 5-3	100	_____	_____	C	M	fineSaLo	_____
6-8	2.5YR 5-2	100	_____	_____	C	M	fineSaLo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

Soil compacted after 8"

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/30/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 28145098-w1
 Investigator(s): RK & JS Section, Township, Range: 28-145-099
 Landform (hillslope, terrace, etc.): 8dam Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): E Lat: 47.345945N Long: -103.183768W Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg silt loams, 0 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Dam on shallow drainage before Hwy 85 ROW			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
			= Total Cover	Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
			= Total Cover																	
Herb Stratum (Plot Size: 5')																				
1. <u>Juncus balticus</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Carex lanuginosa</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>																	
3. <u>Rumex crispus</u>	<u>10</u>	<u>no</u>	<u>FACW</u>																	
4. <u>Bromus inermis</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
			<u>70</u> = Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
			= Total Cover																	
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;">% Bare Ground in Herb Stratum <u>30</u></td> <td style="width: 40%;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				% Bare Ground in Herb Stratum <u>30</u>	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>															
% Bare Ground in Herb Stratum <u>30</u>	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																			
Remarks:																				

SOIL

Sampling Point: 28145098-w1

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		
0-1	10YR 2/1	100					sil	
1-16	2.5YR 5/1	80	10YR 5/6	20	D	M	cl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Redox throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 12+
 Water Table Present? Yes No Depth (inches): 6
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 6

Wetland Hydrology Present? Yes No

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

Remarks:

*est depth of wetland. Not identified on NWI

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 28145098-u1
 Investigator(s): RK & JS Section, Township, Range: 28-145-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): E Lat: 47.345978N Long: -103.183681W Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg silt loams, 0 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Bromus inermis</u>	<u>90</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Solidago canadensis</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
3. <u>Aster ericoides</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				

Remarks:
dry slope.

SOIL

Sampling Point: 28145098-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-4	10YR 3/2	100	_____	_____	_____	_____	↓	_____
4-14	10YR 4/2	100	_____	_____	_____	_____	cl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): 0
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/30/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 29145098-w1
 Investigator(s): RK & JS Section, Township, Range: 29-145-098
 Landform (hillslope, terrace, etc.): dugout Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 47.3508239N Long: -103.185834W Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg silt loams, 0 to 6 percent slopes NWI classification: PUSCh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: shallow dugout/impoundment along old pipeline. US Forest Service lands.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Juncus balticus</u>	<u>80</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Hordeum jubatum</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
3. <u>Rumex crispus</u>	<u>5</u>	<u>no</u>	<u>FACW</u>	
4. <u>Salix bebbiana</u>	<u>5</u>	<u>no</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 29145098-w1

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		
0-1	10YR 2/1	100					sil	
1-14	2.5YR 5/1	85	10YR 5/4	15	D	PL	cl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
 Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 10
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 4

Wetland Hydrology Present? Yes No

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

Remarks:

*est depth of wetland. NWI - PUSCh

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/30/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 29145098-u1
 Investigator(s): RK & JS Section, Township, Range: 29-145-098
 Landform (hillslope, terrace, etc.): upslope Local relief (concave, convex, none): concave Slope (%): 2
 Subregion (LRR): E Lat: 47.350945N Long: -103.185788W Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg silt loams, 0 to 6 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>95</u>	<u>yes</u>	<u>FACU</u>	
2. <u>Solidago canadensis</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: dry slope.				

SOIL

Sampling Point: 29145098-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-8	10YR 5/3	100	_____	_____	_____	_____	lo	_____
8-14	10YR 6/2	100	_____	_____	_____	_____	lo	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): 0
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 36145098-w1
 Investigator(s): RK & JS Section, Township, Range: 36-145-098
 Landform (hillslope, terrace, etc.): dammed drain Local relief (concave, convex, none): concave Slope (%): 20
 Subregion (LRR): E Lat: 47.335477N Long: -103.116319W Datum: NAD 83
 Soil Map Unit Name: Cabba-Chama-Havrelon silt loams, 3 to 70 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: New dam on drainage, dry at time of survey. Dead terrestrial veg. Sparse ground cover.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: <u>5'</u>)				
1. _____	_____	_____	_____	
2. <u>Spartina pectinata</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			<u>30</u> = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum <u>70</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:
Dry dam, mud bottom.

SOIL

Sampling Point: 36145098-w1

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		
0-1	10YR 2/1	100					sil	
1-12	2.5YR4/2	80	7.5YR 5-6	20	D	M	cl	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Redox throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Water Marks (B1) <input checked="" 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 checked="" type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|--|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 0
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

Dry at time of survey. High water line evident.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: McKenzie County Sampling Date: 8/31/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 36145098-u1
 Investigator(s): RK & JS Section, Township, Range: 36-145-098
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 20
 Subregion (LRR): E Lat: 47.335477N Long: -103.116319W Datum: NAD 83
 Soil Map Unit Name: Cabba-Chama-Havrelon silt loams, 3 to 70 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
			= Total Cover	Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
			= Total Cover																	
Herb Stratum (Plot Size: 5')																				
1. <u>Bromus inermis</u>	<u>60</u>	<u>yes</u>	<u>FACU</u>																	
2. <u>Solidago canadensis</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
3. <u>Andropogon scoparius</u>	<u>10</u>	<u>no</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
			<u>80</u> = Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
			= Total Cover																	
% Bare Ground in Herb Stratum <u>20</u>																				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Remarks: dry slope.																				

SOIL

Sampling Point: 36145098-w1

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 3/2	100	_____	_____	_____	_____	↓	_____
4-14	10YR 4/2	100	_____	_____	_____	_____	cl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) **(where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) **(where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): 0
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Billings County Sampling Date: 8/30/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 14144099-w2
 Investigator(s): RK & JS Section, Township, Range: 14-144-099
 Landform (hillslope, terrace, etc.): dammed drainage Local relief (concave, convex, none): concave Slope (%): 9
 Subregion (LRR): E Lat: 47.288157N Long: -103.180979W Datum: NAD 83
 Soil Map Unit Name: Arikara-Shambo-Cabba loams, 9 to 70 percent slopes NWI classification: PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Head of stock dam			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Juncus spp.</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>																	
2. <u>Spartina pectinata</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>																	
3. <u>Distichlis spicata var. stricta</u>	<u>30</u>	<u>yes</u>	<u>FACW</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
60			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
_____			= Total Cover																	
<table style="width: 100%; border: none;"> <tr> <td style="width: 60%;"> Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 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) </td> <td style="width: 40%; vertical-align: top;"> Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> </td> </tr> </table>				Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>															
Hydrophytic Vegetation Indicators: <input checked="" type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation _____ 2 - Dominance Test is >50% _____ 3 – Prevalence Index is ≤3.0 ¹ _____ 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain)	Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																			
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																				
% Bare Ground in Herb Stratum 40																				
Remarks: Dry, alkaline edge																				

SOIL

Sampling Point: 14144099-w2

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		
0-2	10YR 2/1	100					c	
2-14	2.5Y 4/2	95	10YR 5-6	5	C	M	c	
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): *24-36
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 2

Wetland Hydrology Present? Yes No

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

Remarks:

* est. depth of wetland at time of survey

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Billings County Sampling Date: 8/30/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 14144099-w1
 Investigator(s): RK & JS Section, Township, Range: 14-144-099
 Landform (hillslope, terrace, etc.): dammed drainage Local relief (concave, convex, none): concave Slope (%): 6
 Subregion (LRR): E Lat: 47.29808N Long: -103.181218W Datum: NAD 83
 Soil Map Unit Name: Janesburg-Dogtooth silt loams, 0 to 6 percent slopes & Dogtooth-Janesburg-Cabba complex, 6 to 30 percent slopes NWI classification: PEMC & PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Dammed drainage below road grade extending through under road with road also acting as dam above			

VEGETATION – Use scientific names of plants

<u>Tree Stratum</u> (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
<u>Herb Stratum</u> (Plot Size: 5')				
1. <u>Juncus spp.</u>	60	yes	OBL	
2. <u>Spartina pectinata</u>	20	yes	FACW	
3. <u>Polygonum sagittatum</u>	10	no	OBL	
4. <u>Phalaris arundinacea</u>	10	no	FACW	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
<u>Woody Vine Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
<u>% Bare Ground in Herb Stratum</u> _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks:

SOIL

Sampling Point: 14144099-w1

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		
0-1	10YR 2/1	100					muck	
1-12+	2.5Y 5/1	85	2.5Y 5-6	15	RM	M	cl	
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Redox throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): *24-36
 Water Table Present? Yes No Depth (inches): 10
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

* est. depth of standing water at time of survey

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Billings County Sampling Date: 8/30/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 14144099-u2
 Investigator(s): RK & JS Section, Township, Range: 14-144-099
 Landform (hillslope, terrace, etc.): dammed drainage Local relief (concave, convex, none): concave Slope (%): 6
 Subregion (LRR): E Lat: 47.288182N Long: -103.181089W Datum: NAD 83
 Soil Map Unit Name: Arikara-Shambo-Cabba loams, 9 to 70 percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>50</u>	_____	<u>FACU</u>	
2. <u>Agropyron smithii</u>	<u>40</u>	_____	<u>FACU</u>	
3. <u>Glycyrrhiza lepidota</u>	<u>10</u>	_____	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 14144099-u2

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 4/3	100	_____	_____	_____	_____	cl	_____
6-14	10YR 6/3	100	_____	_____	_____	_____	cl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Billings County Sampling Date: 8/30/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 14144099-u1
 Investigator(s): RK & JS Section, Township, Range: 14-144-099
 Landform (hillslope, terrace, etc.): dammed drainage Local relief (concave, convex, none): concave Slope (%): 6
 Subregion (LRR): E Lat: 47.298144N Long: -103.181168W Datum: NAD 83
 Soil Map Unit Name: Janesburg-Dogtooth silt loams, 0 to 6 percent slopes & Dogtooth-Janesburg-Cabba NWI classification: none
complex, 6 to 30 percent slopes

