WETLAND DELINEATION REPORT

# Border Winds Energy Project

Rolette County, North Dakota

October 13, 2009

**Prepared For:**

Sequoia Energy U.S. Inc.
259 Portage Avenue, Suite 210
Winnipeg, Manitoba R3B 2A9
Canada

**Prepared By:**

Westwood

This page is intentionally blank.

# Wetland Delineation Report

## Border Winds Energy Project

Rolette County, North Dakota

Prepared for:

Sequoia Energy U.S. Inc.
259 Portage Avenue, Suite 210
Winnipeg, Manitoba R3B 2A9, Canada
(204) 523-0216

Prepared by:

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344
(952) 937-5150

Project Number: 20071163.00

October 13, 2009

.

This page is intentionally blank.

# CONTENTS



## TABLES



## FIGURES





.

## EXHIBITS



## APPENDICES

## 1.0 SUMMARY

Westwood Professional Services (Westwood) delineated and located 317 wetlands within the general construction area of proposed wind energy turbines, access roads, and electrical collection cables for the Border Winds Energy Project on July 13-17, 2009. Of the 317 wetlands, 21 are associated with creeks, ditches, or drainages and connected to waters of the United States (U.S.) based on National Wetlands Inventory (NWI) and National Hydrography Dataset (NHD) mapping. The remaining 296 delineated wetlands are isolated Type 1, 2, 3, 4, 6, and 7 wetlands that are not associated with ditches, creeks, or drainages and are believed to fall outside the jurisdiction of the U.S. Army Corps of Engineers (USACE). Creeks and ditches in the area flow to Devils Lake, the Red River, and ultimately to Hudson Bay. Predominant wetland plants in the area include American slough grass, reed canary grass, barnyard grass, fox sedge and uptight sedge. The U.S. Fish and Wildlife Service (USFWS) has wetland easements over some properties in the project area and wetlands on these properties were delineated or mapped in a manner consistent with USFWS wetland determinations.

## 2.0 PURPOSE

This report, the attached exhibits, and data forms constitute the wetland delineation report for the most of the proposed construction area of the Border Winds Energy Project. This provides the required documentation for wetland boundary determinations in conformance with the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (U.S. Army Corps of Engineers 2008). In addition, this report provides wetland boundaries for construction areas within USFWS wetland easement lands. This wetland delineation will be updated to include mapping of additional wetlands within construction areas associated with locations of alternate turbines, the access roads and cable routes that would serve them, construction crane paths, and the operations and maintenance facility/construction laydown yard. Coordination with USACE staff at the North Dakota Regulatory Office in Bismarck indicated that the USACE will accept updated wetland boundaries based on boundaries interpreted from aerial photography.

## 3.0 PROJECT DECRIPTION AND LOCATION

The Border Winds Energy Project will use up to 66 turbines and have a total nameplate capacity of approximately 150 megawatts (MW). Additional facilities include a collection system consisting of buried electrical cables, access roads, an operations and maintenance (O&M) facility, and a substation that will connect the system to an existing Xcel Energy transmission line in the project area. The project area covers 52.5 square miles and is located in northeast Rolette County, North Dakota, east of the City of Saint John, north of the City of Rolla, and immediately south of the U.S.-Canadian border. The City of Saint John is roughly 0.5 miles west of the project area and the City of Rolla is roughly 3 miles south of the project area. The Project Construction Area (Exhibit 1) includes land within 400 feet of proposed wind energy facilities and consists of interlinked corridors measuring at least 800 feet wide and covering 6.55 square miles (4,192 acres). Table 3-1 lists the Townships, Ranges, and 45 Sections that encompass the Project Construction Area.



.

**Table 3-1: Sections that Include Land within the Project Construction Area**

| Township | Range | Sections |
|---|---|---|
| 164N | 69W | 25, 26, 27, 28, 31, 32, 33, 34, 35 |
| 164N | 70W | 26, 27, 34, 35, 36 |
| 163N | 69W | 2, 3, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 23, 24, 25, 26, 36 |
| 163N | 70W | 1, 2, 3, 10, 11, 12, 13, 23, 24 |
| 162N | 69W | 1 |

Land use in and around the project area is almost exclusively agricultural. Non-agricultural land uses are limited primarily to those in the Cities Saint John and Rolla, the Rolla Airport. The USFWS manages some lands for wildlife in the project vicinity. Most land in the project area is dedicated to the production of agricultural crops and forage, consisting primarily of wheat, hay fields, canola, barley, and sunflowers (USDA 2009). Conservation Reserve Program (CRP) lands cover about 2,120 acres, or about 6% of the 52.5-square-mile project area. Active and inactive farmsteads are scattered throughout the project area. The project area contains numerous scattered wetlands, mostly isolated prairie pothole wetlands, but also some wetlands in association with drainage swales, ditches, and small creeks.

## 4.0 WETLAND DELINEATION METHODOLOGY

Prior to delineating wetlands in the field, Westwood mapped wetlands on lands leased for wind energy development within the 6.55-square- mile Project Construction Area. Wetland mapping was based on review of aerial photography from 2004, 2005, and 2006, National Wetlands Inventory (NWI) mapping, the National Hydrography Dataset (NHD) (Exhibit 2), the Rolette County Soil Survey (Exhibit 3), wetland determinations shown on USDA Farm Service Agency aerial photography, and field reviews conducted during June 10-12, 2008. Approximate wetland boundaries were digitized in ArcGIS over spring 2005 aerial photography. This mapping served as a baseline for wind turbine and access road siting. After turbine, cable route and road siting was completed, a 400-foot buffer was extended from the center of proposed facilities to create a Project Construction Area consisting of an interlinked corridor at least 800 feet wide. This Project Construction Area covers 6.55 square miles.

Westwood delineated wetlands within the Project Construction Area during July 13-17, 2009, using the level two routine determination method set forth in the Corps of Engineers Wetlands Delineation Manual (Environmental Laboratory 1987) and the supplemental methods set forth in the Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (U.S. Army Corps of Engineers 2008). The level two routine determination method consisted of establishing sampling transects in a representative transition zone of identified wetlands. Transects consisted of one sampling point in upland and one point in wetland. Species dominance for vegetation measurements was based on the percent coverage visually estimated within a 10-foot radius of the sample point location for the tree and shrub layers and a five-foot radius for the herbaceous layer.

Vegetation, soils, and hydrology information were recorded for representative wetlands on data forms. Data forms were completed for each of the wetland types identified during the delineation and dominant vegetation species were recorded for each wetland delineated. The wetland types identified during the delineation include:

1. Type 2 (Wet meadow) PEMB (Palustrine emergent saturated) wetlands;
2. Type 2/3 (Wet meadow/Shallow marsh) PEMB/C (Palustrine emergent saturated/seasonally flooded) wetlands;
3. Type 2/3/4 (Wet meadow/Shallow marsh/Deep marsh) PEMB/C/F (Palustrine emergent saturated/seasonally flooded/semi-permanently flooded) wetland complexes; and
4. Type 2/3/6/7 (Wet meadow/Shallow marsh/Shrub swamp/Wooded swamp) PEMB/C/SS/FO (Palustrine emergent saturated/seasonally flooded/scrub-shrub/forested) wetland complexes.

Wetlands were classified according to Wetlands of the United States (Shaw and Fredine 1971) and Wetlands and Deepwater Habitats of the United States (Cowardin et. al. 1979) (see Figure 1 at the end of this narrative). Common names for vegetation identified in this report and on the attached data forms generally correspond with the nomenclature used in the National List of Plant Species that Occur in Wetlands (Reed 1988) and the National List of Vascular of Plant Species that Occur in Wetlands (U.S. Army Corps of Engineers 2009).

Westwood obtained mapping of wetlands within USFWS wetland easement lands from USFWS staff. Within parts of USFWS wetland easement lands that overlapped the Project Construction Area, Westwood delineated or mapped USFWS wetlands in a manner consistent with USFWS wetland determinations. In cases where wetlands identified by the USFWS within USFWS wetland easement lands showed no evidence of hydrophytic vegetation or crop stress in the field, the wetlands were mapped on aerial photography to provide wetland locations for avoidance purposes.

Wetland boundaries were located using a Trimble GeoXT sub-meter accuracy global positioning unit (GPS). Wetland boundary points were then post processed, using Trimble Pathfinder Office software to ensure sub-meter accurate GPS coordinates, and then imported into ArcGIS.

## 5.0 RESULTS

### 5.1 Mapping

Wetlands in the project area are almost entirely limited to wetlands that are isolated from drainages and creeks and therefore likely fall outside the jurisdiction of the USACE. Many wetlands are seasonally flooded isolated basins and isolated saturated to semi-permanently flooded basins. No federally mapped floodplains or trout streams were found to occur in the project area and many of the small streams in the area have been ditched.

NWI mapping (Exhibit 2) depicts 465 wetland basins and sub-basins within the Project Construction Area. Of the 465 NWI wetlands, 87 are listed as partially ditched/drained on

the NWI. Of the remaining 378 NWI basins, 65 wetland basins shown on NWI mapping were determined to be non-wetland because they lacked hydrophytic vegetation. These areas were dominated either by crops that showed no evidence of moisture stress or upland grasses including smooth brome, and quackgrass.

Wetlands in the project area drain to Devils Lake and the Red River. The NHD identifies two major drainages as part of two Hydrological Units within the project area. The two units are the Devils Lake Drainage (Unit Number 09020201) of the Devils Lake System, and the Pembina System (09020317) of the Red River. These two systems flow into Hudson Bay via the Red River and fall under USACE jurisdiction. Of the 317 wetlands delineated within the Project Construction Area, 21 are associated with NHD mapped flow lines (Exhibit 2). These wetlands show a connection to navigable waters and are more likely to be considered waters of the U.S. and fall under USACE jurisdiction.

The Soil Survey of Rolette County, North Dakota (Exhibit 3; USDA Natural Resources Conservation Service Current) indicates that soils mapped in the Project Construction Area that are listed as "all hydric" include Colvin silt loam, Southam silt loam, and Vallers loam soils. Remaining soils are partially hydric or not-hydric . "All hydric" soils are those that have all their components rated as hydric. Not-hydric soils are those that have all their components rated as not hydric and are indicative of upland. Partially hydric means that at least one component of the map unit is rated as hydric, and at least one component is rated as not hydric. Soils mapped in the project area are listed in the following table.

