Big Stone South to Ellendale

September 3, 2015

Ms. Patsy Crooke
Project Manager
USACE – North Dakota Regulatory Office
1513 South 12th Street
Bismarck ND, 58504

Subject: NWO-2012-2940-BIS
Big Stone South to Ellendale Project – Section 404 NWP 12 Permit Application

Dear Ms. Crooke,

Please find the enclosed Section 404 Permit Application completed for the Big Stone South to Ellendale Project (the Project) proposed by Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc. (Montana-Dakota) and Otter Tail Power Company (Otter Tail Power), (jointly, the Applicants).

The Project consists of a 345-kV transmission line traversing about 162 miles through North Dakota and South Dakota as well as the new Ellendale 345kV Substation near Ellendale, North Dakota. The North Dakota Facility will span about 9.0 miles through Dickey County, North Dakota; from the new Ellendale 345kV Substation to the North Dakota-South Dakota state border. The transmission line will be composed of 345-kV single circuit, alternating current (AC) lines that will be installed on steel structures measuring 10 feet in diameter.

The implementation of this Project will benefit the regional network of lower transmission lines by providing a connection to this high-voltage transmission and therefore remove overloads to local transmission line systems and improving these systems' reliability. This enhanced system will also be better able to withstand system failures. This will result in a reduction to the wholesale cost of energy delivery for consumers across the region.

I can be reached at 218-739-8416 or akoeckeritz@otpco.com should you have any questions about this project.

Sincerely,
Otter Tail Power Company

Al Koeckeritz
*Project Developer*

Cc Myron Rader, Otter Tail Power Company
Mark Dihle, Montana-Dakota Utilities Co.
Brian Hunker, HDR Engineering, Inc.

U.S. ARMY CORPS OF ENGINEERS

# APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT

33 CFR 325. The proponent agency is CECW-CO-R.

*Form Approved - OMB No. 0710-0003 Expires: 30-SEPTEMBER-2015*

Public reporting for this collection of information is estimated to average 11 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of the collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters, Executive Services and Communications Directorate, Information Management Division and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.

PRIVACY ACT STATEMENT

Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Programs of the Corps of Engineers; Final Rule 33 CFR 320-332. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public and may be made available as part of a public notice as required by Federal law. Submission of requested information is voluntary, however, if information is not provided the permit application cannot be evaluated nor can a permit be issued. One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and/or instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

**(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)**

| 1. APPLICATION NO. | 2. FIELD OFFICE CODE | 3. DATE RECEIVED | 4. DATE APPLICATION COMPLETE |
|---|---|---|---|
| | | | |

***(ITEMS BELOW TO BE FILLED BY APPLICANT)***

| 5. APPLICANT'S NAME | 8. AUTHORIZED AGENT'S NAME AND TITLE (agent is not required) |
|---|---|
| First - Al Middle - Last - Koeckeritz | First - Middle - Last - |
| Company - Otter Tail Power Company | Company - |
| E-mail Address - akoeckeritz@otpco.com | E-mail Address - |
| **6. APPLICANT'S ADDRESS:** | **9. AGENT'S ADDRESS:** |
| Address- 215 S. Cascade Street P.O. Box 496 | Address- |
| City - Fergus Falls State - MN Zip - 56538 Country - USA | City - State - Zip - Country - |
| **7. APPLICANT'S PHONE NOs. w/AREA CODE** | **10. AGENTS PHONE NOs. w/AREA CODE** |
| a. Residence b. Business 218-739-8416 c. Fax | a. Residence b. Business c. Fax |

**STATEMENT OF AUTHORIZATION**

11. I hereby authorize, HDR to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Alan R Koeckeritz — SIGNATURE OF APPLICANT

2015-09-03 — DATE

**NAME, LOCATION, AND DESCRIPTION OF PROJECT OR ACTIVITY**

12. PROJECT NAME OR TITLE (see instructions)

Big Stone South to Ellendale 345kV Transmission Line

| 13. NAME OF WATERBODY, IF KNOWN (if applicable) | 14. PROJECT STREET ADDRESS (if applicable) |
|---|---|
| James River tributaries | Address Not Applicable (NA) |
| 15. LOCATION OF PROJECT<br>Latitude: ◦N See Attached Block 15 Longitude: ◦W | City - NA State- NA Zip- NA |

16. OTHER LOCATION DESCRIPTIONS, IF KNOWN (see instructions)

State Tax Parcel ID NA Municipality NA

Section - Attached Block 16 Township - Attached Block 16 Range - Attached Block 16

17. DIRECTIONS TO THE SITE
NA

18. Nature of Activity (Description of project, include all features)
See Attached Block 18

19. Project Purpose (Describe the reason or purpose of the project, see instructions)
See Attached Block 19

**USE BLOCKS 20-23 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED**

20. Reason(s) for Discharge
See Attached Block 20

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards:

| Type | Type | Type |
|---|---|---|
| Amount in Cubic Yards | Amount in Cubic Yards | Amount in Cubic Yards |

See attached Block 21

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)
Acres See Attached Block 22
or
Linear Feet

23. Description of Avoidance, Minimization, and Compensation (see instructions)
See Attached Block 23

24. Is Any Portion of the Work Already Complete? ☐ Yes ☒ No IF YES, DESCRIBE THE COMPLETED WORK

See Attached Block 24

25. Addresses of Adjoining Property Owners, Lessees, Etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

a. Address- See Attached Block 25

City - State - Zip -

b. Address-

City - State - Zip -

c. Address-

City - State - Zip -

d. Address-

City - State - Zip -

e. Address-

City - State - Zip -

26. List of Other Certificates or Approvals/Denials received from other Federal, State, or Local Agencies for Work Described in This Application.

| AGENCY | TYPE APPROVAL* | IDENTIFICATION NUMBER | DATE APPLIED | DATE APPROVED | DATE DENIED |
|---|---|---|---|---|---|
| Attached Block 26 | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

* Would include but is not restricted to zoning, building, and flood plain permits

27. Application is hereby made for permit or permits to authorize the work described in this application. I certify that this information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

Alan R Koechig — 2015-09-03

SIGNATURE OF APPLICANT | DATE | SIGNATURE OF AGENT | DATE

The Application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals, or covers up any trick, scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than $10,000 or imprisoned not more than five years or both.

**Montana-Dakota Utilities Co. & Otter Tail Power Company**

# Big Stone South to Ellendale 345kV Transmission Line

Pre-Construction Notification
NWP 12-Utility Line Activities

U.S. Army Corps of Engineers

NWO-2012-2940-BIS

August 2015

# Introduction/Background

Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc., a Delaware corporation (Montana-Dakota) and Otter Tail Power Company, a Minnesota corporation (Otter Tail Power) (jointly, the Applicants), propose to construct, operate, and maintain a 345-kilovolt (kV) transmission line and associated facilities called the Big Stone South to Ellendale Project (Project). The Project consists of both a 345-kV transmission line that is about 162 miles long traversing through North Dakota and South Dakota and the new Ellendale 345-kV Substation near Ellendale, North Dakota. The North Dakota Facility consists of about 9.0 miles of single-circuit, alternating current (AC), 345-kV transmission line and associated facilities, located entirely in Dickey County, North Dakota (see Figure 1, Project Location). The North Dakota Facility also includes a new 345-kV substation located immediately west of the existing Ellendale 230-kV Substation, called the Ellendale 345-kV Substation, in addition to a 230-kV tie line, modifications to the Ellendale 230-kV Substation, and a temporary laydown area. The North Dakota transmission facility will extend from the Ellendale 345-kV Substation to the North Dakota-South Dakota state border. Modifications to the North Dakota Facility may occur depending on the final route permitted, land rights, and final engineering design.

Montana-Dakota is headquartered in Bismarck, North Dakota, and provides electric and natural gas service to parts of Montana, North Dakota, South Dakota, and Wyoming. The Montana-Dakota service area covers about 168,000 square miles and Montana-Dakota serves approximately 312,000 customers. In North Dakota, Montana-Dakota provides service to approximately 73,350 electric and 90,000 natural gas customers in about 150 communities.

Otter Tail Power is headquartered in Fergus Falls, Minnesota, and provides electric service to parts of Minnesota, North Dakota, and South Dakota. The Otter Tail Power service area covers about 70,000 square miles and Otter Tail Power serves approximately 129,400 customers in 422 communities.

The Project was identified as one of seventeen Multi-Value Projects (MVPs) by the Midcontinent Independent System Operator, Inc. (MISO, formerly Midwest Independent Transmission System Operator [Midwest ISO]). The Applicants are MISO members. Significant study shows that MVPs will reduce the wholesale cost of energy delivery for consumers across the MISO region by enabling the delivery of low-cost generation to load, reducing congestion costs, and increasing system reliability.

# Application for Department of the Army Permit Details

The following sections provide additional information corresponding to the Application for Department of Army Permit block numbers on Engineering Form 4345.

# Block 15. Location of Project

A map showing the location of the proposed Project can be seen in Figure 1, Project Location.

# Block 16. Other Location Descriptions

The legal description of the proposed Project area is included in the North Dakota Wetland Delineation Report included in this submittal as Attachment A.

# Block 18. Nature of Activity

The majority of the proposed 345 kV transmission line facilities will be built with single pole, steel single-circuit structures, with a foundation area of approximately 78.5 square feet (10 foot diameter base). This proposed Project requires a 150-foot-wide easement corridor for the length of the transmission line.

## Right-of-Way Preparation

During the land rights process, individual property owners will be advised as to the construction schedule, needed access to the North Dakota Facility easement corridor, and any vegetation clearing required for the North Dakota Facility. To maintain North American Electric Reliability Corporation (NERC) standards, the North Dakota Facility easement corridor will be cleared of vegetation as necessary to construct, operate, and maintain the North Dakota Facility. Clear cutting (that is, the removal of all trees, brush, and other low-growing vegetation) will occur within the North Dakota Facility easement corridor, along construction and maintenance travel paths, and at structure erection sites. Trees that could present a danger to the safe operation of the North Dakota Facility (danger trees) will also be removed or pruned to address safety standards. Danger trees include trees outside of the North Dakota Facility easement corridor that could hit the transmission line should they fall. Disposal of timber, tree tops, limbs, and slash will comply with state and local ordinances and the desires of landowners. Wood from the clearing operation will be offered to the landowner or removed from the site.

Significant amounts of grading are not anticipated for preparation of the transmission line easement corridor. Some grading will be required for temporary access roads required for river crossings (if site conditions deem this necessary).

## Transmission Construction Procedures

Transmission line structure sites are typically selected in areas that will require minimal grading. Structure sites with slopes of 10 percent or less typically will not be graded or leveled, unless it is necessary to provide a level area for construction access and activities. At sites with more than 10 percent slope, working areas may require grading or fill to develop a suitable work area. If the landowner permits, leveled areas and working pads will remain in place for use in future maintenance activities.

Structures will be delivered to the temporary work areas located within the North Dakota ROW and typically immediately adjacent to the structure site until the structure is set. At each temporary work area, the steel structures are assembled, davit arms are attached, and insulators and other hardware are attached while the structure is still on the ground. The structure will then be lifted, placed, and secured into the 10 ft. diameter structure foundation footprint using a crane. Structures will either be directly embedded into the soil or set on and secured to concrete foundations.

For structures that require concrete foundations, concrete will be delivered to the structure site by concrete ready mix trucks. Foundations are typically allowed to cure for approximately 3 weeks prior to erecting (or installing) the structures. Any excess soil from the excavation will be offered to the landowner, scattered on site, or removed from the site. Soil scattered on site or removed from the area would not be placed in wetlands or other sensitive areas.

Most of the construction activity will be limited to the structure work area immediately around each structure. Little additional ground disturbance will be needed at the structure sites. The total temporary work area in the vicinity of each structure is expected to be confined to about 1 acre (43,560 square feet). Wire stringing areas will be placed along the North Dakota Route and are typically every 2-5 miles apart. These areas will each occupy an area up 1,600 square feet. One temporary laydown area will be required along or near the transmission line for structure and equipment storage and consists of an approximate area of 40 acres. The location of this site has not yet been determined. It is anticipated that the site will avoid any wetlands or other sensitive sites. The Ellendale 345-kV Substation will be installed. Temporary construction access roads may be needed to access structure locations and will be located within the ROW. If a temporary access road is needed outside of the ROW, the Applicants will use existing public and private roads where possible. Where no existing roads provide access, and if needed, temporary access roads up to 30-feet-wide will be constructed.

## Restoration Procedures

During construction, crews will limit ground disturbance wherever possible. Upon completion of construction activities, disturbed areas including temporary work areas, temporary access roads, and wire stringing areas will be restored according to the agreement negotiated with the landowner. If damage has occurred to crops, fences, or the property, the Applicants will fairly reimburse the landowner for the damages sustained. Post-construction reclamation activities may include removing and disposing of debris, dismantling all temporary facilities (including laydown areas and temporary access roads), leveling disturbed soil, alleviating soil compaction, and reseeding non-cultivated areas disturbed by construction activities with vegetation similar to that which was removed. The Applicant may engage an outside contractor for these activities.

Erosion control measures will be implemented as necessary to minimize runoff during construction. Specific measures will be determined once final design of the route is complete and a field review is made to identify specific areas of concern. Erosion control measures such as silt fencing, straw bale fencing, mulching, seeding, or mesh fabric overlay will be installed when and where appropriate. Access routes to structure locations will be reviewed prior to the mobilization of equipment so erosion concerns can be avoided or minimized.

## Maintenance Procedures

Transmission infrastructure has very few mechanical elements and is built to withstand normal weather extremes. With the exception of severe weather, such as tornadoes and heavy ice storms, transmission lines rarely fail. They are automatically taken out of service by the operation of protective relaying equipment when a fault is sensed on the system; such interruptions are usually only momentary.

Over the life of the proposed Project, the Applicants will use the North Dakota easement corridor to perform regular maintenance and inspections on the North Dakota Facility to preserve its continued integrity. Generally, the Applicants inspect the transmission lines at least once per year. Inspections are typically limited to the immediate North Dakota Facility easement corridor and travel paths. If problems are found during inspections, repairs will be performed and the landowners and agencies will be notified if appropriate. The Applicants will also conduct routine maintenance to remove undesired vegetation that may interfere with the safe and reliable operation of the proposed line.

# Block 19. Proposed Project Purpose

MISO is a not-for-profit, member-based regional transmission organization (see generally www.midwestiso.org). The Project is part of the MISO's MVP portfolio, a regionally-planned portfolio of transmission projects supported by significant research and analysis. MISO conducted several studies dating back to 2002 to investigate the reliable transmission of electrical power in the Midwest and the integration of wind energy resources to provide the best value to electric consumers. The most notable studies that contributed to the identification of the Project were:

- The Northwest Exploratory Study completed during the Midwest ISO Transmission Expansion Plan (MTEP) 2005 (Midwest ISO 2005) planning cycle,
- The Regional Generation Outlet Study (RGOS) completed during the MTEP09 and MTEP10 planning cycles (Midwest ISO 2010), and
- The "Multi-Value Project Portfolio – Results and Analyses" paraphrased in the MISO Transmission Expansion Plan 2011 (MTEP11) planning report (Midwest ISO 2011).

The overall goal for the MVP portfolio analysis was to design a transmission portfolio that takes advantage of the linkages between regional reliability and economic benefits to promote a competitive and efficient electric market within the MISO territory. The Project was identified as one such project capable of providing regional electric reliability through the construction and operation of a higher-voltage transmission system. It would stabilize the regional network by providing a backbone system and contending with system contingencies. With the construction of a new 345-kV transmission line, the regional network of distribution and lower-voltage transmission lines will benefit from enhanced connections with the high-voltage transmission system. In addition, the enhanced transmission system will be better able to withstand system failures. Furthermore, the Project would remove overloads on local transmission facilities, thereby improving reliability to the local transmission system as more generation facilities are constructed within North Dakota and South Dakota.

## Construction Timeline

Project construction is expected to begin in 2016 with final cleanup and restoration activities currently scheduled to occur through 2019. Project construction is expected to begin June 2016 with clearing activities beginning in November 2015, subject to regulatory approvals. Construction will take approximately 20 months to complete. The precise timing of construction will depend upon various requirements that may be in place due to permit conditions.

## Related Activities

In addition to construction of the approximately 162-mile 345 kV transmission line, the following activities will also be completed.

*Ellendale 345-kV Substation*

The new Ellendale 345-kV Substation will be constructed and owned by Montana-Dakota, about 1.5 miles west of Ellendale, North Dakota, along the west side of 87th Avenue SE in Section 9 of Township 129, Range 63, in Dickey County, North Dakota and across the road from the existing Montana-Dakota Ellendale 230-kV Substation, which is located in Section 10 of Township 129, Range 63.

The footprint of the substation will be approximately 11.3 acres. Construction of the new Ellendale 345-kV Substation will involve the installation of two 345-kV circuit breakers, one 345-kV line termination structure, five 345-kV disconnect switches, one 345-kV/230-kV 300/400/500 Mega Volt Ampere (MVA) Auto-Transformer, a 345-kV Shunt Line Reactor, eight 230-kV circuit breakers, twenty-one 230-kV disconnect switches, four 230-kV line termination structures, associated arresters, Capacitive Voltage Transformers (CVTs), bus work, and protective relaying and controls required to support the circuit breakers. All construction will occur within the land purchased for the substation. All wetlands identified within the Ellendale 345-kV Substation were determined to be Non-Jurisdictional and are not subject to Department of the Army regulatory authority based on NWO-2012-2940-BIS January 11, 2013 Jurisdictional Determination.

*Merricourt-Ellendale 230-kV Tie Line*

The existing Montana-Dakota-owned Merricourt-Ellendale 230-kV transmission line will be modified to terminate at the new Ellendale 345-kV Substation. Part of the existing line will be used as a 230-kV tie line between the new Ellendale 345-kV Substation and existing Ellendale 230-kV Substation within the existing right-of-way (ROW) of the Merricourt-Ellendale 230-kV transmission line.

*Ellendale 230-kV Substation Modification*

Buswork within the existing Ellendale 230-kV Substation will be modified by removing the Merricourt, Tatanka, and Hankinson 230-kV lines and leaving only the Ellendale 345-kV Substation 230-kV tie line. All work will occur within the existing substation's fenced boundary.

*Temporary Laydown Areas*

There is one temporary laydown area that will be required in North Dakota for equipment storage before transportation to the structure work areas. The laydown area will be approximately 40 acres and will be located near the Ellendale 345-kV Substation on land that is currently cultivated. The exact location of the laydown area has not been determined at this time. It is anticipated that the site will avoid any wetlands or other sensitive sites.

The laydown areas will be leveled (if necessary), graveled, and may have a perimeter fence. Erosion and sediment control best management practices will be utilized for sites near wetlands. Construction office trailers may be located within the laydown areas. The laydown areas will accept delivery of and store equipment and materials necessary to construct the new transmission line facilities, and will be an area for pre-assembly work. Areas disturbed as a result of establishing the laydown area will be restored to pre-construction condition or per landowner agreement.

# Block 20. Reasons for Discharge

The reasons for discharge can be seen in the Permanent Impacts section of Block 22.

# Block 21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards

The type(s) of material being discharged and total amount in cubic yards consists of soil boring for the placement of concrete and rebar structure foundations into the ground. The size and depth of each structure foundation varies and final calculations have yet to be made. The total amount in cubic yards of material discharged will range between 465 and 1164 cubic yards.

# Block 22. Surface Area in Acres of Wetlands or Other Waters Filled

Revised impacts were calculated using the August 14, 2015 alignment and structure location information. Permanent impacts for the Project can be seen in Figure 2, Wetland Impacts. Two types of wetland impacts would result from the proposed Project construction:

## Permanent impacts

These impacts are related to structure placement in wetlands (impacts were calculated by assuming a 78.5-square-foot footprint for structure locations based on a 10-foot diameter foundation) (see Block 18, Nature of Activity). Locations of proposed permanent impacts are shown in Figure 2, Wetland Impacts.

## Temporary impacts

These impacts are related to construction activities (impacts were calculated by assuming a 30-foot-wide access road along the centerline between structure locations, wire stringing areas every 2-5 miles along the North Dakota Facility easement corridor up to 1,600 square feet in size, and a 1 acre temporary work area around the pole foundation; 43,560-square-feet per pole).

Table 22-1 presents permanent and temporary impacts. Wetlands classified as riverine (R2UBF) were excluded from temporary impacts if crossing these features with a temporary

access road was not considered feasible. Only smaller streams and ditches would be crossed by temporary access roads and have temporary impacts. Currently there are no locations within the Project Area where stream crossing are being proposed. Locations of proposed permanent impacts are shown in Figure 2, Wetland Impacts. Temporary impacts were quantified using the latest temporary work areas and wire stringing areas received on August 14, 2015, and temporary access road locations received on August 17, 2015. Temporary access road locations are being continually updated through contractor field review and landowner coordination. The final version of temporary access roads will likely result in less temporary wetland impacts than the current impacts shown in Table 22-1. An updated temporary access road map will be created prior to construction and can be provided to the USACE upon request.

**Table 22-1. Proposed Wetland Impacts from all Project Activities as of August 17, 2015**

| Wetland Type | Number of Structures in Wetlands | Temporary Impacts in Acres | Permanent Impacts Square Feet [ac] |
|---|---|---|---|
| ***Fresh Water Pond*** | | | |
| **PUBH** | 0 | 0.02 | 00.00 [0.0000] |
| ***Freshwater Emergent Wetland*** | | | |
| **PEMA** | 1 | 5.39 | 78.54 [0.0018] |
| **PEMC** | 0 | 1.75 | 0.00 [0.0000] |
| **PEMF** | 2 | 7.44 | 157.08 [0.0036] |
| ***PEM - Offsite Reviewed Study Area Wetlands** | 1 | 1.50 | 78.54[0.0018] |
| ****Offsite Reviewed Wetlands*** | **0** | **00.31** | **00.00 [0.0000]** |
| ***Riverine*** | | | |
| **R2UBF** | 0 | 0.0000 | 00.00 [0.0000] |
| **Total** | **4** | **16.41** | 314.16 [0.0072] |

*Note: PEM – Offsite Reviewed Study Area Wetlands refer to areas identified from the May 21, 2015 engineering data where the route shifted outside the 500-foot-wide survey corridor. These areas were reviewed in the original offsite review and offsite wetland boundaries were identified. Wetlands in these areas are where onsite field verification could not be conducted.

**Note: Offsite Reviewed Wetlands refer to wetland areas identified in the original offsite review in 2014. These wetlands fall outside the Study Area reviewed during the October 2014 and May 2015 onsite review. The August 17, 2015 engineering data identified some of these offsite reviewed wetlands as being temporarily impacted by temporary access roads.

# Block 23. Description of Avoidance, Minimization, and Compensation

The majority of the wetlands that occur in the Project Area would be spanned to avoid impacts. Wetland areas that must be impacted by the Project would require a minimal amount of fill to be placed within the wetland (approximately 3 cubic yards of concrete per structure).

Construction activities would avoid wetland areas to the extent possible. Where construction activities within wetland areas could not be avoided, various BMPs would be used to protect topsoil and adjacent wetland resources, and to minimize soil erosion and impacts to wetland areas. Practices may include containing excavated material, the use of construction matting, protecting exposed soil, stabilizing restored material, and revegetating disturbed areas with native species. Any wetland areas impacted by construction activities, other than those identified as permanent impacts, would be returned to preconstruction contours.

# Block 24. Is Any Portion of the Work Already Complete?

No construction work has been initiated or completed for the proposed Project. Environmental surveys have been ongoing.

# Block 25. Names and Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Project Site

The locations and parcel ID's of adjacent landowners are presented in Figure 3, Landowner Parcels.

# Block 26. Information about Approvals or Denials by Other Agencies

Table 26-1 lists the status of approvals for the proposed Project.

**Table 26-1. Status of Approvals for the Project**

| Agency | Type of Permit, Regulatory Compliance, or Coordination | Status |
|---|---|---|
| **U.S. Fish and Wildlife Service** | Letter of Non-Objection and Section 7 Endangered Species Act Consultation under NEPA for USFWS authorization | Coordinating with USFWS and completing Environmental Assessment |
| **Federal Aviation Administration** | FAA Form 7460-1, Notice of Proposed Construction or Alteration | The Federal Aviation Administration (FAA) issues determination that construction of the Facility does not constitute a hazard to air navigation. Will obtain prior to construction. |
| | FAA Form 7460-2 - Notice of Actual Construction or Alteration | Notifies FAA of actual constructed or altered structures. Will submit after completion of construction |
| | FAA Form 7461-1, Notice of Proposed Construction Hazard Determination | FAA must review possible impacts to air safety and navigation, as well as the potential for adverse effects on radar systems. Will obtain prior to construction. |
| **Public Service Commission** | Certificate of Corridor Compatibility and Route Permit | Certificate of Corridor Compatibility Number 154 and Route Permit Number 166 was issued July 10, 2014. |
| **Department of Health** | Section 401 Water Quality Certification | Coordinated with this NWP 12 permit application. |
| | NPDES Permit: General Construction Permit | Required for disturbance of over one acre of land. Must prepare a SWPPP. Will obtain prior to construction. |
| **State Water Commission – Office of State Engineer** | Drain Permit | State Engineer issued a letter on April 27, 2015 that a Drain Permit is not required |
| **Aeronautics Commission** | Aeronautical Hazard Permit | Permit lighting plan determined with FAA coordination, if required. |
| **State Historical Society of North Dakota - State Historic Preservation Office** | Cultural Resources coordination | Applicant has coordinated with SHPO throughout the project. A Class III survey is complete and a concurrence letter was issued from SHPO on July 24, 2015. |

| Agency | Type of Permit, Regulatory Compliance, or Coordination | Status |
|---|---|---|
| **North Dakota Highway Patrol** | Oversize/Overweight Permit | Permit required for heavy hauling construction equipment and materials on state highways. Will obtain as necessary. |
| **Department of Transportation** | Highway Access Permit | Permit required for construction of access roads from state highways. Will obtain as necessary. |
| | Utility Permit | Permit required for utility crossings on state highway ROW. Will obtain as necessary. |

# Supplemental Cultural Resources Information from Section 106 Consultation

**The following is a summary of the cultural resources studies and reports completed:**

- In September 2012, the Applicants requested information for the initial literature search from the State Historical Society of North Dakota (SHSND). This data request included an approximate 13- to 22-mile-wide study corridor, since the North Dakota Route had not yet been determined.

- On October 19, 2012, SHSND provided cultural resources data including GIS data that document the location of all previous cultural surveys, previously identified archaeological sites, and recorded architectural properties within the study corridor. As Project plans progressed, the study corridor was evaluated through a desktop review, taking into account the data received from SHSND, and the North Dakota Route was selected.

  Additional background research included online research of the National Park Service's (NPS's) NRHP, online research of historical General Land Office (GLO) survey plat maps, and a review of SHSND's planning document *The North Dakota Comprehensive Plan for Historic Preservation: Archaeological Component* (Gregg et al. 2008).

- On July 25, 2013, the Applicants received concurrence from the North Dakota SHPO on the findings of the Class I literature search for the North Dakota Facility.

- On January 26, 2015, SHPO issued a concurrence letter for the *North Dakota Cultural Resources Discovery Plan, Big Stone South to Ellendale 345 kV Transmission Line*.

- On October 16, 2014, historic structure inventory was conducted. A *Class III Intensive Cultural Resources Inventory: Historic Structures Inventory and Evaluation* report was submitted to SHPO on May 13, 2015. No historic structure sites were located in the North Dakota Facility. SHPO concurrence letter received on August 5, 2015.

- On June 11, 2015, in order to address a route shift the Applicants submitted Addendum 1 to the Class III Intensive Cultural Resources Inventory: Historic Structures Inventory and Evaluation to the ND SHPO. The *Addendum* addressed a route shift between structures 4 to 8. No historic structure sites were located in this area. SHPO concurrence letter received on August 5, 2015.

- Class III field survey for North Dakota was completed on October 14 and November 5, 2014. The Applicants submitted a Class III Intensive Archaeological Resources Inventory summarizing the methods, results, and recommendations to SHPO for concurrence of the findings on June 25, 2015. No archaeological sites were located in the North Dakota Facility. SHPO concurrence letter was issued on July 24, 2015.

# Supplemental Biological Assessment Information

**Introduction/Background**

The Endangered Species Act (ESA) of 1973, as amended, provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend. Section 7 of the ESA requires federal agencies to insure that any action authorized, funded, or carried out by them is not likely to jeopardize the continued existence of listed species or to modify their critical habitat. Table 1 contains information relating to federally listed species that have the potential to occur within the Project Area along with proposed conservation measures that would be employed by the Project in order to ensure that no impacts to federally listed species occur as a result of the proposed Project. This list was generated using both the USFWS North Dakota Field Office - County Occurrence of Endangered, Threatened, Proposed and Candidate Species Designated and Proposed Critical Habitat in North Dakota and the USFWS online Information and Planning for Conservation (IPaC) system.

The South Dakota Ecological Services Field Office is taking lead for this project.

**Table 1. Federally Listed Species and Critical Habitat Within Dickey County, North Dakota**

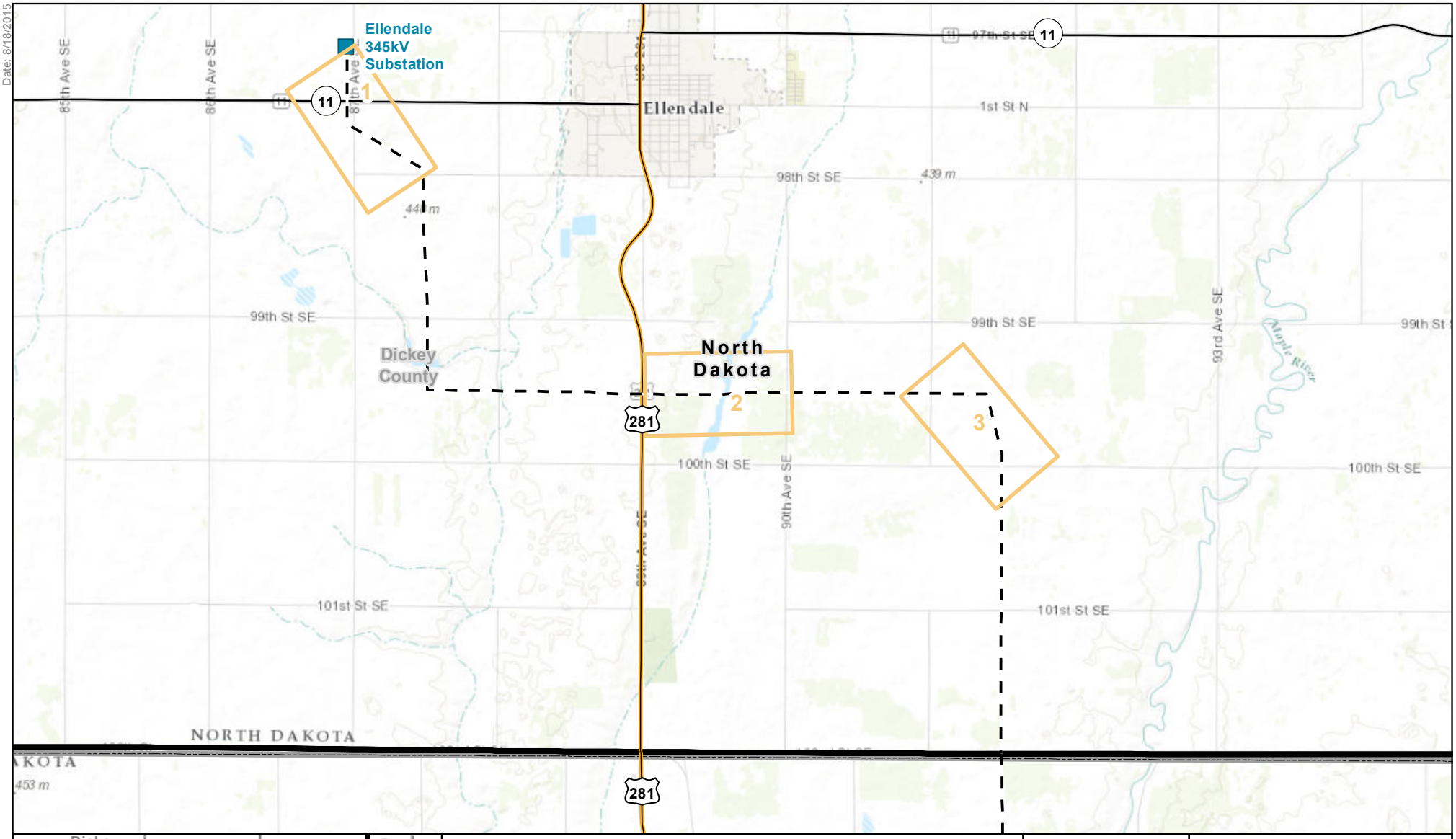
| Species | Type | County Occurrences | Preferred Habitat | Habitat Present in Project Area | Proposed Conservation Measures |
|---|---|---|---|---|---|
| | | | **Endangered** | | |
| **Whooping crane (*Grus americana*)** | Bird | Dickey | Migrates through North Dakota during spring and fall. Prefers to roost in wetlands and stock dams with good visibility (i.e., no or minimal woody debris within wetland or on wetland fringe). | Yes, Whooping Crane habitat occurs at multiple locations within the Project area | A line marking plan will be part of the Project to mitigate potential impacts to whooping cranes and other migratory birds that may use habitat along the Project. As recommended by USFWS, the line marking plan includes marking sections of the Project within one-mile of potentially suitable stopover habitat within the 95 percent whooping |

| Species | Type | County Occurrences | Preferred Habitat | Habitat Present in Project Area | Proposed Conservation Measures |
|---|---|---|---|---|---|
| | | | | | crane migration corridor. |
| **Gray wolf (*Canis lupus*)** | Mammal | Dickey | Occasional visitor in North Dakota. Most frequently observed in the Turtle Mountains area of northern North Dakota. | No, the Project is greater than 75 miles from Turtle Mountains | Since the presence of the species within the Project Area is extremely rare and highly unlikely, no species specific mitigation measures are proposed. |
| **Topeka Shiner (*Notropis Topeka*)** | Fish | Dickey | Occurs in small perennial prairie streams in pools containing clean clear water. It is primarily restricted to a few scattered tributaries to the Missouri and Mississippi rivers. | No, No designated Topeka Shiner streams are crossed by the proposed Project. | No work within rivers or streams is proposed for the Project. In addition, soil erosion into streams and rivers will be minimized through the use of erosion and sediment BMPs during construction. |
| **Threatened** | | | | | |
| **Northern long-eared bat (*Myotis septentrionalis*)** | Mammal | Dickey | Northern long-eared bats spend winter hibernating in caves and mines During the summer, northern long-eared bats roost singly or in colonies underneath bark, in cavities or in crevices of both live trees and snags (dead trees). | The Project is not located near hibernacula, known maternity roosts or designated critical habitat. | Tree clearing will be minimized to the extent possible and conducted between November 1 and March 31 to avoid the incidental take of summer roosting northern long-eared bats |
| **Red Knot (*Calidris canutus rufa*)** | Bird | Dickey | Possibly migrates through North Dakota during spring and fall. Roosts on intertidal areas on costal | No, suitable habitat is not located within the Project Area. | Since the presence of this migratory species along the Project is |

| Species | Type | County Occurrences | Preferred Habitat | Habitat Present in Project Area | Proposed Conservation Measures |
|---|---|---|---|---|---|
| | | | waterways. | | rare, the length of presence would be short if it were to occur (presence would only be for stopover activities), and because collisions with a transmission line for a small shorebird such as a red knot is unlikely, no species specific mitigation is proposed. |
| **Dakota Skipper (*Hesperia dacotae*)** | Insect | Dickey | Exclusively associated with high quality moist bluestem or upland prairie habitats. | No, suitable habitat is not located within the Project Area. | The Applicants conducted three consecutive years of surveys and found no Dakota skippers, therefore no further mitigation is proposed. |
| **Candidate** | | | | | |

| Species | Type | County Occurrences | Preferred Habitat | Habitat Present in Project Area | Proposed Conservation Measures |
|---|---|---|---|---|---|
| **Sprague's pipit (*Anthus spragueii*)** | Bird | Dickey | Utilize native grasslands between 20 and 145 hectares in size. | No, suitable habitat is not located within the Project Area. | A pre-construction survey for grassland birds, such as the Sprague's pipit, will be conducted prior to construction in grassland areas. If active nests are identified, a construction buffer from active nesting areas will be established to prevent Project construction from disturbing nesting activities. |

Exhibit 2




BSSE Big Stone South to Ellendale

**Project Location**

**Figure 1**

Scale 1:61,057

Big Stone South to Ellendale 345kV Transmission Line Project
North Dakota & South Dakota

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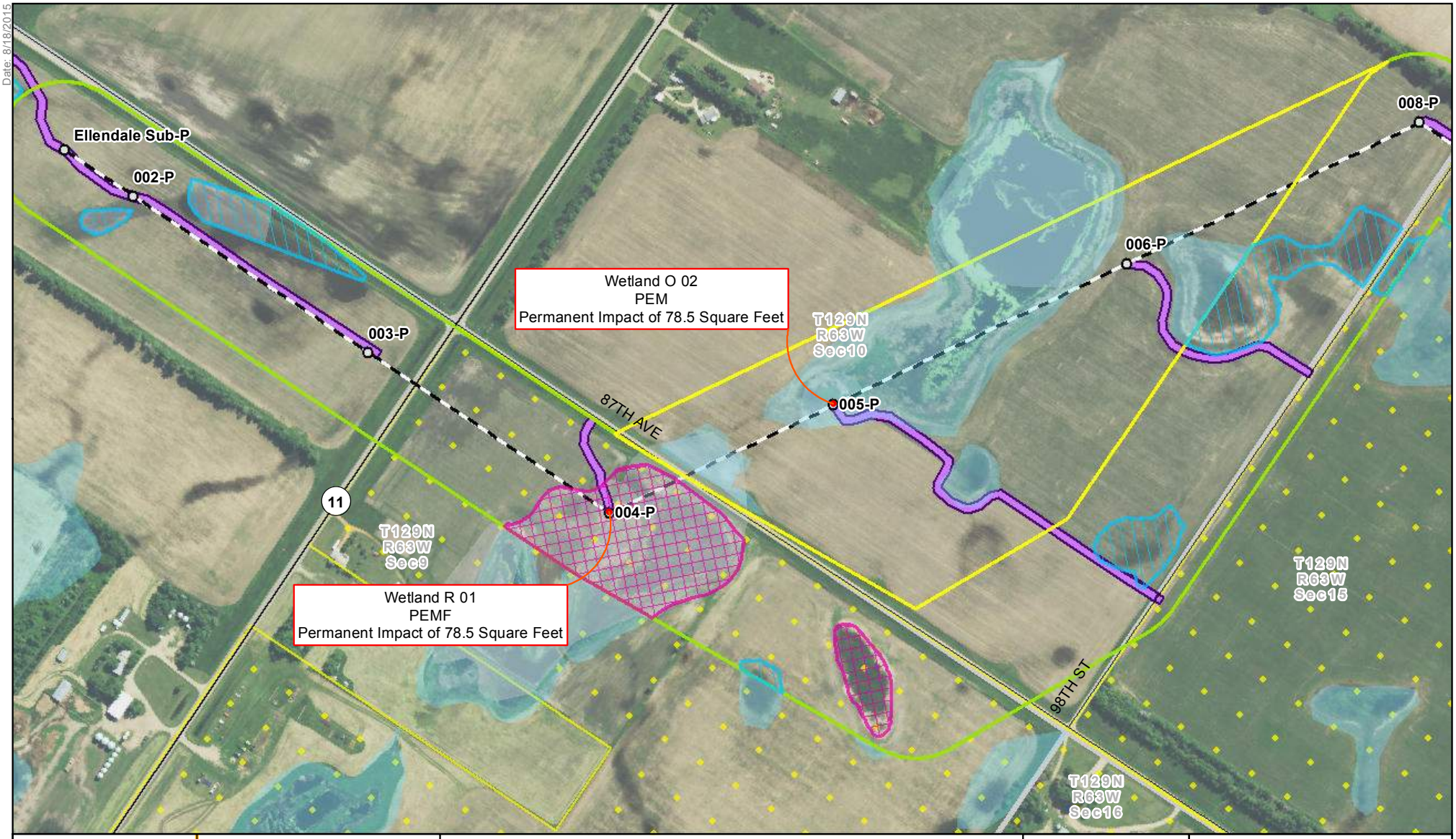


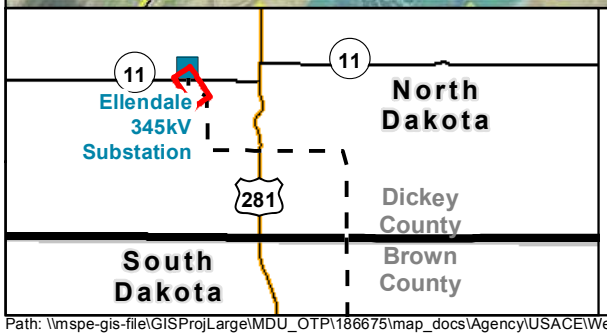


Permanent Wetland Impacts
Onsite Reviewed Wetlands
Jurisdictional Wetland
Representative Wetland
Offsite Reviewed Wetlands
Study Area - 500 Ft. Width
Study Area - Offsite Reviewed
Dickey County Hydric Soils
Temporary Access Roads - 30 Ft. Width as of 8/17/2015

Approved Project Route as of 8/14/2015
Transmission Line Structures as of 8/14/2015
ND Interstate Highway
ND State Highway
ND US Highway
ND Bypass
ND Local Roads

ND Sections
Easements
USFWS Grassland or Grassland/Wetland
USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

# Wetland Impacts

**Figure 2 - Page 1 of 3**

Scale 1:6,000

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

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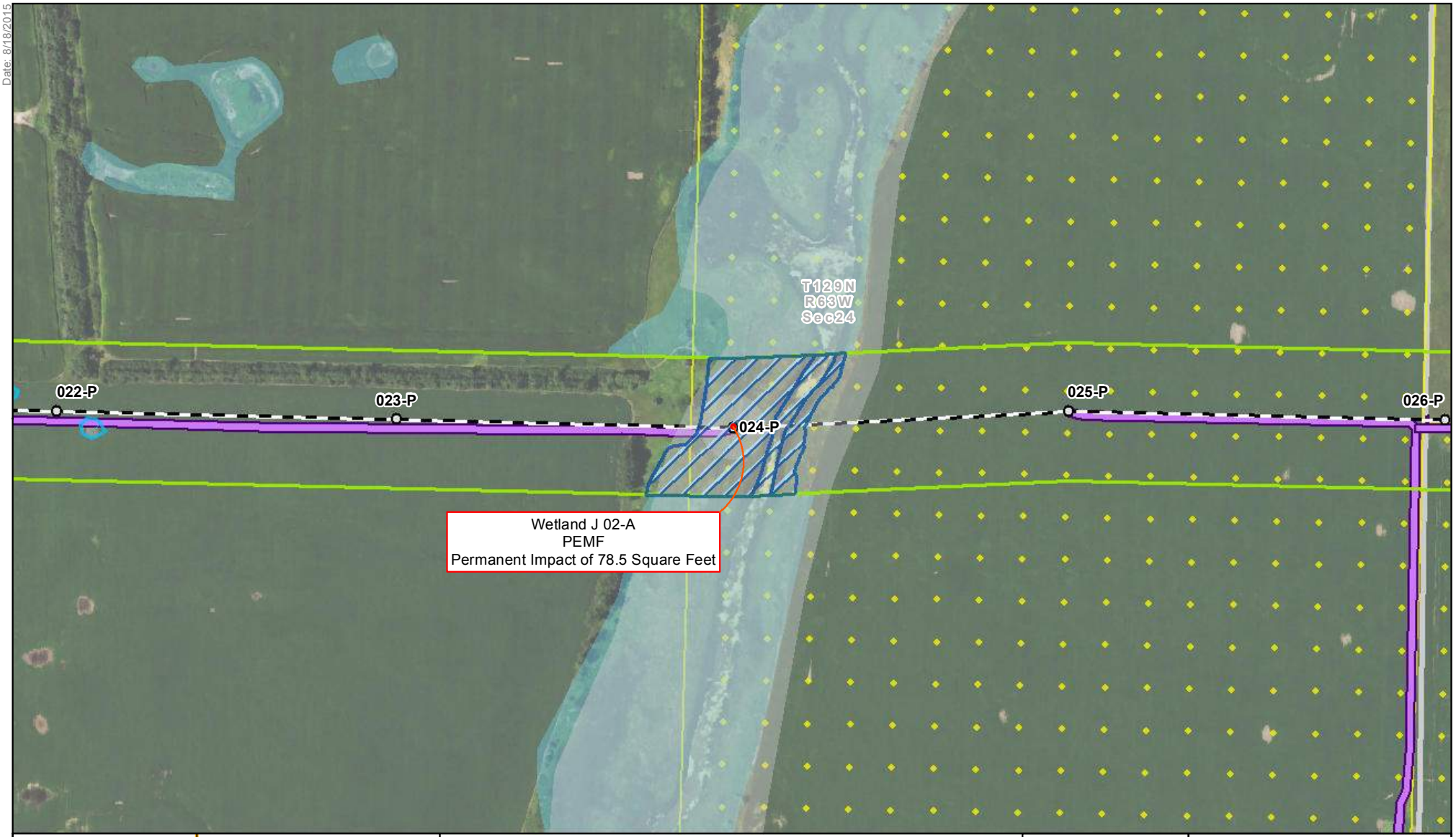


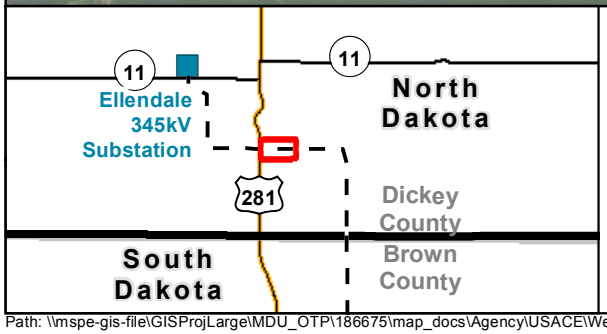


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USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

# Wetland Impacts

**Figure 2 - Page 2 of 3**

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

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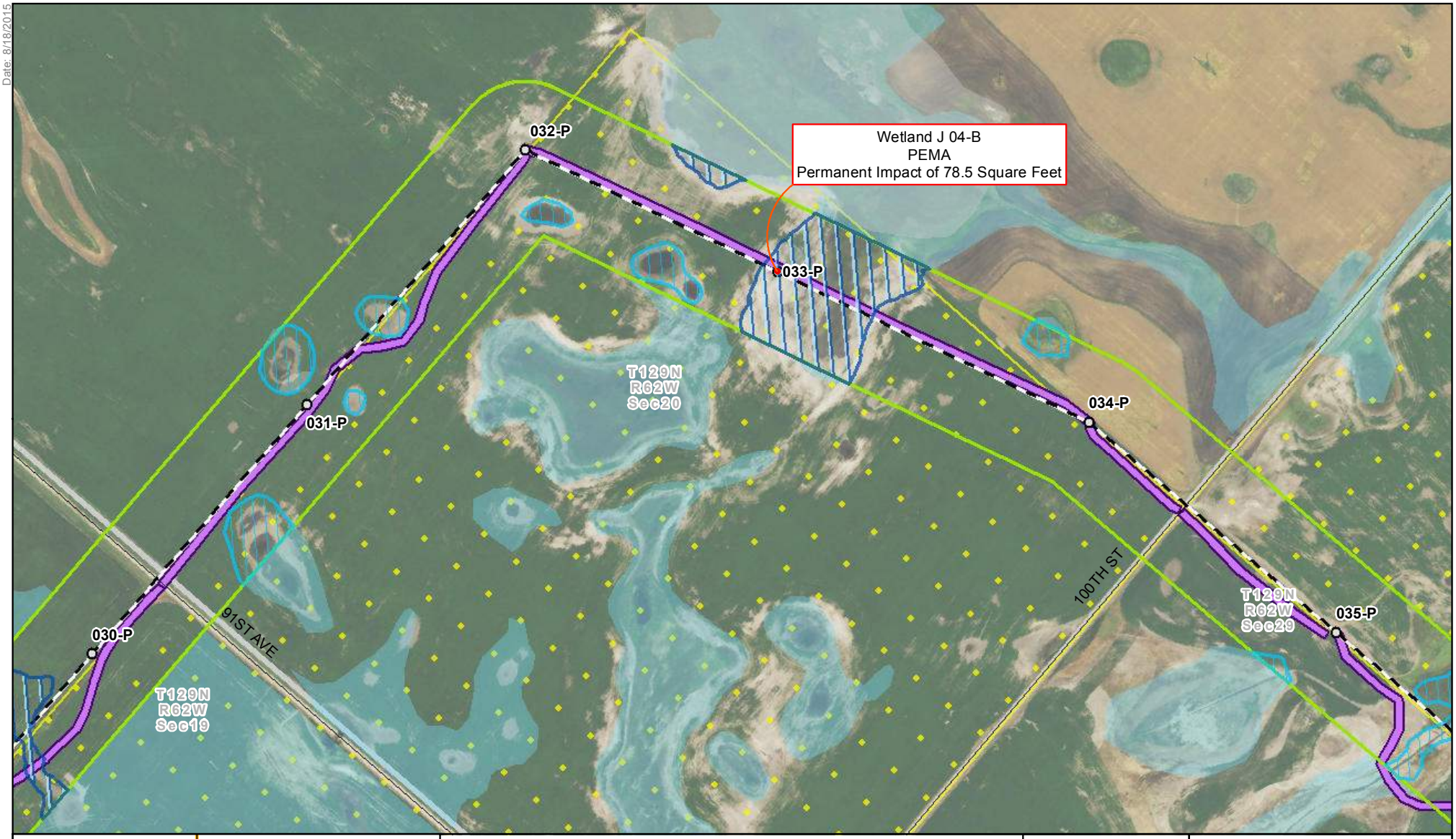


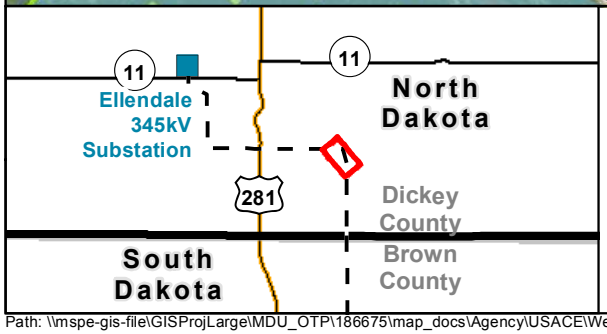


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USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

# Wetland Impacts

**Figure 2 - Page 3 of 3**

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

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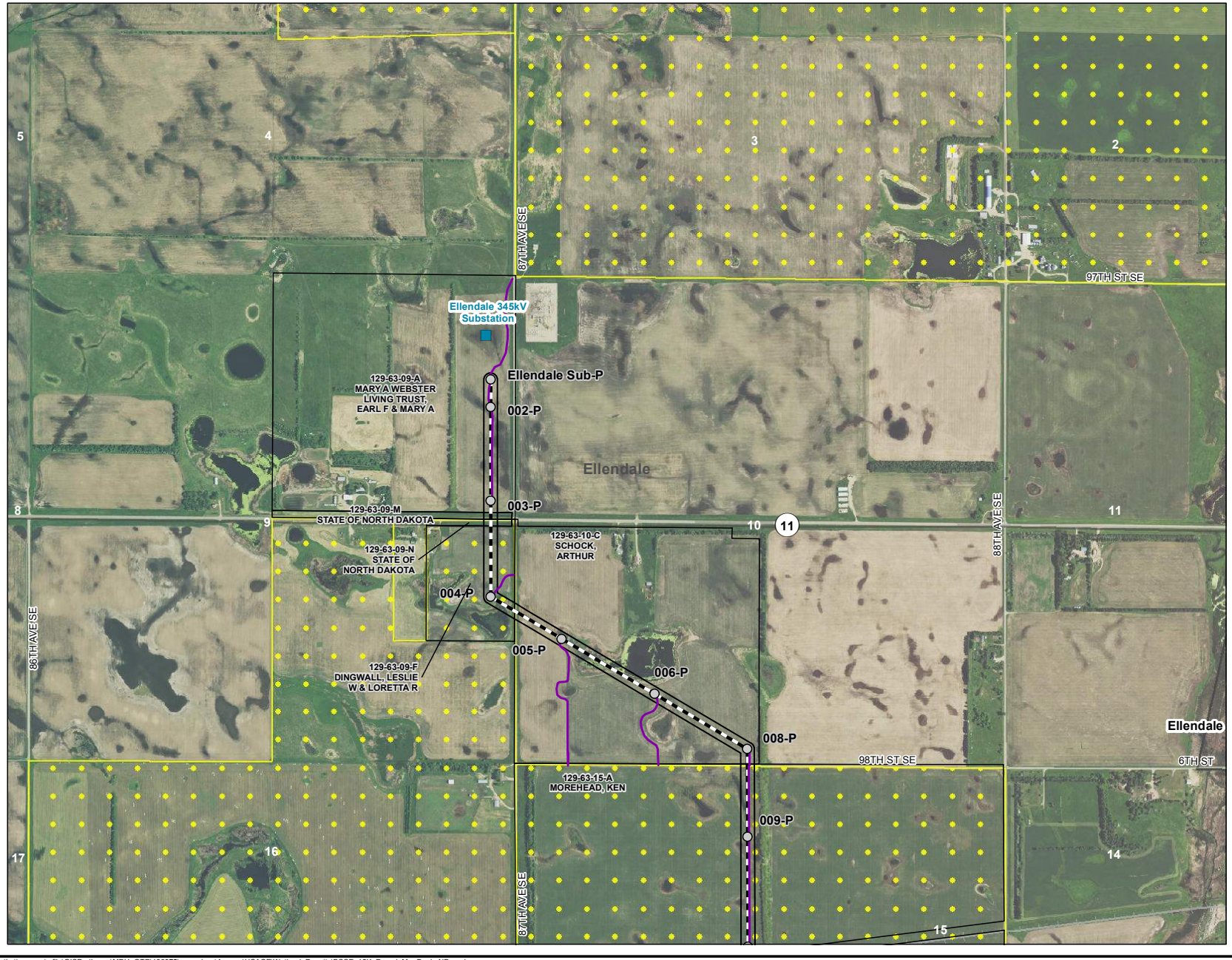
Date: 8/18/2015

Exhibit 2

**Figure 3**
Landowner Parcels
Big Stone South to Ellendale
345 kV Transmission Line Project
North Dakota
Page 1 of 6

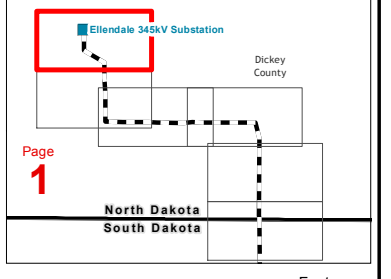



- Structures as of 8/14/2015
- Preferred Route as of 8/14/2015
- ROW as of 8/14/2015
- Temporary Access Roads as of 8/17/2015
- Project Start/End Point
- Parcel Boundaries as of 7/16/2015

**Easements**

- USFWS Limited Interest NWR
- Conservation
- Grassland or Grassland/Wetland
- Wetland
- Other (Multi-Purpose)
- NRCS
- CREP

Scale 1:12,000

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BSSE Big Stone South to Ellendale

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Date: 8/18/2015

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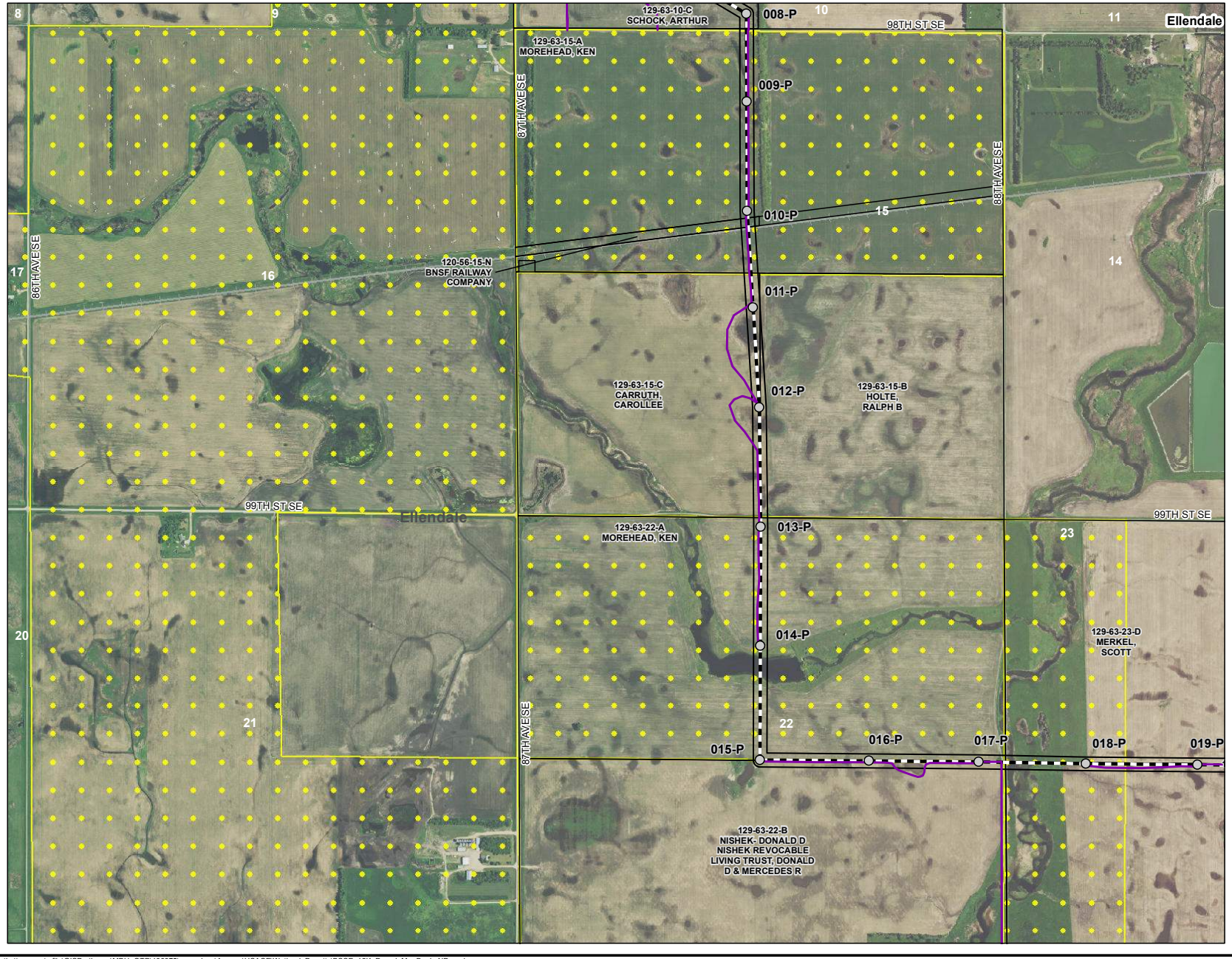
North Dakota
Page 2 of 6

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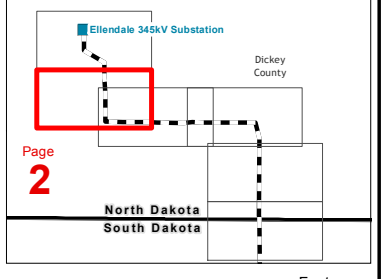


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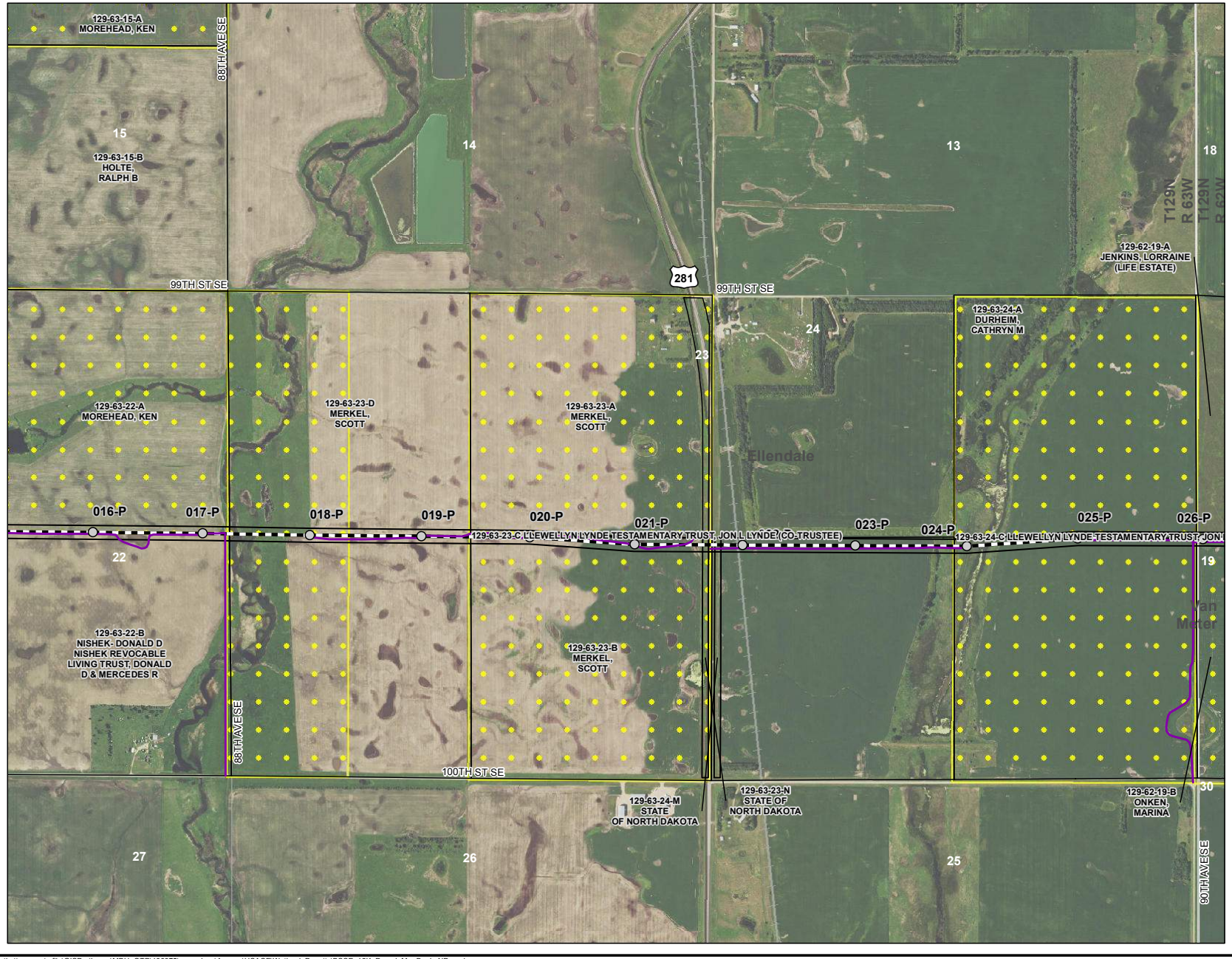


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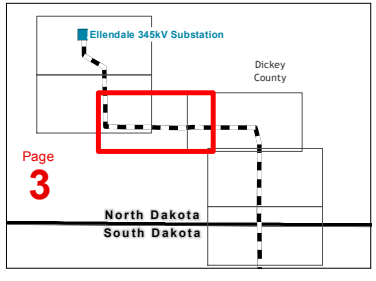


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Big Stone South to Ellendale

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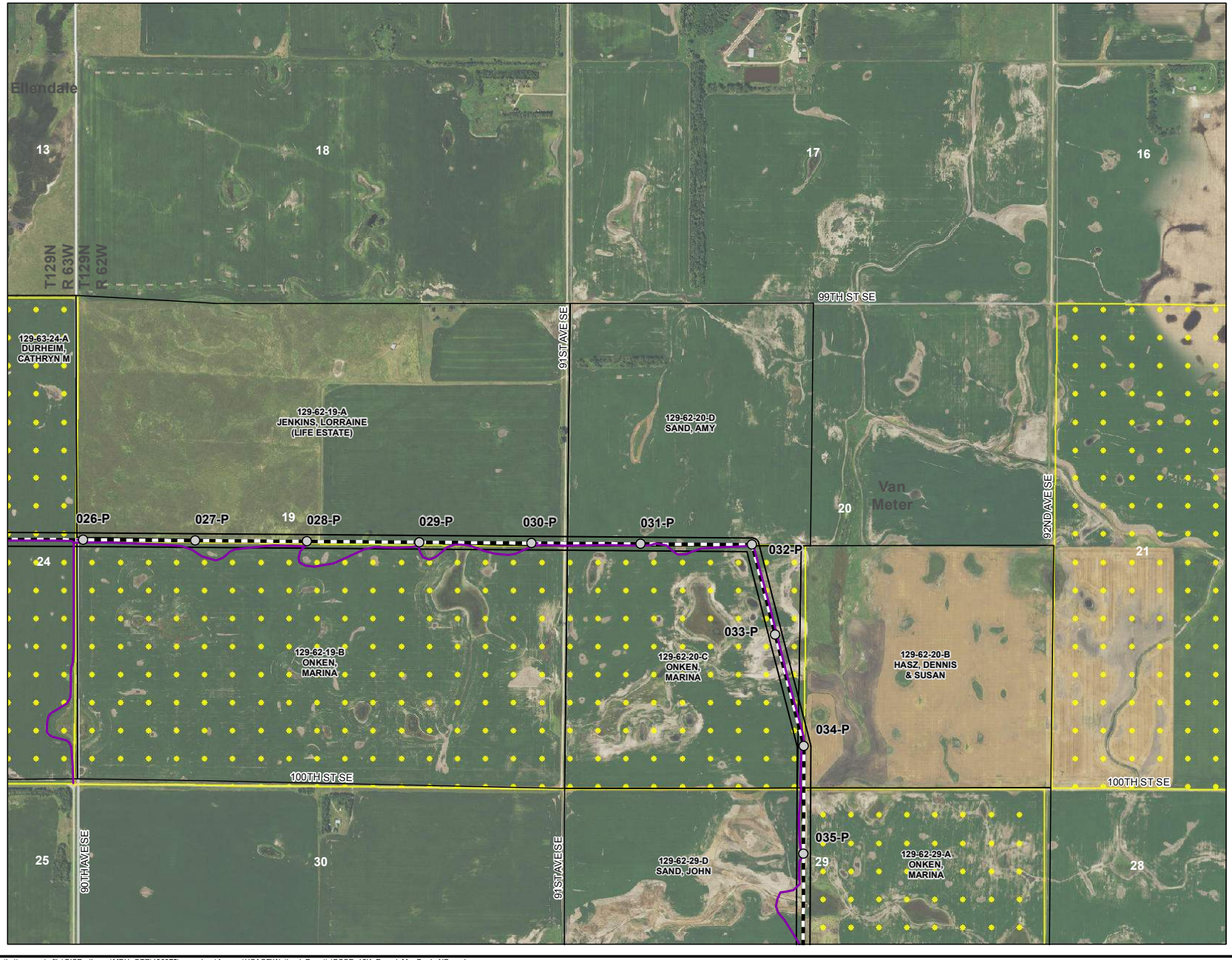
North Dakota
Page 4 of 6

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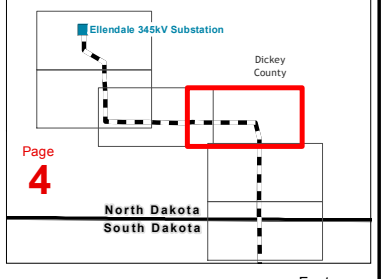


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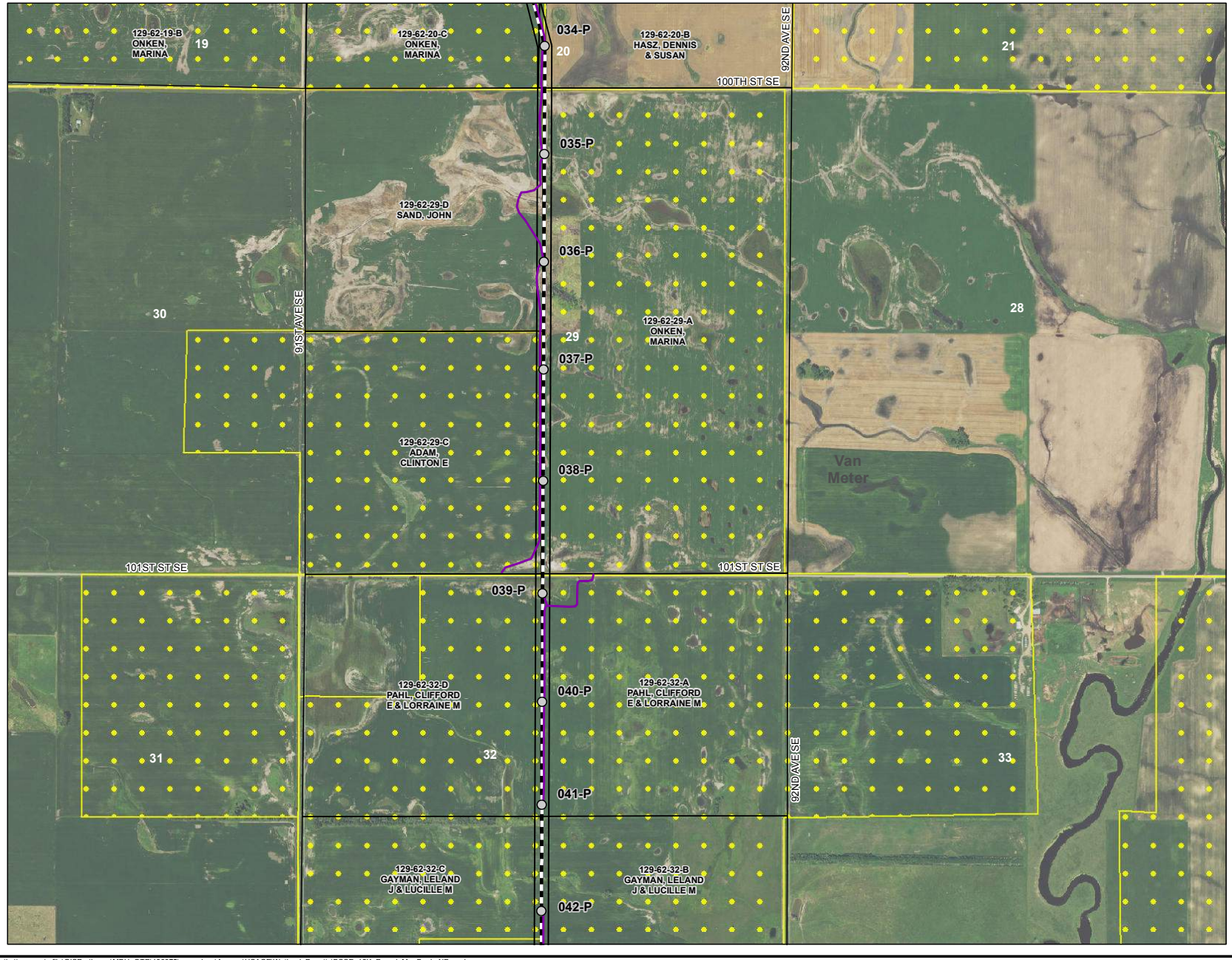


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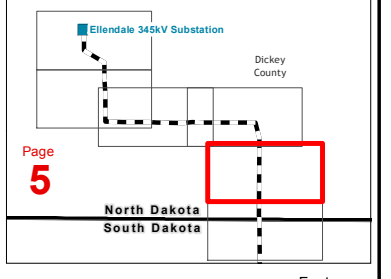


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North Dakota
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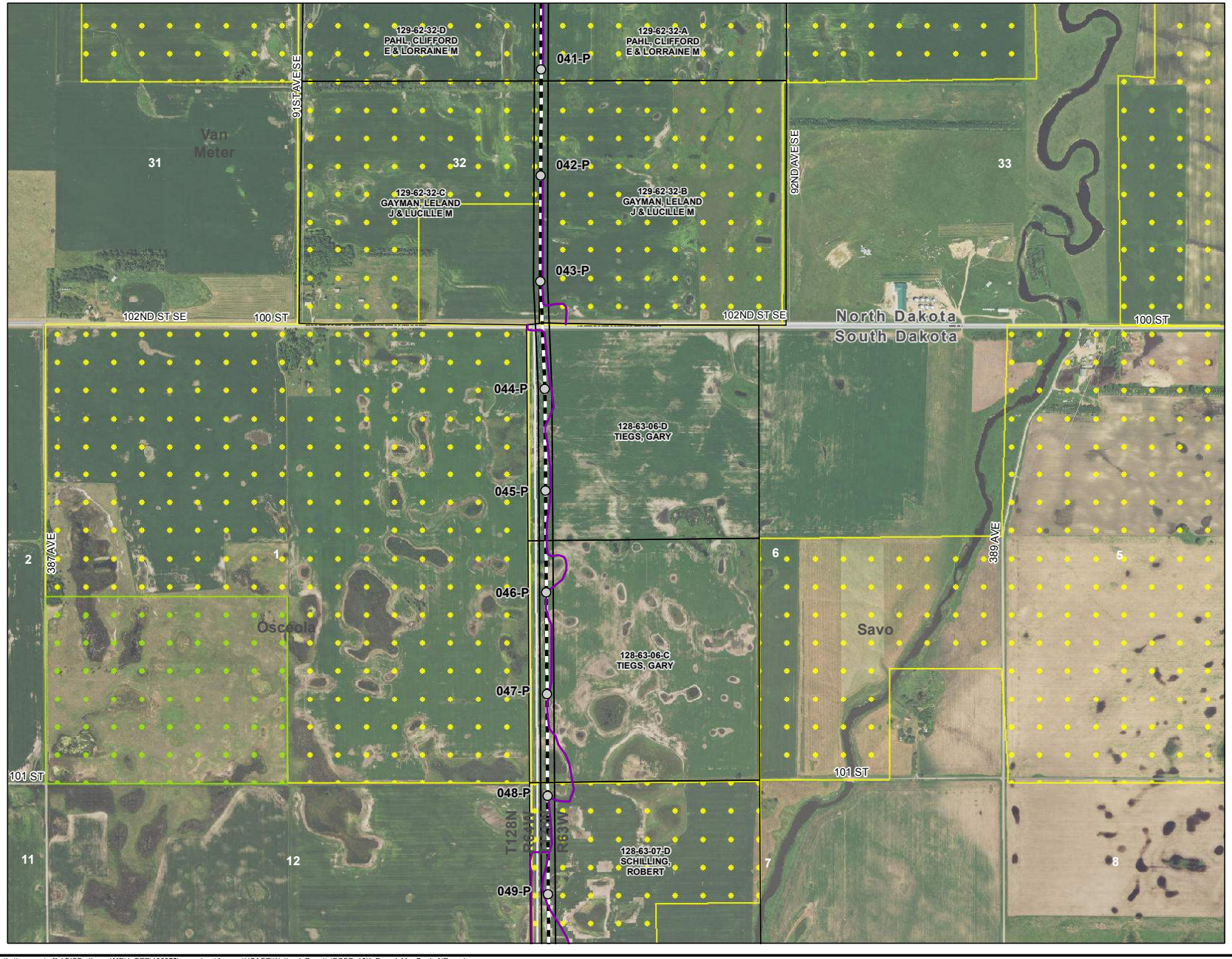


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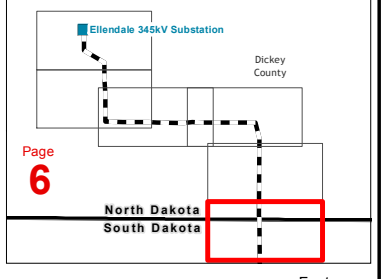


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# Attachment A

# North Dakota Wetland Delineation Report

**North Dakota Wetland Delineation Report**

# Big Stone South to Ellendale 345kV Transmission Line

NWO-2012-2940-BIS

*Montana-Dakota Utilities and Otter Tail Power*

**August 2015**

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## List of Tables



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## List of Appendices

# Introduction

HDR Engineering, Inc. (HDR) has been hired by Montana-Dakota Utilities Co., a Division of MDU Resources Group, Inc., a Delaware corporation (Montana-Dakota), and Otter Tail Power Company, a Minnesota corporation (Otter Tail Power) (jointly, the Applicants) to complete a wetland delineation for the Big Stone South to Ellendale Project (Project). The Project consists of both a 345 kilovolt (kV) transmission line that is 161.83 miles long traversing through North Dakota and South Dakota, and the Ellendale 345-kV Substation located near Ellendale, North Dakota.

The transmission line begins at the Ellendale Substation in Dickey County, North Dakota, traverses in a general southeast direction through Brown and Day Counties of South Dakota and terminates at the Big Stone South Substation in Grant County, South Dakota (see Figure 1). This report focuses on wetlands reviewed within North Dakota and hereafter only those wetlands will be discussed in this report.

Wetland delineations are necessary to identify potential Project impacts to aquatic resources and are required as documentation for multiple state and Federal permitting processes. Additionally, wetland delineations provide information valuable in identifying avoidance and minimization strategies, as well as determining appropriate construction techniques.

Wetlands delineated for the Project may fall under either U.S. Army Corps of Engineers (USACE) and/or U.S. Fish and Wildlife Service (USFWS) jurisdiction, depending on their location within the landscape. Jurisdictional wetlands are regulated by the USACE through Section 404 of the Clean Water Act. The USFWS maintains jurisdiction over wetlands located in USFWS easement properties through the Migratory Bird Hunting and Conservation Stamp Act/Duck Stamp Act.

# Methods

Both offsite and onsite reviews are described in the sections below and were conducted in accordance with the *1987 Corps of Engineers Wetlands Delineation Manual* (1987 Manual; USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Regional Supplement; USACE, 2010). USACE defines areas as wetlands based on the following:

> Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas [33 CFR 328 3.b].

Wetland delineations were based on the presence of the following three parameters:

- The area must exhibit indicators of wetland hydrology;

- The area must have a predominance of hydrophytic vegetation; and
- Hydric soils must be present.

If all three indicators were present during the growing season, the area was identified as wetland. “Atypical” or “problem areas” may be missing one or more of the three parameters, and still be classified as wetlands.

## Offsite Review

HDR conducted a preliminary, offsite review to identify potential wetlands located within a one-mile wide corridor of the Project route. Wetland boundaries were identified with GIS mapping using the following information:

- Aerial photography from 2003, 2004, 2005, 2006, 2008, 2010, and 2012 (FSA 2014);
- USFWS National Wetland Inventory (NWI) maps;
- Natural Resource Conservation Service (NRCS) Soil Survey Geographic (SSURGO) database (NRCS 2014); and
- U.S. Geological Society (USGS) topographical maps.

This analysis generated wetland boundaries within the survey corridor that reflected recent changes in hydrology and land use and were considered more accurate than NWI mapping and were used to determine potential wetland areas for field review. During pre-survey coordination with the USACE on March 24, 2014, it was identified that wetlands having the potential to be impacted are those having a proposed transmission line structure either located within the offsite reviewed wetland, or within 100 feet of the offsite reviewed boundary. This included 20 wetland areas. An official Jurisdictional Determination (JD) was requested on June 17, 2014 for these 20 wetlands (HDR 2014). The JD was received from the USACE on July 16, 2014 (USACE 2014). Four wetland areas were determined to fall under USACE jurisdiction.

## Onsite Review

HDR conducted onsite wetland reviews on October 6 to 11 and 13 to 16, 2014 using engineering data as of September 12, 2014. Areas not reviewed previously, or additional areas identified as needing survey from new engineering data received December 31, 2014 were onsite reviewed May 3 to 9 and 11 to 12, 2015. Onsite reviews were performed within a 500-foot-wide corridor extending 250 feet on either side of the proposed Project route, hereafter referred to as the Study Area (see Figure 2, Pages 1-9). These reviews were performed to identify wetlands within the Study Area. Additional wetland areas outside the Study Area were onsite reviewed along preliminary temporary access roads during the May 2015 review.

Sampling points and many wetland boundaries were mapped using a global positioning system (GPS). Using Geographic Information Systems (GIS), an accurate onsite wetland review map was created using GPS data and field sketches on aerial maps as a guide.

Onsite review focused on wetlands identified as part of the offsite review as well as low-lying and/or wet areas not identified by the offsite data sources. Boundaries identified by offsite review were visually verified and adjusted according to visual indicators of wetland parameters outlined in the *1987 Manual* and *Regional Supplement*. Onsite review was prioritized for areas where transmission line structures occurred within or adjacent to wetlands and permanent impacts could occur. All portions of the Study Area adequately visible from public roads were reviewed during onsite reviews. Portions of the Study Area located away from public roads were accessed on foot if jurisdictional wetlands were present or if permanent impacts by the Project could occur. Areas located away from public roads often were not reviewed on foot if no offsite reviewed wetlands were identified or permanent impacts would not occur based on location of transmission line structures and offsite reviewed wetlands. In these cases, wetlands were assigned a type and offsite reviewed boundaries were adjusted where justified based on aerial photographs and field observations in nearby areas.

All wetlands within the Study Area were classified according to the USFWS *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin Classification System; Cowardin et al., 1979). Wetlands were placed in either the palustrine, riverine, or lacustrine system. Palustrine systems and classes assigned to wetlands included:

- Palustrine Forested (PFO) Wetlands: comprised of 30% or more woody vegetation that is greater than 20 feet (6m) tall with an understory of small trees and shrubs, as well as an herbaceous layer.

- Palustrine Scrub-Shrub (PSS) Wetlands: comprised of 30% or more of woody vegetation that is cumulatively less than 20 feet (6m) tall, including shrubs, young trees, and stunted trees or shrubs.

- Palustrine Emergent (PEM) Wetlands: comprised of 30% or more herbaceous, emergent vegetation typically dominated by perennial plants and vegetation that is present for the majority of the growing season.

- Palustrine Unconsolidated Bottom (PUB) Wetlands: comprised of open water less than 20 acres or 2 meters deep, less than 30% vegetation, and substrate at least 25% particles smaller than stones.

- Palustrine Aquatic Bed (PAB) Wetlands: comprised of open water where dominant vegetation consists of floating or submerged aquatic vegetation.

Riverine wetlands were identified as linear, flowing waterbodies with a channel that exhibited an ordinary high water mark (OHWM) as described in the *Regulatory Guidance Letter No. 05-05 for Ordinary High Water Mark Identification* (USACE 2005). Deepwater habitats include lacustrine systems with areas of open water larger than 20 acres or deeper than 2 meters. Palustrine

systems abutting riverine and lacustrine systems were identified and reviewed separately. Riverine classes assigned during the onsite review included:

- Riverine Lower Perennial Unconsolidated Bottom (R2UB)Wetlands: slow water velocity with some water flows throughout the year. Less than 30% vegetation with substrate that is comprised of at least 25% particles smaller than stones; generally sand and mud.

A water regime modifier was assigned to wetlands according to the *Cowardin Classification System*. They included the following non-tidal modifiers:

- "A" – Temporarily Flooded: surface water is present for brief periods during the growing season.
- "C" – Seasonally Flooded: surface water is present for extended periods especially early in the growoing season.
- "F" – Semipermanently Flooded: surface water persists throughout the growing season in most years.
- "H" – Permanently Flooded: water covers the land surface through the year in all years.

Distinctions between water regimes cannot always be made reliably on the basis of a one-time field visit. Determinations were made based on field observations and best professional judgment in conjunction with information used during offsite review.

Field wetland delineations were conducted only for wetlands that were:

- identified as jurisdictional by USACE (hereafter referred to as jurisdictional wetlands); or
- representative of the wetland types encountered in the Study Area during onsite review (hereafter referred to as representative wetlands).

While all wetlands in the Study Area were assigned a wetland type based on the different representative wetland types encountered during onsite review, and boundaries were reviewed within accessible portions of the Study Area according to the methods described previously, full delineations were deemed necessary for only jurisdictional and representative wetlands. They are discussed further in the following sections.

Field delineations included a wetland and upland sampling point. Sampling points were established in representative locations that characterized the plant communities sampled, and were placed to avoid disturbed areas where possible. A USACE wetland determination data form was completed for each sampling point to document the presence or absence of hydrophytic vegetation, hydric soils, and wetland hydrology. The *National Wetland Plant List: 2014 Wetland Ratings* (Lichvar, et. al., 2014) was used to determine wetland indicator status of plants. Photographs were taken to adequately portray and document the environmental characteristics of the wetland.

### Jurisdictional Wetlands

Field delineations were conducted within the Study Area for wetlands determined to fall under USACE jurisdiction (USACE SDRO 2014, USACE NDRO 2014) (see Appendix A, Reviewed Wetlands within the Study Area). The June 2014 Jurisdictional Determination was requested for wetlands that were identified as having the potential for permanent impacts; wetlands having a proposed transmission line structure located within the offsite reviewed wetland, or within 100 feet of the offsite reviewed boundary. Jurisdictional Wetlands were assigned an identifier beginning with "J" and followed by a sequential number. Separate map units (polygons) that were associated together share the same number, but were differentiated with a letter (for example, 01-A, 01-B).

Updated engineering data was received for the Project on May 21, 2015. Based on the May 21, 2015 engineering data, additional wetlands not previously reviewed by the USACE for jurisdictional authority were identified as having the potential for permanent and temporary impacts. These additional wetlands include those enclosing a transmission line structure, located within 100 feet of a transmission line structure, or crossed by a temporary access road. These wetlands identified as having the potential to be impacted that were not reviewed by the USACE during the June 2014 Jurisdictional Determination are compiled and can be found in the table in Appendix B, Previously Not Reviewed Wetlands.

### Representative Wetlands

Field delineations were conducted for wetlands found to be representative of the various palustrine Cowardin class wetland types encountered during onsite review. These wetlands were assigned an identifier beginning with "R" and followed by a sequential number. All other wetlands were assigned a sequential number. Separate map units (polygons) that are associated together share the same number, but are differentiated with a letter (for example, 01-A, 01-B).

Representative wetlands may or may not have been reviewed by the USACE as part of the JD (see Appendix A, Reviewed Wetlands within the Study Area). Sampling points were not necessary to determine and review the OHWM of riverine wetlands.

### Temporary Access Road Wetlands

Preliminary alignments for temporary construction access roads were reviewed for wetlands during the May 2015 field review using access road files received from the engineers February 19, 2015. This review included temporary access road alignments outside of the defined Survey Area. Onsite review was conducted on alignments outside of the defined Survey Area from the road ROW, or where landowner permission was granted. Offsite review procedures were used in locations where landowner permission was not granted. Offsite reviewed wetlands have been incorporated into the figures to identify possible wetland areas where an onsite, field verification could not be conducted. Temporary Access Road Wetlands were assigned an identifier beginning with "A" and followed by a sequential number. Not all onsite reviewed temporary access road wetlands are visible on Figure 2 due to their distance from the Study Area.

Temporary access road wetlands are shown in Appendix C, Onsite Reviewed Temporary Access Road Wetlands.

**Offsite Reviewed Study Area Wetlands**

Since May 21, 2015, new engineering data received also includes areas where the route has shifted outside the 500-foot-wide, onsite reviewed survey corridor. These areas were reviewed in the initial offsite review and offsite wetland boundaries were identified. Wetlands in these areas are where an onsite, field verification could not be conducted (Offsite Reviewed Study Areas) were assigned an identifier beginning with “O” and followed by a sequential number. Offsite Reviewed Study Area wetlands are shown in Appendix D, Offsite Reviewed Study Area Wetlands. Wetlands in Offsite Reviewed Study Areas and having the potential for permanent and temporary impacts that were not previously reviewed by the USACE during the June 2014 Jurisdictional Determination are also included in the table in Appendix B, Previously Not Reviewed Wetlands.

# Site Description

The portion of the proposed Project in North Dakota is located in south central Dickey County. This area occurs within the drift prairie geographic region of North Dakota, which is characterized by gently rolling hills and shallow lakes formed by glacial action and stream valleys (NDGFD 2015). The term “drift” refers to glacial drift that has caused soils to have high clay, sand, and gravel content. The fertile soil and climate of this region historically supported mixed grass prairie, which is a transition between tallgrass prairie characteristic of areas to the east and shortgrass prairie characteristic of areas to the west. Today, most land has been converted to tilled agricultural lands and some areas serve as rangeland. Numerous temporary and seasonal wetland basins are present. These typically include isolated prairie pothole wetlands, many of which are tilled where they occur in cultivated fields, or are disturbed by livestock in rangeland. Because most wetlands in the region have been disturbed by agriculture or livestock, wetland vegetation typically consists of invasive species such as reed canary grass (*Phalaris arundinacea*), or narrow-leaf cattail (*Typha angustifolia*).

Alterations to hydrology in the landscape such as ditches and tile drains are common and have reduced the overall acres of wetland basins. Riparian fringe wetlands of large drainages are often intact. Tree cover is very limited throughout the Project and is primarily associated with shelterbelts and isolated trees in road ditches and farm fields. Three prominent drainages crossed by the Project in North Dakota include Dry Branch, Sewer Branch, and a tributary to Sewer Branch. This water eventually flows south into Elm River. Elevation ranges from 1,480 feet above sea level at the beginning of the Project near the Town of Ellendale to 1,400 feet at the border between North Dakota and South Dakota. In general, elevations gradually decrease moving west to east along the Project and in the surrounding region.

## Soils Data

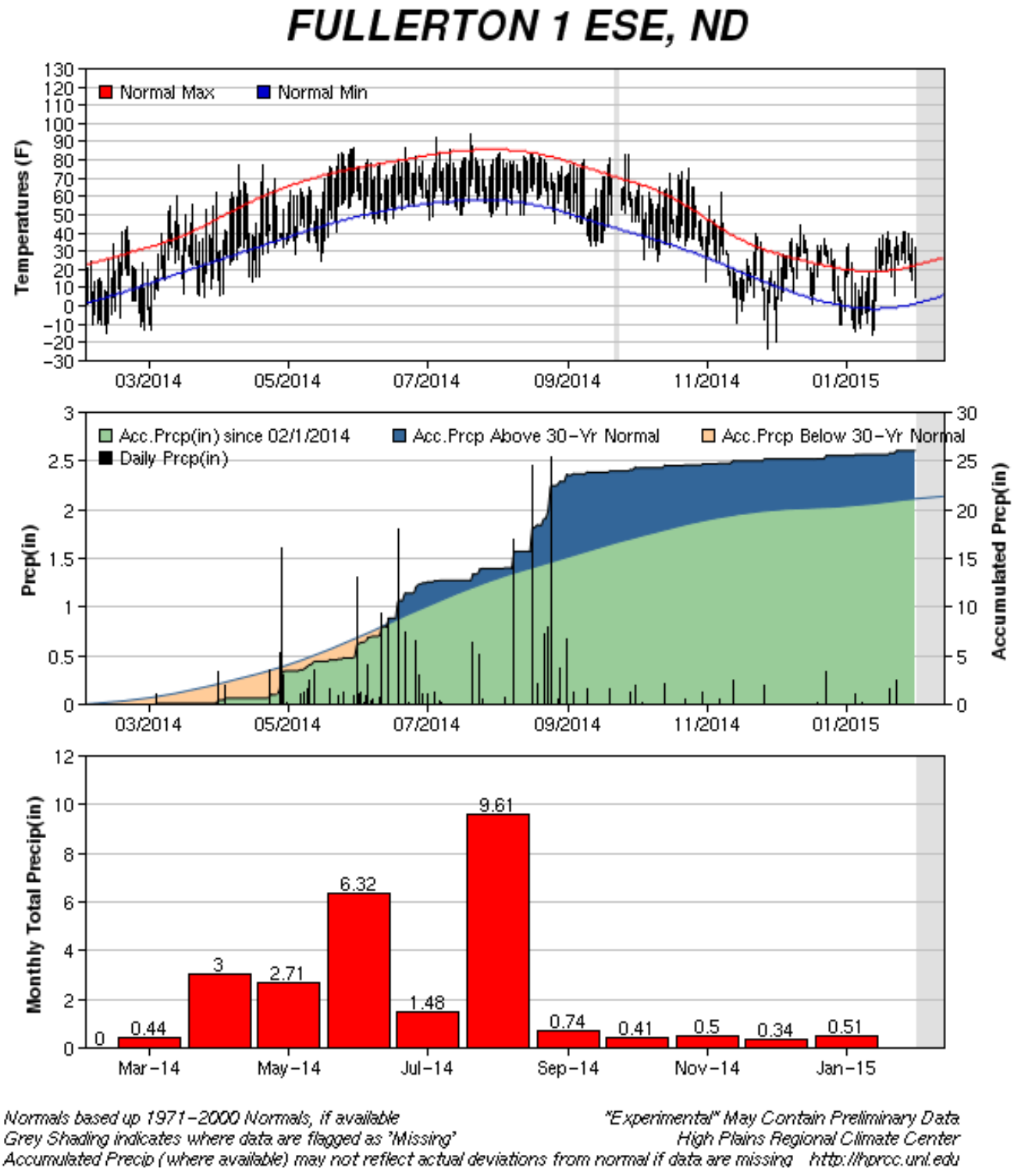
County Soil surveys were used to identify soil units within the Study Area (NRCS 2014). The map units identified by the soil survey provide information about local landscape elevations and landscape position and slopes, as well as the identification of hydric soils that indicate the potential presence of wetlands within the Study Area. Hydric soil units present in the Study Area are shown in Figure 2.

## Precipitation History

Precipitation data was viewed for January 2014 to January 2015. The data was drawn from the nearest weather station to the Project that contained the current precipitation levels with comparison to the long-term average. The nearest weather station containing this information was in the town of Fullerton, ND approximately 13 miles from the Ellendale Substation. The total precipitation at the time of onsite review was approximately 24 inches, which is seven inches higher than the normal average of 17 inches for the month of October. Temperature during the onsite review period had normal highs of approximately 60°F and slightly below normal lows of approximately 32°F when compared with the long-term average of 39°F (NRCS 2015). Table 1 summarizes the 2014 to 2015 climate data collected near Fullerton, ND.

**Table 1. Precipitation Data for Fullerton, North Dakota**

**(Station #323287)**




*Source: High Plains Regional Climate Center, http://www.hprcc.unl.edu/stations/ Accessed February 13, 2015*

# Results

Results of the onsite review are provided in the following sections for jurisdictional wetlands and representative wetlands, for which full delineations were performed. No deepwater habitats were identified. A comprehensive inventory of all wetlands reviewed within the Study Area is shown on Figure 2, Pages 1-9; and provided in Appendix A, Reviewed Wetlands within Study Area. A summary of wetland acres by type within the Study Area is provided in Table 2.

**Table 2. Wetland Acres in Study Area**

| Wetland Type | Acres |
|---|---|
| PEMA | 32.6 |
| PEMC | 35.4 |
| PEMF | 18.9 |
| PUBH | 3.3 |
| R2UBF | 0.7 |
| **Total** | **90.9** |

## Jurisdictional Wetlands

Four jurisdictional wetland areas totaling 16.10 acres were delineated within the Study Area and are discussed in detail below. Eight wetland determination data sheets were prepared for the jurisdictional wetlands in North Dakota (see Appendix E, Routine Wetland Determination Data Forms). Wetland boundaries were field-identified for these four wetlands. Figure 2, Pages 3, 5, 6, and 7 show the delineated JD wetland boundaries along with sampling points and photo locations. Photographs of the wetlands are presented in Appendix F.

The following sections describe the general features of USACE-designated jurisdictional wetland areas that were field delineated within the Study Area.

**Wetland J 01**

Wetland J 01 is a permanently flooded riparian wetland located in Section 22 of Township 129, Range 63 of Dickey County, North Dakota (see Figure 2, Page 3). The wetland contains an unconsolidated bottom and has been labeled a PUBH wetland according to the Cowardin classification system. The wetland area is located within a grazed pasture within a USFWS wetland easement property. Wetland J 01 is dominated by river club-rush (*Schoenoplectus fluviatilis*) and Canada thistle (*Cirsium arvense*) (see Appendix E, Sample Point J 01 Wet).

**Wetland J 02-C**

Wetland J 02-C is a semi permanently flooded linear wetland located in Section 24 of Township 129, Range 63 of Dickey County, North Dakota (see Figure 2, Page 5). The wetland has been labeled as a PEMF wetland according to the Cowardin classification system. The wetland is broken up into three different polygons for this report, but these polygons are all part of the same wetland complex; Wetland J 02-A, J 02-B, and J 02-C. The wetland contains J 02-B; a

lower perennial R2UBF meandering channel named Dry Branch. The wetland area is bordered by row crop fields on the east and west sides within a USFWS wetland easement property. Wetland J 02-C is dominated by reed canary grass (*Phalaris arundinacea*) (see Appendix E, Sample Point J 02 Wet).

**Wetland J 03-A**

Wetland J 03-A is a seasonally flooded wetland located in Section 29 of Township 129, Range 62 of Dickey County, North Dakota (see Figure 2, Page 6). The wetland has been labeled as a PEMC wetland according to the Cowardin classification system. The wetland is broken up into two different polygons for this report, but these polygons are both part of the same wetland complex; Wetland J 03-A, J 03-B. Wetland J 03-A is located within row crop fields within a USFWS wetland easement property. Wetland J 03-A is dominated by Mexican-fireweed (*Kochia scoparia*), curly dock (*Rumex crispus*), and eastern cottonwood (*Populus deltoides*) (see Appendix E, Sample Point J 03 Wet).

**Wetland J 04-B**

Wetland J 04-B is a temporarily flooded linear wetland located in Section 20 of Township 129, Range 62 of Dickey County, North Dakota (see Figure 2, Page 7). The wetland has been labeled as a PEMA wetland according to the Cowardin classification system. The wetland is broken up into two different polygons for this report, but these polygons are both part of the same wetland complex; Wetland J 04-A, J 04-B. Wetland J 04-B is located within a row crop field within a USFWS wetland easement property. Wetland J 04-B did not have any vegetation at the sample point location and the vegetation was determined to be problematic due to annual disturbance by row crop farming practices.

## Representative Wetlands

Three representative wetland types; PEMF, PEMC, and PEMA were identified as occurring within the ND survey area. A total of 7.84 acres of representative wetlands were delineated within the Study Area and are discussed in detail below. Six wetland determination data sheets were prepared for the representative wetlands in North Dakota (see Appendix E, Routine Wetland Determination Data Forms). Wetland boundaries were field-identified for these three wetlands. Figure 2, Pages 1 and 8 show the delineated wetland boundaries and sampling point and photo locations. Photographs of the wetlands are presented in Appendix F.

The following section describes the general features of representative wetland areas that were field delineated within the Study Area.

**Wetland R 01**

Wetland R 01 is a semi permanently flooded wetland located in Section 9 of Township 129, Range 63 of Dickey County, North Dakota (see Figure 2, Page 1). The wetland has been labeled a PEMF wetland according to the Cowardin classification system. Wetland R 01 is surrounded by row crop fields within a USFWS wetland easement property. Wetland R 01 is

dominated by narrow-leaf cattail (*Typha angustifolia*) and reed canary grass (*Phalaris arundinacea*) (see Appendix E, Sample Point R 01 Wet).

**Wetland R 02**

Wetland R 02 is a seasonally flooded wetland located in Section 9 of Township 129, Range 63 of Dickey County, North Dakota (see Figure 2, Page 1). The wetland has been labeled as a PEMC wetland according to the Cowardin classification system. Wetland R 02 is located in a row crop field within a USFWS wetland easement property. Wetland R 02 is dominated by narrow-leaf cattail (*Typha angustifolia*) and river club-rush (*Schoenoplectus fluviatilis*) (see Appendix E, Sample Point R 02 Wet).

**Wetland R 03**

Wetland R 03 is a temporarily flooded wetland in Section 29 of Township 129, Range 62 of Dickey County, North Dakota (see Figure 2, Page 8). The wetland has been labeled as a PEMA wetland according to the Cowardin classification system. Wetland R 03 is located in a row crop field within a USFWS wetland easement property. Wetland R 03 is dominated by awned flat sedge (*Cyperus squarrosus*) and soybean (*Glycine max*) (see Appendix E, Sample Point R 02 Wet).

# Conclusions

Wetland areas within the Study Area and along temporary access roads for the proposed Project have been identified for areas where field crews had permission to survey in October 2014, and May 2015. This report is intended to help identify avoidance and minimization opportunities, as well as to assist in identifying unavoidable wetland impacts for the proposed Project. If temporary or permanent impacts are expected, the Applicants will obtain permits from the USACE and/or USFWS depending on jurisdiction.

At this time, expected wetland impacts have not been determined. Three types of wetland impacts could result from proposed Project construction:

- Permanent impacts related to structure placement in wetlands
- Permanent conversion impacts related to changing forested wetlands to a different (non-forested) wetland type
- Temporary impacts related to construction activities

Impacts to USACE jurisdictional wetlands may require compensatory mitigation. It is anticipated that each wetland crossing will be considered a separate and independent impact and thus it is expected that permanent impacts to wetlands that result from structure placement will not exceed nationwide permit notification thresholds. Impacts to USFWS jurisdictional wetlands will require special use permits from the USFWS. Any and all impacts to wetland and other water resources will be mitigated according to regulatory requirements.

An amendment to this report will be prepared as needed in order to document any new Survey Areas due shifting of the proposed Project.

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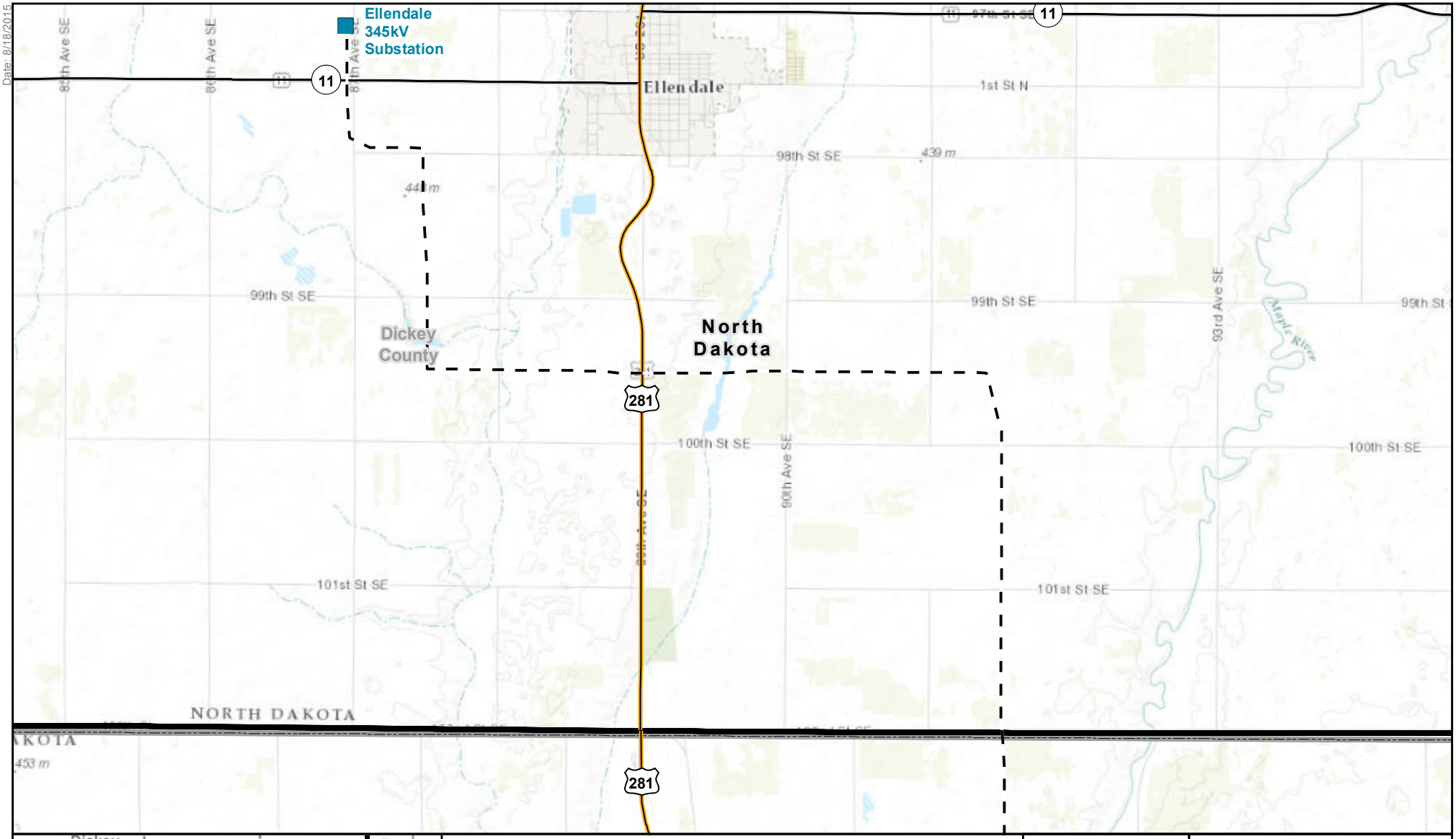
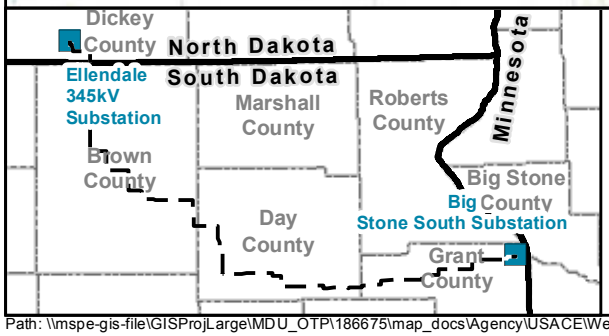
Exhibit 2

Date: 8/18/2015




Approved Project Route as of 12/31/2014
State Boundary
County Boundary
Interstate Highway
State Highway
US Highway

0 0.5 1 2 3 Miles

BSSE Big Stone South to Ellendale

Scale 1:61,057

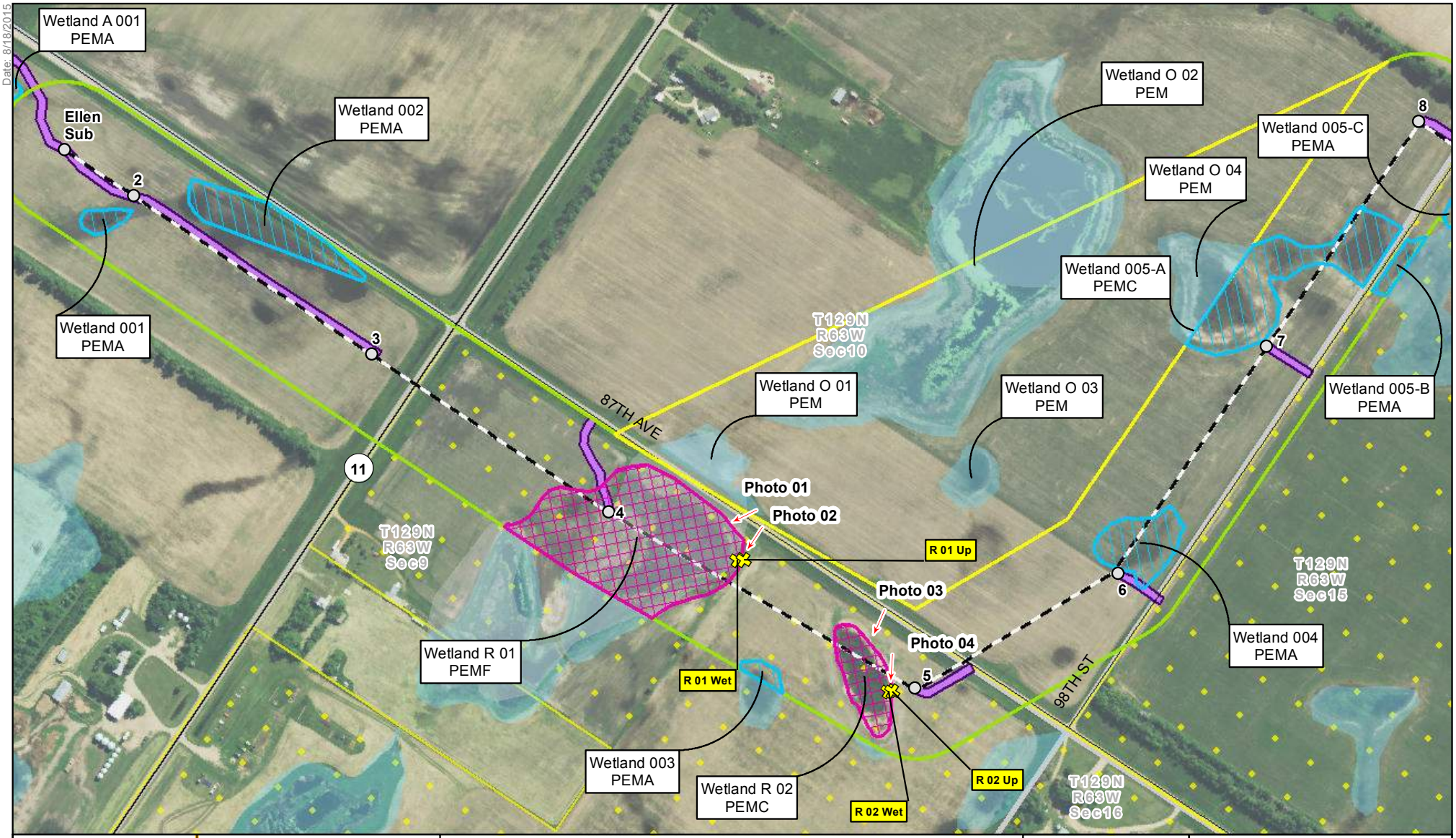
**Project Location**

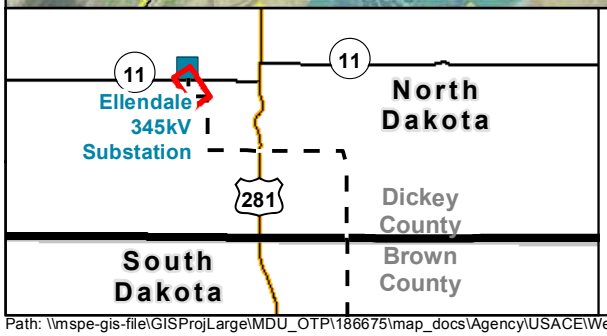
**Figure 1**

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota & South Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Project Location_ND.mxd

Exhibit 2




Onsite Reviewed Wetlands
Jurisdictional Wetland
Representative Wetland
Offsite Reviewed Wetlands
Sample Point
Photos - Arrow Indicates Direction Photo was Taken
Study Area - 500 Ft. Width
Study Area - Offsite Reviewed
Dickey County Hydric Soils

Temporary Access Roads - 30 Ft. Width as of 2/19/2015
Approved Project Route as of 12/31/2014
Transmission Line Structures as of 12/31/2014
ND Interstate Highway
ND State Highway
ND US Highway
ND Bypass
ND Local Roads

ND Sections
Easements
USFWS Grassland or Grassland/Wetland
USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

# Wetland Maps

**Figure 2 - Page 1 of 9**

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

Date: 8/18/2015

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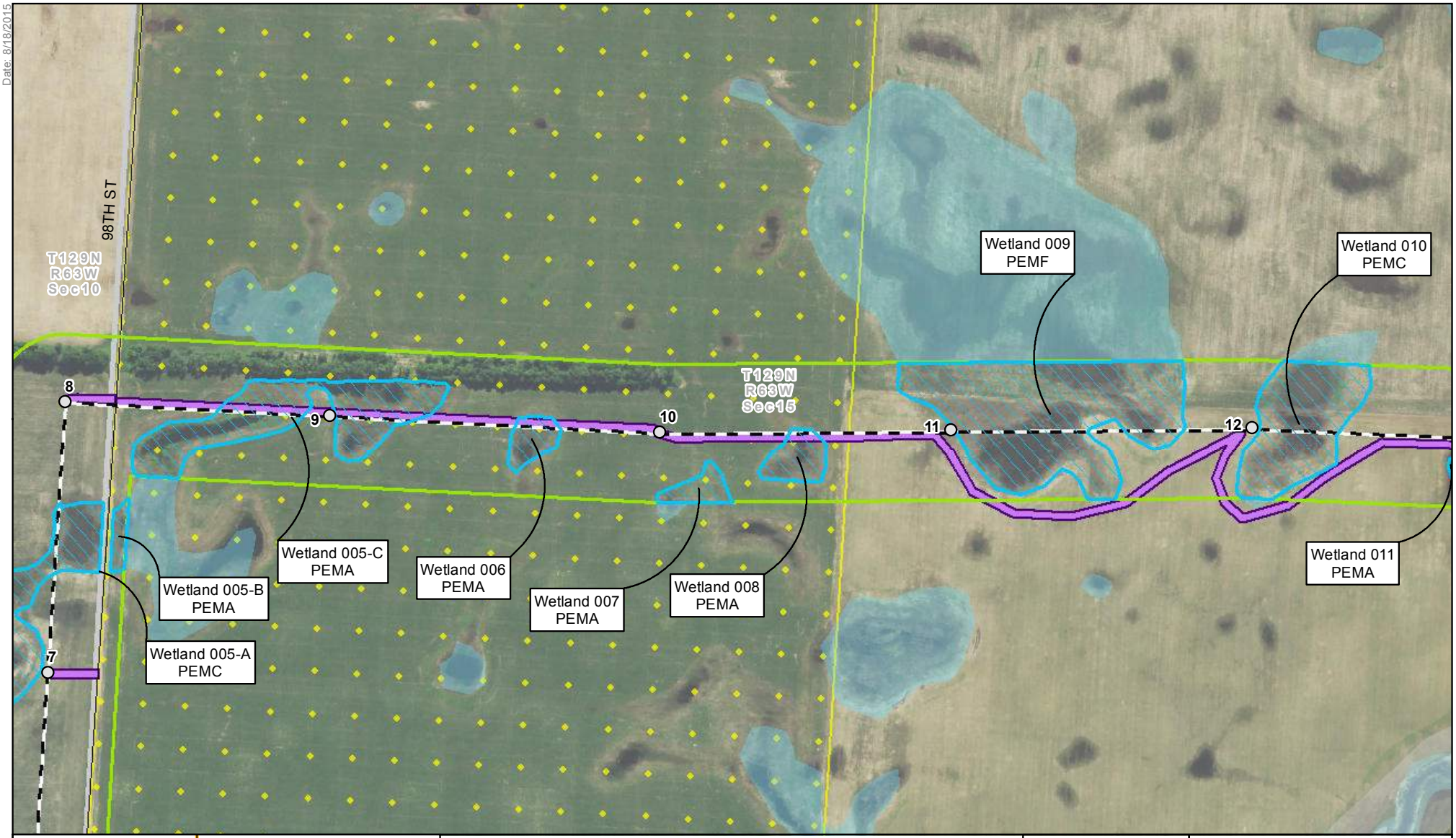
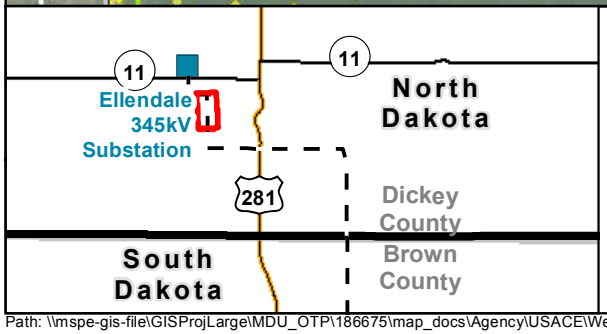
Exhibit 2

Date: 8/18/2015




Onsite Reviewed Wetlands
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Offsite Reviewed Wetlands
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Study Area - Offsite Reviewed
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ND State Highway
ND US Highway
ND Bypass
ND Local Roads

ND Sections
Easements
USFWS Grassland or Grassland/Wetland
USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

**Wetland Maps**

**Figure 2 - Page 2 of 9**

Scale 1:6,000

Big Stone South to Ellendale 345kV Transmission Line Project North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

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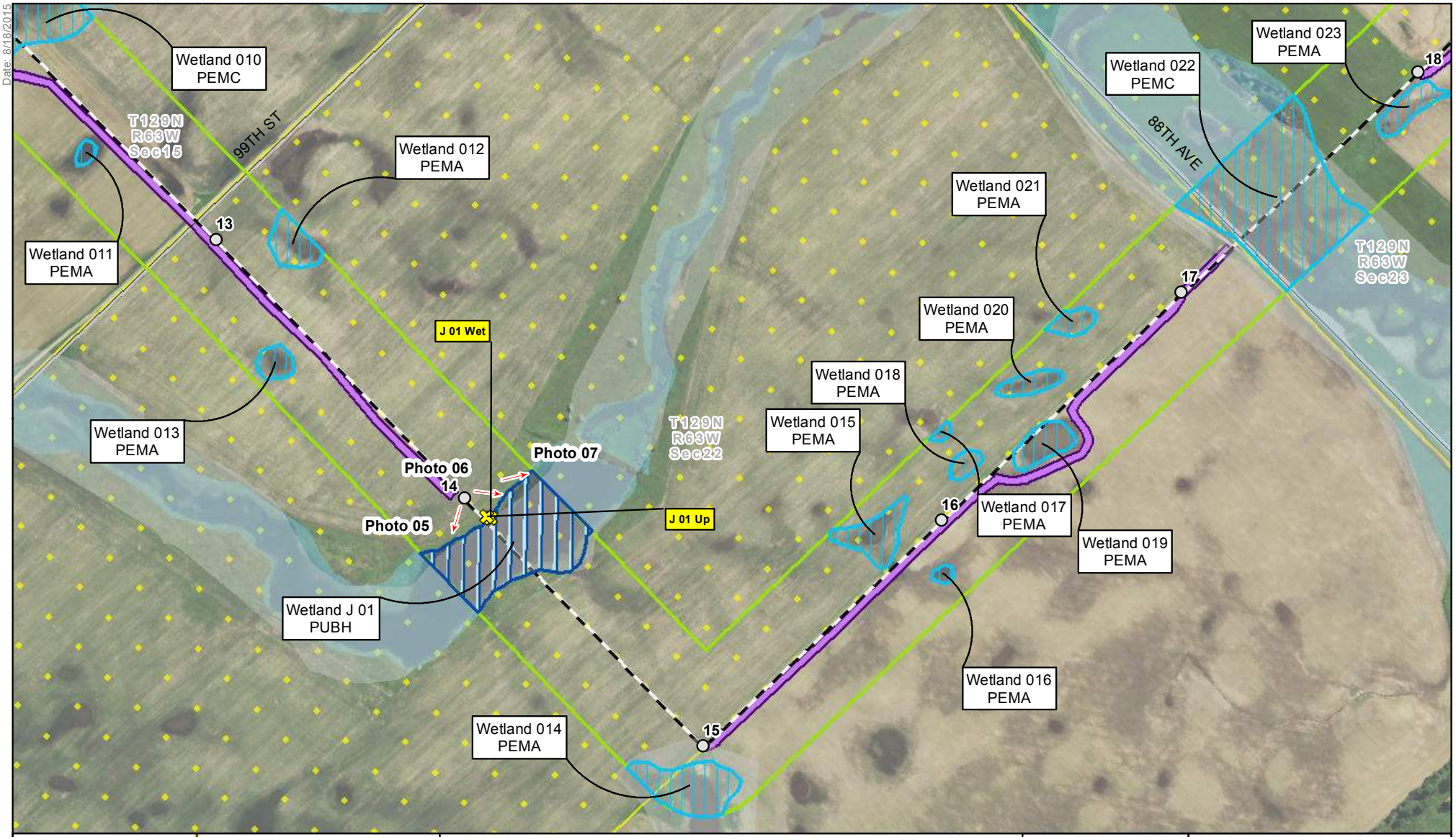


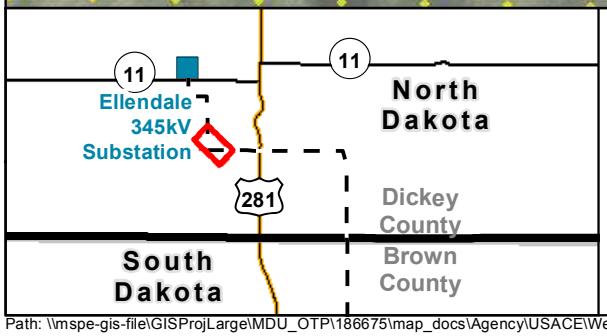


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ND Sections
Easements
USFWS Grassland or Grassland/Wetland
USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

**Wetland Maps**

**Figure 2 - Page 3 of 9**

Scale 1:6,000

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

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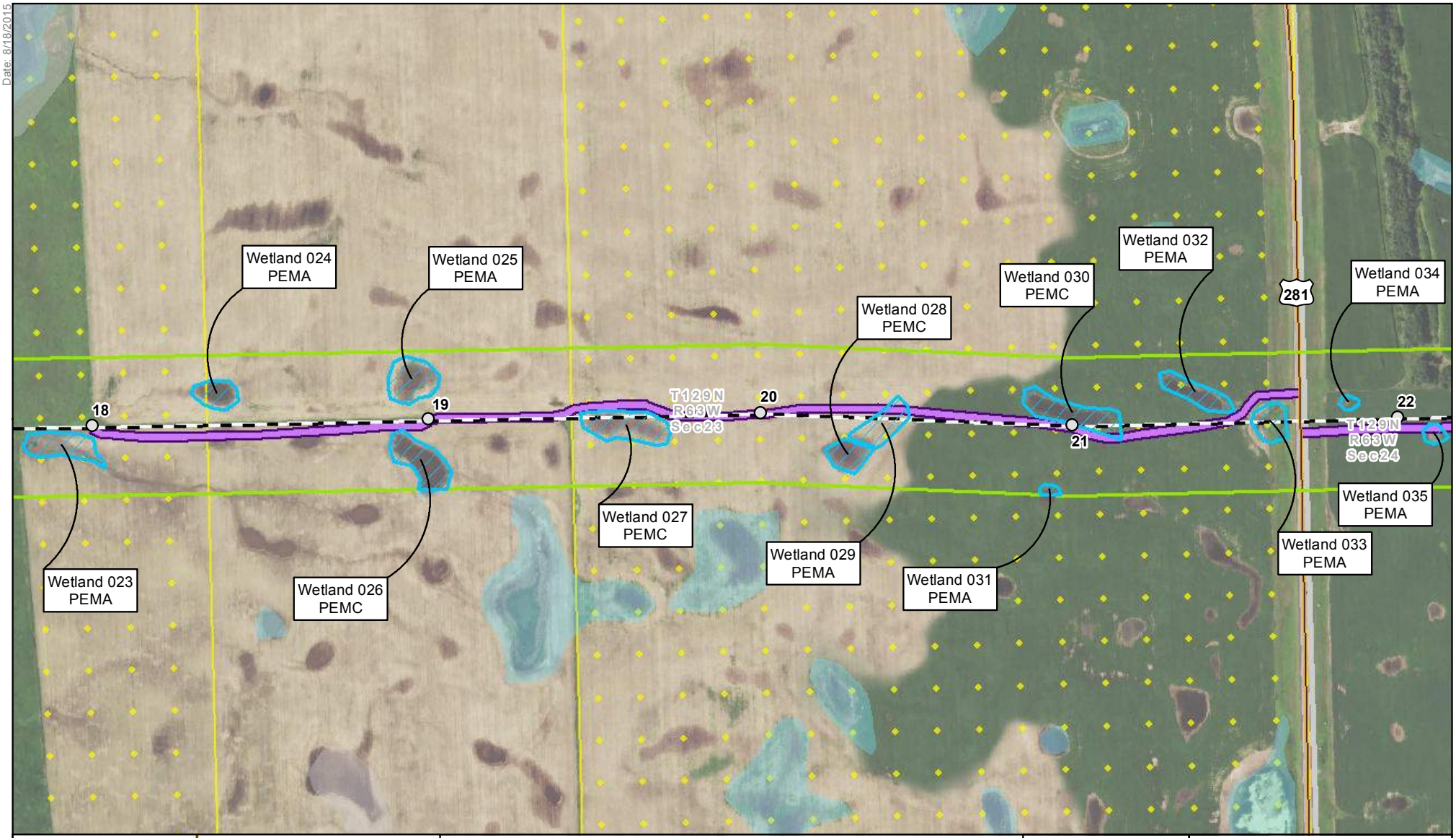
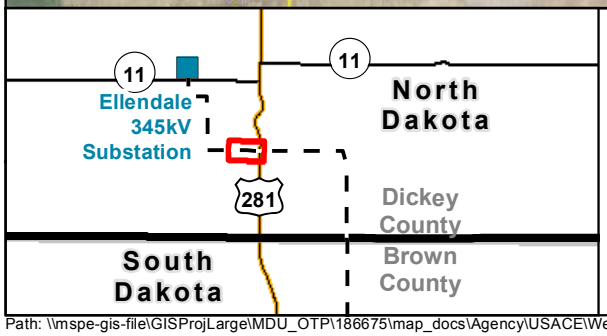
Date: 8/18/2015




Onsite Reviewed Wetlands
Jurisdictional Wetland
Representative Wetland
Offsite Reviewed Wetlands
Sample Point
Photos - Arrow Indicates Direction Photo was Taken
Study Area - 500 Ft. Width
Study Area - Offsite Reviewed
Dickey County Hydric Soils

Temporary Access Roads - 30 Ft. Width as of 2/19/2015
Approved Project Route as of 12/31/2014
Transmission Line Structures as of 12/31/2014
ND Interstate Highway
ND State Highway
ND US Highway
ND Bypass
ND Local Roads

ND Sections
Easements
USFWS Grassland or Grassland/Wetland
USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

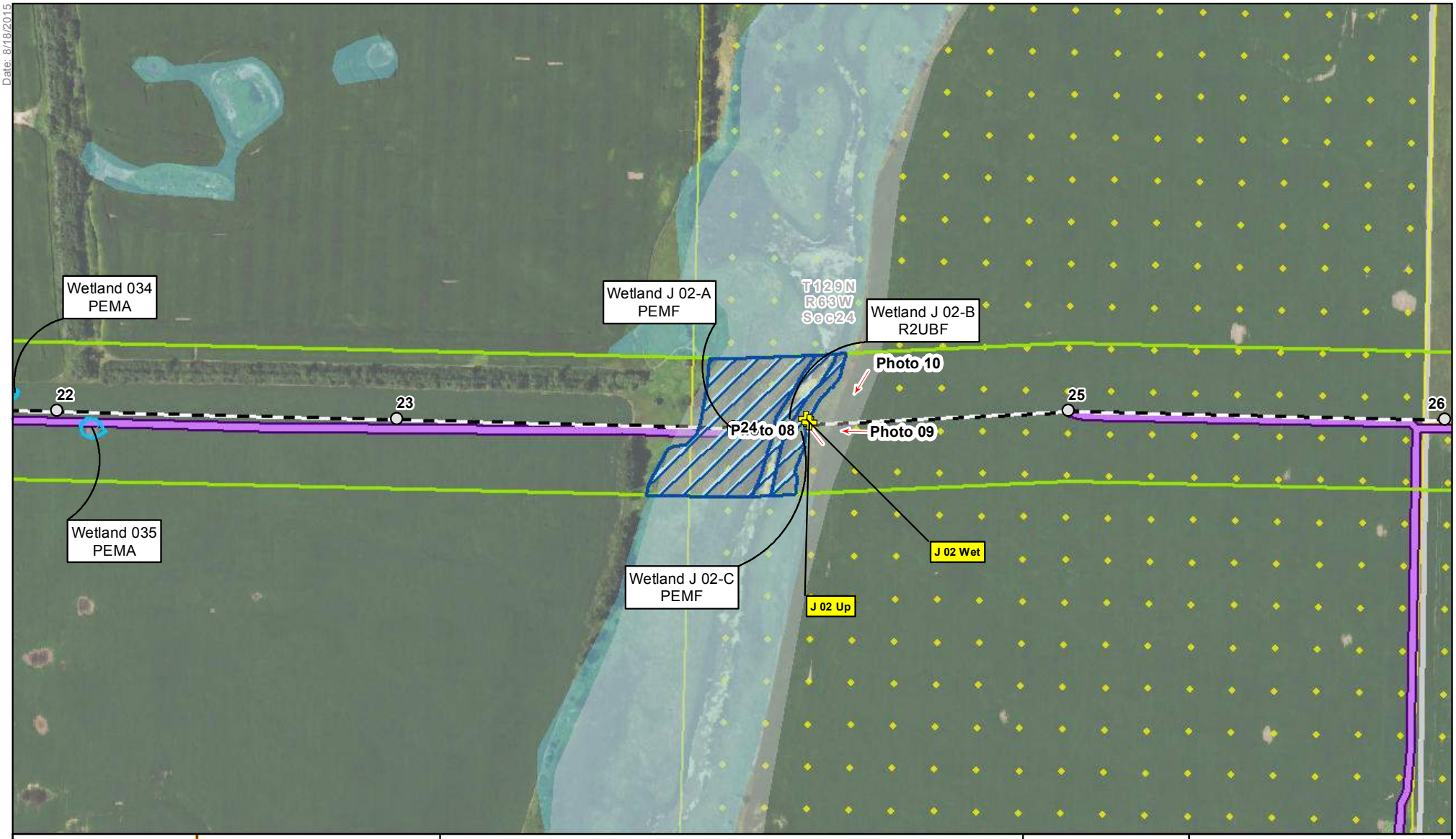
**Wetland Maps**

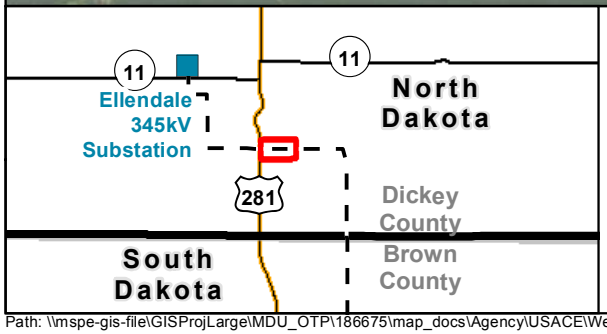
**Figure 2 - Page 4 of 9**

Big Stone South to Ellendale 345kV Transmission Line Project North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

Date: 8/18/2015

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0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

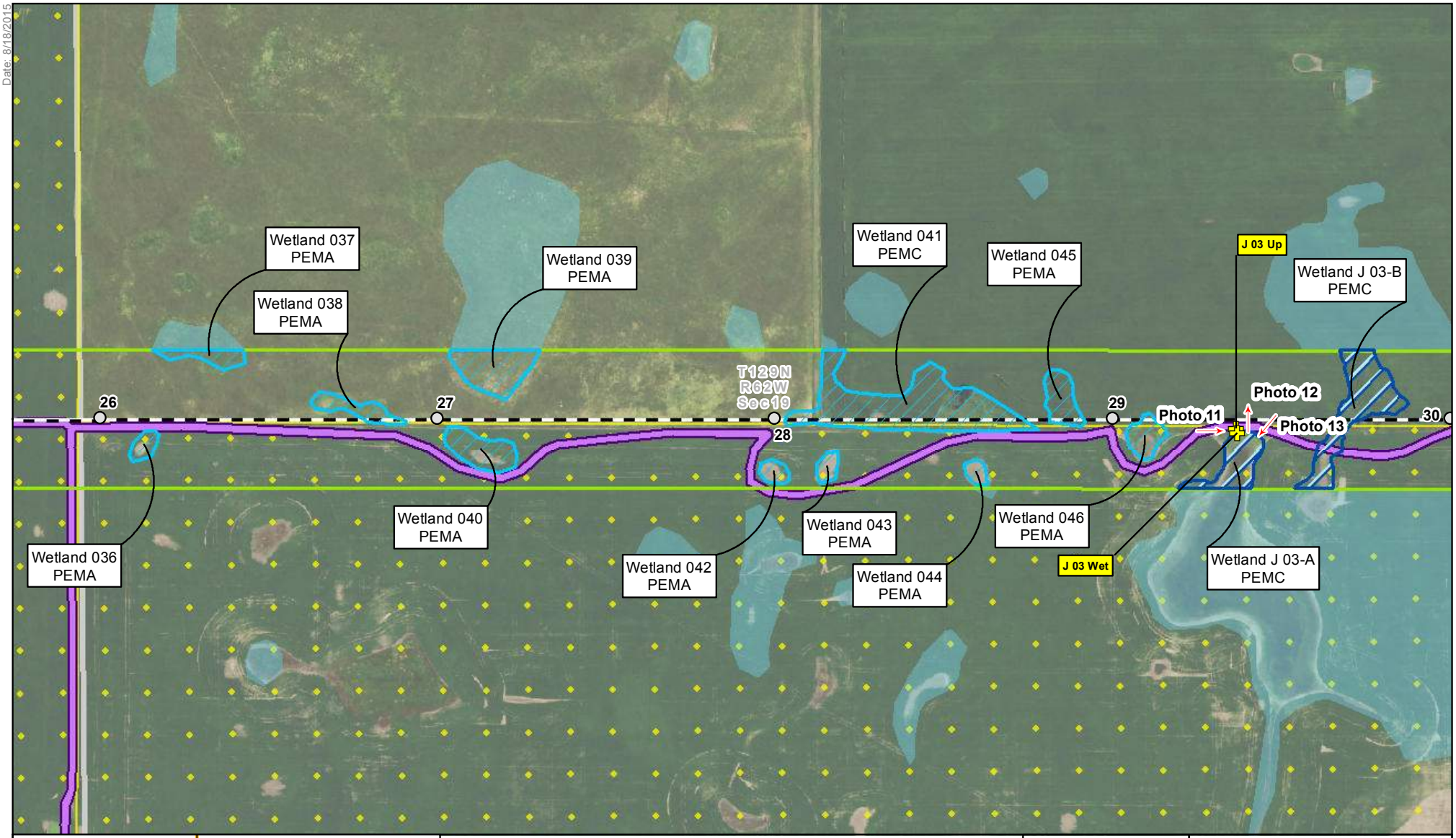
# Wetland Maps

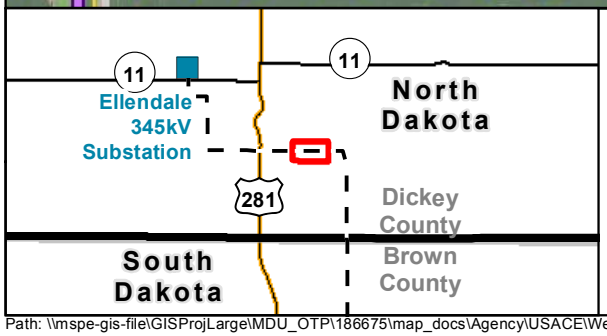
**Figure 2 - Page 5 of 9**

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

Date: 8/18/2015

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USFWS Grassland or Grassland/Wetland
USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

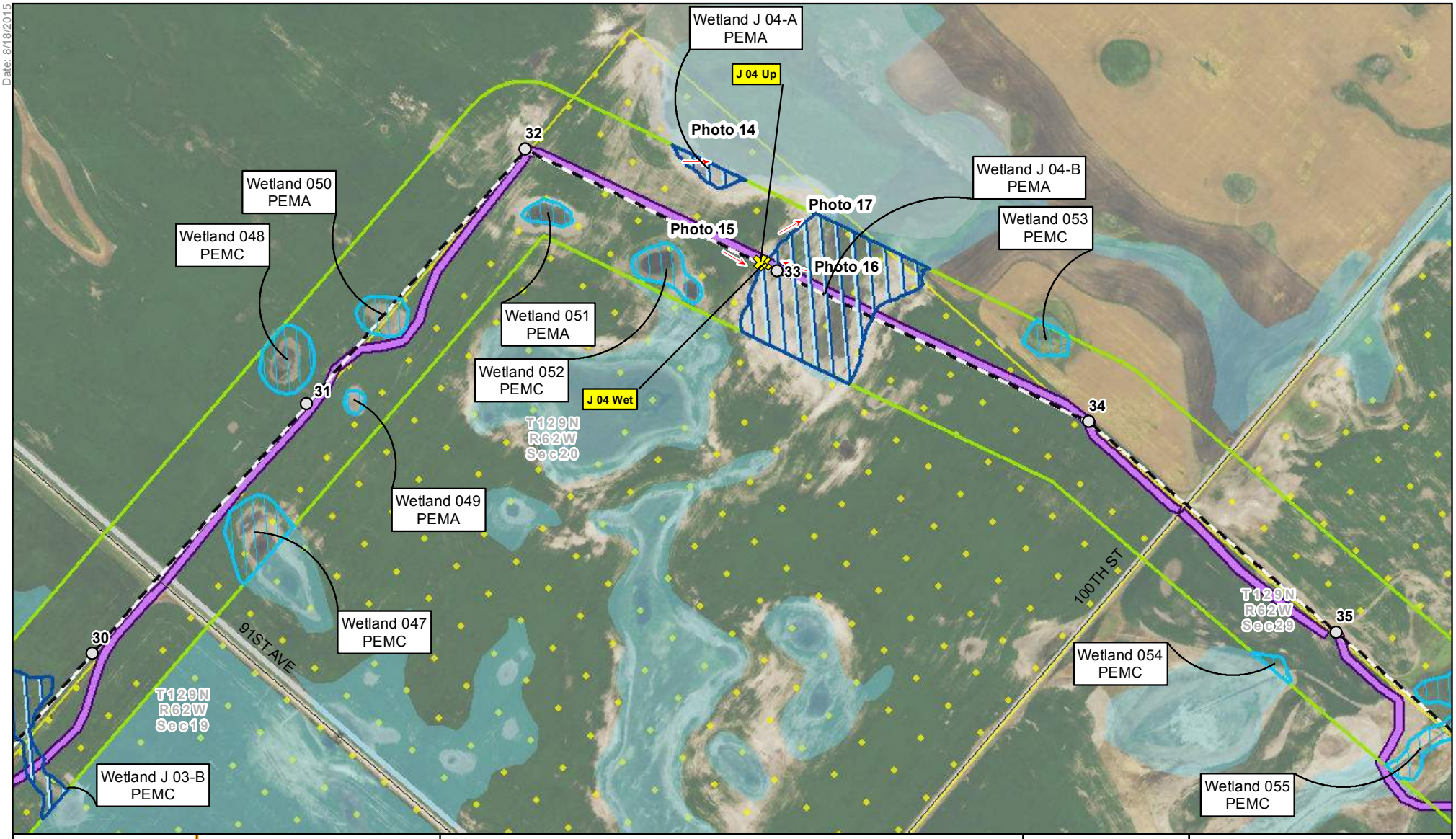
# Wetland Maps

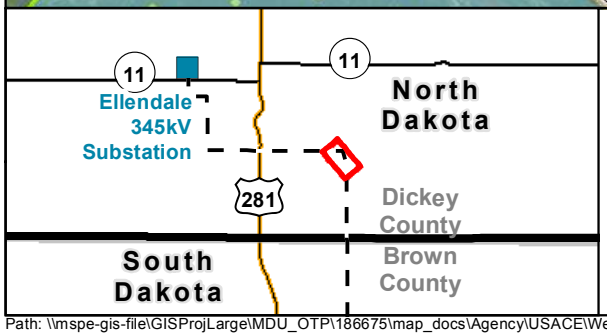
**Figure 2 - Page 6 of 9**

Big Stone South to Ellendale 345kV Transmission Line Project North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

Date: 8/18/2015

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USFWS Wetland

0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

## Wetland Maps

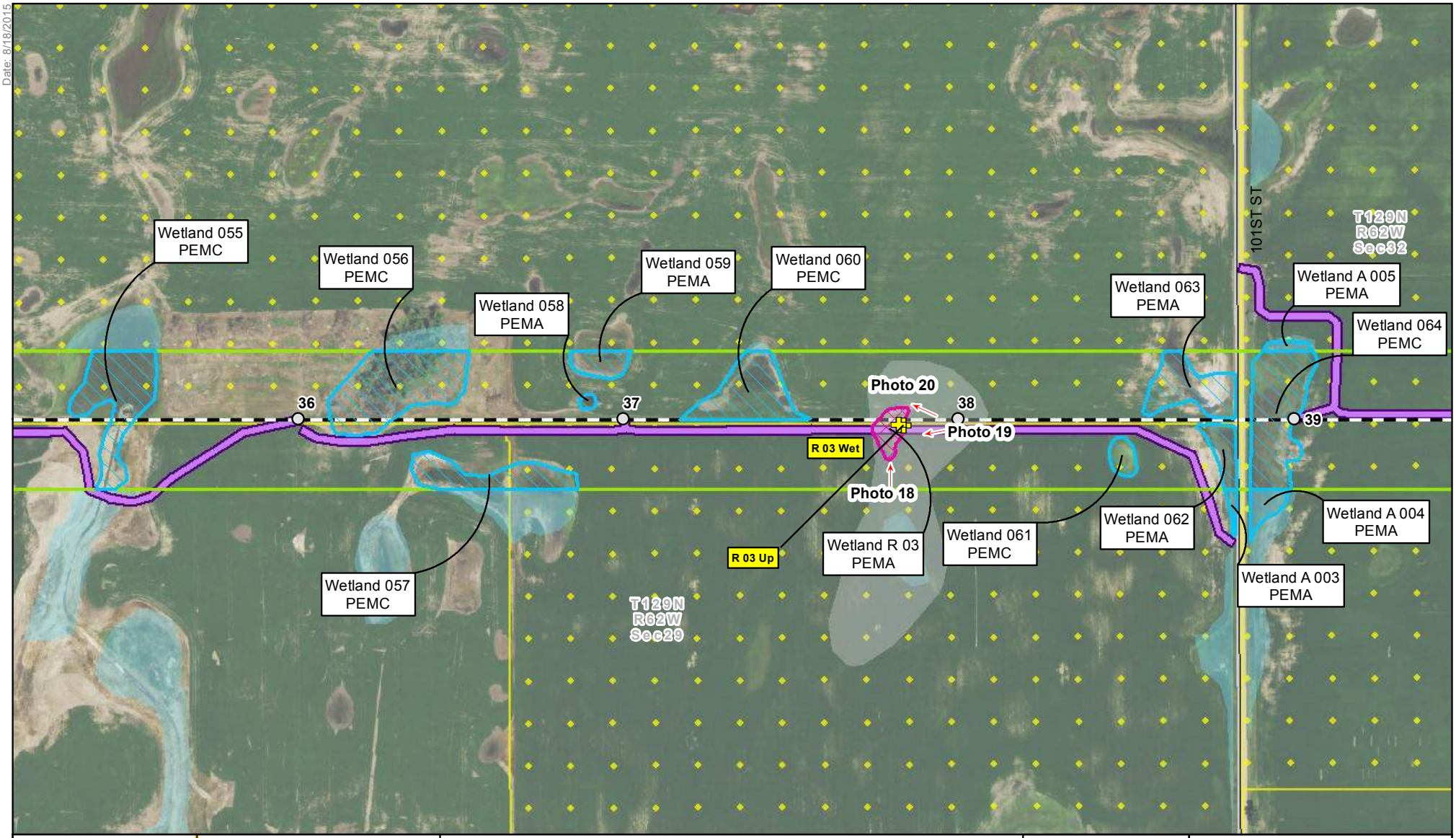
**Figure 2 - Page 7 of 9**

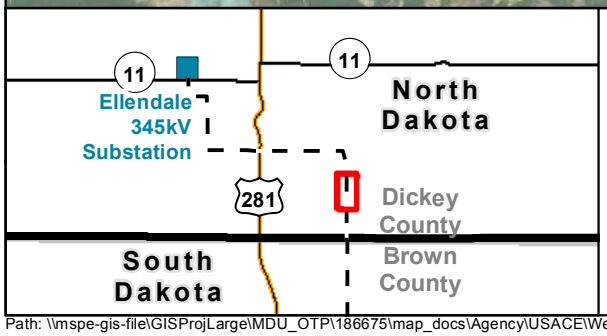
Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

Exhibit 2

Date: 8/18/2015

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0 250 500 1,000 Feet

BSSE Big Stone South to Ellendale

Scale 1:6,000

# Wetland Maps

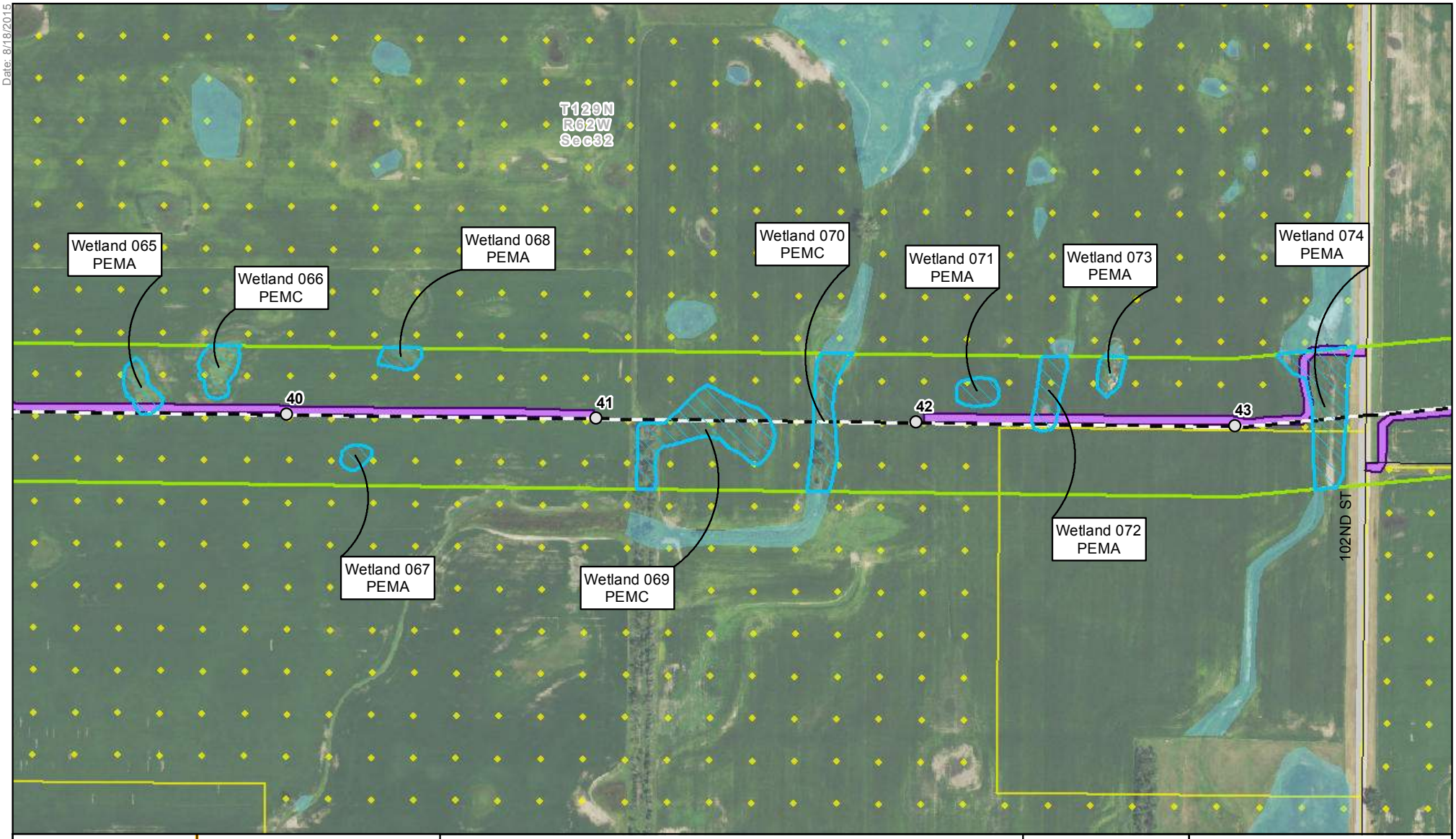
**Figure 2 - Page 8 of 9**

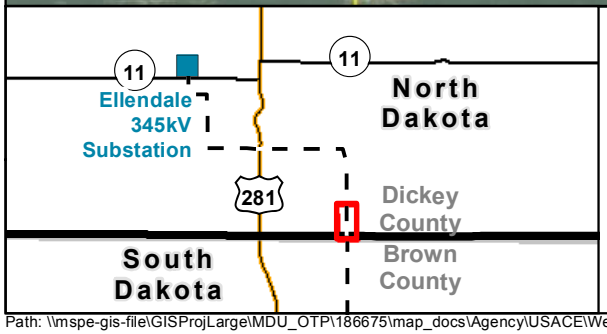
Big Stone South to Ellendale 345kV Transmission Line Project North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

Exhibit 2

Date: 8/18/2015

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# Wetland Maps

**Figure 2 - Page 9 of 9**

Big Stone South
to Ellendale 345kV
Transmission Line Project
North Dakota

Path: \\mspe-gis-file\GISProjLarge\MDU_OTP\186675\map_docs\Agency\USACE\Wetland_Delineation_Reports\Version 3\Figure 2_North Dakota.mxd

# Appendix A

Reviewed Wetlands within Study Area

# Appendix A

## Reviewed Wetlands within Study Area

| Wetland Name[a] | Sample Point Name | Figure Page Number | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[b] |
|---|---|---|---|---|---|---|---|---|---|---|
| 001 | - | 1 | - 98.570204 | 46.00653 | T 129N R 63W Sec 9 | Dickey | 0.26 | PEMA | Dry Branch | None |
| 002 | - | 1 | -98.569014 | 46.005161 | T 129N R 63W Sec 9 | Dickey | 1.68 | PEMA | Dry Branch | Undetermined |
| R 01 | R 01 Wet | 1 | -98.569816 | 46.000376 | T 129N R 63W Sec 9 | Dickey | 6.34 | PEMF | Dry Branch | USFWS/None |
| 003 | - | 1 | -98.570433 | 45.998604 | T 129N R 63W Sec 9 | Dickey | 0.19 | PEMA | Dry Branch | USFWS/ Undetermined |
| R 02 | R 02 Wet | 1 | -98.569689 | 45.997734 | T 129N R 63W Sec 9 | Dickey | 1.16 | PEMC | Dry Branch | USFWS/None |
| 004 | - | 1 | -98.565958 | 45.996178 | T 129N R 63W Sec 10 | Dickey | 1.27 | PEMA | Dry Branch | None |
| 005-A | - | 1 | -98.561681 | 45.996408 | T 129N R 63W Sec 10 | Dickey | 3.16 | PEMC | Dry Branch | None |
| 005-B | - | 1 | -98.560642 | 45.995565 | T 129N R 63W Sec 15 | Dickey | 0.28 | PEMA | Dry Branch | USFWS/None |
| 005-C | - | 2 | -98.558836 | 45.993923 | T 129N R 63W Sec 15 | Dickey | 4.19 | PEMA | Dry Branch | USFWS / None |
| 006 | - | 2 | -98.558967 | 45.991529 | T 129N R 63W Sec 15 | Dickey | 0.58 | PEMA | Dry Branch | USFWS/ Not Reviewed |
| 007 | - | 2 | -98.559549 | 45.98985 | T 129N R 63W Sec 15 | Dickey | 0.50 | PEMA | Dry Branch | USFWS/ Undetermined |
| 008 | - | 2 | -98.559046 | 45.988894 | T 129N R 63W Sec 15 | Dickey | 0.78 | PEMA | Dry Branch | USFWS/ Not Reviewed |
| 009 | - | 2 | -98.558251 | 45.986408 | T 129N R 63W Sec 15 | Dickey | 8.00 | PEMF | Dry Branch | None |
| 010 | - | 2 | -98.55822 | 45.983939 | T 129N R 63W Sec 15 | Dickey | 3.54 | PEMC | Dry Branch | None |
| 011 | - | 3 | -98.558739 | 45.982358 | T 129N R 63W Sec 15 | Dickey | 0.11 | PEMA | Dry Branch | Undetermined |
| 012 | - | 3 | -98.557545 | 45.980275 | T 129N R 63W Sec 22 | Dickey | 0.55 | PEMA | Dry Branch | USFWS/ Undetermined |
| 013 | - | 3 | -98.558899 | 45.979557 | T 129N R 63W Sec 22 | Dickey | 0.29 | PEMA | Dry Branch | USFWS/ Undetermined |
| J 01 | J 01 Wet | 3 | -98.558267 | 45.976627 | T 129N R 63W Sec 22 | Dickey | 3.29 | PUBH | Dry Branch | USFWS/USACE |
| 014 | - | 3 | -98.558893 | 45.973679 | T 129N R 63W Sec 22 | Dickey | 1.23 | PEMA | Dry Branch | USFWS/ Not Reviewed |

Appendix A

Reviewed Wetlands within Study Area

| Wetland Name[a] | Sample Point Name | Figure Page Number | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[b] |
|---|---|---|---|---|---|---|---|---|---|---|
| 015 | - | 3 | -98.554509 | 45.974181 | T 129N R 63W Sec 22 | Dickey | 0.72 | PEMA | Dry Branch | USFWS/ Not Reviewed |
| 016 | - | 3 | -98.554209 | 45.97343 | T 129N R 63W Sec 22 | Dickey | 0.09 | PEMA | Dry Branch | Undetermined |
| 017 | - | 3 | -98.552816 | 45.974446 | T 129N R 63W Sec 22 | Dickey | 0.07 | PEMA | Dry Branch | USFWS/ Undetermined |
| 018 | - | 3 | -98.552899 | 45.974058 | T 129N R 63W Sec 22 | Dickey | 0.19 | PEMA | Dry Branch | USFWS/ Undetermined |
| 019 | - | 3 | -98.551901 | 45.973666 | T 129N R 63W Sec 22 | Dickey | 0.53 | PEMA | Dry Branch | USFWS/ Undetermined |
| 020 | - | 3 | -98.551423 | 45.974184 | T 129N R 63W Sec 22 | Dickey | 0.33 | PEMA | Dry Branch | USFWS/ Undetermined |
| 021 | - | 3 | -98.550385 | 45.974321 | T 129N R 63W Sec 22 | Dickey | 0.28 | PEMA | Dry Branch | USFWS/ Undetermined |
| 022 | - | 3 | -98.547077 | 45.973791 | T 129N R 63W Sec 23 | Dickey | 5.17 | PEMC | Dry Branch | USFWS/ Undetermined |
| 023 | - | 4 | -98.54483 | 45.973519 | T 129N R 63W Sec 23 | Dickey | 0.49 | PEMA | Dry Branch | USFWS/ Not Reviewed |
| 024 | - | 4 | -98.542611 | 45.973976 | T 129N R 63W Sec 23 | Dickey | 0.30 | PEMA | Dry Branch | Undetermined |
| 025 | - | 4 | -98.539832 | 45.97405 | T 129N R 63W Sec 23 | Dickey | 0.54 | PEMA | Dry Branch | None |
| 026 | - | 4 | -98.53974 | 45.973244 | T 129N R 63W Sec 23 | Dickey | 0.61 | PEMC | Dry Branch | None |
| 027 | - | 4 | -98.536804 | 45.973521 | T 129N R 63W Sec 23 | Dickey | 0.69 | PEMC | Dry Branch | USFWS/ Undetermined |
| 028 | - | 4 | -98.533672 | 45.973155 | T 129N R 63W Sec 23 | Dickey | 0.31 | PEMC | Dry Branch | USFWS/ Undetermined |
| 029 | - | 4 | -98.533171 | 45.973445 | T 129N R 63W Sec 23 | Dickey | 0.44 | PEMA | Dry Branch | USFWS/ Not Reviewed |
| 030 | - | 4 | -98.530458 | 45.973495 | T 129N R 63W Sec 23 | Dickey | 0.67 | PEMC | Dry Branch | USFWS/None |
| 031 | - | 4 | -98.530825 | 45.972739 | T 129N R 63W Sec 23 | Dickey | 0.05 | PEMA | Dry Branch | USFWS/ Undetermined |
| 032 | - | 4 | -98.528707 | 45.973654 | T 129N R 63W Sec 23 | Dickey | 0.41 | PEMA | Dry Branch | USFWS/ Undetermined |
| 033 | - | 4 | -98.527657 | 45.973334 | T 129N R 63W Sec 23 | Dickey | 0.31 | PEMA | Dry Branch | USFWS/ Undetermined |

# Appendix A

## Reviewed Wetlands within Study Area

| Wetland Name[a] | Sample Point Name | Figure Page Number | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[b] |
|---|---|---|---|---|---|---|---|---|---|---|
| 034 | - | 4 | -98.526536 | 45.973503 | T 129N R 63W Sec 24 | Dickey | 0.06 | PEMA | Dry Branch | Undetermined |
| 035 | - | 5 | -98.52534 | 45.973166 | T 129N R 63W Sec 24 | Dickey | 0.10 | PEMA | Dry Branch | Not Reviewed |
| J 02-A | - | 5 | -98.516259 | 45.97324 | T 129N R 63W Sec 25 | Dickey | 3.85 | PEMF | Dry Branch | USFWS/USACE |
| J 02-B | - | 5 | -98.515409 | 45.973355 | T 129N R 62W Sec 24 | Dickey | 0.72 | R2UBF | Dry Branch | USFWS/USACE |
| J 02-C | J 02 Wet | 5 | -98.51526 | 45.973211 | T 129N R 63W Sec 25 | Dickey | 0.75 | PEMF | Dry Branch | USFWS/USACE |
| 036 | - | 6 | -98.505488 | 45.973148 | T 129N R 62W Sec 19 | Dickey | 0.18 | PEMA | Maple River | USFWS/ Undetermined |
| 037 | - | 6 | -98.504543 | 45.974024 | T 129N R 62W Sec 19 | Dickey | 0.29 | PEMA | Maple River | Undetermined |
| 038 | - | 6 | -98.502489 | 45.973489 | T 129N R 62W Sec 19 | Dickey | 0.37 | PEMA | Maple River | USFWS/ Undetermined |
| 039 | - | 6 | -98.500506 | 45.973868 | T 129N R 62W Sec 19 | Dickey | 0.86 | PEMA | Maple River | Undetermined |
| 040 | - | 6 | -98.500705 | 45.973059 | T 129N R 62W Sec 19 | Dickey | 0.62 | PEMA | Maple River | USFWS/ Not Reviewed |
| 041 | - | 6 | -98.494638 | 45.973448 | T 129N R 62W Sec 19 | Dickey | 2.72 | PEMC | Maple River | USFWS/ Not Reviewed |
| 042 | - | 6 | -98.496542 | 45.972802 | T 129N R 62W Sec 19 | Dickey | 0.16 | PEMA | Maple River | USFWS/ Undetermined |
| 043 | - | 6 | -98.495783 | 45.972845 | T 129N R 62W Sec 19 | Dickey | 0.16 | PEMA | Maple River | USFWS/ Undetermined |
| 044 | - | 6 | -98.493671 | 45.972773 | T 129N R 62W Sec 19 | Dickey | 0.13 | PEMA | Maple River | USFWS/ Undetermined |
| 045 | - | 6 | -98.492447 | 45.973488 | T 129N R 62W Sec 19 | Dickey | 0.45 | PEMA | Maple River | USFWS/None |
| 046 | - | 6 | -98.491258 | 45.97311 | T 129N R 62W Sec 19 | Dickey | 0.35 | PEMA | Maple River | USFWS/None |
| J 03-A | J 03 Wet | 6 | -98.489997 | 45.972826 | T 129N R 62W Sec 19 | Dickey | 0.65 | PEMC | Maple River | USFWS/USACE |
| J 03-B | - | 6 | -98.488276 | 45.973347 | T 129N R 62W Sec 19 | Dickey | 1.35 | PEMC | Maple River | USFWS/USACE |
| 047 | - | 7 | -98.484114 | 45.972766 | T 129N R 62W Sec 20 | Dickey | 1.06 | PEMC | Maple River | USFWS/ Undetermined |

Appendix A

Reviewed Wetlands within Study Area

| Wetland Name[a] | Sample Point Name | Figure Page Number | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[b] |
|---|---|---|---|---|---|---|---|---|---|---|
| 048 | - | 7 | -98.481927 | 45.973614 | T 129N R 62W Sec 20 | Dickey | 0.84 | PEMC | Maple River | None |
| 049 | - | 7 | -98.481764 | 45.972846 | T 129N R 62W Sec 20 | Dickey | 0.12 | PEMA | Maple River | USFWS/ Undetermined |
| 050 | - | 7 | -98.480567 | 45.973174 | T 129N R 62W Sec 20 | Dickey | 0.50 | PEMA | Maple River | USFWS/ Undetermined |
| 051 | - | 7 | -98.477953 | 45.972564 | T 129N R 62W Sec 19 | Dickey | 0.27 | PEMA | Maple River | USFWS/ Undetermined |
| 052 | - | 7 | -98.477494 | 45.971305 | T 129N R 62W Sec 20 | Dickey | 0.63 | PEMC | Maple River | USFWS/ Undetermined |
| J 04-A | - | 7 | -98.476022 | 45.971626 | T 129N R 62W Sec 20 | Dickey | 0.29 | PEMA | Maple River | USFWS/USACE |
| J 04-B | J 04 Wet | 7 | -98.476313 | 45.969943 | T 129N R 62W Sec 20 | Dickey | 5.20 | PEMA | Maple River | USFWS/USACE |
| 053 | - | 7 | -98.474806 | 45.967975 | T 129N R 62W Sec 20 | Dickey | 0.34 | PEMC | Maple River | USFWS/ Undetermined |
| 054 | - | 7 | -98.47626 | 45.964168 | T 129N R 62W Sec 29 | Dickey | 0.12 | PEMC | Maple River | Undetermined |
| 055 | - | 8 | -98.475111 | 45.962481 | T 129N R 62W Sec 29 | Dickey | 1.79 | PEMC | Maple River | USFWS/ Undetermined |
| 056 | - | 8 | -98.474959 | 45.959714 | T 129N R 62W Sec 29 | Dickey | 2.43 | PEMC | Maple River | USFWS/None |
| 057 | - | 8 | -98.476227 | 45.958801 | T 129N R 62W Sec 29 | Dickey | 1.14 | PEMC | Maple River | USFWS/ Undetermined |
| 058 | - | 8 | -98.475186 | 45.957813 | T 129N R 62W Sec 29 | Dickey | 0.06 | PEMA | Maple River | USFWS/ Undetermined |
| 059 | - | 8 | -98.474635 | 45.957689 | T 129N R 62W Sec 29 | Dickey | 0.41 | PEMA | Maple River | USFWS/ Undetermined |
| 060 | - | 8 | -98.47509 | 45.956218 | T 129N R 62W Sec 29 | Dickey | 1.37 | PEMC | Maple River | USFWS/ Undetermined |
| R 03 | R 03 Wet | 8 | -98.475636 | 45.954825 | T 129N R 62W Sec 29 | Dickey | 0.33 | PEMA | Maple River | USFWS/ Not Reviewed |
| 061 | - | 8 | -98.476057 | 45.952521 | T 129N R 62W Sec 29 | Dickey | 0.25 | PEMC | Maple River | USFWS/ Undetermined |
| 062 | - | 8 | -98.475974 | 45.951523 | T 129N R 62W Sec 29 | Dickey | 0.42 | PEMA | Maple River | USFWS/ Undetermined |
| 063 | - | 8 | -98.475083 | 45.951839 | T 129N R 62W Sec 29 | Dickey | 1.13 | PEMA | Maple River | USFWS/ Undetermined |

# Appendix A

## Reviewed Wetlands within Study Area

| Wetland Name[a] | Sample Point Name | Figure Page Number | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[b] |
|---|---|---|---|---|---|---|---|---|---|---|
| 064 | - | 8 | -98.475466 | 45.950991 | T 129N R 62W Sec 32 | Dickey | 2.03 | PEMC | Maple River | USFWS/None |
| 065 | - | 9 | -98.475225 | 45.948991 | T 129N R 62W Sec 32 | Dickey | 0.38 | PEMA | Maple River | USFWS/ Not Reviewed |
| 066 | - | 9 | -98.474942 | 45.948221 | T 129N R 62W Sec 32 | Dickey | 0.49 | PEMC | Maple River | USFWS/ Undetermined |
| 067 | - | 9 | -98.476187 | 45.946864 | T 129N R 62W Sec 32 | Dickey | 0.18 | PEMA | Maple River | USFWS/ Undetermined |
| 068 | - | 9 | -98.474776 | 45.946423 | T 129N R 62W Sec 32 | Dickey | 0.23 | PEMA | Maple River | USFWS/ Undetermined |
| 069 | - | 9 | -98.475812 | 45.943396 | T 129N R 62W Sec 32 | Dickey | 1.91 | PEMC | Maple River | USFWS/ Undetermined |
| 070 | - | 9 | -98.475683 | 45.942215 | T 129N R 62W Sec 32 | Dickey | 0.97 | PEMC | Maple River | USFWS/ Undetermined |
| 071 | - | 9 | -98.475248 | 45.940708 | T 129N R 62W Sec 32 | Dickey | 0.31 | PEMA | Maple River | USFWS/ Undetermined |
| 072 | - | 9 | -98.475244 | 45.939998 | T 129N R 62W Sec 32 | Dickey | 0.56 | PEMA | Maple River | USFWS/ Not Reviewed |
| 073 | - | 9 | -98.47499 | 45.939388 | T 129N R 62W Sec 32 | Dickey | 0.26 | PEMA | Maple River | USFWS/ Undetermined |
| 074 | - | 9 | -98.475455 | 45.937261 | T 129N R 62W Sec 32 | Dickey | 1.60 | PEMA | Maple River | USFWS/ Not Reviewed |

[a] Jurisdictional wetlands begin with “J”, Representative wetlands begin with “R”, all other wetlands are sequential number; separate wetland map units (polygons) that are associated share same number but are differentiated with a letter (for example, 01-A, 01-B).

[b] USACE = jurisdictional based on jurisdictional determination (JD); USFWS = wetland is located within USFWS easement; None = wetland reviewed by USACE for JD and found not to be jurisdictional; Undetermined = wetland not reviewed by USACE as part of JD; Not Reviewed = Wetlands not reviewed by USACE as part of JD and now have a structure or temporary access road within their boundaries.

## Appendix B

Previously Not Reviewed Wetlands

# Appendix B

## Previously Not Reviewed Wetlands

| Wetland Name[a] | Wetland Location[b] | Figure Page Number | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[c] |
|---|---|---|---|---|---|---|---|---|---|---|
| O 02 | Outside 500 ft. Survey Corridor | 1 | -98.5639 | 45.99907 | T 129N R 63W Sec 10 | Dickey | 17.74 | PEM | Dry Branch | Not Reviewed |
| 006 | Inside 500 ft. Survey Corridor | 2 | -98.559 | 45.99153 | T 129N R 63W Sec 15 | Dickey | 0.58 | PEMA | Dry Branch | USFWS / Not Reviewed |
| 008 | Inside 500 ft. Survey Corridor | 2 | -98.559 | 45.98889 | T 129N R 63W Sec 15 | Dickey | 0.78 | PEMA | Dry Branch | USFWS / Not Reviewed |
| 014 | Inside 500 ft. Survey Corridor | 3 | -98.5589 | 45.97368 | T 129N R 63W Sec 22 | Dickey | 1.23 | PEMA | Dry Branch | USFWS / Not Reviewed |
| 015 | Inside 500 ft. Survey Corridor | 3 | -98.5545 | 45.97418 | T 129N R 63W Sec 22 | Dickey | 0.72 | PEMA | Dry Branch | USFWS / Not Reviewed |
| 023 | Inside 500 ft. Survey Corridor | 4 | -98.5448 | 45.97352 | T 129N R 63W Sec 23 | Dickey | 0.49 | PEMA | Dry Branch | USFWS / Not Reviewed |
| 029 | Inside 500 ft. Survey Corridor | 4 | -98.5332 | 45.97345 | T 129N R 63W Sec 23 | Dickey | 0.44 | PEMA | Dry Branch | USFWS / Not Reviewed |
| 035 | Inside 500 ft. Survey Corridor | 5 | -98.5253 | 45.97317 | T 129N R 63W Sec 24 | Dickey | 0.10 | PEMA | Dry Branch | Not Reviewed |
| 040 | Inside 500 ft. Survey Corridor | 6 | -98.5007 | 45.97306 | T 129N R 62W Sec 19 | Dickey | 0.62 | PEMA | Maple River | USFWS / Not Reviewed |
| 041 | Inside 500 ft. Survey Corridor | 6 | -98.4946 | 45.97345 | T 129N R 62W Sec 19 | Dickey | 2.72 | PEMC | Maple River | USFWS / Not Reviewed |
| R 03 | Inside 500 ft. Survey Corridor | 8 | -98.4756 | 45.95483 | T 129N R 62W Sec 29 | Dickey | 0.33 | PEMA | Maple River | USFWS / Not Reviewed |
| 065 | Inside 500 ft. Survey Corridor | 9 | -98.4752 | 45.94899 | T 129N R 62W Sec 32 | Dickey | 0.38 | PEMA | Maple River | USFWS / Not Reviewed |
| 072 | Inside 500 ft. Survey Corridor | 9 | -98.4752 | 45.94 | T 129N R 62W Sec 32 | Dickey | 0.56 | PEMA | Maple River | USFWS / Not Reviewed |
| 074 | Inside 500 ft. Survey Corridor | 9 | -98.4755 | 45.93726 | T 129N R 62W Sec 32 | Dickey | 1.60 | PEMA | Maple River | USFWS / Not Reviewed |

[a] Representative wetlands begin with “R”, Offsite Study Area Wetlands beginning with “O”, all other wetlands are sequential number; separate wetland map units (polygons) that are associated share same number but are differentiated with a letter (for example, 01-A, 01-B).

[b] Location of the wetland; Inside 500 ft. Survey Corridor, or Outside 500 ft. Survey Corridor.

[c] USFWS = wetland is located within USFWS easement; Not Reviewed = Wetlands not reviewed by USACE as part of JD and now have a structure or temporary access road within their boundaries.

# Appendix C

Onsite Reviewed Temporary Access Road Wetlands

# Appendix C

## Onsite Reviewed Temporary Access Road Wetlands

| Wetland Name[a] | Wetland Location | Figure Page Number[b] | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[c] | Date of Jurisdictional Determination Letter[d] |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A 001 | Outside 500 ft. Survey Corridor | 1 | -98.569853 | 46.008515 | T 129N R 63W Sec 9 | Dickey | 2.71 | PEMA | Dry Branch | Undetermined | - |
| A 002 | Outside 500 ft. Survey Corridor | - | -98.506476 | 45.967903 | T 129N R 62W Sec 24 | Dickey | 2.72 | PEMC | Maple River | USFWS/ Undetermined | - |
| A 003 | Outside 500 ft. Survey Corridor | 8 | -98.476775 | 45.951441 | T 129N R 62W Sec 29 | Dickey | 0.09 | PEMA | Maple River | USFWS/ Undetermined | - |
| A 004 | Outside 500 ft. Survey Corridor | 8 | -98.476759 | 45.951115 | T 129N R 62W Sec 32 | Dickey | 0.32 | PEMA | Maple River | USFWS/None | 7/16/2014 |
| A 005 | Outside 500 ft. Survey Corridor | 8 | -98.474506 | 45.950882 | T 129N R 62W Sec 32 | Dickey | 0.12 | PEMA | Maple River | USFWS/None | 7/16/2014 |

[a] Wetlands that were onsite reviewed for their boundaries and existence while checking temporary access road locations during 2015 spring fieldwork. These are wetlands that lie outside the 500 ft. survey corridor.

[b] Temporary access road wetlands with no page number listed lie beyond the extent of view of the Figure 2, Wetland Map.

[c] USACE = jurisdictional based on jurisdictional determination (JD); USFWS = wetland is located within USFWS easement; none = wetland reviewed by USACE for JD and found not to be jurisdictional; Undetermined = wetland not reviewed by USACE as part of JD.

[d] Wetlands with a date of jurisdictional determination letter are those that were initially reviewed by the USACE for jurisdiction.

# Appendix D

Offsite Reviewed Study Area Wetlands

# Appendix D

## Offsite Reviewed Study Area Wetlands

| Wetland Name[a] | Wetland Location[b] | Figure Page Number | Longitude | Latitude | Township/Range/ Section | County | Acres | Cowardin Classification | Major Watershed (HUC 10) | Jurisdictional Authority[c] |
|---|---|---|---|---|---|---|---|---|---|---|
| O 01 | Outside 500 ft. Survey Corridor | 1 | -98.56831 | 46.00018 | T 129N R 63W Sec 10 | Dickey | 1.03 | PEM | Dry Branch | USFWS / Not Reviewed |
| O 02 | Outside 500 ft. Survey Corridor | 1 | -98.56394 | 45.99906 | T 129N R 63W Sec 10 | Dickey | 17.74 | PEM | Dry Branch | USFWS / Not Reviewed |
| O 03 | Outside 500 ft. Survey Corridor | 1 | -98.56649 | 45.99794 | T 129N R 63W Sec 10 | Dickey | 0.80 | PEM | Dry Branch | USFWS / Not Reviewed |
| O 04 | Outside 500 ft. Survey Corridor | 1 | -98.56234 | 45.99716 | T 129N R 63W Sec 10 | Dickey | 1.58 | PEM | Dry Branch | USFWS / Not Reviewed |

[a] Wetlands that were originally offsite reviewed for their boundaries and an onsite, field verification could not be conducted.

[b] Location of the wetland; Outside 500 ft. Survey Corridor.

[c] USFWS = wetland is located within USFWS easement; Not Reviewed = Wetlands not reviewed by USACE as part of JD and now have a structure or temporary access road within their boundaries.

# Appendix E

Routine Wetland Determination Data Forms

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 01 Up

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 22 T 129 R 63

Landform (hillslope, terrace, etc.): Hillslope | Local Relief (concave, convex, none): Convex | Slope(%): 4%

Subregion (LRR): | Lat: 45.97698 | Long: -98.55827 | Datum: GCS_WGS_1984

Soil Map Unit Name: Swenoda-Barnes fine sandy loams, 0 to 3 percent slopes | NWI Classification: NA

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 | X | No | |
| Wetland Hydrology Present? | Yes | | No | X |

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

Remarks:
Jurisdictional sampling point is located upslope and outside a riparian fringe wetland in an upland grazed pasture. Hydric soil present, but wetland vegetation and hydrology are not present. Sample area is not wetland.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Poa pratensis | 50 | Y | FACU |
| Bromus inermis | 20 | Y | UPL |
| Cirsium arvense | 10 | N | FACU |
| Phalaris arundinacea | 10 | N | FACW |
| Eleocharis palustris | 5 | N | OBL |
| Hordeum jubatum | 5 | N | FACW |
| | 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: 2 (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 | 5 | x 1 = | 5 |
| FACW species | 15 | x 2 = | 30 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 60 | x 4 = | 240 |
| UPL species | 20 | x 5 = | 100 |
| Column Totals: | 100 (A) | | 375 (B) |

*Prevalence Index = B/A*= 3.75

**Hydrophytic Vegetation Indicators:**

____ Rapid Test for Hydrophytic Vegetation
____ Dominance Test > 50%
____ Prevalence Index ≤ 3.0
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria not met.

## SOIL

Sampling Point: Exhibit 2

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type [1] | Loc [2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 to 8 | 10YR 2 / 1 | 96 | 10YR 4/4 | 4 | C | M | SILT LOAM | |
| 8 to 12 | 10YR 3 / 1 | 92 | 7.5YR 4/6 | 6 | C | M | SILT LOAM | |
| 12 to 16 | 10YR 4 / 1 | 90 | 7.5YR 4/6 | 10 | C | M | SILT LOAM | Prevalent Gravel |

[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:
Hydric soil indicators A11 and F6 present. Hydric soil present likely due to historic flooding. Wetland vegetation and hydrology are not present. Sample area is not wetland.

## 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:
Aerial Imagery

Remarks:
No wetland hydrology indicators observed. Geomorphic position does not suggest a wetland at sample point location.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 01 Wet

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 22 T 129 R 63

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

Subregion (LRR): | Lat: 45.97695 | Long: -98.55825 | Datum: GCS_WGS_1984

Soil Map Unit Name: Swenoda-Barnes fine sandy loams, 0 to 3 percent slopes | NWI Classification: PAB/EMFH

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 X No**

Remarks:
Jurisdictional sampling point located at the outer edge of a wetland riparian impoundment. The surrounding area is grazed pasture and row crop fields. The site is permanently flooded and has been determined a PUBH according to Cowardin classification system.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Schoenoplectus fluviatilis | 50 | Y | OBL |
| Cirsium arvense | 25 | Y | FACU |
| Phalaris arundinacea | 10 | N | FACW |
| Typha angustifolia | 10 | N | OBL |
| Hordeum jubatum | 5 | N | FACW |
| | 100 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum

**Dominance Test Worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index Worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 60 | x 1 = | 60 |
| FACW species | 15 | x 2 = | 30 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 25 | x 4 = | 100 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 190 (B) |

*Prevalence Index = B/A* = 1.90

**Hydrophytic Vegetation Indicators:**

- ____ Rapid Test for Hydrophytic Vegetation
- ____ Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria met.

## SOIL

Sampling Point: Exhibit 2 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 8 | 10YR 2 / 1 | 92 | 10YR 4/4 | 8 | C | M | SILT LOAM | |
| 8 to 16 | 10YR 3 / 1 | 90 | 7.5YR 4/6 | 10 | C | M | SILT LOAM | |
| 16 to 24 | 10YR 5 / 2 | 80 | 7.5YR 4/6 | 20 | C | M | SILT LOAM | Prevalent Gravel |

[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:
Hydric soil indicator F6 present.

## 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 | X | No | _____ | Depth (inches): 10 |

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

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

Aerial Imagery

Remarks:
One primary and three secondary wetland hydrology indicators present.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/7/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 02 Up

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 24 T 129 R 63

Landform (hillslope, terrace, etc.): Hillslope | Local Relief (concave, convex, none): None | Slope(%): 6%

Subregion (LRR): | Lat: 45.97331 | Long: -98.51514 | Datum: GCS_WGS_1984

Soil Map Unit Name: Lowe loam, 0 to 1 percent slopes, occasionally flooded | NWI Classification: NA

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 | | No | X |
| Wetland Hydrology Present? | Yes | | No | X |

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

Remarks:
Jurisdictional sampling point located outside linear drainage wetland feature on an adjacent upland hill slope. Sample point is between a row crop field and wetland. Hydrophytic vegetation criteria was met, but hydric soils and wetland hydrology absent at sample point location. This area is not a wetland.

## 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 | 10 | N | FACU |
| | 100 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum

**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 | 0 | x 1 = | 0 |
| FACW species | 90 | x 2 = | 180 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 10 | x 4 = | 40 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 220 (B) |

*Prevalence Index = B/A*= 2.20

**Hydrophytic Vegetation Indicators:**

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation met by invasive reed canary grass. The grass appears stressed outside the wetland boundary. Hydric soil and wetland hydrology were not present.

## SOIL

Sampling Point: Exhibit 2 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 3 | 10YR 2 / 1 | 100 | | | | | SILT LOAM | High Amount of Organic Matter |
| 3 to 12 | 10YR 4 / 1 | 70 | | | | | SILT LOAM | |
| 3 to 12 | 10YR 3 / 1 | 30 | | | | | SILT LOAM | |
| 12 to 24 | 10YR 5 / 1 | 100 | | | | | SILT | |

[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:
No hydric soil indicators present.

## 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? 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:

Aerial Imagery

Remarks:
Only one secondary hydrology indicator observed. Wetland hydrology criteria not met.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 02 Wet

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 24 T 129 R 63

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

Subregion (LRR): | Lat: 45.97333 | Long: -98.51520 | Datum: GCS_WGS_1984

Soil Map Unit Name: Water, intermittent | NWI Classification: PEMFh

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 X No**

Remarks:
Jurisdictional sample point located on the edge of a large linear drainage wetland. A meandering channel named Dry Branch is present. Site is semi permanently flooded and has been deemed a PEMF wetland according to the Cowardin classification system.

## 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 |
| Typha angustifolia | 5 | N | OBL |
| | 100 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum

**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 | 5 | x 1 = | 5 |
| FACW species | 90 | x 2 = | 180 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 205 (B) |

*Prevalence Index = B/A*= 2.05

**Hydrophytic Vegetation Indicators:**

X Rapid Test for Hydrophytic Vegetation
X Dominance Test > 50%
X Prevalence Index ≤ 3.0
___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria is met.

## SOIL

Sampling Point: Exhibit 2 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 4 | 10YR 2 / 1 | 100 | | | | | SILT LOAM | High Amounts of Organic Matter |
| 4 to 8 | 10YR 3 / 1 | 96 | 10YR 4/4 | 4 | C | M | SILT LOAM | |
| 8 to 20 | 10YR 4 / 1 | 68 | 10YR 4/4 | 2 | C | M | SILT LOAM | |
| 8 to 20 | 10YR 5 / 1 | 28 | 10YR 4/4 | 2 | C | M | 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:
Hydric soil indicators A11, F3, and F6 met.

## 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? Yes X No ____ Depth (inches): 6

(includes capillary fringe)

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

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

Aerial Imagery

Remarks:
Wetland hydrology criteria met with one primary and three secondary indicators

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 03 Up

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 29 T 129 R 62

Landform (hillslope, terrace, etc.): Hillslope | Local Relief (concave, convex, none): None | Slope(%): 6%

Subregion (LRR): | Lat: 45.95468 | Long: -98.47557 | Datum: GCS_WGS_1984

Soil Map Unit Name: Hamerly-Tonka-Parnell complex, 0 to 3 percent slopes | NWI Classification: NA

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:
Jurisdictional sampling point located outside wetland boundary on an adjacent upland hill slope. Sample point is between a brome fence line to the north and wetland area to the south.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum (Plot size: 30 Ft) | | | |
| Populus deltoides | 25 | Y | FAC |
| | 25 | =Total Cover | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft) | | | |
| Bromus inermis | 100 | Y | UPL |
| | 100 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum

**Dominance Test Worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index Worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 25 | x 3 = | 75 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 100 | x 5 = | 500 |
| Column Totals: | 125 (A) | | 575 (B) |

*Prevalence Index = B/A* = 4.60

**Hydrophytic Vegetation Indicators:**

____ Rapid Test for Hydrophytic Vegetation
____ Dominance Test > 50%
____ Prevalence Index ≤ 3.0
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria not met.

## SOIL

Sampling Point: Exhibit 2 DP

**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 | | | | | SILT LOAM | |
| 10 to 14 | 10YR 3 / 1 | 100 | | | | | SILT LOAM | |
| 14 to 20 | 10YR 4 / 2 | 96 | 10YR 4/6 | 4 | C | M | SILTY 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: Clay Pan

Depth (inches): 14

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

Remarks:
No hydric soil indicators present.

## 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:
Aerial Imagery

Remarks:
No wetland hydrology indicators observed.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 03 Wet

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 29 T 129 R 62

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

Subregion (LRR): | Lat: 45.95473 | Long: -98.47557 | Datum: GCS_WGS_1984

Soil Map Unit Name: Hamerly-Tonka-Parnell complex, 0 to 3 percent slopes | NWI Classification: PEMAd

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 X No**

Remarks:
Jurisdictional sampling point is located on the edge of a wetland depression in a row crop field. Vegetation naturally disturbed on wetland edge due to flooding. Sample area has not been tilled for extended period due to wetland presence. Sample area is seasonally flooded and has been deemed a PEMC wetland according to the Cowardin classification system.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| **Tree Stratum** (Plot size: 30 Ft) | | | |
| Populus deltoides | 10 | Y | FAC |
| | 10 | =Total Cover | |
| **Shrub Stratum** | | | |
| **Herb Stratum** (Plot size: 6 Ft) | | | |
| Bassia scoparia | 25 | Y | FACU |
| Rumex crispus | 25 | Y | FAC |
| Helianthus annuus | 10 | N | FACU |
| Schoenoplectus fluviatilis | 10 | N | OBL |
| | 70 | =Total Cover | |
| **Vine Stratum** | | | |

% Bare Ground in Herb Stratum 30

**Dominance Test Worksheet:**

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

Total Number of Dominant Species Across all Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

**Prevalence Index Worksheet:**

| Total % Cover of: | | Multiply by: | |
|---|---|---|---|
| OBL species | 10 | x 1 = | 10 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 35 | x 3 = | 105 |
| FACU species | 35 | x 4 = | 140 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 80 (A) | | 255 (B) |

*Prevalence Index = B/A* = 3.19

**Hydrophytic Vegetation Indicators:**

- ____ Rapid Test for Hydrophytic Vegetation
- X Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria met with the Dominance Test. Vegetation naturally disturbed on wetland edge due to flooding. Many opportunistic weed species present.

## SOIL

Sampling Point: Exhibit 2 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 6 | 10YR 2 / 1 | 100 | | | | | SILT LOAM | |
| 6 to 9 | 10YR 3 / 1 | 100 | | | | | SILT LOAM | |
| 9 to 12 | 10YR 4 / 1 | 98 | 10YR 4/4 | 2 | C | M | SILT LOAM | |
| 12 to 16 | 10YR 4 / 2 | 90 | 10YR 4/6 | 10 | C | M | SILTY 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: Clay Pan

Depth (inches): 12

**Hydric Soil Present?** Yes X No

Remarks:
Hydric soil criteria met with indicators A11 and F3

## 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): | 8 | |
| Saturation Present? (includes capillary fringe) | Yes X | No | Depth (inches): | 0 | |

**Wetland Hydrology Present?** Yes X No

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

Remarks:
Two primary and three secondary wetland hydrology indicators observed.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/7/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 04 Up

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 20 T 129 R 62

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

Subregion (LRR): | Lat: 45.97063 | Long: -98.47655 | Datum: GCS_WGS_1984

Soil Map Unit Name: Hamerly-Wyard loams, 0 to 3 percent slopes | NWI Classification: NA

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

Are Vegetation X, Soil X, 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:
Jurisdictional sampling point is located outside a wetland depression an adjacent upland hill slope containing healthy soybeans. Vegetation and soils have been disturbed due to farming practices.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Glycine max | 50 | Y | UPL |
| Bassia scoparia | 5 | N | FACU |
| | 55 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum 85

**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 | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 5 | x 4 = | 20 |
| UPL species | 50 | x 5 = | 250 |
| Column Totals: | 55 (A) | | 270 (B) |

*Prevalence Index = B/A*= 4.91

**Hydrophytic Vegetation Indicators:**

____ Rapid Test for Hydrophytic Vegetation
____ Dominance Test > 50%
____ Prevalence Index ≤ 3.0
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria not met.

## SOIL

Sampling Point: Exhibit 2

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type [1] | Loc [2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 to 5 | 10YR 2 / 1 | 100 | | | | | SILTY CLAY LOAM | |
| 5 to 10 | 10YR 3 / 1 | 100 | | | | | SILTY CLAY | |
| 10 to 16 | 10YR 4 / 1 | 95 | 10YR 5/1 | 5 | D | M | SILTY CLAY | |
| 16 to 20 | 10YR 5 / 1 | 100 | | | | | 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: Clay Pan

Depth (inches): 16

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

Remarks:

Hydric soil indicator A11 met. The presence of hydric soil is likely due to historic flooding. Wetland vegetation and hydrology were not present. Sample area is no longer a wetland.

## 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:

Aerial Imagery

Remarks:

No wetland hydrology indicators were observed.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/7/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: J 04 Wet

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 20 T 129 R 62

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

Subregion (LRR): | Lat: 45.97060 | Long: -98.47652 | Datum: GCS_WGS_1984

Soil Map Unit Name: Hamerly-Wyard loams, 0 to 3 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 X, Soil X, 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 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:
Jurisdictional sampling point is located on the outer edge of a large linear wetland within a row crop field. Sample point vegetation and soil has been disturbed due to farming practices. Sample area has been deemed a PEMA wetland area according to the Cowardin classification system.

**VEGETATION** – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|

% Bare Ground in Herb Stratum 100

**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 | 0 | x 1 = 0 |
| FACW species | 0 | x 2 = 0 |
| FAC species | 0 | x 3 = 0 |
| FACU species | 0 | x 4 = 0 |
| UPL species | 0 | x 5 = 0 |
| Column Totals: | 0 (A) | 0 (B) |

*Prevalence Index = B/A=*

**Hydrophytic Vegetation Indicators:**

- ____ Rapid Test for Hydrophytic Vegetation
- ____ Dominance Test > 50%
- ____ Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- X Problematic Hydrophytic Vegetation (Explain)

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

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

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

Vegetation has been determined to be problematic. 100% bare ground. Sample area has been annually plowed and sprayed. Determined that hydrophytic vegetation would be present if site was not disturbed due to presence of hydric soil and wetland hydrology. Note: Based on other wetlands surveyed in the area that displayed normal conditions we can expect dominant vegetation wetland species such as: reed canary grass, narrow-leaft cat-tail, river club-rush, awned-flat sedge, or curly dock to be present if there were normal conditions for Sample Point J 04 Wet.

## SOIL

Sampling Point: Exhibit 2 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 4 | 10YR 2 / 1 | 100 | | | | | SILTY CLAY LOAM | Abundant Salt Threads |
| 4 to 8 | 10YR 3 / 1 | 98 | 10YR 4/6 | 2 | C | M | SILTY CLAY | Abundant Salt Threads |
| 8 to 16 | 10YR 4 / 1 | 86 | 10YR 4/6 | 4 | C | M | SILTY CLAY | Abundant Salt Threads |
| 8 to 16 | / | | 10YR 4/6 | 10 | D | M | SILTY CLAY | Abundant Salt Threads |
| 16 to 20 | 10YR 5 / 1 | 100 | | | | | 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: Clay Pan

Depth (inches): 16

**Hydric Soil Present?** Yes X No

Remarks:
Hydric soil indicators A11, F3, F6, and F7 present.

## 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 X No

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

Remarks:
Wetland hydrology present. One primary and one secondary indicator observed. Soil surface cracks and algae crust observed in other areas of the wetland.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: R 01 Up

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 9 T 129 R 63

Landform (hillslope, terrace, etc.): Hillslope | Local Relief (concave, convex, none): Concave | Slope(%): 6%

Subregion (LRR): | Lat: 45.99938 | Long: -98.56923 | Datum: GCS_WGS_1984

Soil Map Unit Name: Swenoda-Barnes fine sandy loams, 0 to 3 percent slopes | NWI Classification: NA

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

Remarks:
Representative sampling point is located outside a wetland depression on an adjacent grassy hill slope between the wetland and an upland row crop field to the south. Hydrophytic vegetation criteria was met, but hydric soil and hydrology indicators were absent. Therefore this area is not a wetland.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Phalaris arundinacea | 95 | Y | FACW |
| Cirsium arvense | 3 | N | FACU |
| Lactuca serriola | 2 | N | FAC |
| | 100 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum

**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 | 0 | x 1 = | 0 |
| FACW species | 95 | x 2 = | 190 |
| FAC species | 2 | x 3 = | 6 |
| FACU species | 3 | x 4 = | 12 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 208 (B) |

*Prevalence Index = B/A* = 2.08

**Hydrophytic Vegetation Indicators:**

X Rapid Test for Hydrophytic Vegetation

X Dominance Test > 50%

X Prevalence Index ≤ 3.0

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

___ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria was met, but no hydric soils or hydrology present. Invasive reed canary grass dominated sample point area, but appeared stressed.

## SOIL

Sampling Point: Exhibit 2 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 6 | 10YR 2 / 1 | 100 | | | | | SANDY CLAY LOAM | |
| 6 to 14 | 10YR 3 / 1 | 100 | | | | | SANDY CLAY LOAM | |
| 14 to 20 | 10YR 4 / 1 | 100 | | | | | SANDY CLAY LOAM | |
| 20 to 24 | 10YR 5 / 2 | 100 | | | | | SANDY 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 _____ No X

Remarks:
No hydric soil indicators present.

## 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:
Aerial Imagery

Remarks:
Hydrology criteria not met. Only one secondary indicator observed. FAC-Neutral test was met due to high presence of invasive reed canary grass.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: R 01 Wet

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 9 T 129 R 63

Landform (hillslope, terrace, etc.): Depression | Local Relief (concave, convex, none): Concave | Slope(%): 2%

Subregion (LRR): | Lat: 45.99942 | Long: -98.56929 | Datum: GCS_WGS_1984

Soil Map Unit Name: Swenoda-Barnes fine sandy loams, 0 to 3 percent slopes | NWI Classification: PAB/EMF

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 X No**

Remarks:
Representative sampling point is located on the edge of a wetland depression. The site is semi-permanently flooded and has been deemed a PEMF wetland according to the Cowardin classification system.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Phalaris arundinacea | 50 | Y | FACW |
| Typha angustifolia | 50 | Y | OBL |
| | 100 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum

**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 | 50 | x 1 = | 50 |
| FACW species | 50 | x 2 = | 100 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 100 (A) | | 150 (B) |

*Prevalence Index = B/A*= 1.50

**Hydrophytic Vegetation Indicators:**

X Rapid Test for Hydrophytic Vegetation
X Dominance Test > 50%
X Prevalence Index ≤ 3.0
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria met

## SOIL

Sampling Point: Exhibit 2 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 4 | 10YR 3 / 1 | 100 | | | | | SANDY LOAM | |
| 4 to 10 | 10YR 3 / 1 | 95 | 10YR 4/6 | 5 | C | M | SANDY LOAM | |
| 10 to 16 | 10YR 4 / 1 | 94 | 10YR 4/4 | 4 | C | M | SANDY CLAY LOAM | |
| 10 to 16 | / | | 10YR 5/1 | 2 | D | M | SANDY CLAY LOAM | |
| 16 to 20 | 10YR 5 / 1 | 100 | | | | | SANDY 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:
Hydric soil indicators A11, F3, F6, and F8 were observed.

## 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): | 2 | |
| Saturation Present? (includes capillary fringe) | Yes X | No _____ | Depth (inches): | 0 | |

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

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

Remarks:
Wetland hydrology indicators criteria was met with 4 primary and 3 secondary indicators observed.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: R 02 Up

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 9 T 129 R 63

Landform (hillslope, terrace, etc.): Hillslope | Local Relief (concave, convex, none): Concave | Slope(%): 5

Subregion (LRR): | Lat: 45.99741 | Long: -98.56965 | Datum: GCS_WGS_1984

Soil Map Unit Name: Clontarf fine sandy loam, 2 to 6 percent slopes | NWI Classification: NA

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

Are Vegetation X, Soil X, 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 | **Is the Sampled Area within a Wetland?** | **Yes No X** |
| Hydric Soil Present? | Yes | No X | | |
| Wetland Hydrology Present? | Yes | No X | | |

Remarks:
Representative sample point is located outside a wetland depression on the plowed edge of a row crop field. Some hydrophytic vegetation present, but not dominant and stunted and stressed.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Glycine max | 25 | Y | UPL |
| Typha angustifolia | 5 | N | OBL |
| | 30 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum 70

**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 | 5 | x 1 = | 5 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 25 | x 5 = | 125 |
| Column Totals: | 30 (A) | | 130 (B) |

*Prevalence Index = B/A*= 4.33

**Hydrophytic Vegetation Indicators:**

- Rapid Test for Hydrophytic Vegetation
- Dominance Test > 50%
- Prevalence Index ≤ 3.0
- Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria not met.

## SOIL

Sampling Point: Exhibit 2 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 10 | 10YR 3 / 1 | 100 | | | | | SANDY LOAM | |
| 10 to 14 | 10YR 3 / 1 | 98 | 10YR 4/4 | 2 | C | M | SANDY CLAY LOAM | |
| 14 to 20 | 10YR 4 / 1 | 96 | 10YR 4/6 | 4 | C | M | SANDY CLAY LOAM | |
| 20 to 24 | 10YR 5 / 2 | 92 | 10YR 4/6 | 8 | C | M | SANDY 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 _____ No X

Remarks:
No hydric soil indicators present.

## 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:
Aerial Imagery

Remarks:
No wetland hydrology indicators present.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/6/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: R 02 Wet

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 9 T 129 R 63

Landform (hillslope, terrace, etc.): Depression | Local Relief (concave, convex, none): Concave | Slope(%): 2%

Subregion (LRR): | Lat: 45.99745 | Long: -98.56966 | Datum: GCS_WGS_1984

Soil Map Unit Name: Swenoda-Barnes fine sandy loams, 0 to 3 percent slopes | NWI Classification: PEMC

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 X No**

Remarks:
Representative sampling point is located on the edge of a wetland depression within a row crop field. Sample area is seasonally flooded and has been deemed a PEMC wetland according to the Cowardin classification system.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Typha angustifolia | 15 | Y | OBL |
| Schoenoplectus fluviatilis | 10 | Y | OBL |
| Persicaria pensylvanica | 5 | N | FACW |
| | 30 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum 70

**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 | 25 | x 1 = | 25 |
| FACW species | 5 | x 2 = | 10 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 0 | x 5 = | 0 |
| Column Totals: | 30 (A) | | 35 (B) |

*Prevalence Index = B/A* = 1.17

**Hydrophytic Vegetation Indicators:**

X Rapid Test for Hydrophytic Vegetation
X Dominance Test > 50%
X Prevalence Index ≤ 3.0
___ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria met.

## SOIL

Sampling Point: Exhibit 2 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 8 | 10YR 2 / 1 | 100 | | | | | SANDY LOAM | |
| 8 to 14 | 10YR 3 / 1 | 95 | 10YR 4/6 | 5 | C | M | SANDY CLAY LOAM | |
| 14 to 16 | 10YR 4 / 1 | 90 | 10YR 5/6 | 10 | C | M | SANDY CLAY LOAM | |
| 16 to 20 | 10YR 5 / 1 | 80 | 10YR 5/6 | 20 | C | PL | SANDY 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:
Hydric soil indicator F6 present.

## 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 X | No ____ | Depth (inches): | 2 | |
| Water Table Present? | Yes X | No ____ | Depth (inches): | 0 | |
| Saturation Present? (includes capillary fringe) | Yes X | No ____ | Depth (inches): | 0 | |

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

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

Remarks:
Five primary and three secondary wetland hydrology indicators observed.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/7/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: R 03 Up

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 29 T 129 R 62

Landform (hillslope, terrace, etc.): Toe of Slope | Local Relief (concave, convex, none): Concave | Slope(%): 2%

Subregion (LRR): | Lat: 45.95468 | Long: -98.47557 | Datum: GCS_WGS_1984

Soil Map Unit Name: Tonka silt loam, 0 to 1 percent slopes | NWI Classification: NA

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

Are Vegetation X, Soil X, 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 |
| Wetland Hydrology Present? | Yes | No X |

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

Remarks:
Representative sampling point located outside wetland depression in an adjacent upland field. Sample area vegetation and soil is disturbed due to annual row crop farming practices.

**VEGETATION** – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Glycine max | 50 | Y | UPL |
| | 50 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum 50

**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 | 0 | x 1 = | 0 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 50 | x 5 = | 250 |
| Column Totals: | 50 (A) | | 250 (B) |

*Prevalence Index = B/A*= 5.00

**Hydrophytic Vegetation Indicators:**

____ Rapid Test for Hydrophytic Vegetation
____ Dominance Test > 50%
____ Prevalence Index ≤ 3.0
____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria not met.

## SOIL

Sampling Point: Exhibit 2

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

| Depth (inches) | Matrix Color (moist) | % | Redox Features Color (moist) | % | Type [1] | Loc [2] | Texture | Remarks |
|---|---|---|---|---|---|---|---|---|
| 0 to 4 | 10YR 2 / 1 | 100 | | | | | SILTY CLAY LOAM | |
| 4 to 16 | 10YR 3 / 1 | 100 | | | | | SILTY CLAY | |
| 16 to 24 | 10YR 4 / 2 | 90 | 10YR 4/6 | 10 | C | M | SILTY 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: Clay Pan

Depth (inches): 16

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

Remarks:
Hydric soil indicators were not present.

## 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:
Aerial Imagery

Remarks:
No wetland hydrology indicators were present.

# WETLAND DETERMINATION DATA FORM - Great Plains Region

Exhibit 2

Project/Site: Big Stone South to Ellendale | City/County: Dickey County | Sampling Date: 10/7/2014

Applicant/Owner: Otter Tail Power Company | State: ND | Sampling Point: R 03 Wet

Investigators: Daryn Dockter, Trevor Wegner | Section, Township, Range: S 29 T 129 R 62

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

Subregion (LRR): | Lat: 45.95473 | Long: -98.47557 | Datum: GCS_WGS_1984

Soil Map Unit Name: Tonka silt loam, 0 to 1 percent slopes | NWI Classification: NA

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

Are Vegetation X, Soil X, 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 | X | No | |
| Hydric Soil Present? | Yes | X | No | |
| Wetland Hydrology Present? | Yes | X | No | |

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

Remarks:
Representative sample point is located on the edge of a wetland depression within a row crop field. Vegetation and soil have been disturbed to farming practices. The area is temporarily flooded and has been deemed a PEMA wetland area according to the Cowardin classification system.

## VEGETATION – Use scientific names of plants.

| | Absolute % Cover | Dominant Species | Indicator Status |
|---|---|---|---|
| Tree Stratum | | | |
| Shrub Stratum | | | |
| Herb Stratum (Plot size: 6 Ft ) | | | |
| Cyperus squarrosus | 25 | Y | OBL |
| Glycine max | 15 | Y | UPL |
| | 40 | =Total Cover | |
| Vine Stratum | | | |

% Bare Ground in Herb Stratum 60

**Dominance Test Worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

**Prevalence Index Worksheet:**

| | Total % Cover of: | Multiply by: | |
|---|---|---|---|
| OBL species | 25 | x 1 = | 25 |
| FACW species | 0 | x 2 = | 0 |
| FAC species | 0 | x 3 = | 0 |
| FACU species | 0 | x 4 = | 0 |
| UPL species | 15 | x 5 = | 75 |
| Column Totals: | 40 (A) | | 100 (B) |

*Prevalence Index = B/A*= 2.50

**Hydrophytic Vegetation Indicators:**

- ____ Rapid Test for Hydrophytic Vegetation
- ____ Dominance Test > 50%
- X Prevalence Index ≤ 3.0
- ____ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet)
- ____ Problematic Hydrophytic Vegetation (Explain)

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

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

Remarks: (Include photo numbers here or on a separate sheet.)
Hydrophytic vegetation criteria met.

## SOIL

Sampling Point: Exhibit 2 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 2 | 10YR 2 / 1 | 100 | | | | | SILTY CLAY LOAM | |
| 2 to 11 | 10YR 3 / 1 | 96 | 10YR 4/4 | 4 | C | M | SILTY CLAY | |
| 11 to 16 | 10YR 4 / 2 | 80 | 10YR 4/6 | 20 | C | M | SILTY 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: Clay Pan

Depth (inches): 11

**Hydric Soil Present?** Yes X No

Remarks:
Hydric soil criteria met with indicators A11 and F6.

## 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? Yes No X Depth (inches):

(includes capillary fringe)

**Wetland Hydrology Present?** Yes X No

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

Aerial Imagery

Remarks:
Two primary and 4 secondary wetland hydrology indicators present.

**Appendix F**

Site Photographs

| | |
|---|---|
|  | **Photo #1.** Facing northwest toward representative Wetland R 01. This semi permanently flooded, PEMF wetland is located west of 87th Avenue SE, in Section 9 of Township 129N, Range 63W of Dickey County, ND. |
|  | **Photo #2.** Facing west toward representative Wetland R 01. This semi permanently flooded, PEMF wetland is located west of 87th Avenue SE, in Section 9 of Township 129N, Range 63W of Dickey County, ND. |
|  | **Photo #3.** Facing southwest toward representative Wetland R 02. This seasonally flooded, PEMC wetland is located west of 87th Avenue SE in Section 9 of Township 129N, Range 63W of Dickey County, ND. |

| | |
|---|---|
|  | **Photo #4.** Facing southwest toward representative Wetland R 02. This seasonally flooded, PEMC wetland is located west of 87th Avenue SE in Section 9 of Township 129N, Range 63W of Dickey County, ND. |
|  | **Photo #5.** Facing southwest toward jurisdictional Wetland J 01. This permanently flooded, PUBH wetland is located south of 99th Street E in Section 22 of Township 129N, Range 63W of Dickey County, ND. |
|  | **Photo #6.** Facing southeast toward jurisdictional Wetland J 01. This permanently flooded, PUBH wetland is located south of 99th Street E in Section 22 of Township 129N, Range 63W of Dickey County, ND. |

| | |
|---|---|
|  | **Photo #7.** Facing southeast toward jurisdictional Wetland J 01. This permanently flooded, PUBH wetland is located south of 99th Street E in Section 22 of Township 129N, Range 63W of Dickey County, ND. |
|  | **Photo #8.** Facing northwest toward jurisdictional Wetland J 02-C. This semi permanently flooded, PEMF wetland contains J 02-B; a lower perennial, R2UBF riverine wetland named Dry Branch. It is located east of Hwy 281 in Section 24 of Township 129N, Range 63W of Dickey County, ND. |
|  | **Photo #9.** Facing west toward jurisdictional Wetland J 02-C. This semi permanently flooded, PEMF wetland contains J 02-B; a lower perennial, R2UBF riverine wetland named Dry Branch. It is located east of Hwy 281 in Section 24 of Township 129N, Range 63W of Dickey County, ND. |

| | |
|---|---|
|  | **Photo #10.** Facing southwest toward jurisdictional Wetland J 02-C. This semi permanently flooded, PEMF wetland contains J 02-B; a lower perennial, R2UBF riverine wetland named Dry Branch. It is located east of Hwy 281 in Section 24 of Township 129N, Range 63W of Dickey County, ND. Photo depicts Wetlands J 02-C, J 02-B, and J 02-A (left to right). |
|  | **Photo #11.** Facing east toward north boundary of jurisdictional Wetland J 03-A. This seasonally flooded, PEMC wetland is located west of 91st Avenue SE in Section 19 of Township 129N, Range 62W of Dickey County, ND. |
|  | **Photo #12.** Facing north toward upland fence line boundary of jurisdictional Wetland J 03-A. Wetland area does not extend north into the adjacent field at this location. This seasonally flooded, PEMC wetland is located west of 91st Avenue SE in Section 19 of Township 129N, Range 62W of Dickey County, ND. |

| | |
|---|---|
|  | **Photo #13.** Facing southwest toward jurisdictional Wetland J 03-A. This seasonally flooded, PEMC wetland is located west of 91st Avenue SE in Section 19 of Township 129N, Range 62W of Dickey County, ND. |
|  | **Photo #14.** Facing southeast toward jurisdictional Wetland J 04-A. This temporarily flooded, PEMA wetland is located north of 100th Street SE in Section 20 of Township 129N, Range 62W of Dickey County, ND. Wetland J 04-A is connected to Wetland J 04-B outside the Study Area. |
|  | **Photo #15.** Facing south toward jurisdictional Wetland J 04-B. This temporarily flooded, PEMA wetland is located north of 100th Street SE in Section 20 of Township 129N, Range 62W of Dickey County, ND. Picture shows some areas of the soybean field that have been drowned out during flooding. Wetland J 04-B is connected to Wetland J 04-A outside the Study Area. |

| | |
|---|---|
|  | **Photo #16.** Facing north toward upland boundary of jurisdictional Wetland J 04-B. This temporarily flooded, PEMA wetland is located north of 100th Street SE in Section 20 of Township 129N, Range 62W of Dickey County, ND. Wetland J 04-B is connected to Wetland J 04-A outside the Study Area. |
|  | **Photo #17.** Facing east toward jurisdictional Wetland J 04-B. This temporarily flooded, PEMA wetland is located north of 100th Street SE in Section 20 of Township 129N, Range 62W of Dickey County, ND. Picture shows some areas of the soybean field that have been drowned out during flooding. Wetland J 04-B is connected to Wetland J 04-A outside the Study Area. |
|  | **Photo #18.** Facing east toward representative Wetland R 03. This temporarily flooded, PEMA wetland is located north of 101st Street SE in Section 29 of Township 129N, Range 62W of Dickey County, ND. |

| | |
|---|---|
|  | **Photo #19.** Facing northwest toward representative Wetland R 03. This temporarily flooded, PEMA wetland is located north of 101st Street SE in Section 29 of Township 129N, Range 62W of Dickey County, ND. |
|  | **Photo #20.** Facing northeast toward representative Wetland R 03. This temporarily flooded, PEMA wetland is located north of 101st Street SE in Section 29 of Township 129N, Range 62W of Dickey County, ND. |