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

<u>Tree Stratum</u> (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<u>Sapling/Shrub Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
<u>Herb Stratum</u> (Plot Size: 5')				
1. <u>Poa pratensis</u>	20	_____	FACU	
2. <u>Agropyron smithii</u>	70	_____	FACU	
3. <u>Aster ericoides</u>	10	_____	FACU	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
<u>Woody Vine Stratum</u> (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 14144099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-6	5Y 4/2	100	_____	_____	_____	_____	cl	_____
6-18	5Y 5/3	100	_____	_____	_____	_____	c	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/4/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 34142099-w1
 Investigator(s): RK & JS Section, Township, Range: 34-142-099
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 47.072595N Long: -103.212235W Datum: NAD 83
 Soil Map Unit Name: Harriet silt loam, 0 to 2 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Typical concave isolated wet depression, bottom of slope			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Carex lanuginosa</u>	<u>80</u>	<u>yes</u>	<u>OBL</u>	
2. <u>Spartina pectinata</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
3. <u>Sorghastrum nutans</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
4. <u>Rumex crispus</u>	<u>5</u>	<u>no</u>	<u>FACW</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 34142099-w1

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		
0-2	10YR 3/1	100					sil	
2-10	10YR 3/1	98	7.5YR 5-6	2	c	m	sil	
10-20+	2.5YR4/1	90	7.5YR 5-6	10	c	m	cl	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Redox throughout

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3)
- (where not tilled)**
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3)
- (where tilled)**
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): 2
 Water Table Present? Yes No Depth (inches): 0
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

Dry edges

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/4/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 34142099-u1
 Investigator(s): RK & JS Section, Township, Range: 34-142-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): E Lat: 47.0726N Long: -103.212152W Datum: NAD 83
 Soil Map Unit Name: Harriet silt loam, 0 to 2 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Bromus inermis</u>	<u>80</u>	<u>Y</u>	<u>FACU</u>																	
2. <u>Poa pratensis</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
100			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum _____																				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Remarks: upland																				

SOIL

Sampling Point: 34142099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-8	10YR 3/2	100	_____	_____	_____	_____	sil	_____
8-18	10YR 3/1	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/4/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 27142099-w1
 Investigator(s): RK & JS Section, Township, Range: 27-142-099
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1
 Subregion (LRR): E Lat: 47.092663N Long: -103.212773W Datum: NAD 83
 Soil Map Unit Name: Straw loam, channeled, 0 to 2 percent slopes percent slopes NWI classification: none

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Isolated, lobed depression, grassy			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Spartina pectinata</u>	<u>90</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Carex lanuginosa</u>	<u>5</u>	<u>no</u>	<u>OBL</u>	
3. <u>Cirsium arvense</u>	<u>5</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks:				

SOIL

Sampling Point: 34142099-w1

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		
0-2	10YR 2/1	100					sil	
2-16+	2.5YR 3/1	95	7.5YR 5-6	5	c	m	sil	
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

Redox near surface

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|--|--|---|
| <ul style="list-style-type: none"> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input checked="" type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input checked="" type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|--|--|---|

Field Observations:

Surface Water Present? Yes No Depth (inches): 8
 Water Table Present? Yes No Depth (inches): 8
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

Isolated depression, dry, hydric veg and soils

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/4/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 27142099-u1
 Investigator(s): RK & JS Section, Township, Range: 27-142-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): E Lat: 47.092648N Long: -103.212676W Datum: NAD 83
 Soil Map Unit Name: Straw loam, channeled, 0 to 2 percent slopes 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. Bromus inermis	<u>80</u>	<u>Y</u>	<u>FACU</u>	
2. Poa pratensis	<u>20</u>	<u>Y</u>	<u>FACU</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 27142099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-12	10YR 3/2	100	_____	_____	_____	_____	sil	_____
12-18	10YR 4/3	100	_____	_____	_____	_____	sil	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/3/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 22141099-w1
 Investigator(s): RK & JS Section, Township, Range: 22-141-099
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): E Lat: 47.01341N Long: -103.212501W Datum: NAD 83
 Soil Map Unit Name: Harriet silt loam, 0 to 2 percent slopes 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Semi-isolated, bog-like, drains to rememant oxbow			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Juncus balticus</u>	<u>90</u>	<u>yes</u>	<u>FACW</u>																	
2. <u>Carex lanuginosa</u>	<u>5</u>	<u>no</u>	<u>OBL</u>																	
3. <u>Solidago missouriensis</u>	<u>5</u>	<u>no</u>	<u>FACU</u>																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
100			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum _____																				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																				
Remarks: bog like																				

SOIL

Sampling Point: 22141099-w1

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		
0-8	10YR 2/1	100					sil	
8-20+	2.5YR 5/1	98	7.5YR 5-8	2	c	m	s	sandy
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes No Depth (inches): 8
 Water Table Present? Yes No Depth (inches): 8
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 0

Wetland Hydrology Present? Yes No

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

Remarks:

*Est. depth at interior of wetland 8 inches

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/3/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 22141099-u1
 Investigator(s): RK & JS Section, Township, Range: 22-141-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 0-2
 Subregion (LRR): E Lat: 47.013324N Long: -103.212427W Datum: NAD 83
 Soil Map Unit Name: Harriet silt loam, 0 to 2 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>50</u>	<u>y</u>	<u>FACU</u>	
2. <u>Glychrrhiza lepidota</u>	<u>20</u>	<u>y</u>	<u>FACU</u>	
3. <u>Symphoricarpos occidentalis</u>	<u>15</u>	<u>n</u>	<u>FACU</u>	
4. <u>Stipa comata</u>	<u>10</u>	<u>n</u>	<u>FACU</u>	
5. <u>Ratibida columnifera</u>	<u>5</u>	<u>n</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 22141099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-8	10YR 3/1	100	_____	_____	_____	_____	sil	_____
8-18	2.5YR 5/3	100	_____	_____	_____	_____	s	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)	
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	

Field Observations:

Surface Water Present?	Yes <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):	

Wetland Hydrology Present? Yes No

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/8/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 19140099-w1
 Investigator(s): RK & JS Section, Township, Range: 19-140-099
 Landform (hillslope, terrace, etc.): swale Local relief (concave, convex, none): Concave Slope (%): ≤1
 Subregion (LRR): E Lat: 46.922525N Long: -103.228136W Datum: NAD 83
 Soil Map Unit Name: Rhoades-Daqlum complex, 0 to 2 percent slopes 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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Isolated, concave in native prairie flat.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
= Total Cover				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
= Total Cover				
Herb Stratum (Plot Size: 5')				
1. <u>Juncus balticus</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Typha angustifolia</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
3. <u>Spartina pectinata</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
4. <u>Polygonum amphibium</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
80			= Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>20</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: Edge of open water				

SOIL

Sampling Point: 19140099-1w

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 3/1	100					↓	
4-18	2.5Y 4/2	98	7.5Y 5/4	2	C	M	cl	

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	(LRR H outside of MLRA 72 & 73)
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (Inches): _____

Remarks: _____

Hydric Soils Present? Yes No

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): 20+	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Water Table Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Depth (inches): 3	

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

Remarks:
Est. depth at interior of wetland 20+

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/8/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 19140099-u1
 Investigator(s): RK & JS Section, Township, Range: 19-140-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): Concave Slope (%): ≤1
 Subregion (LRR): E Lat: 46.922328N Long: -103.228197W Datum: NAD 83
 Soil Map Unit Name: Rhoades-Daqlum complex, 0 to 2 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:																
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
= Total Cover				Prevalence Index worksheet: <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><u>Total % Cover of:</u></td> <td style="text-align: center;"><u>Multiply by:</u></td> </tr> <tr> <td>OBL species _____</td> <td>x1 = _____</td> </tr> <tr> <td>FACW species _____</td> <td>x2 = _____</td> </tr> <tr> <td>FAC species _____</td> <td>x3 = _____</td> </tr> <tr> <td>FACU species _____</td> <td>x4 = _____</td> </tr> <tr> <td>UPL species _____</td> <td>x5 = _____</td> </tr> <tr> <td>Column Totals: _____</td> <td>(A) _____ (B) _____</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = _____</td> </tr> </table>	<u>Total % Cover of:</u>	<u>Multiply by:</u>	OBL species _____	x1 = _____	FACW species _____	x2 = _____	FAC species _____	x3 = _____	FACU species _____	x4 = _____	UPL species _____	x5 = _____	Column Totals: _____	(A) _____ (B) _____	Prevalence Index = B/A = _____	
<u>Total % Cover of:</u>	<u>Multiply by:</u>																			
OBL species _____	x1 = _____																			
FACW species _____	x2 = _____																			
FAC species _____	x3 = _____																			
FACU species _____	x4 = _____																			
UPL species _____	x5 = _____																			
Column Totals: _____	(A) _____ (B) _____																			
Prevalence Index = B/A = _____																				
Sapling/Shrub Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
= Total Cover																				
Herb Stratum (Plot Size: 5')																				
1. <u>Agropyron smithii</u>	<u>30</u>	<u>FACU</u>	_____																	
2. <u>Stipa comata</u>	<u>20</u>	<u>UPL</u>	_____																	
3. <u>Poa pratensis</u>	<u>20</u>	<u>FACU</u>	_____																	
4. <u>Artemisia ludoviciana</u>	<u>10</u>	<u>FACU</u>	_____																	
5. <u>Cirsium vulgare</u>	<u>10</u>	<u>UPL</u>	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
90			= Total Cover																	
Woody Vine Stratum (Plot Size: _____)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
= Total Cover																				
% Bare Ground in Herb Stratum <u>10</u>																				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>																				
Remarks: upland																				

SOIL

Sampling Point: 19140099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-4	10YR 3/1	100	_____	_____	_____	_____	sil	_____
4-18	10YR 4/1	100	_____	_____	_____	_____	cl	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	(LRR H outside of MLRA 72 & 73)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Very Shallow Dark Surface (TF 12)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)	<input type="checkbox"/> High Plains Depressions (F16)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)	(MLRA 72 & 73 of LRR H)	

Restrictive Layer (if present):		Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Type:	_____	
Depth (Inches):	_____	
Remarks:		

HYDROLOGY

Wetland Hydrology Indicators:		
Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Surface Soil Cracks (B6)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Dry Season Water Table (C2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	(where tilled)
<input type="checkbox"/> Drift Deposits (B3)	(where not tilled)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Thin Muck Surface (C7)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)

Field Observations:		Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" 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:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/3/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 15140099-w1
 Investigator(s): RK & JS Section, Township, Range: 15-140-099
 Landform (hillslope, terrace, etc.): dugout Local relief (concave, convex, none): Concave Slope (%): 9-12
 Subregion (LRR): E Lat: 46.94811N Long: -103.150138W Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg-Brandenburg complex, 9 to 35 percent slopes NWI classification: PABFh

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"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: Former scoria pit. Deep ponded water with veg.			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A) Total Number of Dominant Species Across All Strata: 3 (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Juncus balticus</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Typha angustifolia</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
3. <u>Carex lanuginosa</u>	<u>20</u>	<u>yes</u>	<u>OBL</u>	
4. <u>Polygonum amphibium</u>	<u>10</u>	<u>no</u>	<u>OBL</u>	
5. <u>Rumex crispus</u>	<u>10</u>	<u>no</u>	<u>FACW</u>	
6. <u>Poa pratensis</u>	<u>20</u>	<u>yes</u>	<u>FACU</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			90 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum 10				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				
Remarks: Edge of open water				

SOIL

Sampling Point: 15140099-w1

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		
0-2	10YR 2/1	100	_____	_____	_____	_____	cl	_____
2-14	7.5YR 4/4	60	_____	_____	_____	_____	c	_____
2-14	2.5YR 5-8	40	_____	_____	_____	_____	scoria	red scoria flakes
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:
Mixed (problematic) soils, hydrology and hydric veg present

HYDROLOGY

Wetland Hydrology Indicators:

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

Secondary Indicators (2 or more required)

- | | | |
|---|---|--|
| <ul style="list-style-type: none"> <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"/> Water-Stained Leaves (B9) | <ul style="list-style-type: none"> <input type="checkbox"/> Salt Crust (B11) <input type="checkbox"/> Aquatic Invertebrates (B13) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where not tilled) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks) | <ul style="list-style-type: none"> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-Neutral Test (D5) <input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F) |
|---|---|--|

Field Observations:

Surface Water Present? Yes No Depth (inches): 24+
 Water Table Present? Yes No Depth (inches): 3
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): 3

Wetland Hydrology Present? Yes No

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

Remarks:
Est. depth at interior of wetland 24+

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project Site: BakkenLink Pipeline City/County: Stark County Sampling Date: 8/3/2011
 Applicant/Owner: Quintana State: ND Sampling Point: 15140099-u1
 Investigator(s): RK & JS Section, Township, Range: 15-140-099
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope (%): 9-18
 Subregion (LRR): E Lat: 46.948051N Long: -103.150136W Datum: NAD 83
 Soil Map Unit Name: Dogtooth-Janesburg-Brandenburg complex, 9 to 35 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 type="checkbox"/>	No <input checked="" type="checkbox"/>	Is the Sampling Area within a Wetland? 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"/>	
Remarks: upland comparison			

VEGETATION – Use scientific names of plants

Tree Stratum (Plot Size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A) Total Number of Dominant Species Across All Strata: _____ (B) Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
			= Total Cover	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1 = _____ FACW species _____ x2 = _____ FAC species _____ x3 = _____ FACU species _____ x4 = _____ UPL species _____ x5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
			= Total Cover	
Herb Stratum (Plot Size: 5')				
1. <u>Poa pratensis</u>	<u>80</u>	_____	<u>FACU</u>	
2. <u>Agropyron smithii</u>	<u>10</u>	_____	<u>FACU</u>	
3. <u>Cirsium vulgare</u>	<u>5</u>	_____	<u>FACU</u>	
4. <u>Achillea millefolium</u>	<u>5</u>	_____	<u>FACU</u>	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
			100 = Total Cover	
Woody Vine Stratum (Plot Size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
			= Total Cover	
% Bare Ground in Herb Stratum _____				
Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>				
Remarks: upland				

SOIL

Sampling Point: 15140099-u1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (Moist)	%	Type ¹	Loc ²		
0-2	10YR 3/1	100	_____	_____	_____	_____	cl	_____
2-14	7.5YR 4/4	60	_____	_____	_____	_____	c	_____
2-14	2.5YR 5-8	40	_____	_____	_____	_____	scoria	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____	_____

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F, G, H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- 2.5 CM Mucky Peat or Peat (S2)(LRR G, H)
- 5 cm Mucky Peat or Peat (S3) (LRR F)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- High Plains Depressions (F16)

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF 12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (Inches): _____

Hydric Soils Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift Deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Water-Stained Leaves (B9)
- Salt Crust (B11)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Dry Season Water Table (C2)
- Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- Presence of Reduced Iron (C4)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- Surface Soil Cracks (B6)
- Sparsely Vegetated Concave Surface (B8)
- Drainage Patterns (B10)
- Oxidized Rhizospheres along Living Roots (C3) (where tilled)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Geomorphic Position (D2)
- FAC-Neutral Test (D5)
- Frost-Heave Hummocks (D7) (LRR F)

Field Observations:

Surface Water Present? Yes No Depth (inches): _____
 Water Table Present? Yes No Depth (inches): _____
 Saturation Present? (includes capillary fringe) Yes No Depth (inches): _____

Wetland Hydrology Present? Yes No

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

Remarks:

Appendix C

Waterbody Crossing Data Forms

BakkenLink Project
Waterbody Data Sheet

FEATURE ID: 3115095 - S1

WATERBODY NAME:

SURVEY DATE: 9/7

INVESTIGATOR: GM

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: FT 0

CURRENT WATER DEPTH AT CROSSING: FT 0

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER Vegetated

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>15</u> FT <u>15</u>	HEIGHT: <u>15</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input checked="" type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>60</u> FT	
EVIDENCE OF EROSION: <u>None</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Phragmites

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
CIRARV - south bank

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	<u>None Taken</u>
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Battenlink Project
Waterbody Data Sheet

FEATURE ID: 05/55095-51
WATERBODY NAME:

SURVEY DATE: 9/4
INVESTIGATOR:

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 20 FT
CURRENT WATER DEPTH AT CROSSING: 8 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input checked="" type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input checked="" type="checkbox"/> 61-90° <i>cut bank</i>
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
RIPARIAN SPECIES PRESENT: SPAPC / PHORUM
INVASIVES/NOXIOUS VEGETATION YES NO
IF YES, SPECIES PRESENT: CIDARU - along Bank
ADJACENT WETLAND YES NO
T & E SPECIES YES NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

*Yes - width - 20' water
South most
WD - 12"
8 - 7/17
Bank - 30'
SPAPC
PHORUM -
TYPLOT*

Buckenlink Project
Waterbody Data Sheet

FEATURE ID: 05 155095 -S2

WATERBODY NAME:

SURVEY DATE: 9/7

INVESTIGATOR: GWM

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 20 FT

CURRENT WATER DEPTH AT CROSSING: 1 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>7</u> FT	HEIGHT: <u>15</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
SPAPEC / PHARRN / TYPLAT

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO SPAPEC

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	<p><u>Photograph Taken</u></p>
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Bakken Link Project
Waterbody Data Sheet

FEATURE ID: 715595-S1

WATERBODY NAME:

SURVEY DATE: 9/7

INVESTIGATOR: Gwm

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 10 FT

CURRENT WATER DEPTH AT CROSSING: .2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER vegetation

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>30</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input checked="" type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>60</u> FT	
EVIDENCE OF EROSION: <u>Stream channel</u>	
SCOUR POTENTIAL: <u>yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT: GA/ Shrubs
SPAREC/ SEVER in channel area

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
CRAB / EUPESU

ADJACENT WETLAND YES NO wetland through

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	<u>None taken</u>
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Bakkenink Project
Waterbody Data Sheet

FEATURE ID: 17155 095-SA

WATERBODY NAME:

SURVEY DATE: 9/7/2011

INVESTIGATOR: Gwm

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 7 FT .6

CURRENT WATER DEPTH AT CROSSING: .5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>10</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>no</u>	
SCOUR POTENTIAL: <u>yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spartina pectinata / AGECAN / cehalpines

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	<p style="text-align: center;"><u>Yes</u></p>
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BattenLink Project
Waterbody Data Sheet

FEATURE ID: 17155095-31

WATERBODY NAME:

SURVEY DATE: 9/17

INVESTIGATOR: Gwn

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 1-10' FT

CURRENT WATER DEPTH AT CROSSING: 12" FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 4 FT	HEIGHT: 4 FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 40 FT	
EVIDENCE OF EROSION: No	
SCOUR POTENTIAL: Yes	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
SPAPEC

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
CLEARVIEW trees

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

S2 - same stream
channel ~ 2' deep ~ 5-7" wide
Banks - low - 2 - left (W)
5-10 - Right (E)
SPAPEC / Pools (water - 6" deep)
AORCAN
Fox Sedge

Yes

BakkenLink Project
Waterbody Data Sheet

FEATURE ID: 20155095-S1

WATERBODY NAME:

SURVEY DATE: 9/7

INVESTIGATOR: GWM

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 1 FT

CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>1</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): FT	
EVIDENCE OF EROSION: <u>Established channel</u>	
SCOUR POTENTIAL: <u>little</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
SPAPEC patches / SB - 80%

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	<u>Yes</u>
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Bekkanink Project
Waterbody Data Sheet

FEATURE ID: 33155095-51
WATERBODY NAME:

SURVEY DATE: 9/2/2011
INVESTIGATOR: Gunn

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 0 FT
CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS well vegetated
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>10</u> FT	HEIGHT: <u>10</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>70</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
RIPARIAN SPECIES PRESENT:
SLAPEC / CHAT HC / SAL Amy
INVASIVES/NOXIOUS VEGETATION YES NO
IF YES, SPECIES PRESENT: CORARY
ADJACENT WETLAND YES NO
T & E SPECIES YES NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

BakkenLink Project
Waterbody Data Sheet

FEATURE ID: 91
WATERBODY NAME: 32155095-S1

SURVEY DATE: 9/7
INVESTIGATOR: Gunn

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT
CURRENT WATER DEPTH AT CROSSING: 8" FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>50</u> FT	HEIGHT: <u>4</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input checked="" type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>20</u> FT	
EVIDENCE OF EROSION: <u>Cut channel</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
RIPARIAN SPECIES PRESENT:
SPARAC CATHA
INVASIVES/NOXIOUS VEGETATION YES NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND YES NO -along bridge
T & E SPECIES YES NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes
Channel cut at base of slope ~ 10' wide from north
Digitize on maps

NWI - PEME at bend
Stream widens at true wetland
PEME soils (W3)

Beklemhink Project
Waterbody Data Sheet

FEATURE ID: 04/154 95-51

WATERBODY NAME:

SURVEY DATE: 9/8/2011

INVESTIGATOR: GWM

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 0 FT

CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER well vegetated

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>6</u> FT	HEIGHT: <u>9</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
SPARPER in channel

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Pool of Intermittent Stream</u>	<u>No</u>

Bekkenlink Project
Waterbody Data Sheet

52

FEATURE ID: 04154095 52
WATERBODY NAME: 415

SURVEY DATE: 9/8/2011
INVESTIGATOR: GWA

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 0 FT
CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER: well vegetated

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 12 FT	HEIGHT: 8 FT
SLOPE <input type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input checked="" type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 50 FT	
EVIDENCE OF EROSION: NO	
SCOUR POTENTIAL: Yes	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
SPAREC / Pools - TYPLOT

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO in pools

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

BakkenLink Project
Waterbody Data Sheet

FEATURE ID: 04154095-S3

WATERBODY NAME:

SURVEY DATE: 9/8/2011

INVESTIGATOR: GWM

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 0 FT

CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>10</u> FT	HEIGHT: <u>4</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>20</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION Yes No

RIPARIAN SPECIES PRESENT:
SPAPEC / SCIVAL

INVASIVES/NOXIOUS VEGETATION Yes No

IF YES, SPECIES PRESENT:
CIRARV

ADJACENT WETLAND Yes No

T & E SPECIES Yes No

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	<p style="text-align: center;"><u>Photograph taken</u></p>
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Baldwinlink Project
Waterbody Data Sheet

FEATURE ID: 04154095-54
WATERBODY NAME:

SURVEY DATE: 9/8/2011
INVESTIGATOR: GMM

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 30 FT
CURRENT WATER DEPTH AT CROSSING: 6 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>35</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>70</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
RIPARIAN SPECIES PRESENT:
SPAPEC in channel
INVASIVES/NOXIOUS VEGETATION YES NO
IF YES, SPECIES PRESENT:
CIRARV
ADJACENT WETLAND YES NO TYRANG
T & E SPECIES YES NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	<u>Photographs taken</u>

Bakkenhink Project
Waterbody Data Sheet

FEATURE ID: 04154095-SS
 WATERBODY NAME:

SURVEY DATE: 9/8/2011
 INVESTIGATOR: CWM

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 10 FT
 CURRENT WATER DEPTH AT CROSSING: 2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY - Primary
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 8 FT	HEIGHT: 5 FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 35 FT	
EVIDENCE OF EROSION: Yes	
SCOUR POTENTIAL: Yes	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
 SPAPEC

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO SPAPEC

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

	photograph taken
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Bakkenlink Project
Waterbody Data Sheet

FEATURE ID: 09154075-31
WATERBODY NAME:

SURVEY DATE:
INVESTIGATOR: GLW

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 0 FT
CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER well vegetated

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>5</u> FT	HEIGHT: <u>5</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>60</u> FT	
EVIDENCE OF EROSION: <u>none</u>	
SCOUR POTENTIAL: <u>Yes Flows North</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
RIPARIAN SPECIES PRESENT:
SPARAC

INVASIVES/NOXIOUS VEGETATION YES NO
IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO - indociany

T & E SPECIES YES NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 09153095-51
 WATERBODY NAME: +10

SURVEY DATE: 9-8-11
 INVESTIGATOR: RK

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 2.4 FT
 CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>Yes -</u>	
SCOUR POTENTIAL: <u>Yes - Steep banks</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
Carex sp. Rumex

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:
CA Thistle

ADJACENT WETLAND YES NO
 T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>Sec 9 - Revisited</u> <u>Sec 10 - original</u> <u>- Deep drainage - Tread</u> <u>- 45° - 60° slopes up to</u> <u>tops > 100 ft vertical</u>
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Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet

Not Keene

FEATURE ID: 33153095-51
WATERBODY NAME: (Re route)

SURVEY DATE: 8-29-11
INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL - farmed drain
 INTERMITTENT
 PERENNIAL - Spring fed - Running water

CURRENT WATER WIDTH AT CROSSING: 2 FT
CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 0.5 FT	HEIGHT: 0.5 FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 6 FT	
EVIDENCE OF EROSION: Y	
SCOUR POTENTIAL: N	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
RIPARIAN SPECIES PRESENT:
Horsetail, Juncus sp.
INVASIVES/NOXIOUS VEGETATION YES NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND YES NO
T & E SPECIES YES NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes	- As field - Springs feeding flowing water
-----	---

Not Keene

Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet

FEATURE ID: 13152096-51

WATERBODY NAME:

SURVEY DATE: 8-29-71

INVESTIGATOR: RK + JS

FLOW CHARACTERISTICS

EPHEMERAL *Farmed drain*

INTERMITTENT

PERENNIAL *spring fed*

CURRENT ~~WATER~~ WIDTH AT CROSSING: ~~20~~ FT 40

CURRENT WATER DEPTH AT CROSSING: _____ FT

SUBSTRATE

BEDROCK

GRAVEL

SAND

OTHER _____

SILT

CLAY

RUNS

POOLS

RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 0.5 FT	HEIGHT: 0.5 FT
SLOPE	SLOPE
<input checked="" type="checkbox"/> 0-30°	<input checked="" type="checkbox"/> 0-30°
<input type="checkbox"/> 31-45°	<input type="checkbox"/> 31-45°
<input type="checkbox"/> 46-60°	<input type="checkbox"/> 46-60°
<input type="checkbox"/> 61-90°	<input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 0 FT	
EVIDENCE OF EROSION: <i>~</i>	
SCOUR POTENTIAL: <i>~</i>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Typing

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

??

Spring not Stream

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 12151096-51

WATERBODY NAME:

SURVEY DATE: 9-1-11

INVESTIGATOR: JKS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 20 FT

CURRENT WATER DEPTH AT CROSSING: 0.3 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 6 FT	HEIGHT: 3 FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 60 FT	
EVIDENCE OF EROSION: N	
SCOUR POTENTIAL: N	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
*Thy ang, Jun balt, Her jub
 Spa pec, Rm cri*

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO *Dam above*

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 2S151096-51

WATERBODY NAME:

SURVEY DATE: 9-7-11

INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 15 FT

CURRENT WATER DEPTH AT CROSSING: 1.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 2 FT	HEIGHT: 2 FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 40 FT <i>Road ditch</i>	
EVIDENCE OF EROSION: <i>N</i>	
SCOUR POTENTIAL: <i>N</i>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Typ avg, Rm cri, Spa pe

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><i>Yes</i></p>	<p><i>- Drainage ^{along} into road ditch</i></p> <p><i>- slight ponding by culvert</i></p> <p><i>- Will likely be bored due to close proximity to road</i></p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: *06150095-S/R*

WATERBODY NAME: *(Re-route)*

SURVEY DATE: *9-1-11*

INVESTIGATOR: *RK + JS*

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT *Flowing*
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: *4 FT* *avg*

CURRENT WATER DEPTH AT CROSSING: *1-2 FT* *avg*

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <i>12</i> FT	HEIGHT: <i>12</i> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <i>60</i> FT	
EVIDENCE OF EROSION: <i>Yes</i>	
SCOUR POTENTIAL: <i>Yes</i>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sp. pec, Rm. cvi, Typ. ang

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT: *CA Thistle*

ADJACENT WETLAND YES NO *Downstream of dam*

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

*★
GIS
length
of meandering*

OHWB CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVEING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<i>Yes</i>	<i>- PL crosses multiple times</i>

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: <u>06 150 095-62</u>
WATERBODY NAME:

SURVEY DATE: <u>9/17/11</u>
INVESTIGATOR: <u>GC MG</u>

FLOW CHARACTERISTICS	
<input type="checkbox"/> EPHEMERAL	
<input checked="" type="checkbox"/> INTERMITTENT	
<input type="checkbox"/> PERENNIAL	
CURRENT WATER WIDTH AT CROSSING:	FT <u>40'</u>
CURRENT WATER DEPTH AT CROSSING:	FT <u>8"</u>

SUBSTRATE	
<input type="checkbox"/> BEDROCK	<input checked="" type="checkbox"/> SILT
<input type="checkbox"/> GRAVEL	<input type="checkbox"/> CLAY
<input type="checkbox"/> SAND	
<input type="checkbox"/> OTHER _____	
<input checked="" type="checkbox"/> RUNS	
<input checked="" type="checkbox"/> POOLS	
<input type="checkbox"/> RIFFLES	

BANK CHARACTERISTICS	
LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>7</u> FT	HEIGHT: <u>7</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>100</u> FT	
EVIDENCE OF EROSION: <u>slight</u>	
SCOUR POTENTIAL: <u>no</u>	

RIPARIAN HABITAT
RIPARIAN VEGETATION <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
RIPARIAN SPECIES PRESENT: <u>Eleocharis sp./Typha</u> <u>Hordelymus jubatum / Rumex sp</u>
INVASIVES/NOXIOUS VEGETATION <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
T & E SPECIES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA		
<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS	
<p><u>"South boundary" line has a narrow tributary that almost gets back to ROW before it sharply veers to west and does not reenter ROW.</u></p>	

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 18150095-52R

WATERBODY NAME:

SURVEY DATE: 9-1-11

INVESTIGATOR: RKofS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT

CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>1</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>15</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Horjeb, Jun sp., Spa pec

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
CA Nylke

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>- As</u> <u>- Occasionally formed</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 18150095-51R
 WATERBODY NAME: (Re route) to Arrow Receipt

SURVEY DATE: 9-1-11
 INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 200 FT!
 CURRENT WATER DEPTH AT CROSSING: 1-4 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS Large pooled area
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2 FT</u>	HEIGHT: <u>10 FT</u>
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>250 FT</u>	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Typha, Sparg

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:
C. A. Th. s. th.

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER: <u>Open water</u>
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<ul style="list-style-type: none"> - Meandering - Ox bows + island - Unable to cross - (refine line on graph) to west side - High water
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18150095 - S4 gis layer

FEATURE ID: 18150095 - S1
WATERBODY NAME:

SURVEY DATE: 10/10/11
INVESTIGATOR: MM, CT, RK

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 10 FT
CURRENT WATER DEPTH AT CROSSING: 1 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 4 FT	HEIGHT: 5 FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 90 FT	
EVIDENCE OF EROSION: yes, on a field rills in floodplain	
SCOUR POTENTIAL: high as riparian area is cropped very little veg Saline, ...	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
*Ty. latif., Mue. jub., Sci. pal., Spa. pec
Rum. cr.*

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHW M CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input checked="" type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

BLPL Project
Waterbody Data Sheet

18150095-53 *gis layer*

FEATURE ID: _____
WATERBODY NAME: 18150095-52

SURVEY DATE: 10/6/11
INVESTIGATOR: MM, CT, RK

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

No Water Present

CURRENT WATER WIDTH AT CROSSING: 0 FT
CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 2 FT	HEIGHT: 3 FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 120 FT	
EVIDENCE OF EROSION: None	
SCOUR POTENTIAL: Low - lots of veg in riparian area	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT: *Typ lead, Phacelia, Cir aru, Sol can, Rumex, Ely tra*

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT: *Phacelia, Cir aru*

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 14150096-51
 WATERBODY NAME:

SURVEY DATE: 8-9-11
 INVESTIGATOR: RK-JS

FLOW CHARACTERISTICS

EPHEMERAL Drawn from dam
 INTERMITTENT
 PERENNIAL Dam (spring)?

CURRENT WATER WIDTH AT CROSSING: 10 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS Spring?
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>8</u> FT	HEIGHT: <u>12</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES [] NO
 RIPARIAN SPECIES PRESENT:
Spruce, Larch, S/H.

INVASIVES/NOXIOUS VEGETATION YES [] NO
 IF YES, SPECIES PRESENT:
CA Thistle

ADJACENT WETLAND YES [] NO
 T & E SPECIES [] YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 15150096-51
 WATERBODY NAME:

SURVEY DATE: 8-9-11
 INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>10</u> FT	HEIGHT: <u>8</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>60</u> FT	
EVIDENCE OF EROSION: <u>NO - Thick Veg</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sparganium, Rumex, Horsetail

INVASIVE/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT: CA Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: **15 150096-52**

WATERBODY NAME:

SURVEY DATE: **8-10-11**

INVESTIGATOR: **KK-JS**

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: **15** FT

CURRENT WATER DEPTH AT CROSSING: **0.5** FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 2 FT	HEIGHT: 3 FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 40 FT	
EVIDENCE OF EROSION: NO	
SCOUR POTENTIAL: NO	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
*Horjib, Smartweed
 Rumex, Quack grass*

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT: **CThistle**

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER: Flowing water
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

Batken Link Project
Waterbody Data Sheet

FEATURE ID: 14150077-52
WATERBODY NAME:

SURVEY DATE: 8-11-13
INVESTIGATOR: TRK SS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 30 FT
CURRENT WATER DEPTH AT CROSSING: 2-3 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>7</u> FT	HEIGHT: <u>7</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>75</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>Y</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spruce Carex spp
River

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 14150097-51

WATERBODY NAME:

SURVEY DATE: 8-11-11

INVESTIGATOR: RK-JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT Trb of
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 30 FT

CURRENT WATER DEPTH AT CROSSING: 2-3 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>6</u> FT	HEIGHT: <u>8</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>10</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Syn per Carex spp.
Rum Cr.

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVEING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet

FEATURE ID: 15150097-51
WATERBODY NAME: Creek

SURVEY DATE: 8-10-11
INVESTIGATOR: RK-JS

FLOW CHARACTERISTICS
 EPHEMERAL
 INTERMITTENT
 PERENNIAL Creek
 CURRENT WATER WIDTH AT CROSSING: 20 FT
 CURRENT WATER DEPTH AT CROSSING: 24 FT

SUBSTRATE
 BEDROCK
 GRAVEL
 SAND
 OTHER
 SILT
 CLAY
 RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 10 FT	HEIGHT: 30 FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input checked="" type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 150 FT	
EVIDENCE OF EROSION: Yes	
SCOUR POTENTIAL: Yes	

RIPARIAN HABITAT
 RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
 Run cr i
 spu pec
 INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:
 CT
 ADJACENT WETLAND YES NO
 T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes
Bore ≈ 200 ft
Recommended
on current centerline

* Stream different than
VSGS stream lyr.
- Creek has hair-pin
turn that comes
very close to corral (200 ft)
- Pipeline ~~center~~ crosses at
tip of turn back

* Could possibly get around
near corral ≈ 75 ft clearance
or bore ≈ 200 ft

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 18150097-51
 WATERBODY NAME:

SURVEY DATE: 8-10-11
 INVESTIGATOR: RK-JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 30 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>30</u> FT	HEIGHT: <u>20</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>130</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO - Dam abate</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT: Sax pecc Cover spp.
Thy anis

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT: CT hazel

ADJACENT WETLAND YES NO NWI stock dam

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>Construction ROW will not impact dam</u> <u>- Spring fed fed</u>
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Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet

FEATURE ID: 24150098-51
WATERBODY NAME: Creek

SURVEY DATE: 8-10-11
INVESTIGATOR: RK-JS

FLOW CHARACTERISTICS
 EPHEMERAL
 INTERMITTENT
 PERENNIAL
1st crossing to N
Creek
 CURRENT WATER WIDTH AT CROSSING: 12 FT
 CURRENT WATER DEPTH AT CROSSING: 2.4 FT

SUBSTRATE
 BEDROCK
 GRAVEL
 SAND
 OTHER _____
 SILT
 CLAY
 RUNS
 POOLS
 RIFFLES
(Spring) on centerline below high bank

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>6</u> FT	HEIGHT: <u>40</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input checked="" type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>170</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT
 RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
Son pes Har jub
Rum cri
 INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:
C Thistle
 ADJACENT WETLAND YES NO
 T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes
Overlook

- Spring emergent out of high bank (right side)
- Included w/ stream line
- High cut bank @ PL center
- More SW as close to other exist NG Pipeline & fiber optic cables
- Follows Exist PL to SE (Parabellols)

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 24150098-52
 WATERBODY NAME: creek

SURVEY DATE: 8-10-11
 INVESTIGATOR: RK-JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

(2nd crossing to south creek)

CURRENT WATER WIDTH AT CROSSING: 8 FT
 CURRENT WATER DEPTH AT CROSSING: 1-3 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

*CLAY
SILT*

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>15</u> FT	HEIGHT: <u>10</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
*Spa pec cover SP
Rm cui*

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT: *CAT. etc*

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u> <u>Overlook</u>	<i>PL center crosses meandering creek 2nd time w/in 300 yds</i>
	<i>More PL @ 100m SW?</i>
	<i>or Bore Recommended</i>

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: <i>23150098-51</i>
WATERBODY NAME: <i>Creek</i>

SURVEY DATE: <i>8-10-11</i>
INVESTIGATOR: <i>DK-JS</i>

FLOW CHARACTERISTICS
<input type="checkbox"/> EPHEMERAL <input type="checkbox"/> INTERMITTENT <input checked="" type="checkbox"/> PERENNIAL
CURRENT WATER WIDTH AT CROSSING: <i>25</i> FT
CURRENT WATER DEPTH AT CROSSING: <i>2.4</i> FT

SUBSTRATE	
<input type="checkbox"/> BEDROCK <input type="checkbox"/> GRAVEL <input type="checkbox"/> SAND <input type="checkbox"/> OTHER _____	<input checked="" type="checkbox"/> SILT <input checked="" type="checkbox"/> CLAY
<input checked="" type="checkbox"/> RUNS <input checked="" type="checkbox"/> POOLS <input checked="" type="checkbox"/> RIFFLES	

BANK CHARACTERISTICS	
LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <i>15</i> FT	HEIGHT: <i>8</i> FT
SLOPE <input type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input checked="" type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <i>60</i> FT	
EVIDENCE OF EROSION: <i>Yes</i>	
SCOUR POTENTIAL: <i>Yes</i>	

RIPARIAN HABITAT
RIPARIAN VEGETATION <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
RIPARIAN SPECIES PRESENT: <i>Carex spp.</i> <i>Spruce</i>
INVASIVES/NOXIOUS VEGETATION <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
T & E SPECIES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA		
<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK <input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT <input type="checkbox"/> LEAF-LITTER DISTURBED OR WASHED AWAY <input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION <input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> CHANGES IN SOIL CHARACTER <input type="checkbox"/> SEDIMENT DEPOSITION <input type="checkbox"/> SEDIMENT SORTING <input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS <input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	<input checked="" type="checkbox"/> SHELVING <input checked="" type="checkbox"/> SCOUR <input type="checkbox"/> WATER STAINING <input type="checkbox"/> OTHER:

PHOTOGRAPHS	
<i>Yes</i>	<p><i>- Springs from high bank on right (west) flowing into creek on centerline</i></p> <p><i>- Water flowing rapidly</i></p>

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: *Stream east of Watford city*

WATERBODY NAME: *28100098-51*

SURVEY DATE: *9/16/11*

INVESTIGATOR: *GC/MG*

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: FT *0*

CURRENT WATER DEPTH AT CROSSING: FT *0*

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <i>4</i> FT	HEIGHT: <i>3</i> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <i>170</i> FT	
EVIDENCE OF EROSION: <i>NO</i>	
SCOUR POTENTIAL: <i>NO</i>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT: *Scheuchzeria palustris, Scirpus fluv., Rumex, Junus sp., Typha, Eleocharis sp.*

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 06149098-s1 (Perante)

WATERBODY NAME:

SURVEY DATE: 9-9-11

INVESTIGATOR: RK

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 6 FT

CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>80</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spartan, Typha, Horjals
Jun spp. (all) Jun bal

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT: C. A. Thyme

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><u>NO</u></p>	<p><u>- 2 culverts under road</u></p> <p><u>- Flowing at time of survey</u></p> <p><u>- Pools at culverts</u></p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 18149098-51
 WATERBODY NAME:

SURVEY DATE: 8-11-11
 INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT
 CURRENT WATER DEPTH AT CROSSING: 2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>8</u> FT	HEIGHT: <u>10</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>35</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
Smpac

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO
 T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>no</u>	<u>- Deep, clay-cut</u> <u>- flowing</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 3149018-51
 WATERBODY NAME:

SURVEY DATE: 8-23-11
 INVESTIGATOR: RK JTS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 6 FT
 CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

Grassed

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>35</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec Run cr
Jun bark Typ auc

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT: C.A Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>Seep on South hillside feeding into stream drain</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 36 148099-S/R (reroute)
 WATERBODY NAME: Little Missouri River ^{+SI (original)}

SURVEY DATE: 8-31-11
 INVESTIGATOR: RKOTS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: _____ FT
 CURRENT WATER DEPTH AT CROSSING: 1-4 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>20</u> FT	HEIGHT: <u>12</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <u>cat</u> <input type="checkbox"/> 46-60° <input checked="" type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <u>cut bank</u> <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): _____ FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Salix spp - sand bar
Peach
Spaced Poplar

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<p><u>2 steppe levels before cut bank of river</u></p> <p>① <u>30 ft 60° slope from upland</u></p> <p>② <u>4-6 ft 30° slope step-up to bank</u></p> <p>③ <u>lined cut bank</u></p> <p><u>Back channeling included OHWB</u></p> <p>- <u>Clay Flats</u></p> <p>- <u>Sand bars near river edge</u></p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 2517099-51

WATERBODY NAME: _____

SURVEY DATE: 8-23-11

INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 6 FT

CURRENT WATER DEPTH AT CROSSING: 0 FT *Dry at Time*

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 1 FT	HEIGHT: 2 FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 12 FT	
EVIDENCE OF EROSION: Y	
SCOUR POTENTIAL: Y	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
NO

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<i>NO</i>	<p><i>Under story</i></p> <ul style="list-style-type: none"> - wood rose - willows - Buckbrush - Brume <p><input checked="" type="checkbox"/> Clear high flow channel cut - headcut starts in corridor</p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 25147099-52

WATERBODY NAME:

SURVEY DATE: 8-23-11

INVESTIGATOR: RKOJS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 15 FT

CURRENT WATER DEPTH AT CROSSING: 0.3 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>20</u> FT	HEIGHT: <u>25</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>80</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pcc, Typang

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWL CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><u>no</u></p>	<p align="center"><u>Clay butte bank south face</u> <u>Treed bank north face</u></p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 24146099-51
 WATERBODY NAME: _____

SURVEY DATE: 8-23-11
 INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 2 FT
 CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>1</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
Carex spp, Junco spp.
 INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:
~~Carex spp~~ CA Thistle
 ADJACENT WETLAND YES NO
 T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER: <u>Running water</u>
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>N</u>	<u>Heavily Treed + Vegetated drainage</u>

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID:
WATERBODY NAME: 01145099 #03

SURVEY DATE: 9/22/11
INVESTIGATOR: GC/MG

FLOW CHARACTERISTICS
<input type="checkbox"/> EPHEMERAL <input type="checkbox"/> INTERMITTENT <input checked="" type="checkbox"/> PERENNIAL
CURRENT WATER WIDTH AT CROSSING: 8 FT
CURRENT WATER DEPTH AT CROSSING: 18" FT - 24"

SUBSTRATE	
<input type="checkbox"/> BEDROCK <input type="checkbox"/> GRAVEL <input checked="" type="checkbox"/> SAND <input type="checkbox"/> OTHER _____	<input checked="" type="checkbox"/> SILT <input type="checkbox"/> CLAY
<input checked="" type="checkbox"/> RUNS <input checked="" type="checkbox"/> POOLS <input type="checkbox"/> RIFFLES	

BANK CHARACTERISTICS	
LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 7 FT	HEIGHT: 6 FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 75 FT	
EVIDENCE OF EROSION: minor on banks	
SCOUR POTENTIAL: minor	

RIPARIAN HABITAT
RIPARIAN VEGETATION <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
RIPARIAN SPECIES PRESENT: <i>Polygonum spp., Carex, Pot spp.</i>
INVASIVES/NOXIOUS VEGETATION <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
T & E SPECIES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA		
<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS	

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 01145099-52

WATERBODY NAME:

SURVEY DATE: 8-24-11

INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 3 FT

CURRENT WATER DEPTH AT CROSSING: 1.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>3</u> FT	HEIGHT: <u>3</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>18</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>✓</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spruce Junco spp.
Sandbar willow Polygonum spp. (Arrow)

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT: CA Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<u>- Minnow present</u> <u>- Confluence of streams</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 01145099-51 (from South)
 WATERBODY NAME: ?

SURVEY DATE: 8-24-11
 INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 6 FT
 CURRENT WATER DEPTH AT CROSSING: 1 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>3</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>25</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>Y</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec Run cri Slough grass

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<u>Narrow, clay bank channel</u> <u>- Water flowing</u> <u>- Minnows present</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 12 145 059 01

WATERBODY NAME:

SURVEY DATE: 9-19

INVESTIGATOR: GC/MG

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 5 FT

CURRENT WATER DEPTH AT CROSSING: 12" FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>10</u> FT	HEIGHT: <u>10</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>slight</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spartina pectinata Lemna minor
Soft stem bulrush Rumex Tripteris

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 34145098-51

WATERBODY NAME: _____

SURVEY DATE: 8-31-11

INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 3 FT

CURRENT WATER DEPTH AT CROSSING: 0 FT *Currently Dry*

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>75</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sage, Rump, v;

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
CA Turtle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><u>NO</u></p>	<p>- Narrow, meandering cut in wider flood plain</p> <p>- Currently dry</p> <p>- Treed</p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 36 145 097-51

WATERBODY NAME:

SURVEY DATE: 8-31-11

INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT

CURRENT WATER DEPTH AT CROSSING: 1-2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>5</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>75</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
32 pec

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT: CA Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><u>NO</u></p>	<p><u>- Deep pools</u></p> <p><u>- Connected intermittently</u></p> <p><u>- Overhead power line crossing</u></p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

←
(Re-route)

FEATURE ID: <i>36 145098 -51</i>
WATERBODY NAME: <i>Original route</i>

SURVEY DATE: <i>8-31-11</i>
INVESTIGATOR: <i>KK+JS</i>

FLOW CHARACTERISTICS
<input type="checkbox"/> EPHEMERAL
<input checked="" type="checkbox"/> INTERMITTENT
<input type="checkbox"/> PERENNIAL
CURRENT WATER WIDTH AT CROSSING: <i>10</i> FT
CURRENT WATER DEPTH AT CROSSING: <i>Dry</i> FT

SUBSTRATE	
<input type="checkbox"/> BEDROCK	<input type="checkbox"/> SILT
<input type="checkbox"/> GRAVEL	<input checked="" type="checkbox"/> CLAY
<input type="checkbox"/> SAND	
<input type="checkbox"/> OTHER _____	
<input checked="" type="checkbox"/> RUNS	
<input type="checkbox"/> POOLS	
<input type="checkbox"/> RIFFLES	

BANK CHARACTERISTICS	
LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <i>2</i> FT	HEIGHT: <i>2</i> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <i>60</i> FT	
EVIDENCE OF EROSION: <i>~</i>	
SCOUR POTENTIAL: <i>~</i>	

RIPARIAN HABITAT
RIPARIAN VEGETATION <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
RIPARIAN SPECIES PRESENT: <i>Sph pec, Knot sub, A. hal. spars Pm cri</i>
INVASIVES/NOXIOUS VEGETATION <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO <i>Dugout</i>
T & E SPECIES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA		
<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS	
<i>no</i>	

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 34W5097-51

WATERBODY NAME:

SURVEY DATE: 8-31-11

INVESTIGATOR: KK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 10 FT

CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>6</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>50</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec
Typ any

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO NWT

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 33145097-51

WATERBODY NAME:

SURVEY DATE: 8-31-11

INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 12 FT

CURRENT WATER DEPTH AT CROSSING: 1-3 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>3</u> FT
SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>90</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spartan Ruscus
Typical Juniper

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>- Heavily grazed</u> <u>- Open water</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 32145097-21

WATERBODY NAME:

SURVEY DATE: 8-31-11

INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 10 FT

CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u> </u> FT	HEIGHT: <u> </u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>60</u> FT	
EVIDENCE OF EROSION: <u> N </u>	
SCOUR POTENTIAL: <u> N </u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa Pec Herjib, Typus
 Carex spp. Junc ba'

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:
CA Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHW M CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<p>- Dam above - open water</p> <p>- Culvert under road</p> <p>- High banks</p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 27145096-51

WATERBODY NAME:

SURVEY DATE: 8-31-11

INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 3 FT

CURRENT WATER DEPTH AT CROSSING: 1.0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>8</u> FT	HEIGHT: _____ FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input checked="" type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>25</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sage, Rm cri, Carex spp.

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO Dug out above

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><u>NO</u></p>	<p>- Head cut at start below stock dam</p> <p>- Narrow, deep cut</p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 25145096-51

WATERBODY NAME:

SURVEY DATE: 8-31-11

INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT Drain to Steel dam
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 1 FT

CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sage, River

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO crossing just above

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 30 145095-5.1
 WATERBODY NAME: (Potential Re-route) Dunn Reservoir

SURVEY DATE: 2-21-11
 INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 25 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5-1.0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 2 FT	HEIGHT: 3 FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): FT	
EVIDENCE OF EROSION: <i>N</i>	
SCOUR POTENTIAL: <i>N</i>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
Typ ms, Spa pec, Jun ba

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO
 T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<i>Yes</i>	<i>- Wide drain, extends out beyond defined Fyp channel * Spring fed</i>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 19 145095-51

WATERBODY NAME:

SURVEY DATE: 8-31-11

INVESTIGATOR: R Kouts

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 12 FT

CURRENT WATER DEPTH AT CROSSING: 0.5-2.0 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>8</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>50</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spargel, juncal

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><u>No</u></p>	<p><u>- High sinuosity (meandering)</u></p> <p><u>- Well vegetated</u></p> <p><u>- Flowing water</u></p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 06145098-51
 WATERBODY NAME: _____

SURVEY DATE: 8-24-11
 INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 6 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>3</u> FT	HEIGHT: <u>4</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>N</u> (below dam)	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
Spa pec Jun bal

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT: C.A Thistle

ADJACENT WETLAND YES NO Stock Dam

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<ul style="list-style-type: none"> - Cattle, heavy use - Stock dam breached - Beaver activity (old)
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

Stat-Dunn Recruit -> West

FEATURE ID: *20145095-51*

WATERBODY NAME:

SURVEY DATE: *8-31-11*

INVESTIGATOR: *RK+JS*

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: *10* FT

CURRENT WATER DEPTH AT CROSSING: *Dry* FT (*currently*)
(2ft at peak flow)

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <i>5</i> FT	HEIGHT: <i>8</i> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <i>80</i> FT	
EVIDENCE OF EROSION: <i>Yes</i>	
SCOUR POTENTIAL: <i>Yes</i>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
*Carex spp, Horse tail
 sp. etc*

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<i>Yes</i>	<ul style="list-style-type: none"> - Deep cut - PL crosses 2x - Possible room to N to avoid both

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 20145095-52
 WATERBODY NAME:

SURVEY DATE: 8-7-14
 INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT *Major flow at times*
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 15 FT
 CURRENT WATER DEPTH AT CROSSING: 1.0 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>5</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>80</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec, Typ ans, Pby etc.

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO NWI

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<ul style="list-style-type: none"> - Numerous pipeline crossing - 12" Polyline currently above ground - Others bored under
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 01144099-51

WATERBODY NAME:

SURVEY DATE: 8-30-11

INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT Below stock dam
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 3 FT

CURRENT WATER DEPTH AT CROSSING: 1-2 FT posts

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>10</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>180</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: NO <u>NO - below dam</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Jun sp., Spa pec, Hor jub
Thy ang, Run cri

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO Stock Dam

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 11144099 01
 WATERBODY NAME:

SURVEY DATE: 8-30-11
 INVESTIGATOR: RK + JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 2 FT
 CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>6</u> FT	HEIGHT: <u>4</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>80</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec, Jun bal, Rum cr

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
C4 Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

N/D

- Below Old Hwy 85 grade
- Culverts
- Wooding + Little standing water in pools

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 25 144099-52
 WATERBODY NAME:

SURVEY DATE: 8-30-11
 INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT spring fed
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 40 FT
 CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: / FT	HEIGHT: / FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>200</u> FT ±	
EVIDENCE OF EROSION: <u>✓</u>	
SCOUR POTENTIAL: <u>✓</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Jun bx, alk grass, Hor jub

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT: CA Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHW M CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input checked="" type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p><u>No</u></p>	<p><u>Flat, saline bottom</u> <u>-wide</u></p>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 25144079-51

WATERBODY NAME:

SURVEY DATE: 8-30-11

INVESTIGATOR: RKOJS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 1 FT

CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>1</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>110</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec, Rm cri, Jun spp.

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT: _____

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION: _____

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet

S-7A

FEATURE ID: 35144099-53 143
WATERBODY NAME: —

SURVEY DATE: 8-30-11
INVESTIGATOR: R.H. & J.S.

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT *Overflow from dam spillway*
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 2 FT
CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 4 FT	HEIGHT: 8 FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 100 FT	
EVIDENCE OF EROSION: <i>N</i>	
SCOUR POTENTIAL: <i>N</i>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spartan, Junco,

INVASIVES/NOXIOUS VEGETATION YES NO
IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO *Stock dam on bank*

T & E SPECIES YES NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 35144099-02

WATERBODY NAME:

SURVEY DATE: 8-30-11

INVESTIGATOR: RK & JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 3 FT

CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>15</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spruce, Hor jub, Jun bal, Carag spp.

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<u>Saline flat w/ narrow defined channel</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 15 143099-51
 WATERBODY NAME:

SURVEY DATE: 8-4-11
 INVESTIGATOR: RK / JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>15</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sua pec Jun bal
Hbr jun Caver spp.

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NA</u>	<u>Native prairie pasture</u>
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Bakkenlink Pipeline Project Waterbody Crossing Data Sheet

FEATURE ID: 27143099-51
WATERBODY NAME:

SURVEY DATE: 8-4-11
INVESTIGATOR: RK / JS

FLOW CHARACTERISTICS
<input type="checkbox"/> EPHEMERAL
<input checked="" type="checkbox"/> INTERMITTENT
<input type="checkbox"/> PERENNIAL
CURRENT WATER WIDTH AT CROSSING: 15 FT
CURRENT WATER DEPTH AT CROSSING: 1 FT

SUBSTRATE	
<input type="checkbox"/> BEDROCK	<input checked="" type="checkbox"/> SILT
<input type="checkbox"/> GRAVEL	<input checked="" type="checkbox"/> CLAY
<input type="checkbox"/> SAND	
<input type="checkbox"/> OTHER	
<input checked="" type="checkbox"/> RUNS	
<input checked="" type="checkbox"/> POOLS	
<input type="checkbox"/> RIFFLES	

BANK CHARACTERISTICS	
LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 4 FT	HEIGHT: 5 FT
SLOPE <input checked="" type="checkbox"/> 0-30°	SLOPE <input checked="" type="checkbox"/> 0-30°
<input type="checkbox"/> 31-45°	<input type="checkbox"/> 31-45°
<input type="checkbox"/> 46-60°	<input type="checkbox"/> 46-60°
<input type="checkbox"/> 61-90°	<input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 40 FT	
EVIDENCE OF EROSION: Yes	
SCOUR POTENTIAL: NO	

RIPARIAN HABITAT
RIPARIAN VEGETATION <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
RIPARIAN SPECIES PRESENT: <i>Spa pec</i> <i>Carex sp.</i> <i>Rum cri</i> <i>Pondweed</i>
INVASIVES/NOXIOUS VEGETATION <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
T & E SPECIES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA		
<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS	
NO	

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 34143099-~~S2~~S2

WATERBODY NAME:

SURVEY DATE: 8-8-11

INVESTIGATOR: RKJJS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 50 FT

CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>12</u> FT	HEIGHT: <u>12</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>150</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Jun ba - spiper - Rmcr
Timothy grass - Alkali grass

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO, Cattle Dalgout

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>Spring / Seeps present</u>
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Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet

FEATURE ID: **34143099-57**

WATERBODY NAME:

SURVEY DATE: **8-8-11**

INVESTIGATOR: **RK-JS**

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: ~~20~~ **30ft**

CURRENT WATER DEPTH AT CROSSING: **0.2** FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 2 FT	HEIGHT: 1 FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 40 FT	
EVIDENCE OF EROSION: Y	
SCOUR POTENTIAL: N	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spapec Jun sap.
Jun bal for Jun

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO **Dugout**

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:
Golden Eagle pair in area

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input checked="" type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER: saline/clay
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

Shallow drain

Dugout on East

Golden Eagle seen on access road

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 81143099-51
 WATERBODY NAME:

SURVEY DATE: 8-4-11
 INVESTIGATOR: RK + JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 20 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>40</u> FT	HEIGHT: <u>25</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>100</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec
Black Grass

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
C. Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELIVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 03142099-51
 WATERBODY NAME:

SURVEY DATE: 8-8-11
 INVESTIGATOR: RK-JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 13 FT
 CURRENT WATER DEPTH AT CROSSING: 0.2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: / FT	HEIGHT: / FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>10</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec Kor jun Jumbal
Rumex Timothy Grass

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>Shallow moist drain</u> <u>Tall Spa pec</u> <u>1 Planted 6 Ash in drain</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 27142099-52
 WATERBODY NAME:

SURVEY DATE: 8-4-11
 INVESTIGATOR: RK/JJS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 2 FT
 CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>3</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>10</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES [] NO

RIPARIAN SPECIES PRESENT:
sp. pec Jun bal

INVASIVES/NOXIOUS VEGETATION YES [] NO

IF YES, SPECIES PRESENT:
CAT LIZARD

ADJACENT WETLAND YES [] NO

T & E SPECIES [] YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

No

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 27142099-51

WATERBODY NAME:

SURVEY DATE: 2-4-11

INVESTIGATOR: RK/JJS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 5 FT

CURRENT WATER DEPTH AT CROSSING: 1 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
3pa pec
Curav spp.

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
Cercium arvensis (C.A. D. H. H.)

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

No

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 34142099-51

WATERBODY NAME:

SURVEY DATE: 8-4-11

INVESTIGATOR: RK/JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 30 FT

CURRENT WATER DEPTH AT CROSSING: 2-3 FT

SUBSTRATE

BEDROCK
 GRAVEL SILT
 SAND CLAY
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>8</u> FT	HEIGHT: <u>10</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>50</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Carex spp. Thykang. Spa pec Bull Rush

INVASIVES/MOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 15141099-51
 WATERBODY NAME:

SURVEY DATE: 8-4-11
 INVESTIGATOR: KK/JJ

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 5 FT
 CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>0.5</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>20</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Carex spp Hor job Smartweed
Sua pec Rumex

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO Dugout
PASEH

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input checked="" type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input checked="" type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<u>Man-made diversion ditch/berm to dugout</u> <u>Re-establish drain to pond during reclamation</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 22141099-53

WATERBODY NAME:

SURVEY DATE: 8-4-11

INVESTIGATOR: RK-US

FLOW CHARACTERISTICS

EPHEMERAL Shallow Drained (Flat)
 INTERMITTENT Poorly Area
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 5 FT

CURRENT WATER DEPTH AT CROSSING: 0 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER Saline

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: / FT	HEIGHT: / FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Rm Cvi Cane spp.
Hor jub Spa pec

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input checked="" type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

Yes

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 22141099-52

WATERBODY NAME:

SURVEY DATE: 8-3-11

INVESTIGATOR: RK / JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 20 FT

CURRENT WATER DEPTH AT CROSSING: 2-3 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>10</u> FT	HEIGHT: <u>14</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>60</u> FT	
EVIDENCE OF EROSION: <u>Yes - Scour</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa. pec. Car sp.
Rum. cri

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<u>Deep cut, Deep standing water</u>

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 2214099-91

WATERBODY NAME:

SURVEY DATE: 8-3-11

INVESTIGATOR: RKJJS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 10-20 FT

CURRENT WATER DEPTH AT CROSSING: 1-2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER MOCK

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>3.5</u> FT	HEIGHT: <u>0.5</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>100</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec Jun ba

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>Yes</u>	<u>Shallow, wide shale/drain</u>

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 06140099 - 51

WATERBODY NAME:

SURVEY DATE: 8-3-11

INVESTIGATOR: RK / JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT

CURRENT WATER DEPTH AT CROSSING: 40.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>5</u> FT	HEIGHT: <u>8</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pel Typ ang
Rum cri Agr rep

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
C. Th. gl. (Circum arvensis?)

ADJACENT WETLAND YES NO Down stream

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

N

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID:	17140099-501
WATERBODY NAME:	—

SURVEY DATE:	8-3-11
INVESTIGATOR:	RK/JS

FLOW CHARACTERISTICS
<input checked="" type="checkbox"/> EPHEMERAL <input checked="" type="checkbox"/> INTERMITTENT <input type="checkbox"/> PERENNIAL
CURRENT WATER WIDTH AT CROSSING: 25 FT
CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE
<input type="checkbox"/> BEDROCK <input type="checkbox"/> SILT <input type="checkbox"/> GRAVEL <input checked="" type="checkbox"/> CLAY <input type="checkbox"/> SAND <input type="checkbox"/> OTHER _____
<input checked="" type="checkbox"/> RUNS <input checked="" type="checkbox"/> POOLS <input type="checkbox"/> RIFFLES

BANK CHARACTERISTICS	
LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: 10 FT	HEIGHT: 3 FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): 60 FT	
EVIDENCE OF EROSION: NO	
SCOUR POTENTIAL: NO	

RIPARIAN HABITAT
RIPARIAN VEGETATION <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
RIPARIAN SPECIES PRESENT: Nov sub jac ba1 River Spar pec
INVASIVES/NOXIOUS VEGETATION <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, SPECIES PRESENT:
ADJACENT WETLAND <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO
T & E SPECIES <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO
IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA		
<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input checked="" type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS	
Yes	Along New pipeline crossing

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 16140099-51

WATERBODY NAME:

SURVEY DATE: 8-3-11

INVESTIGATOR: RK / JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 10 FT

CURRENT WATER DEPTH AT CROSSING: 1 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>3</u> FT	HEIGHT: <u>4</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Blackberry Horjub
Rm Cri Spa pec

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO standing water

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

NO

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 15 140099-51

WATERBODY NAME:

SURVEY DATE: 8-3-11

INVESTIGATOR: RK/JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 15 FT

CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>80</u> FT	
EVIDENCE OF EROSION: <u>NO</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
~~Salix~~ Hor Alb
Jun bal Spa pec

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input checked="" type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER: <u>saline</u>
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 19140099-53
 WATERBODY NAME:

SURVEY DATE: 8-8-11
 INVESTIGATOR: RK JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 20 FT
 CURRENT WATER DEPTH AT CROSSING: 2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>45</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>Y</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Typ and Sparrow

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT: CA Thrush

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center">Yes</p> <p><u>Burrowing Owl</u> <u>Golden Eagle</u> seen <u>sighting</u> <u>Soaring over</u> <u>PD farm</u></p>	<ul style="list-style-type: none"> - Golden Eagle - Prairie dog adjacent - LG. CA Thrush patches - Potential habitat 1/2 west CW trees - B. Owl
--	--

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 19140199 - 32

WATERBODY NAME:

SURVEY DATE: 8-8-11

INVESTIGATOR: KK-JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 2 FT

CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>2</u> FT	HEIGHT: <u>8</u> FT
SLOPE <input checked="" type="checkbox"/> 1-0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>30</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spa pec Hor Jun

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>Spring feed</u> <u>freshwater snails</u> <u>Narrow cut</u>
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Banckenbank Project
Waterbody Data Sheet

FEATURE ID: 1914079-51
 WATERBODY NAME:

SURVEY DATE: 8-8-11
 INVESTIGATOR: BK + JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 20 FT
 CURRENT WATER DEPTH AT CROSSING: 2 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>6</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>40</u> FT	
EVIDENCE OF EROSION: <u>Y</u>	
SCOUR POTENTIAL: <u>Y</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO
 RIPARIAN SPECIES PRESENT:
Tup and Spruce
 INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:
CA THISTLE
 ADJACENT WETLAND YES NO
 T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

No

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 30 140 99 - 51

WATERBODY NAME:

SURVEY DATE: 8-8-11

INVESTIGATOR: RK+JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 8 FT + 6 FT

CURRENT WATER DEPTH AT CROSSING: 1.0 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1.5</u> FT	HEIGHT: <u>1.5</u> FT
SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input checked="" type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>100</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Speec smartweed
Rum cri

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
CA Thistle

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHW M CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<p align="center"><u>Yes</u></p> <p><u>1.5ft Waterfall</u></p> <p><u>- Minnows present in pool!</u></p>	<p><u>- New overland channel being cut cutting off oxbow (2nd) crossing</u></p> <p><u>- Oxbow still contains water (1st crossing to S)</u></p>
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Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet

FEATURE ID: 0213910-53
WATERBODY NAME: _____

SURVEY DATE: 8-3-11
INVESTIGATOR: RK/JS

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 85 FT
CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER Muck

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>10</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>80</u> FT	
EVIDENCE OF EROSION: <u>No</u>	
SCOUR POTENTIAL: <u>No</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Rum cri No Jun
Rubra spa pel

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:
Cirsium arvense (C. Thistle)

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input type="checkbox"/> SHELVING
<input checked="" type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input checked="" type="checkbox"/> SEDIMENT DEPOSITION	<input type="checkbox"/> SCOUR
<input checked="" type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input checked="" type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

No

**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 02139100 - SD Reverte
 WATERBODY NAME:

SURVEY DATE: 9-11-11
 INVESTIGATOR: RK

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 12 FT
 CURRENT WATER DEPTH AT CROSSING: 1.3 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>8</u> FT	HEIGHT: <u>6</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input checked="" type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input type="checkbox"/> 31 - 45° <input checked="" type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>35</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>Yes</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sycamore, Herub, Bullrush

INVASIVES/NOXIOUS VEGETATION YES NO

IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO

IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>no</u>	<u>- Reverte</u> <u>- Meandering defined channel</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 02139100 - s# (revised)
 WATERBODY NAME:

SURVEY DATE: 9-11-11
 INVESTIGATOR: RT

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 96 FT
 CURRENT WATER DEPTH AT CROSSING: 0.5 FT

SUBSTRATE

BEDROCK SILT
 GRAVEL CLAY
 SAND
 OTHER _____

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>4</u> FT	HEIGHT: <u>3</u> FT
SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°	SLOPE <input type="checkbox"/> 0 - 30° <input checked="" type="checkbox"/> 31 - 45° <input type="checkbox"/> 46 - 60° <input type="checkbox"/> 61 - 90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>80</u> FT	
EVIDENCE OF EROSION: <u>Yes</u>	
SCOUR POTENTIAL: <u>NO</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Sage, Horjuba, jun ba | Alkali-grass

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWM CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input checked="" type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELVING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input type="checkbox"/> OTHER:
<input checked="" type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>- Saline edges</u> <u>- Spring fed, flats</u>
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**Bakkenlink Pipeline Project
Waterbody Crossing Data Sheet**

FEATURE ID: 02139102-54 (relocate)

WATERBODY NAME:

SURVEY DATE: 9-11-11

INVESTIGATOR: JK

FLOW CHARACTERISTICS

EPHEMERAL
 INTERMITTENT
 PERENNIAL

CURRENT WATER WIDTH AT CROSSING: 15 FT (x2)

CURRENT WATER DEPTH AT CROSSING: 1.2 FT

SUBSTRATE

BEDROCK
 GRAVEL
 SAND
 OTHER _____

SILT
 CLAY

RUNS
 POOLS
 RIFFLES

BANK CHARACTERISTICS

LEFT BANK (WHEN FACING DOWNSTREAM)	RIGHT BANK (WHEN FACING DOWNSTREAM)
HEIGHT: <u>1</u> FT	HEIGHT: <u>2</u> FT
SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	SLOPE <input checked="" type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°
WIDTH (HIGHEST BANK TO HIGHEST BANK): <u>60</u> FT	
EVIDENCE OF EROSION: <u>N</u>	
SCOUR POTENTIAL: <u>N</u>	

RIPARIAN HABITAT

RIPARIAN VEGETATION YES NO

RIPARIAN SPECIES PRESENT:
Spartan, Horsetail

INVASIVES/NOXIOUS VEGETATION YES NO
 IF YES, SPECIES PRESENT:

ADJACENT WETLAND YES NO

T & E SPECIES YES NO
 IF YES, IDENTIFY SPECIES AND LOCATION:

OHWB CRITERIA

<input checked="" type="checkbox"/> CLEAR, NATURAL LINE IMPRESSED ON BANK	<input type="checkbox"/> CHANGES IN SOIL CHARACTER	<input checked="" type="checkbox"/> SHELTING
<input type="checkbox"/> VEGETATION MATTED DOWN, BENT OR ABSENT	<input type="checkbox"/> SEDIMENT DEPOSITION	<input checked="" type="checkbox"/> SCOUR
<input type="checkbox"/> LEAF LITTER DISTURBED OR WASHED AWAY	<input type="checkbox"/> SEDIMENT SORTING	<input checked="" type="checkbox"/> WATER STAINING
<input type="checkbox"/> DESTRUCTION OF TERRESTRIAL VEGETATION	<input type="checkbox"/> PRESENCE OF LITTER OR DEBRIS	<input checked="" type="checkbox"/> OTHER:
<input type="checkbox"/> ABRUPT CHANGE IN PLANT COMMUNITY	<input type="checkbox"/> PRESENCE OF WRACK LINE	

PHOTOGRAPHS

<u>NO</u>	<u>* Crossing at Ox bow (2x) that is spring feed</u>
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Appendix D

Representative Photographs



Photograph 1. Representative photograph of perennial stream crossing (North Fork Creek). Prairie cordgrass (*Spartina pectinata*) is most typically found along stream banks along route.



Photograph 2. Representative photo of beaver dam backing up an intermittent drainage creating wetland. Narrow leaf cattail (*Typha angustifolia*) surrounds wetland edge.



Photograph 3. Little Missouri River crossing. Photo taken from north shore facing southeast. Cottonwood and Willows line sandy banks. Little Missouri Badlands breaks visible in background.



Photograph 4. A representative photo of a spring-fed intermittent drainage that is cultivated.



Photograph 5. Representative shallow depression wetland located in native prairie pasture. This is a typical pothole wetland located in the Missouri Coteau Region.



Photograph 6. Sedge that flows through a swale into a dammed drainage. Ground water flows to the ground surface on a sideslope and creates a shallow slope wetland. Sedge species and Prairie cordgrass are present in the slope wetland area.



Photograph 7. Typical intermittent stream crossing in well-drained sloping landscape. Baltic rush (*Juncus balticus*) is common in shallow drainage pools.



Photograph 8. Intermittent stream crossing in bottom of steep treed drainage. Many intermittent drains were dry at time of survey. Prairie cordgrass is typically found along stream banks.