**Table 5-2: Soils Mapped in the Project Construction Area**

| Soil No. | Soil Name | % Unit Hydric | Hydric Rating |
|---|---|---|---|
| 76 | Arvilla sandy loam, 0 to 6 percent slopes | 0 | Not |
| 118 | Barnes-Buse loams, 3 to 6 percent slopes | 1 | Not |
| 120 | Barnes-Buse loams, 6 to 9 percent slopes | 1 | Not |
| 137 | Barnes-Hamerly loams, 0 to 3 percent slopes | 2 | Not |
| 314 | Buse-Barnes loams, 9 to 15 percent slopes | 1 | Not |
| 450 | Colvin silt loam, 0 to 1 percent slopes | 94 | Partial |
| 451 | Colvin silt loam, channeled, 0 to 6 percent slopes | 54 | Partial |
| 452 | Colvin silt loam, saline, 0 to 1 percent slopes | 100 | All |
| 510 | Divide loam, 0 to 2 percent slopes | 0 | Not |
| 863 | Hamerly loam, 0 to 3 percent slopes | 4 | Not |
| 864 | Hamerly loam, saline, 0 to 3 percent slopes | 7 | Not |
| 883 | Hamerly-Tonka-Parnell complex, 0 to 3 percent slopes | 36 | Not |
| 1269 | Marysland silt loam, 0 to 1 percent slopes | 93 | Partial |
| 1426 | Parnell silt loam, 0 to 1 percent slopes | 90 | Partial |
| 1687 | Sioux loam, 0 to 6 percent slopes | 0 | Not |
| 1691 | Sioux loam, 6 to 25 percent slopes | 0 | Not |
| 1709 | Southam silt loam, 0 to 1 percent slopes | 100 | All |
| 1871 | Vallers loam, saline, 0 to 1 percent slopes | 100 | All |
| 1978 | Water | 100 | All |

### 5.2 Delineated Wetland Descriptions

Westwood delineated wetlands in 317 locations that were in proximity to preliminary turbine access road and electrical collection cable routes (Exhibit 4). Characteristics of delineated wetlands are summarized in Appendix A and data forms of representative wetland types are included in Appendix B. Wetlands were classified into the following types:

1. Type 2 (Wet meadow) PEMB (Palustrine emergent saturated) wetlands;
2. Type 2/3 (Wet meadow/Shallow marsh) PEMB/C (Palustrine emergent saturated/seasonally flooded) wetlands;
3. Type 2/3/4 (Wet meadow/Shallow marsh/Deep marsh) PEMB/C/F (Palustrine emergent saturated/seasonally flooded/semi-permanently flooded) wetland complexes; and
4. Type 2/3/6/7 (Wet meadow/Shallow marsh/Shrub swamp/Wooded swamp) PEMB/C/SS/FO (Palustrine emergent saturated/seasonally flooded/scrub-shrub/forested) wetland complexes.

Type 2 wetlands were generally dominated by annual weeds, grasses, and sedges including American slough grass, barnyard grass, smartweed species, foxtail grasses, reed canary grass, switchgrass, Canada wild-rye, fox sedge, and uptight sedge.

Type 2/3 wetlands were generally dominated by cattail and perennial grasses and sedges including reed canary grass, switchgrass, fox sedge, and uptight sedge.

Type 2/3/4 wetlands were generally dominated by perennial grasses and sedges including reed canary grass, switchgrass, fox sedge, and uptight sedge in the Type 2 areas; cattail, water plantain, and bulrush in the Type 3 areas; and aquatic species such as pondweed species, coontail, and American milfoil in the deepest areas.

Type 2/3/6/7 wetlands generally were dominated by the species typical of Type 2/3 wetlands, but with contained stands of willow shrubs and quaking aspen.

## 6.0 CONCLUSIONS

Westwood delineated and located 317 wetland areas in the 6.55-square-mile Project Construction Area of the proposed Border Winds Energy Project during July 13-17, 2009. Of the 317 delineated wetlands, 296 (93%) are isolated basins that lack an association with ditches, creeks, or drainages, are likely not waters of the U.S., and therefore likely fall outside the jurisdiction of the USACE. The USFWS has wetland easements over some properties in the project area and wetlands on these properties were delineated or mapped in a manner consistent with USFWS wetland determinations. This wetland delineation will be updated to include mapping of additional wetlands within construction areas associated with locations of alternate turbines, the access roads and cable routes that would serve them, construction crane paths, and the operations and maintenance facility/construction laydown yard. Coordination with USACE staff from the

North Dakota Regulatory Office in Bismarck on October 8, 2009, indicated that the USACE will accept updated wetland boundaries based on boundaries interpreted from aerial photography.

## 7.0 LITERATURE CITED

Cowardin, L.M. , V.M. Carter , F.C. Golet , and E.T. LaRoe . 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Biological Services Program, Washington, DC, USA. FWS/OBS-79/31. 103pp.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Reed, Jr., P.B. 1988. National List of Plant Species that Occur in Wetlands: National Summary. U.S. Fish and Wildlife Service. Biol. Rep. 88 (24). 244 pp.

Shaw, S.P. and C.G. Fredine. 1971. Wetlands of the United States. U.S. Fish and Wildlife Circular 39. U.S. Department of the Interior, Washington, D.C. 67 pp.

U.S. Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region, ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-12. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

U.S. Army Corps of Engineers. 2009. 1996 National List of Vascular Plant Species that Occur in Wetlands. http://www.usace.army.mil/CECW/Documents/cecwo/reg/plants/l96_intro.pdf

USDA (U.S. Department of Agriculture). 2009. 2007 Census of Agriculture County Profile: Rolette County, North Dakota. http://www.agcensus.usda.gov/Publications/2007/Online_Highlights/County_Profiles/North_Dakota/cp38079.pdf.

USDA Natural Resources Conservation Service. Current. Soil Survey of Rolette County, North Dakota, http://soils.usda.gov/survey/printed_surveys/state.asp?state=North+Dakota&abbr=ND.

## 8.0 CERTIFICATION

We certify that, to the best of our knowledge and beliefs, the wetland delineation completed for this project is consistent with current wetland delineation practices and guidelines. We have the specific qualifications, education, training, and experience to complete wetland delineations and determinations in accordance with federal and state requirements.

Sincerely,

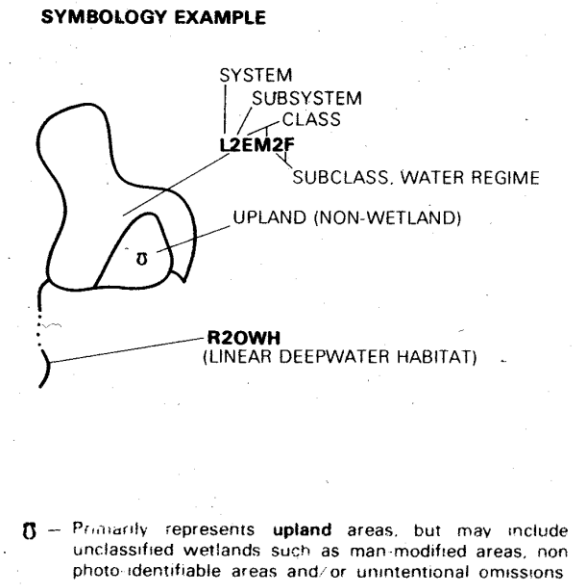
WESTWOOD PROFESSIONAL SERVICES

Matthew Vollbrecht, WDC
Environmental Scientist
MN Certified Wetland Delineator 1101

Robin P. Bouta, CSE, WDC
Senior Environmental Scientist
MN Certified Wetland Delineator 1081

**Cowardin Wetland Classification System**

*Source: Wetlands and Deepwater Habitats of the United States* (FWS/OBS Publication 79/31; Cowardin et. al. 1979).

| System | Symbol | Subsystems | System Specific Classes | Symbology Sample |
|---|---|---|---|---|
| Lacustrine | L | (1) Limnetic<br>(2) Littoral | RB, UB, AB, OW, RS, US, EM, |  |
| Palustrine | **P** | None | RB, UB, AB, US, ML, EM, SS, FO, OW | |
| Riverine | **R** | (1) Tidal Lower<br>(2) Lower Perennial<br>(3) Upper Perennial<br>(4) Intermittent<br>(5) Unknown Perennial | RB, UB, SB, AB, RS, US, EM, OW | |
| **Classes** | | **Special Modifiers** | **Water Regimes** | |
| Rock Bottom | RB | **b** – beaver<br>**d** – Partially drained/ditched<br>**f** – Farmed<br>**h** – diked/impounded<br>**r** – artificial substrate<br>**s** – spoil<br>**x** – excavated | **A** – Temporarily flooded<br>**B** – Saturated<br>**C** – Seasonally flooded<br>**D** – Seasonally flooded/well drained<br>**E** – Seasonally saturated<br>**F** – Semi-permanently flooded<br>**G** – Intermittently exposed<br>**H** – Permanently flooded<br>**J** – Intermittently flooded<br>**K** – Artificially flooded | |
| Unconsolidated Bottom | **UB** | | | |
| Streambed | **SB** | | | |
| Aquatic Bed | **AB** | | | |
| Rocky Shore | **RS** | | | |
| Unconsolidated Shore | **US** | | | |
| Emergent | **EM** | | | |
| Open Water | **OW** | | | |
| Moss Lichen | **ML** | | | |
| Scrub Shrub | **SS** | | | |
| Forested | **FO** | | | |



**Circular 39 Wetland Classification System**

*Source: Wetlands of the United States* (U.S. Fish and Wildlife Service Circular 39; Shaw and Fredine, 1971)

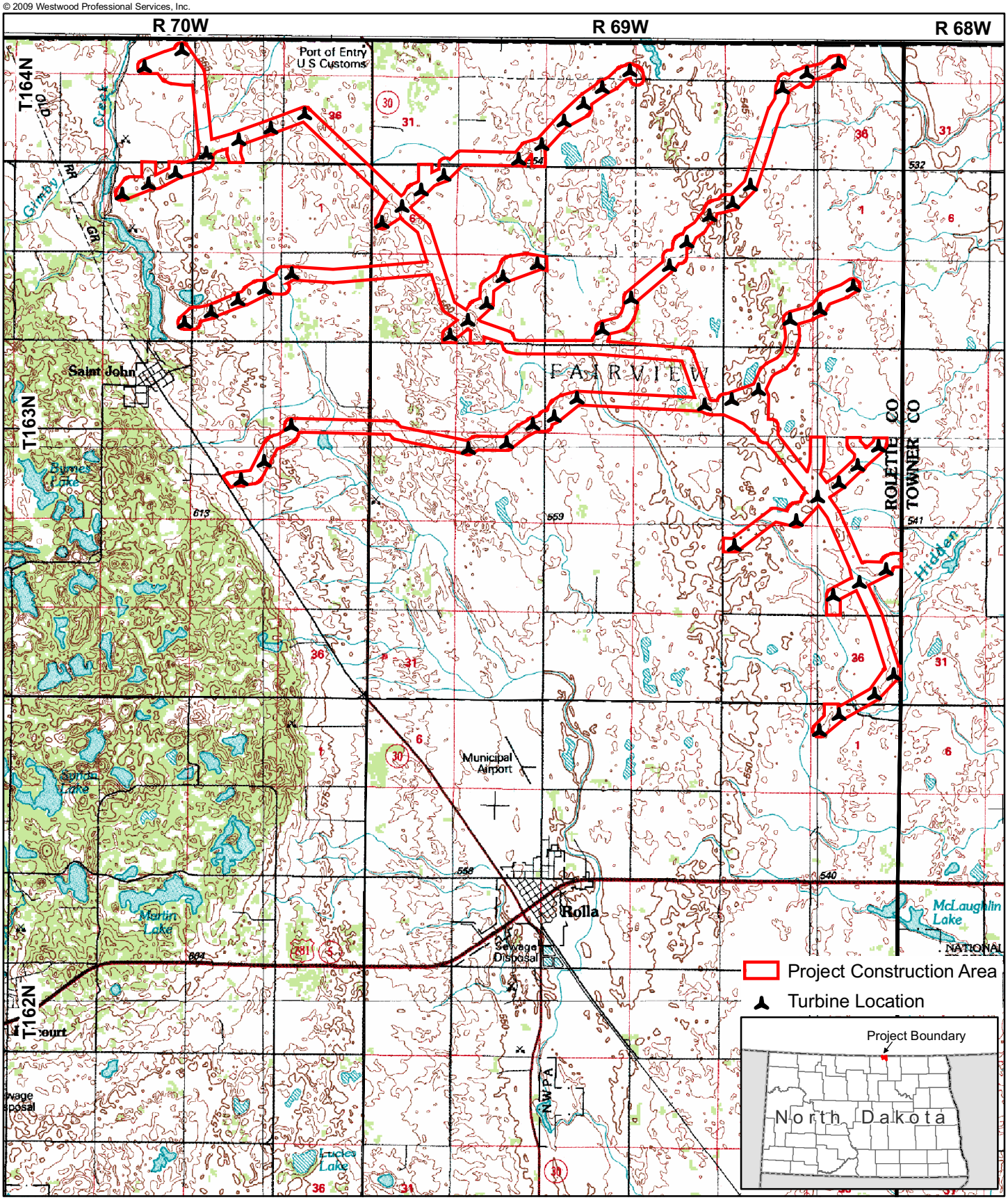
| Type and Definition | Approximate Cowardin Equivalents |
|---|---|
| **Type 1**: Seasonally flooded basin | PEMA, PFOA, PUS |
| **Type 2**: Wet meadow | PEMB |
| **Type 3**: Shallow marsh | PEMC, PEMF, PSSH, PUBA, PUBC |
| **Type 4**: Deep marsh | L2ABF, L2EMF, L2EMG, L2US, PABF, PABG, PEMG, PEMH, PUBB, PUBF |
| **Type 5**: Shallow open water | L1, L2ABG, L2ABH, L2EMA, L2EMB, L2EMH, L2RS, L2UB, PABH, PUBG, PUBH |
| **Type 6**: Shrub swamp | PSSA, PSSC, PSSF, PSSG, PSS1, PSS5, PSS6B |
| **Type 7**: Wooded swamp | PF01, PFO5, PFO6B, PFOC, PFOF |
| **Type 8**: Bog | PFO2, PFO4, PFO7B, PSS2, PSS3, PSS4, PSS7B |

**Figure 1: Wetland Classification Systems**

# Exhibits

**Border Winds Energy Project**
Rolette County, North Dakota

This page is intentionally blank.




Data Source(s): 100K USGS DRG - North Dakota State Water Commission (2002).

# Border Winds Project

Rolette County, North Dakota

## Project Location and USGS Topography

EXHIBIT 1

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

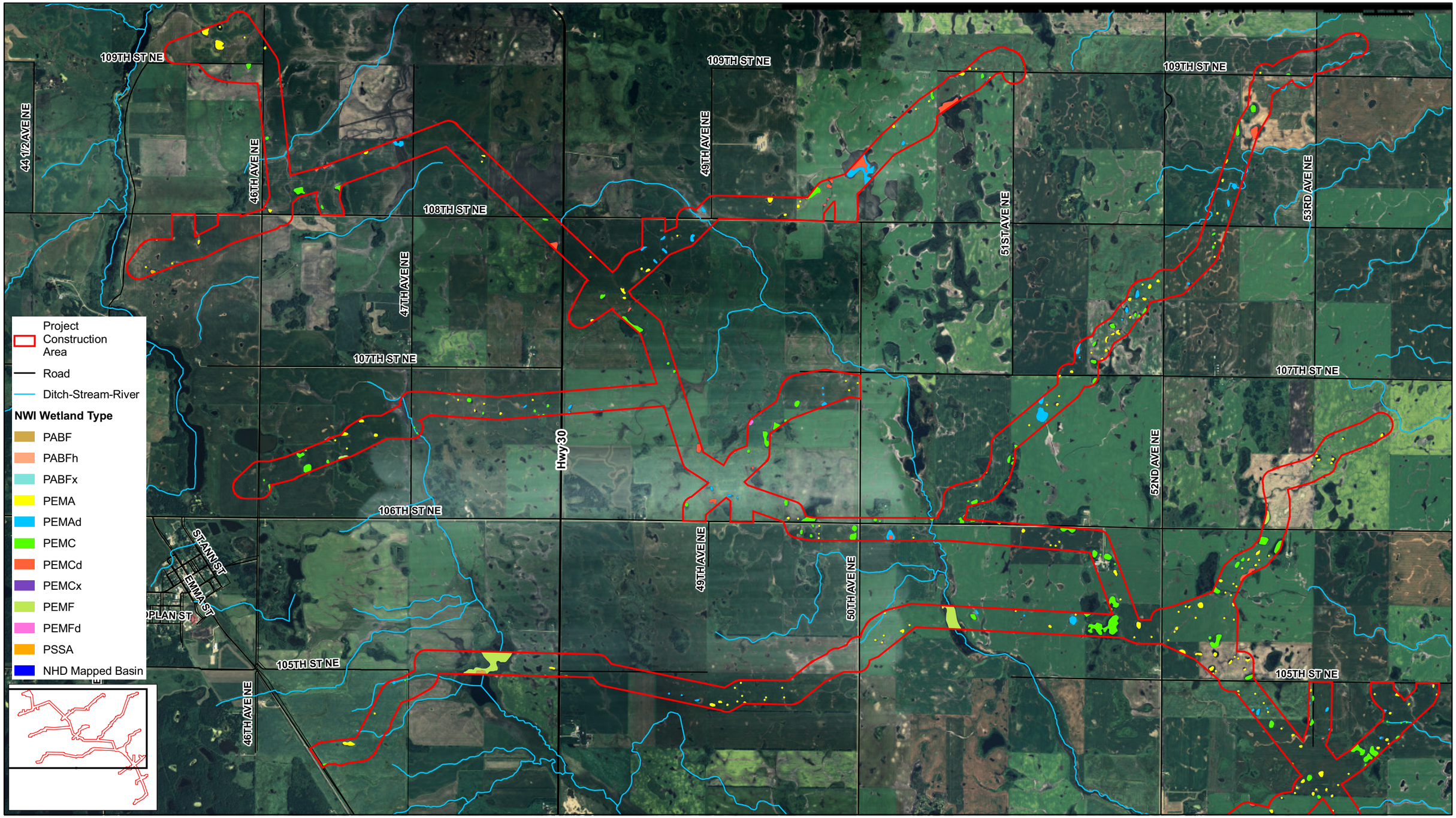
PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

N

0 Miles 1.5

Map Document: (P:\20071163\gis\WetDel\20071163drg02A.mxd)
10/13/2009 -- 1:11:03 PM




Data Source(s): US Department of Agriculture, Natural Resources Conservation Service (2007); USDA-FSA-APFO (2005); NDDOT (2005); US Fish and Wildlife Service, National Wetland Inventory (2007); USGS National Hydrography Dataset (Downloaded 2009).

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

N

0 0.6 Miles

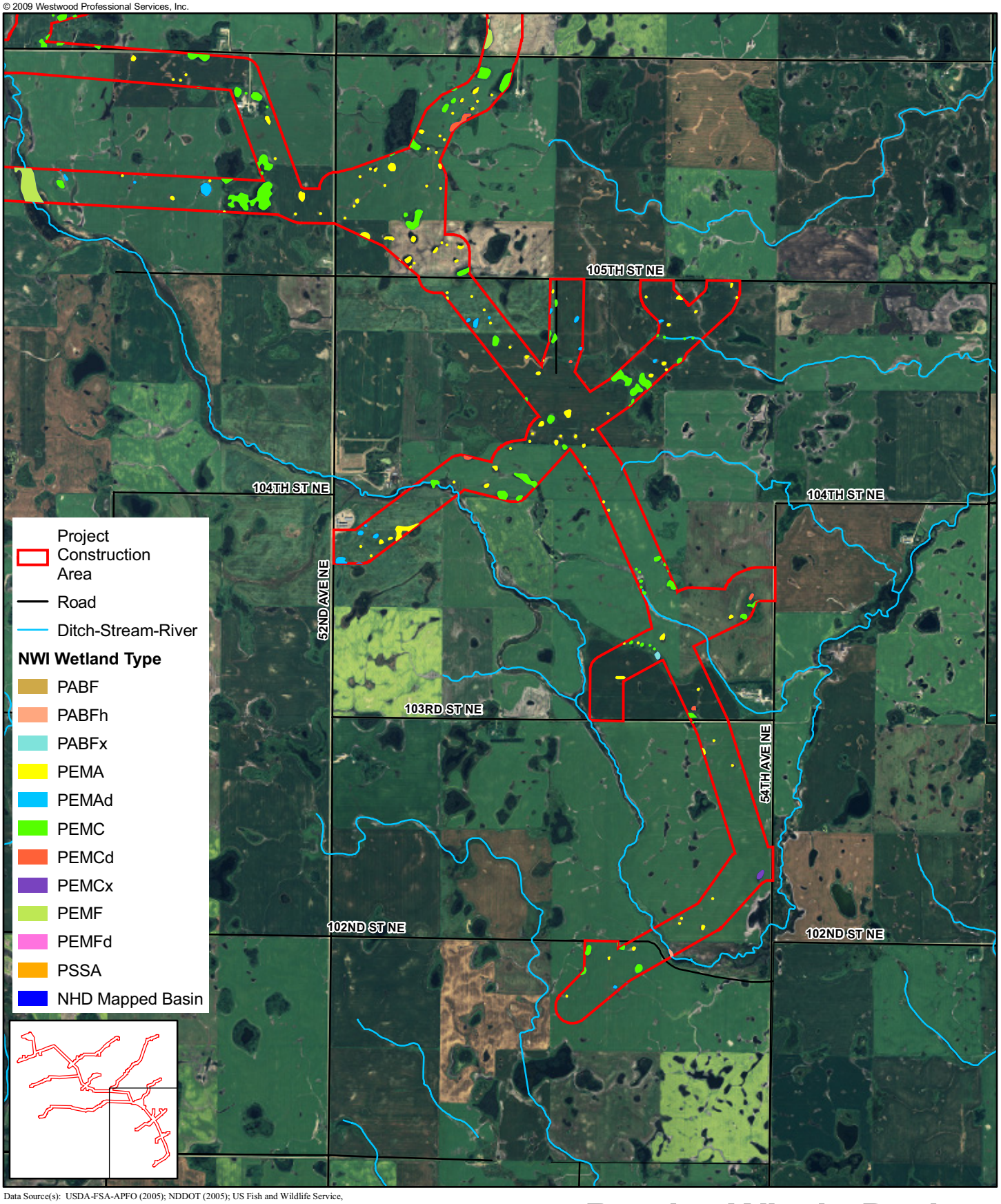
# Border Winds Project

Rolette County, North Dakota

## National Wetlands Inventory and National Hydrography Dataset

EXHIBIT 2a

Map Document: (P:\2007\1163\gis\WetDel\20071163mxd\2B.mxd)
10/15/2009 – 12:32:02 PM




Data Source(s): USDA-FSA-APFO (2005); NDDOT (2005); US Fish and Wildlife Service, National Wetland Inventory (2007); USGS National Hydrography Dataset (Downloaded 2009).

# Border Winds Project

Rolette County, North Dakota

## National Wetlands Inventory and National Hydrography Dataset

EXHIBIT 2b

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

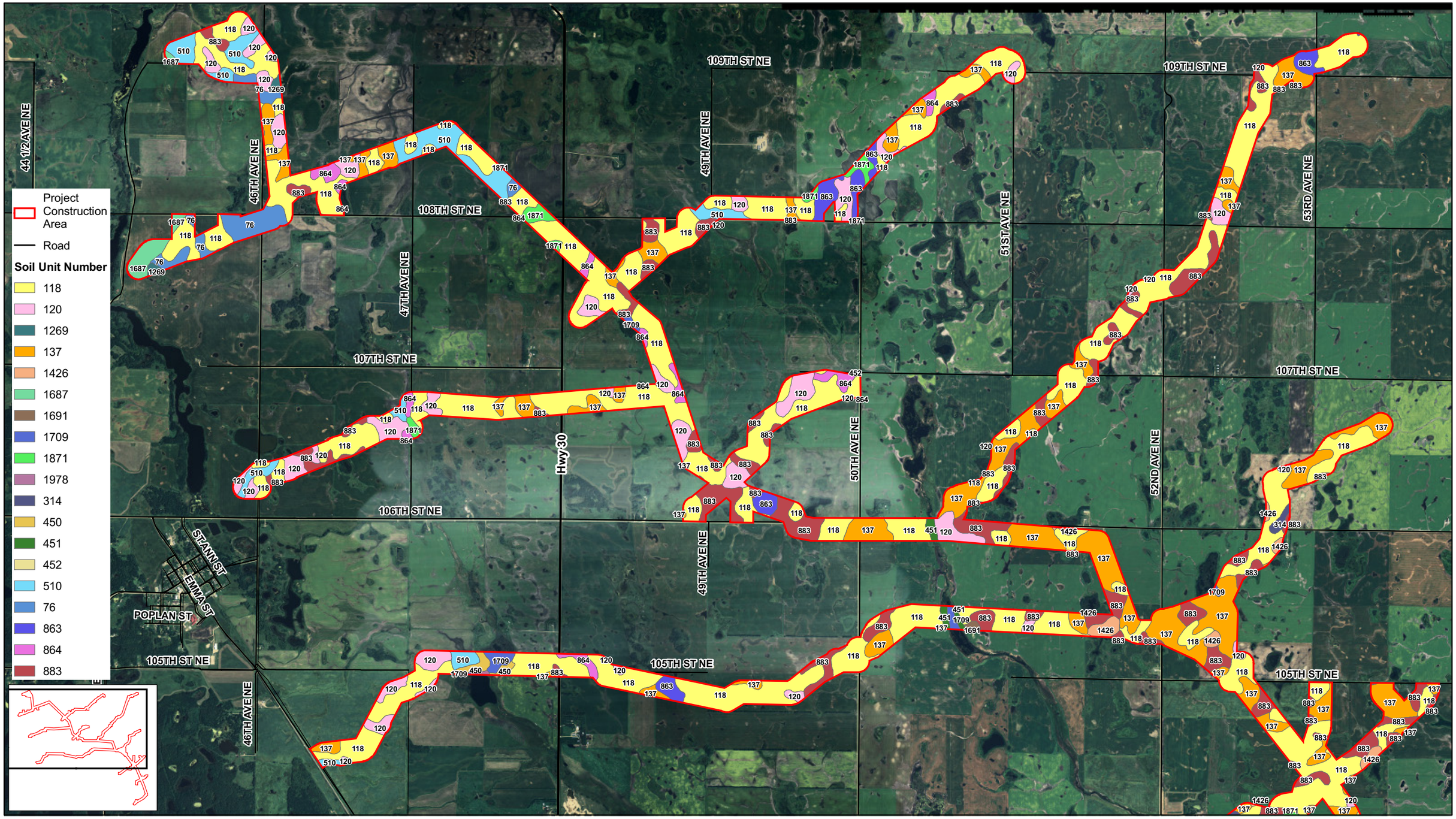
PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

N

0 0.6 Miles

Map Document: (P:\20071163\gis\WetDel\20071163nwi02A.mxd)
10/13/2009 – 1:25:45 PM




Data Source(s): US Department of Agriculture, Natural Resources Conservation Service (2007); USDA-FSA-APFO (2005); NDDOT (2005).

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

N

0 Miles 0.6

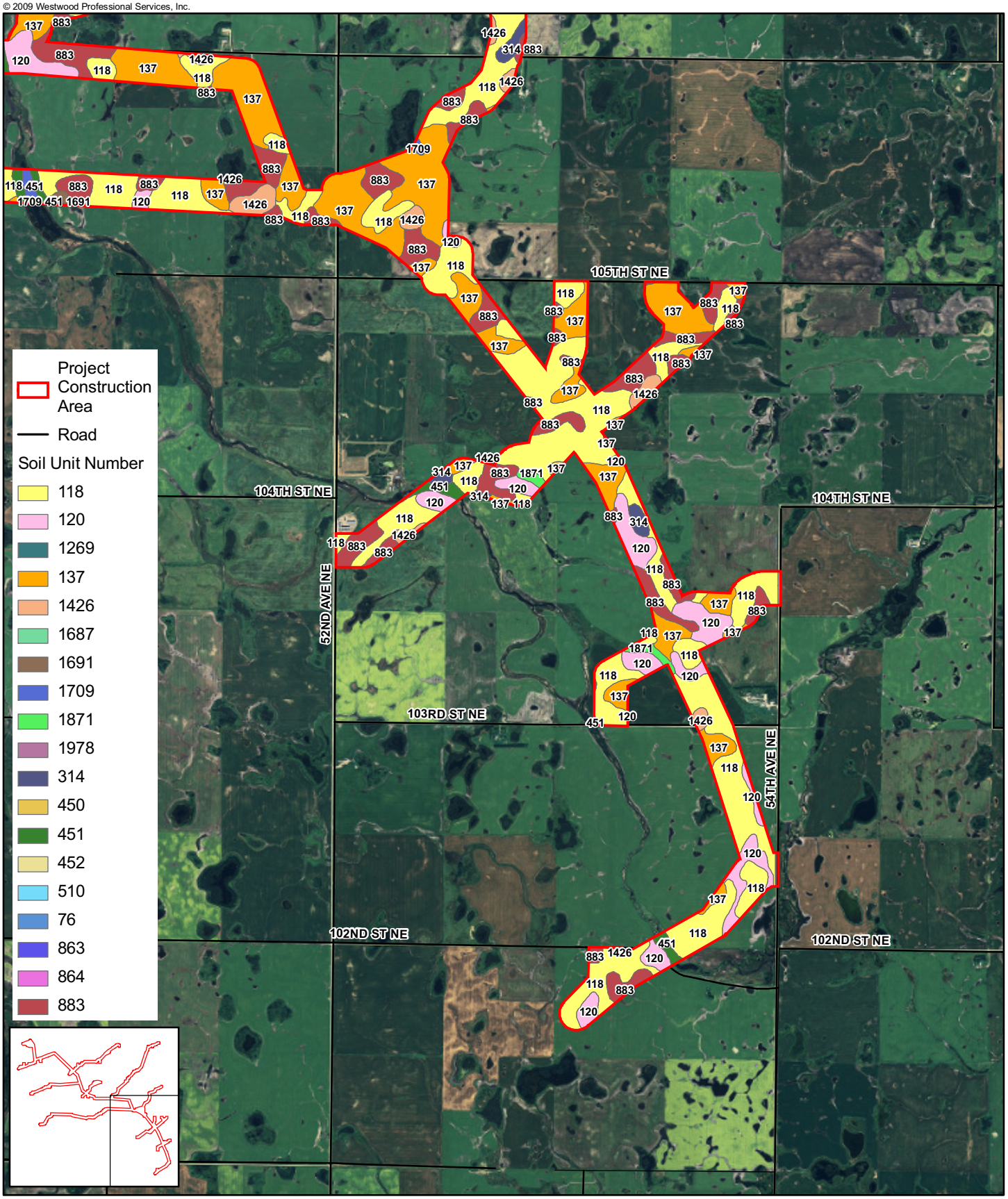
# Border Winds Project

Rolette County, North Dakota

## Soils Mapping

EXHIBIT 3a

Map Document: (P:\20071163\gis\MxdDel\20071163soil02B.mxd)
10/13/2009 – 1:48:33 PM




Data Source(s): US Department of Agriculture, Natural Resources Conservation Service (2007); USDA-FSA-APFO (2005); NDDOT (2005).

# Border Winds Project

Rolette County, North Dakota

## Soils Mapping

EXHIBIT 3b

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

N

0 0.6 Miles

Map Document: (P:\20071163\gis\WetDel\20071163soil02A.mxd)
10/13/2009 – 1:15:32 PM

109TH ST NE
108TH ST NE
107TH ST NE
106TH ST NE
105TH ST NE
44 1/2 AVE NE
45TH AVE NE
46TH AVE NE
47TH AVE NE
49TH AVE NE
50TH AVE NE
51ST AVE NE
52ND AVE NE
53RD AVE NE
Hwy 30
ST ANN ST
EMMA ST
POPLAR ST

Project Construction Area
Delineated Wetland Boundary
Road

Data Source(s): USDA-FSA-APFO (2005); NDDOT (2005); Westwood (2009).

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

N
0 0.6 Miles

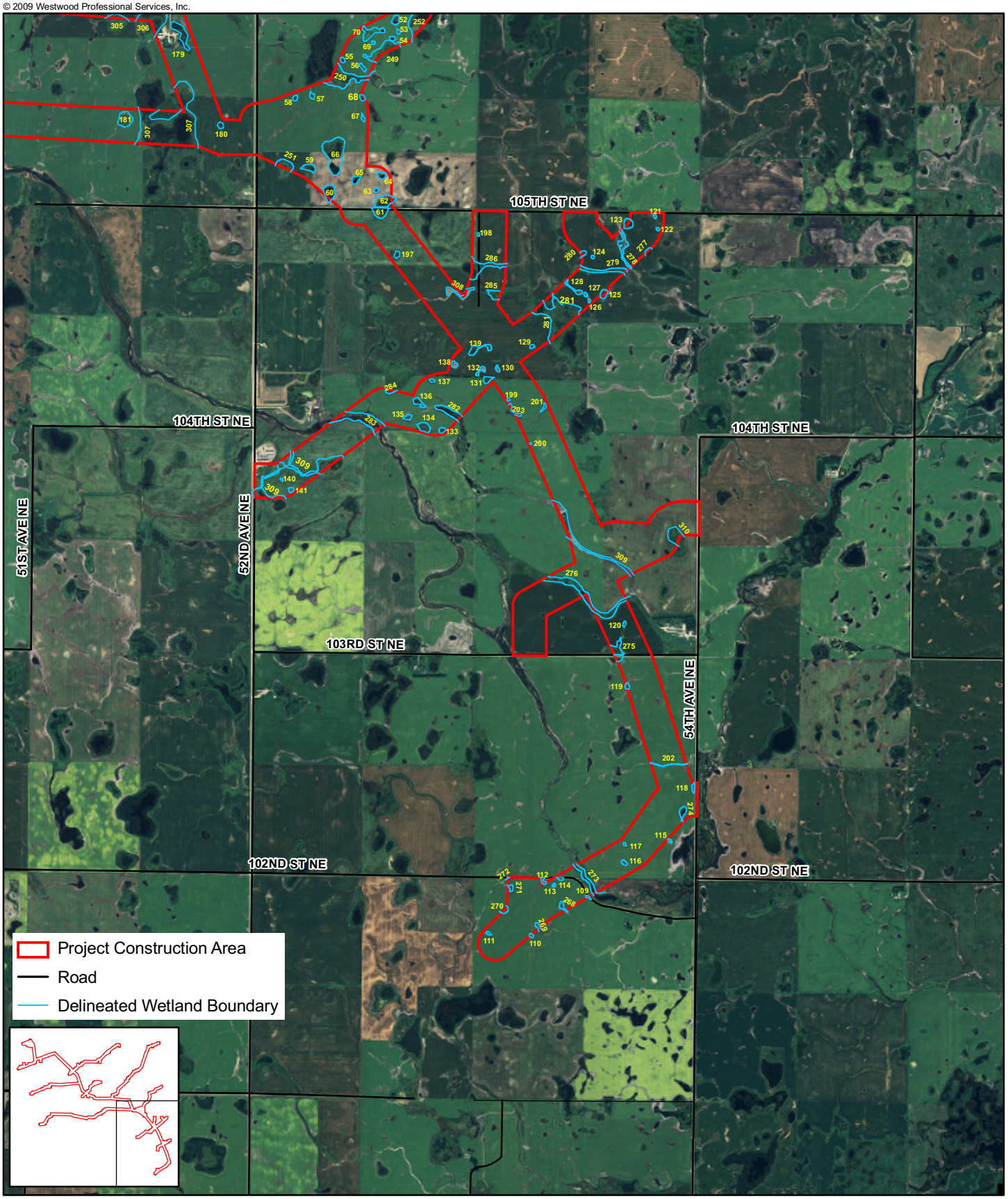
# Border Winds Project

Rolette County, North Dakota

## Delineated Wetland Boundaries

EXHIBIT 4a

Map Document: (P:\20071163\gis\WetDel\20071163wtl02B.mxd)
10/13/2009 – 12:16:40 PM




Data Source(s): USDA-FSA-APFO (2005); Westwood (2009).

# Border Winds Project

Rolette County, North Dakota

## Delineated Wetland Boundaries

EXHIBIT 4b

Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

PHONE 952-937-5150
FAX 952-937-5822
TOLL FREE 1-888-937-5150

www.westwoodps.com

N

0 0.6 Miles

Map Document: (P:\20071163\gis\WetDel\20071163wtld02A.mxd)
10/13/2009 – 1:35:01 PM

This page is intentionally blank.

# Appendix A

## Delineated Wetland Characteristics

**Border Winds Energy Project**

Rolette County, North Dakota

This page is intentionally blank.

**Delineated Wetland Characteristics**

| Wetland ID | Classification | | NHD Mapped | NWI Mapped | Connection to Navigable Water on NWI or NHD | Dominant Vegetation | |
|---|---|---|---|---|---|---|---|
| | Circular 39 | Cowardin | Yes/No | Yes/No | Yes/No | Wetland | Upland |
| 1 | Type 2 | PEMB | No | No | No | Cattail/Sedge spp. | Smooth Brome, Quackgrass |
| 2 | Type 2 | PEMB | No | No | No | Reed canary grass | Smooth Brome |
| 3 | Type 2 | PEMB | No | No | No | Reed canary grass | Smooth Brome |
| 4 | Type 2 | PEMB | No | No | No | Stunted Wheat | Smooth Brome, Quackgrass |
| 5 | Type 2 | PEMB | No | No | No | Cattail/Sedge spp. | Smooth Brome, Quackgrass |
| 6 | Type 2 | PEMB | Yes | Yes | No | Dock spp. Smooth Brome | Smooth Brome, Quackgrass |
| 7 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 8 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. Stunted wheat | Wheat |
| 9 | Type 2 | PEMB | Yes | Yes | No | Sedge spp., open water | Wheat |
| 10 | Type 2/3 | PEMB /C | No | No | No | Sedge spp., Cattail | Wheat |
| 11 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome, Quackgrass |
| 12 | Type 2/3 | PEMB /C | Yes | Yes | No | Sedge spp., Cattail | Wheat |
| 13 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Smooth Brome, Quackgrass |
| 14 | Type 3 | PEMC | Yes | Yes | Yes, NHD waterway | Cattail/Sedge spp. | Smooth Brome, Quackgrass |
| 15 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 16 | Type 3 | PEMC | Yes | Yes | No | Cattail/Sedge spp. | Smooth Brome, Quackgrass |
| 17 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Smooth Brome, Quackgrass |
| 18 | Type 3 | PEMC | No | No | No | Cattail/Sedge spp. | Smooth Brome, Poa spp. |
| 19 | Type 3 | PEMBC | No | No | No | Cattail | Smooth Brome |
| 20 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Smooth Brome |
| 21 | Type 3 | PEMC | Yes | Yes | No | Cattail/Sedge spp. | Smooth Brome, Quackgrass |
| 22 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Canola |
| 23 | Type 2/3 | PEMB /C | Yes | Yes | No | Sedge spp., Cattail | Wheat |
| 24 | Type 3 | PEMC | Yes | Yes | No | Cattail | Wheat |
| 25 | Type 2/3 | PEMB /C | Yes | Yes | No | Sedge spp., Cattail | Wheat |
| 26 | Type 2 | PEMB | No | No | No | Sedge spp. | Canola |
| 27 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 28 | Type 2 | PEMC | No | No | No | Cattail/Sedge spp. | Wheat |
| 29 | Type 2/3 | PEMB /C | No | No | No | Sedge spp., Cattail | Smooth Brome |
| 30 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Smooth Brome |
| 31 | Type 3 | PEMC | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 32 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 33 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 34 | Type 2 | PEMB | Yes | Yes | No | Spike rush | Wheat |
| 35 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Wheat |
| 36 | Type 2 | PEMB | No | No | No | Bare Ground | Wheat |
| 37 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 38 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Wheat |
| 39 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 40 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 41 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 42 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 43 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 44 | Type 2 | PEMB | Yes | Yes | No | Smartweed | Wheat |
| 45 | Type 2 | PEMB | Yes | Yes | No | Smartweed, Spikerush | Wheat |
| 46 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 47 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 48 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 49 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 50 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Smartweed, fowl bluegrass | Smooth Brome, Quackgrass |
| 51 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 52 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 53 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 54 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 55 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 56 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 57 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 58 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 59 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 60 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Canola |
| 61 | Type 2/3 | PEMB /C | Yes | Yes | No | Cattail, Sedge spp. | Smooth Brome, Quackgrass |
| 62 | Type 2/3 | PEMB /C | Yes | Yes | No | Cattail, Sedge spp. | Smooth Brome, Quackgrass |
| 63 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 64 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 65 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 66 | Type 2/3 | PEMB /C | Yes | Yes | No | Cattail, Sedge spp. | Wheat |
| 67 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 68 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 69 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 70 | Type 2/3 | PEMB /C | Yes | Yes | No | Cattail, Sedge spp. | Canola |
| 71 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 72 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 73 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 74 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 75 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 76 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 77 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 78 | Type 2/3 | PEMB /C | Yes | Yes | No | Cattail, Sedge spp. | Canola |
| 79 | Type 2 | PEMB | No | No | Yes, NHD waterway | Canada wildrye | Wheat |
| 80 | Type 2 | PEMB | No | No | Yes, NHD waterway | Canada wildrye | Wheat |

