

WETLAND DELINEATION REPORT

DAKOTA ACCESS OPTIMIZATION

EMMONS COUNTY, NORTH DAKOTA

SUBMITTED TO:



DAKOTA ACCESS, LLC

DAKOTA ACCESS, LLC

PREPARED BY:



PERENNIAL
Environmental Services

PERENNIAL ENVIRONMENTAL SERVICES, LLC

May 2019

TABLE OF CONTENTS

INTRODUCTION..... 1

METHODOLOGY 1

 PRELIMINARY DATA GATHERING 1

 IDENTIFICATION OF POTENTIAL WATERS OF THE UNITED STATES 1

 NAMING SCHEME 2

 DATA POINTS/SOIL STATIONS 2

CONDITIONS DOCUMENTED AT PUMP STATION SITE 3

VEGETATION..... 3

SOILS 3

HYDROLOGY 4

WATERS OF THE UNITED STATES SUMMARY 4

 WETLANDS..... 4

 WATERBODIES 5

CONCLUSIONS 5

REFERENCES..... 6

List of Tables

Table 1 Soil Map Units within the Pump Station Survey Area 4
Table 2 Waterbodies Located within the Pump Station Survey Area..... 5

List of Appendices

Appendix A Mapping Exhibits
Aerial/NRCS Soils Maps
USGS Topographic Maps
NWI Maps
Appendix B Data Sheets
Appendix C Photographic Log

INTRODUCTION

Dakota Access, LLC (Dakota Access) is proposing to optimize and upgrade the Dakota Access Pipeline (DAPL) by installing a new pump station in Emmons County, North Dakota. The proposed pump station will consist of five 6,000 horsepower, electrically driven motors and pumps contained within a building. The fence line of the proposed pump station will encompass an approximately 20-acre property that will be owned in fee by Dakota Access (**Appendix A**). The new pump station is located within the jurisdictional boundary of the U.S. Army Corps of Engineers (USACE) Omaha District.

The wetland delineation performed by Perennial included the identification and recording of physical features that may be considered “waters of the United States,” as defined by the USACE. “Waters of the United States” include most wetlands, rivers, creeks, streams, lakes, tributaries, etc. This report summarizes the results of the delineation within the surveyed area, and will be utilized to determine impacts to jurisdictional “waters of the United States.”

METHODOLOGY

Preliminary Data Gathering

Prior to visiting the proposed pump station site, a resource review was conducted using available background site information, which included current and historic aerial photography, National Wetlands Inventory (NWI) data, and U.S. Geological Survey (USGS) topographic quadrangle maps.

Identification of Potential Waters of the United States

The delineation was conducted in accordance with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region* (Version 2.0) (USACE 2010) and the routine determination guidelines provided in the USACE *Wetland Delineation Manual* (Technical Report Y-87-1) (USACE 1987). According to the *Wetland Delineation Manual*, an area is a wetland if positive indicators for the three mandatory wetland criteria are identified in a given area, with special exceptions. These criteria include the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. Identification of dominant vegetative species and the associated wetland indicator status (as defined by the USACE *National Wetland Plant List*) dictates the presence of hydrophytic vegetation. Location, inundation, saturation, and other physical indicators suggesting the presence of water are used to determine wetland hydrology at a site. A small pit is dug to identify the presence or absence of hydric soils within each wetland and surrounding upland area to determine if hydric soils are present.

Waterbodies (e.g., creeks, streams, etc.) are typically identified by the presence of an ordinary high-water mark (OHWM). OHWMs are established by physical characteristics such as “a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.” Manmade ponds, lakes, and other bodies of open water that may not have an OHWM were also included in this category. If present, on-site streams, open waters, and wetlands were characterized and the boundaries were delineated by Perennial biologists.

Naming Scheme

Perennial biologists used a unique three-part naming scheme to identify wetlands, streams, and open water features. This naming scheme consisted of feature abbreviation, survey team number, and feature ID number. Features were abbreviated as follows: wetland (W), stream (S), and open water (OW). One team of two biologists conducted field surveys and were designated with the following team ID: Team 1 (P1).

Data Points/Soil Stations

Site conditions were documented through the use of data point locations, known as soil stations. Data Forms were completed for each soil station (**Appendix B**) documenting the hydrology, vegetation, and soils at each soil station. Soil stations were recorded where changes in vegetation communities were observed as well as to document the differences between wetland and upland areas (e.g., a soil station would be recorded in each wetland as well as the adjacent upland). The location of soil stations within the prospective pump station survey area are depicted on the Aerial/Natural Resources Conservation Service (NRCS) Soils Maps in **Appendix A**. A unique naming scheme that includes the survey team number (P1) was utilized to identify soil stations within the pump station survey area. Soil stations were named by using either the feature name (see above) followed by an upland or wetland distinction or by a unique consecutive number preceded by an upland distinction. For example, an upland soil station would be WP1013_UP (if associated with a wetland feature) or UPP1001. Photographs documenting the vegetative communities located at each soil station and each waterbody are included in **Appendix C**. The photographs are labeled by feature or data point name followed by the direction, for example UPP1001_N.

All data points were collected using a Trimble Ranger 7 global positioning system (GPS) equipped with a wireless Bluetooth receiver or a Trimble Geo 7X, which has an internal GPS receiver to geographically reference features, such as data points and wetland boundaries obtained during the field survey. These units typically have real-time and post-processed sub-meter accuracy. Geographic Information System (GIS)

software was used to analyze collected features, calculate the extent of delineated areas, and generate the mapping exhibits provided in **Appendix A**.

CONDITIONS DOCUMENTED AT PROPOSED PUMP STATION SITE

Perennial biologists conducted an on-site wetland and waterbody delineation of the 20.85-acre survey area on April 4, 2019. At the time of the survey, temperatures ranged from the low 30s to mid-50s, and small portions of the survey area were covered by snow and the associated snowmelt. Of the 20.85 acres surveyed, 20.83 acres consist of upland areas and 0.02 acre consist of an ephemeral drainage. Land use in the upland areas is characterized predominantly as agricultural land, open pastureland, and industrial areas associated with existing overhead powerlines and underground utility lines. A summary of the vegetation, soils, and hydrology observed in the prospective pump station survey area is presented below.

Vegetation

Appendix B presents the Data Forms, which include the vegetation observed during site investigations. Below is a description of the dominant vegetation species observed in each vegetative community.

Uplands

The uplands documented in the prospective pump station survey area were comprised of agricultural land, open pastureland, and industrial areas. Dominant vegetation associated with these areas consisted of blue grama (*Bouteloua gracilis*), timothy (*Phleum pratense*), western wheatgrass (*Pascopyrum smithii*), annual ragweed (*Ambrosia artemisiifolia*), and unidentified crops.

Soils

According to the USDA NRCS Web Soil Survey for Emmons County, North Dakota, the new proposed pump station lies within three soil mapping units, the characteristics of which are summarized below in **Table 1** (USDA, 2019).

Table 1 Soil Map Units within the Proposed Pump Station Survey Area			
Soil Map Unit	Texture and Drainage	General Location	NRCS Hydric Rating
Bowdle-Lehr loams, 0 to 2 percent slopes (E4541A)	The Bowdle series consists of well drained soils formed in loamy alluvium underlain by sand and gravel. Slopes range from 0 to 15 percent. The Lehr series consists of very deep, somewhat excessively drained soils shallow to sand and gravel. Slopes range from 0 to 25 percent.	Outwash plains and stream terraces	Not Hydric
Straw silt loam, 0 to 2 percent slopes, rarely flooded (E4165A)	The Straw series consists of very deep, moderately well drained soils that formed in alluvium. Slopes range from 0 to 8 percent.	Flood plains, drainageways, and stream terraces	Not Hydric
Wabek-Appam sandy loams, 6 to 25 percent slopes (E4583E)	The Wabek series consists of very deep, excessively drained, rapidly and very rapidly permeable soils formed in sand and gravel glaciofluvial deposits. Slopes range from 0 to 45 percent. The Appam series consists of very deep, somewhat excessively drained soils that formed in glaciofluvial deposits. Slopes range from 0 to 15 percent.	Outwash plains, beach ridges, terraces, and terrace escarpments Outwash plains and terraces	Not Hydric

Although none of the soil stations exhibited hydric soils, the identification of hydric soils was limited to the top four inches of the soil due to frozen soil conditions within the prospective pump station area.

Hydrology

The scheduled pump station survey area is located within the Beaver watershed (Hydrologic Unit Code [HUC] 8: 10130104). The main hydrologic feature located within the vicinity of the pump station area is Beaver Creek. Beaver Creek is a tributary to Lake Oahe, which is a reservoir formed from the Missouri River (USGS, 1994). There was one hydrologic feature, an ephemeral stream, identified within the prospective pump station survey area. Wetland hydrology indicators identified within the pump station survey area within upland areas included surface water and saturated soils. However, these conditions were attributed to the presence of snowmelt.

WATERS OF THE UNITED STATES SUMMARY

Wetlands

Perennial biologists did not identify any wetlands or “special aquatic sites” within the pump station survey area that exhibited positive indicators for the three required wetland criteria as defined by the USACE.

Waterbodies

Perennial biologists identified one ephemeral drainage that exhibited an OHWM, as defined by the USACE, within the pump station survey area. The type, acreage, and location of the waterbody within the pump station survey area are listed in **Table 2**.

Waterbody ID	Type	Acreage	Location		Class of Aquatic Resource
			Latitude	Longitude	
SP1001	Ephemeral	0.02	46.277819	-100.339085	§ 404
Total Acreage Delineated		0.02			

CONCLUSIONS

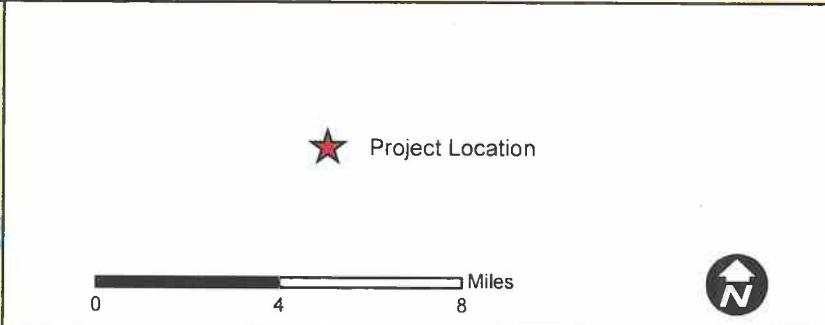
Perennial biologists conducted an on-site wetland and waterbody delineation of the approximate 20.85-acre survey area on April 4, 2019. No wetlands exhibiting positive indicators for the three required wetland criteria, as defined by the USACE, were identified within the prospective pump station survey area. One ephemeral drainage that exhibited an OHWM, as defined by the USACE, was delineated within the survey area and encompassed approximately 0.02 acre.


Based on a significant nexus and/or adjacency to other “waters of the United States,” it is Perennial’s professional opinion that this waterbody would be subject to the USACE’s jurisdiction under Section 404 of the *Clean Water Act*. This report is based on Perennial’s professional opinion; the USACE has complete jurisdiction concerning all Section 404 wetlands and waterbodies.

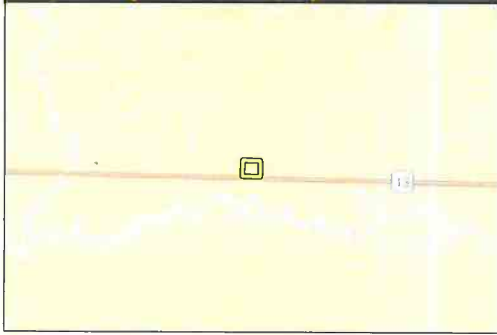
REFERENCES

- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains. Version 2.0. U.S. Army Engineers Research and Development Center, Vicksburg, MS.
- U.S. Army Corps of Engineers Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1, U.S. Army Engineers Waterways Experiment Station, Vicksburg, MS.
- U.S. Department of Agriculture - Natural Resources Conservation Service. Web Soil Survey. <http://websoilsurvey.nrcs.usda.gov>. Accessed April 2019.
- U.S. Geological Survey (USGS). 1994. 7.5-Minute Topographic Quadrangle Map. Temvik, 1994

APPENDIX A
MAPPING EXHIBITS



 PERENNIAL	
Vicinity Map Dakota Access Optimization Dakota Access, LLC Emmons County, North Dakota	
Page 1 of 1	Scale: 1:254,000
NAD83 ND South 3302 Ft	Date: May, 2019

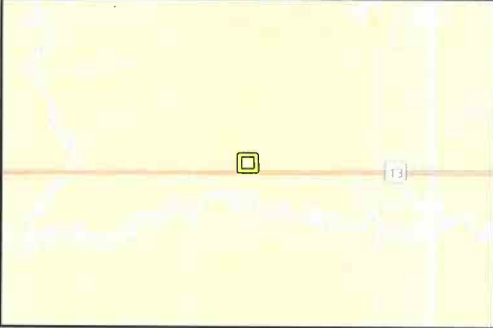
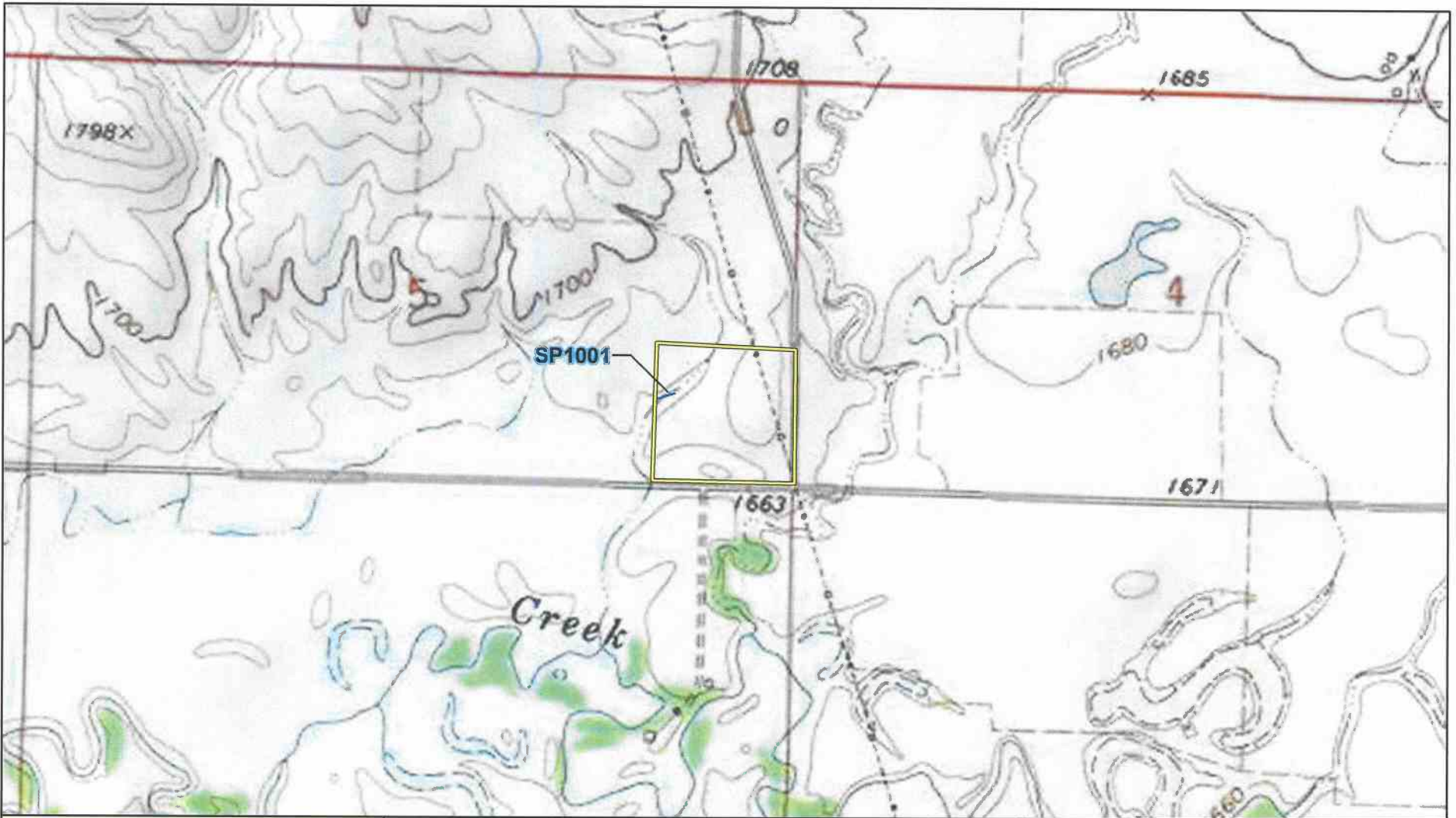




	Soil Station		NRCS Soils
	PEM Wetland		Environmental Survey Area
	PFO Wetland		Transects
	Stream		

0 200 400 Feet


Aerial Map
Dakota Access Optimization
Dakota Access, LLC
Emmons County, North Dakota


Page 1 of 1	Scale: 1:2,400
NAD83 ND South 3302 Ft	Date: May, 2019



 Environmental Survey Area
 Stream

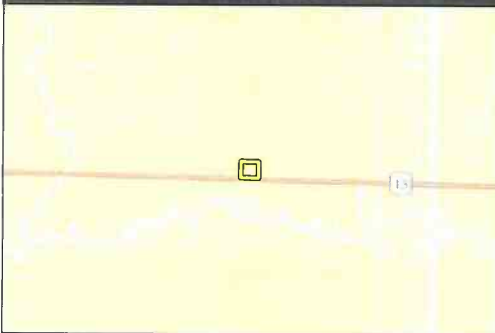
0 ————— 1,000 ————— 2,000 Feet




 PERENNIAL

Topographic Map
Dakota Access Optimization
Dakota Access, LLC
Emmons County, North Dakota

Page 1 of 1	Scale: 1:12,000
NAD83 ND South 3302 Ft	Date: May, 2019



▲ Soil Station NRCS Soils
■ PEM Wetland Environmental Survey Area
■ PFO Wetland Transects

0 200 400 Feet

No NWI features located within the survey area

PERENNIAL

NWI Map
Dakota Access Optimization
Dakota Access, LLC
Emmons County, North Dakota

Page 1 of 1	Scale: 1:2,400
NAD83 ND South 3302 Ft	Date: May, 2019

APPENDIX B
DATA SHEETS

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: **UPP1001**
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Undulating Local relief (concave, convex, none): flat Slope: 100.0% 0.0 °
 Subregion (LRR): LRR F Lat.: 46.277992263 Long.: -100.338533857 Datum: NAD 83
 Soil Map Unit Name: Bowdle-Lehr loams, 0 to 2 percent slopes (E4541A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
 Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.

VEGETATION - Use scientific names of plants Dominant Species? FWS Region: GP

Stratum	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)				Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>90</u> x 4 = <u>360</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>90</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>4</u>
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
5. _____	0	<input type="checkbox"/>		
= Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Phleum pratense</u>	90	<input checked="" type="checkbox"/> 100.0%	FACU	
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
= Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
= Total Cover				
% Bare Ground in Herb Stratum <u>10</u>				

Remarks:

Soil

Sampling Point: UPP1001

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	2/1		100			Sandy Clay Loam	15% gravel

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <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 Muck 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 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) (MLRA 72 and 73 of LRR H)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coastal 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 and 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)
---	---	---

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

<p>Restrictive Layer (if present): Type: <u>Frozen soil</u> Depth (inches): <u>4</u></p>	<p>Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p>
---	--

Remarks:

Hydrology

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<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)	<p>Secondary Indicators (minimum of two required)</p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-neutral Test (D5) <input type="checkbox"/> Frost Heave Hummocks (D7) (LRR F)
--	---	---

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

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

Remarks:
 Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: UPP1002
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 200.0% 1.1 °
 Subregion (LRR): LRR F Lat.: 46.277062853 Long.: -100.338527662 Datum: NAD 83
 Soil Map Unit Name: Straw silt loam, 0 to 2 percent slopes, rarely flooded (E4165A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

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

Remarks:
 Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.

VEGETATION - Use scientific names of plants Dominant Species? FWS Region: GP

Stratum	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)				Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>93</u> x 5 = <u>465</u> Column Totals: <u>98</u> (A) <u>485</u> (B) Prevalence Index = B/A = <u>4.949</u>
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
1. <u>Bouteloua gracilis</u>	85	<input checked="" type="checkbox"/>	86.7% UPL	
2. <u>Echinacea pallida</u>	5	<input type="checkbox"/>	5.1% UPL	
3. <u>Symphotrichum ericoides</u>	5	<input type="checkbox"/>	5.1% FACU	
4. <u>Artemisia frigida</u>	3	<input type="checkbox"/>	3.1% UPL	
5. _____	0	<input type="checkbox"/>	0.0%	
6. _____	0	<input type="checkbox"/>	0.0%	
7. _____	0	<input type="checkbox"/>	0.0%	
8. _____	0	<input type="checkbox"/>	0.0%	
9. _____	0	<input type="checkbox"/>	0.0%	
10. _____	0	<input type="checkbox"/>	0.0%	
98 = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum <u>2</u>				

Remarks:

Soil

Sampling Point: UPP1002

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	3/3		100			Silty Clay Loam	

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <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 Muck 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 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) <p>(MLRA 72 and 73 of LRR H)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coastal Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) <p>(LRR H outside of MLRA 72 and 73)</p> <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)
---	--	---

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

<p>Restrictive Layer (if present): Type: <u>Frozen soil</u> Depth (inches): <u>4</u></p>	<p>Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/></p>
---	---

Remarks:

Hydrology

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

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

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

Remarks:
 Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: UPP1003
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 200.0% 1.1 °
 Subregion (LRR): LRR F Lat.: 46.277079954 Long.: -100.337771542 Datum: NAD 83
 Soil Map Unit Name: Straw silt loam, 0 to 2 percent slopes, rarely flooded (E4165A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.	

VEGETATION - Use scientific names of plants FWS Region: GP

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. _____	0	<input type="checkbox"/>		Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	0	<input type="checkbox"/>		Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>95</u> x 5 = <u>475</u> Column Totals: <u>100</u> (A) <u>495</u> (B) Prevalence Index = B/A = <u>4.95</u>
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
5. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Bouteloua gracilis</u>	75	<input checked="" type="checkbox"/> 75.0%	UPL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. <u>Artemisia frigida</u>	15	<input type="checkbox"/> 15.0%	UPL	
3. <u>Echinacea pallida</u>	5	<input type="checkbox"/> 5.0%	UPL	
4. <u>Symphotrichum ericoides</u>	5	<input type="checkbox"/> 5.0%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
	100	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	0	<input type="checkbox"/>		Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
2. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				

Remarks:

Soil

Sampling Point: UPP1003

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	3/3		100			Silty Clay Loam	

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <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 Muck 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 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) <p>(MLRA 72 and 73 of LRR H)</p>	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coastal Prairie Redox (A16) (LRR F, G, H) <input type="checkbox"/> Dark Surface (S7) (LRR G) <input type="checkbox"/> High Plains Depressions (F16) <p>(LRR H outside of MLRA 72 and 73)</p> <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)
---	--	---

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

Restrictive Layer (if present):
 Type: Frozen soil
 Depth (inches): 4

Hydric Soil Present? Yes No

Remarks:

Hydrology

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

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks:
 Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: UPP1004
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Hillside Local relief (concave, convex, none): convex Slope: 200.0% 1.1 °
 Subregion (LRR): LRR F Lat.: 46.276956971 Long.: -100.336986278 Datum: NAD 83
 Soil Map Unit Name: Straw silt loam, 0 to 2 percent slopes, rarely flooded (E4165A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.	

VEGETATION - Use scientific names of plants FWS Region: GP

	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)					
1. _____	0	<input type="checkbox"/>			Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	0	<input type="checkbox"/>			
3. _____	0	<input type="checkbox"/>			
4. _____	0	<input type="checkbox"/>			
	0	<input type="checkbox"/>			
	= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)					
1. _____	0	<input type="checkbox"/>			Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>20</u> x 4 = <u>80</u> UPL species <u>80</u> x 5 = <u>400</u> Column Totals: <u>100</u> (A) <u>480</u> (B) Prevalence Index = B/A = <u>4.8</u>
2. _____	0	<input type="checkbox"/>			
3. _____	0	<input type="checkbox"/>			
4. _____	0	<input type="checkbox"/>			
5. _____	0	<input type="checkbox"/>			
	= Total Cover				
Herb Stratum (Plot size: <u>5'</u>)					
1. <u>Bouteloua gracilis</u>	55	<input checked="" type="checkbox"/>	55.0%	UPL	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. <u>Pascopyrum smithii</u>	20	<input checked="" type="checkbox"/>	20.0%	FACU	
3. <u>Agropyron cristatum</u>	15	<input type="checkbox"/>	15.0%	UPL	
4. <u>Artemisia frigida</u>	10	<input type="checkbox"/>	10.0%	UPL	
5. _____	0	<input type="checkbox"/>	0.0%		
6. _____	0	<input type="checkbox"/>	0.0%		
7. _____	0	<input type="checkbox"/>	0.0%		
8. _____	0	<input type="checkbox"/>	0.0%		
9. _____	0	<input type="checkbox"/>	0.0%		
10. _____	0	<input type="checkbox"/>	0.0%		
	= Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)					
1. _____	0	<input type="checkbox"/>			Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
2. _____	0	<input type="checkbox"/>			
	= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>					
Remarks:					

Soil

Sampling Point: UPP1004

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	4/3		100			Sandy Clay Loam	

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 Muck 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 and 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coastal Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 and 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: Frozen soil
 Depth (inches): 4

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) | |
| <input type="checkbox"/> Algal Mat or Crust (B4) | (where not tilled) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: UPP1005
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): flat Slope: 100.0% 0.6 °
 Subregion (LRR): LRR F Lat.: 46.277158222 Long.: -100.336173424 Datum: NAD 83
 Soil Map Unit Name: Bowdle-Lehr loams, 0 to 2 percent slopes (E4541A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.	

VEGETATION - Use scientific names of plants FWS Region: GP

Stratum	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)				Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A)
1. _____	0	<input type="checkbox"/>	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____	0	<input type="checkbox"/>	_____	Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>87</u> x 4 = <u>348</u> UPL species <u>13</u> x 5 = <u>65</u> Column Totals: <u>100</u> (A) <u>413</u> (B) Prevalence Index = B/A = <u>4.13</u>
2. _____	0	<input type="checkbox"/>	_____	
3. _____	0	<input type="checkbox"/>	_____	
4. _____	0	<input type="checkbox"/>	_____	
5. _____	0	<input type="checkbox"/>	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Ambrosia artemisiifolia</u>	80	<input checked="" type="checkbox"/>	80.0% FACU	
2. <u>Agropyron cristatum</u>	10	<input type="checkbox"/>	10.0% UPL	
3. <u>Salsola tragus</u>	5	<input type="checkbox"/>	5.0% FACU	
4. <u>Solanum rostratum</u>	3	<input type="checkbox"/>	3.0% UPL	
5. <u>Poa annua</u>	2	<input type="checkbox"/>	2.0% FACU	
6. _____	0	<input type="checkbox"/>	0.0%	
7. _____	0	<input type="checkbox"/>	0.0%	
8. _____	0	<input type="checkbox"/>	0.0%	
9. _____	0	<input type="checkbox"/>	0.0%	
10. _____	0	<input type="checkbox"/>	0.0%	
= Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
1. _____	0	<input type="checkbox"/>	_____	
2. _____	0	<input type="checkbox"/>	_____	
= Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPP1005

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	3/2	100				Silty Clay Loam	

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

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

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

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coastal Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16) (LRR H outside of MLRA 72 and 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: Frozen soil
 Depth (inches): 4

Hydric Soil Present? Yes No

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

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

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: **UPP1006**
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Undulating Local relief (concave, convex, none): flat Slope: 100.0% 0.6 °
 Subregion (LRR): LRR F Lat.: 46.278388532 Long.: -100.336167679 Datum: NAD 83
 Soil Map Unit Name: Bowdle-Lehr loams, 0 to 2 percent slopes (E4541A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.	

VEGETATION - Use scientific names of plants Dominant Species? FWS Region: GP

Stratum	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)				Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
Saolina/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>90</u> x 4 = <u>360</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>90</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>4</u>
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
5. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Phleum pratense</u>	90	<input checked="" type="checkbox"/> 100.0%	FACU	
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
	90	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>10</u>				
Remarks:				

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPP1006

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	2/2	100				Silty Clay Loam	

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

<p>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</p> <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 Muck 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 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) (MLRA 72 and 73 of LRR H)	<p>Indicators for Problematic Hydric Soils³:</p> <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coastal 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 and 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)
---	---	---

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

Restrictive Layer (if present):
 Type: Frozen soil
 Depth (inches): 4

Hydric Soil Present? Yes No

Remarks:

Hydrology

<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators (minimum of one required; check all that apply)</p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<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)	<p>Secondary Indicators (minimum of two required)</p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-neutral Test (D5) <input type="checkbox"/> Frost Heave Hummocks (D7) (LRR F)
--	---	---

Field Observations:

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

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

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

Wetland Hydrology Present? Yes No

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

Remarks:
 Surface water and saturation is present, due to snow melting.

Soil

Sampling Point: UPP1007

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	2/2	100				Silty Clay Loam	

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 Muck 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 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) (MLRA 72 and 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coastal 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 and 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)
---	--	---	---

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

Restrictive Layer (if present): Type: <u>Frozen soil</u> Depth (inches): <u>4</u>	Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
--	--

Remarks:

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <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)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-neutral Test (D5) <input type="checkbox"/> Frost Heave Hummocks (D7) (LRR F)
---	---

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

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

Remarks:
 Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: UPP1008
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Undulating Local relief (concave, convex, none): flat Slope: 100.0% 0.6 °
 Subregion (LRR): LRR F Lat.: 46.278562178 Long.: -100.337799219 Datum: NAD 83
 Soil Map Unit Name: Bowdle-Lehr loams, 0 to 2 percent slopes (E4541A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.	

VEGETATION - Use scientific names of plants FWS Region: GP

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. _____	0	<input type="checkbox"/>		Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____	0	<input type="checkbox"/>		Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>90</u> x 4 = <u>360</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>90</u> (A) <u>360</u> (B) Prevalence Index = B/A = <u>4</u>
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
5. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Pheum pratense</u>	90	<input checked="" type="checkbox"/> 100.0%	FACU	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
	90	= Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	0	<input type="checkbox"/>		Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
2. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>10</u>				
Remarks:				

Soil

Sampling Point: UPP1008

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	2/2					Silty Clay Loam	

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 Muck 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 and 73 of LRR H)**

Indicators for Problematic Hydric Soils³:

- 1 cm Muck (A9) (LRR I, J)
- Coastal Prairie Redox (A16) (LRR F, G, H)
- Dark Surface (S7) (LRR G)
- High Plains Depressions (F16)
- (LRR H outside of MLRA 72 and 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: Frozen soil
 Depth (inches): 4

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) | |
| <input type="checkbox"/> Algal Mat or Crust (B4) | (where not tilled) |
| <input type="checkbox"/> Iron Deposits (B5) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | <input type="checkbox"/> Other (Explain in Remarks) |

Secondary Indicators (minimum of two required)

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

Field Observations:

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

Wetland Hydrology Present? Yes No

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

Remarks:

Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: UPP1009
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope: 100.0% 0.6 °
 Subregion (LRR): LRR F Lat.: 46.276472546 Long.: -100.338581795 Datum: NAD 83
 Soil Map Unit Name: Straw silt loam, 0 to 2 percent slopes, rarely flooded (E4165A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Hydrophytic vegetation, hydric soil, and wetland hydrology are not present. This is not a wetland.	

VEGETATION - Use scientific names of plants FWS Region: GP

Stratum	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)					Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____	0	<input type="checkbox"/>	_____	_____	
2. _____	0	<input type="checkbox"/>	_____	_____	
3. _____	0	<input type="checkbox"/>	_____	_____	
4. _____	0	<input type="checkbox"/>	_____	_____	
	0	= Total Cover			Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>20</u> x 5 = <u>100</u> Column Totals: <u>100</u> (A) <u>420</u> (B) Prevalence Index = B/A = <u>4.2</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u>)					
1. _____	0	<input type="checkbox"/>	_____	_____	
2. _____	0	<input type="checkbox"/>	_____	_____	
3. _____	0	<input type="checkbox"/>	_____	_____	
4. _____	0	<input type="checkbox"/>	_____	_____	
5. _____	0	<input type="checkbox"/>	_____	_____	
	0	= Total Cover			
Herb Stratum (Plot size: <u>5'</u>)					
1. <u>Pascopyrum smithii</u>	70	<input checked="" type="checkbox"/>	70.0%	FACU	
2. <u>Bouteloua gracilis</u>	20	<input checked="" type="checkbox"/>	20.0%	UPL	
3. <u>Symphotrichum ericoides</u>	10	<input type="checkbox"/>	10.0%	FACU	
4. _____	0	<input type="checkbox"/>	0.0%		
5. _____	0	<input type="checkbox"/>	0.0%		
6. _____	0	<input type="checkbox"/>	0.0%		
7. _____	0	<input type="checkbox"/>	0.0%		
8. _____	0	<input type="checkbox"/>	0.0%		
9. _____	0	<input type="checkbox"/>	0.0%		
10. _____	0	<input type="checkbox"/>	0.0%		
	100	= Total Cover			
Woody Vine Stratum (Plot size: <u>30'</u>)					
1. _____	0	<input type="checkbox"/>	_____	_____	
2. _____	0	<input type="checkbox"/>	_____	_____	
	0	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					
Remarks:					
Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>					

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: UPP1009

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR	2/2		100			Silty Clay Loam	

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 Muck 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 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) (MLRA 72 and 73 of LRR H)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 1 cm Muck (A9) (LRR I, J) <input type="checkbox"/> Coastal 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 and 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)
---	--	---	---

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

Restrictive Layer (if present): Type: <u>Frozen soil</u> Depth (inches): <u>4</u>	Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
--	---

Remarks:

Hydrology

Wetland Hydrology Indicators: Primary Indicators (minimum of one required; check all that apply) <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9)	<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)	Secondary Indicators (minimum of two required) <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) (where tilled) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> FAC-neutral Test (D5) <input type="checkbox"/> Frost Heave Hummocks (D7) (LRR F)
--	---	--

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

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

Remarks:
 Surface water and saturation is present, due to snow melting.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: Dakota Access Optimization City/County: Emmons Sampling Date: 04-Apr-19
 Applicant/Owner: Dakota Access, LLC State: ND Sampling Point: UPP1010
 Investigator(s): J. Bowling & A. Hirsch Section, Township, Range: S 5 T 132N R 77W
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): concave Slope: 200.0% 1.1 °
 Subregion (LRR): LRR F Lat.: 46.276490951 Long.: -100.337006239 Datum: NAD 83
 Soil Map Unit Name: Straw silt loam, 0 to 2 percent slopes, rarely flooded (E4165A) NWI classification: None

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

Summary of Findings - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Remarks: Hydrophytic vegetation and hydric soil are not present. This is not a wetland.	

VEGETATION - Use scientific names of plants Dominant Species? FWS Region: GP

Stratum	Absolute % Cover	Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>30'</u>)				Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>40</u> x 4 = <u>160</u> UPL species <u>60</u> x 5 = <u>300</u> Column Totals: <u>100</u> (A) <u>460</u> (B) Prevalence Index = B/A = <u>4.6</u>
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
0 = Total Cover				
Herb Stratum (Plot size: <u>5'</u>)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. <u>Bouteloua gracilis</u>	60	<input checked="" type="checkbox"/> 60.0%	UPL	
2. <u>Pascopyrum smithii</u>	30	<input checked="" type="checkbox"/> 30.0%	FACU	
3. <u>Symphotrichum ericoides</u>	10	<input type="checkbox"/> 10.0%	FACU	
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
100 = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
0 = Total Cover				
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

APPENDIX C
PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Waterbody
Feature Id: SP1001

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

SP1001

Photo ID

SP1001_A

Type

Stream

Latitude

46.277845

Longitude

-100.33901

Orientation

South

Comment

Photo of SP1001 facing South



Feature ID

SP1001

Photo ID

SP1001_B

Type

Stream

Latitude

46.277845

Longitude

-100.33901

Orientation

West

Comment

Photo of SP1001 facing West



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1001

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1001

Photo ID

UPP1001_A

Type

Upland

Latitude

46.277989

Longitude

-100.338531

Orientation

South

Comment

Photo of UPP1001 facing South

**Feature ID**

UPP1001

Photo ID

UPP1001_B

Type

Upland

Latitude

46.277989

Longitude

-100.338531

Orientation

North

Comment

Photo of UPP1001 facing North



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1002

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1002

Photo ID

UPP1002_A

Type

Upland

Latitude

46.277061

Longitude

-100.338577

Orientation

Southwest

Comment

Photo of UPP1002 facing Southwest

**Feature ID**

UPP1002

Photo ID

UPP1002_B

Type

Upland

Latitude

46.277061

Longitude

-100.338577

Orientation

Northeast

Comment

Photo of UPP1002 facing Northeast



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1003

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1003

Photo ID

UPP1003_A

Type

Upland

Latitude

46.277075

Longitude

-100.337774

Orientation

West

Comment

Photo of UPP1003 facing West



Feature ID

UPP1003

Photo ID

UPP1003_B

Type

Upland

Latitude

46.277075

Longitude

-100.337774

Orientation

Northeast

Comment

Photo of UPP1003 facing Northeast



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1004

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1004

Photo ID

UPP1004_A

Type

Upland

Latitude

46.276955

Longitude

-100.336991

Orientation

West

Comment

Photo of UPP1004 facing West

**Feature ID**

UPP1004

Photo ID

UPP1004_B

Type

Upland

Latitude

46.276955

Longitude

-100.336991

Orientation

Southeast

Comment

Photo of UPP1004 facing Southeast



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1005

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1005

Photo ID

UPP1005_A

Type

Upland

Latitude

46.277186

Longitude

-100.336245

Orientation

Northwest

Comment

Photo of UPP1005 facing Northwest



Feature ID

UPP1005

Photo ID

UPP1005_B

Type

Upland

Latitude

46.277186

Longitude

-100.336245

Orientation

East

Comment

Photo of UPP1005 facing East



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1006

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1006

Photo ID

UPP1006_A

Type

Upland

Latitude

46.278388

Longitude

-100.336174

Orientation

South

Comment

Photo of UPP1006 facing South

**Feature ID**

UPP1006

Photo ID

UPP1006_B

Type

Upland

Latitude

46.278388

Longitude

-100.336174

Orientation

Northeast

Comment

Photo of UPP1006 facing Northeast



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1007

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1007

Photo ID

UPP1007_A

Type

Upland

Latitude

46.278174

Longitude

-100.337002

Orientation

Southwest

Comment

Photo of UPP1007 facing Southwest

**Feature ID**

UPP1007

Photo ID

UPP1007_B

Type

Upland

Latitude

46.278174

Longitude

-100.337002

Orientation

Northeast

Comment

Photo of UPP1007 facing Northeast



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1008

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1008

Photo ID

UPP1008_A

Type

Upland

Latitude

46.278564

Longitude

-100.337808

Orientation

South

Comment

Photo of UPP1008 facing South

**Feature ID**

UPP1008

Photo ID

UPP1008_B

Type

Upland

Latitude

46.278564

Longitude

-100.337808

Orientation

Southwest

Comment

Photo of UPP1008 facing Southwest



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1009

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1009

Photo ID

UPP1009_B

Type

Upland

Latitude

46.276453

Longitude

-100.338597

Orientation

Northwest

Comment

Photo of UPP1009 facing Northwest



Feature ID

UPP1009

Photo ID

UPP1009_A

Type

Upland

Latitude

46.276471

Longitude

-100.338592

Orientation

Southeast

Comment

Photo of UPP1009 facing Southeast



PHOTOGRAPHIC LOG

Project Name: Dakota Access Optimization
Client Name: Dakota Access, LLC
SamplingPoint: Soil Station
Feature Id: UPP1010

County: Emmons County
State: North Dakota
Date: 4/4/2019

Feature ID

UPP1010

Photo ID

UPP1010_A

Type

Upland

Latitude

46.276491

Longitude

-100.337015

Orientation

Northwest

Comment

Photo of UPP1010 facing Northwest



Feature ID

UPP1010

Photo ID

UPP1010_B

Type

Upland

Latitude

46.276491

Longitude

-100.337015

Orientation

Northeast

Comment

Photo of UPP1010 facing Northeast

