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Addendum to the Natural Resources and Wetland Determination Report for the NST Express Pipeline System, McKenzie County, North Dakota

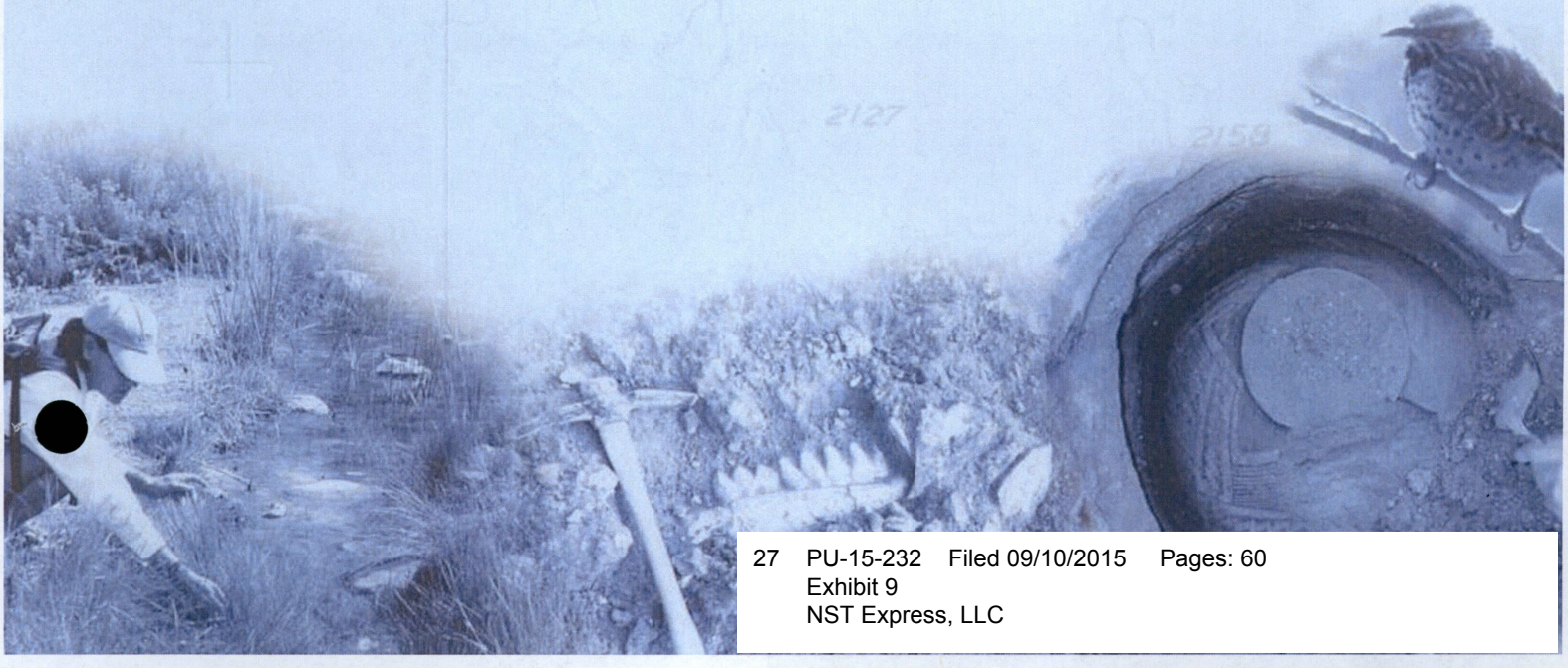
Prepared for

NST Express, LLC

Prepared by

SWCA Environmental Consultants

September 2015



Addendum to the Natural Resources and Wetland Determination Report for the NST Express Pipeline System, McKenzie County, North Dakota

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1.0 INTRODUCTION

1.1 BACKGROUND

NST Express, LLC (NST Express) is proposing to construct and operate the proposed NST Express oil pipeline system in McKenzie County, North Dakota. SWCA Environmental Consultants (SWCA) conducted natural resources field surveys to identify exclusion and avoidance areas as specified in North Dakota Administrative Code 69-06-08-02 for the proposed NST Express pipeline project.

As proposed, the NST Express pipeline is approximately 23.5 miles long, spanning privately owned lands, in North Dakota (Appendix A). NST Express proposes to bore the Yellowstone River, which is classified as a jurisdictional waterway under Section 10 of the Rivers and Harbors Act (33 United States Code [USC] 403).

SWCA conducted initial surveys of a 200-foot-wide corridor, the NST Transload East Fairview Facility and the NST Express Alexander Facility on January 30; March 15, 17, and 20; and May 1, 2015. Results of the survey were included in the *Natural Resources and Wetland Delineation Report for the NST Express Pipeline System, McKenzie County, North Dakota*, prepared by SWCA for NST Express in May 2015. SWCA conducted reroute field surveys and the inventory of temporary workspaces on June 9, July 22; September 5 and 7, 2015 to determine the potential presence and extent of wetlands and waterbodies, including jurisdictional waters of the U.S., within the proposed survey area. Concurrently with the wetland determinations, SWCA conducted a cursory threatened and endangered species survey and habitat assessment; a tree, sapling, and shrub enumeration survey; and a noxious weed survey. Site layout maps of the survey area and natural resource features identified during the field surveys are provided in Appendix A.

This report outlines the methodology used by SWCA's biologists to complete each of the aforementioned surveys. Additionally, this report presents the results of the completed field surveys and regulatory recommendations to ensure compliance with the North Dakota Public Service Commission and the U.S. Army Corps of Engineers (USACE) Nationwide Permit 12.

1.2 REGULATORY BACKGROUND

1.2.1 Clean Water Act, Section 404

Section 404 of the Clean Water Act prohibits the discharge of dredged or fill material into waters of the U.S., also known as jurisdictional waters, without a permit from the USACE.

1.2.2 USACE Nationwide Permit 12

The USACE Nationwide Permit 12 authorizes the construction of utility lines and associated facilities in waters of the U.S., provided the activity does not result in the permanent loss of greater than 0.5 acre of waters of the U.S., including wetlands.

Nationwide Permit 12 requires that the permittee submit a pre-construction notification prior to commencing construction if any of the following criteria are met.

- The activity involves mechanized land clearing in a forested wetland.
- A Section 10 permit is required to cross a navigable waterbody (Rivers and Harbors Act). Compliance with Section 10 of the Rivers and Harbors Act (33 USC 403) is required for the passage under the Yellowstone River.
- The utility line exceeds 500 feet in length through any single crossing of a water of the U.S.
- The utility line is placed within a jurisdictional area (i.e., water of the U.S.) and it runs parallel to a stream bed that is within that jurisdictional area.
- Discharges result in the permanent loss of greater than 0.1 acre of waters of the U.S.
- Permanent access roads are constructed above grade in waters of the U.S. for a distance of more than 500 feet.
- Permanent access roads are constructed in waters of the U.S. with impervious materials.

1.2.3 USACE Regional Conditions

The USACE has published several regional conditions for projects operating under Nationwide Permits in North Dakota. The regional conditions apply to wetlands classified as "fens," waters adjacent to natural springs, the Missouri River, historic properties, and fish spawning areas.

2.0 METHODS

2.1 SURVEY AREA

Overall, northwest North Dakota is characterized by a moderate to cool climate, with cold, dry winters and mild to warm summers. Mean annual precipitation for the area is 14 to 16 inches (Bryce et al. 1998).

The proposed project is located in the Great Plains (level I ecoregion), the West-Central Semi-Arid Prairies (level II ecoregion), and the Northwestern Great Plains (level III ecoregion). Further, the western extent of the alignment is located in the River Breaks (level IV ecoregion) and the eastern extent of the alignment is located in the Missouri Plateau (level IV ecoregion).

The Northwestern Great Plains encompasses the Missouri Plateau section of the Great Plains and consists of semiarid rolling plains of shale, siltstone, and sandstone punctuated by buttes and badlands (Bryce et al. 1998) (Figures 1 and 2). The River Breaks ecoregion forms broken terraces and uplands that descend to the Missouri River and its major tributaries (Bryce et al. 1998). The Missouri Plateau ecoregion was largely unaffected by glaciation and retains its original soils and complex stream drainage pattern (Bryce et al. 1998).

Figure 1. Overview of the general topography towards the eastern portion of the pipeline corridor, facing west (photo taken July 22, 2015).

Figure 2. Overview of the general topography towards the western portion of the pipeline corridor, facing east (photo taken June 9, 2015).

The inventoried area for the project area discussed herein is situated on the U.S. Geological Survey Fairview (1995), Dore (1991), Buford (1976), Cartwright NE (1991), and Camp Creek West (1978), North Dakota, quadrangles. The proposed NST Express project corridor that was surveyed in 2015 encompasses portions of 25 sections within four townships and ranges.

- Section 6, Township (T) 151 North (N), Range (R) 102 West (W)
- Sections 1, 2, 9, 10, 11, 16, 17, 18, and 19, T151N, R103W
- Sections 20, 21, 22, 23, 24, 29, and 30, T151N, R104W
- Sections 23, 24, 26, 31, 32, 33, 34, and 35, T152N, R102W

2.2 WETLANDS

National Wetlands Inventory mapping for the region indicates the presence of wetlands (U.S. Fish and Wildlife Service [USFWS] 2012a). SWCA biologists conducted wetland determinations within the survey area based on the principles and guidelines provided in the 1987 *Corps of Engineers Wetlands Delineation Manual* (Manual) (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetlands Determination Manual: Great Plains Region Version 2.0* (Supplement) (USACE 2010). According to the Manual, an area is a wetland if three mandatory wetland indicators are present in a given area, with special exceptions. These indicators include the presence of hydrophytic vegetation, wetland hydrology, and hydric soils. All wetlands and waterbodies geographically referenced within the survey area during field survey are depicted on the site layout maps in Appendix A.

2.2.1 Hydrophytic Vegetation

Biologists recorded all plants within the vegetative community based on the respective stratum each species occupied. A tree is defined by the Supplement to be a woody-stemmed plant with a trunk diameter at breast height (DBH) of equal to or greater than 3 inches, regardless of height. The sapling and shrub stratum is defined by the Supplement to be composed of woody-stemmed plants with a trunk DBH of less than 3 inches, regardless of height. The herbaceous stratum includes all non-woody-stemmed plants regardless of height. Finally, the woody vine stratum includes all woody-stemmed vines, regardless of diameter.

SWCA recorded the binomial scientific name and percent cover of all plants within a 30-foot radius for the tree stratum, a 15-foot radius for the sapling/shrub stratum, a 5-foot radius for the herbaceous stratum, and a 30-foot radius for the woody vine stratum. SWCA biologists noted each plant species' respective USFWS indicator status (i.e., upland [UPL], facultative upland [FACU], facultative [FAC], facultative wetland [FACW], and obligate [OBL]). Vegetation communities met the hydrophytic vegetation criterion for wetlands if greater than 50% of dominant species had an indicator status of FAC, FACW, and OBL.

2.2.2 Wetland Hydrology

A wetland was determined to contain wetland hydrology if at least one primary indicator or at least two secondary indicators of wetland hydrology were present, as defined by the Manual and Supplement. Common hydrologic indicators include the presence of surface water, high

water table, soil saturation, water marks on trees or other objects, sediment deposits, water-stained leaves, and oxidized rhizospheres on living roots.

2.3 WATERBODIES

Waterbodies (i.e., ponds, creeks, streams, lakes) were identified by the presence of an ordinary high water mark (OHWM). Common identifiable indicators of an OHWM include open water or evidence of a clear, natural line visible on the bank; shelving; changes in soil characteristics; the destruction of terrestrial vegetation; the presence of litter and debris; and watermarks on structures that are inundated during normal high water conditions. The OHWM typically represents the potential limits of the USACE jurisdiction. Please note that the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies.

SWCA classified streams as perennial, intermittent, or ephemeral based on field observations. During a typical year, a perennial stream contains flowing water year-round and the water table is located above the stream bed. Groundwater is the primary water source for stream flow while precipitation runoff is supplemental. Biologists classified streams that showed significant flow during the field survey as perennial. Additionally, the U.S. Geological Survey topographic maps were used as reference.

An intermittent stream has flowing water for only portions of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

2.4 TREE, SAPLING, AND SHRUB COUNT

SWCA biologists determined the total number of trees, saplings, and shrubs present within the survey area using several different techniques depending on the type of woody vegetation habitat (i.e., forested upland, shrubland, or shelterbelt) encountered and the overall extent of each habitat within the right-of-way (ROW). The boundary of all forested upland, shrubland, and shelterbelt habitat was geographically referenced using a Trimble GeoXT series handheld global positioning system (GPS) unit. In forested upland and shrubland habitat, SWCA counted the number of all woody-stemmed vegetation with a DBH of one-inch or greater in diameter. In shelterbelt areas, all woody-stemmed vegetation, regardless of DBH, was inventoried via direct count. Biologists taxonomically identified all recorded individuals to the species level within each habitat type.

2.5 NOXIOUS WEED SURVEYS

SWCA conducted a noxious weed survey of all populations of North Dakota state- or county-listed noxious weeds within the project area. NST Express will monitor and control noxious weeds within their ROW prior to and subsequent to construction.

2.6 WILDLIFE INCLUDING THREATENED AND ENDANGERED SPECIES

Prior to conducting field surveys, SWCA reviewed information obtained from the USFWS list of threatened and endangered species by North Dakota county (USFWS 2015a) regarding the presence of threatened or endangered species that may occur within the survey area. This document does not represent a comprehensive survey, but rather acknowledges the past and/or current presence of listed species. The lack of discovery of threatened or endangered species does not signify their non-existence within the area, but only that no primary or secondary indications of these species were recorded. SWCA completed a random survey for all listed species and suitable habitat.

A line-of-sight binocular survey for raptor species was also conducted for a distance of approximately 0.5 mile. SWCA biologists noted all wildlife observed during the field survey. Wildlife sightings can involve primary observations (i.e., actual sighting of an animal) or secondary observations (i.e., observation of scat, tracks, or fur deposits).

2.7 MAPPING

The boundaries of each wetland, waterbody, woody vegetation habitat, and noxious weed assemblage were geographically recorded using a Trimble GeoXT GPS unit. The aforementioned GPS unit is capable of recording geographic data with sub-meter accuracy. SWCA used Universal Transverse Mercator Zone 13 North as the projected coordinate system and North American Datum 1983 as the datum. ArcGIS v10.0 (ESRI Redlands, California) was used to analyze recorded features, calculate areas, and generate the maps provided in Appendix A and B. Please note that all data collected using the GPS unit, and displayed on the attached maps, are for review purposes only and do not represent a professional civil survey.

3.0 RESULTS

3.1 VEGETATION

During the field survey, SWCA biologists identified four general types of vegetative communities within the survey area. These vegetative communities were classified as herbaceous upland, shrubland and upland woody vegetation, cropland, and palustrine emergent (PEM) wetland. PEM wetlands are characterized by the presence of herbaceous hydrophytic or submergent aquatic macrophytes. Photographs of the survey area are provided in Appendix C.

Vegetation communities met the hydrophytic vegetation criterion for wetlands if greater than 50% of dominant species had an indicator status of FAC, FACW, or OBL. The upland communities failed to meet at least one of the three assessed wetland criteria.

3.1.1 Herbaceous Upland

The herbaceous upland community consists of areas dominated by non-woody vegetation such as grasses and forbs. Two types of herbaceous upland communities were observed during the survey. The dominant herbaceous community within the proposed pipeline survey area includes non-native grasses and forbs including smooth brome (*Bromus inermis*), crested wheatgrass (*Agropyron cristatum*), Kentucky bluegrass (*Poa pratensis*), and white sweet clover (*Melilotus*

alba). The remaining herbaceous upland consisted of mixed-grass prairie comprised of western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassello viridula*), western snowberry (*Symphoricarpos occidentalis*), scarlet globemallow (*Sphaeralcea coccinea*), purple locoweed (*Oxytropis lambertii*), purple coneflower (*Echinacea angustifolia*), and common yarrow (*Achillea millefolium*).

3.1.2 Shrubland and Woody Vegetation

Two additional woody vegetation areas were identified within the survey of the reroutes and temporary workspaces.

The identified forested upland vegetation areas consisted of a planted tree row of common juniper (*Juniperus communis*), and a naturally occurring stand of cottonwood (*Populous deltoids*).

3.1.3 Cropland

Cropland was confirmed in the survey area and classified as wheat (*Triticum aestivum*) and sugar beets (*Beta vulgaris*).

3.1.4 Hydrophytic Vegetation

The hydrophytic wetland community identified consists of prairie cordgrass (*Spartina pectinata*) and common cattail (*Typha latifolia*).

3.2 HYDROLOGY

Wetland communities observed during the determination effort displayed at least one primary or two secondary indicators of wetland hydrology, as defined by the Manual and Supplement. Upland communities either failed to display hydrologic indicators or failed to meet the hydrophytic vegetation and hydric soils criteria, as defined by the Manual and Supplement. In some instances, the presence of above average precipitation obscured the wetland/waterbody boundary and OHWM usually present during normal hydrologic conditions. Common indicators of wetland hydrology observed during field surveys include Surface Water (A1), Inundation Visible on Aerial Imagery (B7), Drainage Patterns (B10), Saturation Visible on Aerial Imagery (C9), and Geomorphic Position (D2)

According to National Weather Service preliminary climatological data for Williston, North Dakota, 4.58 inches of precipitation were recorded from January 1 through July 22, 2015 (Table 1). This amount is 2.71 inches below normal for this time period. Williston is approximately 12 miles north of the project area.

Table 1. Monthly Recorded Rainfall at National Weather Service Station in Williston, North Dakota

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
January 2015	0.48	0.59	-0.11
February 2015	0.46	0.39	0.07

Month	Recorded Precipitation (inches)	Normal Precipitation (inches)	Difference (inches)
March 2015	0.47	0.71	-0.24
April 2015	0.27	1.00	-0.73
May 2015	0.00	0.10	-0.10
June 2015	1.90	2.52	-0.62
July 22, 2015	1.00	1.98	-0.98
Total	**4.58**	**7.29**	**-2.71**

Source: National Oceanic and Atmospheric Administration 2014.

Although precipitation data are not available for the exact project area, it is likely analogous to the precipitation data for Williston for that same timeframe.

3.3 WETLANDS

SWCA identified one wetland during the field survey of the reroutes (Table 2). WET1 is a manmade irrigation ditch filled dominated by hydrophytic vegetation. WET1 totals 0.21 acres within the survey area. This feature is located outside of the 100-foot construction corridor and will not be impacted.

Table 2. Wetlands Recorded within the Survey Area

Feature ID	Description	USACE Juridisction*	Total Area (acres)	100-foot-wide ROW Temporary Impact (acres)	Length of Required Crossing (feet)
WET1	Irrigation Canal	Likely Jurisdictional	0.21	0	0
Total			**0.21**	**0**	**0**

* The USACE has the final authority on the jurisdictional status of a waterbody.
ROW = right-of-way
USACE = U.S. Army Corps of Engineers

3.4 WATERBODIES

SWCA identified four waterbodies, classified as irrigation canals, during the field survey of reroutes (Table 3). The recorded waterbodies are potentially jurisdictional; however, the USACE has the final authority to determine jurisdictional status. STR1, STR2, STR3 and STR4 are associated with the Yellowstone Irrigation Canal System, and NST Express proposes to bore these streams.

Table 3. Waterbodies Recorded within the Survey Area

Feature ID	Description	USACE Juridisction*	Total Area (acres)	100-foot-wide ROW Temporary Impact (acres)	Length of Required Crossing (feet)
STR1	Irrigation Canal	Likely Jurisdictional	0.03	0	0
STR2	Irrigation Canal	Likely Jurisdictional	0.13	0	0
STR3	Irrigation Canal	Likely Jurisdictional	0.04	0	0
STR4	Irrigation Canal	Likely Jurisdictional	0.35	0	0
Total			**0.55**	**0**	**0**

* The USACE has the final authority on the jurisdictional status of a waterbody.
ROW = right-of-way
USACE = U.S. Army Corps of Engineers

Upland data points were recorded at potential high risk run-off areas which did not show an OHWM and predominantly contained upland vegetation (Appendix A). However, these areas should be considered when developing a stormwater pollution prevention plan.

NST Express proposes to bore the pipeline beneath the Yellowstone River, which is classified as a jurisdictional waterway under Section 10 of the Rivers and Harbors Act. Nationwide Permit 12 requires that the permittee submit a pre-construction notification prior to commencing construction for passage under a Section 10 waterway.

3.5 SOILS

Based on Natural Resources Conservation Service (NRCS) mapping (NRCS 2014), 19 soil types are present in the project construction corridor and proposed facilities. The project area analyzed for soils covers the 100-foot-wide construction corridor, NST Express Transload East Fairview Facility and the NST Express Alexander Facility. Table 4 lists all soil units within the surveyed reroutes. The following soil component descriptions represent the most prevalent soil series found within the reroute survey areas (NRCS 2014).

Table 4. NRCS Derived Soil Series Present within the Survey Area

MUSYM	Soil Type	Slope %	Total Area (acres)	% of Total Area (acres)
E4132A	Havrelon silty clay, slightly wet, occasionally flooded	0 to 2	7.50	24
E3541B	Williams-Zahl loams	3 to 6	6.51	21
E4121A	Havrelon loam, occasionally flooded	0 to 2	2.41	8
E3609F	Zahl-Cabba-Maschetah complex	6 to 70	2.22	7
E4106A	Lohler silty clay, slightly wet, occasionally flooded	0 to 2	1.85	6
E4122A	Havrelon loam, slightly wet, occasionally flooded	0 to 2	1.70	6
E3635C	Zahl-Tally-Williams complex	6 to 9	1.60	5
E3541C	Williams-Zahl loams	6 to 9	1.46	5
E3763B	Temvik-Wilton-Williams silt loams	3 to 6	1.41	5

MUSYM	Soil Type	Slope %	Total Area (acres)	% of Total Area (acres)
E3761A	Temvik-Williams silt loams	0 to 3	1.01	3
E3637D	Zahl-Beisigl-Tally complex	9 to 15	1.00	3
E3769B	Temvik-Zahl complex	3 to 6	0.59	2
E2120B	Farnuf loam	2 to 6	0.58	2
E2107A	Arnegard loam	0 to 2	0.56	2
E3555D	Zahl-Williams loams	9 to 15	0.18	1
E4153A	Ridgelawn silt loam, occasionally flooded	0 to 2	0.15	0.50
E3755A	Temvik-Wilton silt loams	0 to 3	0.11	0.34
E3527A	Williams-Bowbells loams	0 to 3	0.01	0.02
E3527B	Williams-Bowbells loams	3 to 6	0.004	0.01
Total			**30.85**	**100.00**

Source: Natural Resources Conservation Service 2014.

3.5.1 Williams

The Williams series consists of very deep, slowly permeable, well-drained soils found on glacial till plains and moraines with slopes at approximately 0% to 35%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 42 degrees Fahrenheit (°F). This soil type is largely used for cultivation. Native vegetation species common to this soil type include western wheatgrass, needle and thread (*Hesperostipa comata*), blue grama (*Bouteloua gracilis*), and green needlegrass (NRCS 2014).

3.5.2 Zahl

The Zahl series consists of very deep, slowly permeable, well-drained soils found on glacial till plains, moraines, and valley side slopes at approximately 1% to 60%. The mean annual precipitation found throughout the spatial extent of this soil type is approximately 14 inches and mean annual air temperature is approximately 40°F. This soil type is largely used for rangeland foraging. Native vegetation species common to this soil type include western wheatgrass, little bluestem (*Schizachyrium scoparium*), and needle and thread (NRCS 2014).

3.5.3 Temvik

The Temvik series consists of very deep, moderately permeable, well-drained soils that formed in a silty loess mantle overlying glacial till. These soils are on upland plains with slopes that range from 0% to 15%. The mean annual precipitation found throughout the spatial extent of this soil type is 16 inches and mean annual air temperature is 42°F. Soils are commonly cropped to flax (*Linum usitatissimum*), small grains, and corn (*Zea mays*); some areas are used for hay and pasture. Native vegetation is green needlegrass, needle and thread, western wheatgrass, blue grama, upland sedges (*Carex* sp.), and forbs (NRCS 2014).

3.5.4 Wilton

The Wilton series consists of very deep, well-drained soils that formed in a silty loess mantle overlying till. These soils are on uplands and have slopes of 0% to 9%. The mean annual

precipitation found throughout the spatial extent of this soil type is 16 inches and the mean annual air temperature is 40°F. Cultivated areas are used for growing small grains including flax and corn. Native grasses include western wheatgrass, green needlegrass, bearded wheatgrass (*Elymus caninus*), junegrass (*Koeleria macrantha*), needle and thread, and a variety of forbs (NRCS 2014).

3.5.5 Havrelon

The Havrelon series consists of very deep, well- and moderately well-drained, moderately permeable soils that formed in loamy alluvium. These soils are on floodplains of major streams and tributaries and have slopes of 0% to 6%. The mean annual precipitation found throughout the spatial extent of this soil type is 16 inches and the mean annual air temperature is 42°F. Cultivated areas are used for pasture and for growing small grains, hay, and corn. Some areas are irrigated and cropped to sugar beets, potatoes (*Solanum tuberosum*), corn, and alfalfa (*Medicago sativa*). Native grasses include big bluestem (*Andropogon gerardii*), green needlegrass, and western wheatgrass. Trees, including green ash (*Fraxinus pennsylvanica*), eastern cottonwood (*Populus deltoids*), boxelder (*Acer negundo*), and chokecherry (*Prunus virginiana*), are along the stream channels (NRCS 2014).

3.5.6 Maschetah

The Maschetah series consists of very deep, well-drained soils that formed in calcareous silty eolian or alluvial deposits. These soils are on sedimentary plains and hills and slopes are 0% to 45%. The mean annual precipitation found throughout the spatial extent of this soil type is about 17 inches, and mean annual temperature is about 43°F. Maschetah soils are used mainly for range and some for growing small grains. Potential native vegetation is mainly western wheatgrass, blue grama, bluegrass (*Poa* sp.), needle and thread, and fringed sagewort (*Artemisia frigida*) (NRCS 2014).

3.5.7 Cabba

The Cabba series consists of shallow, well-drained soils that formed in residuum or colluvium derived from semiconsolidated, loamy sedimentary beds. These soils are on hills, escarpments, and sedimentary plains. Slopes are 2% to 70%. The mean annual precipitation found throughout the spatial extent of this soil type is about 16 inches, and mean annual air temperature is about 43°F. This soil series is used as rangeland. The potential native vegetation is mainly little bluestem, western wheatgrass, needle and thread, prairie sandreed (*Calamovilfa longifolia)*, bluebunch wheatgrass (*Pseudoroegneria spicata*), green needlegrass, plains muhly (*Muhlenbergia cuspidate*), forbs, and shrubs (NRCS 2014).

3.5.8 Max

The Max series consists of very deep, well-drained, moderately or moderately slowly permeable soils that formed in till. These soils are on till plains and have slopes ranging from 0% to 45%. The mean annual precipitation found throughout the spatial extent of this soil type is 14 inches, and the mean annual air temperature is about 40°F. Soils are cropped to small grains and also used for hay, pasture, and range. Native vegetation is green needlegrass, western wheatgrass, needle and thread, blue grama, upland sedges, and a variety of forbs (NRCS 2014).

3.6 TREE, SAPLING, AND SHRUB COUNT

During SWCA's field survey of the reroutes and temporary workspaces, two additional tree areas were geographically referenced. Table 4 summarizes the number of trees SWCA counted that may be impacted by the project as currently proposed. The North Dakota Public Service Commission requires a 2:1 post- to pre-construction mitigation for all trees, saplings, and shrubs impacted during the construction of the proposed pipeline. Therefore, SWCA estimates no 2-year-old sapling individuals would need to be replanted in order to fulfill the 2:1 mitigation requirement.

In addition, woody vegetation polygons from the previous surveys were compared with the final alignment. Aside from the two additional areas identified in Table 4, there were no changes identified to the estimated mitigation commitment when compared to the previous alignment.

Table 4. Tree, Sapling, and Shrub Count

Woody Vegetation (WV) ID	Species	Type	Number of Trees		Estimated Mitigation Commitment
			Survey Corridor	100-foot-wide Construction ROW	
WV1	Common juniper (*Juniperus communis*)	Tree	8	0	0
WV2	Cottonwood (*Populus deltiodes*)	Tree	14	1	2
Total			**22**	**1**	**2**

ROW = right-of-way

3.7 NOXIOUS WEEDS

North Dakota Century Code Chapter 63-01.1 and the North Dakota Department of Agriculture recognize 11 species as noxious weeds. The species are absinth wormwood (*Artemisia absinthium*), Canada thistle (*Cirsium arvense*), diffuse knapweed (*Centaurea diffusa*), leafy spurge (*Euphorbia esula*), musk thistle (*Carduus nutans*), purple loosestrife (*Lythrum salicaria*), Russian knapweed (*Acroptilon repens*), spotted knapweed (*Centaurea stoebe*), yellow toadflax (*Linaria vulgaris*), dalmatian toadflax (*Linaria dalmatica*), and salt cedar (*Tamarix ramosissima*). McKenzie County has five county-listed species including black henbane (*Hyoscyamus niger*), common burdock (*Arctium minus*), houndstongue (*Cynoglossum officinale*), halogeton (*Halogeton glomeratus*), and baby's breath (*Gypsophila paniculata*). SWCA did not identify any areas of state-listed or county-listed noxious weeds during the survey of the reroutes.

3.8 WILDLIFE

Several wildlife species that may exist in McKenzie County are listed as threatened or endangered under the Endangered Species Act (ESA) (16 USC 1531 et seq.). According to the USFWS, ESA-listed endangered species in McKenzie County, North Dakota, include the black-footed ferret (*Mustela nigripes*), gray wolf (*Canis lupus*), whooping crane (*Grus*

americana), interior least tern (*Sterna antillarum*), and pallid sturgeon (*Scaphirhynchus albus*). Threatened species include the piping plover (*Charadrius melodus*) and its designated critical habitat, Dakota skipper (*Hesperia dacotae*), northern long-eared bat (*Myotis septentrionalis*), and rufa red knot (*Calidris canutus rufa*). In addition, Sprague's pipit (*Anthus spragueii*) is a candidate species. SWCA conducted a cursory threatened and endangered species survey concurrently with the wetland determination. Biologists did not observe any primary (i.e., actual sighting) or secondary (i.e., tracks, scat, fur) indication of the presence of threatened or endangered species.

3.8.1 Black-footed Ferret

Federal Status: Endangered
Black-footed ferrets are nocturnal, solitary carnivores of the weasel family that have been largely extirpated from the wild primarily due to range-wide decimation of the prairie dog (*Cynomys* sp.) ecosystem (Kotliar et al. 1999). They have been listed by the USFWS as endangered since 1967, and have been the object of extensive re-introduction programs (USFWS 2013a). Ferrets inhabit extensive prairie dog complexes of the Great Plains, typically composed of several smaller colonies in proximity to one another that provide a sustainable prey base. The *Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act* (USFWS 1989) states that ferrets require black-tailed prairie dog (*Cynomys ludovicianus*) towns or complexes greater than 80 acres in size, and towns of this dimension may be important for ferret recovery efforts (USFWS 1988a). Prairie dog towns of this size were not observed during the field survey. Therefore, the black-footed ferret is not expected to be impacted by the proposed project.

3.8.2 Gray Wolf

Federal Status: Endangered
The gray wolf, listed as endangered in the United States in 1978, was believed extirpated from North Dakota in the 1920s and 1930s, with only sporadic reports from the 1930s to present (Licht and Huffman 1996; USFWS 1978). The presence of wolves in most of North Dakota consists of occasional dispersing animals from Minnesota and Manitoba (Licht and Fritts 1994; Licht and Huffman 1996). Most documented gray wolf sightings within western North Dakota are believed to be young males seeking to establish territory (Hagen et al. 2005). The Turtle Mountain region of north-central North Dakota provides marginal habitat that may be able to support a very small population of wolves. The closest known pack of wolves is the Minnesota population located approximately 17 miles (28 kilometers [km]) from the northeast corner of North Dakota.

The gray wolf uses a variety of habitats that support a large prey base, including montane and low-elevation forests, grasslands, and desert scrub (USFWS 2013b). Due to a lack of forested habitat and distance from Minnesota and Manitoba populations, as well as the troubled relationship between humans and wolves and their vulnerability to being shot in open habitats (Licht and Huffman 1996), the re-establishment of gray wolf populations in North Dakota is unlikely. Additionally, habitat fragmentation may further act as a barrier against wolf recolonization in western North Dakota. The gray wolf is not expected to be impacted by the proposed project.

3.8.3 Whooping Crane

Federal Status: Endangered
The whooping crane was listed as endangered in 1970 in the United States by the USFWS and in 1978 in Canada. Historically, population declines were caused by shooting and destruction of nesting habitat in the prairies from agricultural development. Current threats to the species include habitat destruction, especially suitable wetland habitats that support breeding and nesting, as well as feeding and roosting during their fall and spring migration (Canadian Wildlife Service and USFWS 2007).

The July 2010 total wild population was estimated at 383 (USFWS 2013c). There is only one self-sustaining wild population, the Aransas-Wood Buffalo National Park population, which nests in Wood Buffalo National Park and adjacent areas in Canada, where approximately 83% of the wild nesting sites occur (Canadian Wildlife Service and USFWS 2007; USFWS 2013c). McKenzie County, including the project area, is within the primary migratory flyway of whooping cranes.

Whooping cranes probe the soil subsurface with their bills for foods on the soil or vegetation substrate (Canadian Wildlife Service and USFWS 2007). Whooping cranes are omnivores and foods typically include agricultural grains, as well as insects, frogs, rodents, small birds, minnows, berries, and plant tubers. The largest amount of time during migration is spent feeding in harvested grain fields (Canadian Wildlife Service and USFWS 2007). Studies indicate that whooping cranes use a variety of habitats during migration, in addition to cultivated croplands, and generally roost in small palustrine (marshy) wetlands within 0.6 mile (1 km) of suitable feeding areas (Howe 1987, 1989). Whooping cranes have been recorded in riverine habitats during their migration, with eight sightings along the Missouri River in North Dakota (Canadian Wildlife Service and USFWS 2007:18). In these cases, they roost on submerged sandbars in wide, unobstructed channels that are isolated from human disturbance (Armbruster 1990).

It is well-documented that migrating whooping cranes use habitats in the vicinity of the proposed project for roosting and feeding. The project area is located within the migratory corridor for the whooping crane, with the nearest sighting being 432 feet from the central portion of the pipeline corridor east of Fairview (USFWS, M. Tarcha, unpublished data). Suitable whooping crane stop over foraging habitat (i.e., cultivated cropland and wetlands >0.04 hectare) was observed within the survey area. Whooping cranes also use sandbars in large streams such as the Yellowstone and Missouri Rivers as stopover roosting habitat. To mitigate any behavioral disturbance that may occur to migrating whooping cranes, if a whooping crane is sighted within 1 mile of the construction area work should be suspended until the species has vacated the area, typically not more than 2 or 3 days. The USFWS should be contacted if any whooping cranes are observed within 1 mile of the construction ROW. If the proposed activity follows these recommendations, the whooping crane is not expected to be impacted by the proposed project.

3.8.4 Interior Least Tern

Federal Status: Endangered
The interior population of the least tern is listed as endangered by the USFWS (1985a). This bird is the smallest member of the gull and tern family, measuring approximately 9 inches in

length. Terns remain near flowing water, where they feed by hovering over and diving into standing or flowing water to catch small fish (USFWS 2013d).

The interior population of least terns breeds in isolated areas along the Missouri, Mississippi, Ohio, Red, and Rio Grande river systems, where they nest in small colonies. From late April to August, terns nest in a shallow hole scraped in an open sandy area, gravel patch, or exposed flat and bare sandbars along rivers, sand and gravel pits, or lake and reservoir shorelines. The adults continue to care for chicks after they hatch. Least terns in North Dakota often will be found sharing sandbars with the piping plover, a threatened species (USFWS 2013d).

Census data indicate over 8,000 least terns in the interior population. In North Dakota, the least tern is found mainly on the Missouri River from Garrison Dam south to Lake Oahe, and on the Missouri and Yellowstone Rivers upstream of Lake Sakakawea (USFWS 1990a, 2013d). Approximately 100 pairs breed in North Dakota (USFWS 2013d). Details of their migration are not known, but their winter range is reported to include the Gulf of Mexico and Caribbean Islands (USFWS 1990a, 2013d).

Loss of suitable breeding and nesting habitat for terns has resulted from dam construction and river channelization on major rivers throughout the Mississippi, Missouri, and Rio Grande river systems. River and reservoir changes have led to reduced sandbar formation and other shoreline habitats for breeding, resulting in population declines. In addition, other human shoreline disturbances affect the species (USFWS 1990a). Critical habitat has not been designated for the species (USFWS 2013d). Current conservation strategies include identification and avoidance of known nesting areas, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 2013d).

Lake Sakakawea is approximately 6.0 miles from the edge of the project area. Endangered interior least terns are known to use the Yellowstone River, which is in the project area, for breeding and feeding. To minimize or reduce potential impacts of the proposed project on the tern, construction should be scheduled to avoid the breeding season to the extent practicable. If the breeding season cannot be avoided, a qualified biological monitor should be deployed on a daily basis for the duration of the construction phase to assess presence/absence of breeding terns. The USACE, in conjunction with the river bore permit, could require monitoring during the tern breeding season. If terns are observed within 0.5 mile of the construction ROW at the Yellowstone River, construction should be suspended, and the USFWS should be notified. Horizontal directional drilling (HDD) would be considered as a low-impact crossing technique to reduce or minimize impacts to breeding birds, if present. The interior least tern is not expected to be impacted by the proposed project if these recommendations or the USACE conditions of approval associated with the Yellowstone River bore permit are followed.

3.8.5 Pallid Sturgeon

Federal Status: Endangered

The pallid sturgeon was listed as endangered in 1990 in the United States by the USFWS (1990b). The primary factor leading to the decline of this species is the alteration of habitat through river channelization, creation of impoundments, and alteration of flow regimes (USFWS 1990b). These alterations within the Missouri River have blocked movements to

spawning, feeding, and rearing areas; destroyed spawning habitat; altered flow conditions which can delay spawning cues; and reduced food sources by lowering productivity (USFWS 2007). The fundamental elements of pallid sturgeon habitat are defined as the bottom of swift waters of large, turbid, free-flowing rivers with braided channels, dynamic flow patterns, flooding of terrestrial habitats, and extensive microhabitat diversity (USFWS 1990b).

The pallid sturgeon populations occur in the Missouri River below Fort Peck Dam to the headwaters of Lake Sakakawea and the lower Yellowstone River up the confluence of the Tongue River, Montana (USFWS 2007). This population consists of approximately 136 wild adult pallid sturgeon (USFWS 2007). Hatchery-reared sturgeon have also been stocked since 1998. The pallid sturgeon has been found to use the 15.5 miles (25 km) of riverine habitat that would be inundated by Lake Sakakawea at full pool (Bramblett 1996 per USFWS 2007). Larval pallid sturgeons have also been found to drift into Lake Sakakawea. Although the majority of pallid sturgeons are found in the headwaters of Lake Sakakawea, the North Dakota Game and Fish Department has caught and released pallid sturgeon in nets set in 80 to 90 feet of water between the New Town and Van Hook areas. Based on this information, pallid sturgeon could be found throughout Lake Sakakawea (personal communication, email from Steve Krentz, Pallid Sturgeon Project Lead, USFWS, to SWCA, September 3, 2010).

Desktop analysis concluded that suitable habitat may be present in the project area. Potential pollution from construction activities, hydrostatic testing, and pipeline operations is a concern for downstream populations of the pallid sturgeon. Activities associated with the proposed project are not anticipated to adversely affect water quality and subsequently the pallid sturgeon. HDD would be considered as a low and/or no impact alternative to traditional wet trench or open-cut methods to cross the Yellowstone River. A USACE Section 10 permit is being completed for the bore of the Yellowstone River. The pallid sturgeon is not expected to be impacted by the proposed project if these practices or the USACE conditions of approval associated with the Yellowstone River HDD permit are followed.

3.8.6 Piping Plover

Federal Status: Threatened

The piping plover is a small shorebird which breeds only in three geographic regions of North America: the Atlantic Coast, the Northern Great Plains, and the Great Lakes. Piping plover populations were federally listed as threatened and endangered in 1985, with the Northern Great Plains and Atlantic Coast populations listed as threatened, and the Great Lakes population listed as endangered (USFWS 1985b).

Plovers in the Great Plains make their nests on open, sparsely vegetated sand or gravel beaches adjacent to alkali wetlands, and on beaches, sand bars, and dredged material islands of major river systems (USFWS 2002, 2012b). The shorelines of lakes of the Missouri River constitute significant nesting areas for the bird. Piping plovers nest on the ground, making shallow scrapes in the sand, which they line with small pebbles or rocks (USFWS 1988b). Anthropogenic alterations of the landscape along rivers and lakes where piping plover nest have increased the number and type of predators, subsequently decreasing nest success and chick survival (USFWS 2002, 2012b). The birds fly south by mid to late August to areas along the Texas coast and Mexico (USFWS 2002). The Northern Great Plains population has continued to decline

despite federal listing, with population estimates of 1,500 breeding pairs in 1985 reduced to fewer than 1,100 in 1990. Low survival of adult birds has been identified as a factor (Root et al. 1992). Current conservation strategies include identification and preservation of known nesting sites, public education, and limiting or preventing shoreline disturbances near nests and hatched chicks (USFWS 1988b, 2012b).

Desktop analysis concluded that critical habitat for the threatened piping plover is not present in the project area. However, piping plovers are known to use the Yellowstone River, which is in the project area, for feeding and breeding. To minimize or reduce potential impacts of the proposed project on the plover, construction should be scheduled to avoid the breeding season to the extent practicable. If the breeding season cannot be avoided, a qualified biological monitor should be deployed on a daily basis for the duration of the construction phase to assess presence/absence of breeding piping plovers. The USACE, in conjunction with the river bore permit, could require monitoring during the piping plover breeding season. If piping plovers are observed within 0.5 mile of the construction ROW at the Yellowstone River, construction should be suspended, and the USFWS should be notified. HDD would be considered as a low-impact crossing technique to reduce or minimize impacts to breeding birds, if present. The piping plover is not expected to be impacted by the proposed project if these recommendations or the USACE conditions of approval associated with the Yellowstone River HDD permit are followed.

3.8.7 Designated Critical Habitat of Piping Plover

The USFWS has designated critical habitat for the Great Lakes and Northern Great Plains populations of piping plover (USFWS 2002). Designated critical habitat for the piping plover includes 183,422 acres and 1,207.5 river miles of habitat including the shoreline of Lake Sakakawea in Mountrail and McKenzie Counties, North Dakota (USFWS 2002).

The proposed project would not modify, alter, disturb, or affect the shoreline of Lake Sakakawea or the Missouri River, but is within the same watershed as Lake Sakakawea and the Missouri and Yellowstone Rivers.

3.8.8 Dakota Skipper

Federal Status: Threatened

The Dakota skipper is a small butterfly with a 1-inch wingspan. The male wing ranges from a tawny orange to brown and the female wing is darker brown with tawny orange spots and faint white spots (USFWS 2011a). On October 24, 2014, the USFWS determined a threatened species status for the Dakota skipper, and the final rule became effective November 24, 2014 (79 *Federal Register* 63672). The primary causes for decline in Dakota skipper populations include the loss or fragmentation of high-quality native prairie habitat due to overgrazing, conversion to agriculture, invasion by non-native plants, urbanization, and disruption of natural prairie fire cycles (USFWS 2011a).

Three units of designated critical habitat occur west of the Missouri River in McKenzie County, North Dakota. Dakota Unit 10 (Eagle Nest Butte) is located in the southwest corner of the Fort Berthold Indian Reservation. The prognosis for the persistence of the Eagle Nest Butte population is uncertain since the presumed breeding area at this site historically encompasses

less than 10 acres (Royer et al. 2014). Proposed Units 11 (McKenzie Pasture 12 East) and 12 (McKenzie Pasture 12 West) are located on the Little Missouri National Grassland, also in McKenzie County. Based on a 2014 survey, the Dakota skipper should be able to persist in Units 11 and 12 due to presence of suitable habitat (Royer et al. 2014).

Dakota skipper dispersal is limited due to a short adult life span of 3 weeks (Dana 1991) and one annual flight per year. The Dakota skipper may disperse approximately 0.6 mile (1 km) to an area that contains sufficient vegetative diversity and emigrants. Unless a site is within about 0.6 mile of a site that generates a sufficient number of emigrants, the species' extirpation from a site is likely permanent. Adult skippers were encountered in Units 10, 11, and 12 during surveys in July 2015 (Royer et al. 2014).

Two habitat types have been described for Dakota skipper in North Dakota. 'Type A' habitat is low, wet-mesic prairie with little topographic relief occurring in near-shore glacial lake deposits (Royer and Marrone 1992). Three plant species dominate Type A habitat and include wood lily (*Lilium philadelphicum*), bluebell bellflower (*Campanula rotundifolia*), and mountain deathcamas (*Zigadenus elegans*) (McCabe 1981). 'Type B' habitat of the Dakota skipper occurs on rolling terrain over gravelly glacial moraine deposits and is dominated by big bluestem, little bluestem, and needlegrasses (*Stipa* spp.), and may include bluebell bellflower and wood lily (USFWS 2014a). Additionally, Type B habitat supports extensive stands of purple coneflower, upright prairie coneflower (*Ratibida columnifera*), and common gaillardia (*Gaillardia artistata*) (USFWS 2014a).

In the rolling terrain of river valleys and the Missouri Coteau of North Dakota, on the western edge of the species' known range, Dakota skippers inhabit a variant of Type B habitats. These habitats typically contain an association of little bluestem, big bluestem, and needlegrasses that is often invaded by Kentucky bluegrass (Royer and Marrone 1992:22). These prairies also typically contain wood lily, bluebell bellflower, coneflowers, and other asters as nectar sources; in some areas, mountain deathcamas also occurs (Royer and Marrone 1992:22).

Within western North Dakota, the species inhabits dry-mesic habitats characterized by little bluestem, needlegrasses, and Kentucky bluegrass (Cochrane and Delphey 2002). Dry-mesic habitats are marginally dry climate for Dakota skipper (Cochrane and Delphey 2002; Environment Canada 2007). In dry-mesic habitats, Dakota skippers use microhabitats on rolling upland sites, such as north slopes of river valleys, that mimic mesic areas found in the eastern tallgrass prairies (Cochrane and Delphey 2002; Environment Canada 2007). Dakota skipper populations in dry-mesic habitats are typically less dense than those in wet-mesic habitats (Environment Canada 2007).

Habitat requirements for larvae survival include specific food and edaphic features as soil moisture, soil compaction, and soil bulk density, as well as related non-biotic factors such as temperature and relative humidity at and near (within 2.0 centimeters of) the soil surface (Royer et al. 2008). Vegetation required for larval food sources and shelter in dry-mesic mixed grass includes prairie dropseed (*Sporobolus heterolepis*) or little bluestem (USFWS 2014b). Exotic cool season grasses (e.g., smooth brome and Kentucky bluegrass) may reduce food availability for and survival of skipper larvae (USFWS 2011a).

Larval Dakota skipper habitat within dry-mesic habitat is associated with more gravelly glacial landscapes of relatively higher relief, more variable soil moisture, and somewhat higher soil temperatures (Royer et al. 2008). Soils in these habitats are classified predominantly as sandy loams, and occasionally as loamy sands (Royer et al. 2008). Royer et al. (2008) found that mean season-long larval nest zone temperatures range from 17.8 to 20.5 degrees Centigrade. Relative humidity in the larval nest zone was recorded as ranging from 72.5% to 78.4% (lowest recorded season-long mean) and 84.2% to 85.1% (highest recorded season-long mean) (Royer et al. 2008). Soil compaction and vegetation removal substantially alter soil water movement and evaporation, thereby altering near-surface humidity (Royer et al. 2008). Livestock grazing has been shown to increase bulk density and soil compaction, which are correlated with decreased soil water content and hydraulic conductivity (Royer et al. 2008). Dakota skippers will tolerate little to no grazing in mixed-grass prairie (Conchrane and Delphay 2002; McCabe 1981).

During the field surveys agricultural fields planted with wheat and sugar beets dominated the proposed project area. A small portion of the project area contained non-native grass prairie included species such as smooth brome, crested wheatgrass, and western wheatgrass, and lacked sufficient nectar species to support adult skipper foraging habitat. The nearest proposed critical habitat (Unit 12) is located 32.6 miles east-northeast from the proposed project. Due to the lack of suitable habitat and the distance from proposed critical habitat, the Dakota skipper is not expected to be impacted by the proposed project.

3.8.9 Rufa Red Knot

Federal Status: Threatened

The rufa red knot is a medium-sized shorebird approximately 9 to 11 inches in height with breeding plumage consisting of red around the face and a prominent stripe above the eye, breast, and upper belly, and non-breeding plumage a dusky gray and white (Bureau of Indian Affairs 2014). The USFWS published a proposal to list the rufa red knot as threatened under the ESA in the Federal Register in September 2013 (78 *Federal Register* 60023). On December 11, 2014, the USFWS determined a threatened species status for the rufa red knot, and the final rule became effective January 12, 2015 (79 *Federal Register* 73705).

The primary reason for decline of this species includes reduced food supplies in Delaware Bay due to commercial harvest of horseshoe crabs, but also includes areas of range loss due to rising sea levels, shorelines project, and development (USFWS 2013e). The rufa red knot breeds in the Canadian Arctic and migrates 19,000 miles to winter on the U.S. Gulf Coast and in South America. The species generally occurs along the ocean coasts during migration, but a small number have been reported across the interior United States.

Suitable habitat along Lake Sakakawea is approximately 6.0 miles from the edge of the project area, and it is possible the rufa red knot may use the Yellowstone River. However, the likelihood of the rufa red knot occurring in the project area is low. The rufa red knot is not expected to be impacted by the proposed project.

3.8.10 Sprague's Pipit

Federal Status: Candidate

The Sprague's pipit is a small passerine, 10 to 15 centimeters in length, endemic to the Northern Great Plains (USFWS 2011b). The Sprague's pipit requires large tracts of native prairie habitat, unplowed, throughout their life cycle. Because native grasslands are disturbance-dependent, Sprague's pipit prefers grassland habitats that are regularly disturbed. The frequency of disturbance required for habitat maintenance depends on how quickly grasses grow to an intermediate height (4 to 12 inches) following a disturbance event.

In North Dakota, Sprague's pipit has been found in areas of moderate grazing. Sprague's pipits are sensitive to patch size and avoid edges between grasslands and other habitat features (USFWS 2011b). They may avoid non-grassland features including roads, trails, oil wells, croplands, woody vegetation, and wetlands. The Sprague's pipit is reported to stay up to 350 meters away from anthropogenic features such as roads, oil wells, and wind turbines (USFWS 2011b). The USFWS has estimated that each new oil well and associated road in North Dakota results in potential impacts to approximately 51 acres of pipit habitat due to avoidance and habitat fragmentation (USFWS 2011b). Because of increasing habitat fragmentation, especially by energy development, throughout the Sprague's pipit range, and the loss of native prairie habitat, the Sprague's pipit was listed as a Candidate Species under the ESA in 2010 (USFWS 2011b).

In North Dakota, Sprague's pipit breeds throughout the state except for the easternmost counties. During the breeding season they prefer large patches of well-drained, open native grassland with a minimum size of 358.3 acres (range = 170 to 776 acres). They have not been observed in areas smaller than 71.6 acres on their breeding grounds (USFWS 2011b).

Field surveys concluded that cultivated, non-native grass prairie was dominant in the proposed project area. However, some native grasses of intermediate height occur within the project area. The proposed project is unlikely to directly affect habitat due to lack of adequate patch sizes required by the Sprague's pipit for breeding grounds in the immediate project area, but may indirectly contribute to reduced use of any nearby suitable grassland habitat patches within 350 meters of the proposed project. Sprague's pipit is not expected to be impacted by the proposed project.

3.8.11 Northern Long-eared Bat

Federal Status: Threatened

On April 2, 2015, the USFWS determined a threatened species status for the northern long-eared bat, and the final rule became effective May 4, 2015 (79 *Federal Register* 63672). This bat species occupies a wide range of rocky and forested habitats. Suitable winter habitat includes large caves and mines (USFWS 2013f). Summer day roosts include abandoned buildings, bridges, hollow trees, stumps, under loose bark, and rock fissures (Jones and Choate 1978).

Most records of northern long-eared bats are from winter hibernacula surveys, with more than 780 hibernacula identified within the United States. No known hibernacula are located in North

Dakota, due either to a lack of suitable hibernacula present or to a lack of survey efforts (USFWS 2013g).

Northern long-eared bats are not known to occur in the project area, although species-specific surveys have not been conducted. Suitable winter habitat for northern long-eared bats likely does not occur in the project area, but may exist within the buttes and badlands to the north of the project area. Nearby trees and rocky outcrops can also act as suitable summer day roosts. The summer roosting period is from May through October. If woody vegetation is cleared during this period, a qualified biologist should identify any potential roost trees. If potential roost trees are identified further site investigations are recommended. If these recommendations are followed, the northern long-eared bat is not expected to be impacted by the proposed project.

3.8.12 Migratory Birds

Status: Protected under the Migratory Bird Treaty Act

Suitable habitat for migratory birds exists in the entire project area. Specifically, grassland nesting birds, waterfowl, wading birds, and shorebirds have the potential to occur, feed, loaf, and nest in the project area, especially during the migratory bird breeding season, which generally occurs between February 1 and July 15. Suitable woodland nesting habitat occurs in the project area, but it is minimal. All take of migratory birds or their active nests, including eggs and young must be avoided to avoid a violation of the Migratory Bird Treaty Act. To minimize or reduce potential impacts of the proposed project on migratory birds one or a combination of the following should be completed by NST Express.

- Complete all construction outside of the migratory bird breeding season (between February 1 and July 15).
- Clear and grub or mow the project alignment prior to the bird breeding season and maintain vegetation within the project construction area during the breeding season to deter migratory birds from nesting in the project area until construction is completed.
- If project construction commences during the bird breeding season, conduct a survey of breeding birds in the project area no more than 5 days before construction begins, and if nests are discovered, notify the USFWS.
- If nests are identified in the construction area, they will be taxonomically identified to determine if the species are considered migratory. If the species are migratory, the construction ROW will be marked by placing wooden laths on each side of the construction ROW and then stringing caution tape across the ROW between laths. A 100-foot setback from active nests will be maintained. Per the recommendation of the USFWS, no ground clearing may commence within an avoidance area, including mowing, until the identified nest ceases to be active.

3.8.13 Bald Eagle

Federal Status: Delisted in 2007; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

The bald eagle (*Haliaeetus leucocephalus*) feeds on fish and carrion and typically roosts in large trees near a water source. Bald eagle nesting habitat is typically any mature stands of

conifer (*Pinophyta* sp.) or cottonwood (*Populus* sp.) trees in association with rivers, streams, reservoirs, lakes, or any significant body of water. Bald eagles in North Dakota are usually observed along the Missouri River (Gomes n.d.) and Yellowstone River. Bald eagles frequently migrate through the grassland habitats. One bald eagle was observed during the field surveys; however, no nests were observed during the field surveys. The nearest known eagle nest is approximately 3 miles northwest to the closest portion of the proposed project (North Dakota Game and Fish Department 2015). The USFWS generally recommends a nest buffer of 0.5 mile for any eagles. If any active nests are discovered within 0.5 mile of the proposed pipeline route, construction should halt and the USFWS should be contacted for further direction. If these recommendations are followed, bald eagles are not expected to be impacted by the proposed project.

3.8.14 Golden Eagle

Federal Status: Unlisted; protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act

The golden eagle (*Aquila chrysaetos*) prefers habitat characterized by open prairie, plains, and forested areas. Usually, golden eagles can be found in proximity to badland cliffs which provide suitable nesting habitat. Golden eagles may occur within or near the survey area; however, no golden eagles or nests were observed during the field surveys. The USFWS generally recommends a nest buffer of 0.5 mile for any eagles. If any active nests are discovered within 0.5 mile of the proposed pipeline route, construction should halt and the USFWS should be contacted for further direction. If these recommendations are followed, golden eagles are not expected to be impacted by the proposed project.

3.8.15 Wildlife Observed

During the field survey, SWCA biologists did not observe any wildlife species that use wetlands and other habitat within the survey area. Common wildlife species may be affected both directly via death or injury from construction activities or indirectly through the temporary fragmentation of habitat as a result of construction activities and disturbance which may disrupt normal activities such as breeding, feeding, and sheltering.

4.0 CONCLUSIONS AND RECOMMENDATIONS

1. SWCA identified one wetland totaling 0.21 acres during the field survey of the reroutes and temporary workspaces. WET1 is located outside the 100-foot construction corridor and will not be impacted.
2. SWCA identified four waterbodies totaling 0.55 acres, classified as irrigation canals, during the field survey of reroutes and temporary workspaces. NST Express proposes to bore these canals to avoid all impacts.
3. SWCA identified two additional woody vegetation areas within the surveys of the reroutes and temporary workspace. Of these, 1 cottonwood tree was identified within the 100-foot construction corridor that may be impacted by construction activities. Therefore, 2 saplings will need to be replanted to fulfill the 2:1 mitigation requirement.
4. No threatened or endangered species were observed during the field survey.

Suitable roosting and foraging habitat exists within the project area for the whooping crane. SWCA recommends that if construction is to occur within whooping crane spring and fall migration periods, and a whooping crane is observed within 1 mile of the project, to stop construction and notify the USFWS.

Suitable nesting and foraging habitat for piping plover and interior least tern occurs in the project area along the shorelines of the Yellowstone River. SWCA recommends that construction is conducted outside of the migratory bird nesting season to the extent possible. If construction occurs during the nesting season, the conditions of approval associated with the USACE river bore permit would presumably minimize impacts to the species. Typically, these include monitoring by a qualified biologist or similar best management practice.

The Yellowstone River is suitable habitat for pallid sturgeon. NST Express proposes to bore the Yellowstone River.

The other listed threatened and endangered species that occur in McKenzie County are not likely to be detrimentally impacted by construction activities.

5. Migratory bird habitat and migratory birds were observed during the survey of the reroutes.

   SWCA completed a 0.5-mile line-of-sight raptor nest survey during the survey of the reroutes. No active raptor nests were observed during field surveys of the reroutes. In order to reduce impacts to migratory birds, SWCA recommends conducting construction outside of the migratory bird breeding season as practicable. If construction occurs during the bird breeding season, SWCA recommends to either mow, maintain, or completely remove vegetation within the project construction area outside the migratory bird nesting season, or conduct an avian survey of the project area no greater than 5 days before construction begins. If active nests (i.e., nests with eggs or young) are discovered, the USFWS should be notified.

6. No bald or golden eagle nests were observed during field surveys of the reroutes. If nests (active or not) are discovered within 0.5 mile of the proposed activity, the USFWS should be notified.

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APPENDIX A

Vicinity Maps and Site Layout Maps

NST Express Pipeline

- Upland Data Point
- Proposed Route
- Approxiate Bore Path
- Flowline
- Existing Road
- Stream
- Wetland
- Woody Vegetation
- Facility Location
- Section Boundary
- Survey Area
- Previously Inventoried Area
- Township/Range Boundary

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Base Map: 2014 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Fairview (1995), Dore (1991)
Township/Range: T. 151N, R. 104W
McKenzie County, North Dakota

Projection: NAD 1983 UTM Zone 13N

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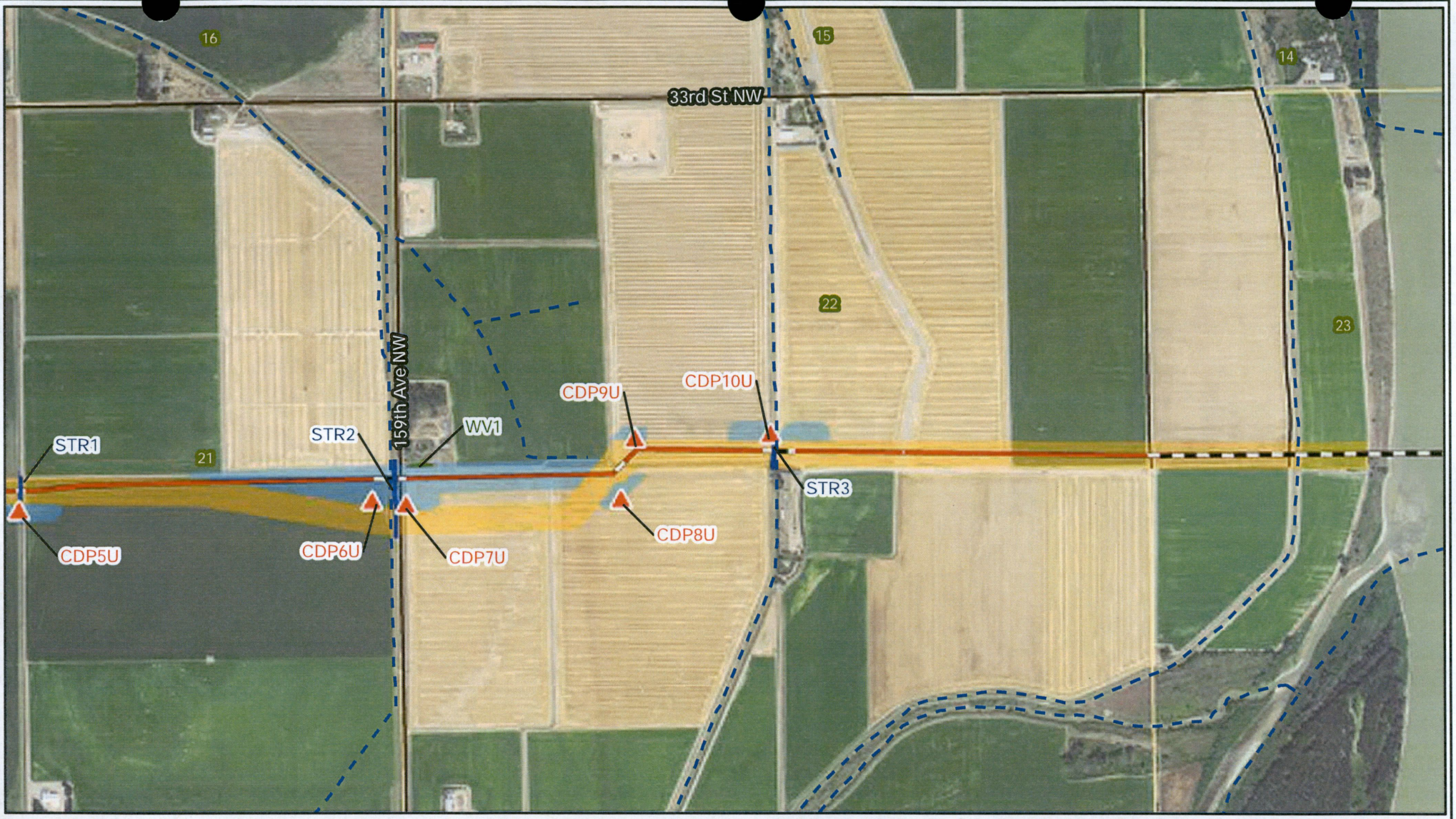

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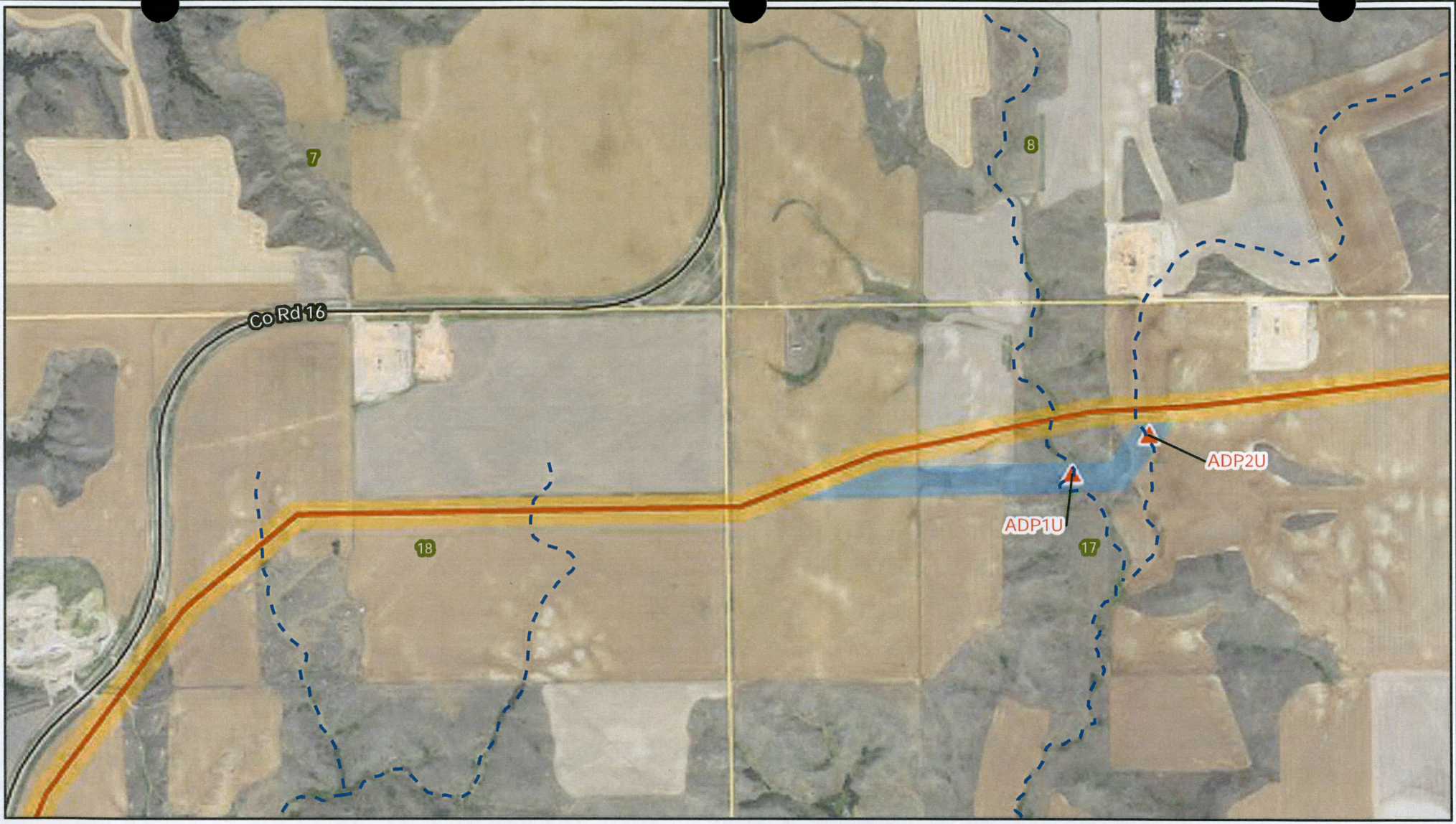

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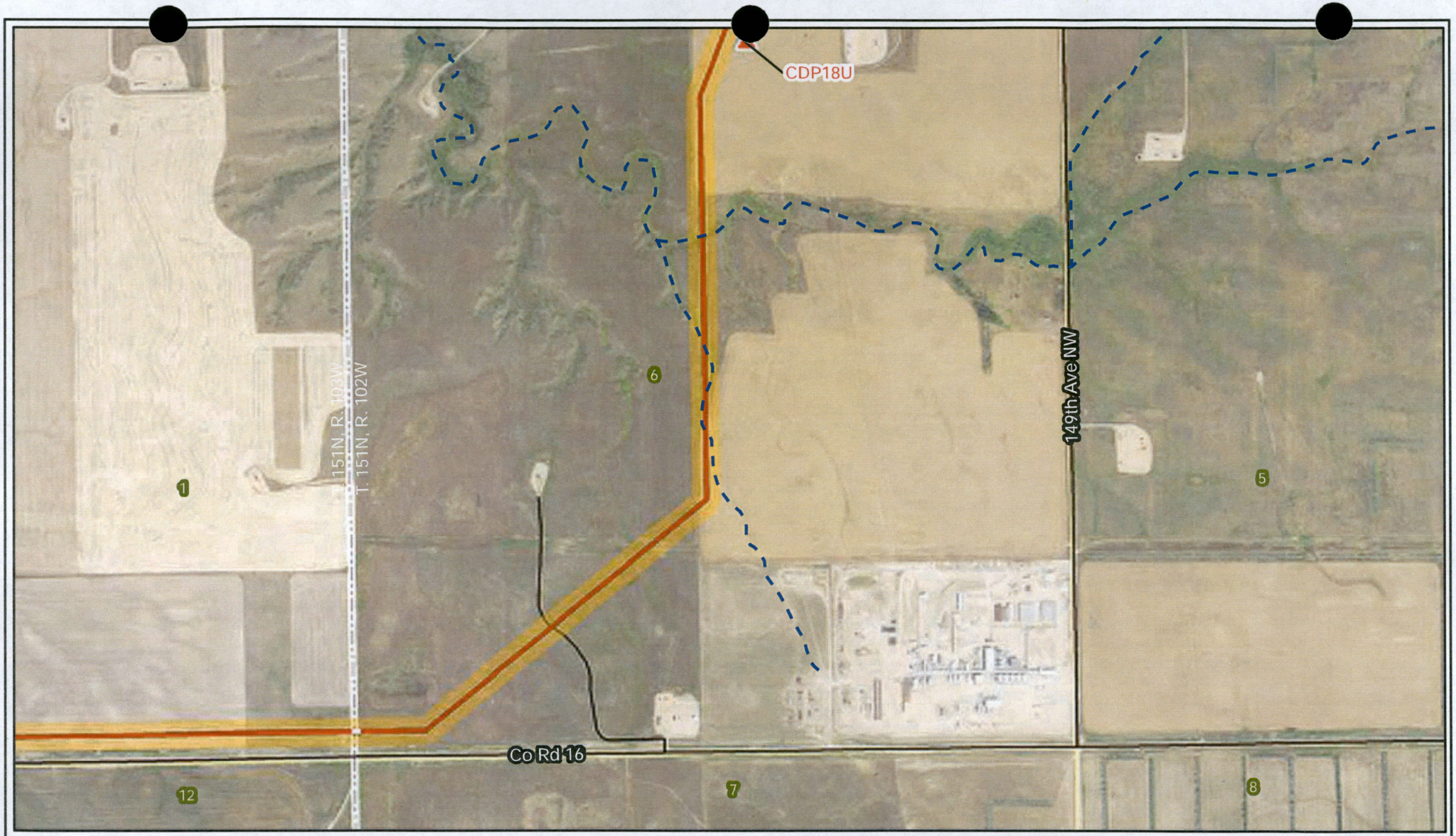

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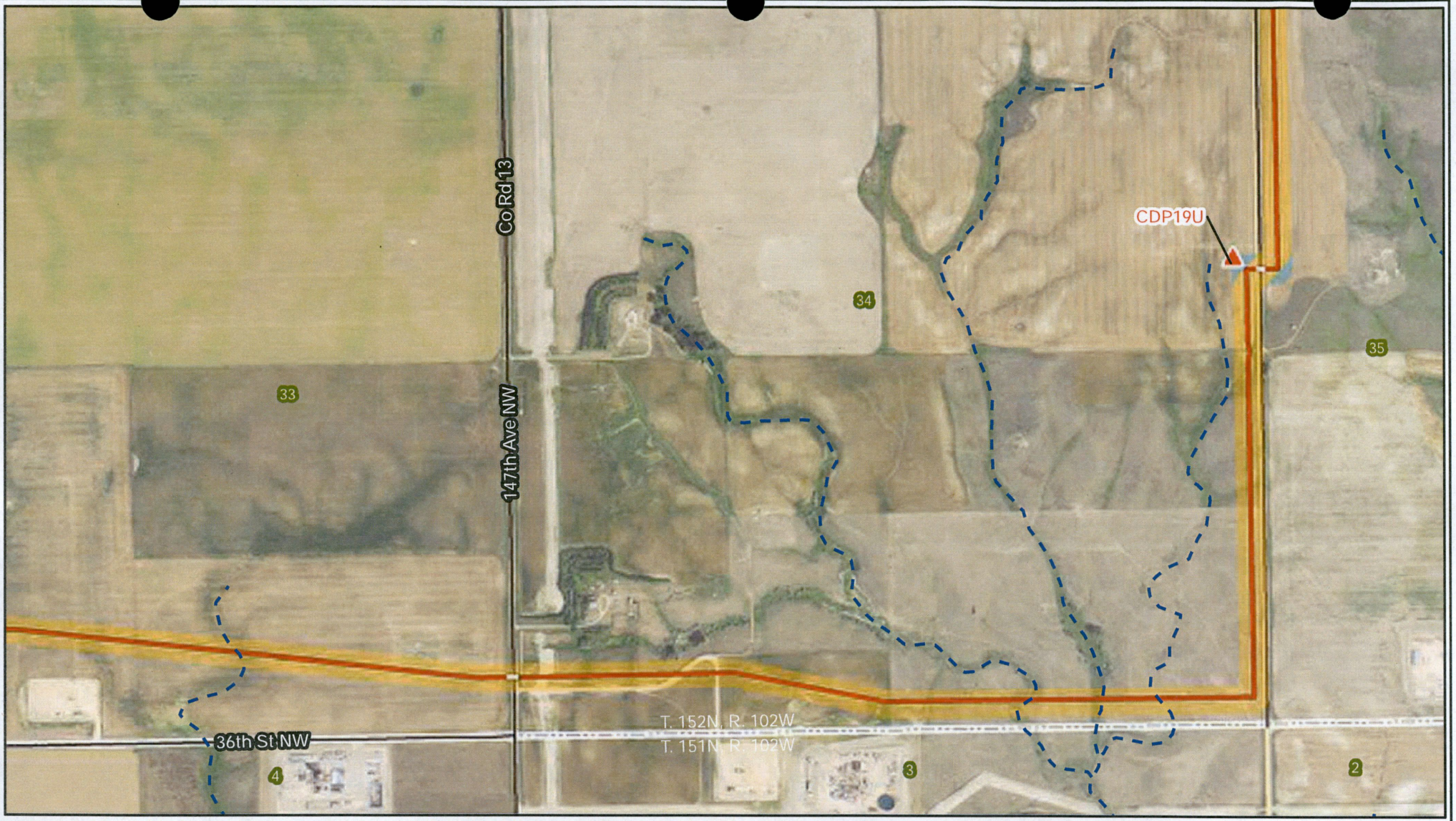

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Township/Range: T. 152N, R. 102W
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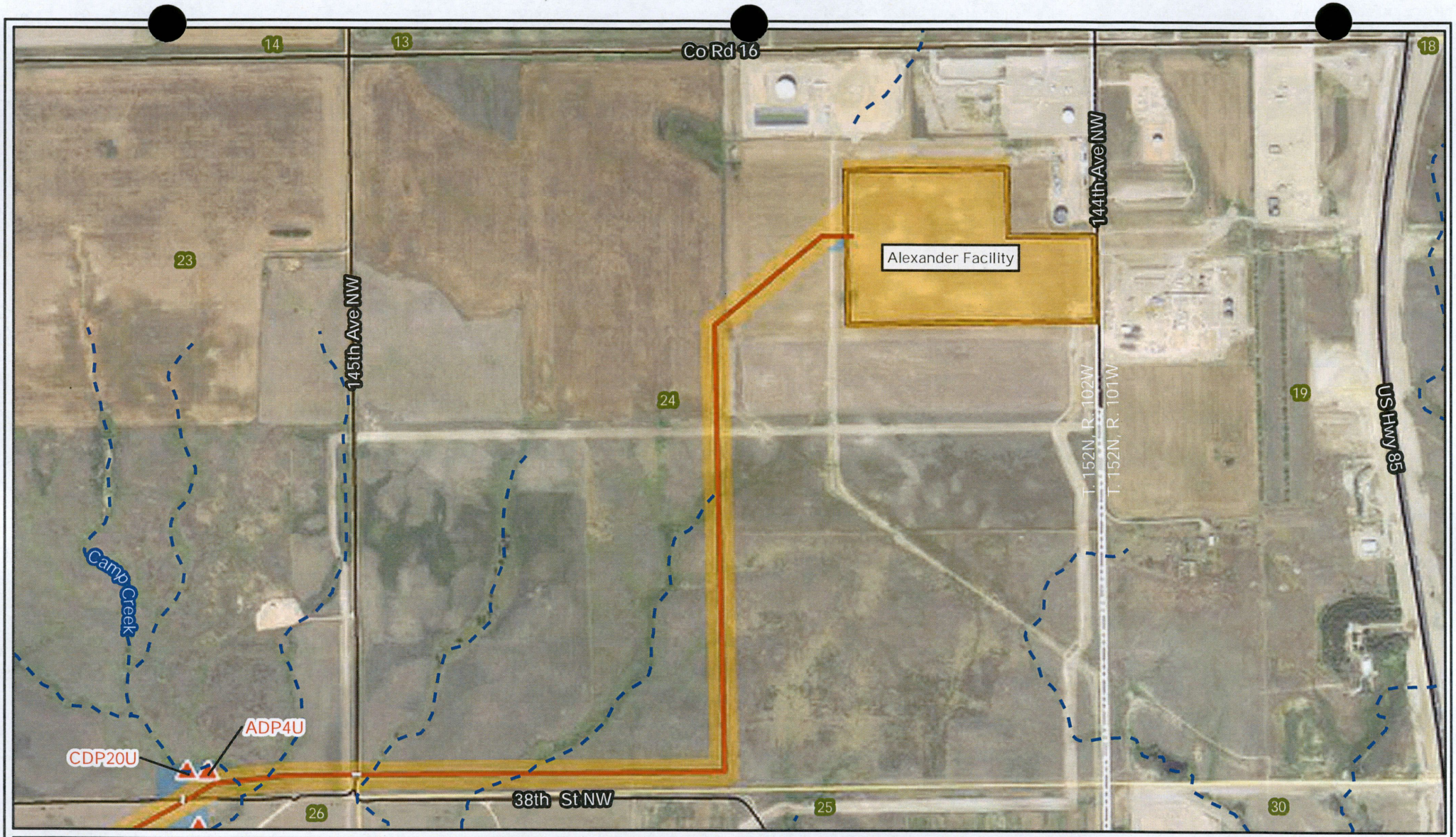

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APPENDIX B

Survey Area Soils Series Map

NST Express Pipeline

- Proposed Pipeline
- Approxiate Bore Path
- Existing Road
- Soil Unit Boundary
- Facility Location
- Survey Area
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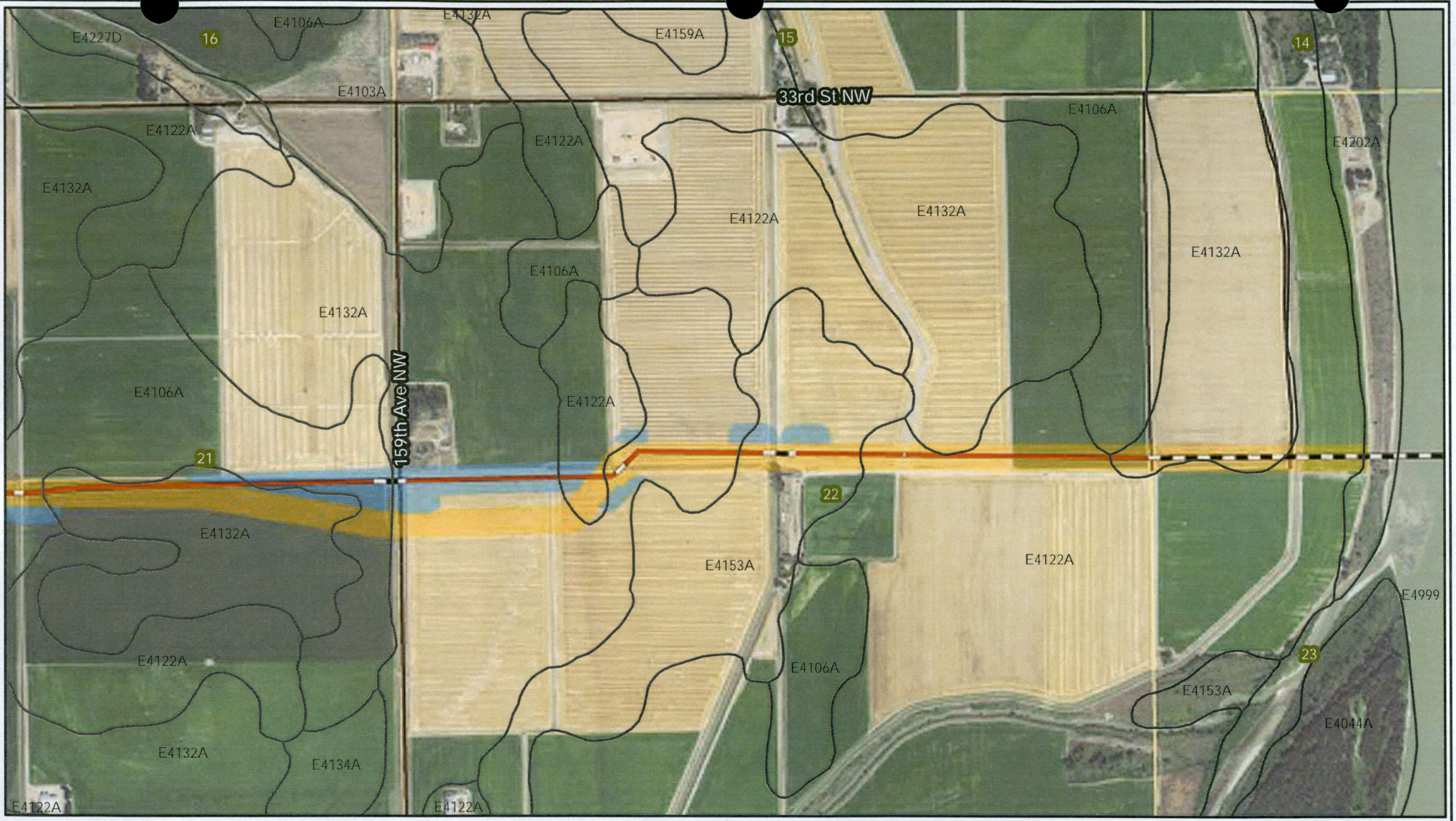

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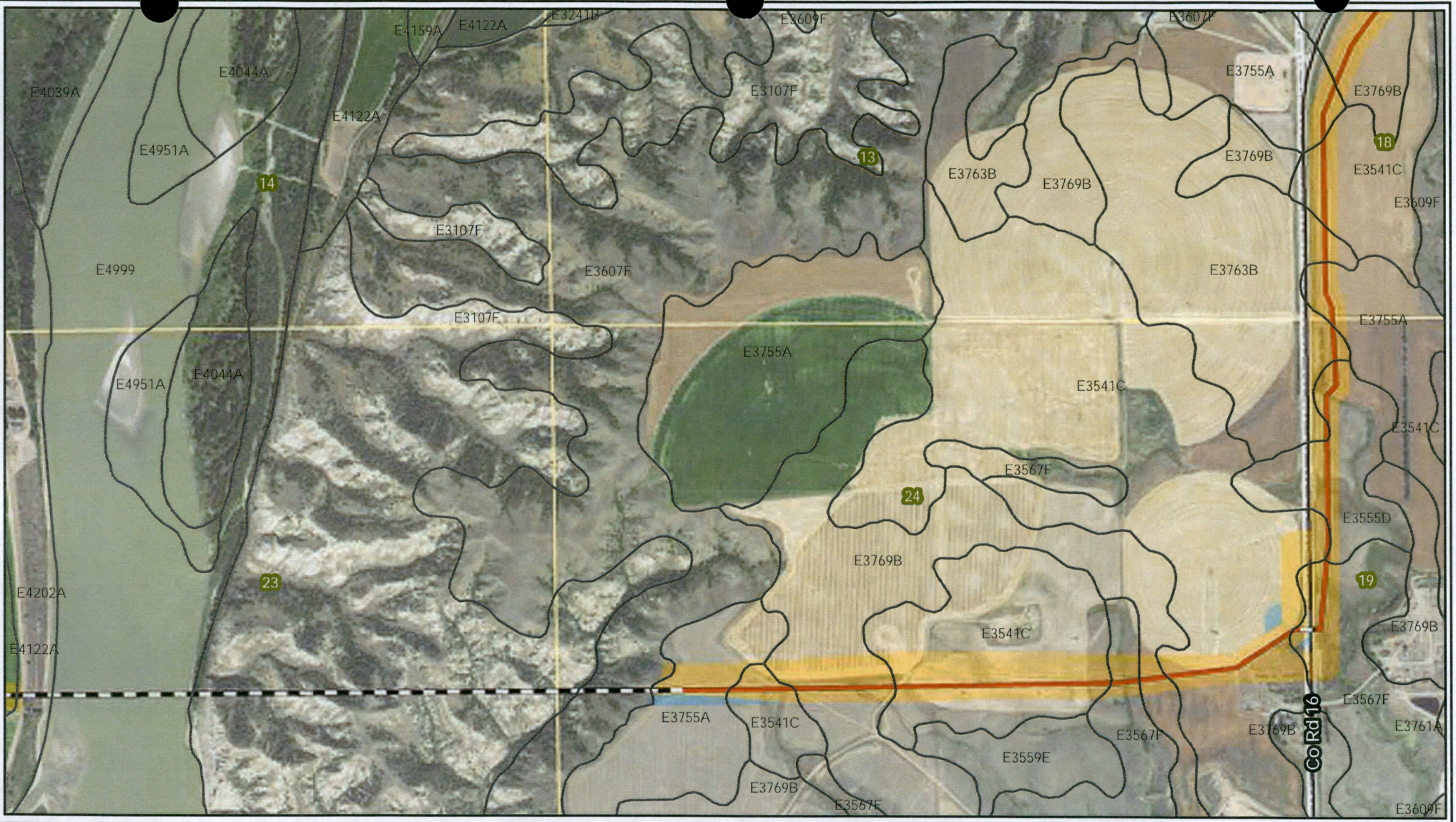

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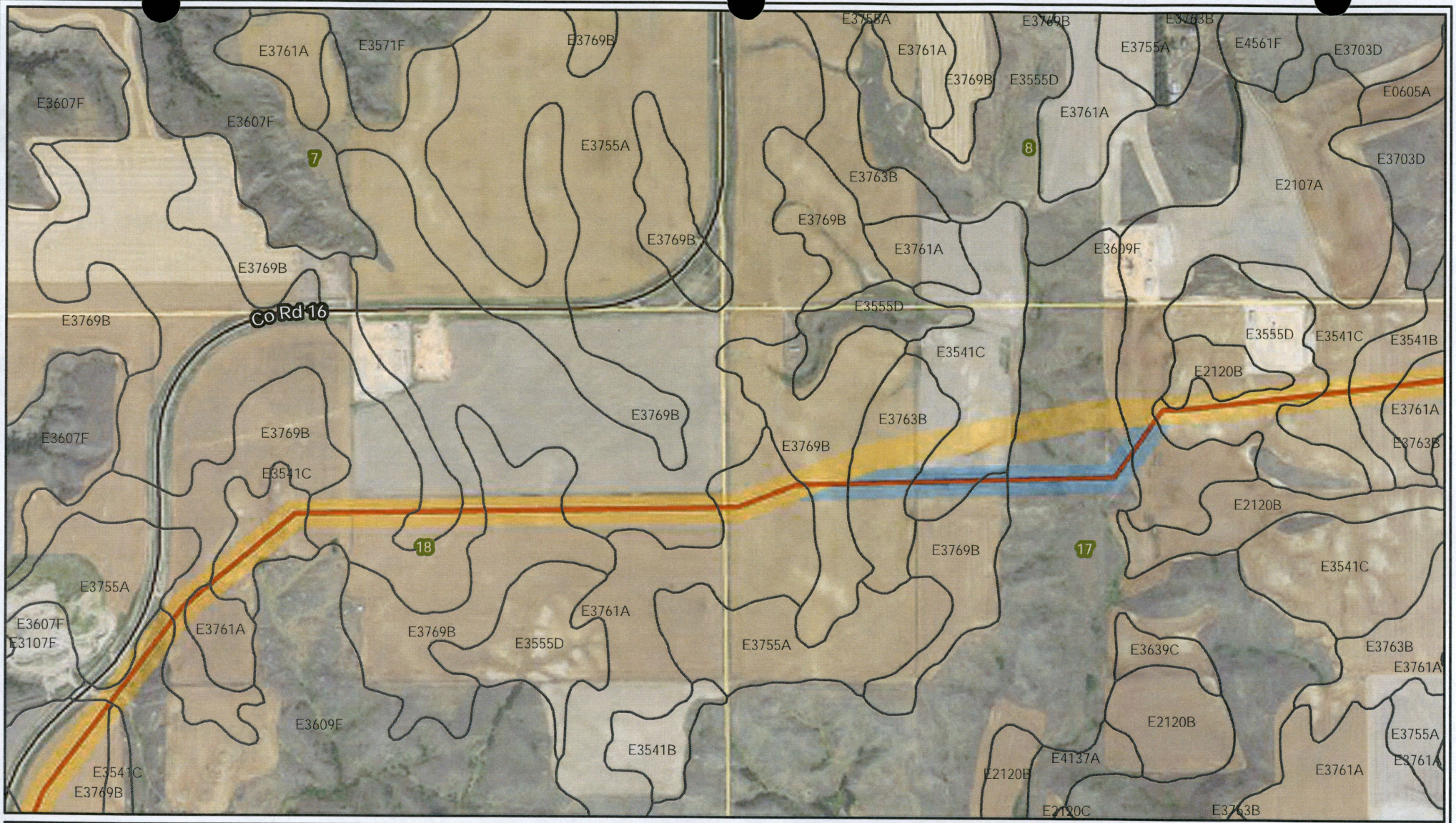

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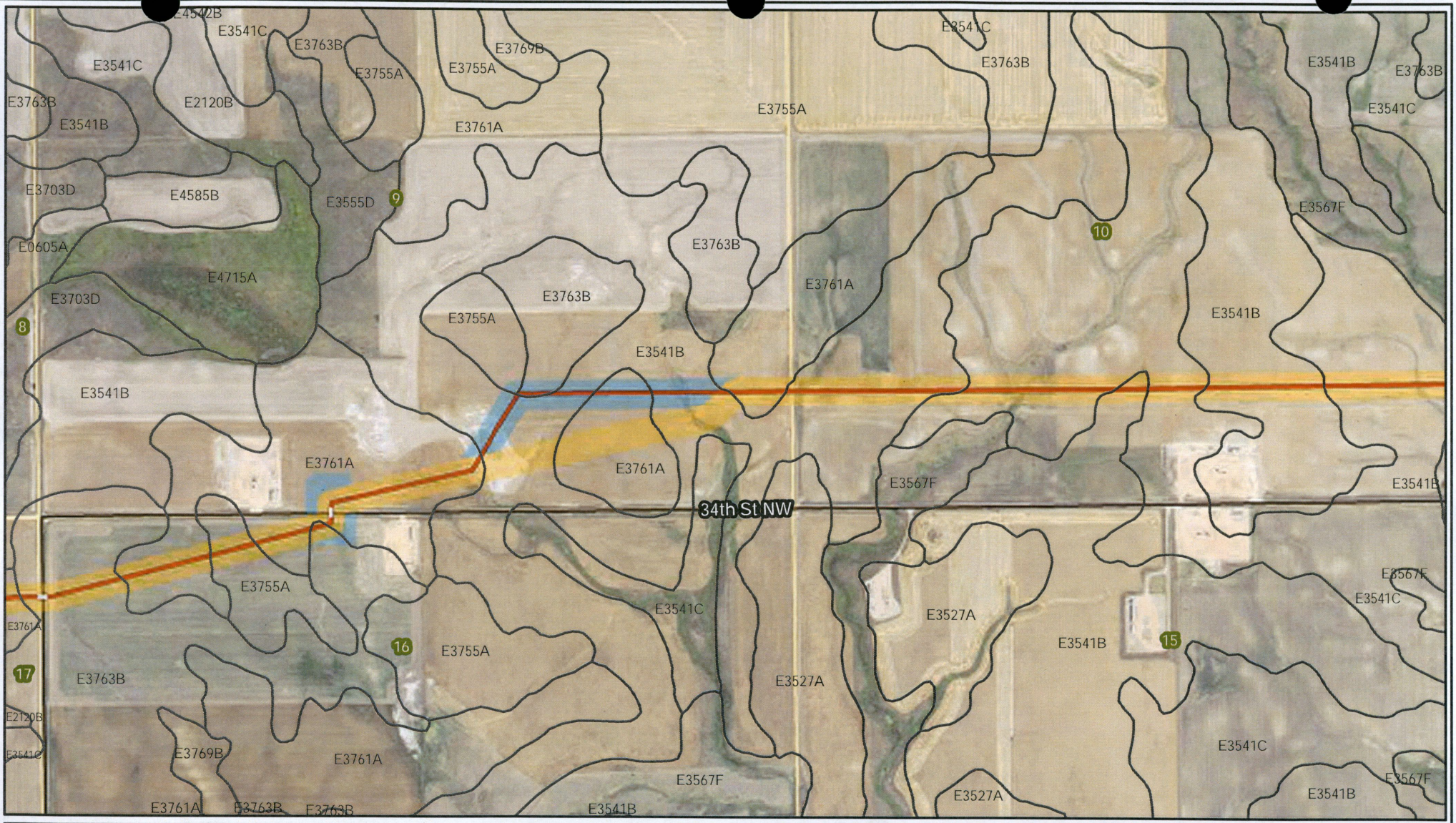

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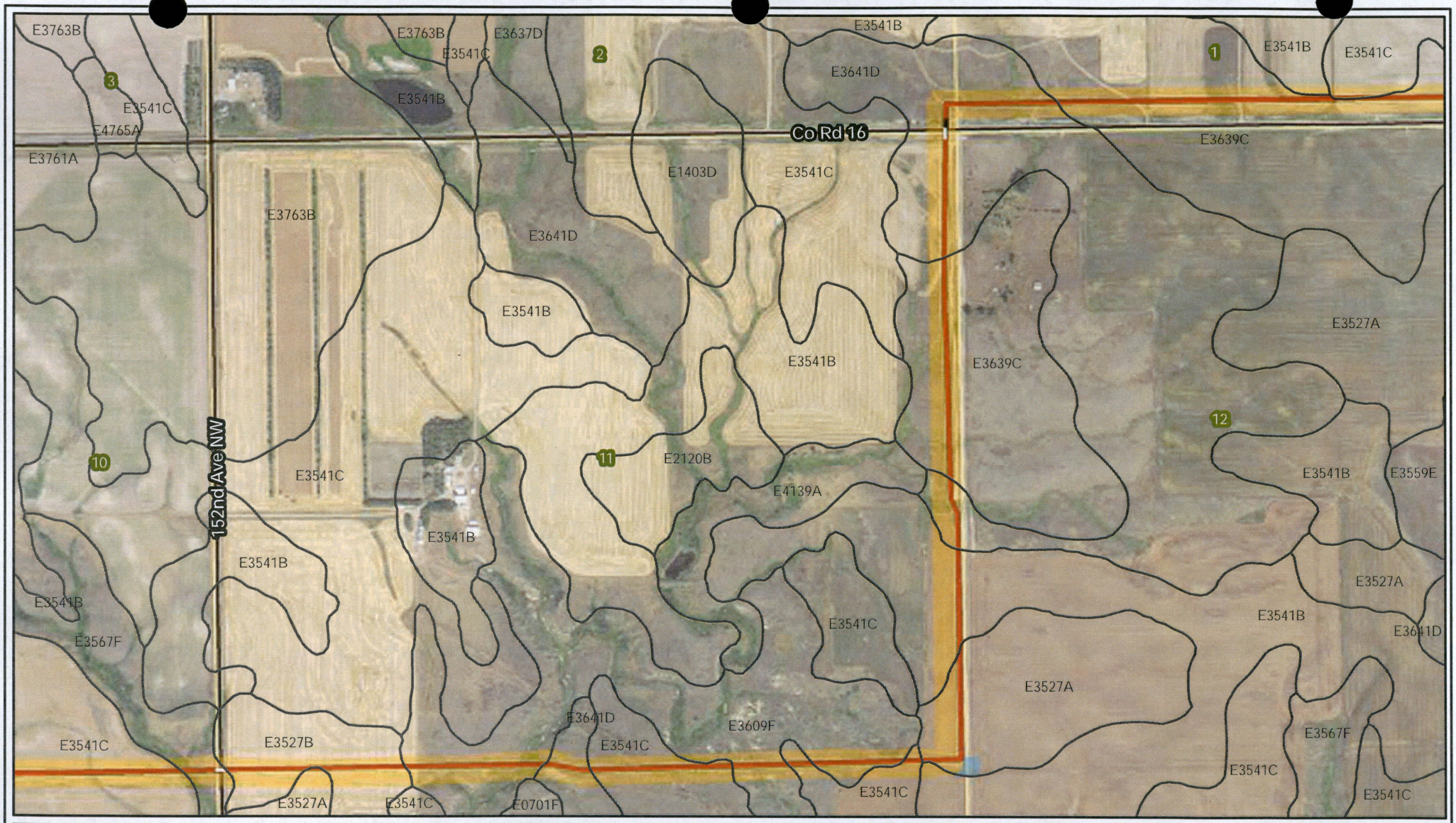

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McKenzie County, North Dakota

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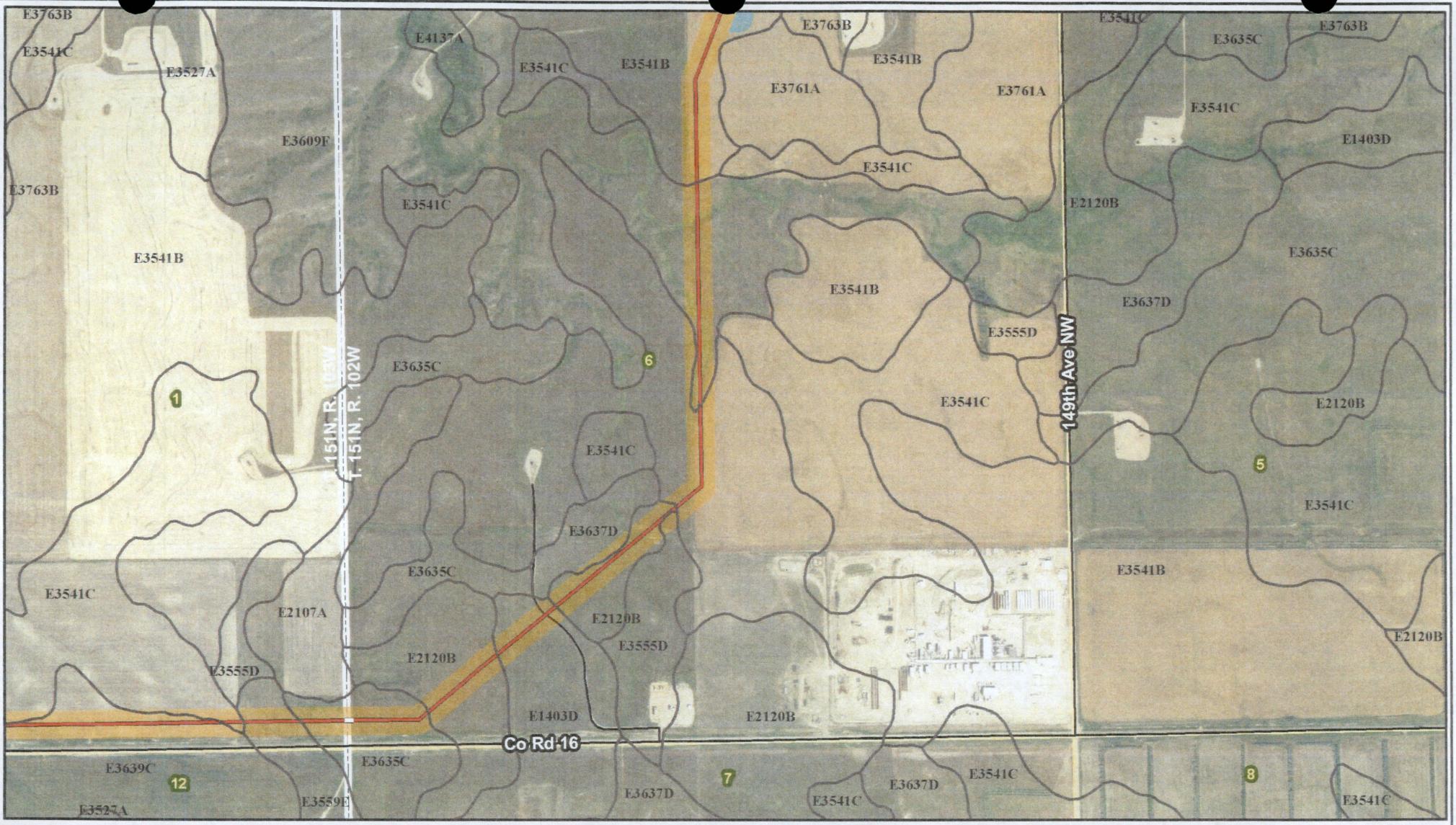

NST Express Pipeline

- Approxiate Bore Path
- Existing Road
- Proposed Route
- Soil Unit Boundary
- Facility Location
- Survey Area
- Previously Inventoried Area
- Section Boundary
- Township/Range Boundary

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116 North 4th Street
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Phone: 701.258.6622
Fax: 701.258.5957
www.swca.com

Miles
0 0.2 0.4

Kilometers
0 0.4 0.8

Base Map: 2014 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Cartwright NE (1991)
Township/Range: T. 151N, R. 103W & T. 151N, R. 102W
McKenzie County, North Dakota

Projection: NAD 1983 UTM Zone 13N

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W E
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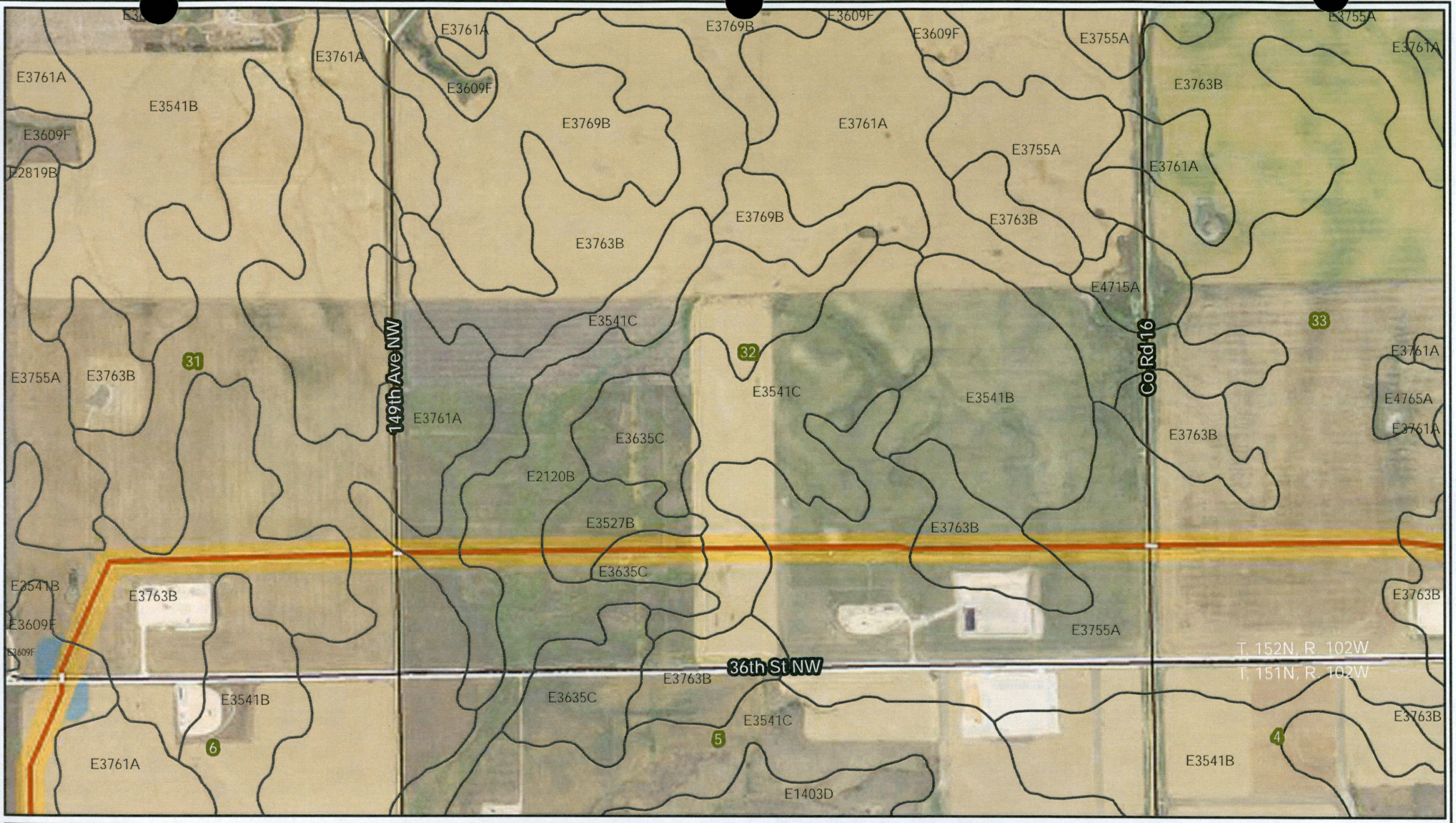

NST Express Pipeline

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Kilometers
0 0.375 0.75

Base Map: 2014 Aerial Imagery
Source: USDA/FSA - Aerial Photography Field Office
Quadrangle: Cartwright NE (1991), Camp Creek West (1978)
Township/Range: T. 151N, R. 102W & T. 152N, R. 102W
McKenzie County, North Dakota

Projection: NAD 1983 UTM Zone 13N

N W E S

NST Express Pipeline

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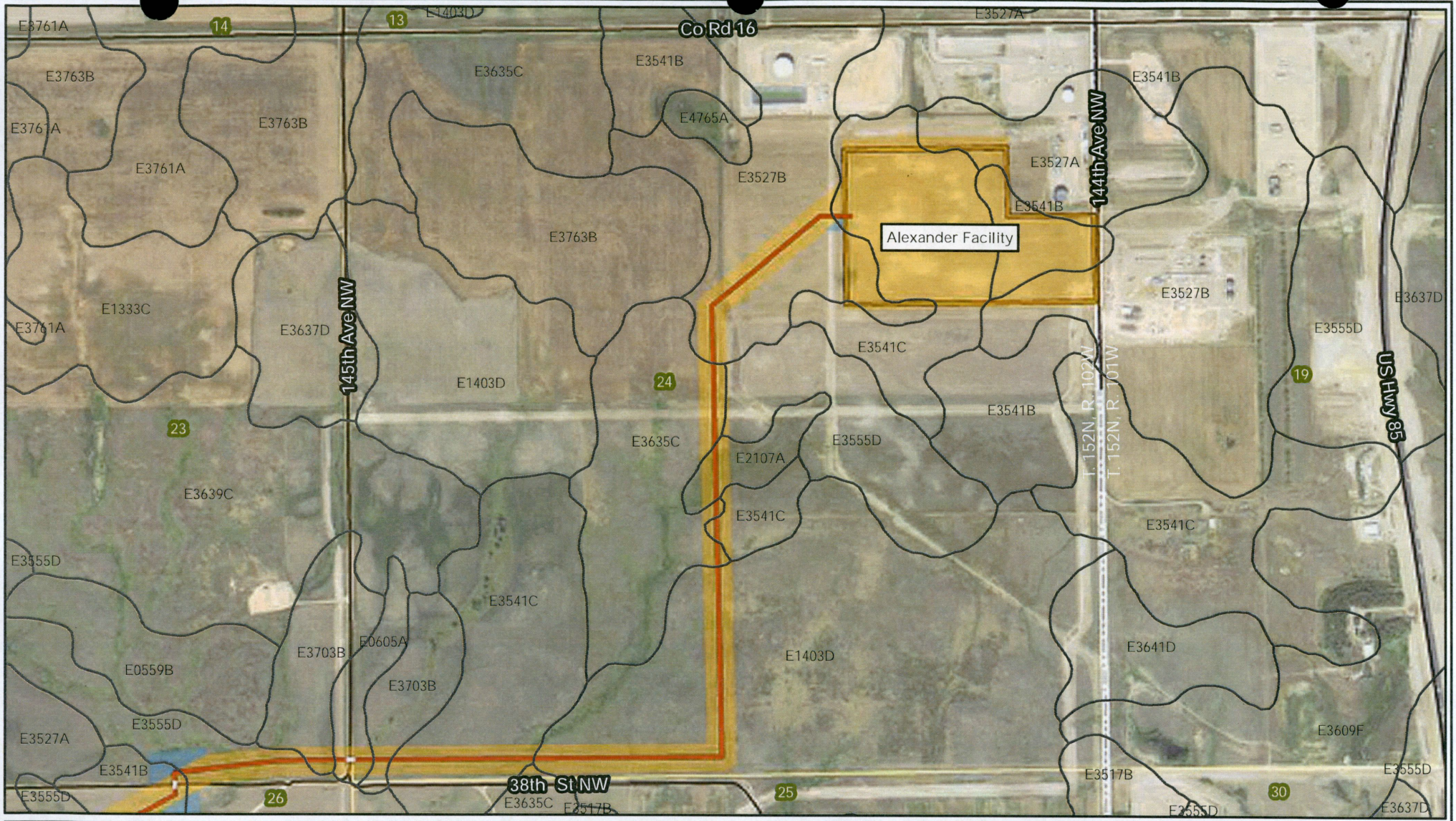
N W E S



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Projection: NAD 1983 UTM Zone 13N

APPENDIX C

Photographs of Project Area

Figure C.1. Intermittent stream (STR1) associated with irrigation canal, facing west (photo taken June 9, 2015).

Figure C.2. Intermittent stream (STR2) associated with irrigation canal, facing south (photo taken June 9, 2015).

Figure C.3. Intermittent stream (STR2) associated with irrigation canal, facing north (photo taken June 9, 2015).

Figure C.4. Planted juniper tree row (WV1), facing northeast (photo taken June 9, 2015).