**Delineated Wetland Characteristics**

| Wetland ID | Classification | | NHD Mapped | NWI Mapped | Connection to Navigable Water on NWI or NHD | Dominant Vegetation | |
|---|---|---|---|---|---|---|---|
| | Circular 39 | Cowardin | Yes/No | Yes/No | Yes/No | Wetland | Upland |
| 81 | Type 2 | PEMB | No | No | No | Bare Ground | Wheat |
| 82 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 83 | Type 2/3 | PEMB /C | Yes | Yes | No | Cattail, spikerush | Wheat |
| 84 | Type 2/3 | PEMB /C | Yes | Yes | No | Cattail, spikerush | Wheat |
| 85 | Type 2 | PEMB | No | No | No | Millet, Common Plantain | Wheat |
| 86 | Type 2/3/4 | PEMB/C/UBF | Yes | Yes | Yes, NHD waterway | Sedge spp., Cattail | Wheat |
| 87 | Type 2 | PEMB | No | No | No | Smartweed | Canola |
| 88 | Type 2 | PEMB | Yes | Yes | No | Smartweed | Canola |
| 89 | Type 2 | PEMB | Yes | Yes | No | Smartweed | Canola |
| 90 | Type 2 | PEMB | Yes | Yes | No | Smartweed | Canola |
| 91 | Type 2 | PEMB | Yes | Yes | No | Smartweed | Canola |
| 92 | Type 2/3 | PEMB /C | Yes | Yes | No | Reed canary grass, Cattail | Canola |
| 93 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 94 | Type 2 | PEMB | Yes | Yes | No | Canola | Canola |
| 95 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 96 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 97 | Type 2/3 | PEMB /C | Yes | Yes | No | Reed canary grass, Cattail | Wheat |
| 98 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 99 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 100 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 101 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 102 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 103 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 104 | Type 2/3 | PEMB /C | Yes | Yes | No | Reed canary grass, Cattail | Canola |
| 105 | Type 2 | PEMB | Yes | Yes | No | Horsetail, Canola | Canola |
| 106 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 107 | Type 2/3/7 | PEMB/C/FOA | Yes | Yes | No | Quaking aspen, cattail, reed canary grass | Wheat |
| 108 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 109 | Type 2 | PEMB | No | Yes | No | Canola | Canola |
| 110 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 111 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 112 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 113 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 114 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 115 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 116 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 117 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 118 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 119 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 120 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 121 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 122 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 123 | Type 2 | PEMB | No | No | No | Stunted Wheat | Wheat |
| 124 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 125 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 126 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 127 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 128 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 129 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 130 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 131 | Type 2 | PEMB | Yes | Yes | No | Smartweed, Stinging Nettle | Wheat |
| 132 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 133 | Type 2 | PEMB | Yes | Yes | No | Water Plantain, smartweed | Wheat |
| 134 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 135 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 136 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 137 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Barley |
| 138 | Type 2/3 | PEMB/C | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 139 | Type 2 | PEMB | Yes | Yes | No | Sedge spp., dock | Wheat |
| 140 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 141 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 142 | Type 2/3 | PEMB/C | Yes | Yes | No | Cattail/Sedge spp. | Peas |
| 143 | Type 1 | PEMA | No | No | No | Bare Ground | Peas |
| 144 | Type 2/3 | PEMB/C | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 145 | Type 2 | PEMB | Yes | Yes | No | Water plantain/Cattail | Wheat |
| 146 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 147 | Type 2/3 | PEMB/C | Yes | Yes | No | Cattail/Water Plantain | Wheat |
| 148 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 149 | Type 2 | PEMB | No | No | No | Bare Ground | Wheat |
| 150 | Type 2/3 | PEMB/C | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 151 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |
| 152 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass, Sedge spp. | Wheat |
| 153 | Type 2 | PEMB | No | No | No | Bare Ground | Wheat |
| 154 | Type 3/6/7 | PEMC/SS1B/FOA | Yes | Yes | No | Quaking aspen, cattail, reed canary grass | Wheat |
| 155 | Type 2/3 | PEMB/C | Yes | Yes | No | Cattail/Sedge spp. | Canola |
| 156 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Sedge spp. | Smooth Brome |
| 157 | Type 2 | PEMB | No | No | No | Bare Ground | Canola |
| 158 | Type 2/3 | PEMB/C | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 159 | Type 2 | PEMB | No | No | Yes, NHD waterway | Bare Ground | Canola |
| 160 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Canola |

**Delineated Wetland Characteristics**

| Wetland ID | Classification | | NHD Mapped | NWI Mapped | Connection to Navigable Water on NWI or NHD | Dominant Vegetation | |
|---|---|---|---|---|---|---|---|
| | Circular 39 | Cowardin | Yes/No | Yes/No | Yes/No | Wetland | Upland |
| 161 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 162 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 163 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 164 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 165 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 166 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 167 | Type 2 | PEMB | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 168 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 169 | Type 2 | PEMB | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 170 | Type 2 | PEMB | Yes | Yes | No | Water plantain/Cattail | Wheat |
| 171 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 172 | Type 2 | PEMB | Yes | Yes | No | Cattail/Water Plantain | Wheat |
| 173 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 174 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 175 | Type 2 | PEMB | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 176 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 177 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass, Sedge spp. | Wheat |
| 178 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 179 | Type 2 | PEMB | Yes | Yes | No | Quaking aspen, cattail, reed canary grass | Wheat |
| 180 | Type 2 | PEMB | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 181 | Type 2 | PEMB | Yes | Yes | No | Sedge spp. | Wheat |
| 182 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 183 | Type 2 | PEMB | Yes | Yes | No | Cattail/Sedge spp. | Wheat |
| 184 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Bare Ground | Wheat |
| 185 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 186 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 187 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 188 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 189 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 190 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 191 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 192 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 193 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 194 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 195 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 196 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 197 | Type 2 | PEMB | Yes | Yes | No | Sedge spp | Smooth Brome |
| 198 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 199 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome |
| 200 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome |
| 201 | Type 2 | PEMB | Yes | Yes | No | Sedge spp | Smoothe Brome |
| 202 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 203 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 204 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 205 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 206 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 207 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Barnyard grass/Sedge | Smooth Brome |
| 208 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome |
| 209 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome |
| 210 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome |
| 211 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 212 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 213 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 214 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 215 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 216 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 217 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 218 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 219 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 220 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome |
| 221 | Type 2 | PEMB | Yes | Yes | No | Sedge spp | Smooth Brome |
| 222 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Barnyard grass/Sedge | Smooth Brome |
| 223 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome |
| 224 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Sedge spp | Smooth Brome |
| 225 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 226 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 227 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 228 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 229 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome, Quackgrass |
| 230 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 231 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 232 | Type 2 | PEMB | Yes | Yes | No | Barnyard grass/Sedge | Smooth Brome, Quackgrass |
| 233 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 234 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 235 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 236 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 237 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 238 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 239 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |

**Delineated Wetland Characteristics**

| Wetland ID | Classification | | NHD Mapped | NWI Mapped | Connection to Navigable Water on NWI or NHD | Dominant Vegetation | |
|---|---|---|---|---|---|---|---|
| | Circular 39 | Cowardin | Yes/No | Yes/No | Yes/No | Wetland | Upland |
| 240 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 241 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 242 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Stunted Wheat | Wheat |
| 243 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 244 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 245 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 246 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 247 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 248 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 249 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 250 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 251 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 252 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 253 | Type 2 | PEMB | Yes | Yes | No | Reed canary grass | Smooth Brome |
| 254 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 255 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Stunted Wheat | Wheat |
| 256 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 257 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 258 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Stunted Wheat | Wheat |
| 259 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Reed canary grass | Smooth Brome |
| 260 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 261 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 262 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 263 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 264 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 265 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 266 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 267 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 268 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 269 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 270 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 271 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 272 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 273 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 274 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Bare Ground | Wheat |
| 275 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 276 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 277 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 278 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 279 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Bare Ground | Wheat |
| 280 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 281 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 282 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 283 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Stunted Wheat | Wheat |
| 284 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 285 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 286 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 287 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 288 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 289 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Stunted Wheat | Wheat |
| 290 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 291 | Type 2 | PEMB | Yes | Yes | No | Sedge spp | Smooth Brome |
| 292 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 293 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 294 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 295 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 296 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 297 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 298 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 299 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 300 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 301 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Bare Ground | Wheat |
| 302 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 303 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 304 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 305 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 306 | Type 2 | PEMB | Yes | Yes | Yes, NHD waterway | Stunted Wheat | Wheat |
| 307 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 308 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 309 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 310 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 311 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 312 | Type 2 | PEMB | Yes | Yes | No | Stunted Wheat | Wheat |
| 313 | Type 2 | PEMB | Yes | Yes | No | Bare Ground | Wheat |
| 314 | Type 2 | PEMB | Yes | Yes | No | Peas | Peas |
| 315 | Type 2 | PEMB | Yes | Yes | No | Barley | Barley |
| 316 | Type 2 | PEMB | Yes | Yes | No | Canola | Canola |
| 317 | Type 2 | PEMB | Yes | Yes | No | Canola | Canola |

# Appendix B

## Wetland Delineation Data Forms

**Border Winds Energy Project**

Rolette County, North Dakota

This page is intentionally blank.

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-16-09

Applicant/Owner: State: ND Sampling Point: Wet B

Investigator(s): Section, Township, Range: 21

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

Subregion (LRR): Lat: 5421088.56 Long: 455963.42 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes X | No ____ | Is the Sampled Area within a Wetland? Yes X No ____ |
| Hydric Soil Present? | Yes X | No ____ | |
| Wetland Hydrology Present? | Yes X | No ____ | |

Remarks:

Type 2/3/4 wetland

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Cattail | 40 | | |
| 2. Sedge sp. | 10 | | |
| 3. Water plaintain | 10 | | |
| 4. Curly dock | 10 | | |
| 5. Wheat | 10 | | |
| 6. millet | 10 | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum ____

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ 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 X No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | Matrix % | Redox Features Color (moist) | Redox Features % | Redox Features Type[1] | Redox Features Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-32 | 10YR 2/1 | | | | | | Muck | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ✓ No ___

**Remarks:**

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

Surface Water Present? Yes ✓ No ___ Depth (inches): 0.0

Water Table Present? Yes ✓ No ___ Depth (inches): 0.0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0.0

**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: Border Winds City/County: Rolette Sampling Date: 07-16-09

Applicant/Owner: State: ND Sampling Point: Wet B-up

Investigator(s): Section, Township, Range: 21

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

Subregion (LRR): Lat: 5421088.56 Long: 455963.42 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No ✓ | Is the Sampled Area within a Wetland? Yes No ✓ |
| Hydric Soil Present? | Yes | No ✓ | |
| Wetland Hydrology Present? | Yes | No ✓ | |

Remarks:

Upland Sample Point

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. Wheat | 50 | | |
| 2. annual Wormwood | 10 | | |
| 3. Bare Ground | 40 | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum 40

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ✓

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-16 | 10YR 4/2 | | | | | | loam | |
| 16-32 | 10YR 3/1 | | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ____ No X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

Saturation Present? (Includes capillary fringe) Yes ____ No X Depth (inches): _____

**Wetland Hydrology Present?** Yes ____ No X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-16-09

Applicant/Owner: State: ND Sampling Point: wetk

Investigator(s): Section, Township, Range: 18

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

Subregion (LRR): Lat: 54 20 550 - 10 Long: 45 2 550 - 20 Datum: NAD 83 1420 m

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes A No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes A 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 A | No | Is the Sampled Area within a Wetland? Yes A No |
| Hydric Soil Present? | Yes A | No | |
| Wetland Hydrology Present? | Yes A | No | |

Remarks:

Type 2 wetland

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. millet | 30 | | |
| 2. Smartweed | 30 | | |
| 3. BG | 30 | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum 30

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-14 | 10YR 2/1 | | | | | | Mucky loam | |
| 14-30 | 10YR 2/1 | | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No _____

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes ___ No ___ Depth (inches): 30

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: Border Winds City/County: Rolette Sampling Date: 07-16-09

Applicant/Owner: State: ND Sampling Point: wetk-up

Investigator(s): Section, Township, Range: 18

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

Subregion (LRR): Lat: 54 20 550 -10 Long: 452550.20 Datum: NAD83 NAVM

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ No X | |
| Wetland Hydrology Present? | Yes ____ No X | |

Remarks:

Upland Sample point

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Wheat | 50 | | |
| 2. BG | 50 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 50

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-20 | 10YR 3/2 | | | | | | loam | |
| 20-30 | 10YR 4/2 | | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No ✓

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes _____ No ✓ Depth (inches): >60

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: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Wet 5

Investigator(s): Section, Township, Range: 35

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

Subregion (LRR): Lat: 5426660.28 Long: 4498857.95 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes | No | Is the Sampled Area within a Wetland? Yes No |
| Hydric Soil Present? | Yes | No | |
| Wetland Hydrology Present? | Yes | No | |

Remarks:

Type 2 wetland

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: )** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum (Plot size: )** | | | |
| 1. Horsetail | 60 | | |
| 2. Juncus spp | 40 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum (Plot size: )** | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes No

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-26 | 10YR 2/1 | | | | | | Muck | |
| 26-33 | 10YR 4/1 | | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes X No ___

**Remarks:**

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes X No ___ Depth (inches): 11.0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 11.0

**Wetland Hydrology Present?** Yes X No ___

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

**Remarks:**

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Wet Jap

Investigator(s): MCV Section, Township, Range: 35

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

Subregion (LRR): Lat: 542660.28 Long: 498857.99 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:

Uplant Sample point

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| Herb Stratum (Plot size: ____) | | | |
| 1. Mustard | 50 | | |
| 2. Bare ground | 50 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| Woody Vine Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 50

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No X

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-33 | 10YR 3/2 | | | | | | Clay loam | Tilled |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No X

**Remarks:**

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes _____ No X

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

**Remarks:**

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: F-W

Investigator(s): MCV Section, Township, Range: 27

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

Subregion (LRR): Lat: 5427383.32 Long: 448292.31 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No | Is the Sampled Area within a Wetland? Yes X No |
| Hydric Soil Present? | Yes X No | |
| Wetland Hydrology Present? | Yes X No | |

Remarks:

Type 2/3 wetland

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. Water Plaintain | 40 | | |
| 2. Smartweed | 40 | | |
| 3. Horsetail | 10 | | |
| 4. Wheat | 10 | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ 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 X No

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-36 | 10YR 2/1 | | | | | | Muck | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes X No ___

**Remarks:**

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

Surface Water Present? Yes X No ___ Depth (inches): 6.0

Water Table Present? Yes X No ___ Depth (inches): 0.0

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

**Wetland Hydrology Present?** Yes X No ___

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

**Remarks:**

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: F-up

Investigator(s): Section, Township, Range: 27

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

Subregion (LRR): Lat: 54 27 383.32 Long: 44 8292.31 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes Q No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No A | Is the Sampled Area within a Wetland? Yes ____ No A |
| Hydric Soil Present? | Yes ____ | No Q | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:

Upland Sample Point

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Wheat | 30 | | |
| 2. Bare ground | 30 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum ____

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No A

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-32 | 10YR 4/3 | | | | | | loam | Tilled |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No _____

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes ___ No ___ Depth (inches): 32"

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: Border Winds City/County: Rolette Sampling Date: _____

Applicant/Owner: _____ State: ND Sampling Point: Wet N

Investigator(s): mcv Section, Township, Range: 3

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

Subregion (LRR): _____ Lat: 5424745.42 Long: 4447611.14 Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes A No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes A 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 A No _____ | Is the Sampled Area within a Wetland? Yes A No _____ |
| Hydric Soil Present? | Yes A No _____ | |
| Wetland Hydrology Present? | Yes A No _____ | |

Remarks:

Type 2 wetland

### VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: _____) | | | |
| 1. _____ | | | |
| 2. _____ | | | |
| 3. _____ | | | |
| 4. _____ | | | |
| | _____ = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: _____) | | | |
| 1. _____ | | | |
| 2. _____ | | | |
| 3. _____ | | | |
| 4. _____ | | | |
| 5. _____ | | | |
| | _____ = Total Cover | | |
| Herb Stratum (Plot size: _____) | | | |
| 1. Red Canary Grass | 60 | | |
| 2. Juncus spp | 20 | | |
| 3. Carex spp | 10 | | |
| 4. _____ | | | |
| 5. _____ | | | |
| 6. _____ | | | |
| 7. _____ | | | |
| 8. _____ | | | |
| 9. _____ | | | |
| 10. _____ | | | |
| | _____ = Total Cover | | |
| Woody Vine Stratum (Plot size: _____) | | | |
| 1. _____ | | | |
| 2. _____ | | | |
| | _____ = Total Cover | | |

% Bare Ground in Herb Stratum _____

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ 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 A No _____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-36 | 10YR 2/1 | | | | | | Muck | loam |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes A No _____

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes X No _____

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Wet N UP

Investigator(s): Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ | No ____ | |
| Wetland Hydrology Present? | Yes ____ | No ____ | |

Remarks:

UP land Sample point

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Barley | 50 | | |
| 2. Bare ground | 50 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum ____

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-32 | 10YR 2/2 | | | | | | loam | Tilled |
| 32-36 | 10YR 4/1 | | | | | | loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes _____ No X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Wet O

Investigator(s): MCY Section, Township, Range: 35

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

Subregion (LRR): Lat: 5425389.59 Long: 4493166.24 Datum: _____

Soil Map Unit Name: NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X | No _____ | Is the Sampled Area within a Wetland? Yes X No _____ |
| Hydric Soil Present? | Yes X | No _____ | |
| Wetland Hydrology Present? | Yes X | No _____ | |

Remarks:

Type 2 wetland

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: _____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | _____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: _____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | _____ = Total Cover | | |
| **Herb Stratum** (Plot size: _____) | | | |
| 1. Bare ground | 100 | | |
| 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 100

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = _____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes _____ No _____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-33 | 10YR 3/1 | | | | | | Mucky loam | Tilled |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ✓ No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes ✓ No ___ Depth (inches): 6.0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 5.0

**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: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Let 0 UP

Investigator(s): Section, Township, Range:

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

Subregion (LRR): Lat: Long: Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No | Is the Sampled Area within a Wetland? Yes ____ No |
| Hydric Soil Present? | Yes ____ No | |
| Wetland Hydrology Present? | Yes ____ No | |

Remarks:

Upland Sample point

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Mustard | 50 | | |
| 2. Bare Ground | 30 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 30

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-26 | 10YR 4/2 | | | | | | loam | Till |
| 26-30 | 10YR 7/2 | | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes _____ No X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Wet P

Investigator(s): Section, Township, Range: 35

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

Subregion (LRR): Lat: 5425610.25 Long: 449172.15 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No | Is the Sampled Area within a Wetland? Yes X No |
| Hydric Soil Present? | Yes X No | |
| Wetland Hydrology Present? | Yes X No | |

Remarks:

Type 2/3/6/7 wetland

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. Quaking Aspen | 35 | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ) | | | |
| 1. willow shrubs | 30 | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. Reed Canary Grass | 60 | | |
| 2. Sedge spp | 15 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-33 | 10YR 3/1 | | | | | | Muck | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (If present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes X No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

Surface Water Present? Yes X No ___ Depth (inches): 6.0

Water Table Present? Yes X No ___ Depth (inches): 0.0

Saturation Present? (includes capillary fringe) Yes X No ___ Depth (inches): 0.0

**Wetland Hydrology Present?** Yes X No ___

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Lot 9 up

Investigator(s): Section, Township, Range: 35

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

Subregion (LRR): Lat: 5425616.25 Long: 449172.15 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Mustard | 80 | | |
| 2. Bare Ground | 40 | | |
| 3. Annual Wormwood | 10 | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum ____

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-33 | 10YR 4/3 | | | | | | loam | T.Hd |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No X

**Remarks:**

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes ___ No X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Wet R

Investigator(s): Section, Township, Range: 35

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

Subregion (LRR): Lat: 5425424.75 Long: 449571.44 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X | No | Is the Sampled Area within a Wetland? Yes X No |
| Hydric Soil Present? | Yes X | No | |
| Wetland Hydrology Present? | Yes | No | |

Remarks: Type 2/3 wetland

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: )** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum (Plot size: )** | | | |
| 1. Cattail | 60 | | |
| 2. Bare ground | 30 | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum (Plot size: )** | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum 50

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-36 | 10YR 2/1 | | | | | | Muck | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ✓ No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes ✓ No ___ Depth (inches): 6.0

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0.0

**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: Border Wind City/County: Rolette Sampling Date: 07-13-09

Applicant/Owner: State: ND Sampling Point: Wet Rep

Investigator(s): Section, Township, Range: 35-

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

Subregion (LRR): Lat: 5425424.75 Long: 4495571.44 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes Q No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes P No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No P | Is the Sampled Area within a Wetland? Yes ____ No P |
| Hydric Soil Present? | Yes ____ | No P | |
| Wetland Hydrology Present? | Yes ____ | No P | |

Remarks:

Upland Sample Point

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| Sapling/Shrub Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| Herb Stratum (Plot size: ____) | | | |
| 1. Mustard | 50 | | |
| 2. Oats | 20 | | |
| 3. Bare Ground | 30 | | |
| 4. | | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| Woody Vine Stratum (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum 30

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-26 | 10YR 7/3 | | | | | | Sandy loam | |
| 26-32 | 10YR 6/1 | | | | | | Clay loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No X

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

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

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

**Wetland Hydrology Present?** Yes _____ No X

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-16-09

Applicant/Owner: State: ND Sampling Point: Wet V

Investigator(s): Section, Township, Range:

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

Subregion (LRR): Lat: 5420499.43 Long: 456337.97 Datum: NAD 83 zone

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No | Is the Sampled Area within a Wetland? Yes X No |
| Hydric Soil Present? | Yes X No | |
| Wetland Hydrology Present? | Yes X No | |

Remarks:

Type 2 wetland

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum (Plot size: )** | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum (Plot size: )** | | | |
| 1. Kentucky Blue grass | 50 | | |
| 2. Sedge spp | 20 | | |
| 3. Pinkweed | 20 | | |
| 4. Prairie lily | 10 | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum (Plot size: )** | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-20 | 10YR 3/1 | | | | | | Mucky loam | |
| 20-36 | 10YR 7/2 | | 10YR 5/8 | | | | loam | Mottled |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes ☒ No ___ Depth (inches): 14.0

Saturation Present? (includes capillary fringe) Yes ___ No ☒ Depth (inches): 14.0

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: Border Winds City/County: Rolette Sampling Date: 07-16-09

Applicant/Owner: State: ND Sampling Point: Not V up

Investigator(s): Section, Township, Range:

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

Subregion (LRR): Lat: 5920499.43 Long: 450337.47 Datum:

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | |
|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ No X | |
| Wetland Hydrology Present? | Yes ____ No X | |

Remarks:

Upland Sample point

## VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Kentucky Blue grass | 40 | | |
| 2. Smooth Brome | 30 | | |
| 3. Black eyed susan | 20 | | |
| 4. Yellow Clover | 10 | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | = Total Cover | | |

% Bare Ground in Herb Stratum ____

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

## SOIL

Sampling Point: _____

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-17 | 10YR 2/2 | | | | | | loam | |
| 17-30 | 10YR 7/2 | | | | | | loam | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes _____ No X

**Remarks:**

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes _____ No X Depth (inches): 30

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

**Wetland Hydrology Present?** Yes _____ No X

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

**Remarks:**

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 7-15-09

Applicant/Owner: State: ND Sampling Point: W-QQ

Investigator(s): MCV Section, Township, Range: 26

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

Subregion (LRR): Lat: 541846.3.93 Long: 455461.55 Datum: NAD 83 2 14 N M.

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X 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 X No | Is the Sampled Area within a Wetland? Yes X No |
| Hydric Soil Present? | Yes X No | |
| Wetland Hydrology Present? | Yes X No | |

Remarks:

Type 2 wetland

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. NA | | | |
| 4. | | | |
| = Total Cover | | | |
| **Sapling/Shrub Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. | | | |
| 3. NA | | | |
| 4. | | | |
| 5. | | | |
| = Total Cover | | | |
| **Herb Stratum** (Plot size: ) | | | |
| 1. Kentucky Blue grass | 25 | | |
| 2. Curly dock | 25 | | |
| 3. Smart weed | 25 | | |
| 4. Sedge sp | 20 | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| = Total Cover | | | |
| **Woody Vine Stratum** (Plot size: ) | | | |
| 1. | | | |
| 2. NA | | | |
| = Total Cover | | | |

% Bare Ground in Herb Stratum

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A =

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ 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 X No

Remarks:

Sampling Point: W-9a

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-30 | 10YR 2/1 | | | | | | Mucky loam | Mottles |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: ___

Depth (inches): ___

**Hydric Soil Present?** Yes ___ No ___

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

Surface Water Present? Yes ___ No 4 Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No 4 Depth (inches): ___

**Wetland Hydrology Present?** Yes X No ___

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

Remarks:

## WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Border Winds City/County: Rolette Sampling Date: 07-15-09

Applicant/Owner: ____ State: ND Sampling Point: QQ-U

Investigator(s): mcv Section, Township, Range: 16

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

Subregion (LRR): ____ Lat: 54 184 63 . 93 Long: 4158461.55 Datum: NAD83 214 N m.

Soil Map Unit Name: ____ NWI classification: ____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ____ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

| | | | |
|---|---|---|---|
| Hydrophytic Vegetation Present? | Yes ____ | No X | Is the Sampled Area within a Wetland? Yes ____ No X |
| Hydric Soil Present? | Yes ____ | No X | |
| Wetland Hydrology Present? | Yes ____ | No X | |

Remarks:

Upland Sample point

### VEGETATION – Use scientific names of plants.

| Tree Stratum (Plot size: ____) | Absolute % Cover | Dominant Species? | Indicator Status |
|---|---|---|---|
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| | ____ = Total Cover | | |
| **Sapling/Shrub Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| 3. | | | |
| 4. | | | |
| 5. | | | |
| | ____ = Total Cover | | |
| **Herb Stratum** (Plot size: ____) | | | |
| 1. Smooth Brome | 60 | | |
| 2. Kentucky Blue grass | 20 | | |
| 3. Dandelion | 10 | | |
| 4. annual wormwood | 5 | | |
| 5. | | | |
| 6. | | | |
| 7. | | | |
| 8. | | | |
| 9. | | | |
| 10. | | | |
| | ____ = Total Cover | | |
| **Woody Vine Stratum** (Plot size: ____) | | | |
| 1. | | | |
| 2. | | | |
| | ____ = Total Cover | | |

% Bare Ground in Herb Stratum ____

**Dominance Test worksheet:**

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

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

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

**Prevalence Index worksheet:**

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

Prevalence Index = B/A = ____

**Hydrophytic Vegetation Indicators:**

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

**Hydrophytic Vegetation Present?** Yes ____ No ____

Remarks:

Sampling Point: _____

## SOIL

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type[1] | Loc[2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0-32 | 10YR 3/3 | | | | | | loam | Frost T. Hvd |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

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

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

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

**Indicators for Problematic Hydric Soils[3]:**

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

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

**Restrictive Layer (if present):**

Type: _____

Depth (inches): _____

**Hydric Soil Present?** Yes ____ No 1

Remarks:

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (minimum of two required)

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

**Field Observations:**

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

Water Table Present? Yes ____ No 1 Depth (inches): 7 3/4"

Saturation Present? (includes capillary fringe) Yes ____ No 1 Depth (inches): _____

**Wetland Hydrology Present?** Yes ____ No 1

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

Remarks: