



DAKOTA ACCESS, LLC

DAKOTA ACCESS, LLC

DAKOTA ACCESS PIPELINE  
OPTIMIZATION

Docket No. PU-14-842

North Dakota Public Service Commission  
*Request for Amendment to Certificate No. 179 and Permit No. 191*

June 20, 2019



## TABLE OF CONTENTS

LIST OF TABLES .....	ii
APPENDIX .....	ii
ACRONYMS AND ABBREVIATIONS .....	iii
LIST OF EXHIBITS .....	iv
INTRODUCTION .....	1
1.0 DESCRIPTION OF FACILITY IMPROVEMENTS .....	2
1.1 PREFERRED LOCATION OF FACILITY .....	2
1.2 DESCRIPTION OF SITE PREPARATION, CONSTRUCTION, AND RECLAMATION PROCEDURES .....	2
1.3 LANDOWNER NOTIFICATION, LAND ACQUISITION, AND COMPENSATION .....	3
2.0 ALTERNATIVES .....	3
2.1 ALTERNATIVES TO THE PROPOSED FACILITY .....	3
2.1.1 NO-ACTION ALTERNATIVE .....	3
2.1.2 TRANSPORTATION ALTERNATIVES .....	3
2.1.3 PUMP STATION SITE ALTERNATIVES .....	6
3.0 ENVIRONMENTAL STUDIES .....	7
3.1 CULTURAL RESOURCE INVENTORY .....	7
3.2 NATURAL RESOURCE INVENTORY .....	7
3.2.1 WETLANDS AND WATERBODIES .....	8
3.2.2 THREATENED AND ENDANGERED SPECIES .....	8
3.2.3 MIGRATORY BIRD TREATY ACT .....	10
3.2.4 BALD AND GOLDEN EAGLE PROTECTION ACT .....	11
3.2.5 TREE/SAPLING/SHRUB INVENTORY .....	11
3.2.6 NOXIOUS WEEDS INVENTORY .....	11
4.0 AGENCY NOTIFICATIONS AND PERMITTING .....	13
5.0 CRITERIA .....	14
5.1 EXCLUSION AREAS .....	14
5.2 AVOIDANCE AREAS .....	15
5.3 SELECTION CRITERIA .....	16
5.4 POLICY CRITERIA .....	19
6.0 MITIGATION MEASURES .....	20
7.0 QUALIFICATION OF PREPARERS .....	21

**LIST OF TABLES**

	<u>Page</u>
Table 3.2-1 Potential Federally listed Threatened and Endangered Species in the Optimization Area.....	9
Table 4.0-1 Record of Agency Correspondence.....	13
Table 5.1-1 Exclusion Areas.....	14
Table 5.2-1 Avoidance Areas.....	15
Table 5.3-1 Selection Criteria.....	16

**APPENDIX**

Appendix A: Agency Correspondence

Appendix A.1 Aeronautics Commission

## **ACRONYMS AND ABBREVIATIONS**

BCC	Birds of Conservation Concern
BCR	Bird Conservation Regions
BGEPA	Bald and Golden Eagle Protection Act
bpd	barrels per day
COE	U.S. Army Corps of Engineers
Commission	North Dakota Public Service Commission
Dakota Access	Dakota Access, LLC
DAPL	Dakota Access Pipeline
EI	Environmental Inspector(s)
ESA	Endangered Species Act
FWS	U.S. Fish and Wildlife Services
Gray & Pape	Gray & Pape, Inc.
IPaC	U.S. Fish and Wildlife Service Information for Planning and Consultations
MOP	maximum operating pressure
MBTA	Migratory Bird Treaty Act
NDDA	North Dakota Department of Agriculture
NDGF	North Dakota Game and Fish Department
Order	Second Supplemental Findings of Fact, Conclusions of Law and Order, dated June 22, 2016
Optimization	Emmons County Pump Station
Perennial	Perennial Environmental Services, LLC
T&E	threatened and endangered [species]
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
USNPS	National Park Service

**LIST OF EXHIBITS**

- Exhibit A     Emmons County Plot Plan
- Exhibit B     Map of Optimization Area, Emmons County
- Exhibit C     Map of Previously-Surveyed Area
- Exhibit D.1   Letter to State Historical Society of North Dakota
- Exhibit D.2   Wetland Delineation Report
- Exhibit D.3   Official Species List

## **INTRODUCTION**

Dakota Access, LLC (Dakota Access) owns the Dakota Access Pipeline (DAPL or Pipeline), a crude oil transmission facility commencing in North Dakota and terminating in Illinois. Within North Dakota, the DAPL is an approximately 358-mile, 12-, 20-, and 30-inch diameter crude oil pipeline and associated facilities in Mountrail, Williams, McKenzie, Dunn, Mercer, Morton, and Emmons Counties, North Dakota with terminals near Stanley in Mountrail County, near Tioga in Williams County, near Epping in Williams County, near Trenton in Williams County, near Watford City in McKenzie County, and near Johnsons Corner in McKenzie County. DAPL-ETCO Operations Management, LLC is the operator of the DAPL. Dakota Access is proposing to optimize and upgrade the DAPL by installing a new pump station in Emmons County (the Optimization).

On December 22, 2014, Dakota Access made application to the North Dakota Public Service Commission (Commission) for a corridor certificate and route permit for the DAPL. On January 20, 2016, the Commission entered its Findings of Fact, Conclusions of Law and Order granting Certificate of Corridor Compatibility No. 179 and Route Permit No. 191.

On April 6, 2016, Dakota Access made application to the Commission for an amended certificate of corridor compatibility and amended route permit, seeking reroute approval at fifteen (15) locations in order to accommodate landowner requests, make environmental protection adjustments, and incorporate construction modifications that would generally provide for more efficient installation and ultimately minimize long term impacts to landowners' property. The Commission initially approved fourteen (14) of Dakota Access's fifteen (15) requested reroute locations, entered its Supplemental Findings of Fact, Conclusions of Law and Order, and issued the First Amended Certificate of Site Compatibility No. 179 and First Amended Route Permit No. 191 for the Pipeline on May 24, 2016. The Commission requested additional information regarding certain stability concerns of the final reroute request (Reroute Location 50).

After Dakota Access provided the additional information regarding Reroute Location 50 as requested by the Commission, the Commission entered its Second Supplemental Findings of Fact, Conclusions of Law and Order (Order), issuing the Second Amended Certificate of Corridor Compatibility No. 179 and the Second Amended Route Permit No. 191 on June 22, 2016.

Since issuance of the Order and as a result of increasing demand for the transportation of crude oil from the Williston Basin, there is a need for additional transportation capacity on the DAPL. Dakota Access hereby submits to the Commission documentation, in accordance with North Dakota Administrative Code § 69-06-05-02(3) and North Dakota Century Code §§ 49-22.1-06 and 49-22.1-07, requesting approval of Dakota Access's transmission facility improvements and upgrades of the Optimization to meet this need.

Upon receipt of necessary approvals, Dakota Access will begin construction, which is anticipated to take approximately eight to ten months. Completion of the Optimization is desired by the first quarter of 2021.

## **1.0 DESCRIPTION OF FACILITY IMPROVEMENTS**

Dakota Access is proposing to optimize the DAPL by adding a new pump station facility which will allow for transportation of up to 1,100,000 total barrels per day (bpd). The new pump station will consist of five 6,000 HP electrically driven motors and pumps contained within a building (refer to Exhibit A for plot plan). The fence line of the property will encompass approximately 20.8 acres. The new pump station will operate within the existing maximum operating pressure (MOP) of the pipeline. Dakota Access will invest approximately \$35 to \$40 million in North Dakota to accomplish the Optimization.

### **1.1 PREFERRED LOCATION OF FACILITY**

The proposed Optimization is located in the S1/2SE1/4 of Section 5, Township 132 North, Range 77 West, in Emmons County, North Dakota (refer to Exhibit B). The new pump station site boundary extends approximately 16.6 acres outside of the corridor designated by the Second Amended Certificate of Corridor No. 179 and approximately 19.5 acres outside of the route designated by the Second Amended Route Permit No. 191. The proposed Optimization is positioned within an approximately 20.8 acre parcel. Dakota Access has purchased an option for the approximate 20.8 acre site that will ultimately be owned in fee.

### **1.2 DESCRIPTION OF SITE PREPARATION, CONSTRUCTION, AND RECLAMATION PROCEDURES**

Construction techniques will be employed that minimize the area of ground disturbance, off-site deposition of sediments, and long-term impacts to agricultural production. Dakota Access will develop a series of plans as described in Section 6.0 to provide procedures to be followed during construction and through final stabilization of the new pump station site. Additionally, Dakota Access will comply with applicable permit conditions and environmental, civil, or landowner agreements.

### **1.3 LANDOWNER NOTIFICATION, LAND ACQUISITION, AND COMPENSATION**

Prior to conducting field surveys, Dakota Access reviewed courthouse records for the purpose of identifying current landowners of potential pump station sites. Dakota Access contacted landowners to introduce the Optimization and to obtain permission to conduct surveys. Dakota Access has negotiated an agreement with the affected landowner to give the company the right to construct, operate, and maintain the new pump station within a specified portion of the landowner's property in return for monetary compensation. Dakota Access, at all times, negotiates in good faith, and any necessary conditions and/or restrictions are presented to the landowner and discussed.

## **2.0 ALTERNATIVES**

### **2.1 ALTERNATIVES TO THE PROPOSED FACILITY**

Installation of the upgrades to accomplish the Optimization will provide firm, reliable service for capacity of up to 1,100,000 bpd of crude oil on the existing DAPL. Dakota Access identified and evaluated Optimization alternatives; however, these alternatives do not effectively satisfy the Optimization's objectives.

#### **2.1.1 NO-ACTION ALTERNATIVE**

The primary objectives of the Optimization are to provide additional, new, firm transportation capacity to an existing crude oil transmission facility and to place the proposed facility into service by first quarter 2021. Under the No-Action Alternative, the Optimization would not be built, and the environmental impacts associated with construction and operation of the proposed Optimization would not occur.

A No-Action Alternative would leave the region constrained by limited transport capacity for safe and reliable transmission of crude oil to markets. Increased crude oil production from the Williston Basin will exceed the capacity of the existing DAPL. Crude oil production from the Williston Basin has already increased from 1.045 million bpd in June of 2017 to almost 1.349 million bpd in December of 2018. Crude oil production is projected to increase by another 350 to 450 thousand bpd over the next five years. This increase in production has led to an increase in demand for crude oil transportation services on the DAPL that exceeds the existing capacity of the pipeline. Thus, an increase in the DAPL's capacity is needed to satisfy the growing demand.

The No-Action Alternative would deny the regional economic benefits that will be provided by the proposed Optimization, and would deny Dakota Access's customers the firm transportation service they have requested. The current maximum capacity of the DAPL is oversubscribed by shippers holding or seeking long-term transportation contracts. During an open season held in the fourth quarter of 2018, seven (7) new shippers participated, along with all current shippers. Both the new and existing shippers have indicated interest in contracting for additional capacity on the DAPL, beyond the open season amounts, in order to support their expected future needs for crude oil transportation services.

In order to accommodate the increase in production of crude oil from the Williston Basin and to meet the needs of Dakota Access's current and potential customers, Dakota Access rejected the No-Action Alternative.

#### **2.1.2 TRANSPORTATION ALTERNATIVES**

Approximately 70 percent of all domestically produced petroleum products are transported by pipeline, but upon increased demand and increase of production of such products, transportation has been forced to be supplemented by truck or rail due to the increasing

limitations on pipeline capacity.<sup>1</sup> However, pipeline transportation remains the superior form of transportation for moving crude oil to market when considering safety, environmental factors, and economic factors.

### **Trucking Transportation Alternative**

Nationwide, transportation of crude oil by truck is the most dangerous form of transportation, with an incident rate of 19.95 incidents per billion ton-miles, as compared with transport by hazardous liquid pipeline, which holds an incident rate of just 0.58 incidents per billion ton-miles.<sup>2</sup> Truck transportation in North Dakota is no exception to these statistics.

In the years preceding the oil boom in North Dakota, the Federal Motor Carrier Safety Administration reported a traffic fatality rate involving large trucks at 13 fatalities per year.<sup>3</sup> Following a rapid expansion in the number of commercial trucks linked to the oil industry, however, North Dakota has seen an increase in fatalities involving large trucks. In 2017, the number of fatalities involving large trucks jumped to 21, at a rate of 27.8 fatal crashes involving large trucks per million people – a statistic that surpasses every other state in the country, with the exception of Oklahoma and Wyoming.<sup>4</sup> Much of this increase in fatalities can be attributed to North Dakota's infrastructure, which is largely comprised of single-lane, rural, and unpaved roads.<sup>5</sup> Harsh winter weather and seasonal road restrictions further compromise the safety and reliability of truck transportation.

In addition to the personal safety aspects considered, transportation by truck presents great environmental concerns. Although the U.S. Department of Transportation reports approximately 280 pipeline spills nationwide per year, the vast majority of pipeline spills occur in a facility, rather than at the actual pipeline, and such facilities are well-equipped to contain and recover spilled product.<sup>6</sup> Oil spills that occur during truck transportation, however, occur closer to the general public, where there is the greater potential for human fatality and injury. Moreover, the amount of barrels of oil spilled each year is dramatically higher in transportation by truck, at 326 barrels per million tons moved every mile, as opposed to 269 barrels per million tons moved every mile in pipeline transportation, where nearly forty percent of spilled product is recoverable.<sup>7</sup>

---

<sup>1</sup> Furchtgott-Roth, *Pipelines are Safest for Transportation of Oil and Gas* (June 23, 2013), available at <https://www.manhattan-institute.org/html/pipelines-are-safest-transportation-oil-and-gas-5716.html#.VEkKrCtdWQw>.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

<sup>4</sup> U.S. Department of Transportation, Federal Motor Carrier Safety Administration Analysis Division, *Large Truck and Crash Facts 2017* (May, 2019), available at <https://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/safety/data-and-statistics/461861/ltrcbf-2017-final-5-6-2019.pdf>.

<sup>5</sup> Bachman, J., *North Dakota's Downside to the Oil Boom: Traffic Deaths* (June 9, 2014), available at <http://www.businessweek.com/articles/2014-06-09/north-dakotas-downside-to-the-oil-boom-traffic-deaths>.

<sup>6</sup> Furchtgott-Roth, D., Green, K., Studies in Energy Transportation, Fraser Institute, *Intermodal safety in the transport of oil* (Oct. 2013), available at <https://www.fraserinstitute.org/sites/default/files/intermodal-safety-in-the-transport-of-oil-rev3.pdf>.

<sup>7</sup> Dursteler, E., Hansen, M., Strata, *Pipelines, Rail & Trucks: Economic, environmental, and safety impacts of transporting oil and gas in the U.S.* (2017), available at <https://www.strata.org/pdf/2017/pipelines.pdf>.

Transportation by truck also lacks in economic benefits in relation to pipeline transportation. While pipeline transportation does require significant upfront cost, including the costs to permit, build, and maintain the pipeline, such costs are generally less expensive than transportation by truck. On average, it costs about \$20 per barrel to transport crude oil by truck, as compared to by pipeline, which costs only about \$5 per barrel.<sup>8</sup> Additionally, truck transportation is generally used to transport oil and gas in smaller quantities, and over shorter distances, whereas, pipelines can move billions of barrels of oil a year, over much greater distances.<sup>9</sup>

Analysis of the safety issues, environmental factors, and economic factors of the truck transportation alternative leads to the conclusion that this alternative is not viable.

### **Railway Transportation Alternative**

While transportation by truck carries the highest incident rate nationwide, railway transportation carries the second highest incident rate at a rate of 2.08 incidents per billion ton-miles – still much higher than the rate of incidents from hazardous liquid pipelines at 0.58 incidents per billion ton-miles.<sup>10</sup> Additionally, a series of major accidents taking place in 2013 to 2014 in Canada and the United States has heightened concern about the risks involved in shipping crude oil by rail.<sup>11</sup> In fact, when a crude-by-rail derailment occurred in 2013 in Quebec, killing 47 people and releasing 1.6 million gallons of crude oil, the National Transportation Safety Board made recommendations to the U.S. Department of Transportation in an attempt to make railway transportation safer.<sup>12</sup> Such recommendations, in part will be implemented in August of 2019, and will require railroads to establish geographic response zones and ensure that personnel and equipment are staged and prepared to respond in the event of an accident.<sup>13</sup> While these new rules may assist in preventing the type of personal injury that occurred in Quebec in 2013, they are not measures that can outright prevent a derailment or other incident that would not occur in transportation by pipeline.

Railway transportation, like truck transportation, also lacks in economic benefits when compared to the benefits provided by pipeline transportation. First, it costs two to three times more per barrel to transport via rail than via pipeline.<sup>14</sup> Second, although railway transportation is used to supplement current pipeline capacity limitations, this supplementation will run out of

---

<sup>8</sup> *Id.*

<sup>9</sup> *Id.*

<sup>10</sup> Furchtgott-Roth, *Pipelines are Safest for Transportation of Oil and Gas* (June 23, 2013), available at <https://www.manhattan-institute.org/html/pipelines-are-safest-transportation-oil-and-gas-5716.html#VEkKrCtdWQw>.

<sup>11</sup> Fritelli, J., Congressional Research Service, *U.S. Rail Transportation of Crude Oil: Background and Issues for Congress* (Dec. 4, 2014), available at <http://fas.org/sgp/crs/misc/R43390.pdf>.

<sup>12</sup> Shepardson, D., Reuters, *U.S. issues new rules requiring rail oil spill response plans* (Feb. 14, 2019), available at <https://www.reuters.com/article/us-usa-oil-rail/u-s-issues-new-rules-requiring-rail-oil-spill-response-plans-idUSKCN1Q32T1>.

<sup>13</sup> *Id.*

<sup>14</sup> Dursteler, E., Hansen, M., Strata, *Pipelines, Rail & Trucks: Economic, environmental, and safety impacts of transporting oil and gas in the U.S.* (2017), available at <https://www.strata.org/pdf/2017/pipelines.pdf>.

capacity too, and many drilling companies will need to construct railroad terminals to ship their product, which can cost upwards of \$150 million per terminal.<sup>15</sup> Moreover, although trains have a holding capacity greater than their truck counterpart, such capacity does not come near the capacity of pipelines. In 2013, the peak year for transportation by rail, trains moved a total of 262 million barrels of crude oil, while pipelines on the other hand, moved a total of over 15 billion barrels.<sup>16</sup>

While railway transportation is a vital part of the short-haul distribution network for crude oil, pipelines are safer, more reliable, and more economical for the large volumes transported and long distances required for an increase in capacity on the DAPL. As such, the railway transportation alternative is not considered a viable alternative.

### **New Pipeline Transportation Alternative**

Based on current circumstances, a new pipeline or pipelines may be viable transportation alternatives, but are less preferential compared to the Optimization. As proposed, the Optimization can satisfy current demand for take away capacity in the Williston Basin by the first quarter of 2021. A new pipeline or pipelines would have a significantly longer lead time, denying the region the economic benefits of the Optimization for some time. Likewise, construction of a new pipeline or pipelines may have greater environmental impacts compared to the Optimization, if only because of the relative scope of needed construction. While the Optimization has been shown not to impact archeological sites, the ephemeral drainage, or federally listed protected species, a new pipeline or pipelines may cause such impacts. Similarly, while the Optimization has been planned to minimize impacts to agricultural production and migratory bird patterns, a new pipeline or pipelines may have greater impacts. Finally, a new pipeline or pipelines would require significant upfront cost, including the costs to permit, build, and maintain the pipeline, while the proposed Optimization would provide the same service at a much more modest upfront cost.

Thus, while a new pipeline or pipelines may be a viable future option if demand for takeaway capacity in the Williston Basin continues to increase, the proposed Optimization is a more economical alternative with fewer potential impacts and is therefore the preferred alternative.

### **2.1.3 PUMP STATION SITE ALTERNATIVES**

Dakota Access considered several factors in choosing the preferred Optimization site location. The preferred site took into consideration landowner acceptance, exclusion and avoidance area criteria, and environmental factors. Additionally, the preferred location meets the required engineering factors, such as hydraulic balance of the pipeline, and proximity to roads and other existing facilities (i.e., pipeline valves).

---

<sup>15</sup> *Id.*

<sup>16</sup> *Id.*

### **3.0 ENVIRONMENTAL STUDIES**

The Second Supplemental Findings of Fact, Conclusions of Law and Order were issued for the DAPL on June 22, 2016. These findings concluded that the location, construction, and operation of the proposed crude oil transmission facility would produce only minimal adverse effects on the environment and are compatible with environmental preservation and the efficient use of resources. Dakota Access will comply with the Commission's Order, the conditions and criteria of the certificate and route permit, and the applicable statutes, rules, regulations, standards, and permits of state or federal agencies for the development of the new pump station.

The new pump station addition falls within the 1-mile wide study area analyzed in the DAPL application. A map showing the previously surveyed portion of the proposed pump station is provided in Exhibit C.

### **3.1 CULTURAL RESOURCE INVENTORY**

On behalf of Dakota Access, Perennial Environmental Services, LLC (Perennial) conducted an initial cultural resources background review using a 1-mile radius centered on the approximately 20.8-acre Optimization site. There are three previously reported archaeological sites located within 1-mile of the proposed Optimization; however, none of the sites are located within the Optimization site. Additionally, approximately 62 percent of the Optimization site has been surveyed during three previous cultural resource investigations (011690, 015348, and 132077), but no cultural resources were documented within the Optimization site as a result of these previous survey efforts.

On April 25, 2019, Gray & Pape, Inc. (Gray & Pape) completed a Class II/III cultural resources inventory within the approximately 20.8-acre property on which the new pump station will be located. All field work associated with the inventory was performed in accordance with the State Historical Society of North Dakota guidelines. Gray & Pape determined that the Optimization will not impact any archaeological sites or cultural resources, and that no further archaeological investigations are required. A copy of the concurrence request letter submitted to the State Historical Society of North Dakota is provided as Exhibit D.1. The Class II/III Cultural Resources Inventory Report was submitted to the State Historical Society of North Dakota along with the concurrence request. The Class II/III Cultural Resources Inventory Report contains privileged and confidential information, and for that reason, it is not being filed with this application. Any future correspondence from State Historical Society of North Dakota the will be provided upon receipt.

### **3.2 NATURAL RESOURCE INVENTORY**

On behalf of Dakota Access, Perennial also conducted an environmental survey of the approximately 20.8-acre Optimization site on April 4, 2019. The purpose of the survey was to assess the Optimization site for the following natural resources:

- Wetlands;
- Waterbodies;

- Threatened and endangered (T&E) species protected under Section 7 of the Endangered Species Act (ESA);
- Bald and golden eagles;
- Trees and shrubs that would require mitigation per the Commission's Tree and Shrub Mitigation Specifications; and
- Noxious weeds.

Prior to visiting the Optimization site, a resource review was conducted using available background information including: historic aerial photography, U.S. Fish and Wildlife Service (FWS) National Wetland Inventory (NWI) data, FWS Information for Planning and Consultations (IPaC) system, and U.S. Geological Survey (USGS) topographic quadrangle maps.

### **3.2.1 WETLANDS AND WATERBODIES**

A wetland delineation, which included the identification and recording of physical features that may be considered "waters of the United States" as defined by the U.S. Army Corps of Engineers (COE), was performed by Perennial to ascertain conditions within the entire 20.8-acre Optimization site. Waters of the United States include most wetlands, rivers, creeks, streams, lakes, tributaries, etc. The delineation was conducted in accordance with the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)<sup>17</sup> and the routine determination guidelines provided in the COE Wetland Delineation Manual (Technical Report Y-87-1).<sup>18</sup>

No wetlands meeting the three COE wetland criteria were identified within the Optimization area. However, Perennial biologists did identify one ephemeral drainage that encompasses approximately 0.02 acre of the approximately 20.8-acre Optimization site. A detailed summary of the wetland delineation is provided in the Wetland Delineation Report (refer to Exhibit D.2).

Dakota Access has designed the new pump station so that construction will avoid all impacts to the ephemeral drainage located within the Optimization site. Therefore, it has been determined that the Optimization does not require a Clean Water Act Section 404 permit from the COE prior to the start of construction.

### **3.2.2 THREATENED AND ENDANGERED SPECIES**

A desktop review of the Optimization site was performed to determine if federally listed T&E species and/or their potential habitat could occur in the Optimization area. Additionally, the Optimization site was assessed for potential T&E species habitat during the April 4, 2019 survey.

---

<sup>17</sup> U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetlands Delineation Manual: Great Plains Region. Version 2.0. U.S. Army Engineers Research and Development Center, Vicksburg, MS.

<sup>18</sup> 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.

The Official Species List generated by the FWS IPaC system (refer to Exhibit D.3) identified six federally listed species that could potentially occur within Emmons County, North Dakota. A brief habitat description as well as an assessment of the potential impact on each of the six federally listed species is provided in Table 3.2-1.

Table 3.2-1 Potential Federally listed Threatened and Endangered Species in the Optimization Area					
Common Name	Scientific Name	Federal Status	Habitat Descriptions	Assessment Result	Potential Impact
<b>Mammals</b>					
Northern Long-eared Bat	<i>Myotis septentrionalis</i>	T	The Northern long-eared bat prefers wooded habitat. Generally, this species roosts in trees under loose bark or within cavities. Hibernation occurs within caves and mine shafts. This species has only been identified in a few locations in North Dakota. It has been documented in forested habitat in the Turtle Mountains and the riparian corridors of the Little Missouri and Missouri rivers.	Suitable habitat for the species is not present within the proposed workspace.	No Effect
<b>Birds</b>					
Least Tern	<i>Sterna antillarum</i>	E	Least terns use sparsely vegetated sandbars or shoreline salt flats of lakes along the Missouri River System in North Dakota. This species usually nests in small colonies (less than 20 nests) with nests spaced far apart. The nest is a hollow scrape, sometimes located among stones. The Yellowstone River, Missouri River, Lake Sakakawea, and Lake Oahe are the only areas in North Dakota where least terns reside.	Suitable habitat for the species is not present within the proposed workspace.	No Effect
Piping Plover	<i>Charadrius melodus</i>	T	The piping plover is generally characterized as using exposed, sparsely vegetated shores and islands of shallow, alkali lakes and impoundments for breeding. Salt-encrusted, alkali, or sub-saline semi-permanent lakes, ponds, and rivers with wide shorelines of gravel, sand, or pebbles are preferred. This species nests in slight hollows in the sand or shoreline, generally near an object such as a clump of grass, rock, or small log but never in heavy vegetation. The Alkali Lakes Core Area is a key area where this species is located. Many plovers also nest on sandbars of the Missouri River.	Suitable habitat for the species is not present within the proposed workspace.	No Effect
Red Knot	<i>Calidris canutus rufa</i>	T	Although red knots use primarily marine habitats on their breeding and wintering grounds, both alkaline and freshwater lakes have been used in North Dakota during migration. Red knots have been observed in the Missouri River system as well as sewage lagoons and large permanent freshwater wetlands. The observations of red knots in North Dakota are scattered throughout the state. There are no stopover sites consistently used by red knots.	Suitable habitat for the species is not present within the proposed workspace.	No Effect

Table 3.2-1 Potential Federally listed Threatened and Endangered Species in the Optimization Area					
Common Name	Scientific Name	Federal Status	Habitat Descriptions	Assessment Result	Potential Impact
Whooping Crane	<i>Grus americana</i>	E	During migration, the whooping crane uses primarily wetlands and cropland ponds for roosting, feeding, or both. Seasonal, temporary and semi-permanent wetlands are most commonly used. Large, shallow wetlands are used for roosting and smaller wetlands for foraging. Whooping cranes formerly nested in North Dakota, but no nests have been recorded for more than 100 years. North Dakota provides important stopover habitat as the few birds left in the wild migrate through during both spring and fall.	Final critical habitat for this species is located outside of the Optimization vicinity. Additionally, the Optimization site is characterized as an active agricultural field with no shallow ponds or wetlands. Therefore, there is no suitable stopover habitat located within the proposed workspace.	<i>No Effect</i>
<b>Fish</b>					
Pallid Sturgeon	<i>Scaphirhynchus albus</i>	E	Pallid sturgeon are generally found in stretches of large rivers with 40 to 90 cubic feet per second velocity. Areas at the end of chutes or sandbars are commonly used, most likely for energy conservation and feeding. The range of depths used varies seasonally, with most fish being found in shallow waters in the spring and deeper waters in the fall. Pallid sturgeons are most commonly found in the upper Missouri River upstream of Lake Sakakawea, and in the Yellowstone River near the confluence of the two rivers.	Suitable habitat for the species is not present within the proposed workspace.	<i>No Effect</i>
E = Endangered; T = Threatened					
Sources: FWS, 2019 <sup>19</sup> ; North Dakota Game and Fish, 2019 <sup>20</sup>					

Based on the results of the desktop review and site visit conducted by Perennial biologists, the proposed Optimization site does not contain suitable habitat for the six federally listed T&E species. As such, it has been determined that the Optimization will have *no effect* on the federally listed T&E species that could potentially occur in Emmons County, North Dakota. Therefore, further consultation with the FWS is not required for the Optimization.

### 3.2.3 MIGRATORY BIRD TREATY ACT

Although the Migratory Bird Treaty Act (MBTA) provides protection for all migratory birds, the FWS developed lists of Birds of Conservation Concern (BCC) to foster proactive conservation actions by federal and state agencies and private parties by focusing first on species of concern.<sup>21</sup> In addition, the United States is divided into Bird Conservation Regions (BCR),

<sup>19</sup> U.S. Fish and Wildlife Service: North Dakota Ecological Services Field Office. 2019. Information for Planning and Consultation Official Species List. <https://ecos.fws.gov/ipac/>. Accessed May 2019

<sup>20</sup> North Dakota Game and Fish Department. 2016. Species Identification. <https://gf.nd.gov/wildlife/id>. Accessed May 2019

<sup>21</sup> FWS. 2008 Birds of Conservation Concern 2008. FWS, Division of Migratory Bird Management. Available online at <https://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf>.

each of which has a list of birds present or possibly present within the region that are considered BCCs. The Optimization is located within BCR 17, or Badlands and Prairies.<sup>22</sup>

The Optimization is most likely to impact migratory birds if construction and operation activities occur during the nesting season. Within the Optimization area, birds generally nest from late March to early August, with the peak nesting season for migratory birds taking place between April 15 and July 30. Clearing activity is not planned during peak nesting season, assuming regulatory approvals are received by no later than October 15, 2019, and provided that weather does not cause delay.

A portion of the Optimization site is characterized as an active agricultural field that would not provide suitable nesting habitat for the BCCs identified for BCR 17. However, the remaining portion of the site, which is characterized as open pastureland, could provide nesting habitat for 12 of the BCC species. Dakota Access intends to complete clearing efforts prior to the migratory bird nesting season. Should clearing be delayed resulting in clearing during the nesting season, Dakota Access will develop a Migratory Bird Conservation and Compliance Plan to outline measures it will implement to avoid, minimize, and reduce possible impacts on migratory birds.

### **3.2.4 BALD AND GOLDEN EAGLE PROTECTION ACT**

Bald and golden eagles are protected by both the MBTA and the Bald and Golden Eagle Protection Act (BGEPA). The BGEPA prohibits the take of bald or golden eagle adults, juveniles, or chicks, including their parts, nests, or eggs without a permit. Take is defined by the BGEPA as to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb. The BGEPA also addresses impacts resulting from human induced alterations occurring around previously used nesting sites.

A review of the Optimization site was conducted on April 4, 2019 to determine the potential presence of bald and golden eagles and/or their nests. No primary or secondary signs of bald or golden eagles or active nests were observed within the Optimization vicinity. Further, there is no suitable nesting habitat located within the Optimization site.

### **3.2.5 TREE/SAPLING/SHRUB INVENTORY**

The survey conducted on April 4, 2019 confirmed that no trees, saplings, or shrubs are present within the proposed Optimization site.

### **3.2.6 NOXIOUS WEEDS INVENTORY**

The Federal Noxious Weed Act of 1974 established a federal program to control the spread of noxious weeds. The U.S. Secretary of Agriculture was given the authority to declare

---

<sup>22</sup> Bird Studies Canada and NABCI. 2014. Bird Conservation Regions. Published by Bird Studies Canada on behalf of the North American Bird Conservation Initiative. <http://www.birdscanada.org/research/gislab/index.jsp?targetpg=bcr>

plants "Noxious Weeds" and limit the interstate spread of such plants without a permit. Two federally listed noxious weeds (*Cuscuta L.* and *Orobancha ludoviciana*) occur in North Dakota.

North Dakota law (North Dakota Century Code § 4.1-47-02) requires every person to do all things necessary and proper to control the spread of noxious weeds and makes it illegal for any person to distribute, sell, or offer for sale within this state a noxious weed. The North Dakota Department of Agriculture (NDDA) lists 13 species of noxious weed and invasive species.

In addition to the NDDA noxious weed and invasive species list, localized weed boards within each county manage noxious weeds and invasive species, and may develop a list of additional weeds for enforcement within their jurisdiction. Emmons County has designated four species of noxious weeds.

It is Dakota Access's intent to minimize the potential introduction and/or spread of undesirable species (i.e., invasive species and noxious weeds) within the Optimization site during construction activities. However, it is not practicable for Dakota Access to eradicate undesirable species that are outside the site boundary. Dakota Access will comply with the previously submitted DAPL Weed Management Plan.

#### **4.0 AGENCY NOTIFICATIONS AND PERMITTING**

As part of general company planning and project development, Dakota Access maintains relationships with and has been in recent contact with federal, state, and local agencies and organizations that have an interest in the area surrounding the Optimization site. Per the Commission's regulations, Dakota Access has noticed each of the agencies identified in Table 4.0-1 regarding the Optimization. Dakota Access will provide the Commission with any future correspondence with the agencies upon receipt.

Agency Name	Notice Submittal Date	Date of Response
Aeronautics Commission	6/12/2019	6/14/2019
Attorney General	6/12/2019	Pending
County Commission	6/12/2019	Pending
Department of Agriculture	6/12/2019	Pending
Department of Career and Technical Education	6/12/2019	Pending
Department of Commerce	6/12/2019	Pending
Department of Human Services	6/12/2019	Pending
Department of Transportation	6/12/2019	Pending
Department of Trust Lands	6/12/2019	Pending
Energy Development Impact Office	6/12/2019	Pending
Federal Aviation Administration	6/12/2019	Pending
North Dakota Game and Fish Department	6/12/2019	Pending
North Dakota Office of the Governor	6/12/2019	Pending
Indian Affairs Commission	6/12/2019	Pending
Industrial Commission	6/12/2019	Pending
North Dakota Department of Labor and Human Rights	6/12/2019	Pending
North Dakota Pipeline Authority	6/12/2019	Pending
North Dakota Transmission Authority	6/12/2019	Pending
North Dakota Parks and Recreation Department	6/12/2019	Pending
North Dakota State Soil Conservation Committee	6/12/2019	Pending
State Department of Health	6/12/2019	Pending
State Historical Society of North Dakota	6/12/2019	Pending
State Water Commission	6/12/2019	Pending
U.S. Army Corps of Engineers	6/12/2019	Pending
U.S. Department of Defense	6/12/2019	Pending
U.S. Fish and Wildlife Service	6/12/2019	Pending

## **5.0 CRITERIA**

In accordance with North Dakota Administrative Code § 69-06-08-02, Dakota Access evaluated the location of the Optimization site in relation to the Commission's Exclusion Area, Avoidance Area, and Selection Criteria. No exclusion area or avoidance areas are located within the new pump station site. As discussed above, no cultural or natural resources will be impacted, and the analysis with respect to the remaining selection criteria remains largely consistent with the information set forth in Section 3.4 of the Application for a Route Permit, except as it relates to the conversion of approximately 20.8 acres of agricultural land to industrial use. Further, Dakota Access has concluded that the proposed modifications do not alter the conclusion that minimal adverse impacts will result from the location, construction, and operation of the Optimization at the adjusted locations, as set forth in Conclusions of Law Paragraph No. 4 of the Commission's Order.

## **5.1 EXCLUSION AREAS**

<b>Table 5.1-1 Exclusion Areas</b>			
<b>Exclusion Area</b>	<b>Located within the Study area</b>	<b>Located within the Optimization site</b>	<b>Administering Agency</b>
National parks	No	No	National Park Service (USNPS)
National Memorial Parks	No	No	USNPS
National Historic Sites and Landmarks	No	No	USNPS
National Natural Landmarks	No	No	USNPS
National Wilderness Areas	No	No	USNPS and U.S. Forest Service (USFS)
National Monuments	No	No	USNPS and State Historical Society
State Parks	No	No	State Park Service
State Historic Sites	No	No	State Historical Board
State Monuments	No	No	State Historical Board
State Historical Markers	No	No	State Historical Society
State Archaeological Sites	No	No	State Historical Board
State Nature Preserves	No	No	State Park Service
County parks and Recreation Areas, Municipal Parks, and Parks under Other Governmental Jurisdiction	No	No	Various
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No	No	FWS

<b>Table 5.1-1 Exclusion Areas</b>			
<b>Exclusion Area</b>	<b>Located within the Study area</b>	<b>Located within the Optimization site</b>	<b>Administering Agency</b>
Areas Where Animal or Plant Species Unique or Rare to the State Would be Irreversibly Damaged	No	No	Various
Areas within 1,200 feet of an ICBM facility	No	No	Department of Defense
Areas within 30 feet of direct line of ICBM launch facility	No	No	Department of Defense

## 5.2 AVOIDANCE AREAS

<b>Table 5.2-1 Avoidance Areas</b>			
<b>Avoidance Area</b>	<b>Located within the Study area</b>	<b>Located within the Optimization site</b>	<b>Administering Agency</b>
National Historic Districts	No	No	State Historic Society
National Wildlife Areas	No	No	FWS
National Wild, Scenic, or Recreational Rivers	No	No	Heritage Conservation Recreation Service, State
National Wildlife Refuges	No	No	FWS
National Grasslands	No	No	USFS
State Wild, Scenic or Recreational Rivers	No	No	State of North Dakota Legislative Assembly
State Game Refuges	No	No	NDGF
State Game Management and Management Areas	No	No	NDGF
State Forests	No	No	State Forest Service
State Forest management Lands	No	No	State Forest Service
State Grasslands	No	No	State park Service
Historical Resources which are not specifically designated as Exclusion or Avoidance Areas	No	No	State and County Historical Society
Areas which are Geologically unstable	No	No	State Geological Survey
Within 500 Feet of a Residence, School or Place of Business	No	No	Landowner
Reservoirs	No	No	U.S. Army Corps of

<b>Table 5.2-1 Avoidance Areas</b>			
<b>Avoidance Area</b>	<b>Located within the Study area</b>	<b>Located within the Optimization site</b>	<b>Administering Agency</b>
			Engineers and State Water Commission
Municipal Water Supplies	No	No	State Water Commission
Water Sources for Organized Rural Water Districts	No	No	State Water Commission
Irrigated Land	No	No	State Water Commission
Areas of Recreational Significance but not designated Exclusion Areas	No	No	Various

### 5.3 SELECTION CRITERIA

<b>Table 5.3-1 Selection Criteria</b>	
<b>Selection Criteria</b>	<b>Discussion</b>
<b>Impacts on Agriculture</b>	
Agricultural Production	A majority of the Optimization area is utilized for agriculture and livestock production. Construction and operation of the Optimization would result in the permanent conversion of 20.8 acres of agricultural land to industrial land, which would result in the loss of crop production. Additionally, the Optimization would permanently impact approximately 6.36 acres that are considered prime farmland; however, this area is currently not utilized for crop production. All temporarily impacted areas would be restored to pre-construction conditions and would be allowed to revert back to previous land uses. Further, Dakota Access will compensate the landowner for all crop losses and/or reduced yields caused by construction of the Optimization.
Family farms and ranches	The primary impact on family farms and ranches would be the loss of crop production and grazing land as a result of the permanent conversion of the Optimization site to industrial land. However, Dakota Access will compensate the landowner for all crop losses and/or lost land use caused by the Optimization.

**Table 5.3-1  
Selection Criteria**

<b>Selection Criteria</b>	<b>Discussion</b>
Land which the owner demonstrates has soil, topography, drainage, and an available water supply that cause the land to be economically suitable for irrigation	The Optimization would not impact any irrigation systems.
Surface drainage patterns and ground water flow patterns	<p>Construction of the Optimization would impact surface drainage patterns within the Optimization site as a result of the installation of impervious surfaces. However, the facilities would be designed so as to minimize these impacts to the greatest extent practicable. Dakota Access has designed the new pump station so that construction would not result in any impacts to the ephemeral drainage located within the Optimization site. Therefore, the Optimization would not result in significant impacts on surface drainages.</p> <p>Any construction impacts that may occur to groundwater flow would be in surficial aquifers and would be highly localized and temporary in nature. Therefore, no permanent impacts on groundwater flow are expected as a result of the Optimization.</p>
<b>Impacts on Other Resources</b>	
Sound-sensitive land uses	Construction activities would be temporary and limited primarily to the daylight hours. Operation-related noise would be associated with normal operations of a pump station. The nearest noise-sensitive area (e.g., a residence) is located approximately 1,500 feet south of the Optimization site. Dakota Access will comply with all applicable noise requirements and regulations; therefore, noise-related impacts associated with construction and operation of the Optimization will be insignificant.
The visual effect on the adjacent area	The visual landscape surrounding the Optimization site consists of open agricultural fields and pastureland with occasional rural structures, roadways, and overhead powerlines. The landscape is open with long sightlines and few vertical features to break the horizon. The proposed aboveground facilities would result in a permanent visual effect on the adjacent area; however, the pump station is located in a rural setting and would only be visible to those in the immediate vicinity of the facility.

**Table 5.3-1  
Selection Criteria**

<b>Selection Criteria</b>	<b>Discussion</b>
Extractive and storage resources	Based on a review of information provided by the North Dakota Department of Mineral Resources, Oil and Gas Division, the Project would not impact any oil and gas wells. Additionally, the Optimization would not impact any gravel/sand mines, economically viable coal deposits, or uranium resources.
Wetlands, woodlands, and wooded areas	Based on the results of the surveys conducted on April 4, 2019, Optimization would not impact any wetlands, woodlands, or wooded areas.
Radio and television reception, and other communication or electronic control facilities	Based on a review of publically available information, no radio and TV reception and other communication or electronic facilities are located within the Optimization area. Therefore, no impacts on these facilities are anticipated as a result of the Optimization.
Human health and safety	During construction, residences in proximity to construction activities will be exposed to short-term increases in construction-related noise and dust. Dakota Access will minimize these impacts by limiting construction to the daylight hours to the greatest extent practicable, and by applying water to all disturbed areas to minimize fugitive dust emissions. All Optimization facilities would be constructed in accordance with or exceedance of all applicable laws and standards. These regulations are intended to ensure adequate protection of the public and to prevent accidents and failures. Further, Dakota Access would ensure that an extensive public education and outreach program is developed to promote public awareness of the safety standards associated with the construction and operation of the pump station.
Animal health and safety	Construction of the Optimization would have minor impacts on domestic animals and wildlife. The clearing of vegetation would reduce cover, nesting, and foraging habitat for some species, and would displace individuals that utilize these areas. All temporarily impacted areas would be restored to pre-existing conditions; therefore, it is likely that wildlife could reestablish within these areas upon completion of construction. Temporary fencing would also be installed as necessary to keep livestock and wildlife away from the Optimization site during construction.

**Table 5.3-1  
Selection Criteria**

<b>Selection Criteria</b>	<b>Discussion</b>
Plant life	Construction of the Optimization would result in the permanent removal of vegetation in areas that are converted from their current land uses (e.g., agricultural field and pastureland) to industrial land. Vegetation clearing would be kept to the minimum necessary to successfully construct the Optimization. In areas that require revegetation, Dakota Access would specify appropriate native seed mixes, application, and timing such that recommendations of federal, state, and landowners are taken into account.

**5.4 POLICY CRITERIA**

In accordance with North Dakota Administrative Code § 69-06-08-02(4), Dakota Access has analyzed the Optimization site and has concluded that the proposed site will not alter any of Dakota Access's commitments with respect to Policy Criteria as set forth in the Findings of Fact Paragraph No. 32 of the Commission's Order.

## **6.0 MITIGATION MEASURES**

Dakota Access developed control documents as part of its construction of the DAPL. The control documents, where applicable, will be utilized during construction activities related to the Optimization in order to minimize and mitigate impacts to environmental resources. These plans will include, at a minimum:

- Stormwater Pollution Prevention Plan
  - Construction stormwater management and erosion/sediment control.
- Spill Prevention, Containment, and Countermeasure Plan
  - Spill prevention and best management practices, with details on spill response and notification procedures in the event of a spill.
- Unanticipated Discoveries Plan
  - Response measures to be followed in the event of a discovery of cultural resources or human remains.
- Noxious Weed Plan
  - Measures to control the spread of invasive and noxious weeds
- Dust Control Plan
  - Control of fugitive dust caused by construction activities/soil exposure

To further ensure compliance with permits, plans, obligations, and commitments, Dakota Access will employ at least one Environmental Inspector(s) (EI) during the Optimization. The EI(s) will be responsible for monitoring construction activities and will provide reports to Dakota Access staff.

## **7.0 QUALIFICATIONS OF PREPARES**

Keegan Pieper, Associate General Counsel

Glenn Emery, VP Commercial Operations

Chuck Frey, VP Engineering

Chris Srubar, Sr. Engineer

Tom Siguaw, Sr. Project Director

Dennis Woods, President, Perennial Environmental Services, LLC


Marshall Olson, Environmental Project Manager, Perennial Environmental Services, LLC






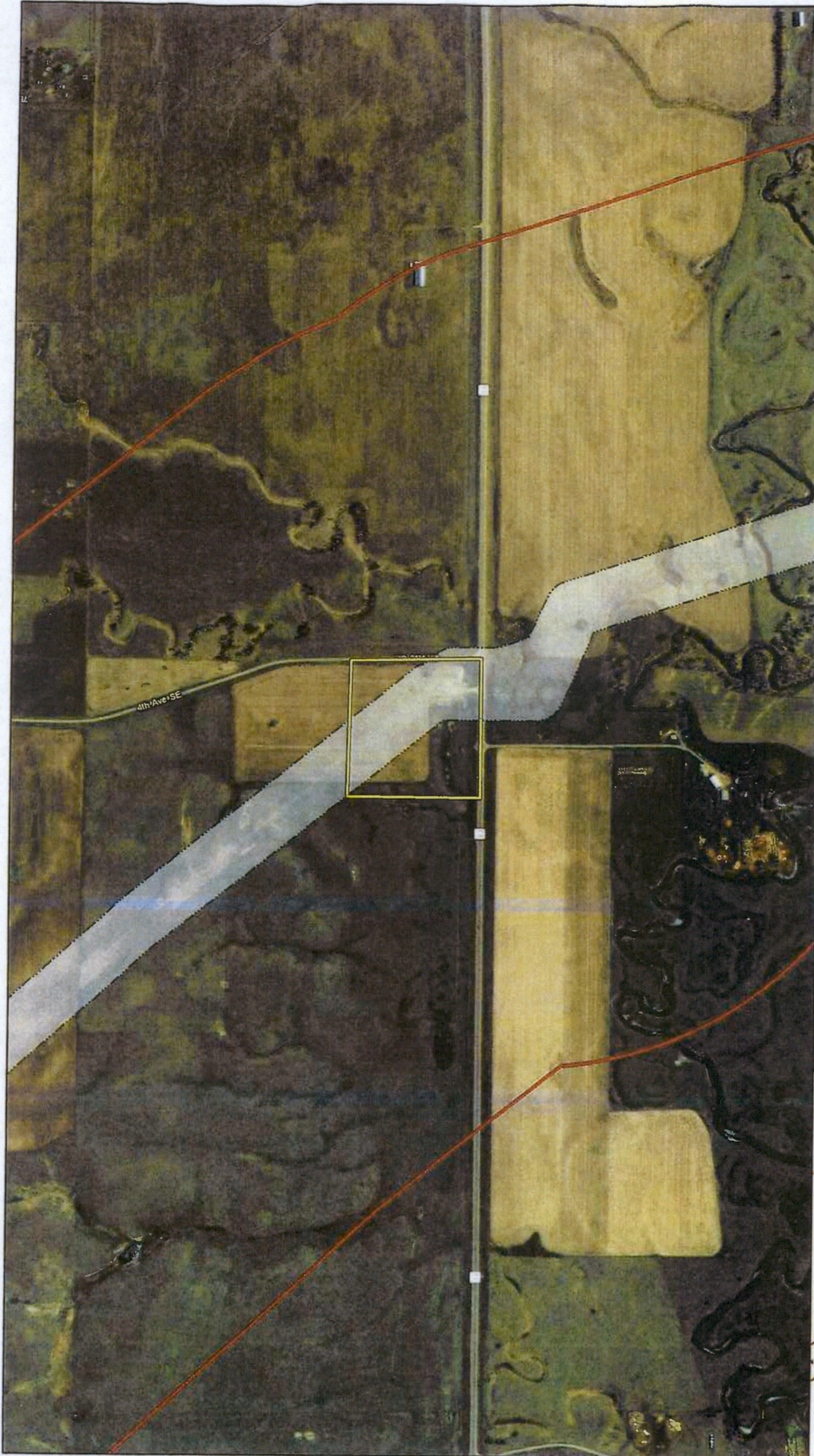



Optimization Site: 20.8 acres  
 Acreage within DAPL permanent right-of-way: 1.3 acres  
 Acreage within DAPL corridor: 4.2 acres<sup>1</sup>  
 Acreage outside DAPL corridor: 16.6 acres

<sup>1</sup> DAPL corridor is inclusive of the temporary workspace and permanent right-of-way


 DAKOTA ACCESS, LLC	Exhibit B Dakota Access Optimization Dakota Access, LLC Emmons County, North Dakota	
	Page 1 of 1 NAD83 ND South 3302 Ft	Scale: 1:3,984 Date: June, 2019


-  Optimization Property Boundary
-  DAPL Temporary Workspace
-  DAPL Permanent Right-of-way

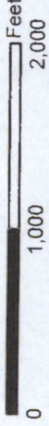



**DAKOTA ACCESS, LLC**  
**Exhibit C**  
**Dakota Access Optimization**  
**Dakota Access, LLC**  
**Emmons County, North Dakota**

Page 1 of 1	Scale: 1:12,000
NAD83 ND South 3302 F1	Date: June 2019


**Optimization Property Boundary**  
**DAPL 400 ft Environmental Survey Corridor**  
**DAPL 1 Mile Study Area**









13100 Northwest Freeway  
Suite 150  
Houston, Texas 77040

June 12, 2019

Susan Quinnell  
State Historical Society of North Dakota  
612 East Boulevard Avenue  
Bismark, North Dakota 58505

**RE:** Notice of Public Services Commission Application  
Dakota Access, LLC  
Dakota Access Optimization  
Emmons County, North Dakota

Dear Ms. Quinnell:

On behalf of Dakota Access, LLC (Dakota Access), Perennial Environmental Services, LLC (Perennial) submits this letter to notify the State Historical Society of North Dakota that Dakota Access is proposing to install a new pump station in Emmons County, North Dakota (herein referred to as the Optimization). The Optimization will allow Dakota Access to add capacity on the existing Dakota Access Pipeline (DAPL; NOW-2014-2177-BIS) in order to meet an increasing demand for the transportation of crude oil from the Willison Basin.

As depicted on the enclosed mapping, the new pump station will be located approximately 5 miles west of Linton in Emmons County. The new pump station will consist of five 6,000 horsepower, electrically driven motors and pumps contained within a building. The fenceline of the new pump station will encompass an approximately 20.8-acre property for which Dakota Access has purchased an option and will ultimately own in fee. Approximately 10.7 acres of the 20.8-acre property is located within the environmental corridor that was previously reviewed for the DAPL.

On April 15, 2019, Gray and Pape, Inc. (Gray & Pape) completed a Class II/III cultural resources inventory within the 20.8-acre property. All field work associated with the inventory was performed in accordance with the State Historical Society of North Dakota guidelines. Gray & Pape determined that the Optimization will not impact any archaeological sites or cultural resources, and that no further archaeological investigations are required. A detailed report documenting the methodology and results of the Class II/III cultural resources inventory is enclosed for your review.

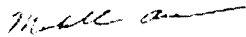
Dakota Access is seeking to amend their current certificate from the North Dakota Public Services Commission (Commission) for the Optimization, and in accordance with North Dakota Administrative Code §69-06-01-05, Dakota Access is required to notify the State Historical Society of North Dakota regarding the Optimization. Dakota Access respectfully requests that you review the proposed scope of work and provide concurrence with Gray & Pape's determination that the proposed Optimization will not impact any cultural resources eligible for listing on the National Register of Historic Places. All correspondence can be submitted via email to [molson@perennialenv.com](mailto:molson@perennialenv.com) or by mail to the following address:

Attn: Marshall Olson  
Perennial Environmental Services, LLC  
13100 Northwest Freeway, Suite 150  
Houston, Texas 77008

Copies of correspondence received in response to this letter will be provided to the Commission for their records.

We appreciate your assistance with this request and look forward to your timely review and comments on the Optimization. Should you have any questions, please contact me at 713-462-7121 or via email at molson@perennialenv.com.

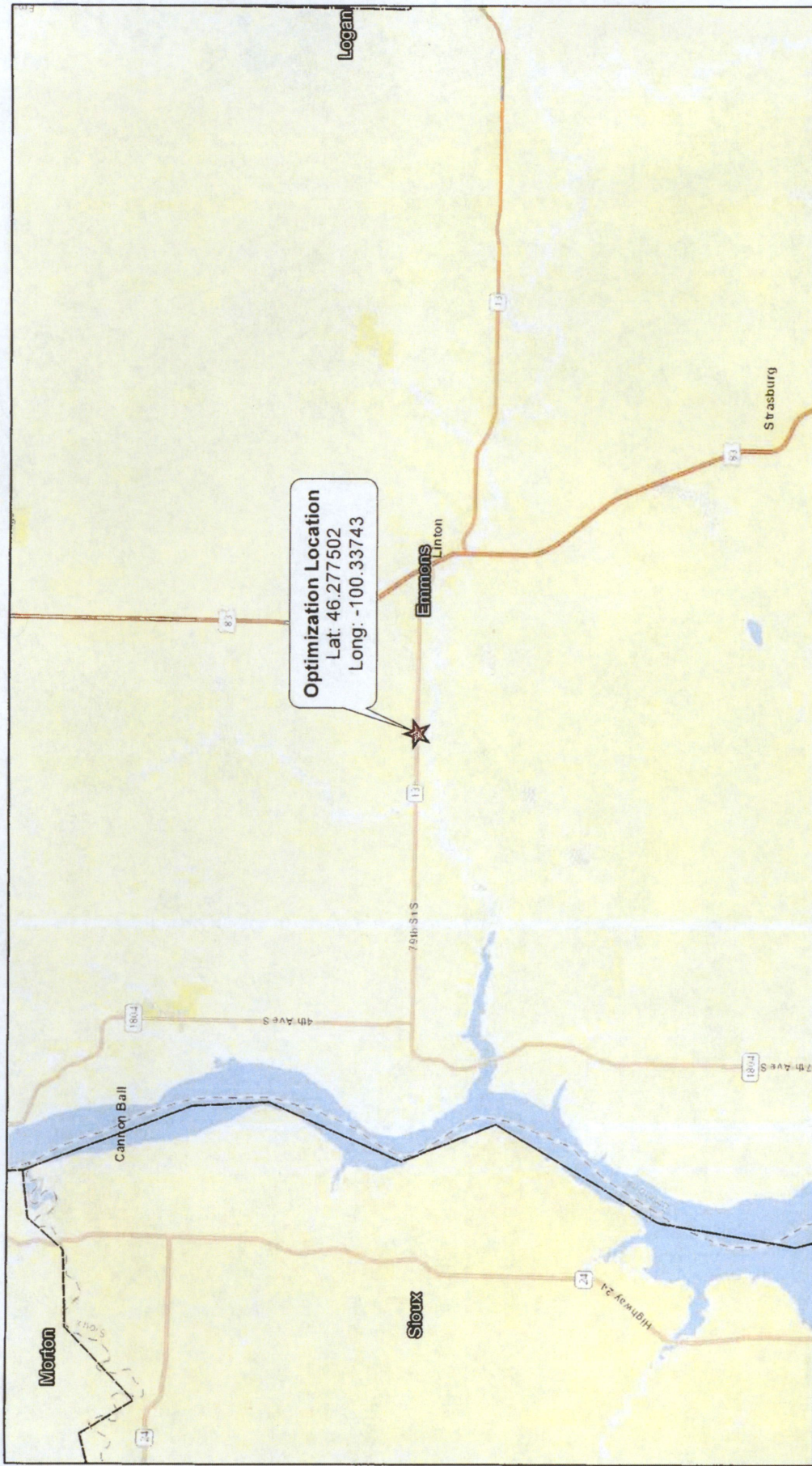
Sincerely,







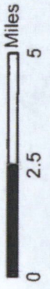
Marshall Olson  
Perennial Environmental Services, LLC

Enclosures:

Vicinity Map  
Class II/III Cultural Resources Inventory Report



**Optimization Location**  
 Lat: 46.277502  
 Long: -100.33743

	
<b>Vicinity Map</b> Dakota Access Optimization Dakota Access, LLC Emmons County, North Dakota	
Page 1 of 1	Scale: 1:250,000
NAD83 ND South 3302 FI      Date: June 2019	
	
 Optimization Location  County Boundary	
	

Detailed Report Documenting the Methodology and Results of the Class II/III  
Cultural Resources Inventory Intentionally Omitted from this Application

**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**.

<b>Table 2 Waterbodies Located within the Proposed Pump Station Survey Area</b>					
<b>Waterbody ID</b>	<b>Type</b>	<b>Acreage</b>	<b>Location</b>		<b>Class of Aquatic Resource</b>
			<b>Latitude</b>	<b>Longitude</b>	
SP1001	Ephemeral	0.02	46.277819	-100.339085	§ 404
<b>Total Acreage Delineated</b>		<b>0.02</b>			

**CONCLUSIONS**

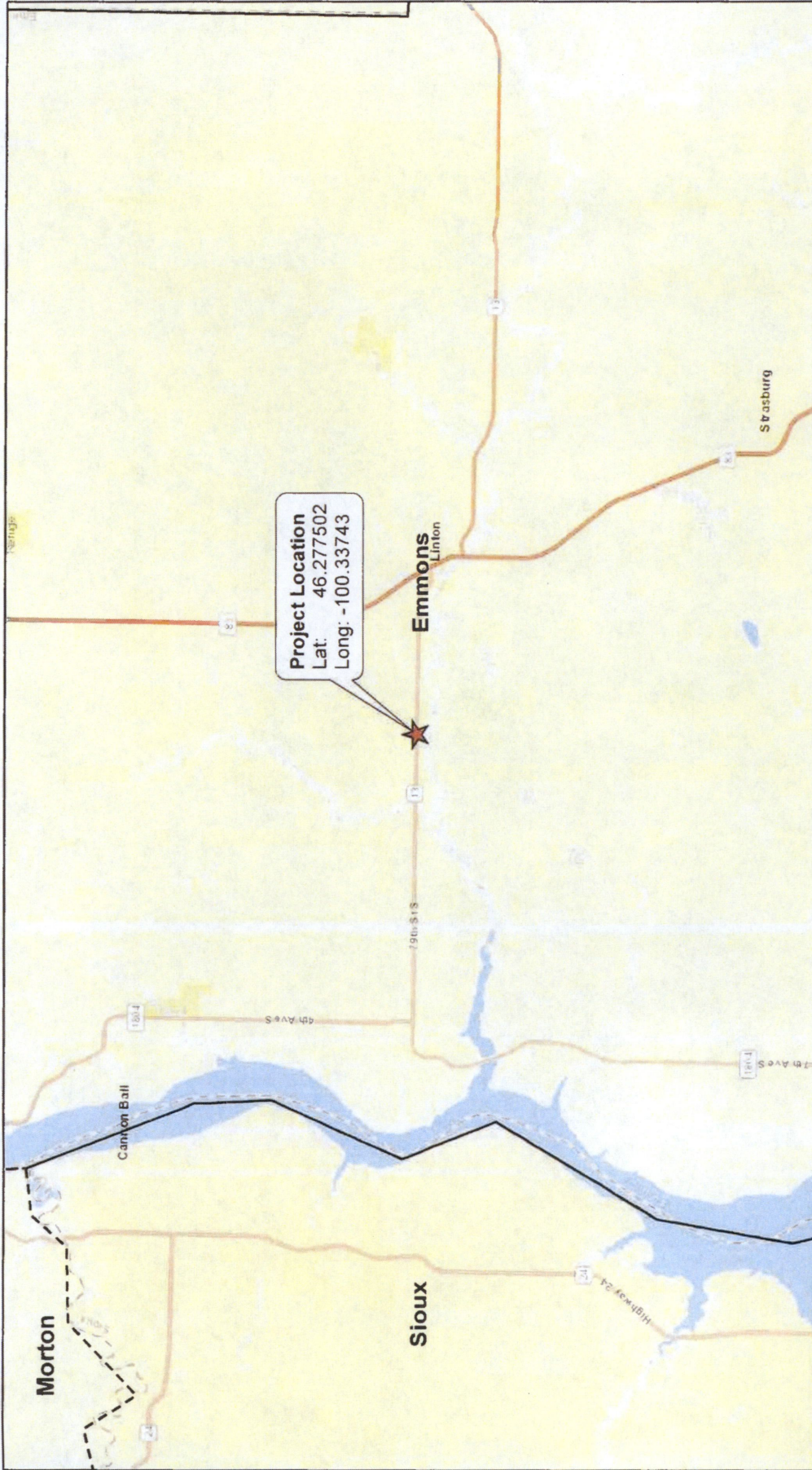
Perennial biologists conducted an on-site wetland and waterbody delineation of the approximate 20.85-acre survey area on April 4, 2019. No wetlands exhibiting positive indicators for the three required wetland criteria, as defined by the USACE, were identified within the prospective pump station survey 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**



**Project Location**  
 Lat: 46.277502  
 Long: -100.33743

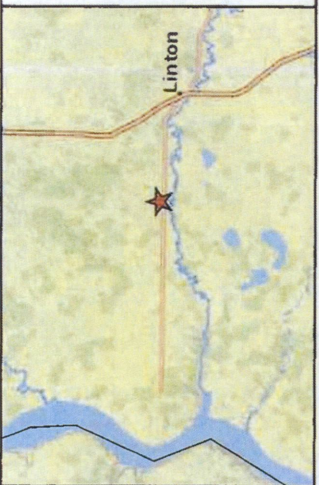
PERENNIAL

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

★ Project Location

0 4 8 Miles





PERENNIAL

**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

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

0    200    400    Feet

North Arrow




<b>Topographic Map</b> <b>Dakota Access Optimization</b> <b>Dakota Access, LLC</b> <b>Emmons County, North Dakota</b>	
Page 1 of 1	Scale: 1:12,000
NAD83 ND South 3302 Ft	Date: May, 2019




Environmental Survey Area Stream	







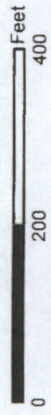
  
**PERENNIAL**

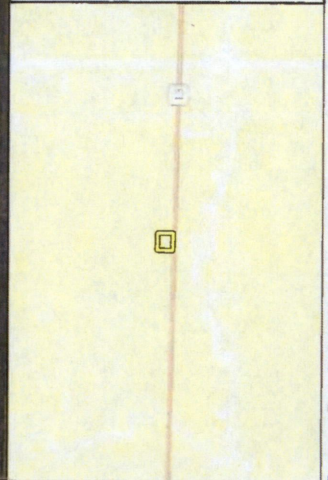
**NWI Map**  
**Dakota Access Optimization**  
**Dakota Access, LLC**  
**Emmons County, North Dakota**

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

 Soil Station  
 PEM Wetland  
 PFO Wetland

 NRCS Soils  
 Environmental Survey Area  
 Transects

  
  
 0 200 400 Feet  
 No NWI features located within the survey area



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

Remarks:

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



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

**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			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-4	10YR	3/3					Silty Clay Loam	

<sup>1</sup>Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Location: 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"/> 1 cm Muck (A9) (LRR I, J)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Coastal Prairie Redox (A16) (LRR F, G, H)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Dark Surface (S7) (LRR G)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> High Plains Depressions (F16)
<input type="checkbox"/> Stratified Layers (A5) (LRR F)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> 1 cm Muck (A9) (LRR F,G,H)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> Other (Explain in Remarks)
<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)	<input type="checkbox"/> (MLRA 72 and 73 of LRR H)	

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<sup>3</sup>Indicators 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)	<b>(where not tilled)</b>
<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)**

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

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

**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			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-4	10YR	3/3		100			Silty Clay Loam	

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b> <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)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b> <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)
---	--	--	--

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

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

Remarks:

**Hydrology**

<b>Wetland Hydrology Indicators:</b> 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)
--	--	--

<b>Field Observations:</b> 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):	<b>Wetland Hydrology Present?</b> 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: 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**

Dominant Species? FWS Region: GP

Stratum	Absolute % Cover	Rel. Strat. Cover	Indicator Status	Dominance Test worksheet:
<b>Tree Stratum</b> (Plot size: 30' )				Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)  Total Number of Dominant Species Across All Strata: 2 (B)  Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
3. _____	0	<input type="checkbox"/>		
4. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
<b>Saolina/Shrub Stratum</b> (Plot size: 15' )				<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species 0 x 1 = 0 FACW species 0 x 2 = 0 FAC species 0 x 3 = 0 FACU species 20 x 4 = 80 UPL species 80 x 5 = 400 <b>Column Totals:</b> 100 (A) 480 (B)  Prevalence Index = B/A = 4.8
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		
<b>Herb Stratum</b> (Plot size: 5' )				<b>Hydrophytic Vegetation Indicators:</b> <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 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. <i>Bouteloua gracilis</i>	55	<input checked="" type="checkbox"/>	55.0% UPL	
2. <i>Pascopyrum smithii</i>	20	<input checked="" type="checkbox"/>	20.0% FACU	
3. <i>Agropyron cristatum</i>	15	<input type="checkbox"/>	15.0% UPL	
4. <i>Artemisia frigida</i>	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%	
	100	= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: 30' )				
1. _____	0	<input type="checkbox"/>		
2. _____	0	<input type="checkbox"/>		
	0	= Total Cover		
<b>% Bare Ground in Herb Stratum</b>	0			
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: UPP1004

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

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

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

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></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)	<p><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>	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></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)
---	--	---

<sup>3</sup>Indicators 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><b>Wetland Hydrology Indicators:</b></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)	<p><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>	<p><b>Secondary Indicators (minimum of two required)</b></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.

### 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

Dominant Species? FWS Region: GP

Stratum	Absolute % Cover	Rel. Strat. Cover	Indicator Status	Dominance Test worksheet:
<b>Tree Stratum</b> (Plot size: 30')				Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
1.	0	<input type="checkbox"/>		Total Number of Dominant Species Across All Strata: 1 (B)
2.	0	<input type="checkbox"/>		
3.	0	<input type="checkbox"/>		
4.	0	<input type="checkbox"/>		
	0	= Total Cover		Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: 15')				<b>Prevalence Index worksheet:</b> Total % Cover of:      Multiply by: OBL species      0      x 1 =      0 FACW species      0      x 2 =      0 FAC species      0      x 3 =      0 FACU species      87      x 4 =      348 UPL species      13      x 5 =      65 <b>Column Totals:</b> 100      (A)      413      (B) Prevalence Index = B/A =      4.13
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		
<b>Herb Stratum</b> (Plot size: 5')				<b>Hydrophytic Vegetation Indicators:</b> <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 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. <i>Ambrosia artemisiifolia</i>	80	<input checked="" type="checkbox"/>	80.0% FACU	
2. <i>Agropyron cristatum</i>	10	<input type="checkbox"/>	10.0% UPL	
3. <i>Salsola tragus</i>	5	<input type="checkbox"/>	5.0% FACU	
4. <i>Solanum rostratum</i>	3	<input type="checkbox"/>	3.0% UPL	
5. <i>Poa annua</i>	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%	
	100	= Total Cover		
<b>Woody Vine Stratum</b> (Plot size: 30')				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		
<b>% Bare Ground in Herb Stratum</b>	0			
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 <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	3/2		100			Silty Clay Loam	

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

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></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)	<p><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>	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></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)
---	---	--

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

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

Remarks:

**Hydrology**

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

**Soil**

Sampling Point: UPP1006

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

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

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

<p><b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b></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)	<p><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>	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></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) <p><sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.</p>
---	---	--

<p><b>Restrictive Layer (if present):</b>          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><b>Wetland Hydrology Indicators:</b></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><b>Secondary Indicators (minimum of two required)</b></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><b>Field Observations:</b></p> <p>Surface Water Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____</p> <p>Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____</p> <p>Saturation Present? (includes capillary fringe) Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____</p>	<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: **UPP1007**

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.: 46.278176109

Long.: -100.336997832

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

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

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

**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			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)			Color (moist)	%	Type <sup>1</sup>			
0-4	10YR	2/2	100					Silty Clay Loam	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F,G,H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy 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 Soils<sup>3</sup>:**

- 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)

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

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

**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 <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	2/2		100			Silty Clay Loam	

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

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

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR F)
- 1 cm Muck (A9) (LRR F,G,H)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy 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 Soils<sup>3</sup>:**

- 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)

<sup>3</sup>Indicators 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: 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"/>	Is the Sampled Area within a Wetland? 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"/>	
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

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

\*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			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-4	10YR	2/2		100			Silty Clay Loam	

<sup>1</sup>Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: 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 Soils<sup>3</sup>:**

- |  |
|--|
| <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)             |
| <b>(LRR H outside of MLRA 72 and 73)</b>                           |
| <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)                |

<sup>3</sup>Indicators 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)                       | <b>(where not tilled)</b>   |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   |

**Secondary Indicators (minimum of two required)**

- |   |
|---|
| <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) |
| <b>(where tilled)</b>   |
| <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: 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"/>	Is the Sampled Area within a Wetland? 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"/>	
<b>Remarks:</b> Hydrophytic vegetation and hydric soil 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:
<b>Tree Stratum</b> (Plot size: 30')				Number of Dominant Species That are OBL, FACW, or FAC: 0 (A)
1.	0	<input type="checkbox"/>		Total Number of Dominant Species Across All Strata: 2 (B)
2.	0	<input type="checkbox"/>		Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)
3.	0	<input type="checkbox"/>		
4.	0	<input type="checkbox"/>		
	0	= Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: 15')				<b>Prevalence Index worksheet:</b>
1.	0	<input type="checkbox"/>		Total % Cover of: Multiply by:
2.	0	<input type="checkbox"/>		OBL species 0 x 1 = 0
3.	0	<input type="checkbox"/>		FACW species 0 x 2 = 0
4.	0	<input type="checkbox"/>		FAC species 0 x 3 = 0
5.	0	<input type="checkbox"/>		FACU species 40 x 4 = 160
	0	= Total Cover		UPL species 60 x 5 = 300
<b>Herb Stratum</b> (Plot size: 5')				<b>Column Totals:</b> 100 (A) 460 (B)
1. <i>Bouteloua gracilis</i>	60	<input checked="" type="checkbox"/> 60.0%	UPL	Prevalence Index = B/A = 4.6
2. <i>Pascopyrum smithii</i>	30	<input checked="" type="checkbox"/> 30.0%	FACU	
3. <i>Symphotrichum ericoides</i>	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		
<b>Woody Vine Stratum</b> (Plot size: 30')				<b>Hydrophytic Vegetation Indicators:</b>
1.	0	<input type="checkbox"/>		<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
2.	0	<input type="checkbox"/>		<input type="checkbox"/> 2 - Dominance Test is > 50%
	0	= Total Cover		<input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
<b>% Bare Ground in Herb Stratum</b> 0				<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
				<b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
<b>Remarks:</b>				

**Soil**

Sampling Point: UPP1010

**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 <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	2/2		100			Silty Clay Loam	

<sup>1</sup>Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: 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 Soils<sup>3</sup>:**

- |  |
|--|
| <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)                |

<sup>3</sup>Indicators 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 checked="" 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 checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                 |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Dry Season Water Table (C2)                |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) |
| <input type="checkbox"/> Drift deposits (B3)                       | (where not tilled)  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)              |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Thin Muck Surface (C7)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                 |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |   |

**Secondary Indicators (minimum of two required)**

- |   |
|---|
| <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 checked="" 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 checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	2
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches):	0

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.

**APPENDIX C**  
**PHOTOGRAPHIC LOG**

PHOTOGRAPHIC LOG

<b>Project Name:</b> Dakota Access Optimization	<b>County:</b> Emmons County
<b>Client Name:</b> Dakota Access, LLC	<b>State:</b> North Dakota
<b>SamplingPoint:</b> Waterbody	<b>Date:</b> 4/4/2019
<b>Feature Id:</b> SP1001	

**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

<b>Project Name:</b> Dakota Access Optimization	<b>County:</b> Emmons County
<b>Client Name:</b> Dakota Access, LLC	<b>State:</b> North Dakota
<b>SamplingPoint:</b> Soil Station	<b>Date:</b> 4/4/2019
<b>Feature Id:</b> UPP1001	

**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





## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
North Dakota Ecological Services Field Office  
3425 Miriam Avenue  
Bismarck, ND 58501-7926  
Phone: (701) 250-4481 Fax: (701) 355-8513  
[http://www.fws.gov/northdakotafieldoffice/endspecies/  
endangered\\_species.htm](http://www.fws.gov/northdakotafieldoffice/endspecies/endangered_species.htm)

In Reply Refer To:

June 12, 2019

Consultation Code: 06E15000-2019-SLI-0330

Event Code: 06E15000-2019-E-00719

Project Name: Dakota Access Optimization

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan ([http://www.fws.gov/windenergy/eagle\\_guidance.html](http://www.fws.gov/windenergy/eagle_guidance.html)). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Migratory Birds
- Wetlands

## **Official Species List**

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**North Dakota Ecological Services Field Office**  
3425 Miriam Avenue  
Bismarck, ND 58501-7926  
(701) 250-4481

## Project Summary

Consultation Code: 06E15000-2019-SLI-0330

Event Code: 06E15000-2019-E-00719

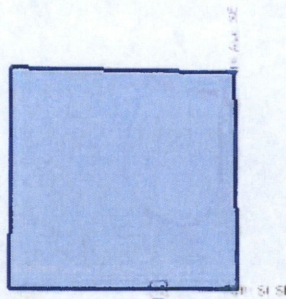
Project Name: Dakota Access Optimization

Project Type: OIL OR GAS

Project Description: 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.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/46.2775127125N100.33742924045053W>



Counties: Emmons, ND

## Endangered Species Act Species

There is a total of 6 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## Birds

NAME	STATUS
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a></p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened
<p>Whooping Crane <i>Grus americana</i></p> <p>Population: Wherever found, except where listed as an experimental population There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a></p>	Endangered

## Fishes

NAME	STATUS
<p>Pallid Sturgeon <i>Scaphirhynchus albus</i></p> <p>No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/7162">https://ecos.fws.gov/ecp/species/7162</a></p>	Endangered

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

## **USFWS National Wildlife Refuge Lands And Fish Hatcheries**

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

## Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>1</sup> and the Bald and Golden Eagle Protection Act<sup>2</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

- 
1. The [Migratory Birds Treaty Act](#) of 1918.
  2. The [Bald and Golden Eagle Protection Act](#) of 1940.
  3. 50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)

THERE ARE NO FWS MIGRATORY BIRDS OF CONCERN WITHIN THE VICINITY OF YOUR PROJECT AREA.

### Migratory Birds FAQ

**Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.**

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) and/or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

**What does IPaC use to generate the migratory birds potentially occurring in my specified location?**

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

**What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?**

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

**How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?**

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

**What are the levels of concern for migratory birds?**

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern \(BCC\)](#) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

**Details about birds that are potentially affected by offshore projects**

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

#### **What if I have eagles on my list?**

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

#### **Proper Interpretation and Use of Your Migratory Bird Report**

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ “What does IPaC use to generate the migratory birds potentially occurring in my specified location”. Please be aware this report provides the “probability of presence” of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the “no data” indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ “Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds” at the bottom of your migratory bird trust resources page.

## Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

RIVERINE

- [R4SBC](#)

## APPENDIX A

---

**Marshall Olson**

**From:** Lund, Nels C. <nlund@nd.gov>  
**Sent:** Friday, June 14, 2019 11:48 AM  
**To:** Marshall Olson  
**Cc:** Wanner, Kyle C.  
**Subject:** Dakota Access Optimization near Linton, ND

Hello Marshall,

It does not appear the pump station called Optimization near Linton, ND is an obstruction to any Title 14 Code of Federal Regulations (14 CFR) Part 77 surfaces and is not in the near vicinity of any private airports. The height of the structure is not given in the letter we received, but the Federal Aviation Administration (FAA) requires additional analysis to be done on structures over 499 above ground level (AGL). If the structure is above this height the FAA is required to be notified by completing the Notice of Proposed Construction or Alteration form (FAA 7460-1). The form can be found and submitted on the link below. Let me know if you have any questions.

<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>

Thank you,

Nels Lund  
Airport Planner  
North Dakota Aeronautics Commission  
PO Box 5020  
Bismarck, ND 58502-5020  
701-328-9655 (Office)  
701-955-8280 (Cell)  
<https://aero.nd.gov>



BEFORE THE PUBLIC SERVICE COMMISSION  
OF THE STATE OF NORTH DAKOTA

IN THE MATTER OF THE APPLICATION  
OF DAKOTA ACCESS, LLC FOR AN  
AMENDMENT TO CERTIFICATE AND  
PERMIT IN ACCORDANCE WITH THE  
DAKOTA ACCESS PIPELINE  
OPTIMIZATION IN EMMONS COUNTY,  
NORTH DAKOTA

CASE NO. PU-14-842

---

**Application of Dakota Access, LLC  
for Waiver or Reduction of Procedures and Time Schedules**

---

In connection with its submission of the Dakota Access Pipeline Optimization application (the "Application") and request for an amended Certificate of Corridor Compatibility and amended Route Permit for the construction of additional pipeline facilities – i.e., an additional pump station, located in Emmons County, North Dakota (the "Optimization"), Dakota Access, LLC ("Dakota Access") submits to the North Dakota Public Service Commission ("Commission") this application for a waiver or reduction of certain procedures and time schedules set forth in Chapter 49-22.1 of the North Dakota Century Code ("Siting Act") and Article 69-06 of the North Dakota Administrative Code ("Siting Rules"). In accordance with Section 49-22.1-07 of the North Dakota Century Code and Chapter 69-06-06 of the North Dakota Administrative Code, Dakota Access requests that the Commission waive the following requirements:

1. That the Commission waive the requirements to hold a separate hearing on the request of Dakota Access for this waiver application, as may be required by Section 49-22.1-05 of the North Dakota Century Code.

2. That the Commission waive in its entirety any hearing requirements for this Optimization Application, and instead proceed by virtue of the Commission's notice and opportunity for hearing procedure.

Consistent with the Commission's Energy and Transmission Facility Siting Guidelines ("Commission's Guidelines"), Dakota Access provides the following information in support of its waiver requests:

**A. Description of Proposed Optimization.**

1. **Type:** Dakota Access owns the Dakota Access Pipeline ("DAPL"), an approximate 358-mile crude oil pipeline and associated facilities commencing in North Dakota and terminating in Illinois. In North Dakota, the DAPL is located in Mountrail, Williams, McKenzie, Dunn, Mercer, Morton, and Emmons Counties, North Dakota, with terminals near Stanley in Mountrail County, near Tioga in Williams County, near Epping in Williams County, near Trenton in Williams County, near Watford City in McKenzie County, and near Johnsons Corner in McKenzie County. Dakota Access is proposing the Optimization to optimize and upgrade the DAPL by increasing the DAPL's capacity to transport crude oil in order to meet increased production from the Williston Basin, as well as the corresponding increase in demand for such transportation capabilities.

2. **Product:** The Optimization will increase the transportation capacity of crude oil from 600,000 barrels per day to up to 1,100,000 barrels per day.

3. **Size and Design:** The current DAPL and associated facilities were authorized pursuant to the Commission's Second Supplemental Findings of Fact, Conclusions of Law and Order, and the Second Amended Certificate of Corridor Compatibility No. 179 and the Second Amended Route Permit No. 191. The Optimization would provide an increase in the

transportation capacity of crude oil on the existing DAPL, from 600,000 barrels per day to up to 1,100,000 barrels per day, by installing a new pump station facility consisting of up to 30,000 HP of electronically driven motors and pumps contained within a building. The Optimization will not alter the existing maximum operating pressure of the DAPL. The new pump station facility would be located in the S1/2SE1/4 of Section 5, Township 132 North, Range 77 West in Emmons County, North Dakota. The new pump station facility site boundary extends approximately 16.6 acres outside of the corridor designated by the Second Amended Certificate of Corridor No. 179 and approximately 19.5 acres outside of the route designated by the Second Amended Route Permit No. 191. The new pump station facility is positioned within an approximately 20.8 acre parcel. The Optimization will enable Dakota Access to meet the increasing demand for the transportation of crude oil from the Williston Basin.

4. **Location:** The Optimization will occur entirely within land that will ultimately be owned in fee by Dakota Access consisting of approximately 20.8 acres located in the S1/2SE1/4 of Section 5, Township 132 North, Range 77 West, in Emmons County, North Dakota (approximately five miles west of Linton, North Dakota on Highway 13). Dakota Access has purchased a fee option for the property. No additional land acquisition is required for the Optimization. Maps of the proposed Optimization are provided in the Application, submitted herewith.

5. **Geographic Service Area:** As noted above, the Optimization will be located in Emmons County, North Dakota. The DAPL's primary service area is the Williston Basin in western North Dakota. However, the DAPL commences in North Dakota, runs through South Dakota and Iowa, and terminates in Illinois, providing crude oil to customers throughout the United States.

6. **Time Schedule:** Dakota Access anticipates completion of the Optimization in the first quarter of 2021. Dakota Access proposes to develop the Optimization on the following schedule:

- June 2019 – Dakota Access files with the Commission the Dakota Access Pipeline Optimization Application.
- September/October 2019 – The Commission issues a Third Amended Certificate of Corridor Compatibility No. 179 and Third Amended Route Permit No. 191 for the Optimization.
- Construction of the Optimization is anticipated to commence late 2019, subject to receipt of all appropriate approvals.
- February 2021 – Dakota Access will complete construction of the Optimization.

7. **Future Plans:** At this time, Dakota Access has no specific plans for additional modifications other than the Optimization.

**B. Need for the Optimization.**

Crude oil production from the Williston Basin has increased from 1.045 million barrels per day in June of 2017 to almost 1,349,000 barrels per day in December of 2018. This number is projected to increase by another 350,000 to 450,000 barrels per day over the next five years. Such an increase in crude oil production will exceed the current transportation capacity of the DAPL. This increase in production has led to an increase in demand for crude oil transportation services on the DAPL. The current maximum capacity of the DAPL is oversubscribed by shippers holding or seeking long-term transportation contracts. During an open season held in the fourth quarter of 2018, seven new shippers participated, along with all current shippers. Both the new and existing shippers have indicated interest in contracting for additional capacity on the DAPL, beyond the open season amounts, in order to support their expected future needs for crude oil transportation services. The Optimization is needed to accommodate the increase in

production from the Williston Basin, and the corresponding increase in demand from the region's current and potential customers.

For additional analysis of the need for the Optimization, including a discussion of alternatives evaluated, please see Section 2.0 of Dakota Access's Application, which accompanies this waiver application.

**C. Cost.**

Dakota Access estimates that it will cost approximately \$35 to \$40 million to complete the Optimization.

**D. Waiver Request.**

Dakota Access requests that the Commission grant the waivers requested herein because said waivers are needed to prevent potentially significant delays to the Optimization. As noted above, the Optimization is needed to allow Dakota Access to better utilize its existing pipeline system and increase the capacity for transporting crude oil on the DAPL. Utilizing the Optimization will eliminate the need to supplement the pipeline transportation of crude oil with rail facilities, truck, or an entirely new pipeline. Without the waivers of time schedules and procedures requested, operation of the Optimization will be delayed and the Optimization will not be able to satisfy the immediate need for a higher capacity of transporting crude oil to facilities that have access to major markets.

Section 49-22.1-05 of the North Dakota Century Code provides that the Commission may waive procedures and time schedules upon a finding that "the proposed facility is of such length, design, location, or purpose that it will produce minimal adverse effects." Based upon the investigation and analysis set forth in the Application of Dakota Access, granting the waivers requested is appropriate because the proposed facility will produce no adverse effects due to its

design (additional pump station added to an existing pipeline), its location (on land that will be ultimately owned in fee by Dakota Access), and its purpose (increasing the capacity for the transportation of crude oil on the existing DAPL).

In determining whether the proposed facility will result in adverse impacts on the environment, Dakota Access evaluated the Optimization using the criteria set forth in the Siting Act, the Siting Rules, and the Commission's Guidelines. More specifically, Dakota Access evaluated the impacts of the Optimization considering the siting criteria set forth in Section 69-06-08-02 of the North Dakota Administrative Code and the factors set forth in Section 49-22.1-09 of the North Dakota Century Code. Impacts associated with the Optimization, and mitigation measures that will be taken with respect to said impacts, are summarized in Sections 5.0 and 6.0 of the Application. Based upon Dakota Access's siting criteria evaluation, and the factors set forth in the Guidelines, the Optimization will have no adverse effects. Accordingly, Dakota Access respectfully requests that the Commission grant the requested waivers and render an expeditious decision.

Dated this 20th day of June, 2019.

FREDRIKSON & BYRON, P.A.

By: 

Lawrence Bender, ND Bar# 03908  
1133 College Drive, Suite 1000  
Bismarck, ND 58501  
(701) 221-8700  
lbender@fredlaw.com

*Attorneys for Dakota Access, LLC*



Application of Dakota Access, LLC for an  
Amendment to the N.D. Public Service  
Commission's Certificate and Permit

Proposed Emmons County Pump Station

13

S/2SE/4 of Sec. 5-T132N-R77W,  
Approximately Five Miles West  
of Linton, North Dakota, on  
Highway 13

Linton

83

2 Miles

1

0.5

0

