VANTAGE WEST SPUR LATERAL PIPELINE
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A. INTRODUCTION

Habitat assessments were completed as part of the pipeline route planning in accordance with North Dakota Administrative Code (NDAC) § 69-06-08-02. The Vantage West Spur Lateral Pipeline route alignment was selected after identifying exclusion and avoidance areas, and considering the selection and policy criteria. This habitat assessment focuses on habitat- and species-related criteria included in the route planning. The habitat assessment was ultimately used to avoid or minimize impacts to wildlife and habitat.

The Endangered Species Act (ESA), administered by the U.S. Fish and Wildlife Service (USFWS), protects and recovers imperiled species and the ecosystems upon which they depend. Six federally listed Threatened and Endangered wildlife species and their designated Critical Habitat are known to occur in Williams and Divide Counties of North Dakota. At this time, there are no federally listed threatened and endangered plant species listed for Divide or Williams Counties, North Dakota. The USFWS also lists one Proposed and one Candidate species in each county (Table 1). There is no legal requirement for protecting candidate or proposed species; however, they are discussed below because of their potential to be listed. In addition, the USFWS Dakota Field Office identified the Dakota skipper as a species of concern in the region (Exhibits H.3).

Table 1. Threatened and Endangered Species of Williams and Divide Counties

DIVIDE COUNTY	WILLIAMS COUNTY
Endangered Species	**Endangered Species**
Whooping crane (*Grus Americana*) Gray wolf (*Canis lupus*)	Interior least tern (*Sterna antillarum*) Whooping crane (*Grus Americana*) Pallid sturgeon (*Scaphirhynchus albus*) Grey wolf (*Canis lupus*)
Threatened Species	**Threatened Species**
Piping plover (Charadrius melodus) Rufa red knot (Calidris canutus rufa)	Piping plover (*Charadrius melodus*) Rufa red knot (*Calidris canutus rufa*)
Proposed Species	**Proposed Species**
Northern long-eared bat (Myotis septentrionalis)	Northern long-eared bat (*Myotis septentrionalis*)
Candidate Species	**Candidate Species**
Sprague's pipit (Anthus spragueii)	Sprague's pipit (*Anthus spragueii*)
Designated Critical Habitat	**Designated Critical Habitat**
Piping Plover –Alkali Lakes and Wetlands	Piping Plover – Lake Sakakawea

Of the listed species, three species would not be impacted by the pipeline project. Habitats for the **pallid sturgeon** (*Scaphirhynchus albus*) and **interior least tern** occur in the Missouri and Yellowstone River channels and would not be affected. The project area does not consist of suitable habitat for the **gray wolf** (*Canis lupus*) because it lacks desirable prey species and cover.

Three listed species, one proposed and one candidate species have the potential to be impacted by the

project. Potential breeding habitat is present in the project area for the **piping plover** (*Charadrius melodus*), and spring/fall migration stopover habitat is present for the **whooping crane** (*Grus Americana*) and **rufa red knot** (*Charadruis melodus*). Summer roosting habitat for the Proposed **northern long-eared bat** (*Myotis septentrionalis*) is also present in the project area. A Candidate species for listing, the **Sprague's pipit** (*Anthus spragueii*) is a grassland songbird that will be subjected to the same mitigation commitments as migratory birds. The Threatened **Dakota skipper** (*Hesperia dacotae*) is known to occur and have Critical Habitat in adjacent counties.

The federally administered Bald and Golden Eagle Protection Act (BGEPA) prohibits anyone without a permit from taking bald or golden eagles, including their parts, nests, or eggs, and the Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, and transportation of migratory birds, their eggs, parts, and nests. The Vantage West Spur Lateral Pipeline route has potential habitat for bald eagles (*Haliaeetus leucocephalus*), golden eagles (*Aquila chrysaetos*), raptors, and migratory birds

B. METHODOLOGY

Three methods were used to assess wildlife and their habitat in the project vicinity were:

1. Field surveys for identifying wetlands, land use, and habitat or species of concern
2. Use of the Information, Planning, and Conservation (IPaC) decision support system
3. Assessment of land ownership / land use

Field surveys conducted during September and October 2014, and January, February, and March 2015 identified the wetlands, land uses, and species of concern along the proposed route. For wetlands and land use, a 500 foot corridor(s) was surveyed for the preferred and alternative routes (i.e. within 250 feet of both sides of the proposed route; Exhibit C). Data sheets and GPS units were used to collect information (Exhibit G.1). Surveys for active and inactive eagle and raptor nesting locations, migratory bird nesting concentrations, colonial waterbirds and shorebirds, and sharp-tailed grouse breeding areas (leks) occurred during the months of June-October, 2014. Raptors included eagles, hawks, falcons, and harriers. The sharp-tailed grouse is a species of conservation priority. A two mile wide study area centered along the proposed pipeline route was used to visually surveys for raptors and their nests.

The USFWS administers the Information, Planning, and Conservation (IPaC) decision support system. The USFWS suggested use of this conservation planning tool for the environmental review process and for siting a project in a manner that minimizes conflicts with natural resources. The IPaC website has interactive maps for download that summarize the distribution of important biological resources such as wetlands, refuges, and critical habitat. This system was used to determine whether any Threatened and Endangered species, designated critical habitat, or proposed critical habitat may be affected by the West Spur Lateral Pipeline Project. Data was downloaded from the IPaC website into GIS and was overlay with the pipeline route and field survey results for the habitat assessment.

Land ownership maps downloaded from IPaC and from public sources were used to identify the location of public and private lands. State and federal lands (e.g. refuges, wildlife management areas, etc.) were avoided during the pipeline routing. When practical, lands enrolled in the USFWS grassland or wetland

easement programs were avoided during the pipeline routing. Field surveys identified the land use as cropland, pasture, and native grasslands (Route Permit Section B.4). The crossing of native grasslands was avoided as much as possible to minimize potential impacts to wildlife and their habitat.

C. RESULTS

Threatened and Endangered Species

No migrating whooping cranes other federally listed species of birds or other fauna were observed in the study area during the baseline field surveys.

The Aransas-Wood Buffalo population (264 birds) of whooping cranes occurs in North Dakota during the spring and fall migration between the breeding and wintering areas. Figure 1 identifies a migration corridor in North Dakota where whooping cranes migrate annually in the spring and fall. Whooping cranes begin their fall migration from the Wood Buffalo Park of northeastern Alberta Canada nesting area in mid-September and migrate to the north-central Saskatchewan staging area (a traditional staging area), where they remain for two to four weeks before proceeding south to the Aransas National Wildlife Refuge wintering area near Corpus Christi, Texas. The fall movement between the Saskatchewan fall staging area and the wintering area generally takes less than two weeks with stops along the migration corridor in North Dakota for brief periods. The only major traditional spring staging area occurs in mid to late March along the Platte River near North Platte and Kearney, Nebraska. The spring migration movement to the north lasts longer than the fall migration, due to spring storms and variations in retreating snow and ice conditions.

During migration whooping cranes use shallow, open-water wetlands and water-covered river sandbars for roosting during the day and night (Figure 2). They feed on waste grain and barley in nearby agricultural croplands, as well as on frogs, crayfish, and plant tubers. Migration habitat characteristics include various sizes of wetlands in close proximity to areas producing grain. Although no traditional staging or use areas have been identified within close proximity to the West Spur Lateral Pipeline corridor, potential whooping crane habitat—wetlands in association with agricultural grain crops—is interspersed throughout the pipeline route. No traditional roosting sites for whooping cranes have been identified in North Dakota. The likelihood of seeing a migratory whooping crane along the pipeline route would be a rare occurrence.

The rufa red knot fly more than 9,300 miles for their spring and fall migration each spring and fall, making this species one of the longest-distance migrants of any animal. The rufa red knot winters in northern Brazil, the Caribbean, and along the U.S. gulf coasts. It migrates to its breeding grounds in the tundra of the central Canadian Arctic. It is listed as ‘known to or believed to occur’ in Divide and Williams Counties, North Dakota. It uses the Central Flyway on its migration and may stopover in North Dakota wetlands, which is its assumed habitat in this region although its use of habitat in North Dakota is not well documented. Rufa red knot IPaC occurrence or critical habitat data were not available. It is assumed that the rufa red knot would be a rare occurrence on the West Spur Lateral Pipeline route.

The piping plover nests on midstream sandbars of the Missouri and Yellowstone Rivers and along shores of saline wetlands. In North Dakota, piping plover begin arriving at their breeding grounds in early to

mid-April and typically depart by early September. IPaC data illustrated designated Critical Habitat for piping plovers located in Divide and Williams Counties (Figure 1). The proposed Vantage West Spur Lateral Pipeline route would be at least seven miles from the nearest known Critical Habitat area.

Furthermore, environmental baseline surveys did not identify potential piping plover habitat on the survey corridor. None of the wetlands mapped on the pipeline route or vicinity were saline wetlands. The wetlands lacked salt rings around wetland basin margins, halophytic wetland vegetation, and extensive gravel and sandy beaches and topographic formations on wetland basin margins. The West Spur Lateral Pipeline project does not have suitable habitat for the piping plover, and the likelihood of adversely affecting this species is low.

The northern long-eared bat summer habitat includes roosting underneath bark, in cavities, or in crevices of both live and dead trees. They use a variety of tree species and sizes. The northern long-eared bats may rarely use manmade structures such as barns and sheds. The species is non-migratory and hibernates in caves and mines during the winter. Route selection avoided treed areas as much as possible. Only three windbreaks will be crossed by the project (both routes) where trees will need to be removed to maintain a thirty foot permanent ROW (Figure 2). No winter habitat was identified on survey corridor. The potential impact on northern long-eared bats by the project will be minimal.

The Sprague's pipit habitat includes native short- and mixed-grassland habitats for wintering and large prairie areas for nesting, both of which are present in the Vantage West Spur Lateral Pipeline project area. The Sprague's pipit population decline has been linked to habitat conversion to seeded pasture, hayfields, and cropland. While the species habitat is possible in the study area, the quality and quantity of the habitat is low. The majority of the pipeline route is in cropland or pasture. Only 0.82 miles of native grassland are crossed by the project's preferred route, and 1.59 miles crossed by the alternative route (Figure 2). The potential impact on Sprague's pipit by the project will be low.

The Dakota skipper is a small butterfly that is a federally proposed species. It is not listed in Divide or Williams Counties of North Dakota. However, during phone conversations (Shelley, Personal Communications 02/09/15), the USFWS expressed concern about this species in the West Spur project area. A habitat assessment utilizing IPaC identified known critical habitat for the Dakota skipper approximately forty-five miles southeast of the pipeline route. Furthermore, high quality native prairie containing a high diversity of native wildflowers and grasses is limited along the route (Figure 2). This species is not likely to be impacted by the project.

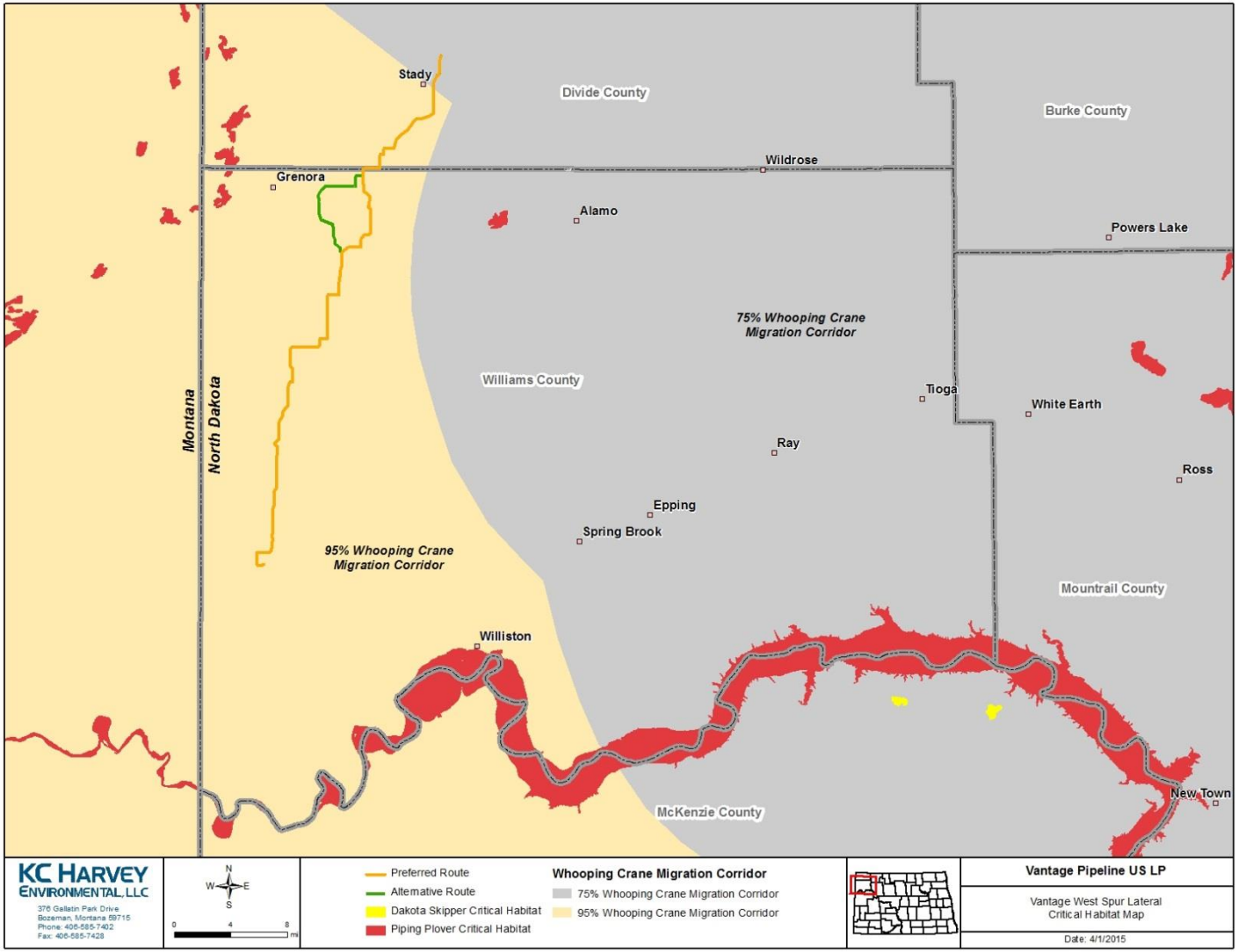

Figure 1: Location of Critical Habitat and Whooping Crane Migration Corridor in relation to the pipeline.

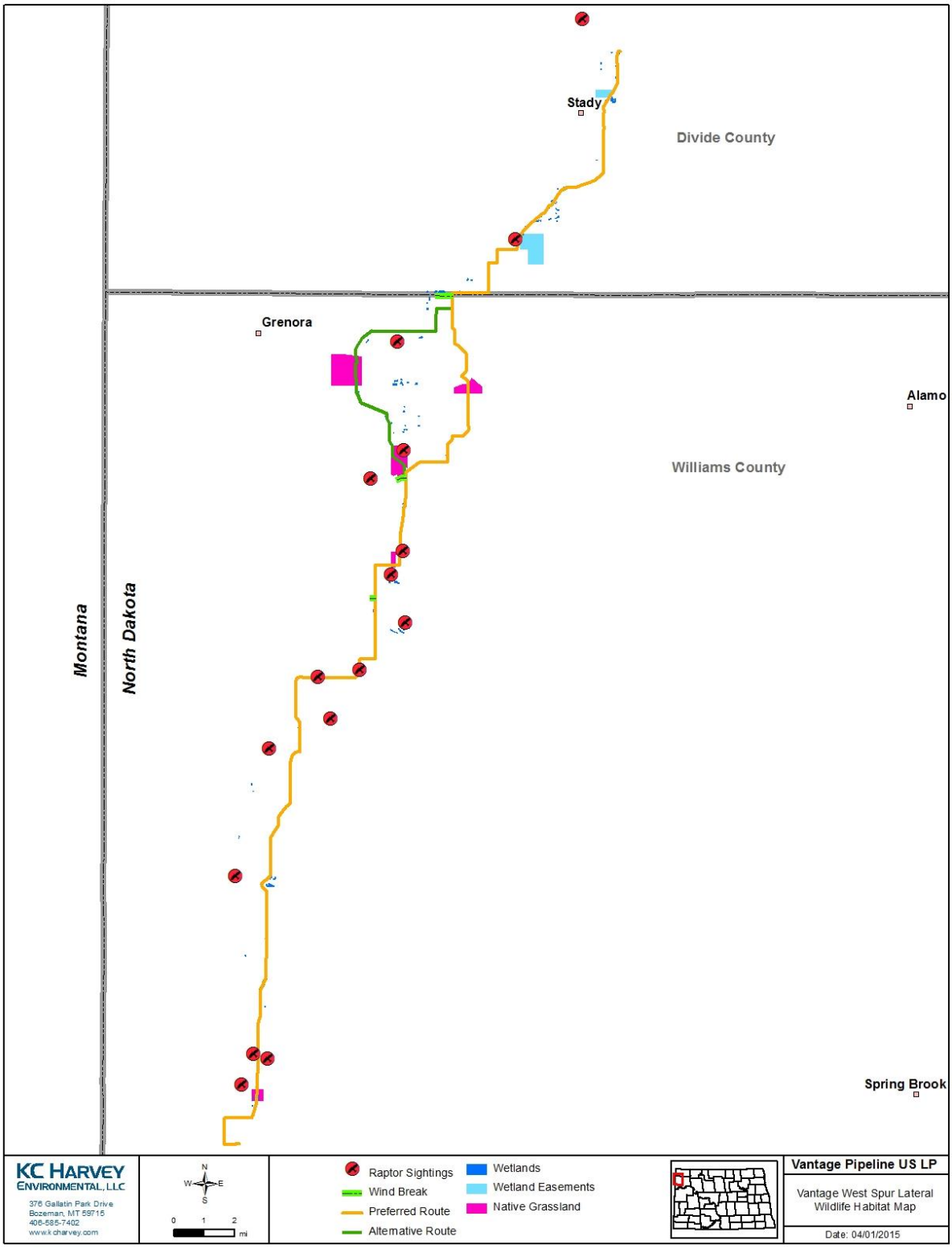

Figure 2: Wetlands, raptor siting, windbreak, USFWS easements, and native grasslands locations in relation to the pipeline.

Eagles and Raptors

No golden or bald eagle nests or birds were documented within the survey corridor. Bald eagle habitat includes bodies of water located in close proximity to groves of tall trees with potential nesting habitat. Wetland and aquatic habitats within one to two miles of mature tree stands (e.g., pines, spruce, firs, cottonwoods, and oak) provide foraging areas with fish, waterfowl, and shorebird food resources for adults and broods. Golden eagles are a common nesting species of the native prairie and agricultural cropland habitats. Field surveys did not identify any eagles or active or inactive eagle nests within a two mile study area of the pipeline route. Additional surveys will be conducted prior to construction. If an eagle or eagle nest is documented within the construction corridor or is within the minimum disturbance buffer for eagles, avoidance measures will be implemented until the nest has fledged.

During the field raptor surveys, six northern harriers and a Swainson's hawk were observed (Figure 2); however, no raptor nests were located along the pipeline corridor. Northern harrier typically nest on the ground and in wetland habitats. The presence of ground nesting bird species will be further evaluated during the pre-construction surveys. No cliff or bluff nest substrates were identified within the corridor, and tree nest substrates were limited to mostly shelter belts located in cultivated crop areas. The landscape was heavily fragmented with wheat stubble fields and summer fallowed dirt fields, leaving limited native pasture or grasslands for raptor foraging and prey production.

Migratory birds

Field surveys of the route identified potential habitat areas for migratory birds including wetlands areas, native and non-native grassland, and treed areas. Construction activities will cause a short term loss of habitat in some areas, but long term impacts are not expected.

No nesting concentrations of migratory birds or suitable substrates for nesting concentrations of migratory birds were observed in the survey including; colonial waterbirds, suitable shorebird substrates or nests concentrations, or substrates or nest concentrations for cliff dwelling swallow species. No bridges over water or human structure substrates for barn swallows are present within or in close proximity to the project. Grassland nesting passerine and other grassland or ground nesting migratory bird nests will be evaluated if construction is to occur in these suitable habitats during the nesting season prior to any disturbance.

The field surveys did not locate any sharp-tailed grouse or their leks along the survey corridor. The pipeline corridor is heavily fragmented with cropland and summer fallowed fields. Potential habitat for sharp-tailed grouse would include converted pasture grasslands or native rolling prairie where larger tracts of grassland/pasture habitat are intact. The presence of sharp-tailed grouse and their leks will be further evaluated during the pre-construction wildlife survey. Sharp-tailed groused leks identified within ¼ mile of the pipeline route would be avoided during the (nesting/breeding) season as per North Dakota Game and Fish stipulations.

Terrestrial and Aquatic Wildlife

Wildlife Resources in Williams and Divide Counties in North Dakota occur within areas generally

characterized as upland grasslands, croplands, and prairie pothole wetlands. Wildlife habitats along the Vantage West Spur Lateral Pipeline include herbaceous upland natural/semi-natural vegetation, herbaceous planted/cultivated, and wetlands. The upland areas include areas used for agricultural production, fallow fields, and grassland. Descriptions of vegetative communities along the Vantage Pipeline route are presented in the Route Permit Section B.4. Efforts were made in routing the pipeline to minimize impacts on and crossings of native grassland and wetland habitats, by ensuring that the pipeline right-of-way would predominantly cross cultivated agricultural lands.

Approximately 85 percent of the total length of the preferred pipeline route (40.21 miles) crosses upland areas classified as agricultural and haylands. Similarly, 84 percent of the alternative pipeline route (41.1 miles) are agricultural and haylands. Agricultural croplands generally consist of row crops and small grains. Croplands provide a seasonal food source for mammals, upland birds, and waterfowl. Common wildlife species that utilize the agricultural areas for feeding and occasional cover include white-tailed deer, ring-necked pheasant, sharp-tailed grouse, and raccoon. Local and migrating populations of ducks, geese, and sandhill cranes frequent the agricultural fields for feeding on crop aftermath in the spring and fall. A few bird species such as starlings, crows, mourning doves, eastern meadowlark, and sparrows may also be found in the agricultural fields. Hunting for ducks, geese, ring-necked pheasant, sharp-tailed grouse, and white-tailed deer occurs each fall on many of the agricultural croplands and associated wetlands and shelterbelts in the region. Because habitat in these areas is only seasonally available due to hunting, farming, and other agricultural activities, wildlife are not expected to be present throughout the year. Upland game birds and several species of passerine birds are expected to be more prevalent due to nesting and winter cover that exists along road right-of-ways, shelterbelts, and fence lines of agricultural and grassland areas that are not annually farmed.

Fourteen percent of the total preferred route (15% alternative route), or approximately 6.51 miles (7.32 miles alternative route) are classified as pastures/rangeland and native grassland. Livestock grazing may occurs on these lands in spring through fall. These grass areas have occasional woody shrubs and support wildlife species that often use the open areas and nearby agricultural areas. These species include white-tailed deer, raccoon, squirrel, striped skunk, eastern cottontail rabbit, white-tailed jackrabbit, and sharp-tailed grouse. Predatory species such as coyote, fox, and hawks hunt the grasslands for the abundant small rodents, birds, and reptiles.

The submerged and emergent vegetation associated with seasonally flooded and permanently flooded wetland soils provide habitat for a variety of semi-aquatic wildlife including muskrat, mink, waterfowl, wading birds, reptiles and amphibians.

The West Spur Lateral Pipeline route will have temporary unavoidable impacts to terrestrial and aquatic wildlife. Short-term impacts to wildlife within the habitat and adjacent to the Vantage West Spur Lateral Pipeline alignment would consist of loss of habitat during construction of the pipeline until the restored area could support vegetation sufficient to replace habitat impacted by construction.

USFWS Lands and Easements

There are no USFWS Wildlife Refuges or management areas crossed by the West Spur pipeline route.

The closest USFWS Wildlife Management Area is one mile east of the pipeline centerline.

The Grassland Easement program is an agreement between the USFWS and landowners not to cultivate their land in order to preserve grassland and to allow grassland nesting species an undisturbed nesting season. There are no USFWS Grassland Easements crossed by the West Spur Lateral Pipeline.

Wetlands protected under a wetland easement are regulated by the USFWS and cannot be drained, filled, graded, or burned. The crossing of 0.41 miles of USFWS Wetland Easements could not be avoided during pipeline routing (Figure 2). The USFWS Crosby Wetland Management District determined that the pipeline is near wetlands on only one of these easement parcels. Further, USFWS stated that by avoiding impacts to these wetlands within the 100 foot right-of-way would satisfy USFWS's land interest (Exhibit H.3). In areas where wetland easements have been identified, the temporary construction right-of-way will be narrowed to avoid impact to any wetlands protected by a wetland easement.

D. MITIGATION

Information presented in this section reflects information received through informal discussion with the USFWS, the North Dakota Game and Fish Department (NDGF), and other data sources available at the time this document was prepared. This information is intended to be updated throughout the pre-construction process based upon ongoing surveys and continued consultation with state and federal agencies. For additional wildlife and habitat mitigation measure, see the Environmental Protection Plan (Exhibit J).

A wildlife monitor will be employed during the pipeline construction to identify any potential wildlife or habitat impacts and mitigation. Pre- and post-construction surveys and monitoring would also be completed. The results of the surveys would be used to develop mitigation plans to avoid and minimize impacts on the potentially affected species and their habitat. To prevent long-term loss of disturbed habitat form and function, wildlife habitat would be incorporated in reclamation and habitat restoration planning.

The wildlife monitor would be employed to detect any wildlife species within the pipeline 500 ft corridor. All monitoring will be conducted from the active work areas to detect the presence of species of concern within one mile of the work area. If migrating whooping cranes are observed by the project's environmental monitors or USFWS to be resting/foraging on the ground within a one mile radius of any active construction of the project, all construction activities will cease within that radius until the birds have left the area. Any sightings of whooping cranes within the construction corridor will be immediately reported to USFWS and NDGF. Construction activities may cause migratory whooping cranes to avoid the area.

Similarly, if piping plovers or their nesting areas are present within a 0.5-mile radius of the proposed project, all construction activities will cease or not be implemented within that radius until the birds are done utilizing those breeding habitats. Short-term impact and risk to the Sprague's pipit could be minimized through: 1) construction scheduling to avoid potential nesting areas in the nesting period; 2) pre-construction measures (employed in the fall, prior to subsequent spring nesting) to remove grass cover through mowing and disking of the 100-foot-wide pipeline right-of-way; and 3) reclamation

plantings (seed mix and planting prescription) to restore pre-construction grassland cover immediately following construction.

A pre-construction survey will be conducted to identify any new eagle or raptor nests and sharp-tailed grouse leks that may have been established since the baseline environmental field surveys. Environmental monitors will be present during construction to inspect areas prior to and during construction for nesting raptors and eagles and migratory bird nests if construction occurs during the breeding season. The primary objective is to schedule construction during the fall and winter months to the greatest extent practicable to avoid conflicts with raptor and migratory bird breeding. Construction will also be delayed until after the breeding season where the project is within 0.5 miles of active sharp-tailed grouse leks.

Implementation of approved reclamation and habitat restoration prescriptions following construction would result only in temporary loss of native and agricultural habitats form and function, between the time of pipeline construction and successful habitat reclamation.

Exhibit G.1

Field Survey Data Forms for Wetland and Waterbodies Delineations, Land Use, and Sensitive Resources

KC HARVEY ENVIRONMENTAL, LLC

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: _____ City/County: _____ Sampling Date: _____

Applicant/Owner: _____ State: _____ Sampling Point: _____

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species	x 2 =	
FAC species	x 3 =	
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: (A)		(B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? **Yes** _____ **No** _____

Remarks:

SOIL

Sampling Point: _____

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]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 Mucky 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 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

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

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ 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, monitoring well, aerial photos, previous inspections), if available:

Remarks:

KC HARVEY ENVIRONMENTAL, LLC

Sample Point:_____

ND-Vantage West Spur
Wetland Determination Supplement

Cowardin Classification:_____ Waterway Name (If Named):_____

Wetland Type:

	1	Seasonally flooded basins or floodplains (PEMA). Seasonally flooded basins are shallow depressions that may have standing water for a small portion of the growing season, but are usually dry for a portion to a majority of the growing season.
	2	Wet meadows. The soil is without standing water during most of the growing season, but is saturated below the surface. (PEMB)
	3	Shallow marshes have soils that are saturated and are usually inundated with up to six inches of standing water throughout the growing season. (PEMC)
	4	Deep marshes are typically inundated with between six inches and three or more feet of standing water throughout the growing season. (PEMF)
	5	Open water wetlands including shallow ponds and reservoirs. The water is less than six feet deep and fringed by a border of emergent vegetation.
	6	Shrub swamps. Soil is usually waterlogged during much of the growing season, and is often covered with as much as six inches of water.

Water Type:

	DELINEATE	Delineation only
	TNW	TNWs, including territorial seas (Rivers, Lakes with Public Boat Ramp)
	TNWW	Wetlands adjacent to TNWs
	RPW	Relatively Permanent Waters (RPWs) that flow directly or indirectly into TNWs (RPWs are perennial (continuous flow) and intermittent streams that flow at least seasonally typically 3 months a year)
	RPWWD	Wetlands directly abutting RPWs that flow directly or indirectly into TNWs
	RPWWN	Wetlands adjacent to but not directly abutting RPWs that flow directly or indirectly into TNWs
	NRPW	Non-RPWs that flow directly or indirectly into TNWs (Non-RPWs are generally Ephemeral Streams)(Continuous bed & bank and/or continuous wetland)
	NRPWW	Wetlands adjacent to non-RPWs that flow directly or indirectly into TNWs
	ISOLATE	Isolated (interstate or intrastate) waters, including isolated wetlands
	UPLAND	Uplands
	TNWRPW	Tributary consisting of both RPWs and non-RPWs

Associated Wetland IDs:

1	4	7
2	5	8
3	6	9

KC HARVEY ENVIRONMENTAL, LLC

Feature_ID:_____

ND-Vantage West Spur
Watercourse Survey Form

Feature Type:_____ Crew ID:_____ County:_____ Unique ID:_____ Date:_____

Watercourse Characteristics			
Watercourse Name (if known):		Classification Code (see below):	
Average water depth (ft):		Top of bank to top of bank width(ft) at centerline:	
OHWM width(ft) at centerline:		Water edge to water edge width(ft) at centerline:	
Bank Height (ft)		Bank Slope (%)	
Left descending:	Right descending:	Left descending:	Right descending:

Dominant Vegetation
Left descending:
Right descending:

Stream Bottom Composition

☐ Silt ☐ Clay ☐ Sand ☐ Gravel
☐ Cobble ☐ Boulders ☐ Bedrock

Unique Features:

☐ Unstable banks ☐ Headcutting ☐ Erosion ☐ Steep side slopes
☐ Rock outcrop ☐ Gravel bars/Islands ☐ Cutoff channels ☐ Pool
☐ Riffles/Runs ☐ Riprap ☐ Buildings ☐ Dam
☐ Bridge ☐ Diversion/Intake ☐ Adjacent wetlands ☐ Seeps
☐ Riparian forest ☐ Riparian shrub ☐ Other *(explain)*

Potential Jurisdictional Assessment

Is this watercourse a potentially jurisdictional WUS? ☐ Yes ☐ No

Rational: ☐ TNW ☐ RPW ☐ Defined Bed/Bank ☐ Other

Notes:

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ND-Vantage West Spur
Land Use and Habitat Survey Form

Crew ID:_____ Unique ID:_____ Land_Hab ID:_____ Date:_____

Land Use Category

- ☐ Row and non-row crops in rotation
- ☐ Irrigated lands
- ☐ Pasturelands and rangelands
- ☐ Haylands
- ☐ Undisturbed native grasslands
- ☐ Existing and potential extractive nonrenewable resources
- ☐ Other major industries
- ☐ Rural residences and farmsteads
- ☐ Residential
- ☐ Public, commercial, and institutional use/ ROW
- ☐ Municipal/rural water supply/sources
- ☐ Noise sensitive land uses

Dominant Species (in order of abundance)

Species	% Cover	Species	% Cover	Species	% Cover
1		6		11	
2		7		12	
3		8		13	
4		9		14	
5		10		15	

Morphological Class

Grasses	% Cover
Native Perennial	
Introduced Perennial	
Introduced Annual	
Forbs	**% Cover**
Native Perennial	
Introduced Perennial	
Introduced Annual	

Forested Area Supplement

Forest Type:

- ☐ Upland forest
- ☐ Volunteer tree row
- ☐ Riparian forest
- ☐ Woodlot
- ☐ Planted shelterbelt

Approx. tree canopy cover:_____

	Yes	No
Loose bark?	☐	☐
Deep furrows?	☐	☐
Cavities?	☐	☐
Snags?	☐	☐

Water within ½ mi?_____

Type of water within 1/2 mi:

- ☐ Creek
- ☐ Lake
- ☐ River
- ☐ Tank
- ☐ Pond
- ☐ Other

Tree Species # by DBH Class

Tree Species	<1"	1-3"	3-6"	6-12"	12-20"	>20"
1						
2						
3						
4						
5						

KC HARVEY ENVIRONMENTAL, LLC

ND-Vantage West Spur
Land Use and Habitat Survey Form

Additional Notes

KC Harvey Environmental, LLC
376 Gallatin Park Drive
Bozeman, MT 59715

www.kcharvey.com
(406) 585-7402

KC HARVEY ENVIRONMENTAL, LLC

ND-Vantage West Spur
Special Status Species and Habitat Survey

Crew ID:_____ County:_____ Date:_____

Feature ID:	**Tract # & MP:**

Sensitive Species or Sign Observed:

Evidence: ☐ Individuals ☐ Scat ☐ Tracks ☐ Den/Burrow ☐ Roost/Nest ☐ Audible

Description of Sighting or Evidence:

Sensitive Species Habitat: ☐ Species Sighting/Sign Observed ☐ Potential Species Habitat

Topography: ☐ Relatively flat ☐ Rolling hills ☐ Depression ☐ Cliffs ☐ Riverine ☐ Other

Human Disturbance in Area: ☐ Farming ☐ Residential ☐ Roads ☐ Railroad ☐ Other

Water Present: ☐ Yes ☐ No

Live Trees Present: ☐ Yes ☐ No **Tree Snags Present:** ☐ Yes ☐ No

Habitat Notes:

General Comments: