EXHIBIT 10

U.S. Army Corps of Engineers Correspondence and Wetland Delineation Report

This page intentionally left blank.

November 29, 2011

Jason Renschler
U.S. Army Corps of Engineers, Bismarck District
Regulatory Office
1513 South 12th Street
Bismarck, North Dakota 58504

RE: Request for Jurisdictional Determination and Regulatory Concurrence for New Frontier Wind Project, McHenry County, ND.

To Mr. Renschler:

HDR Engineering, Inc. (HDR) is seeking a jurisdictional determination for wetlands and streams/drainages inside the project area for the New Frontier Wind Project (Project) being proposed by Meadowlark Wind I, LLC, a wholly owned subsidiary of Element Power US, Inc. The project is located in McHenry County, ND (Figure 1). An approximately 50 square mile Project Area has been identified within which up to 62 wind turbines, a utility collection system, operations facility, substation, and access roads would be placed. The Project would be up to approximately 99 megawatts (MW) and use wind turbines between 1.6 MW and 2.3 MW in generation capacity. Additional project infrastructure includes a 115 kilovolt (kV) overhead transmission line, utility collection system, operation and maintenance facility, substation, and access roads.

To aid in the jurisdictional determination, HDR is providing the US Army Corps of Engineers (USACE) with maps of wetlands and streams/drainages inside the proposed Project Area. Figure 1 provides an overview of the Project Area, and Figure 2 provides a map of surface waters in the Project Area. Figures 3 through 18 show the proposed impact areas to wetlands and waters of the U.S. We are also providing informational tables (Attachment A) for areas delineated during the October 2011 wetland delineation site visit. The delineation report is included as Attachment B. As part of the wetland report, we have included our initial estimated determination of jurisdictional status based on the guidance provided during previous discussions with the USACE Bismarck office, but request confirmation that the USACE is in concurrence with our initial determinations.

Meadowlark Wind I has minimized impacts to wetlands and waters, both that appear jurisdictional and appear non-jurisdictional, to the extent practicable. Proposed impacts under the current layout are shown in Attachment A. Permanent impacts to wetlands and waters of the U.S. resulting from proposed turbines and overhead transmission pole structures have been completely avoided. To minimize wetland impacts, the project has routed access roads to avoid wetlands where practicable and will keep temporary road width to the minimum width necessary (40 feet) in the vicinity of wetland areas. Access roads will be

HDR Engineering, Inc.
701 Xenia Avenue South
Minneapolis, MN 55416-3636
Phone (763) 591-5400
Fax (763) 591-5413
www.hdrinc.com

narrowed to 16-18 feet once construction is completed and access roads are made permanent; at this point, all temporary fill will be removed from wetland areas. Temporary and permanent impacts to wetlands from access roads have been minimized but cannot be avoided in four cases for permanent impacts. Temporary impacts will also occur at each of the four locations. Of these instances, all are located in wetlands that our preliminary field review have determined to be non-jurisdictional. Temporary impacts from buried underground cabling have been minimized but cannot be avoided in thirteen cases. All of the proposed wetland impacts have been kept below $1/10^{th}$ of an acre in all instance except one (Wetland D5-1) with an impact of exactly $1/10^{th}$ of an acre (i.e. 0.1003 acres) and is temporary impact from underground cabling. Of the proposed impacts, only one (Wetland D4-3b) is located in a wetland that our preliminary field review determined to be jurisdictional. The proposed impact at this location is 0.085 acres.

Since permanent wetland impacts from the project are below $1/10^{th}$ of an acre in all cases, pre-construction notification (PCN) under nationwide permits (NWP) 12 and 14 is typically not required. However, a proposed rule change which will take effect in March 2012 under the new proposed NWP A may require that any impacts from a wind project will require a PCN and possibly a permit application. Since the project may be under construction during 2012 when the rule change will take effect, we request written concurrence from the USACE Bismarck office that proposed wetland impacts generated by the project do not require PCN approval under the current rules and that new NWP A rules that will take effect in 2012 will not change the reporting requirements for the project if construction is completed by March 2013.

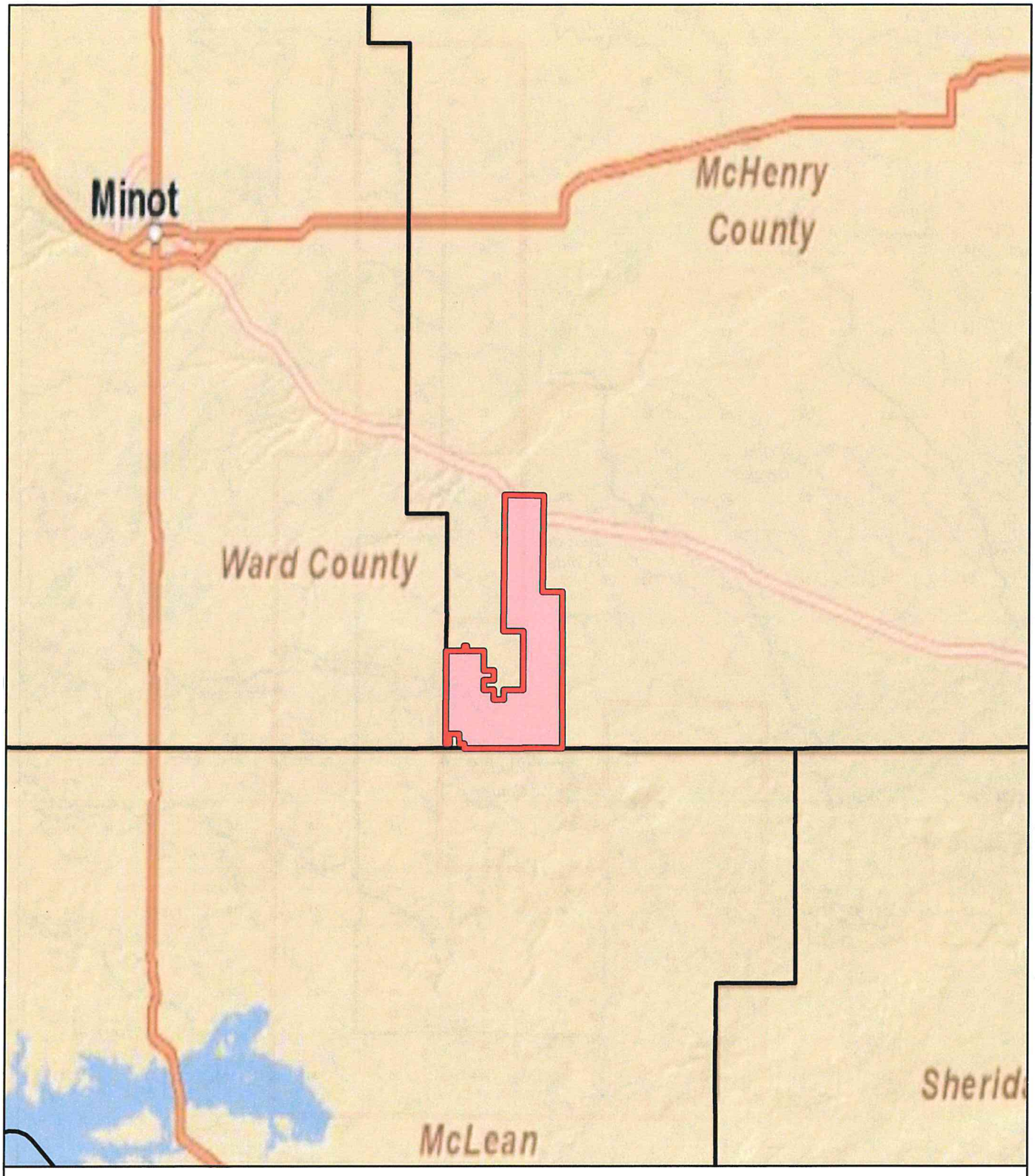
We appreciate any regulatory clarification that the USACE can provide to this project. Please contact me at 763-278-5925 if you have any questions. Thank you for your assistance.

Sincerely,
HDR Engineering, Inc.

Bruce Moreira
Environmental Scientist

Attachments: Figure 1 Project Location
Figure 2 Surface Waters
Figures 3-18 Impact Detail Figures
Attachment A – Wetland/WUS Impact Tables
Attachment B - Wetland Delineation Report

cc: Scott Koziar, Element Power
Todd Mattson, Element Power



Project Area

Figure 1 Project Vicinity

USACE Wetlands Impact Review
New Frontier Wind Project
McHenry County, ND

N

0 2.5 5 10 Miles

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Project Location USACE Fig 1.mxd

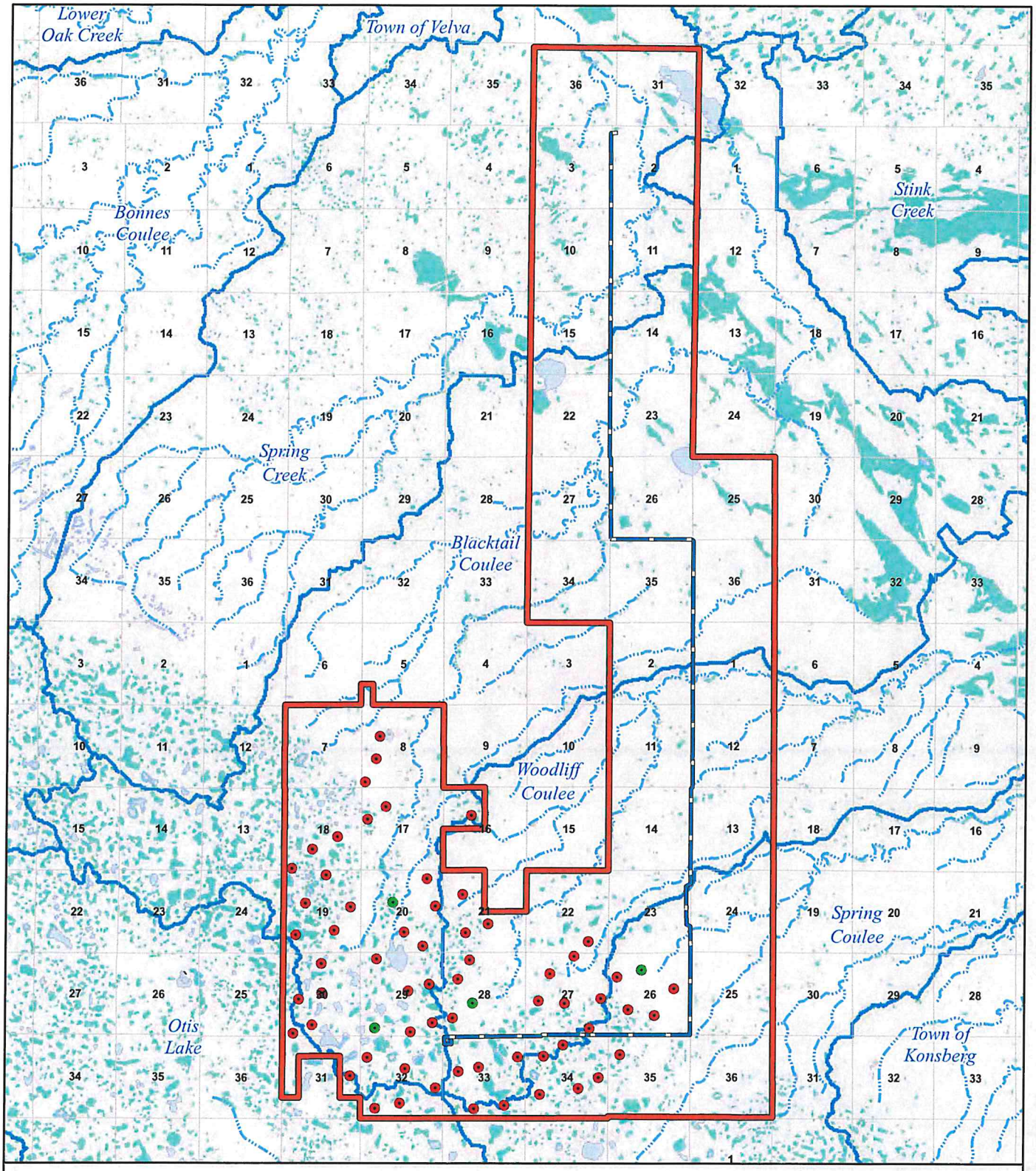


Figure 2 Surface Waters

USACE Impact Review
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Waters USACE Fig 2.mxd

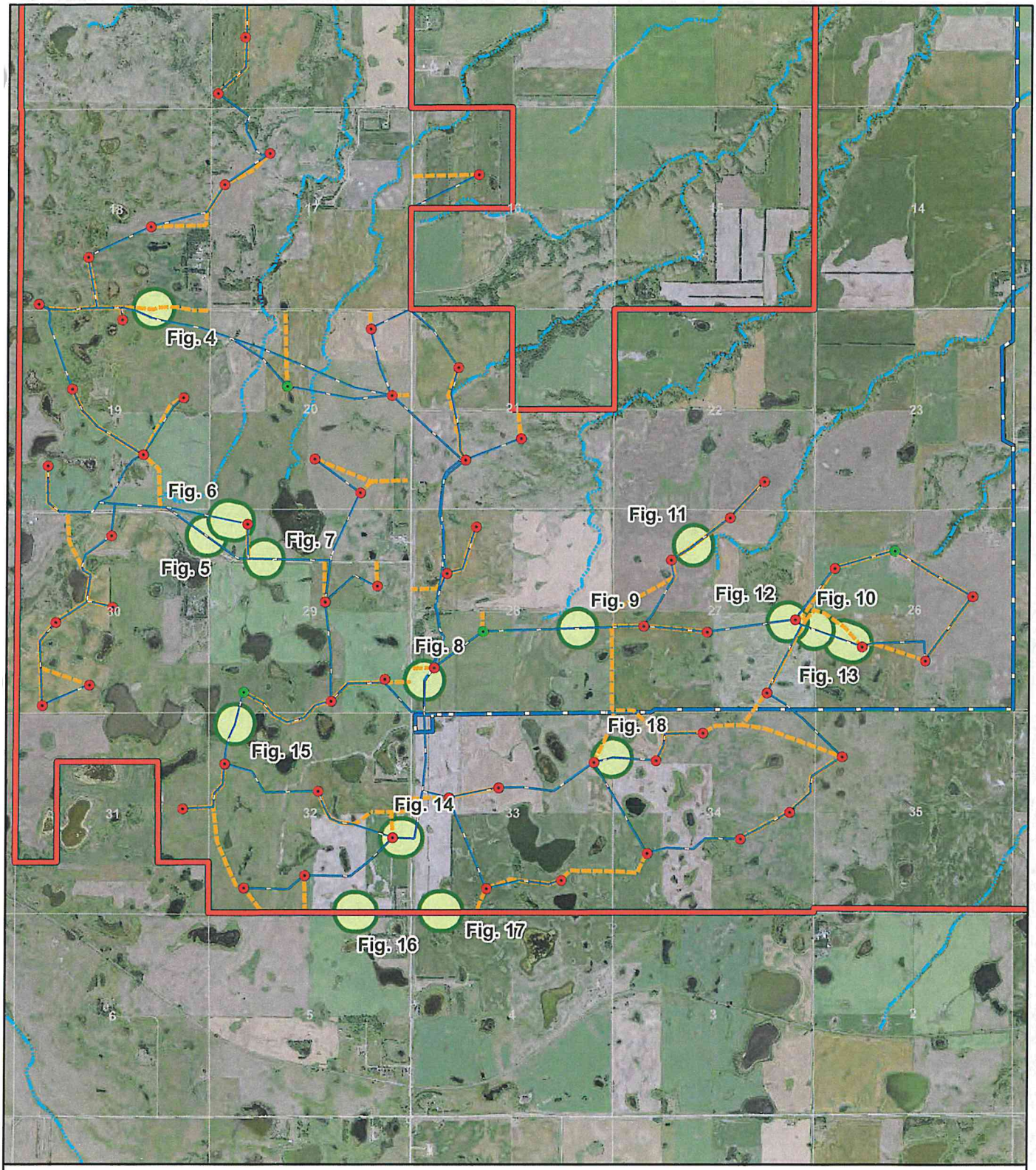
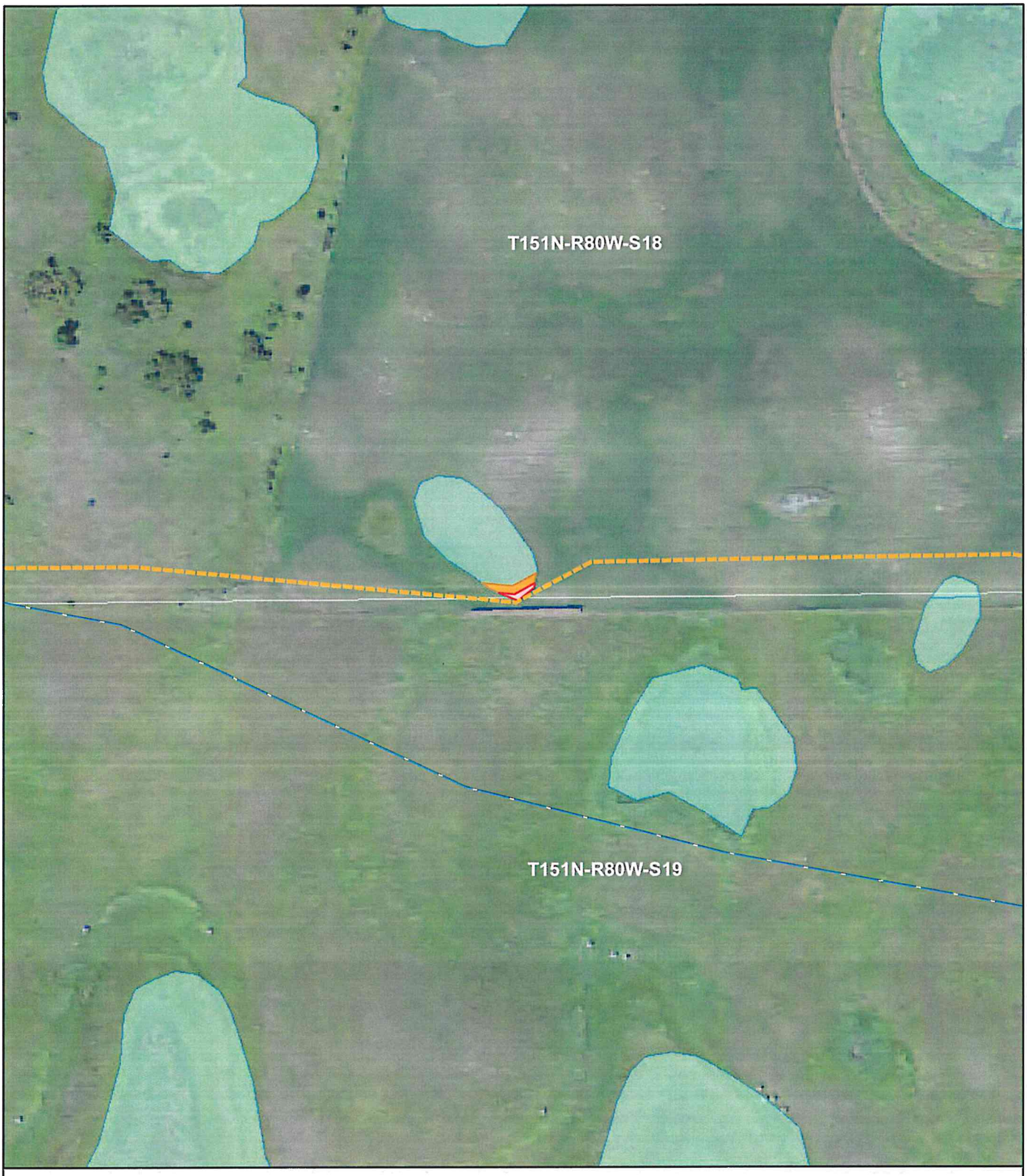


Figure 3 Detail Map Legend

USACE Impact Review
New Frontier Wind Project
McHenry County, ND

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Project Area USACE Detail Figure 3.mxd



Wetland: B1-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 50 100 200 Feet

Figure 4

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: D1-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 50 100 200 Feet

Figure 5

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: D2-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

Feet
0 50 100 200

Figure 6

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: D2-2

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

Feet
0 50 100 200

Figure 7

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: D3-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

Feet
0 50 100 200

Figure 8

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: D3-2

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

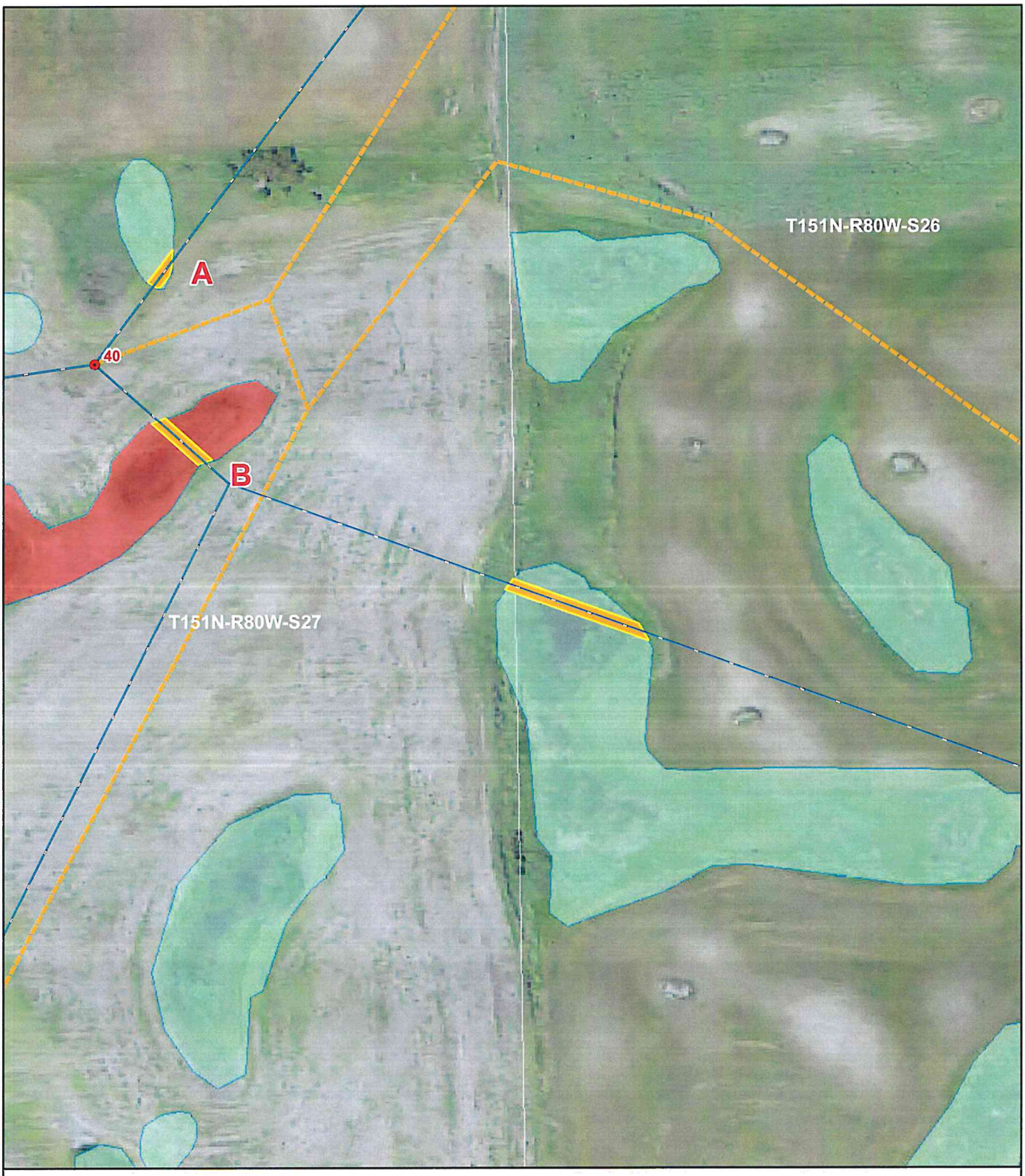
0 50 100 200 Feet

Figure 9

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd



Wetland: D4-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

Feet
0 50 100 200

Figure 10

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: D4-2

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

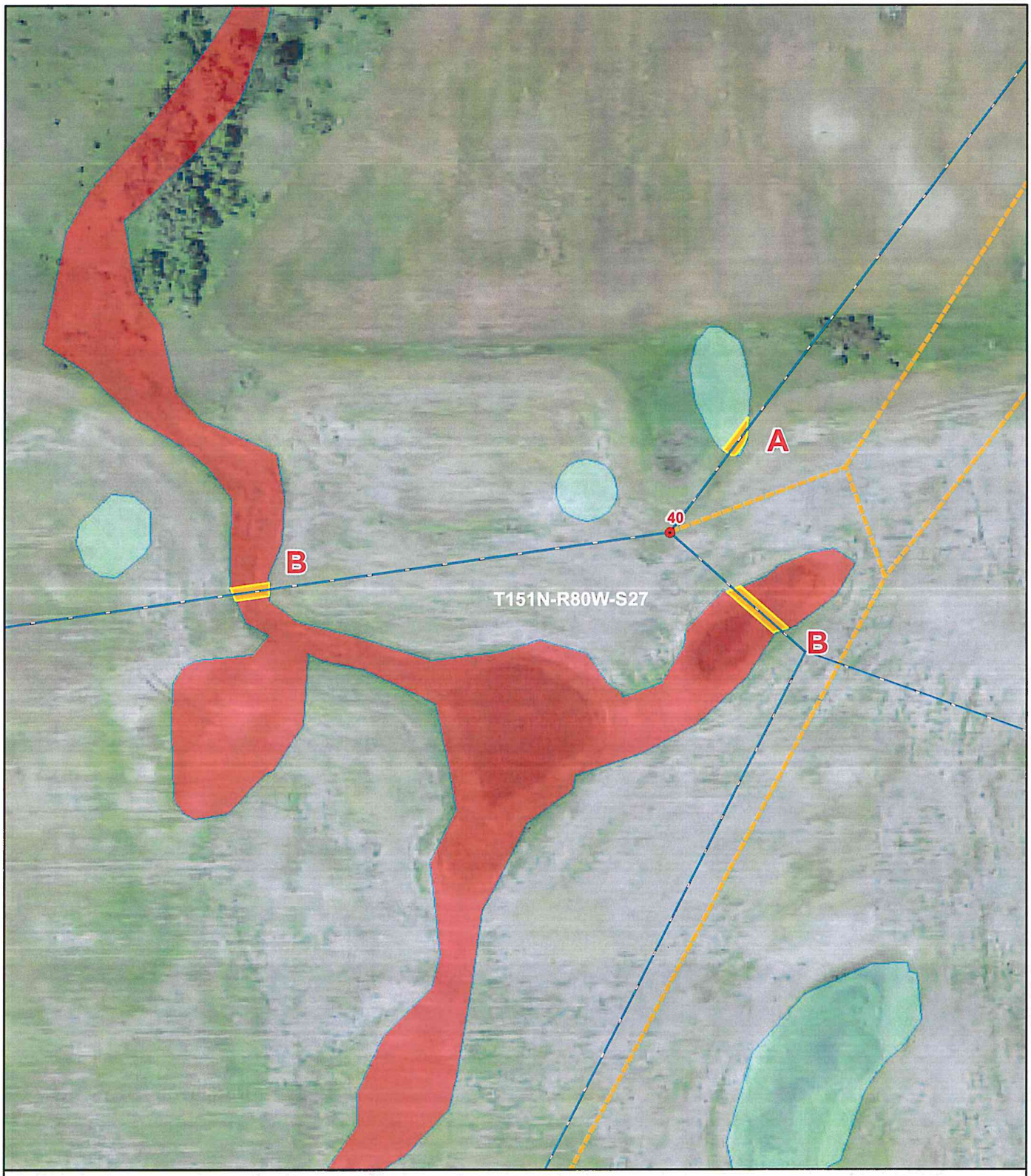
0 50 100 200 Feet

Figure 11

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd



Wetland: D4-3

- Turbine
- Alternate Turbine
- Access Road
- Underground Collection
- Overhead Transmission Line
- Perennial Stream
- Intermittent Stream or Ditch
- Permanent Impact Area (Road: 20ft)
- Temporary Impact (Road:40ft)
- Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

- USACE Jurisdicitonal
- Non-USACE Jurisdictional

N

0 50 100 200 Feet

Figure 12

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: D5-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 50 100 200 Feet

Figure 13

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: E2-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

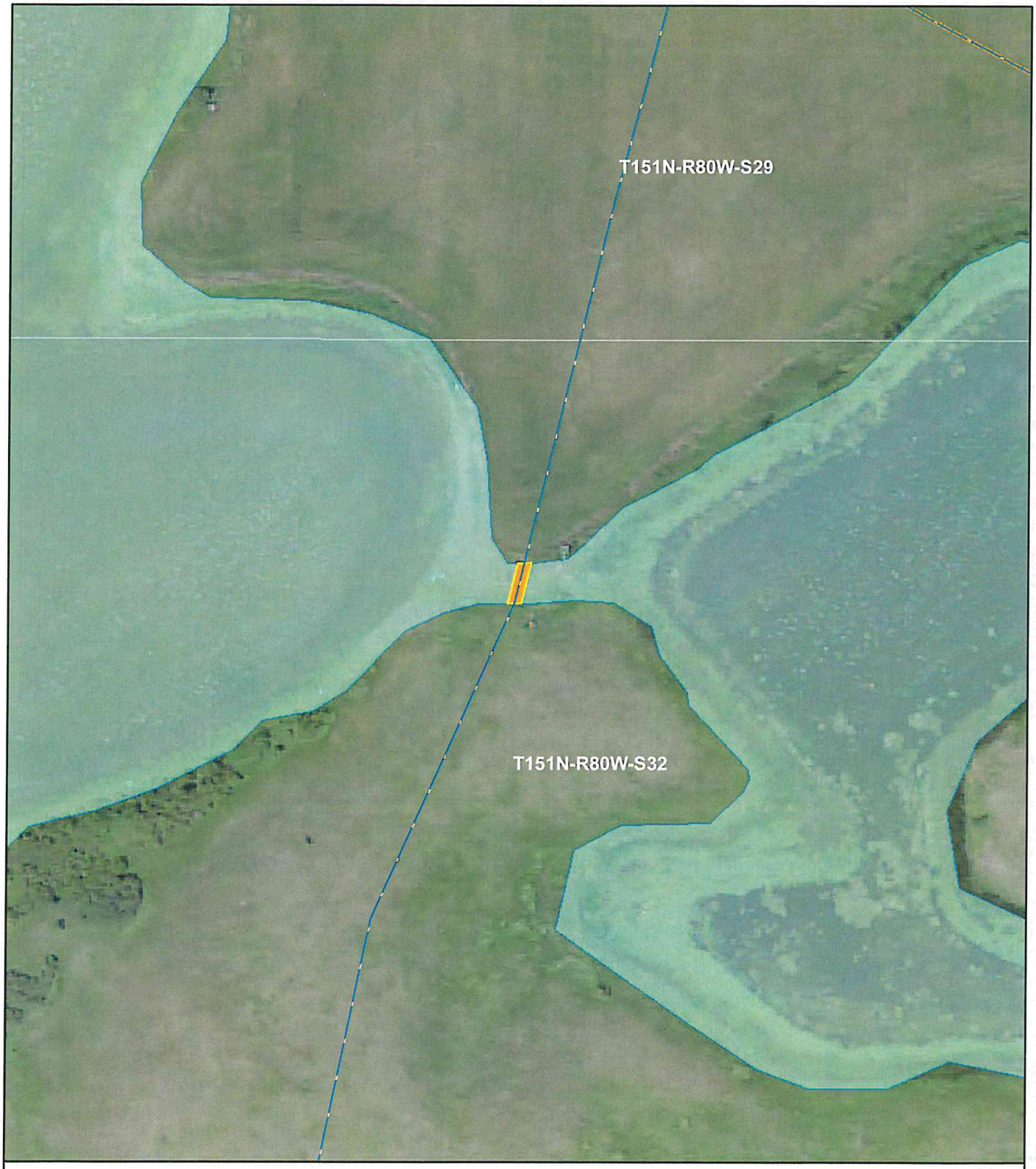
Feet
0 50 100 200

Figure 14

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd



Wetland: E2-2

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

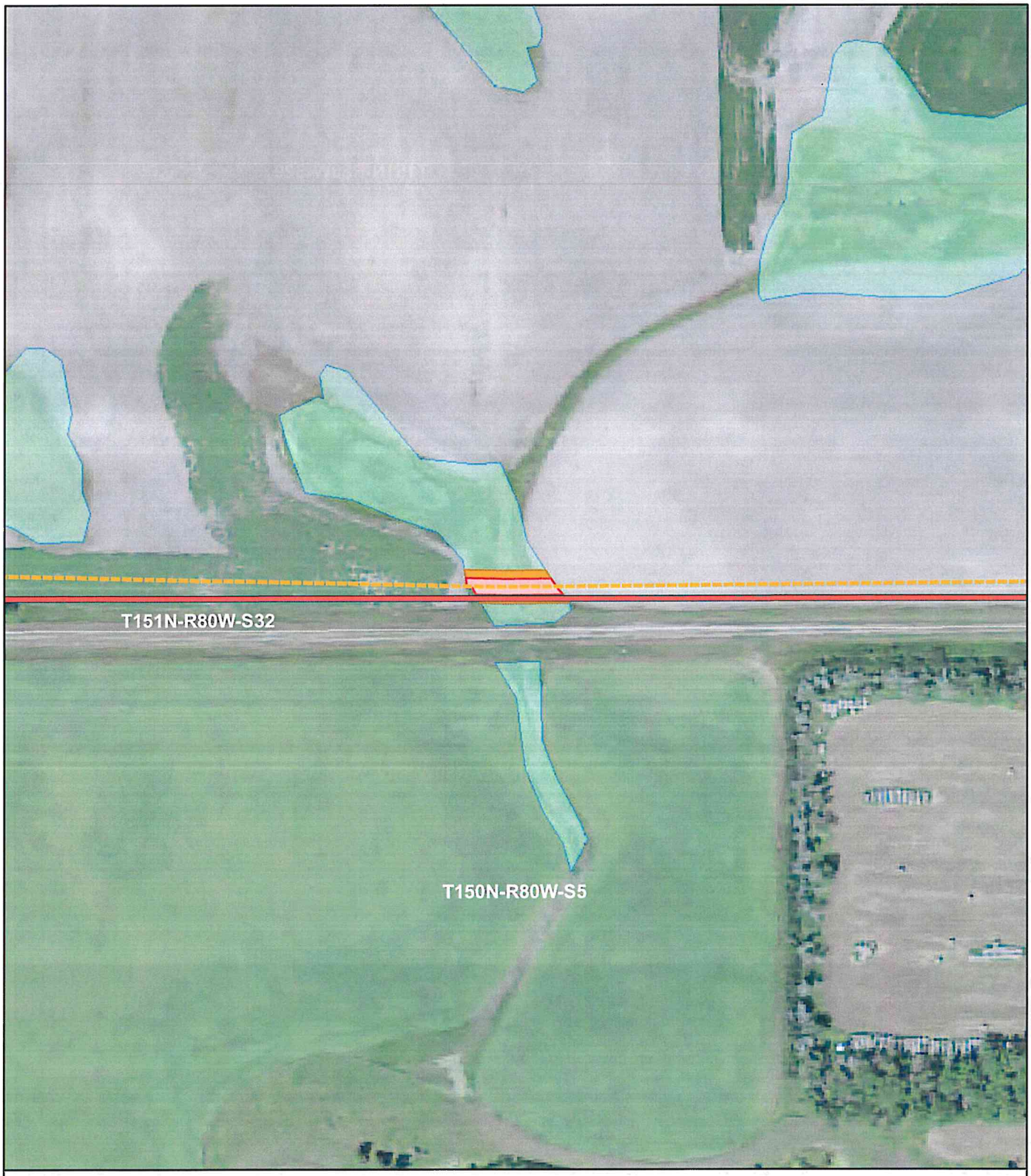
0 50 100 200 Feet

Figure 15

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd



Wetland: E2-3

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 50 100 200 Feet

Figure 16

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Wetland: E3-1

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

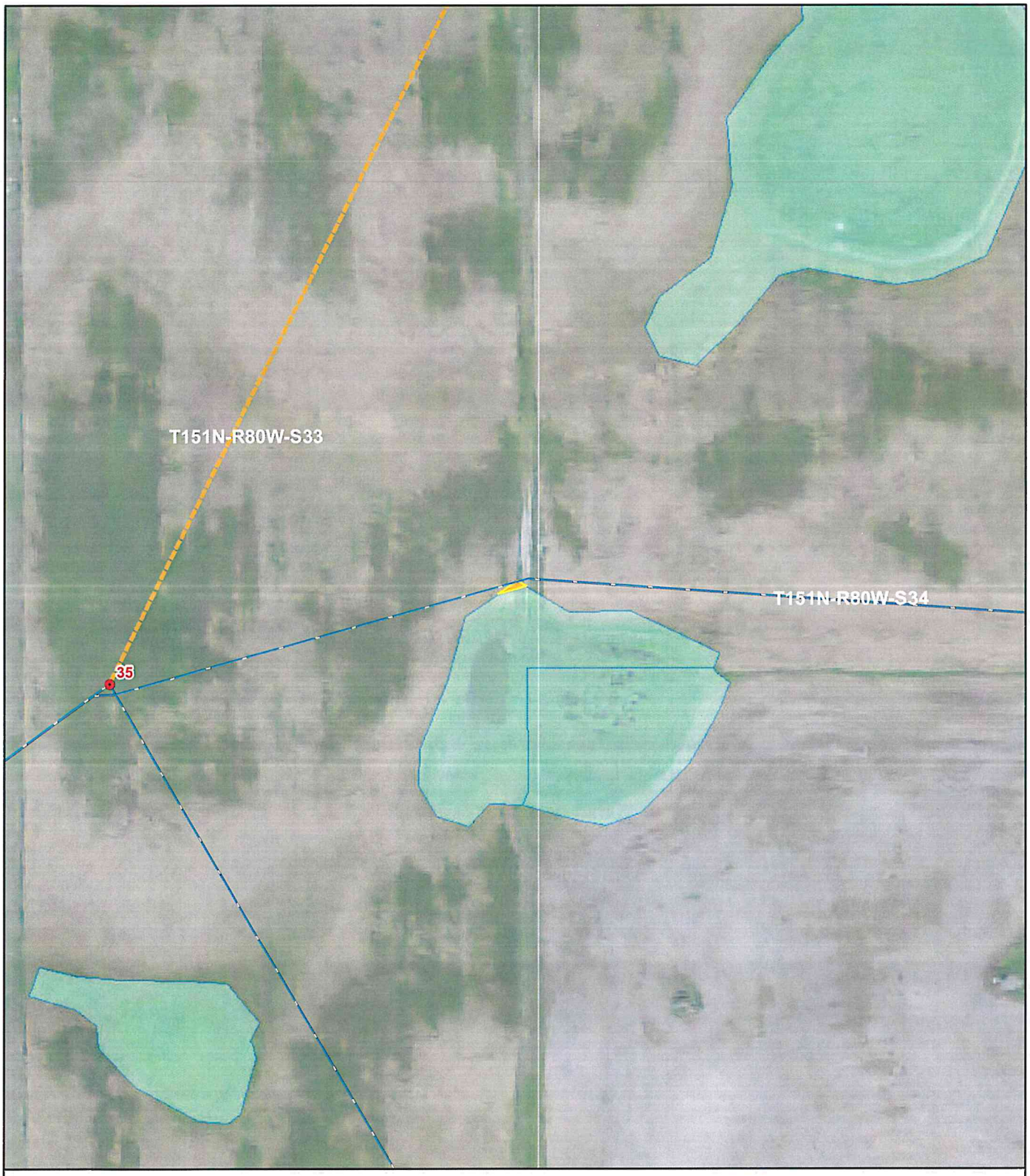
0 50 100 200 Feet

Figure 17

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd



Wetland: E3-2

Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Perennial Stream
Intermittent Stream or Ditch
Permanent Impact Area (Road: 20ft)
Temporary Impact (Road:40ft)
Temporary Impact Area (Cabling:16ft)

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 50 100 200 Feet

Figure 18

USACE Wetlands Impact Review
New Frontier Wind Farm
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_USACE_WetlandDetail.mxd

Attachment A
Wetland/WUS Impact Tables

HDR Engineering, Inc.

701 Xenia Avenue South
Minneapolis, MN 55416-3636

Phone (763) 591-5400
Fax (763) 591-5413
www.hdrinc.com

ID	Permanent Impact Area[1] (Acres)	Temporary Impact Area[2] (Acres)	Type	Section (T151N R80W)	Preliminary Jurisdictional Status[3]	Figure
B1-1	0.006	0.014	Road	18	Non Jurisdictional	4
D1-1	-	0.008	Cabling	3	Non Jurisdictional	5
D2-1	-	0.073	Cabling	3	Non Jurisdictional	6
D2-2	-	0.004	Cabling	29	Non Jurisdictional	7
D3-1	-	0.013	Cabling	28	Non Jurisdictional	8
D3-2	-	0.004	Cabling	28	Non Jurisdictional	9
D4-1	-	0.064	Cabling	26	Non Jurisdictional	10
D4-2	0.014	0.015	Cabling/Road	27	Non Jurisdictional	11
D4-3a	-	0.013	Cabling	27	Non Jurisdictional	12
D4-3b	-	0.085	Cabling	27	Jurisdictional	12
D5-1	-	0.100	Cabling	26	Non Jurisdictional	13
E2-1	-	0.037	Cabling	32	Non Jurisdictional	14
E2-2	-	0.019	Cabling	32	Non Jurisdictional	15
E2-3	0.049	0.048	Road	32	Non Jurisdictional	16
E3-1	0.059	0.054	Road	33	Non Jurisdictional	17
E3-2	-	0.019	Cabling	33	Non Jurisdictional	18

1: Assumes a 20 foot wide impact for permanent access roads. Actual construction will typically be 16-18 feet.

2: Assumes a 40 foot wide impact for temporary access roads or a 16 foot wide impact for buried underground cabling.

3: Jurisdictional status is estimated based on previous discussions with COE-Bismarck district and our field review. The estimate does not represent an actual COE determination and is provided only to streamline the COE review process.

Attachment B
Wetland Delineation Report

Wetland Delineation Report for

New Frontier Wind Farm

McHenry County, North Dakota

November 2011

Prepared for:

Meadowlark Wind I LLC

Prepared by:

HDR Engineering Inc.
701 Xenia Ave S, Suite 600
Minneapolis, MN 55416

Table of Contents

List of Tables

List of Figures

List of Appendices

1.0 INTRODUCTION

Meadowlark Wind I LLC, a wholly owned subsidiary of Element Power, Inc., is proposing to construct a utility-scale wind farm, the New Frontier Wind Farm (the Project), in McHenry County, North Dakota (Figures 1 & 2). The New Frontier Wind Farm is a 99 megawatt wind energy project and will consist of up to 62 wind turbines with 4 alternatives currently under consideration. HDR Engineering, Inc. (HDR) conducted a wetland delineation of the proposed site on October 11-16, 2011. The overall Project Area is approximately 44,000 acres, located in the sections presented in Table 1.

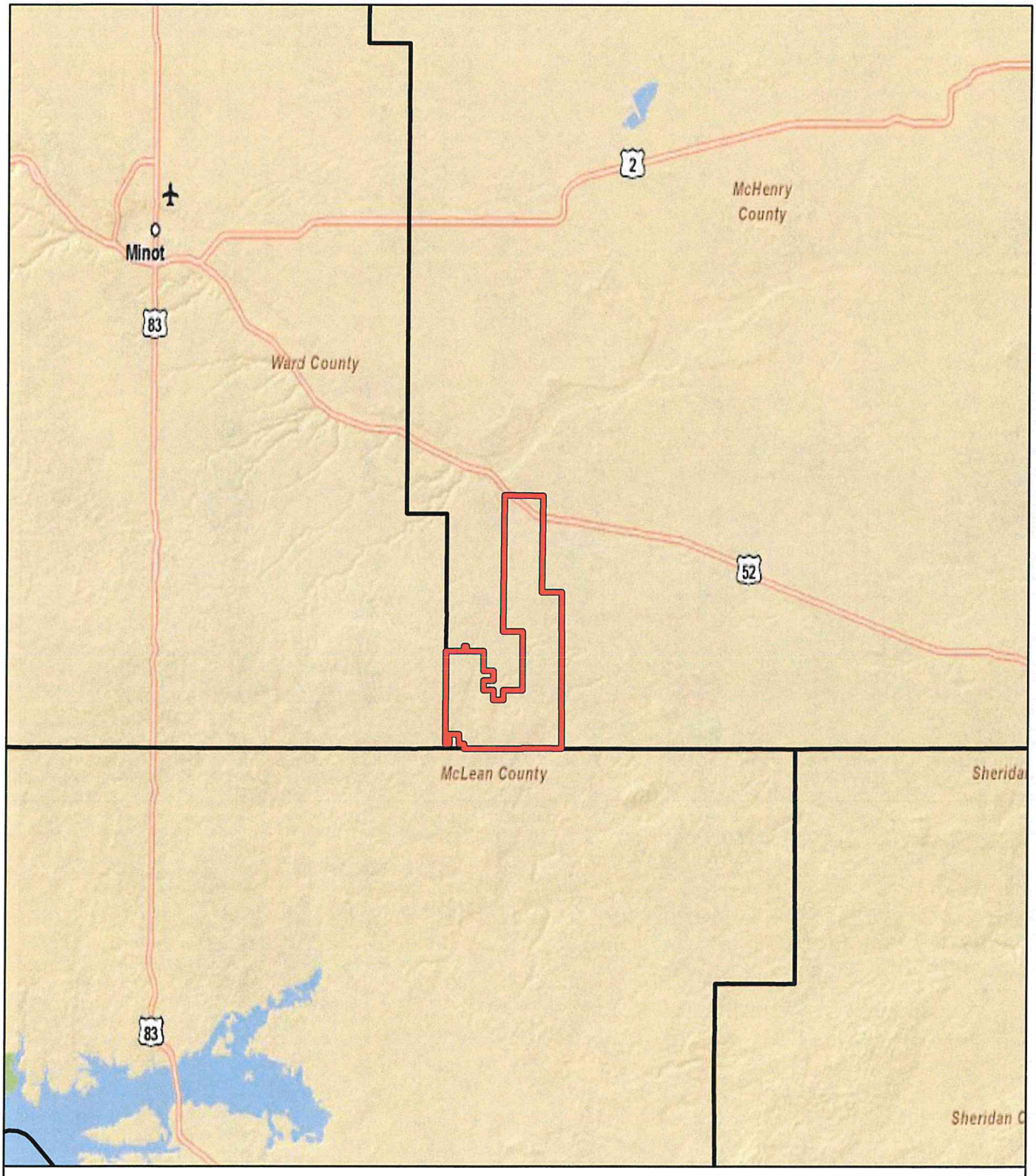
Table 1. Sections within the Project Area.

Township	Range	Sections
151N	80W	1-2, 7-8, 11-14, 16-36
152N	80W	2-3, 10-11, 14-15, 22-23, 25-27, 34-36
153N	80W	36
153N	79W	31

HDR conducted an onsite wetland inspection for the Project for all leased properties within the Project Area which contained proposed turbines, access roads, underground electrical collection systems, aboveground transmission lines, and project substations. HDR identified approximately 2,080 acres of wetlands within the Project Area.

2.0 METHODS

Wetland determination methods employed for the Project Area were conducted in accordance with the 1987 Corps of Engineers Wetland Delineation Manual (U. S. Army Corps of Engineers 1987) and the Great Plains Regional Supplement (Version 2.0) (U. S. Army Corps of Engineers 2008). Wetland determinations were accomplished by using a combination of approaches: 1) Routine Determination, On-site Inspection Unnecessary and 2) Routine Determination, On-site Inspection Necessary as outlined in the 1987 Corps of Engineers Wetlands Delineation Manual (USACE, 1987). On-site wetland determinations and delineations were conducted within leased parcels of the Project Area during October 2011.



Project Area

Figure 1 Project Vicinity
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

N

0 2.5 5 10 Miles

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Project Location Fig 1.mxd

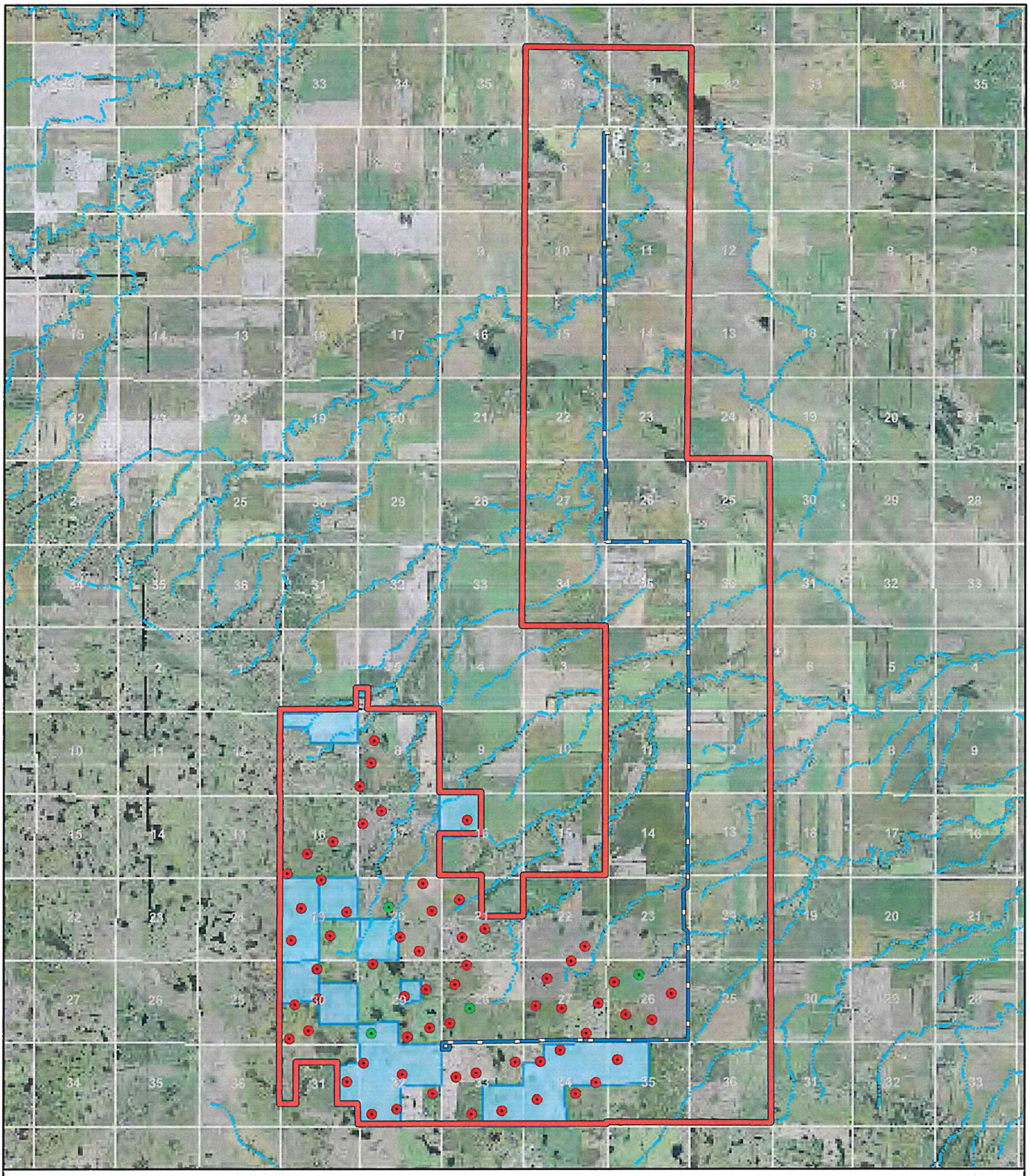


Figure 2 Project Location
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\mspe-gis-file\GISProj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Project Area Fig 2.mxd

The Routine Determination, On-site Inspection Unnecessary procedure for participating parcels is a multistep process that involves a detailed desktop review in conjunction with supplementary field observations that characterize the Project Area at sites where adequate information is not available. Step one consists of the compilation and review of the existing data sources using ArcGIS. National Wetland Inventory (NWI) mapping, aerial photographs (USDA 2010) and other GIS data resources are analyzed in relation to the participating parcels, and detailed map books are prepared to assist in field verification of wetland features. After the initial map review and GIS data synthesis, the next step involves field verification to characterize wetlands within participating parcels. Field verifications consist of a visual site inspection to confirm areas that contain both hydrophytic vegetation and wetland hydrology. Hydric soils are presumed to be present in areas with hydrophytic vegetation and wetland hydrology. Site data on the wetland areas within each parcel is recorded on field map books and includes observations of hydrology, topography, vegetation, and wetland boundary location. GPS data is collected in the field for difficult to locate boundaries to provide reference locations for accurate digitization of these features. The final step in the On-site Inspection Unnecessary procedure involves the digitization of all potential wetland features using the data collected and recorded in map books during the field observations. Wetland boundaries are digitized from the map book data, field collected GPS points, Farm Service Agency Common Land Unit GIS data, and USGS topographic data. Since the majority of the land within the Project Area is active agricultural land with clearly visible vegetation changes along wetland boundaries, wetland determinations using On-site Inspection Unnecessary procedure with field observations was the primary method for mapping most wetlands within the Project Area.

The "Routine Determination, On-site Inspection Necessary" determinations focused on participating parcels within the Project Area where the proposed turbines, access roads, electrical collection system or transmission line crossed or were within close proximity to wetlands or waterways identified using On-site Inspection Unnecessary procedures. HDR staff field surveyed these areas according to the methods outlined in the Great Plains Regional Supplement (Version 2) for the three wetland parameters, which are hydric soils, surface or subsurface hydrology, and hydrophytic vegetation (FWS 1988, FWS 1997). When all three indicators were present during the growing season, then the area was considered a wetland. At representative wetland determination data point locations, data points were taken to represent sites both within and outside the wetland boundary. Wetlands outside construction areas were also field verified where possible, but these boundaries were typically not surveyed with a GPS unit. The locations of sample plots and wetland boundaries were surveyed using a Trimble ProXT GPS unit capable of collecting real-time data with sub-meter positional accuracy. Field collected GPS points were uploaded and overlaid on the aerial photography to provide a permanent record of the wetland delineation boundaries and used to produce the wetland maps provided in this report.

3.0 ROUTINE DETERMINATION, ON-SITE INSPECTION UNNECESSARY RESULTS

3.1 Meteorological conditions

Weather conditions prior to the October 2011 field review were normal temperatures and above normal precipitation (Table 2). Table 2 displays the temperature and precipitation for the Project Area, for July through October 2011. Precipitation was above average during this period with the exception of October 2011, which had precipitation approximately half of average. Temperatures were within 4 °F of average for all months.

Table 2. Precipitation and Temperature Data for Velva, North Dakota[1]

Precipitation Values	July 2011	August 2011	September 2011	October 2011
Estimated Precipitation Totals for this Location	4.02 inches	4.88 inches	3.65 inches	0.84 inches
Mean Monthly Precipitation	2.80 inches	1.83 inches	1.62 inches	1.61 inches
Normal Mean Monthly Temperature	69 °F	67 °F	56 °F	44 °F
Actual Monthly Average Temperature	68 °F	68 °F	54°F	48°F

1 Data from High Plains Regional Climate Center (2011)

3.2 NWI Map Review

Wetlands within the Project Area were initially identified by reviewing NWI maps (see Figure 3). The USFWS developed the NWI maps for the general vicinity of the Project in the 1980s using older aerial photographs. Because of the age of the mapping, NWI maps only provide guidance in determining areas to be evaluated for wetland characteristics, and should not be used as the sole basis for wetland determinations.

NWI wetlands range in size from isolated basins, less than a few hundred square feet in size, to emergent wetlands covering over 10 acres. The vast majority of wetlands in the Project Area are isolated basins located in pasture or tilled agricultural fields. The smaller and shallower wetlands are plowed and farmed in dry years, but the majority are permanently flooded and never farmed. The non-isolated wetlands that are present are limited to shallow drainages connecting to small streams which drain out of the Project Area. There are no large streams or rivers in the project boundary, but there are a number of moderate sized lakes with wetland areas around the fringes.

Overall, there are 1,488 acres of mapped NWI wetlands in the project, covering approximately 3.4% of the Project Area. The most common type of wetlands in the Project Area is emergent (74%). Lakes (17%) and freshwater ponds (9%) are the second and third most common wetland types. During the delineation, it was noted that many of the NWI boundaries were smaller than the

observed boundaries in the field. This may be because of overall climatic trends in the area of towards wetter years and a general increase in the size of isolated bodies of water (e.g. Devils Lake) or a result of other factors.

Table 3. NWI Wetland Types and Acreages within the Project Area

Wetland Acreages (by type)			
Cowardin Classification[1]	**Count**	**Acres[2]**	**% of Total**
Palustrine - Freshwater Emergent Wetland (PEM)	1,530	1,099	73.9%
Lake (L2ABG)	5	249	16.7%
Palustrine - Freshwater Pond (PUBG/PUBF)	90	140	9.4%
Grand Total	**1,624**	**1,488**	**100%**

1Cowarding Classification system uses Cowardin, et al. 1979 naming conventions.
2 Wetland acreage is calculated using USFWS NWI data.

3.3 McHenry Soils

The McHenry County Soil Surveys (USDA 1990) were used to identify soil units in the Project Area. Twelve hydric soil types were identified within the Project Area and covered about 4.3% of the Project Area. Table 5 summarizes hydric soil types mapped within the Project Area (Figure 4).

Table 4. Hydric soils types and acreages.

Hydric Soil Acreages	
Soil Series Name	**Acres[1]**
Colvin silt loam	60.8
Colvin silt loam, saline	17.7
Colvin silt loam, very poorly drained	69.8
Fossum fine sandy loam	13.7
Harriet silt loam	82.8
Ludden clay	6.8
Marysland silt loam	14.6
Parnell silty clay loam	406.0
Southam silty clay loam	428.6
Stirum fine sandy loam	580.6
Tonka silt loam	76.9
Verendrye loamy coarse sand, 0 to 1 percent slopes	136.1
Grand Total	**1,894.4**

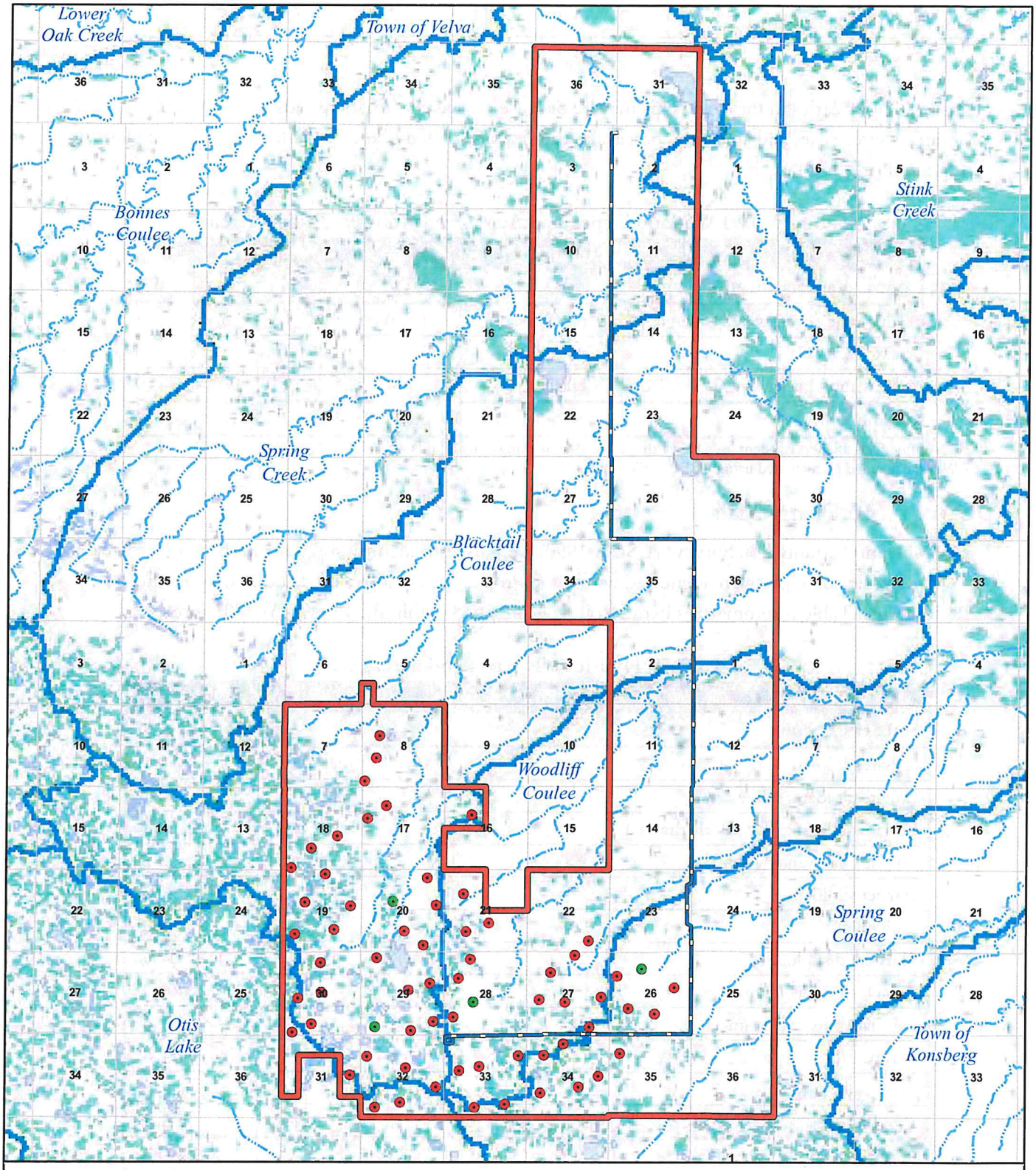


Figure 3 Surface Waters
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

Path: \\Mspe-gis-file\gisproj\ElementPower\171469_NewFrontier\map_docs\WetlandReport\NewFrontier_Waters Fig 3.mxd

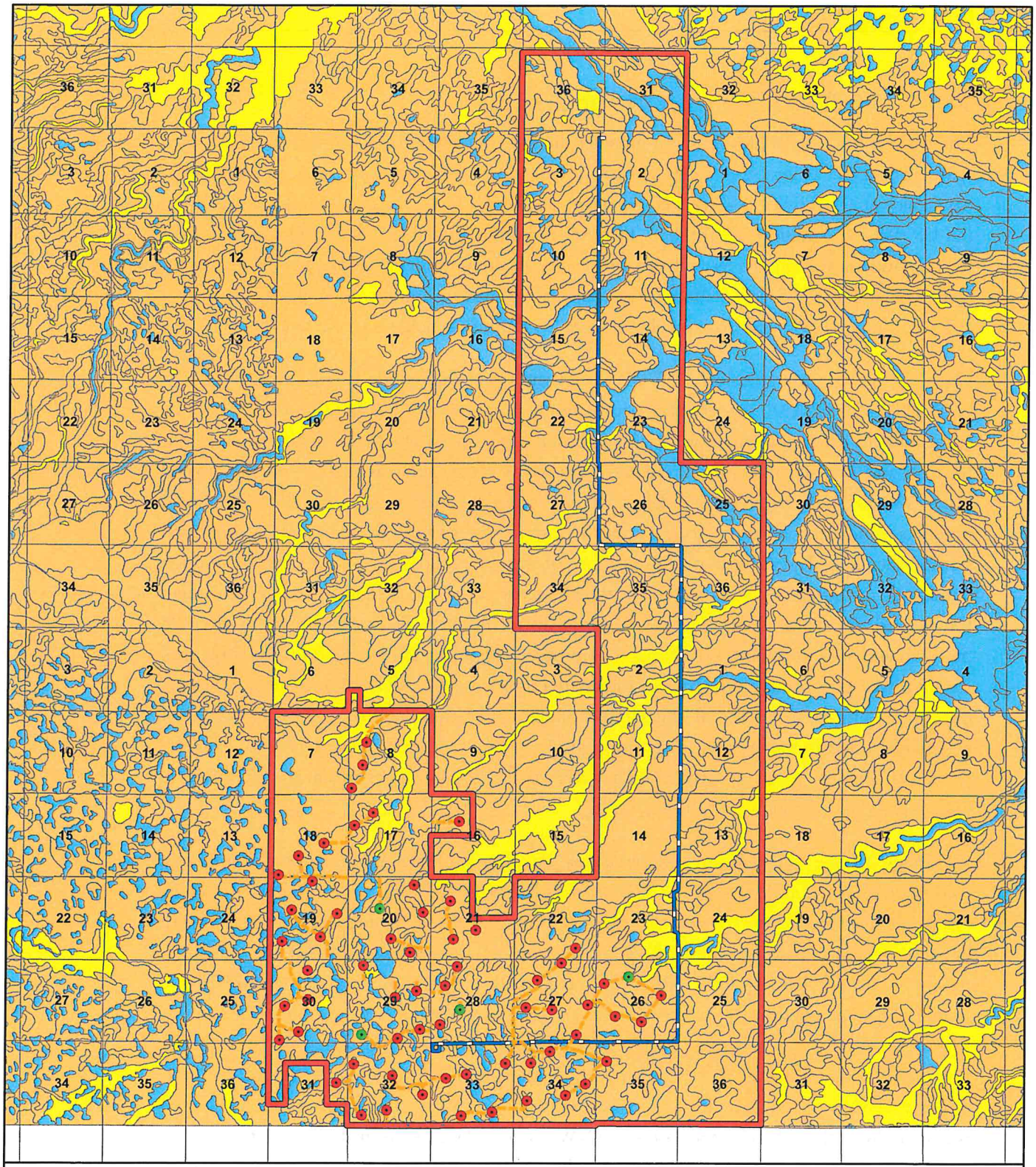


Figure 4 Soils Map
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Soils Fig 4.mxd

3.4 Wetland Regulatory Determinations

There are two regulatory bodies with jurisdiction over wetlands in the Project Area. The U.S. Army Corps of Engineers (USACE) has jurisdiction over wetlands that are traditional navigable waters (TNW) or have a connection to a TNW. These waters are termed Waters of the US (WUS). Additionally, the U.S. Fish and Wildlife Service (FWS) has jurisdiction over the wetland basins on parcels where they have obtained wetland easements from private landowners. The FWS-jurisdictional wetlands on wetland easements do not need to have a connection to a TNW and do not follow the WUS definition (i.e., they can be isolated).

USACE follows the definition of WUS within the Code of Federal Regulations, (CFR) 33 CFR 328.3(a) is "(1) All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (2) all interstate waters including interstate wetlands; (3) all other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) from which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) which are used or could be used for industrial purpose by industries in interstate commerce; (4) All impoundments of waters otherwise defined as waters of the United States under this definition; (5) Tributaries of waters identified in paragraphs (a)(1) through (4) of this section; (6) The territorial seas; (7) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a)(1) through (6) of this section."

According to the *Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States (December 2, 2008),* herein referred to as the "Rapanos memorandum;" a waterbody, including a wetland, intermittent stream, or ephemeral stream, is within the USACE jurisdiction only if it meets the USACE's regulatory definition of WUS in 33 CFR 328.3 (a) and it meets the criteria stated in either Justice Scalia's plurality opinion or Justice Kennedy's concurring opinion in the Supreme Court's Rapanos decision. In general, Justice Scalia's criteria are that the waterbody must have flowing or standing water that is "relatively permanent" (i.e., not ephemeral) and must be either a TNW or have a surface connection to a TNW. According to the Rapanos memorandum, the USACE interprets a TNW to be a "navigable water" as defined in its rules at 33 CFR part 329. These are essentially any waterbody that has been used, is being used, or could be used to transport goods or services for interstate or foreign commerce. Transporting goods or services for commerce could mean as little as having sufficient flow to support seasonal recreational rafting or canoe trips. Under Justice Kennedy's criteria, the

waterbody does not need to be "relatively permanent," but it must either be a TNW or have a "significant nexus" to a TNW. Under both Justices' criteria, then, a waterbody must be a TNW or have some sort of connection to a TNW in order to be subject to USACE jurisdiction.

The Rapanos memorandum states that the USACE will assert jurisdiction over:

- TNWs,
- wetlands adjacent to TNWs,
- non-navigable tributaries of TNWs that are relatively permanent and that have continuous flow at least seasonally,
- wetlands that abut such tributaries, and
- wetlands and other waters with a significant nexus to TNWs.

In contrast to the USACE, the FWS governs all mapped wetlands within their easements, regardless of connection to a TNW. The FWS holds wetland easements on approximately 2,700 acres within the project area (Figure 2). The FWS does not use the USACE manual for wetland determinations, but instead uses aerial photo interpretation to identify inundated areas as wetlands. The boundaries of these wetlands are typically roughly mapped on documents attached to lease agreements termed Exhibit As. The management and mapping of these easements is administered by the regional wetland management district (WMD), in this case the J Clark Sayler WMD based in Bottineau County, North Dakota. In HDR's experience, these Exhibit A documents have not been generated for all FWS leased properties and as a result, the FWS WMD staff have final say in the interpretation of wetland boundaries on FWS easements. However, FWS wetland boundaries typically line up with USACE wetland boundaries, and our delineation approach covered aspects of both the USACE delineation process and the FWS delineation process.

4.0 ROUTINE DETERMINATION, ON-SITE INSPECTION NECESSARY RESULTS

The onsite delineations were conducted on October 11-16, 2011. Approximately 2,080 acres of wetlands were identified within the Project Area during the field review. This is 40% greater than the acreage estimate using the NWI mapping. As discussed in Section 3.2, wetlands delineated in the field were generally larger in size than NWI mapping indicated.

The most common wetland types delineated were shallow, emergent wetlands (PEMA/PEMC, See Appendix C). The majority of these wetlands were isolated basins in tilled agricultural fields (Appendix C1) or pasture areas (Appendix C2). Some of these isolated basins were large, open water wetlands or lakes (Appendix C-5). The remainder of the wetlands were emergent, riparian drainages along small streams (Appendix C-6).

All wetlands in a 500 foot corridor on either side of proposed infrastructure were field verified. Six (6) wetland determination datasheets were completed for wetland areas adjacent to the proposed construction areas. These data sheets represent general site conditions across the entire Project Area due to the similarity of landform characteristics and wetland types. Wetland determination datasheets are summarized in Table 5 and are included in Appendix A. Wetland plots are identified on detailed wetland mapping in Appendix B. Site photographs of representative wetland types and site conditions are presented in Appendix C.

Table 5. Wetland Determination Data Sheet Summary

Data Sheet	Figure Number	Location (Sec., Twp., Rng.)	Wetland Determination
B3-3 Up	B-02	S16 T151N R80W	Non-Wetland
B3-3 Wet	B-02	S16 T151N R80W	Wetland
D5-4 Up	B-05	S27 T151N R80W	Non-wetland
D5-4 Wet	B-05	S27 T151N R80W	Wetland
E1-1 Up	B-04	S32 T151N R80W	Non-Wetland
E1-1 Wet	B-04	S32 T151N R80W	Wetland

A summary of the wetland acreage under the regulatory authority of the USACE and FWS appears in Table 6. Of the 2,080 acres of wetlands indentified during the field review, preliminary USACE jurisdictional determinations are that 520 acres meet USACE jurisdictional criteria and 1,560 acres of wetlands do not. Jurisdictional determinations were made by reviewing the drainage and topography around a wetland and using field observations and aerial photographs to determine if the wetland was connected to a WUS via surface drainage (i.e. a "significant nexus"). In the landscape of the project area, WUS features within the project area are obvious drainages that clearly flow into larger streams and rivers. In addition, the majority of the wetlands are isolated "potholes" at the lowest point in the surrounding area with no connection to a WUS and thus no USACE jurisdiction. However, a final determination should be confirmed through a request for jurisdictional determination from the USACE.

Wetlands on FWS easements totaled 586 acres. These wetland boundaries are subject to FWS review and should be confirmed through coordination with the J Clark Salyer WMD. Only 63 acres wetlands fall under jurisdiction of both the FWS and the USACE. A total of 1,037 acres, or about half of the total wetland acreage in the Project Area, are non jurisdictional to both the USACE and FWS. Impacts to these wetlands are not regulated in the state of North Dakota. The FWS easements and those wetlands that have been preliminarily determined as USACE jurisdictional are shown on the detailed figures in Appendix B.

Table 6. Wetland Mapping Summary

Preliminary Jurisdictional Determination	Area (Ac.)	Number of Wetlands
USACE & FWS	63	6
USACE Only	456	158
FWS Only	523	352
No Jurisdiction (USACE or FWS)	1,037	988
Total	**2079**	**1504**

5.0 CONCLUSIONS

HDR has completed a routine wetland delineation within leased parcels of the Project Area and approximately 2,080 acres of wetlands are present within the Project Area. HDR recommends that a request for a jurisdictional determination be submitted to the USACE to confirm preliminary jurisdictional determinations made in this report. In addition, coordination with the FWS should be completed to confirm wetland boundaries for wetlands within FWS easements.

6.0 REFERENCES

Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States, December 2, 2008.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of wetlands and deepwater habitats of the United States.* United States Department of Interior, Fish and Wildlife Service. FWS/OBS-79/31. 103 p.

High Plains Regional Climate Center. 2011. Historical Climate Data Summaries. Velva Coop Station. Data extracted 11/11/2011 http://www.hprcc.unl.edu/data/historical/index.php?state=nd&action=select_state&submi

U.S. Army Corps of Engineers. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS, 100 pp. and appendices.

U.S. Army Corps of Engineers. 2008. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region, U.S. Army Corps of Engineers Research and Development Center, 134 pp.

U.S. Department of Agriculture, FSA. 2010 NAIP Aerial, *McHenry County.*

U.S. Department of Agriculture, 1990. *Soil Survey of McHenry County, North Dakota.* United States Department of Agriculture – Soil Conservation Service and North Dakota Agricultural Experiment Station. Washington, D.C. 230 p.

U.S. Department of the Interior, Fish and Wildlife Service. 1997. *National List of Vascular Plant Species that Occur in Wetlands: 1996 National Summary.* St. Petersburg, FL.

U.S. Fish and Wildlife Service. 1988. *National List of Vascular Plant Species That Occur in Wetlands: 1988 National Summary.* United States Department of Interior, Fish and Wildlife Service.

Appendix A – Wetland Delineation Data Sheets

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project Site: New Frontier Wetlands City/County: McHenry County Sampling Date: 10/11/2011

Applicant/Owner: Element Power State: ND Sampling Point: B3-3 Up

Investigators: Jon Schubbe Jacque Hamilton Section, Township, Range S 16 T 151 R 80

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Convex Slope(%) 3

Subregion (LRR): F Lat: 5306953 Long: 356226 Datum: NAD 83 Z14

Soil Map Unit Name: Zahl-Williams loams, 9 to 25 percent slopes NWI Classification:

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

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

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

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

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

Remarks:
Grassed buffer between RCG stream and upland ag field.

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 6 Ft)			
Bromus inermis	90	Y	NI
Glycyrrhiza lepidota	5	N	FACU
Solidago canadensis	5	N	FACU
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across all Strata: 0 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 0.0% (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: 0 (A)	(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

____ Rapid Test for Hydrophytic Vegetation

____ Dominance Test > 50%

____ Prevalence Index ≤ 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.

Hydrophytic Vegetation Present? Yes ____ No X

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

SOIL

Sampling Point: B3-3 Up

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 to 14	10YR 3/2	100					CLAY LOAM	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) LRR F
- ☐ 1 cm Muck (A9) LRRF 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)
- ☐ 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)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) (LRR H outside of MLRA 72 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

☐ **Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

Ribboning not possible, but ball test positive. Cobble also present at <5%.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (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 Imag.(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: New Frontier Wetlands | City/County: McHenry County | Sampling Date: 10/11/2011

Applicant/Owner: Element Power | State: ND | Sampling Point: B3-3 Wet

Investigators: Jon Schubbe, Jacque Hamilton | Section, Township, Range: S 16 T 151 R 80

Landform (hillslope, terrace, etc.): Depression | Local Relief (concave, convex, none): Concave | Slope(%): 1

Subregion (LRR): F | Lat: 5306940 | Long: 356235 | Datum: NAD 83 Z14

Soil Map Unit Name: Zahl-Williams loams, 9 to 25 percent slopes | NWI Classification: PEMA

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

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

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

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

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes	X	No	

Is the Sampled Area within a Wetland? Yes ____ No X

Remarks:
Linear, slightly curved drainageway between ag fields.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 6 Ft)			
Phalaris arundinacea	100	Y	FACW+
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That are OBL, FACW, or FAC: 100.0% (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:	0 (A)		(B)

Prevalence Index = B/A= ____

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 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.

Hydrophytic Vegetation Present? Yes X No ____

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

SOIL

Sampling Point: B3-3 Wet

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 to 5	10YR 3/2	100					Muck	
5 to 14	10YR 2/1	98	10YR 5/6	20	C	M	CLAY	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) LRR F
- ☐ 1 cm Muck (A9) LRRF 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)
- ☐ 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)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) (LRR H outside of MLRA 72 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

☐ **Restrictive Layer (if observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
4" ribboning. Possible to squeeze water from mucky peat.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☑ Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (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 Imag.(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 X	No	Depth (inches):	14"	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	11"	

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: New Frontier Wetlands City/County: McHenry County Sampling Date: 10/11/2011

Applicant/Owner: Element Power State: ND Sampling Point: D5-4 Up

Investigators: Jon Schubbe Jacque Hamilton Section, Township, Range S 27 T 151 R 80

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope(%) 2

Subregion (LRR): F Lat: 5303405 Long: 358945 Datum: NAD 83 Z14

Soil Map Unit Name: Williams-Zahl loams, 6 to 9 percent slopes 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 ____, Hydrology ____, significantly disturbed? Are "Normal Circumstances" present? Yes X No

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

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

Hydrophytic Vegetation Present?	Yes	No	X
Hydric Soil Present?	Yes	No	X
Wetland Hydrology Present?	Yes	No	X

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
Plot located at edge of ag field adjacent to wetland boundary.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 6 Ft)			
Triticum spp.	80	Y	NI
Phleum pratense	20	Y	FACU
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That are OBL, FACW, or FAC: 0.0% (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: 0 (A)	(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- Rapid Test for Hydrophytic Vegetation
- Dominance Test > 50%
- Prevalence Index ≤ 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.

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

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

SOIL

Sampling Point: D5-4 Up

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 to 16	10YR 2/1	100					CLAY LOAM	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) LRR F
- ☐ 1 cm Muck (A9) LRRF 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)
- ☐ 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)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) (LRR H outside of MLRA 72 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

☐ **Restrictive Layer (if observed):**

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ____ No X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (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 Imag.(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: New Frontier Wetlands City/County: McHenry County Sampling Date: 10/11/2011

Applicant/Owner: Element Power State: ND Sampling Point: D5-4 wet

Investigators: Jon Schubbe Jacque Hamilton Section, Township, Range S 27 T 151 R 80

Landform (hillslope, terrace, etc.): Toe of Slope Local Relief (concave, convex, none): Concave Slope(%) 1

Subregion (LRR): F Lat: 5303412 Long: 358962 Datum: NAD 83 Z14

Soil Map Unit Name: Williams-Zahl loams, 6 to 9 percent slopes NWI Classification: PEMF

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

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

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

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

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

Remarks:
Point located at edge of cattails. Isolated basin in ag field.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 6 Ft)			
Typha angustifolia	80	Y	OBL
Phalaris arundinacea	20	Y	FACW+
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

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

Percent of Dominant Species That are OBL, FACW, or FAC: 100.0% (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: 0 (A)	(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- Prevalence Index ≤ 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.

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

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

SOIL

Sampling Point: D5-4 wet

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 to 10	10YR 2/1	100					Mucky Peat	
10 to 16	10YR 3/1	100					CLAY LOAM	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☑ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) LRR F
- ☐ 1 cm Muck (A9) LRRF 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)
- ☐ 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)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) (LRR H outside of MLRA 72 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

☐ **Restrictive Layer (if observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:

HYDROLOGY

etland Hydrology Indicators:

'imary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (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 Imag.(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 X	No	Depth (inches):	10	
Saturation Present? (includes capillary fringe)	Yes X	No	Depth (inches):	2	

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: New Frontier Wetlands City/County: McHenry County Sampling Date: 10/11/2011

Applicant/Owner: Element Power State: ND Sampling Point: E1-1 Up

Investigators: Jon Schubbe Jacque Hamilton Section, Township, Range S 32 T 151 R 80

Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): None Slope(%) 1

Subregion (LRR): F Lat: 5301551 Long: 354344 Datum: NAD 83 Z14

Soil Map Unit Name: Parnell silty clay loam, 0 to 1 percent slopes NWI Classification:

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

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

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

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

Hydrophytic Vegetation Present?	Yes		No	X
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** ____ **No** X

Remarks:
Field pasture dominated by smooth brome.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 6 Ft)			
Bromus inermis	80	Y	NI
Cirsium arvense	20	Y	FACU
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That are OBL, FACW, or FAC: 0.0% (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:	0 (A)		(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- ____ Rapid Test for Hydrophytic Vegetation
- ____ Dominance Test > 50%
- ____ Prevalence Index ≤ 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.

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

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

SOIL

Sampling Point: E1-1 Up

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 to 8	10YR 2/2	100					SILT LOAM	
8 to 12	10YR 6/2	100					SILT LOAM	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) LRR F
- ☐ 1 cm Muck (A9) LRRF 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)
- ☐ 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)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) (LRR H outside of MLRA 72 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

☐ **Restrictive Layer (if observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Soil contains hydric characteristics at plot location.

HYDROLOGY

etland Hydrology Indicators:

imary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (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 Imag.(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: New Frontier Wetlands City/County: McHenry County Sampling Date: 10/11/2011

Applicant/Owner: Element Power State: ND Sampling Point: E1-1 Wet

Investigators: Jon Schubbe Jacque Hamilton Section, Township, Range S 32 T 151 R 80

Landform (hillslope, terrace, etc.): Depression Local Relief (concave, convex, none): Concave Slope(%) 0

Subregion (LRR): F Lat: 5301563 Long: 354349 Datum: NAD 83 Z14

Soil Map Unit Name: Parnell silty clay loam, 0 to 1 percent slopes NWI Classification: PEMB

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

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

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

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

Hydrophytic Vegetation Present?	Yes	X	No	
Hydric Soil Present?	Yes	X	No	
Wetland Hydrology Present?	Yes		No	X

Is the Sampled Area within a Wetland? **Yes** X **No**

Remarks:
Depressional wetland in brome field. Reed Canary Grass and cattail dominant. Some standing water in interior

VEGETATION– Use scientific names of plants.

	Absolute % Cover	Dominant Species	Indicator Status
Tree Stratum			
Shrub Stratum			
Herb Stratum (Plot size: 6 Ft)			
Phalaris arundinacea	90	Y	FACW+
Cirsium arvense	5	N	FACU
Spartina pectinata	5	N	FACW
	100	=Total Cover	
Vine Stratum			

% Bare Ground in Herb Stratum 0

Dominance Test Worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

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

Percent of Dominant Species That are OBL, FACW, or FAC: 100.0% (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: 0 (A)	(B)

Prevalence Index = B/A=

Hydrophytic Vegetation Indicators:

- Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- Prevalence Index ≤ 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.

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

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

SOIL

Sampling Point: E1-1 Wet

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 to 7	10YR 3/1	100					SILTY CLAY LOAM	
7 to 12	10YR 6/2	90	10YR 5/6	10	C	M	SILTY CLAY LOAM	

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

Hydric Soil Indicators:

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) LRR F
- ☐ 1 cm Muck (A9) LRRF 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)
- ☐ 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)
- ☐ Dark Surface (S7) (LRR G)
- ☐ High Plains Depressions (F16) (LRR H outside of MLRA 72 73)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

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

☐ **Restrictive Layer (if observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes X No

Remarks:
Slight change in site topography makes vegetation and hydrology meet wetland characteristics.

HYDROLOGY

etland Hydrology Indicators:

rimary Indicators (minimum of one is 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 Fauna (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Dry-Season Water Table (C2)
- ☐ Oxidized Rhizospheres along Living Roots (C3) (where not tilled)
- ☐ Presence of Reduced Iron (C4)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (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 Imag.(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):

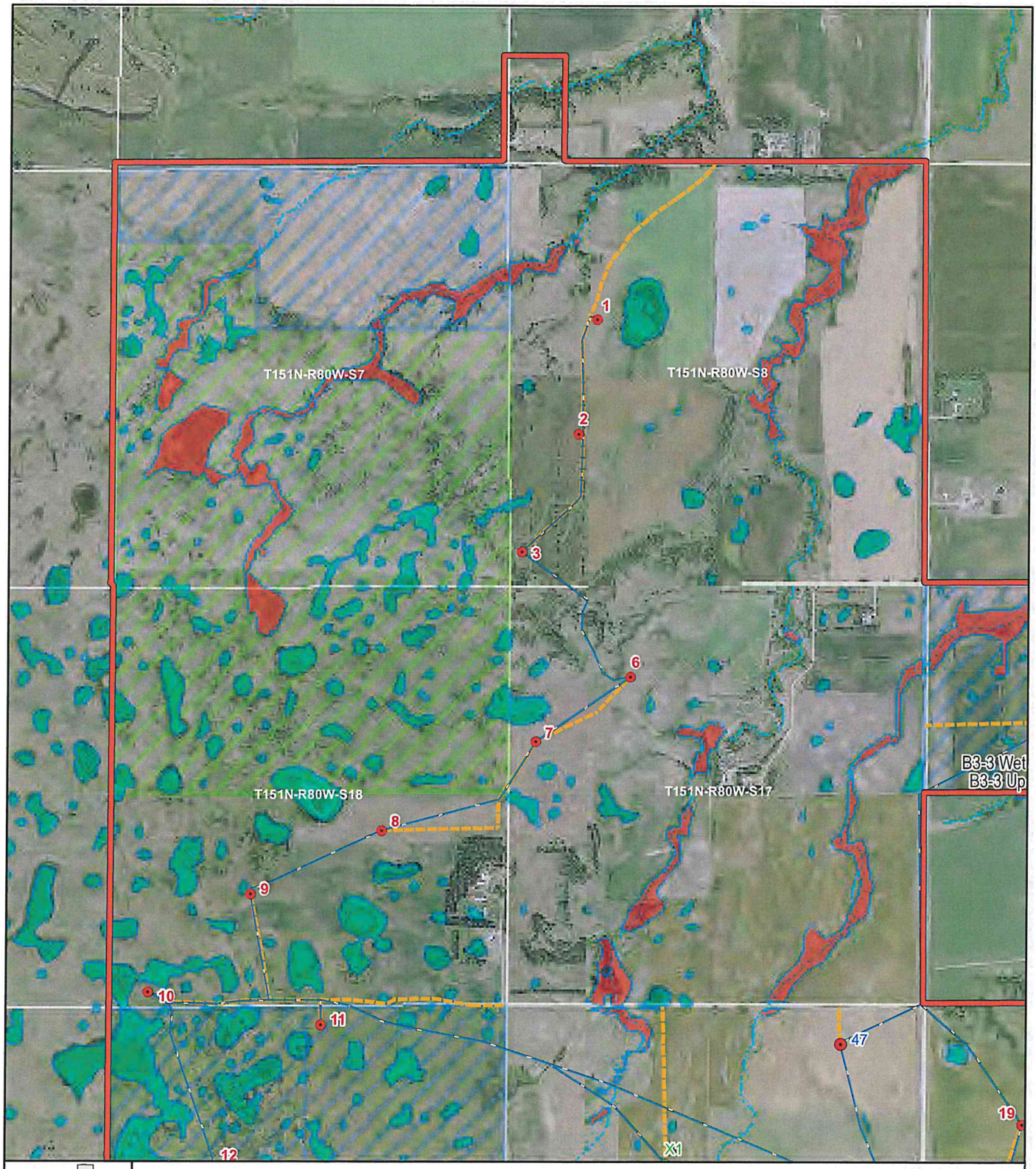
Saturation Present? Yes No X Depth (inches):
(includes capillary fringe)

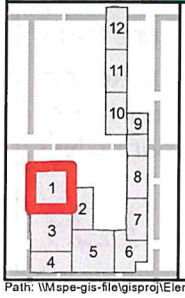
Wetland Hydrology Present? Yes No X

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

Remarks:

Appendix B – Wetland Detailed Mapping





Wetland Data Point
Project Boundary
Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Project O&M Facility
Project Substation
Perennial Stream
Intermittent Stream or Ditch
Grassland/Wetland Easement
Wetland Easement

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 500 1,000 2,000 Feet

Figure B-01
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd

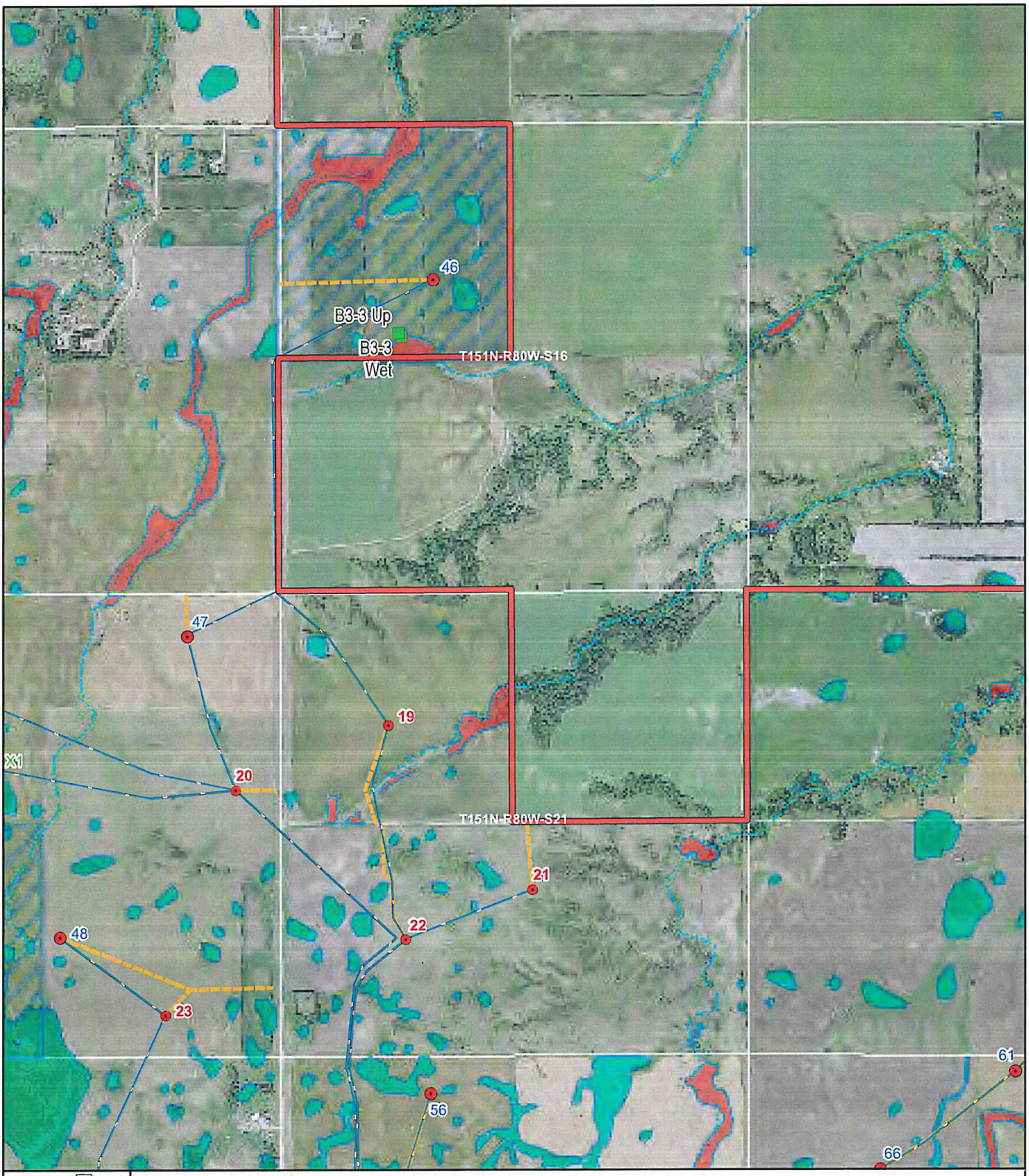
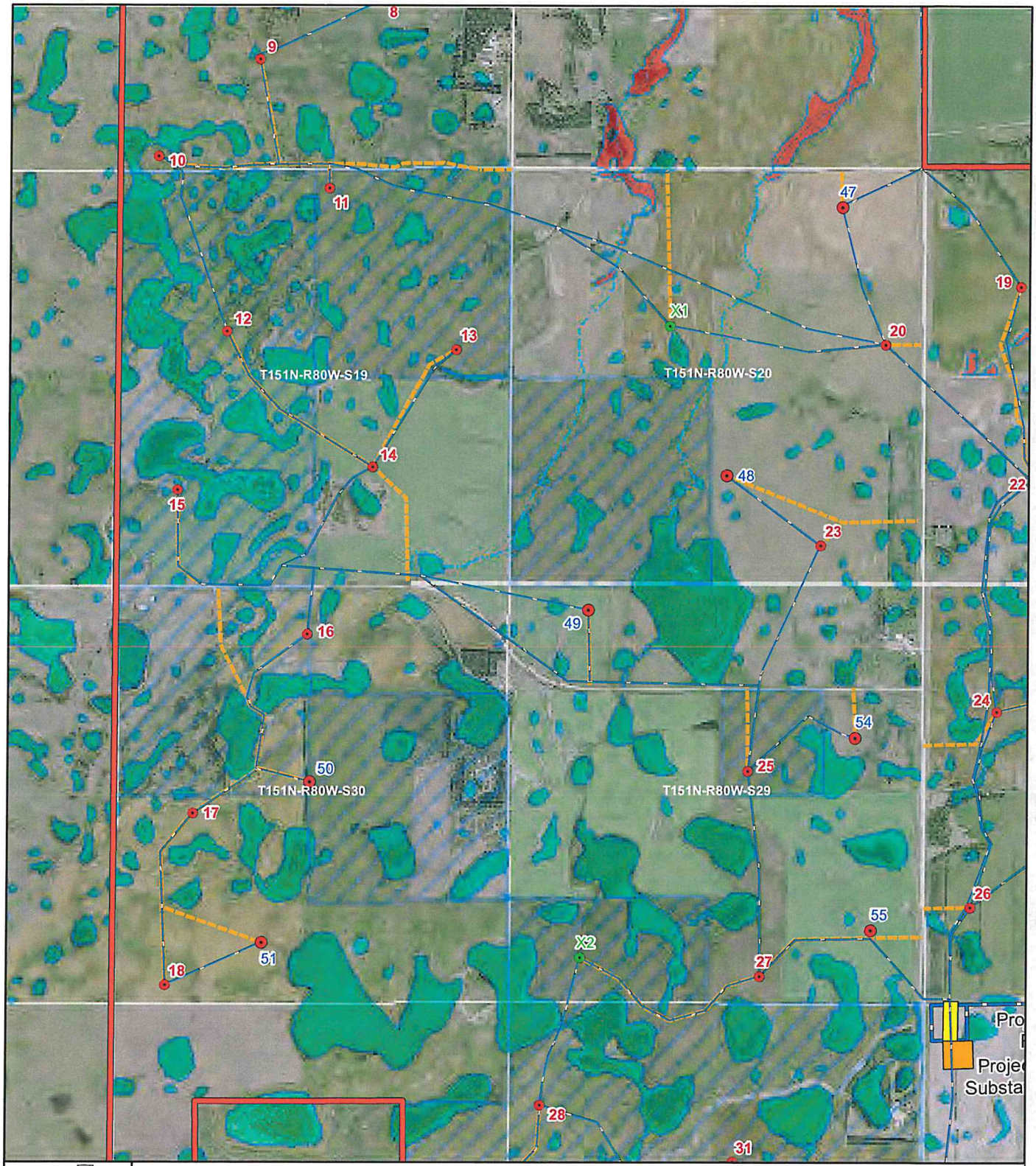
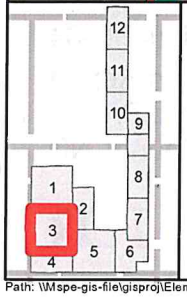


Figure B-02
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd





Wetland Data Point
Project Boundary
Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Project O&M Facility
Project Substation
Perennial Stream
Intermittent Stream or Ditch
Grassland/Wetland Easement
Wetland Easement

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 500 1,000 2,000 Feet

Figure B-03
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd

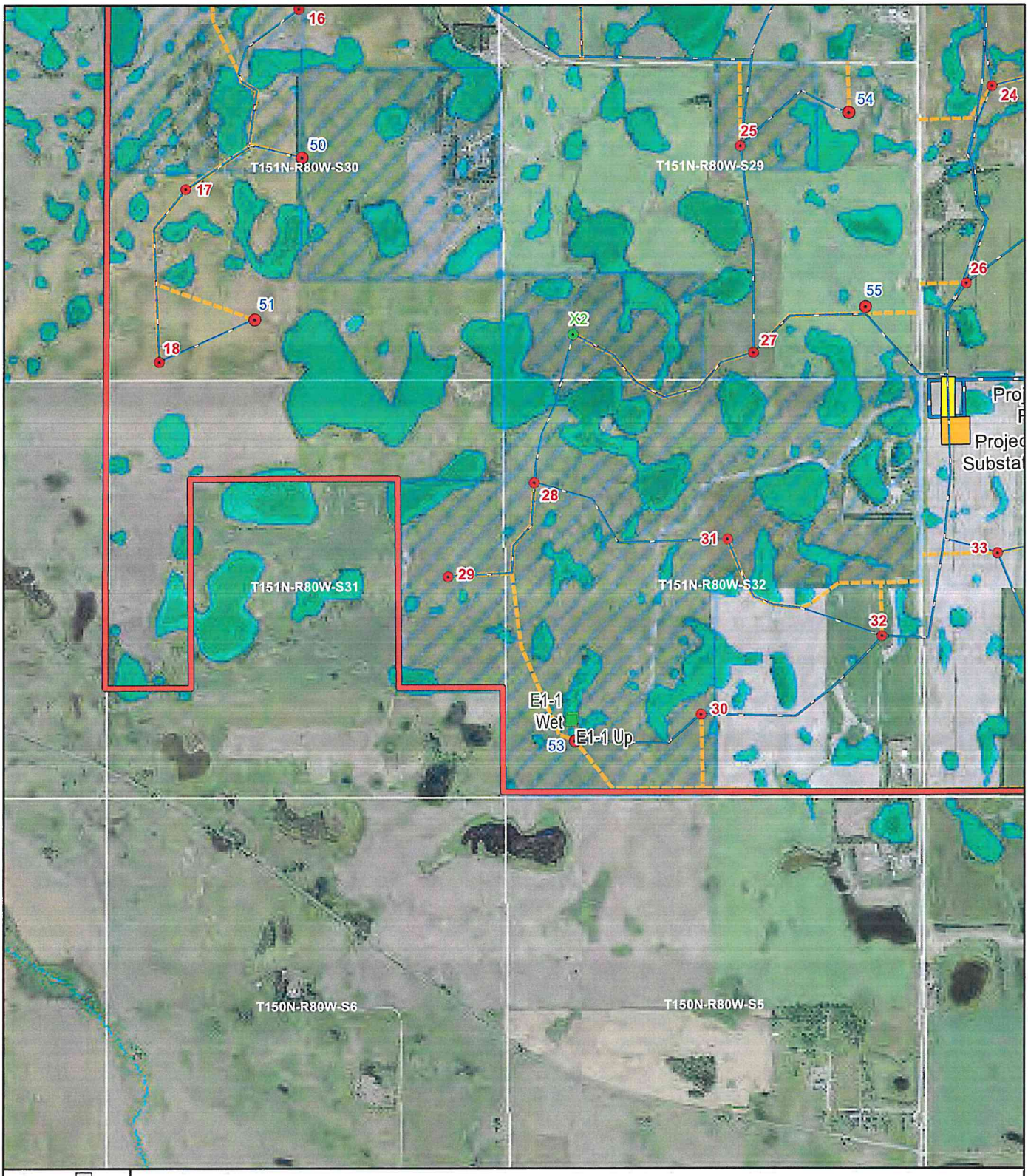
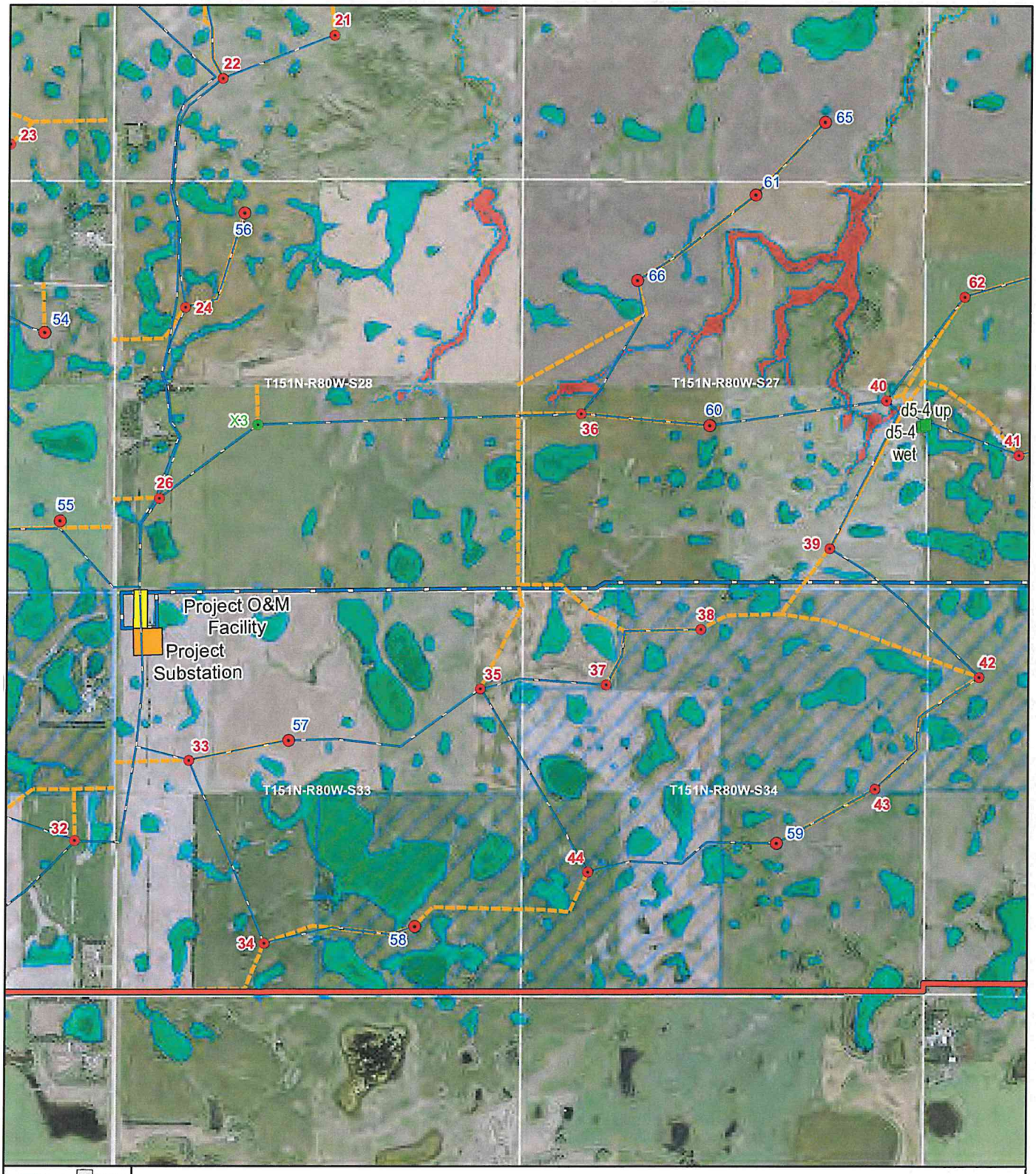
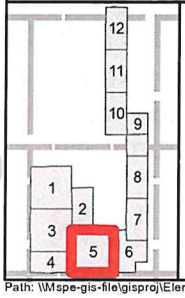


Figure B-04
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd





Wetland Data Point
Project Boundary
Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Project O&M Facility
Project Substation
Perennial Stream
Intermittent Stream or Ditch
Grassland/Wetland Easement
Wetland Easement

Preliminary Wetland Determination

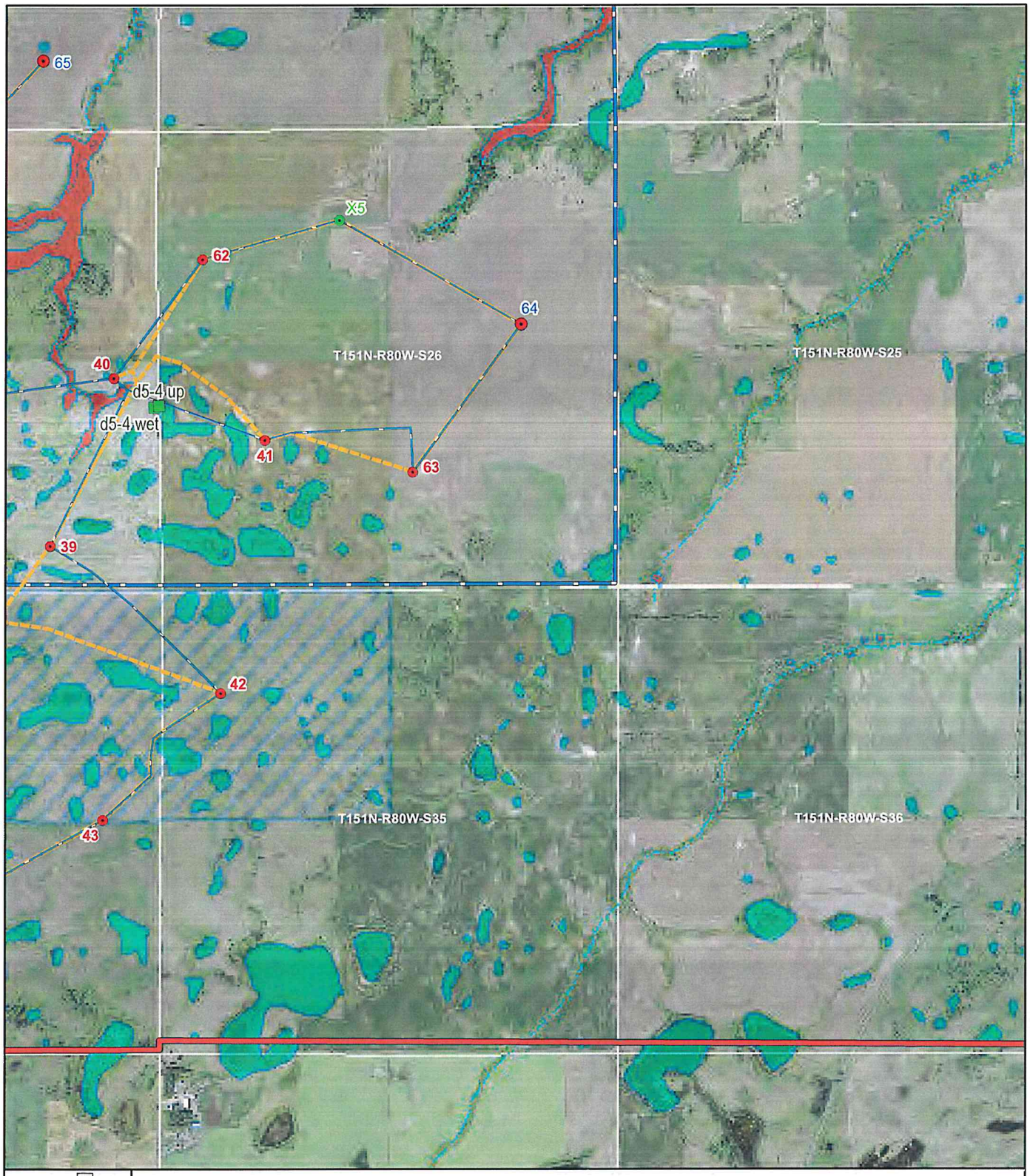
USACE Jurisdicitonal
Non-USACE Jurisdictional

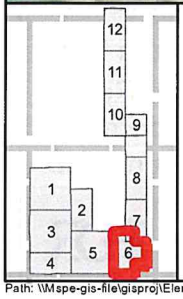
0 500 1,000 2,000 Feet

Figure B-05
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd





Wetland Data Point
Project Boundary
Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Project O&M Facility
Project Substation
Perennial Stream
Intermittent Stream or Ditch
Grassland/Wetland Easement
Wetland Easement

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 500 1,000 2,000 Feet

Figure B-06
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd

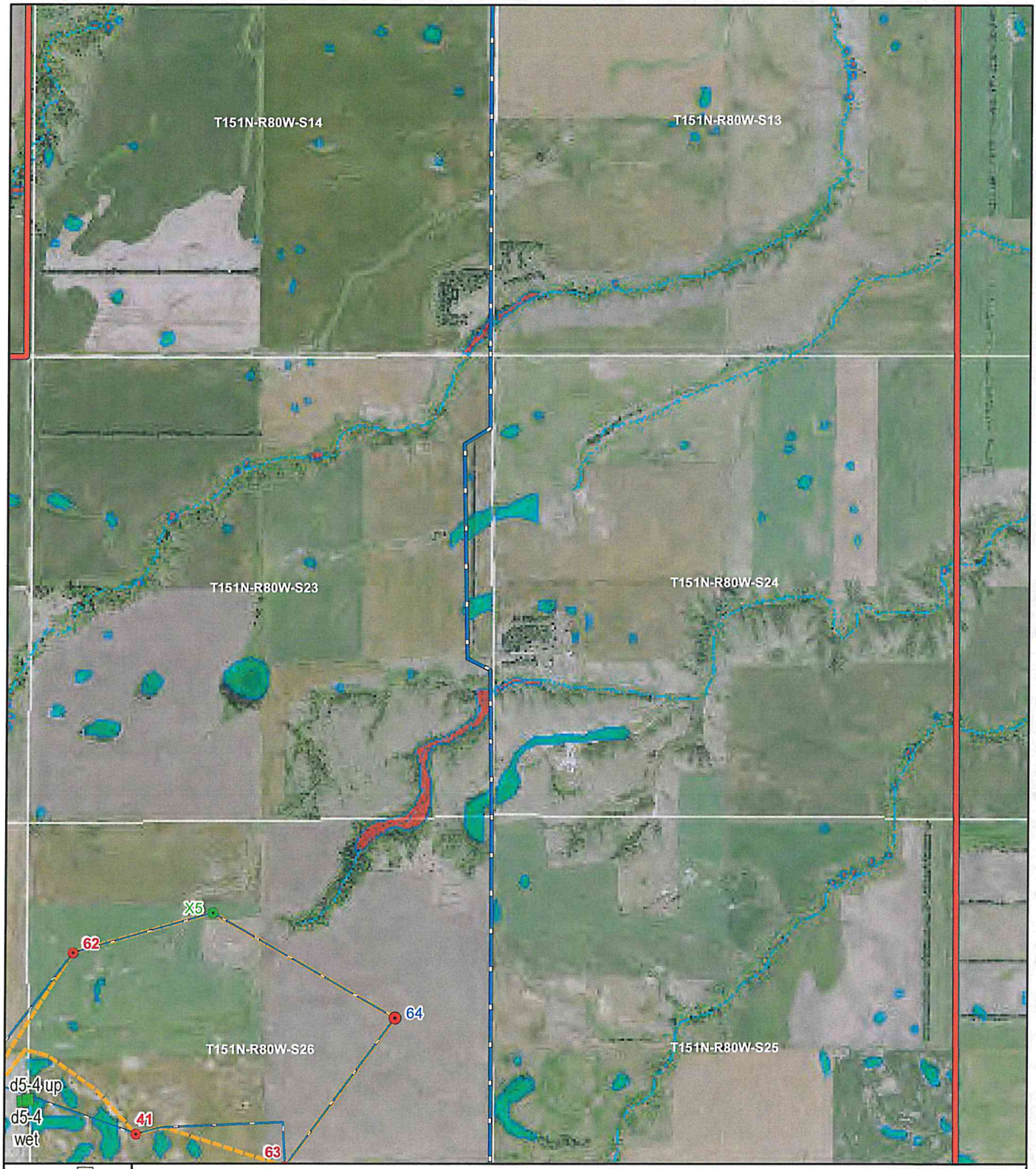
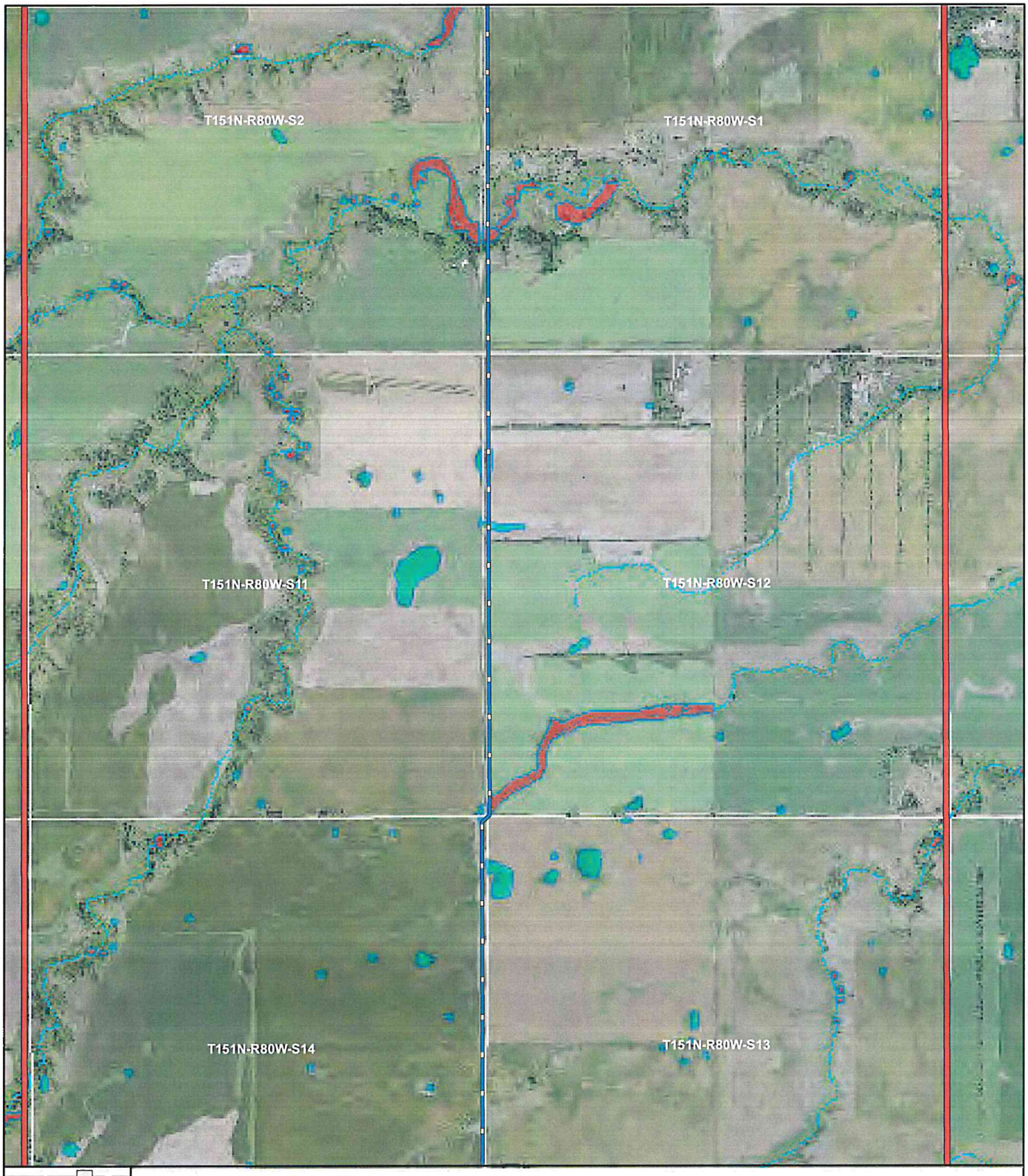
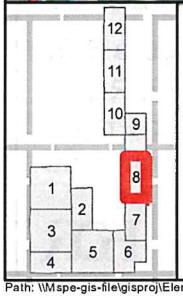


Figure B-07
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd





Wetland Data Point
Project Boundary
Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Project O&M Facility
Project Substation
Perennial Stream
Intermittent Stream or Ditch
Grassland/Wetland Easement
Wetland Easement

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 500 1,000 2,000 Feet

Figure B-08
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd

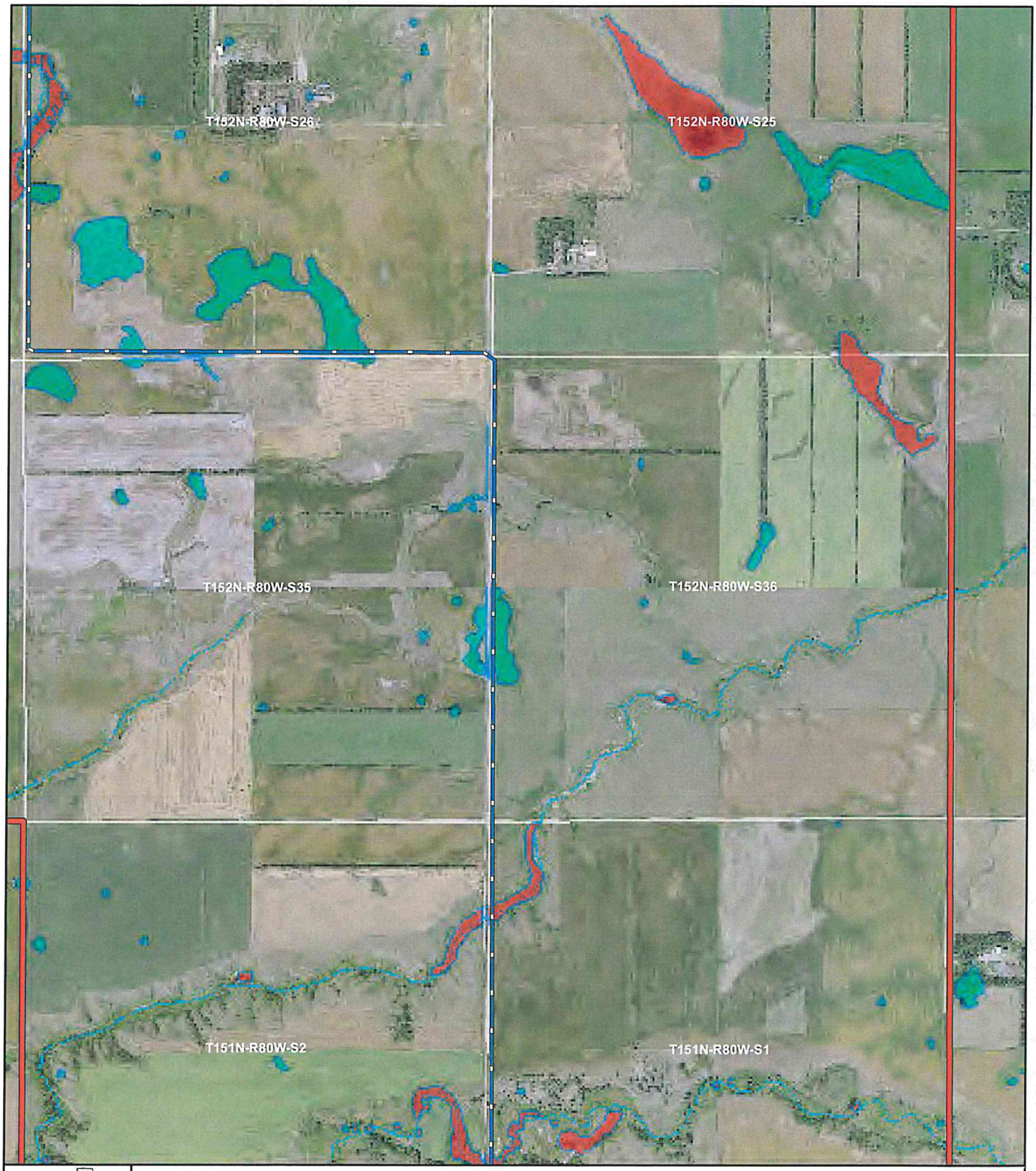
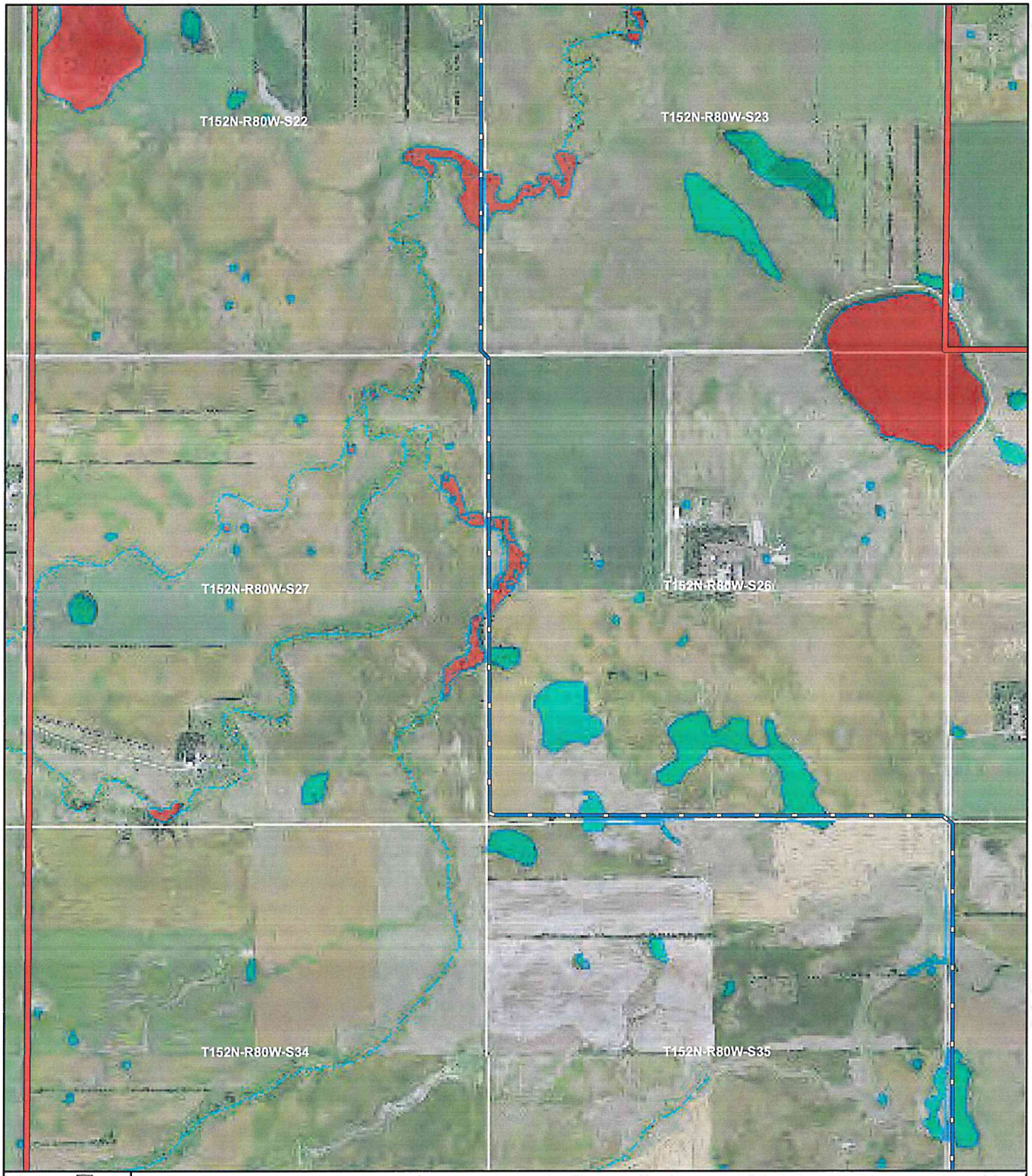
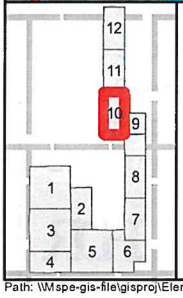


Figure B-09
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171469_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd





Wetland Data Point
Project Boundary
Turbine
Alternate Turbine

Access Road
Underground Collection
Overhead Transmission Line
Project O&M Facility
Project Substation

Perennial Stream
Intermittent Stream or Ditch
Grassland/Wetland Easement
Wetland Easement

Preliminary Wetland Determination
USACE Jurisdicitonal
Non-USACE Jurisdictional

N
0 500 1,000 2,000 Feet

Figure B-10
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd

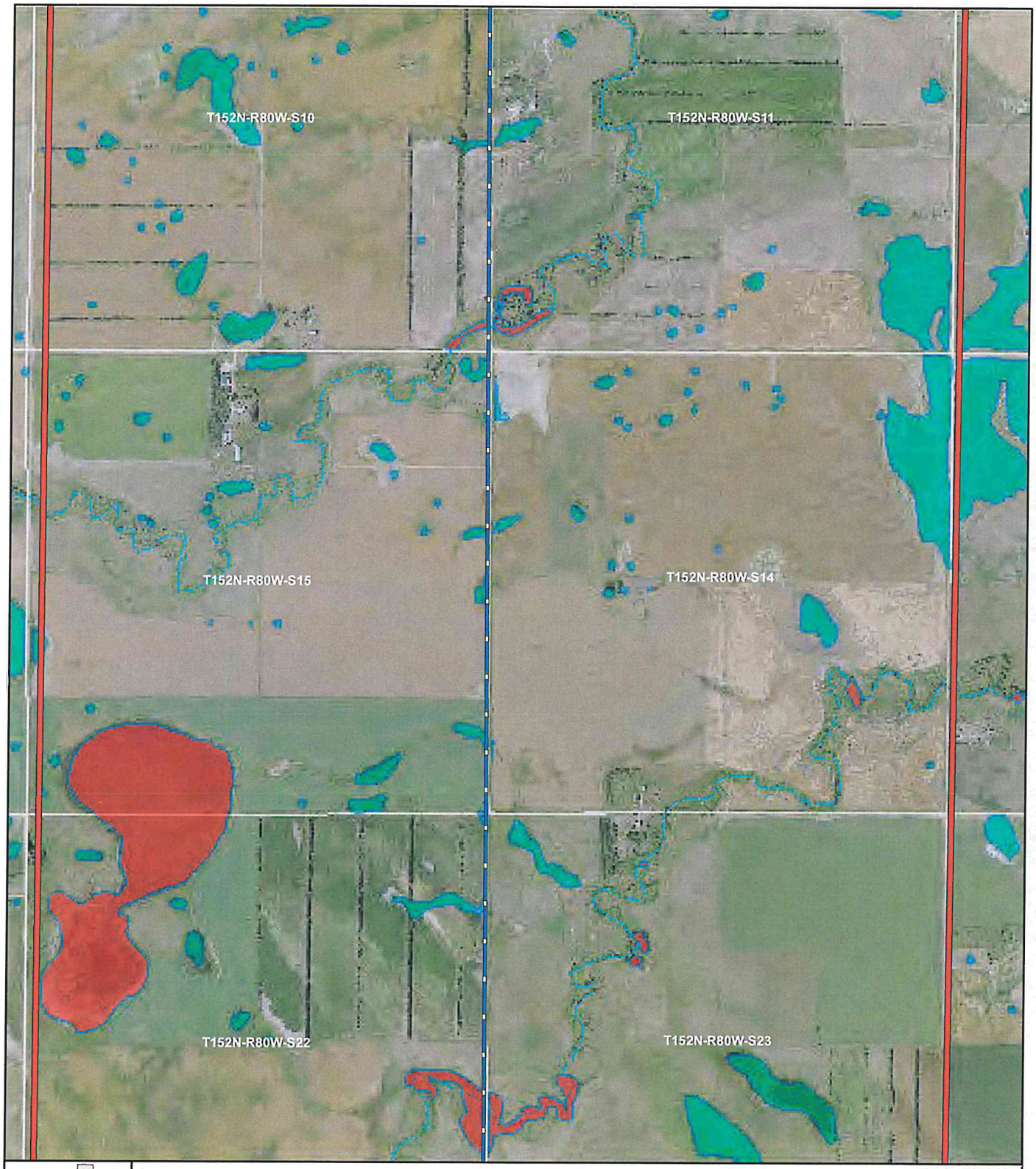
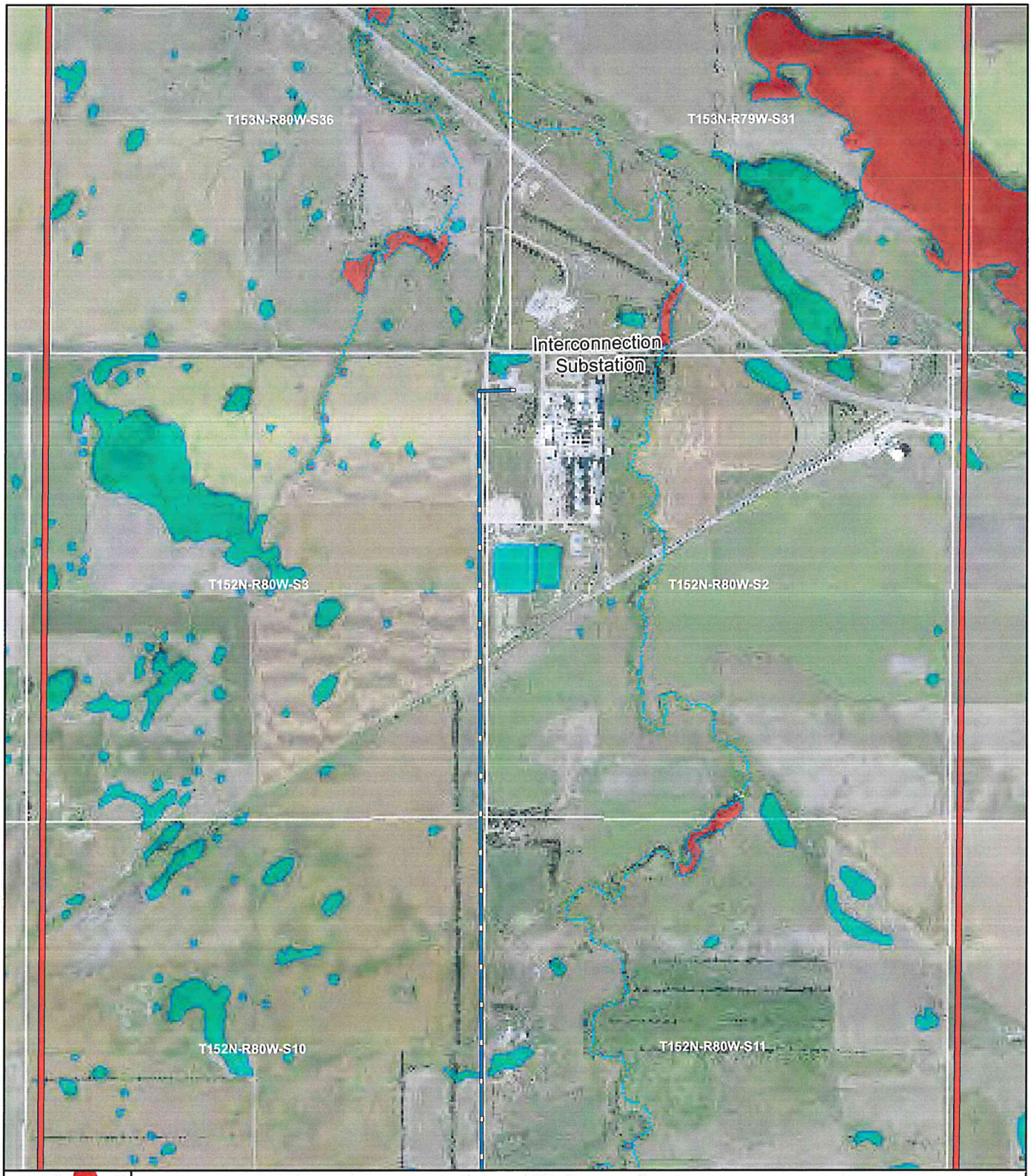
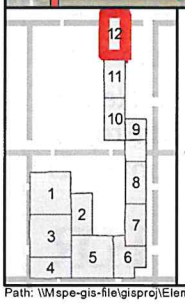


Figure B-11
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

Path: \\Mspe-gis-file\gisproj\ElementPower\171469_NewFrontier\map_docs\WetlandReport\NewFrontier_Wellands_Details.mxd





Wetland Data Point
Project Boundary
Turbine
Alternate Turbine
Access Road
Underground Collection
Overhead Transmission Line
Project O&M Facility
Project Substation
Perennial Stream
Intermittent Stream or Ditch
Grassland/Wetland Easement
Wetland Easement

Preliminary Wetland Determination

USACE Jurisdicitonal
Non-USACE Jurisdictional

N

0 500 1,000 2,000 Feet

Figure B-12
Wetland Delineation Report
New Frontier Wind Project
McHenry County, ND

elementpower HDR

Path: \\Mspe-gis-file\gisproj\ElementPower\171489_NewFrontier\map_docs\WetlandReport\NewFrontier_Wetlands_Details.mxd

Appendix C – Site Photos

Wetland E1-1: Emergent Wetland in Tilled Field

S18, T151N, R80W Photo 468 Direction: Southeast

Wetland D5-4: Emergent Drainage in Between Tilled Fields

S19, T151N, R80W Photo 1430 Direction: Southeast

elementpower

Appendix C-1
New Frontier Wind Project
McHenry County, North Dakota

Open Water Emergent Wetland in Grassland Area

S18, T151N, R80W Photo 920 Direction: West

Seasonally Flooded Emergent Wetland in Grassland Area

S19, T151N, R80W Photo 987 Direction: Southeast

elementpower

Appendix C-2
New Frontier Wind Project
McHenry County, North Dakota

Tilled Wetland in Agricultural Field

S20, T151N, R80W Photo 1172 Direction: North

Typical Upland Agricultural Field

S17, T151N, R80W Photo 987 Direction: North

elementpower

Appendix C-3
New Frontier Wind Project
McHenry County, North Dakota

Open Water Wetland in Agricultural Field

S21, T151N, R80W Photo 1245 Direction: Northeast

Narrow Tilled Field Between Wetlands

S30, T151N, R80W Photo 846 Direction: Northeast

elementpower

Appendix C-4
New Frontier Wind Project
McHenry County, North Dakota

Large Open Water Wetland North of Roadway

S29, T151N, R80W Photo 770 Direction: North

Narrow Drainage in Tilled Agricultural Field

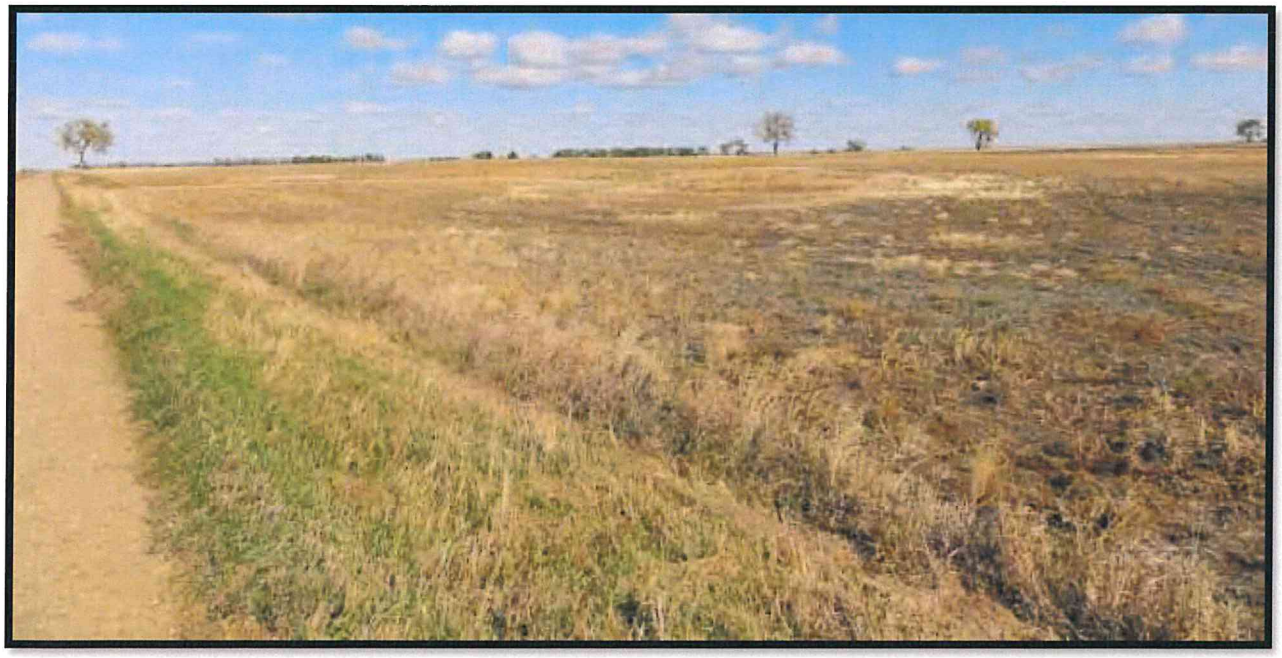
S27, T151N, R80W Photo 1409 Direction: Northeast

elementpower

Appendix C-5
New Frontier Wind Project
McHenry County, North Dakota

Emergent Riparian Wetland along Transmission Corridor

S23, T152N, R80W Photo 1543 Direction: Northeast



Tilled Emergent Wetland along Transmission Corridor

S13, T151N, R80W Photo 1492 Direction: Northeast

elementpower

Appendix C-6
New Frontier Wind Project
McHenry County, North Dakota