



WETLAND DELINEATION

BOE Phase I Pipeline Reroute
Stark County, North Dakota

Prepared for:
BOE Pipeline, LLC

Prepared by:
Nute Bishop
KLJ

December 2015



EXHIBIT C

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I. INTRODUCTION

Kadmas, Lee & Jackson (KLJ) was contracted by BOE Pipeline, LLC (BOE) to conduct a field wetland delineation along an approximate one-mile corridor. The project study area begins west of Dickinson, North Dakota (ND) in Section 26, T140N, R97W and terminates in Section 23, T140N, R97W. The purpose of the project is to re-route a section of the existing BOE Phase I Pipeline due to potential conflicts associated with an adjacent roadway project. The project is anticipated to begin construction during the 2016 construction season. Please refer to *Exhibit 1, Project Location Map* below.

The field wetlands delineation and GPS data collection were conducted on November 12, 2016 by Nute Bishop of KLJ. A study area of approximately 13.72 acres was surveyed, which would encompass the proposed project construction limits.



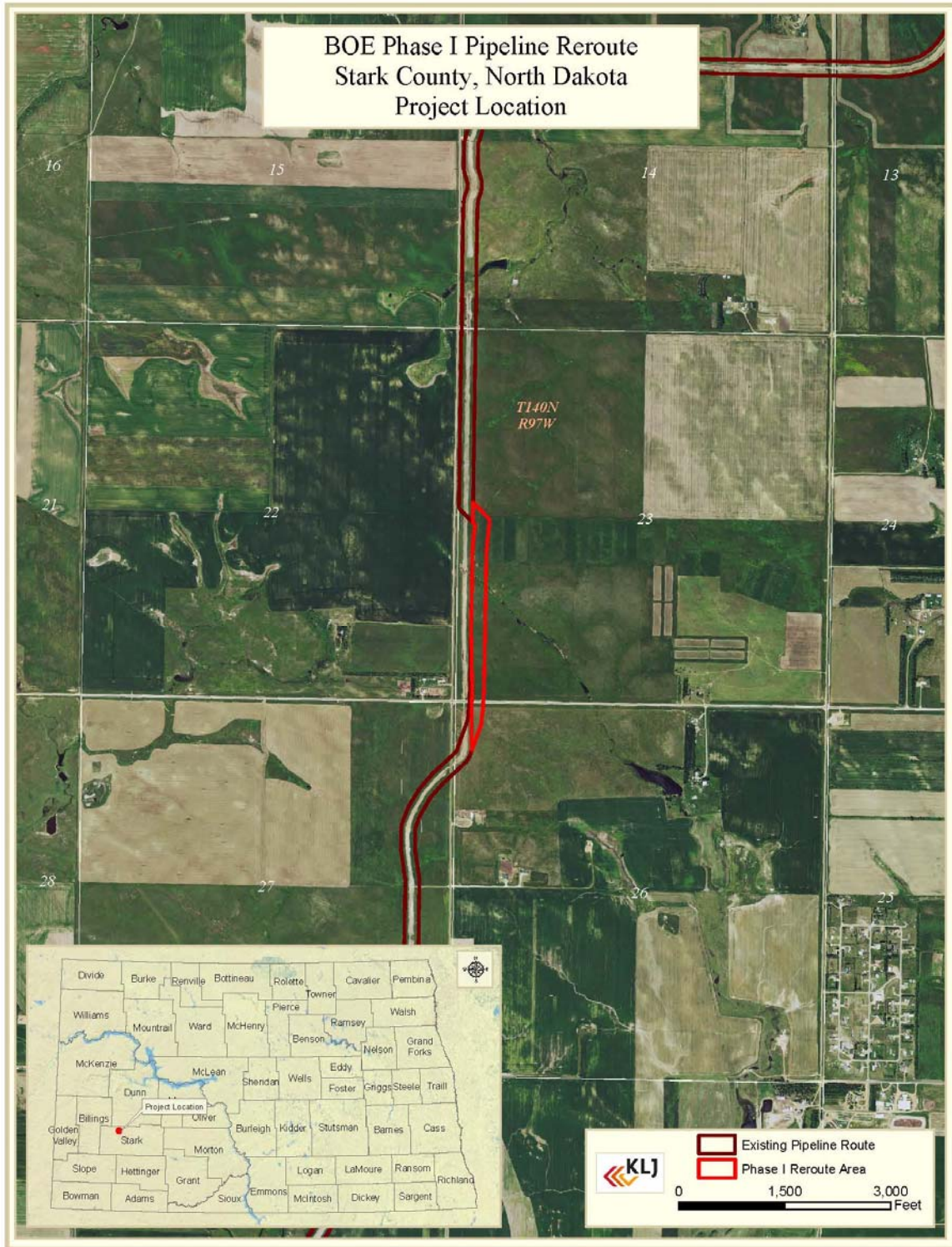


Exhibit 1, Project Location Map



II. DEFINITIONS AND METHODS

The wetlands delineation conducted by KLJ was in accordance with the 1987 United States Army Corps of Engineers (USACE) Wetland Delineation Manual and the USACE March 2010 Regional Supplement: Great Plains Region (Version 2.0). The routine approach with onsite inspection was utilized, including the standard multi-parameter approach (vegetation, hydrology, and soils) for wetland identification. An area is considered to be a wetland if hydrophytic vegetation, wetland hydrology, and hydric soils are all present. Sample locations were determined using United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps along with sites which visually supported a hydrophytic plant community, as well as characteristics of wetland hydrology and hydric soils. Definitions and methodologies for determining each of these three parameters are summarized below:

A. Hydrophytic Vegetation

Definition: The prevalence (>50%) of dominant plant species that are adapted to life in saturated soil conditions.

Method: To determine if vegetation was hydrophytic, the scientific name and indicator status of dominant plant species at each wetland were recorded on USACE data sheets. Dominance refers to the spatial extent of a species that is directly observed in the field. Dominance is calculated by identifying the most abundant species that individually or collectively account for more than 50 percent of the total coverage of vegetation in the stratum as well as any other species that, by itself, accounts for at least 20 percent of the total. Where 50 percent or more of all dominant species were hydrophytic, the hydrophytic vegetation parameter was met. Absolute percent cover¹ of dominant species within each stratum is listed on data sheets.

B. Wetland Hydrology

Definition: Fourteen or more consecutive days of flooding, ponding, or water table within 12 inches of the surface during the growing season at a minimum frequency of 5 out of 10 years (50%).

Method: Wetland hydrology was determined by observing the presence of primary and/or secondary indicators listed on the USACE data sheet. If one primary indicator or two secondary indicators were present, the wetland hydrology parameter was met.

C. Hydric Soils

Definition: Soils that are saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions in the upper 12-inches.

¹ Absolute percent cover within each stratum is not required to add up to 100 percent on the data sheets.



Method: Soils were characterized using a Munsell Soil Color Chart. If one or more of the hydric soil indicators on the USACE data sheet were identified, the soil was considered to be hydric.

Base field maps were developed using aerial photography in combination with information from the USFWS NWI maps, Natural Resources Conservation Service (NRCS) WebSoilSurvey data from Stark County and United States Geological Service (USGS) topographic quadrangle maps.

One wetland was delineated within the study area. Portions of the wetland extended beyond the limits of the study area; however only boundaries within the study area were delineated. Please refer to **Appendix A for Delineated Wetland Maps**.

Wetland boundaries were determined based on the USACE wetland delineation process through completing paired sample points as needed and investigating vegetation, hydrology, and/or hydric soil parameters. The wetland boundaries were surveyed using GPS data collection.

III. RESULTS AND DISCUSSION

The study area is located in the ecoregion identified by the USGS as the Northwest Great Plains of North Dakota. The ecoregion is a semiarid rolling plain of shale, siltstone, and sandstone punctuated by occasional buttes and badlands. Native grasslands persist in areas of steep or broken topography, but they have been largely replaced by agriculture over most of region. The proposed project occurs in an area dominated primarily by agricultural use, located approximately three miles west of Dickinson, ND. Dominant vegetation within the study area is comprised of various introduced/native rangelands.

One wetland totaling approximately 0.21 acres was delineated within the study area. The wetland extended beyond the limits of the study area; however, the wetland was only delineated to the boundary of the study area. The delineated wetland is associated with a naturally occurring drainage. Please refer to **Appendix B, Site Photos** for a visual overview of the wetland, **Table 1, Delineated Wetland** for wetland type and location, and **Appendix C, Data Sheets** for additional information regarding site specific vegetation, soils and hydrology.



Table 1, Delineated Wetland

WETLAND NUMBER	LOCATION	LONG/LAT (DEC. DEG.)	COWARDIN CLASSIFICATION	WETLAND TYPE	WETLAND SIZE (ACRES)	WETLAND FEATURE
1	Sec. 23, T140N, R97W	46.924199°N/ -102.892570°W	PEMF	Drainage	0.21	Natural

IV. CONCLUSION

Approximately 0.21 acres of wetlands were field delineated and identified within the study area. Final determination of jurisdictional wetlands within the study area is ultimately the decision of the USACE. All necessary permits shall be acquired in the event that the delineated wetlands within the study area are determined to be jurisdictional by the USACE and will be affected by the proposed construction.



V. REFERENCES

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- Coordinated effort between the United States Department of Agriculture-Natural Resources Conservation Service (USDA-NRCS), the United States Geological Survey (USGS), and the Environmental Protection Agency (EPA). The Watershed Boundary Dataset (WBD) was created from a variety of sources from each state and aggregated into a standard national layer for use in strategic planning and accountability. Watershed Boundary Dataset for North Dakota. Retrieved from <http://datagateway.nrcs.usda.gov>
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- U. S. Fish and Wildlife Service. 2012. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington, D.C. <http://www.fws.gov/wetlands/>
- U.S. Geological Survey. Digital Data Services. Available online: <http://www.usgsquads.com/mapfinder.html/>
- University of Minnesota Wetland Delineator Certification Program. Wetland Delineation Lecture Notes based on the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual and Technical Report.



VI. DELINEATORS' CREDENTIALS

NUTE BISHOP	
Education:	<ul style="list-style-type: none">› Southern New Hampshire University – MBA in Environmental Compliance and Sustainability (in progress)› Minnesota State University Morehead – BA Biology-Emphasis in Ecology and Evolution
Training:	<ul style="list-style-type: none">› Richard Chinn Environmental Training, Inc.; Successfully completed training requirements for the 38 Hour Army Delineation Training Program. (August 2015)
Professional Memberships:	<ul style="list-style-type: none">› National Association of Environmental Professionals› Wildlife Society – ND Chapter



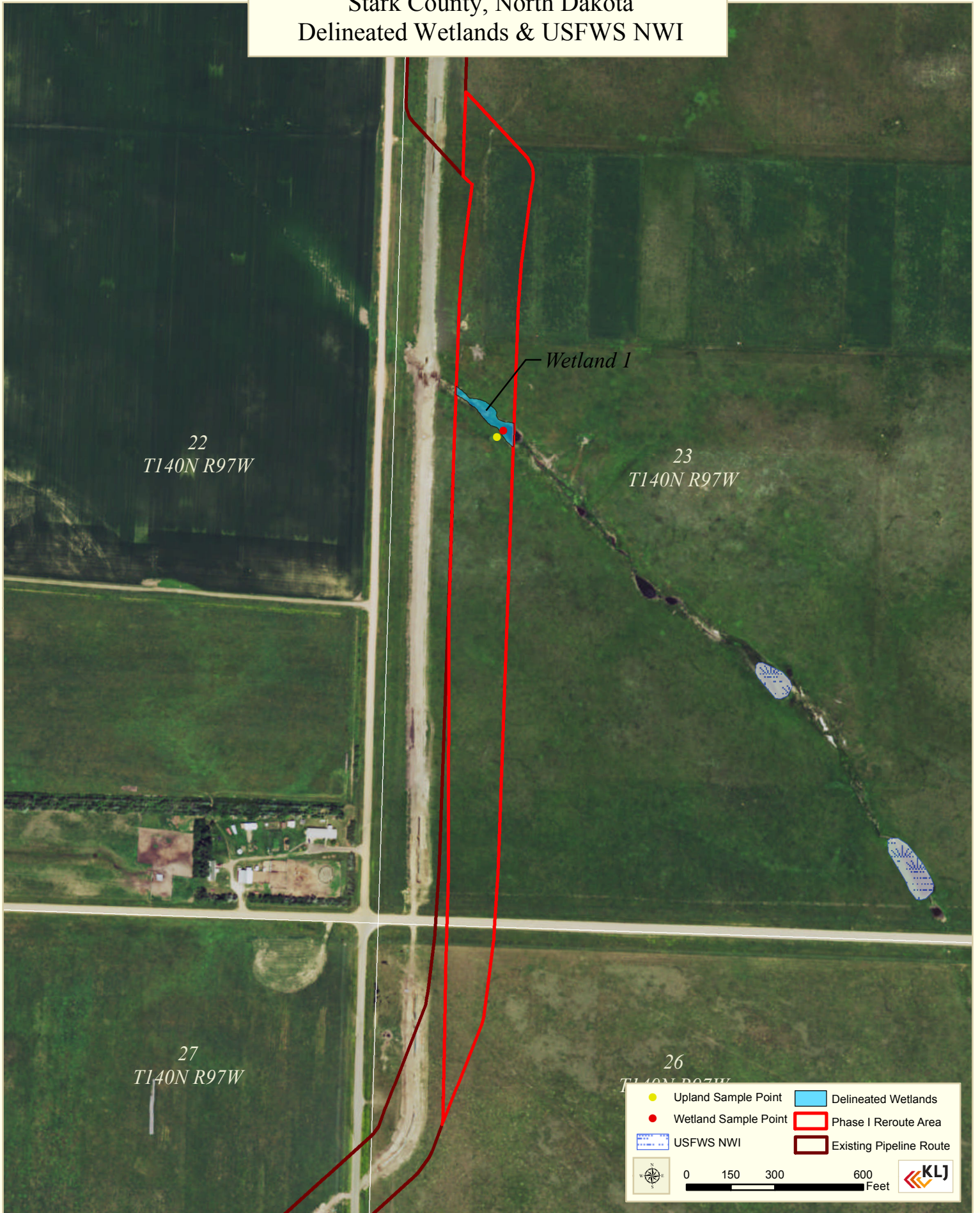


Appendix A

Delineated Wetland Maps

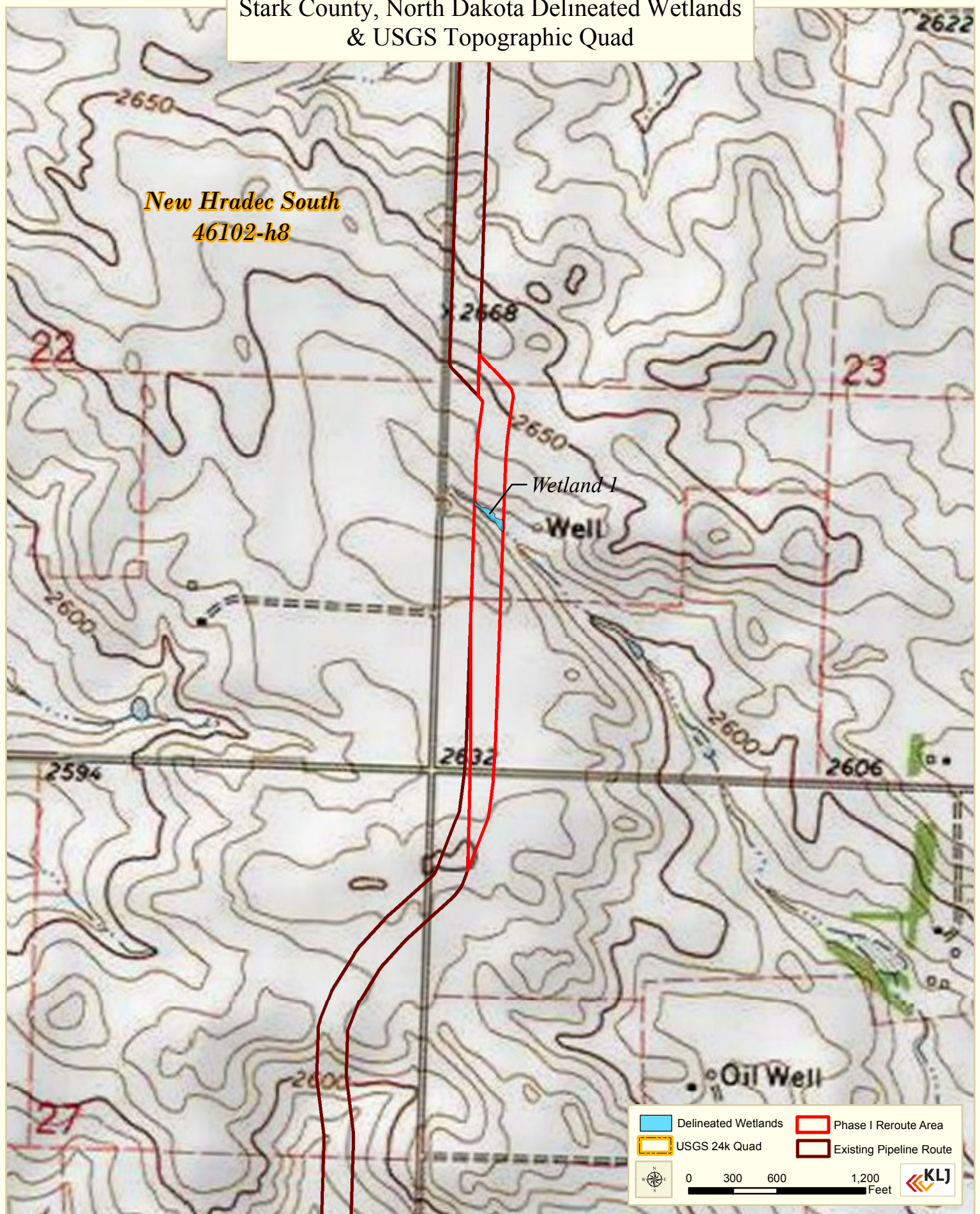






BOE Phase I Pipeline Reroute
Stark County, North Dakota
Delineated Wetlands & USFWS NWI





BOE Phase I Pipeline Reroute
Stark County, North Dakota Delineated Wetlands
& USGS Topographic Quad

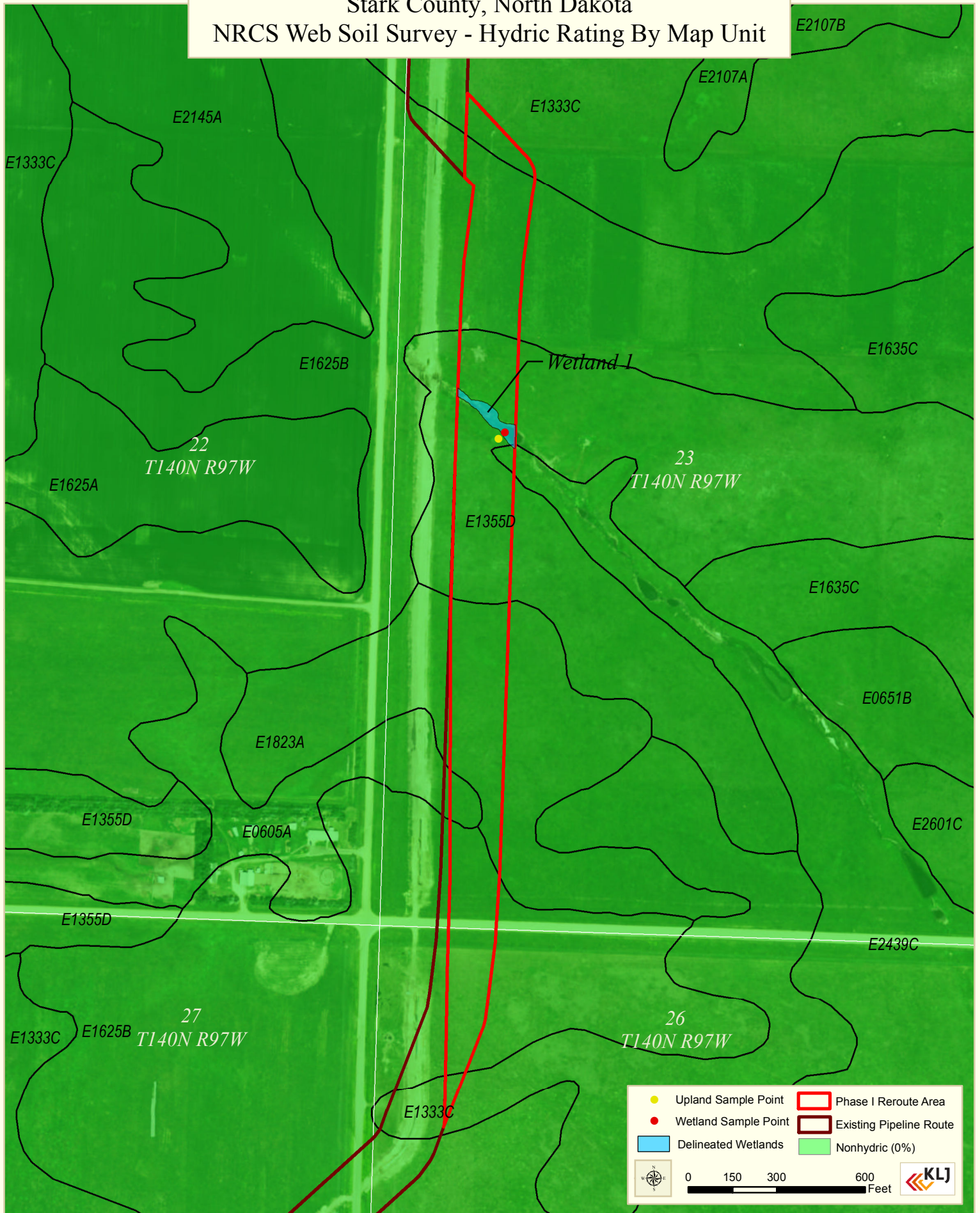
*New Hradec South
46102-h8*










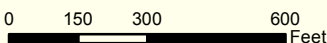

 Delineated Wetlands	 Phase I Reroute Area
 USGS 24k Quad	 Existing Pipeline Route

 0 300 600 1,200 Feet 

BOE Phase I Pipeline Reroute
 Stark County, North Dakota
 NRCS Web Soil Survey - Hydric Rating By Map Unit



	Upland Sample Point		Phase I Reroute Area
	Wetland Sample Point		Existing Pipeline Route
	Delineated Wetlands		Nonhydric (0%)



Appendix B

Site Photos





Wetland 1 - View Northeast



Wetland 1 - View Northwest



Appendix C

Data Sheets



WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BOE City/County: Stark Sampling Date: 11/12/15
 Applicant/Owner: BOE State: ND Sampling Point: 1a
 Investigator(s): Nute Bishop Section, Township, Range: Sec 23 T140N R97W
 Landform (hillslope, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 3
 Subregion (LRR): F Lat: 46.924199 Long: -102.892570 Datum: NAD 83
 Soil Map Unit Name: _____ NWI classification: PEMF

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Poa palustris</u>	90	Y	FACW	
2. <u>Spartina pectinata</u>	10	N	FACW	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100 = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

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

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

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

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

Hydrophytic Vegetation Present? Yes No

Remarks: _____

SOIL

Sampling Point: 1a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 2.5/1	90	5YR 3/4	10	C	M	SL	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) (LRR F) <input type="checkbox"/> 1 cm Muck (A9) (LRR F, G, H) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> 2.5 cm Mucky Peat or Peat (S2) (LRR G, H) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) (LRR F)		<input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input checked="" type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> High Plains Depressions (F16)		Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) (LRR H outside of MLRA 72 & 73) <input type="checkbox"/> Reduced Vertic (F18) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Very Shallow Dark Surface (TF12) <input type="checkbox"/> Other (Explain in Remarks)	
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(MLRA 72 & 73 of LRR H)

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

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

HYDROLOGY

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

Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____ Water Table Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>14</u> Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Depth (inches): <u>10</u>	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	---

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

Remarks:

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: BOE City/County: Stark Sampling Date: 11/12/15
 Applicant/Owner: BOE State: ND Sampling Point: 1b
 Investigator(s): Nute Bishop Section, Township, Range: Sec 23 T140N R97W
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5
 Subregion (LRR): F Lat: 46.924142 Long: -102.892655 Datum: NAD 83
 Soil Map Unit Name: _____ NWI classification: n/a

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

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30 ft radius</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 ft radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5 ft radius</u>)				
1. <u>Bromus inermis</u>	<u>100</u>	<u>Y</u>	<u>UPL</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
100 = Total Cover				
Woody Vine Stratum (Plot size: <u>30 ft radius</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				

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

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

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

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

Hydrophytic Vegetation Present? Yes No

Remarks: _____

SOIL

Sampling Point: 1b

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 3/6	100					SL	
2-16	7.5YR 3/4	100					SL	

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

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

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

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coast Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 & 73)**
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Very Shallow Dark Surface (TF12)
- Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks: