ONEOK PARTNERS

ONEOK BAKKEN PIPELINE, L.L.C.

Bear Creek NGL Pipeline Project

North Dakota Public Service Commission

Consolidated Application for Certificate of Corridor Compatibility and Route Permit

December 2015

TABLE OF CONTENTS

REGULATORY CROSS-REFERENCE GUIDE vi
ACRONYMS AND ABBREVIATIONS x
LIST OF EXHIBITS xii
INTRODUCTION 1
1.0 SIZE AND TYPE OF FACILITY 2
1.1 TYPE 2
1.2 SIZE 2
1.3 LENGTH 2
1.4 ABOVEGROUND FACILITIES 2
2.0 DESIGN OF THE FACILITY 3
2.1 DESIGN OF PROPOSED FACILITY 3
2.2 PURPOSE AND NEED OF THE FACILITY 3
2.3 GENERAL AREA TO BE SERVED 4
2.4 CAPACITY 4
2.5 TECHNOLOGY TO BE DEPLOYED/EMPLOYED 4
2.6 TYPE OF PRODUCT TO BE TRANSMITTED 4
2.7 SOURCE OF PRODUCT TO BE TRANSMITTED 4
2.8 FINAL DESTINATION OF PRODUCT 4
2.9 WIDTH OF RIGHT-OF-WAY 4
2.10 REQUIREMENT FOR AND GENERAL LOCATION OF ANY NEW ASSOCIATED FACILITIES 5
2.11 ESTIMATED DISTANCE BETWEEN SURFACE STRUCTURES FOR PIPELINE FACILITIES 5
2.12 MAXIMUM DESIGN OPERATING PRESSURE AND TEMPERATURE FOR PIPELINE FACILITIES 5
2.13 MAXIMUM DESIGN FLOW RATE FOR PIPELINE FACILITIES 5
2.14 NUMBER AND GENERAL LOCATION FOR COMPRESSOR OR PUMPING STATIONS 5
2.15 ESTIMATED TOTAL COST OF CONSTRUCTION 5
2.16 PREFERRED LOCATION OF FACILITY 6
2.17 PREFERRED LOCATION OF CORRIDOR 6
2.18 DESCRIPTION OF ROW PREPARATION AND CONSTRUCTION AND RECLAMATION PROCEDURES 7
2.19 LANDOWNER NOTIFICATION, EASEMENT ACQUISITION, AND COMPENSATION 8
3.0 SCHEDULE 9
3.1 OBTAINING CERTIFICATE OF CORRIDOR COMPATIBILITY 9
3.2 OBTAINING ROUTE PERMIT 9

3.3 COMPLETING ROW ACQUISITION 9
3.4 STARTING CONSTRUCTION 9
3.5 COMPLETING CONSTRUCTION 9
3.6 TESTING OPERATIONS 9
3.7 COMMENCING OPERATIONS 9
4.0 ALTERNATIVES 10
4.1 ALTERNATIVES TO THE PROPOSED FACILITY 10
4.1.1 No Action Alternative 10
4.1.2 Truck Transportation Alternative 11
4.1.3 Rail Transportation Alternative 12
4.2 ROUTE/SEGMENT ALTERNATIVES 13
5.0 ENVIRONMENTAL STUDIES 14
5.1 CULTURAL RESOURCE INVENTORY 14
5.2 WETLAND AND WATERBODY INVENTORY 16
5.3 WILDLIFE INVENTORY 16
5.3.1 Federally Protected Species Review 16
5.3.2 Migratory Bird Treaty Act 20
5.3.3 Bald and Golden Eagle Protection Act 21
5.4 TREE/SAPLING/SHRUB INVENTORY 22
5.5 NOXIOUS WEEDS INVENTORY 22
6.0 AGENCY NOTIFICATIONS and PERMITTING 24
6.1 U.S. FISH AND WILDLIFE SERVICE 24
6.1.1 Federally Protected Species Review 25
6.1.2 Migratory Bird Treaty Act 25
6.1.3 Bald and Golden Eagle Protection Act 25
6.1.4 Wetland and Grassland Easements 25
6.2 U.S. FOREST SERVICE 26
6.3 U.S. ARMY CORPS OF ENGINEERS 26
6.4 U.S. DEPARTMENT OF AGRICULTURE, FARM SERVICE AGENCY 26
6.5 U.S. DEPARTMENT OF DEFENSE 27
6.6 NORTH DAKOTA GAME AND FISH DEPARTMENT 27
6.7 NORTH DAKOTA PARKS AND RECREATION DEPARTMENT 27
6.8 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE 28
6.9 NORTH DAKOTA DEPARTMENT OF HEALTH 28
6.10 NORTH DAKOTA STATE WATER COMMISSION 29

6.11 NORTH DAKOTA DEPARTMENT OF TRUST LANDS 29
7.0 POLICY CRITERIA 30
7.1 LOCATION AND DESIGN 30
7.2 TRAINING AND UTILIZATION OF IN-STATE LABOR 30
7.3 ECONOMIES OF CONSTRUCTION AND OPERATION 30
7.4 USE OF CITIZEN COORDINATING COMMITTEES 30
7.5 COMMITMENT OF PORTION OF TRANSMITTED PRODUCT FOR USE IN STATE 30
7.6 LABOR RELATIONS 31
7.7 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT 31
7.8 COORDINATION OF FACILITIES 31
7.9 MONITORING IMPACTS 31
7.10 USING EXISTING AND PROPOSED ROWS AND CORRIDORS 32
7.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES 32
8.0 CRITERIA 33
8.1 EXCLUSION AREAS 33
8.1.1 Federal Resource Review 34
8.1.2 State Resource Review 34
8.1.3 County Resource Review 34
8.1.4 Areas of Critical Habitat 34
8.1.5 Areas where Unique or Rare Species Would Be Irreversibly Damaged 34
8.1.6 Areas within 1,200 Feet of ICBM Facility or 30 Feet of Direct Line of ICBM Launch Facility 35
8.2 AVOIDANCE AREAS 35
8.2.1 Federal Resource Review 36
8.2.2 State Resource Review 36
8.2.3 Historical Resources Not Designated as Exclusion/Avoidance Areas 36
8.2.4 Geologically Unstable Areas 36
8.2.5 Areas within 500 Feet of a Residence, School, or Place of Business 37
8.2.6 Reservoirs and Municipal Water Supplies 37
8.2.7 Water Sources for Organized Rural Water Districts 37
8.2.8 Irrigated Land 37
8.2.9 Areas of Recreational Significance but Not Designated Exclusion Areas 38
8.3 SELECTION CRITERIA 38
8.3.1 Agricultural Impacts 38
8.3.2 Sound-sensitive Land Uses 39
8.3.3 Visual Effect on Adjacent Areas 39

8.3.4 Extractive and Storage Resources 40
8.3.5 Wetlands, Woodlands, and Wooded Areas 40
8.3.6 Radio and TV Reception and Other Communication or Electronic Facilities 40
8.3.7 Human Health and Safety 40
8.3.8 Animal Health and Safety 41
8.3.9 Plant Life 41
9.0 OTHER FACTORS CONSIDERED 42
9.1 PUBLIC HEALTH, WELFARE, NATURAL RESOURCES, AND THE ENVIRONMENT 42
9.2 TRANSMISSION TECHNOLOGIES AND SYSTEMS DESIGNED TO MINIMIZED ADVERSE ENVIRONMENTAL EFFECTS 42
9.3 BENEFICIAL USES OF WASTE ENERGY FROM A PROPOSED ENERGY CONVERSION FACILITY 42
9.4 UNAVOIDABLE ADVERSE DIRECT AND INDIRECT ENVIRONMENTAL EFFECTS 42
9.5 CORRIDOR OR ROUTE ALTERNATIVES DEVELOPED DURING THE HEARING THAT MINIMIZE ADVERSE EFFECTS 42
9.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES IF DESIGNATED 43
9.7 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE FACILITY 43
9.8 EXISTING PLANS FOR OTHER DEVELOPMENTS IN THE VICINITY 43
9.9 RECYCLING OF CONVERSION BYPRODUCTS AND EFFLUENTS 45
9.10 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT 45
9.11 ENERGY CONSERVATION THROUGH USE OF A PRIMARY ENERGY SOURCE OR RAW MATERIAL 45
9.12 NON-RELOCATION OF RESIDENTS 45
9.13 DEDICATION OF AN AREA ADJACENT TO THE FACILITY FOR LAND USE SUCH AS RECREATION, AGRICULTURE, OR WILDLIFE MANAGEMENT 45
9.14 SECONDARY USES OF APPROPRIATE ASSOCIATED FACILITIES FOR RECREATION AND THE ENHANCEMENT OF WILDLIFE 46
9.15 PROBLEMS RAISED BY FEDERAL, STATE, AND LOCAL AGENCIES 46
10.0 MITIGATION MEASURES 47
10.1 HUMAN ENVIRONMENT 47
10.2 TERRAIN AND GEOLOGICAL RESOURCES 48
10.3 SOILS 48
10.4 VEGETATION AND WILDLIFE 49
10.5 LAND USE 51
10.6 CULTURAL RESOURCES 51
10.7 AREAS OF KNOWN GEOLOGIC INSTABILITY 52
11.0 DEVELOPMENT 53

11.1 PRESENT AND FUTURE NATURAL RESOURCE DEVELOPMENT IN THE AREA 53
12.0 QUALIFICATIONS OF PREPARERS 54

TABLES

Table 2.16-1 Project Location 6
Table 5.2-1 Summary of Delineated Wetlands and Waterbodies 16
Table 5.3-1 Federally Listed Species in McKenzie and Dunn Counties, ND 17
Table 5.5-1 State and County Listed Noxious Weeds 22
Table 6.0-1 Summary of Agency Notifications 24
Table 8.1-1 Exclusion Areas 33
Table 8.2-1 Avoidance Areas 35

FIGURES

Figure 4.1.1-1 North Dakota NGL Production Forecast 11

REGULATORY CROSS-REFERENCE GUIDE

AUTHORITY	DESCRIPTION	SECTION
Chapter 49-22	***CENTURY CODE – Title 49 ENERGY CONVERSION AND TRANSMISSION FACILITY***	
49-22-08	Application for a Certificate for a Corridor	
1.a	Description of size and type of facility	1.0, 2.1
1.b	Summary of any studies of environmental impacts	5.0
1.c	Need for the facility	2.2
1.d	Site for energy conversion facility	N/A
1.e	Preferred transmission (pipeline) corridor	2.17, Exhibit B.3-B.5
1.f	Analysis of merits and detriments of facility location	4.1
1.g	Mitigating measures	10.0
1.h	Corridor evaluation pursuant to 49-22-09 and 49-22-05.1	8.0, 9.0
1.i	Other relevant information	9.0
49-22-08.1	Application for Route Permit	
1.a	Description of size and type of facility	1.0, 2.1
1.b	Description of the location	1.0, 2.16, 2.17
1.c	Route evaluation relative to 49-22-09 and 49-22-05.1	8.0, 9.0
1.d	Mitigating measures	10.0
1.e	Right-of-way preparation, construction, and reclamation	2.18
1.f	Statement identifying how: 1. Landowners informed of right-of-way acquisition 2. How landowners will be compensated	2.19
1.g	Other relevant information	9.0
49-22-09	Factors to be considered in evaluating corridor and route applications	
1	Research and investigation into effects of the project on public health, welfare, natural resources, and the environment	5.0, 7.3, 7.7, 7.9, 8.1 8.2, and 8.3, 9.1
2	Effects of transmission technology and design to minimize adverse effects	9.2
3	Potential beneficial uses of waste energy from energy conversion facility	9.3
4	Unavoidable adverse direct and indirect environmental effects	9.4
5	Corridor or route alternatives developed during the hearing which minimize adverse effects	9.5
6	Irreversible and irretrievable commitments of natural resources if designated	9.6
7	Direct and indirect economic impacts of the facility	9.7
8	Existing plans for other developments at or in the vicinity	9.8
9	Effect of project on scenic areas, historic sites and structures, paleontological and archaeological sites	5.1, 6.7, 8.1
10	Effect of route on unique biological areas	5.2, 5.3, 6.1, 8.1.5
11	Problems raised by federal, state, or local entities	6.0, 9.15, Exhibit D

AUTHORITY	DESCRIPTION	SECTION
	ADMINISTRATIVE CODE - ARTICLE 69-06 ***ENERGY CONVERSION AND TRANSMISSION FACILITY SITING***	
69-06-05-01	Application for a Transmission Facility Permit (Corridor Certificate)	
2.a.(1)	Type of facility proposed	1.0
2.a.(2)	Purpose of facility	2.2
2.a.(3)	Technology to be deployed	2.5
2.a.(4)	Type of product to be transmitted	2.6
2.a.(5)	Source of product being transmitted	2.7
2.a.(6)	Final destination of product being transmitted	2.8
2.a.(7)	Size and design detail and any alternative size and design	1.0, 2.1, 4.1, 4.2, Exhibit A
2.a.(7)(a)	The width of right-of-way	2.9, Exhibit B.1
2.a.(7)(b)	The approximate length of facility	1.3
2.a.(7)(c)	The estimated span length for electric facilities	N/A
2.a.(7)(d)	The anticipated type of structure for electric facilities	N/A
2.a.(7)(e)	The voltage for electric facilities	N/A
2.a.(7)(f)	The requirement for and general location of any new associated facilities	2.10
2.a.(7)(g)	The estimated distance between pipeline surface structures	2.11
2.a.(7)(h)	The pipe size	1.2
2.a.(7)(i)	The maximum design for pipeline operating pressure and temperature	2.12
2.a.(7)(j)	The maximum design pipeline flow rate	2.13
2.a.(7)(k)	The number and general location of compressor or pumping stations	2.14
2.b.	Time schedule	3.0
2.b.(1)	Obtaining the certificate of corridor compatibility	3.1
2.b.(2)	Obtaining the route permit	3.2
2.b.(3)	Completing right-of-way acquisition	3.3
2.b.(4)	Starting construction	3.4
2.b.(5)	Completing construction	3.5
2.b.(6)	Testing operations	3.6
2.b.(7)	Commencing operations	3.7
2.c.	A copy of each evaluative study or assessment of the environmental impact of the proposed facility submitted to the agencies listed in section 69-06-01-05 and each response received	5.0, 6.0 Exhibits C and D
2.d.	Need for the facility	2.2
2.e.	Description of alternatives	4.0
2.f.	Corridor width	2.17, 5.0
2.g.	Study area to enable the Commission to evaluate the factors in the Century Code section 49-22-09;	5.0
2.h.	Discussion of factors in Century Code 49-22-09 to aid Commission's evaluation	8.0, 9.0

AUTHORITY	DESCRIPTION	SECTION
2.i.	A discussion of the applicant's policies and commitments to limit the environmental impact of its facilities, including copies of the board resolutions and management directives	7.0
2.j.	Map of criteria that led to route location	Exhibit B.3-B.5
2.k.	Discuss relative value of each criteria and how the location was selected; how operation will affect criteria	8.0
2.l.	Mitigating measures	10.0
2.m.	Qualifications of each person involved in location study	12.0
2.n.	Map identifying criteria that led to the route location and new facilities	Exhibit B.3-B.5
2.o.	8 1/2 X 11 black and white map suitable for newspaper publication	Separate
2.p.	Discussion of present and future natural resource development in the area	11.0
2.q.	Maps and GIS data meeting NDPSC requirements	Exhibit B, electronic GIS data
69-06-06-01	Application for Waiver of Procedures and Time Schedules	--
69-06-08-02	Transmission Facility Corridor and Route Criteria	--
1	Exclusion areas	8.1
1.a.	Designated or registered national: parks, sites , landmarks, monuments, wilderness	8.1.1
1.b.	Designated or registered state: parks, sites, monuments, archeological sites, nature preserves	8.1.2
1.c.	County parks and recreational areas, municipal parks, parks owned or administered by other governmental subdivisions	8.1.3
1.d.	Areas of critical habitat	8.1.4
1.e.	Areas where unique or rare species would be irreversibly damaged	8.1.5
1.f.	Area within one thousand two hundred feet of ICBM facility	8.1.6
1.g.	Areas within thirty feet of direct line of ICBM launch facilities	8.1.6
2	Avoidance areas	8.2
2.a.	Designated or registered national: historic districts, wildlife areas, wild, scenic or recreational rivers, wildlife refuges, grasslands	8.2.1
2.b.	Designated or registered state: wild, scenic, recreational rivers, game refuges, game management areas, forest management lands, grasslands	8.2.2
2.c.	Historical resources which are not specifically designated as exclusion or avoidance areas	8.2.3
2.d.	Areas which are geologically unstable	8.2.4
2.e.	Within five hundred feet of a residence, school, or place of business	8.2.5
2.f.	Reservoirs and municipal water supplies	8.2.6
2.g.	Water sources for organized rural water districts	8.2.7
2.h.	Irrigated land (does not apply to underground transmission facility)	8.2.8
2.i.	Area of recreational significance but not designated exclusion areas	8.2.9

AUTHORITY	DESCRIPTION	SECTION
3	Selection criteria. Impact on:	8.3
3.a.(1)	Agricultural production	8.3.1
3.a.(2)	Family farms and ranches	8.3.1
3.a.(3)	Land economically suitable for irrigation	8.3.1
3.a.(4)	Surface drainage patterns and groundwater flow patterns	8.3.1
3.b.(1)	Sound sensitive land uses	8.3.2
3.b.(2)	Visual effect on adjacent area	8.3.3
3.b.(3)	Extractive and storage resources	8.3.4
3.b.(4)	Wetlands, woodlands, and wooded areas	8.3.5
3.b.(5)	Radio and TV reception and other communication or electronic facilities	8.3.6
3.b.(6)	Human health and safety	8.3.7
3.b.(7)	Animal health and safety	8.3.8
3.b.(8)	Plant life	8.3.9
4	Policy criteria	7.0
4.a.	Location and design	7.1
4.b.	Training and utilization of instate labor	7.2
4.c.	Economies of construction and operation	7.3
4.d.	Use of citizen coordinating committees	7.4
4.e.	Commitment of portion of transmitted product for use in state	7.5
4.f.	Labor relations	7.6
4.g.	Coordination of facilities	7.8
4.h.	Monitoring of impacts	7.9
4.i.	Using existing and proposed rights-of-way and corridors	7.10
4.j.	Other existing or proposed transmission facilities	7.11

ACRONYMS AND ABBREVIATIONS

BCC	Birds of Conservation Concern
BCR	Bird Conservation Regions
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
bpd	barrels per day
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
CMRP	Construction Mitigation and Restoration Plan
CRP	Conservation Reserve Program
DOT	Department of Transportation
FSA	U.S. Department of Agriculture's Farm Service Agency
FWS	U.S. Fish and Wildlife Service
GIS	Geographic Information System
HDD	horizontal directional drilling
ICBM	intercontinental ballistic missile
IPaC	Information, Planning, and Conservation System
MBTA	Migratory Bird Treaty Act
MM b/d	million barrels per day
MM cf/d	million cubic feet per day
NDAC	North Dakota Administrative Code
NDDA	North Dakota Department of Agriculture
NDDH	North Dakota Department of Health
NDDTL	North Dakota Department of Trust Lands
NDGFD	North Dakota Game and Fish Department
NDPDES	North Dakota Pollution Discharge Elimination System
NDPRD	North Dakota Parks and Recreation Department
NDPSC	North Dakota Public Service Commission
NDSLD `	North Dakota State Land Department
NDSWC	North Dakota State Water Commission
NGL	natural gas liquid
NLEB	northern long-eared bat
NRHP	National Register of Historic Places
ONEOK	ONEOK Bakken Pipeline, L.L.C.
ORM	ONEOK Rockies Midstream, L.L.C.
PCN	Pre-Construction Notification
Project	8-inch Bear Creek NGL Pipeline Project
psig	pounds per square inch gauge

ROW	right-of-way
SHPO	state historic preservation office
SWPPP	stormwater pollution prevention plan
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
USNPS	U.S. National Park Service
WHPA	Well Head Protection Area
WPA	Waterfowl Production Area

LIST OF EXHIBITS

Exhibit A: Engineering Documents
Exhibit B: Project Maps
B.1 Right-of-way Configuration Drawings
B.2 Project Overview Maps
B.3 Avoidance and Exclusion Maps
B.4 Land Use/Land Cover Maps
B.5 Selection Criteria (Other) Maps
Exhibit C: Natural Resource Survey Report
Exhibit D: Agency Consultations
Exhibit E: Landowner Waivers

INTRODUCTION

ONEOK Bakken Pipeline, L.L.C. (ONEOK) a wholly owned subsidiary of ONEOK Partners, L.P., owns and operates natural gas liquids (NGL) assets in North Dakota. ONEOK is proposing the Bear Creek NGL Pipeline Project (Project). The Project is a new, steel, 8-inch diameter NGL pipeline that would originate at the proposed ONEOK Rockies Midstream, L.L.C. (ORM) Bear Creek Plant in Dunn County, North Dakota and extend to the northwest to terminate at an inter-connect with ONEOK's existing Targa Pipeline in McKenzie County, North Dakota. The Project would be approximately 38 miles in length. Currently two Targa Pipeline tie-in route alternatives are under consideration due to ongoing landowner negotiations. The Preferred Route would terminate in Township 149N Range 99W Section 25, and the Alternative Route would terminate in Township 149N Range 98W Sections 29 and 30. ONEOK will notify the North Dakota Public Service Commission (NDPSC) of the final route prior to construction. Refer to the maps in Exhibit B for an overview of the Project.

ONEOK submits to the NDPSC a single consolidated application for a Certificate of Corridor Compatibility and Route Permit for the Project.

The application provides the information required by:

- North Dakota Century Code (NDCC), Energy Conversion and Transmission Facility Siting Act, Chapter 49-22; and
- North Dakota Administrative Code (NDAC), Chapter 69-06-05, Transmission Facility Permit.

Construction activities are currently proposed to begin in April 2016 and be completed in August 2016. Restoration activities may extend into fall 2016 and spring 2017, if needed.

1.0 SIZE AND TYPE OF FACILITY

1.1 TYPE

The proposed Project is a Y-grade NGL transmission pipeline. The steel pipeline will meet U.S. Department of Transportation (DOT) regulations, specifically the design criteria outlined in 49 Code of Federal Regulations (CFR) part 195 subpart C, constructed per 49 CFR part 195 subpart D, and operated and maintained per 49 CFR part 195 subpart F.

1.2 SIZE

The Project pipeline specifications are the following:

- 8-inch Outside Diameter Steel Pipe
  - 0.188-inch wall thickness (standard)
  - 0.219-inch wall thickness (road crossings)
  - 0.250-inch wall thickness (Little Missouri River)
- Maximum Operating Pressure: 1,440 pounds per square inch gauge (psig)
- Maximum Throughput: approximately 14,000 barrels per day (bpd)
- Maximum Operating Temperature: 120 degrees Fahrenheit
- Normal Operating Conditions: 90 degrees Fahrenheit at 1,100 psig

1.3 LENGTH

The Preferred Route is approximately 38 miles and the Alternative Route is approximately 37 miles in length.

1.4 ABOVEGROUND FACILITIES

The proposed pipeline will include four mainline block valves, one-meter/launcher site, and one receiver site. The block valves will be installed in accordance with DOT regulations. Block valves allow for the isolation of select pipeline segments for inspection and maintenance purposes as well as in the event of a system failure. The launcher and receiver will facilitate the introduction of in-line tools which perform various functions varying from cleaning to integrity monitoring. Refer to Exhibit A for engineering documents.

2.0 DESIGN OF THE FACILITY

2.1 DESIGN OF PROPOSED FACILITY

The Project design includes an approximately 38-mile long route with 8-inch-diameter steel pipeline and associated valves and launcher/receivers described in Section 1.4. Please see Exhibit A for engineering documents.

The pipeline will be manufactured according to American Petroleum Institute Specifications API5L Seamless Line Pipe and will meet International Organization for Standardization 3183 and applicable DOT regulations, specifically the design criteria outlined in 49 CFR part 195 subpart C, constructed per 49 CFR part 195 subpart D, and operated and maintained per 49 CFR part 195 subpart F.

2.2 PURPOSE AND NEED OF THE FACILITY

The purpose of the Project is to provide take away capacity for Y-grade NGLs (a mixture of ethane, propane, butanes, iso-butane mix, pentanes and natural gasoline) produced at ORM's Bear Creek Plant, which is presently under construction.

Technological advances in drilling and completion associated with horizontal wells currently employed in the Bakken Shale and Three Forks formations of the Williston Basin has dramatically increased hydrocarbon production in the area. Despite a downturn in commodity pricing, producers remain active in the region creating demand for natural gas gathering infrastructure. According to data released in December 2014, natural gas production in North Dakota was reported at approximately 1,430 MM cf/d of which approximately 42 percent was produced in McKenzie County.[1]

The increased production of oil and natural gas products continues to be constrained by the available infrastructure take away capacity. While near term demands associated with increased crude oil production can be readily addressed with the installation of tankage for temporary storage coupled with additional trucking or rail capacity to bring it to market, the associated natural gas production is typically lost to flaring until the required infrastructure is placed into service.

According to data released in December 2014, approximately 22 percent of gas produced is being flared; one percent below the January 2015 goal set by the state Industrial Commission to reduce flaring to 23 percent by January 2015, ten percent by 2020 and potentially five percent beyond that. In order to continue to meet the gas capture goals, infrastructure needs to be added to accommodate active drilling activities in North Dakota. The requisite infrastructure includes gathering systems and gas processing to refine the raw feedstock into commercial products. The function of the gas processing plant is to separate commercial grade methane (i.e., natural gas) from NGLs such as butane, propane and ethane, and in turn prepare these products for delivery.

A major constraint in transporting NGLs and other hydrocarbons from North Dakota to processing/distribution centers and eventual end users in the United States is the lack of pipeline capacity. To relieve the pipeline constraints, several projects have been planned to address the growing volumes of natural gas, NGL, and other hydrocarbons. However, pipeline capacity is not expected to keep pace

[1] North Dakota Industrial Commission. 2014. Oil and Gas Division. December 2014 Report. http://www.nd.gov/ndic/pipe/publica/annual-report14.pdf

with production, leaving incremental volumes to find alternative transportation methods, primarily rail or other surface transportation alternatives.

Construction of the proposed Project will provide firm, reliable service of 14,000 barrels of NGLs per day and will provide the critical link between the Bear Creek Plant and ONEOK's NGL transmission system for delivery to facilities in the Mid-Continent and Gulf Coast for additional processing prior to distribution to various markets.

2.3 GENERAL AREA TO BE SERVED

The Project will allow for the delivery of additional NGLs from the Bakken and Three Forks production areas to United States refineries in the Midwest and Gulf Coast, where the NGLs will be refined into products to meet the existing need for agriculture and the petrochemical and plastics industries, as well as for refining and home heating throughout the U.S.

2.4 CAPACITY

The Project will transport an average of 588,000 gallons per day based on customer demand and will have a design throughput of 550 gallons per minute, or approximately 14,000 bpd.

2.5 TECHNOLOGY TO BE DEPLOYED/EMPLOYED

The Project will be designed, constructed, maintained, and inspected to the DOT Pipeline and Hazardous Materials Safety Administration regulations utilizing industry standards and company policies. The system will be monitored 24 hours a day, 7 days a week, and 365 days a year by trained controls personnel. Additionally, the system is set up with a monitoring and alarm system that continuously monitors the flow and pressure of the system and readily signifies anything outside normal operating conditions.

2.6 TYPE OF PRODUCT TO BE TRANSMITTED

The Project will transport Y-grade NGLs which is a mixture of ethane, propane, butanes, iso-butane mix, pentanes, and natural gasoline.

2.7 SOURCE OF PRODUCT TO BE TRANSMITTED

The anticipated sources of the NGLs are formations in the Williston Basin.

2.8 FINAL DESTINATION OF PRODUCT

Product will be shipped out of North Dakota via the ONEOK Bakken NGL Pipeline to facilities in the Mid-Continent and Gulf Coast for additional processing prior to distribution to various markets.

2.9 WIDTH OF RIGHT-OF-WAY

The pipeline will be constructed utilizing a 100-foot construction right-of-way (ROW). Additional extra temporary workspace may be needed adjacent to road crossings and sensitive environmental features. ONEOK will generally maintain a permanent 50 foot wide ROW easement along the entire length of the

Project except as restricted by environmental conditions, foreign lines, and landowner agreements. This ROW will be reclaimed to near its pre-existing use once construction is complete. Typical ROW configuration drawings are included in Exhibit B.1.

2.10 REQUIREMENT FOR AND GENERAL LOCATION OF ANY NEW ASSOCIATED FACILITIES

The proposed pipeline would include four mainline block valves, one-meter/launcher site, and one receiver site. The block valves would be installed in accordance with DOT regulations. Block valves allow for the isolation of select pipeline segments for inspection and maintenance purposes as well as in the event of a system failure. The receiver would facilitate the introduction of in-line tools which perform various functions varying from cleaning to integrity monitoring. Refer to Exhibit A for engineering plans.

2.11 ESTIMATED DISTANCE BETWEEN SURFACE STRUCTURES FOR PIPELINE FACILITIES

A discussion of surface structures to be developed for the Project is provided in Sections 1.4 and 2.10 of this application. The proposed pipeline will include four mainline block valves, a pig launcher, and a pig receiver. The pipeline is 38 miles in length. Therefore, surface structures at the terminuses of the pipeline will be 38 miles apart. The final location of the mainline block valve will be sited upon evaluation of maintenance and safety requirements but are currently planned at mileposts 10.65, 17.65, 22.93, 27.78.

2.12 MAXIMUM DESIGN OPERATING PRESSURE AND TEMPERATURE FOR PIPELINE FACILITIES

The maximum operating pressure for the pipeline is 1,440 psig and the maximum operating temperature is 120 degrees Fahrenheit. Under normal operating conditions the pipeline will operate at a summertime temperature of 90°F and 1100 psig.

2.13 MAXIMUM DESIGN FLOW RATE FOR PIPELINE FACILITIES

Refer to Section 2.4 above.

2.14 NUMBER AND GENERAL LOCATION FOR COMPRESSOR OR PUMPING STATIONS

No new compression or pumping stations will be required for this Project.

2.15 ESTIMATED TOTAL COST OF CONSTRUCTION

ONEOK will invest approximately $45 million in North Dakota to develop this Project. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal.

2.16 PREFERRED LOCATION OF FACILITY

The Project will be located in McKenzie and Dunn Counties, North Dakota, originating at the Bear Creek Plant currently under construction at Township 146 N Range 95W Section 28 (Dunn County), moving generally north and west, and terminating at a receiver site at ONEOK's Targa Lateral Pipeline located at Township 149 N Range 99W Section 25 (McKenzie County) approximately 8 miles south of Watford City. An alternative terminus point is being considered whereby the Project will tie into ONEOK's Targa Lateral Pipeline at the Targa Gas Plant (owned by others) in Township 149N Range 98W Sections 29 and 30. The proposed Project is approximately 38 miles in length of which 23 miles (approximately 60%) will be co-located with existing pipeline corridors. Project location maps that depict the pipeline route are provided in Exhibit B. The Sections, Townships, and Ranges crossed by the Project are presented in the following table:

Table 2.16-1
Preferred Project Location

Township	Range	Sections
146N	95W	18, 19, 20, 28, 29
146N	96W	2, 3, 11, 13, 14, 23, 24
147N	96W	7, 18, 19, 20, 27, 28, 29, 34
147N	97W	2, 11, 12
148N	97W	17, 18, 20, 21, 22, 23, 26, 35
148N	98W	4, 5, 6, 9, 13, 14, 15, 16, 22, 23
149N	98W	31, 32, 33
149N	99W	25, 36

2.17 PREFERRED LOCATION OF CORRIDOR

The Project Corridor described in this application provides ONEOK with the opportunity to utilize existing pipeline corridors and minimize landowner and environmental impacts. ONEOK and its affiliates own and operate several assets throughout the region. The operation of these assets is conducted in a manner that maximizes the overall value of the NGLs, which benefits regional stakeholders (i.e., producers, royalty owners, and the State) through tax revenues.

Selection of the proposed corridor and route entailed a program which evaluated several geographic information system (GIS) data layers for the Project area. Information relative to high consequence areas (e.g., populated areas, wetlands, waterbodies, areas of cultural significance or high probability, public lands, etc.) and other unfavorable constructability or operational features were evaluated in an attempt to avoid and minimize proximity and potential impacts to these features. Features for favorable constructability or operations such as existing ROWs (e.g., pipelines, roads, railways, power lines, etc.) were also evaluated in an effort to maximize co-location. After selection of a preliminary route, ONEOK also developed a one-mile-wide study area for further analysis and agency consultation (see Section 6 for more detail).

The shortest route that accomplished the desired impact avoidance and minimization while maximizing co-location efforts has served as the baseline for the proposed corridor. This baseline was then further evaluated for environmental, engineering, construction, and ROW considerations for further optimization. Field surveys, additional constructability reviews, and landowner communications are ongoing to finalize micro-routing to determine the exact placement of the pipeline and facilities along the

established Project Corridor. The location of the Project Corridor is depicted in the aerial maps in Exhibits B.3-B.5.

ONEOK worked with engineering and environmental firms to develop and refine the preliminary route and corridor. Environmental field surveys were conducted within the Project Corridor to identify sensitive resources and to further refine the route. As the pipeline routing process is finalized, ONEOK will continue to work with local, state, and federal agencies to determine a route that minimizes impacts to humans and the environment and allows for an efficient and cost-effective means to transport NGLs. Several factors went into consideration in selecting the pipeline route, including:

- Human – choosing a route that minimizes impact and ensures public safety;
- Environmental – choosing a route that minimizes disturbances to biological and cultural resources; and
- Constructability – terrain and obstacles such as roads, waterbodies, and other utilities must be considered to achieve safe and efficient construction.

2.18 DESCRIPTION OF ROW PREPARATION AND CONSTRUCTION AND RECLAMATION PROCEDURES

Pipeline construction occurs in a linear fashion and, at any one time during the Project, any of the following activities may occur. The typical sequence of construction activities for the Project is as follows:

- Stake the workspace boundaries and utilities;
- Clearing of construction area;
- Install temporary erosion and sediment controls;
- Grade and stump removal, if necessary;
- Segregation of topsoil, where necessary;
- Pipe delivery, bending, and welding;
- Trenching;
- Pipe installation;
- Backfilling excavations;
- Cleanup and final grading;
- Soil compaction treatment, where necessary;
- Stone removal, where necessary;
- Final restoration; and
- Upon final stabilization, remove temporary erosion and sediment controls.

Rough and final grading includes restoring disturbed areas as near as practicable to preconstruction conditions, returning the topsoil where topsoil has been stripped, preparing a seedbed (where applicable) for permanent seeding, installing or repairing temporary erosion and sediment control measures, repairing/replacing fences, and installing permanent erosion and sediment controls. Pre-existing landowner soil conservation improvements and structures disturbed by pipeline construction will be restored to the approximate pre-construction line and grade.

ONEOK will develop a Revegetation Plan for the Project to provide procedures to be followed during the revegetation of areas disturbed as a result of construction. In areas of cultivated cropland, the land will

be returned to its original land use as soon as practical following construction. Additionally, ONEOK will comply with applicable permit conditions and environmental, civil, or landowner agreements.

2.19 LANDOWNER NOTIFICATION, EASEMENT ACQUISITION, AND COMPENSATION

Prior to conducting field surveys, ONEOK reviewed courthouse records for the purpose of identifying current landowners along the route. ONEOK contacted landowners to introduce the Project and to obtain permission to conduct surveys. ONEOK is in the process of negotiating easement agreements with landowners to give the company the right to construct, operate, and maintain the pipeline along a specified portion or corridor of each landowner's property in return for monetary compensation. ONEOK will obtain a permanent pipeline easement with an additional temporary easement during construction. When applicable, ONEOK will offer additional compensation for damages resulting from pipeline construction, such as the loss of crops.

The refinement of the route includes adjustments made per landowner request. ONEOK, at all times, negotiates in good faith, and necessary easement conditions and restrictions are presented and discussed.

3.0 SCHEDULE

3.1 OBTAINING CERTIFICATE OF CORRIDOR COMPATIBILITY

ONEOK seeks a Certificate of Corridor Compatibility by or before mid-March 2016.

3.2 OBTAINING ROUTE PERMIT

ONEOK seeks a Route Permit by or before mid-March 2016.

3.3 COMPLETING ROW ACQUISITION

ONEOK anticipates completing ROW acquisition in December 2015.

3.4 STARTING CONSTRUCTION

ONEOK plans to begin construction on the Project upon receipt of regulatory approval and applicable permits in April 2016 or earlier if permit and weather conditions are favorable.

3.5 COMPLETING CONSTRUCTION

Completion of construction is anticipated to occur in August 2016.

3.6 TESTING OPERATIONS

Testing of the pipeline and meter facilities are expected to be conducted in July and August of 2016.

3.7 COMMENCING OPERATIONS

The in-service date for the Project is September 1, 2016.

4.0 ALTERNATIVES

4.1 ALTERNATIVES TO THE PROPOSED FACILITY

Construction of the proposed Project will provide firm, reliable service for 14,000 bpd of NGL take-away capacity from the Bear Creek Plant. The products will be delivered to ONEOK's Targa Lateral Pipeline and eventually flow to the midcontinent and Gulf Coast for refining. ONEOK identified and evaluated several Project alternatives; however, none of these alternatives effectively satisfied the Project objective. These alternatives included:

- No-Action Alternative;
- Trucking Alternative; and
- Rail Alternative.

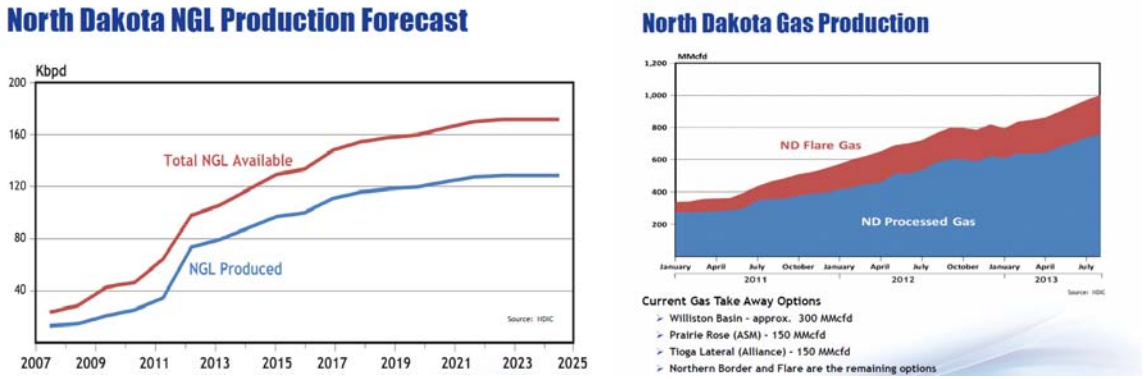
4.1.1 No Action Alternative

The primary objectives of the Project are to provide take-away capacity for the NGLs produced at the Bear Creek Plant which is scheduled to be online in September of 2016. Under the no-action alternative, the Project would not be built, and the plant could not effectively process gas produced in the region.

Within the region, NGL production from the Bakken has increased from 20 million barrels per day (MM b/d) in 2011 to almost 90 MM b/d today and is projected by the North Dakota Industrial Commission to continue to increase through 2025 (see Figure 4.1.1-1). Thus, development of solutions for gas gathering, processing, and takeaway infrastructure are needed. Historically, gathering, processing, and pipeline constraints have held back production growth in the Bakken region.

A No Action Alternative will leave the region constrained by limited transport capacity for safe and reliable transmission of NGL products to markets. The Bear Creek Plant is currently under construction and when in-service will be an 80 MM cf/d natural gas processing plant. The Bear Creek Plant is scheduled for completion in 2016. The No Action Alternative does not meet the commercial needs of ONEOK and does not serve the industry and public at-large. For these reasons, ONEOK rejected the No Action Alternative.

Figure 4.1.1-1 North Dakota NGL Production Forecast



Source: NDIC[2]

4.1.2 Truck Transportation Alternative

A Trucking Alternative was reviewed and eliminated due to the volumes of NGLs that will be produced from the Bear Creek Plant. The maximum daily capacity provided by the proposed Project will be equal to an estimated 14,000 barrels or 588,000 gallons of NGLs. The average load for an NGL truck is approximately 10,000 gallons per truck. Thus, it would require 59 trucks per day to be loaded at the Bear Creek Plant, an average of 2.5 trucks every hour for 24 hours a day. Similarly, it would require these 59 trucks per day to be unloaded (i.e., transloaded) at a railcar facility terminal. This level of truck activity is not logistically feasible; as it will cause significant amounts of heavy vehicle traffic for the area residents as well additional wear and tear on the infrastructure. Further, any disruption in the trucking capacity due to seasonal load restrictions on roads, inclement weather, or road repairs would result in a plant shutdown and flaring of gas production. The trucking alternative is additionally constrained by the road network in the rural area of the Bear Creek Plant.

Additionally, the DOT statistics show that pipelines are the safest, most efficient way to transport these products, particularly across long distances. A sharp increase in traffic on North Dakota roads as a result of the rapid expansion in the number of commercial trucks linked to the oil industry speaks to the issues associated with road safety. The Federal Motor Carrier Safety Administration reports a traffic fatality rate in North Dakota of 0.48 per million vehicle miles traveled in 2012 with 48 deaths involving a bus or large truck, far surpassing any other state.[3] With an average of only 13 annual deaths involving commercial trucks in the pre-boom years of 2001 to 2005, and the economic cost of severe truck crashes more than doubling between 2008 to 2012, much of the increase in the fatality rate can be attributed to the energy production boom, along with the fact that much of the infrastructure is still single-lane, rural, and unpaved roads.[4] Harsh winter weather and seasonal road restrictions compromise the reliability of truck transportation even further. This alternative is not desirable; therefore, ONEOK rejected a Trucking Alternative.

[2] North Dakota Industrial Commission. 2015. North Dakota Drilling and Production Statistics. Available online at https://www.dmr.nd.gov/oilgas/stats/statisticsvw.asp.
[3] DOT. 2014. Pocket Guide to Large Truck and Bus Statistics. Federal Motor Carrier Safety Administration. http://www.fmcsa.dot.gov/sites/fmcsa.dot.gov/files/docs/FMCSA%20Pocket%20Guide%20to%20Large%20Truck%20and%20Bus%20Statistics%20-%202014%20-%20508C.pdf.
[4] Bachman, J. 2014. North Dakota's Downside to the Oil Boom: Traffic Deaths. Businessweek. http://www.businessweek.com/articles/2014-06-09/north-dakotas-downside-to-the-oil-boom-traffic-deaths.

4.1.3 Rail Transportation Alternative

A Rail Alternative was also evaluated as a surface transportation alternative. However, the lack of active railroad service within reasonable proximity to the plant's locations limited the viability of this alternative. Upon further analysis, this alternative was determined not feasible due to the associated environmental impacts and financial, logistic, and time constraints necessary to acquire land and construct the requisite rail infrastructure. This alternative would also require a third party rail operator.

Additionally, to ship NGLs via rail, it must be combined with crude oil increasing the flammability of the crude oil and creating a more hazardous product to ship. From a safety standpoint, railroad transport consistently reports a substantially higher number of transportation accidents than pipelines.[5] A series of major rail accidents taking place in 2013 to 2014 in Canada and the United States has heightened concern about the risks involved in shipping crude by rail.[6]

Reliance on rail as a transportation method for crude oil in the Williston Basin has drastically increased in recent years, carrying a negligible percentage of the overall market share as recently as 2010 to nearly 60 percent of the overall market share by mid-2014.[7] The rise in the use of rail as a primary transportation method has been driven in large part by the rapid increase in production coupled with a lack of pipeline capacity to account for additional supplies.

The downside of the growth in popularity of rail as a method of long-distance transportation has included delays that have had negative impacts on the agricultural sector, has led to reductions in coal-fired power plant inventories, and has been responsible for production issues in the food production industry, among others. Reports filed with the federal government in August 2014 indicate that the Burlington Northern Santa Fe Railway had a backlog of 1,336 rail cars waiting to ship grain and other products while Canadian Pacific Railway had a backlog of nearly 1,000 cars.[8] For industries such as those listed in which the use of pipelines is not an option, the only viable alternative would be increased reliance on trucking, which would exacerbate some of the issues listed above.

A rail transportation alternative would require the design and construction of rail car loading and offloading facilities, lateral service lines, and ancillary facilities necessary to support the requisite volumes of NGLs, requiring land acquisition and permanent conversion of agricultural land to industrial. Use of rail would require a completely different Project design than that currently proposed for the Project.

While rail tanker cars are a vital part of the short-haul distribution network for NGLs, pipelines are a more reliable, safer, and more economical alternative for the large volumes transported and long distances covered by the Project. As such, the rail transportation alternative is not considered a viable alternative.

[5] DOT. Transportation Accidents by Mode. Office of the Assistant Secretary for Research and Technology. http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/html/table_02_03.html.
[6] Fritelli, J. 2014. U.S. Rail Transportation of Crude Oil: Background and Issues for Congress. Congressional Research Service. http://fas.org/sgp/crs/misc/R43390.pdf.
[7] Kringstad, J. 2014. Energy Development and Transmission Committee. North Dakota Pipeline Authority. https://ndpipelines.files.wordpress.com/2012/04/kringstad-edt-7-8-2014.pdf.
[8] Nixon, R. 2014. Grain Piles Up, Waiting for a Ride, As Trains Move North Dakota Oil. New York Times. http://www.nytimes.com/2014/08/26/us/grain-piles-up-waiting-for-a-ride-as-trains-move-north-dakota-oil.html.

4.2 ROUTE/SEGMENT ALTERNATIVES

ONEOK has conducted a thorough analysis of the Project Corridor. This analysis was a broad based study of a one-mile-wide corridor focused on connection of the Bear Creek Plant to ONEOK's Bakken NGL system. The purpose of this analysis was to confirm that the proposed Project Corridor is suitable and would cause minimal environmental impacts, thus conforming to the NDPSC siting criteria.

In conjunction with these efforts, ONEOK studied routing alternatives based upon criteria as discussed in Section 2.17. A variety of routes were explored but later rejected due to a host of feasibility constraints. In support of ONEOK's route selection, the desktop studies of the Project Corridor were refined and augmented with field studies along the entire length of the Project Corridor by trained natural and cultural resource specialists. The environmental survey was conducted across a minimum 250 feet wide area centered on the proposed route. Field crews performed these comprehensive natural and cultural resource surveys in May, June and August of 2015. The purpose of these field studies was two-fold: (1) to definitively identify any potential resource issues (e.g., wetlands, waterbodies, protected species, critical habitats or cultural resources) within the Project Corridor; and (2) to provide the baseline field data necessary to prescribe alternative routing or mitigation as necessary to minimize environmental impacts.

Based upon desktop and field analysis, ONEOK developed two Project alignments to tie into the Targa Lateral Pipeline (Preferred Route and Alternative Route). The Preferred Route would terminate in Township 149N Range 99W Section 25. The Alternative Route diverts from the Preferred Route in Township 149N Range 98W Sections 32 and 33 and would terminate in Township 149N Range 98W Sections 29 and 30. ONEOK has chosen these Project alignments to meet landowner requests and to minimize impacts to environmental features. The Preferred and Alternative Routes meet the Project's objectives while conforming to the NDPSC's transmission route siting requirements. Additionally, in selection of the Routes, ONEOK co-located approximately 60.5% (23 miles) of the Preferred Route, and 65.1% (23.8 miles) of the Alternative Route to existing utilities.

The results of these field surveys are discussed in the following sections, while the full Natural Resources Survey Report is contained in Exhibit C. The full cultural resources report is privileged and not included in this Application. Refer to Section 5.1 for a summary of the cultural resource work and consultation with the North Dakota State Historic Preservation Office (SHPO).

5.0 ENVIRONMENTAL STUDIES

ONEOK defined its study area as a 1-mile-wide corridor generally centered on the preferred and alternative pipeline routes and conducted an initial desktop analysis for cultural resources, wetlands and waterbodies, and other sensitive environmental resources. The assessment was conducted utilizing GIS mapping, reviewing agency databases, peer-reviewed articles, and internet research. Following the desktop analysis, the appropriate agencies were consulted for cultural and biological resources (see Section 6). In addition to the preferred route, one segment alternative was also analyzed and included in the agency consultations.

Field studies for the Project focused on a generally 250-foot wide environmental survey corridor, centered on the pipeline (Preferred Route and Alternative Route), where survey permissions allowed. The survey corridor was widened in select locations to allow for flexibility in pipeline routing or in areas where extra workspace is anticipated to be required. The Project Corridor, as shown on the maps in Exhibits B.3-B.5, has been entirely surveyed for natural resources. Additionally, the Project Corridor has been surveyed for cultural resources, with the exception of the portion of the route which crosses U.S. Forest Service (USFS) Little Missouri National Grasslands. The Project Corridor is the corridor ONEOK is requesting be certificated by the North Dakota Public Service Commission (NDPSC).

ONEOK contracted specialized consultants to perform cultural, wetland and waterbodies, and habitat assessment surveys for the Project. Additionally, initial surveys, including a tree and shrub inventory and eagle and raptor nest surveys were conducted and will be supplemented at the pre-construction phase as needed.

5.1 CULTURAL RESOURCE INVENTORY

According to the North Dakota Energy Conversion and Transmission Facility Siting Act, among the "*factors to be considered [by the Commission] in evaluating applications and designation of sites, corridors, and routes,*" is the effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites. The repository in North Dakota for this information is the State Historic Preservation Office (SHPO), which acts as a technical resource during identification and evaluation of areas, sites, and structures and during reviews of Project effects. The Public Service Commission tasks the Applicant to coordinate identification and effects discussions with the SHPO.

Since June 2015, ONEOK has sponsored desktop and field reviews of a study area that completely encompass the Project route. The review tasks included: canvassing the SHPO previous survey and archaeological and historic structure files and characterizing them in a Class I cultural resource report; documenting archaeological sites and historic structure field inventory of an area that entirely includes the Project route in a Class III cultural resource report[9]; and corresponding in writing with SHPO about the resources identified and projected avoidance measures, if applicable. The standards of the National Register of Historic Places (NRHP) are used in North Dakota to differentiate those sites for which impacts are considered during Project reviews (i.e., eligible, not evaluated for inclusion on the NRHP) from those for which impacts are not considered.

[9] A Class I and Class III Cultural Resource Inventory of Bear Creek NGL, Dunn and McKenzie Counties, North Dakota, E3 Environmental, LLC (St. Paul, MN) 2015.

ONEOK commissioned a Class I cultural resources literature review of records from the SHPO to identify previously completed cultural resource investigations and recorded cultural resources within the Corridor. The Class I literature review identified 56 previously recorded cultural resources within one-half mile of the Project Corridor. Of the 56 previously recorded cultural resources, 38 are recommended not eligible for inclusion into the NRHP, four are eligible for inclusion into the NRHP, two are unknown, and 12 remain unevaluated with regard to their NRHP eligibility. A total of 16 previously recorded cultural resources were identified within the Preferred Route portion of the Project Corridor, and 14 were identified within the Alternative Route portion of the Project Corridor.

The Class III Cultural Resource Inventory of the Project Corridor was completed in August of 2015 (Woodward et al. 2015). Summary results for the Preferred and Alternative Route are below.

Preferred Route: During the inventory, 38 new cultural resources were recorded (15 archaeological sites and 23 isolated finds). In addition, 15 previously recorded sites were relocated. Of the 15 previously recorded sites, nine sites are recommended not eligible for inclusion to the NRHP and require no further consideration. Four sites are recommended eligible and two are left unevaluated. It is recommended that eligible and unevaluated sites be allowed a 50-foot buffer around the outside of site boundaries to be avoided by construction activities. If construction does occur within this avoidance buffer, on-site monitoring by a qualified archaeologist is recommended. The isolated finds require no further considerations.

Alternative Route: During the inventory, 34 new cultural resources were recorded (14 archaeological sites and 20 isolated finds). In addition, 13 previously recorded sites were revisited. Of the 13 previously recorded sites, eight sites are recommended not eligible for inclusion to the NRHP and require no further consideration. Three sites are recommended eligible and two are left unevaluated. It is recommended that eligible and unevaluated sites be allowed a 50-foot buffer around the outside of site boundaries to be avoided by construction activities. If construction does occur within the avoidance buffer, on-site monitoring by a qualified archaeologist is recommended. The isolated finds require no further considerations.

ONEOK submitted the Class III cultural resource report[10] to SHPO for a technical review on November 12, 2015 and requested review and comment on the NRHP recommendations (see Section 6.8). ONEOK received comments from SHPO regarding the Class III cultural resource report (dated December 10) and will work with SHPO to clarify NRHP recommendations and finalize avoidance and mitigation measures.

Subsequent to the completion of the Class I and III resource studies, ONEOK was made aware of additional cultural data discovered near the Bear Creek Plant while a third party was conducting an independent study to develop a gas residue line from the plant. On November 10 and 23, 2015, ONEOK met with SHPO representatives and representatives for the residue line and agreed on additional field studies near the Bear Creek Plant to determine the nature of the additional cultural data and any impact that the new data may have on the Project. The results of this additional investigative work, as well as final comments from SHPO, are pending and will be provided to NDPSC staff upon receipt.

[10] A Class I and Class III Cultural Resource Inventory of Bear Creek NGL, Dunn and McKenzie Counties, North Dakota, E3 Environmental, LLC (St. Paul, MN) 2015.

5.2 WETLAND AND WATERBODY INVENTORY

Wetland and waterbody surveys were conducted within the Project Corridor in June and August 2015. The results of this survey can be found in the Natural Resource Survey Report provided in Exhibit C. Mapping of wetlands and waterbodies within the surveyed corridor are included in the Selection Criteria maps in Exhibit B.5. A summary of delineated features for the Preferred and Alternative routes is provided in Table 5.2-1 below.

Table 5.2-1
Summary of Delineated Wetlands and Waterbodies

	Wetland	Waterbody
Number of features crossed by:		
Preferred Route Centerline	22	6
Alternative Route Centerline	21	7
Temporary Impacts (acres):		
Preferred Route	5.88	0.71
Alternative Route	5.84	0.70
Permanent Impacts (acres):		
Preferred Route	0	0
Alternative Route	0	0

ONEOK will implement appropriate mitigation measures at these features, which may include avoidance (e.g. workspace modification or horizontal directional drilling [HDD]) or use of construction mats and other best management practices (BMP) to minimize impacts when working in or around wetlands. Refer to the Project maps in Appendix B for the location of each feature and Section 10 for information regarding mitigation.

5.3 WILDLIFE INVENTORY

Wildlife surveys were conducted within the Project Corridor in conjunction with the wetland and waterbody delineations in May, June, and August 2015. The wildlife observed are species commonly associated with agricultural communities. Details regarding the wildlife observed during field surveys are included in the Natural Resources Survey Report included in Exhibit C. No federally listed species or state species of concern were observed during the field surveys.

5.3.1 Federally Protected Species Review

A review of the U.S. Fish and Wildlife Service (FWS) Endangered Species Information, Planning, and Conservation System (IPaC) website[11] and the FWS North Dakota Field Office website[12] was conducted to determine the potential for listed species and critical habitat that may be present in Dunn and McKenzie Counties, North Dakota. Field surveys for listed species and a general habitat assessment of the Project area were conducted in June and August 2015. No threatened or endangered species or critical habitats were observed at the time of the on-site assessments. Details regarding the wildlife observed during field surveys are provided in the Natural Resources Survey Report included in Exhibit C.

[11] http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action
[12] http://www.fws.gov/northdakotafieldoffice/SEtable.pdf

Table 5.3-1 provides a summary of protected species in McKenzie and Dunn Counties. A brief description of each species and their preferred habitat is also provided below. A summary of ONEOK's consultation with FWS with respect to federally-listed threatened and endangered species is included in Section 6.1 and in Exhibit D.

Table 5.3-1
Federally Listed Species in McKenzie and Dunn Counties, ND

Common Name	Status
Interior Least Tern	Endangered
Whooping Crane	Endangered
Pallid Sturgeon	Endangered
Gray Wolf	Endangered
Piping Plover (Northern Great Plains Population)	Threatened
Dakota Skipper	Threatened
Rufa Red Knot	Threatened
Northern Long-eared Bat[1] (NLEB)	Threatened
Sprague's Pipit	Candidate
Black-footed ferret	Experimental Population
Piping Plover Critical Habitat	Nearest designated critical habitat is approximately 12 miles north and east of the Project area along the Missouri River

[1] On April 1, 2015, the USFWS listed the NLEB as threatened under the ESA and simultaneously published an interim 4(d) rule; the final listing and interim 4(d) rule took effect as of May 4, 2015. Based on our review of this listing, the NLEB will not have any specific protection outside of areas within 150 miles of a documented White Nose Syndrome case. As of this writing, the entire state of North Dakota falls outside of this range.

Interior Least Tern (*Sterna antillarum*): Endangered

The interior least tern is known to nest on midstream sandbars along the Yellowstone and Missouri River systems in North Dakota. The species constructs bowl-shaped depression nests on sparsely vegetated sandbars and sandy beaches during the nesting period, which occurs between mid-May and mid-August. Nesting adults have been documented to travel 7.5 miles or more from their nest sites to forage in wetlands or riverine habitat. Suitable shoreline habitat for breeding and nesting along the Little Missouri River does not occur in the Project Corridor. ONEOK will utilize the HDD method for crossing the Little Missouri River. Due to the lack of nesting habitat within the Project Corridor and the method of crossing the Little Missouri River, impacts to the interior least tern are not anticipated.

Whooping Crane (*Grus americana*): Endangered

The Aransas-Wood Buffalo Population of Whooping Cranes engages in semi-annual migration through North Dakota. This flock breeds in the Wood Buffalo National Park in Alberta and Northwest Territories, Canada, and winters in the Aransas National Wildlife Refuge in Texas. This species has been closely studied and monitored in recent years due to its small, fragile population. North Dakota offers migratory habitat for the species, providing roosting and feeding opportunities during migration. During migration, the species is most closely associated with larger wetland complexes for roosting habitat, typically using adjacent uplands to forage.

Suitable foraging habitat (i.e., cultivated cropland and wetlands) was observed within the Project Corridor. Additionally, the Project is located within the migratory corridor for the whooping crane. The whooping crane has a spring and fall migration period, which are late-April through mid-June (spring migration) and

mid-September through mid-November (fall migration) in North Dakota.[13] Because Project activities will occur in the vicinity of suitable whooping crane stopover habitat (i.e., wetlands and croplands), ONEOK will conduct environmental training with the contractor and construction crews to provide details on this species. Should a whooping crane be sighted within 1 mile of the Project area, ONEOK will suspend construction at that location and contact the FWS immediately.

Pallid Sturgeon (*Scaphirhynchus albus*): Endangered

Pallid sturgeons are found in the Missouri River and parts of the Yellowstone River in North Dakota. They are adapted to living close to the bottom of silty river systems, typically in turbid fast moving water. Weighing up to 85 pounds, pallid sturgeons are long lived, with individuals possibly reaching 50 years of age. The Little Missouri River provides suitable habitat for the pallid sturgeon; however, ONEOK plans to utilize the HDD method for this crossing and therefore activities associated with the Project are not anticipated to adversely impact water quality and subsequently the pallid sturgeon.

Gray Wolf (*Canis lupus*): Endangered

Likely habitat for the gray wolf in North Dakota is forested areas in north central and northeast North Dakota. Most wolf experts agree that wolves spotted in North Dakota are probably lone individuals in search of a new home. Suitable habitat for the gray wolf does occur in the Project Corridor, however the activities associated with construction and later operations would likely serve as a deterrent to this species. Therefore, impacts to the gray wolf are not anticipated.

Piping Plover (*Charadrius melodus*): Threatened

Suitable nesting habitat for piping plovers in the Missouri River system is characterized as sparsely vegetated channel sandbars, sand and gravel beaches on islands, temporary pools on sandbars and islands, and island margins that interface with the river channel, all protected from disturbance. The Project is located over 12 miles from the Missouri River system, and the Little Missouri River will be crossed using the HDD method. Due to the lack of nesting habitat within the Project Corridor and method for crossing streams to avoid runoff, impacts to the piping plover are not anticipated.

Critical habitat for the northern Great Plains piping plover has been designated on alkali lakes and wetlands, the Yellowstone River, and Missouri River in North Dakota. The physical and biological features that are essential to the conservation of the species, referred to as the primary constituent elements, require special consideration for protection. In riverine habitat, these elements include sparsely vegetated channel sandbars, sand and gravel beaches on islands, temporary pools on sandbars and islands, and island margins that interface with the river channel, all protected from disturbance. Due to the lack of nesting habitat and the planned HDD crossing method of the Little Missouri River, impacts to the piping plover are not anticipated.

[13] http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B003.

Dakota Skipper (*Hesperia dacotae*): Threatened

Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine deposits. Larvae feed on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotunidfolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). This species is not known to disperse widely and has low mobility, dispersing a maximum of 0.6 mile. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding.

Moderate and high quality habitat for the Dakota skipper was identified within the Project Corridor. The nearest known designated critical habitat is located 14 miles northeast of the Project. No Dakota skippers were identified during field survey. ONEOK will voluntarily implement minimization techniques in high quality habitat areas to reduce impact to native vegetation to the minimum necessary for safe construction of the pipeline.

Rufa Red Knot (*Calidris canutus rufa*): Threatened

The red knot is protected as threatened under the Endangered Species Act, effective January 12, 2015. When migrating through interior North America, red knots largely rely on exposed substrate at wetland edges for stopover habitat. The suitability of a wetland for red knots depends on water levels and may vary annually. In addition, red knots have been reported to forage in cultivated fields when migrating through the interior.[14]

The Project Corridor lacks suitable foraging habitat. The red knot may occur within the Project Area as a migrant; however adverse impacts to the red knot are not anticipated.

As part of pre-construction activities, ONEOK will conduct environmental training with the contractor and construction crews to provide details on this species. Should a red knot be sighted within 1 mile of the Project area, ONEOK will suspend construction at that location and contact the FWS immediately.

Northern Long-eared Bat (NLEB) (*Myotis septentrionalis*): Threatened with Interim 4(d) rule

The NLEB ranges across much of the eastern and central United States. During summer, the NLEB roosts singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees. Males and non-reproductive females may also roost in cooler places, such as caves and mines. This bat seems opportunistic in selecting roosts using tree species based on suitability to retain bark or provide cavities or crevices. It has also been found, rarely, roosting in structures like barns and sheds. NLEB spends winter hibernating in caves and mines.[15]

[14] Rufa Red Knot Ecology and Abundance. Supplement to Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Rufa Red Knot (*Calidris canutus rufa*). Docket No. FWS–R5–ES–2013–0097; RIN 1018–AY17. http://www.fws.gov/northeast/redknot/pdf/20130923_REKN_PL_Supplement02_Ecology%20Abundance_Final.pdf.
[15] http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=A0JE.

Suitable winter habitat does not occur in the Project Corridor and no mapped hibernacula are located in North Dakota. The northern long-eared bat can occur in similar habitats to other Myotis species. As such, suitable habitat does exist within the Project Corridor in the form of green ash, bur oak, and boxelder tree woodlands.

On April 1, 2015, the USFWS listed the northern long-eared bat as threatened under the Endangered Species Act (ESA) and simultaneously published an interim 4(d) rule; the final listing and interim 4(d) rule took effect as of May 4, 2015. Based on our review of this listing, the NLEB will not have any specific protection outside of areas within 150 miles of a documented White Nose Syndrome case. As of this writing, the entire state of North Dakota falls outside of this range.[16]

Sprague's Pipit (*Anthus spragueii*): Candidate

The Sprague's pipit is a candidate species, endemic to the northern Great Plains native short-to-mixed grass prairie, and sensitive to fragmentation and conversion of grassland habitat. Sprague's pipits prefer relatively large prairie patches of at least approximately 72 acres, with larger patches of at least 360 acres preferred. Sprague's pipits arrive on the breeding grounds from the third week of April to mid-May. The Project Corridor contains relatively undisturbed grasslands; however, ONEOK will implement a migratory bird plan and conduct nesting bird sweeps prior to construction minimizing any impacts to Sprague's Pipit.

Black-footed Ferret (*Mustela nigripes*): Experimental Population

Black-footed ferrets inhabit the extensive prairie dog complexes of the Great Plains, typically composed of several smaller colonies close to one another that provide a sustainable prey base. The Black-footed Ferret Survey Guidelines for Compliance with the Endangered Species Act published by the FWS (1989), states ferrets require black-tailed prairie dog (*Cynomys ludovicianus*) towns or complexes greater than 80 acres in size, and a town of this dimension may be important for ferret recovery efforts. This species has not been observed in the wild for more than 20 years and is not anticipated to be impacted by the proposed Project.

5.3.2 Migratory Bird Treaty Act

Although the Migratory Bird Treaty Act (MBTA) provides protection for all migratory birds, the FWS developed lists of Birds of Conservation Concern (BCC) to foster proactive conservation actions by federal and state agencies and private parties by focusing first on species of concern.[17] In addition, the U.S. is divided into Bird Conservation Regions (BCR); each BCR has a list of birds present or possibly present within the region that are considered BCC. The Project is located within BCR 17 or Badlands and Prairies.[18] ONEOK used this list as a starting point for prioritizing bird conservation measures.

The Project is most likely to impact migratory birds if construction and operation activities occur during the nesting season. Within the Project area, birds generally nest from late March to early August, with the

[16] http://www.fws.gov/midwest/nleb/documents/WNSBufferZone.pdf.
[17] FWS. 2008. Birds of Conservation Concern 2008. FWS, Division of Migratory Bird Management. Available online at http://www.fws.gov/migratorybirds/pdf/grants/BirdsofConservationConcern2008.pdf.
[18] U.S. NABCI Committee, 2000 Rufa Red Knot Ecology and Abundance. Supplement to Endangered and Threatened Wildlife and Plants; Proposed Threatened Status for the Rufa Red Knot (*Calidris canutus rufa*). Docket No. FWS–R5–ES–2013–0097; RIN 1018–AY17.
http://www.fws.gov/northeast/redknot/pdf/20130923_REKN_PL_Supplement02_Ecology%20Abundance_Final.pdf.

peak nesting season for migratory birds taking place between April 15 and July 30. Vegetative clearing during the nesting season would increase the potential for the Project to result in the take of a migratory bird. Typically, take from pipeline construction is not of adult birds or juveniles that have fledged from the nest because they are mobile and avoid Project-related activities; instead, take is typically of eggs and nestlings due to nest destruction and loss of young.

Surveys of the Project Corridor were conducted in May, June, and August of 2015, including an aerial raptor survey, which confirmed suitable habitat is present within the Project Corridor or within line-of-site of the Project Corridor. The aerial raptor survey conducted in May 2015 identified 20 nests within approximately 1 mile of the Project Corridor. No additional nests were identified during terrestrial raptor surveys conducted in June and August 2015. Refer to the Natural Resource Survey Report in Exhibit C.

ONEOK will develop a Migratory Bird Conservation and Compliance Plan to outline measures it will implement to avoid, minimize, and reduce possible impacts on migratory birds. Conservation measures will be developed in consideration of statutory authority, regulatory guidance, and through experience with state and federal agencies on past projects in the region.

Prior to initiating pre-clearing activities and construction, ONEOK will conduct environmental training for company and contractor supervisory personnel. Where constructing the Project outside of the peak nesting season for migratory birds is not feasible, ONEOK will conduct ground surveys to identify migratory bird nests that could be impacted by construction activities. Varying activity restriction buffers around active nests and leks will be utilized as conservation measures for the plan.

A summary of ONEOK's consultation with FWS with respect to MBTA is included in Section 6.1 and in Exhibit D.

5.3.3 Bald and Golden Eagle Protection Act

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

Surveys of the Project Corridor were conducted in May, June, and August of 2015, including an aerial raptor survey, which confirmed suitable habitat is present within the Project Corridor or within line-of-site of the Project Corridor. The aerial raptor survey conducted in May 2015 identified one active golden eagle nest located approximately 1.5 miles from the Route. No additional nests were identified during terrestrial raptor surveys conducted in June and August 2015. Refer to the Natural Resource Survey Report in Exhibit C for more details.

ONEOK will conduct pre-clearing bird surveys described in Section 5.3.2 above to determine whether bald or golden eagle nests are present within 1 mile of the Project. If an eagle nest is documented along the route during surveys, coordination will continue with the FWS regarding proper measures to be employed to avoid or minimize impacts.

A summary of ONEOK's consultation with FWS with respect to BGEPA is included in Section 6.1 and in Exhibit D.

5.4 TREE/SAPLING/SHRUB INVENTORY

During field survey, crews performed a detailed tree/shrub inventory. This inventory recorded the pre-construction status of these resources, which would form the baseline for restoration and mitigation reconciliation. Refer to Appendix D for the Natural Resources Report and Section 5 for planned mitigation measures.

Preferred Route: Based on this effort, 924 naturally occurring wooded areas were observed within the Preferred Route portion of the Project Corridor (refer to Exhibit C).

Alternative Route: Based on this effort, 836 naturally occurring wooded areas were observed within the Alternative Route portion of the Project Corridor (refer to Exhibit C).

ONEOK will perform mitigation for removal of trees and shrubs at a 2:1 ratio, as is anticipated in the final order from the NDPSC.

5.5 NOXIOUS WEEDS INVENTORY

The Federal Noxious Weed Act of 1974 established a federal program to control the spread of noxious weeds. The U.S. Secretary of Agriculture was given the authority to declare plants "Noxious Weeds" and limit the interstate spread of such plants without a permit. Two federally listed noxious weeds (*Cuscuta L.* and *Orobanche ludoviciana*) occur in North Dakota.

North Dakota law (NDCC § 4.1-47-02) requires every person to do all things necessary and proper to control the spread of noxious weeds and makes it illegal for any person to distribute, sell, or offer for sale within this state a noxious weed. The North Dakota Department of Agriculture (NDDA) lists 11 species of noxious weed and invasive species.

In addition to the NDDA noxious weed and invasive species list, localized weed boards within each county manage noxious weeds and invasive species and may develop a list of additional weeds for enforcement within their jurisdiction. McKenzie and Dunn Counties have designated species as noxious weeds (refer to Table 5.5-1 and Exhibit C).

Table 5.5-1
State and County Listed Noxious Weeds

Common and Scientific Name	State of North Dakota	McKenzie County	Dunn County
absinth wormwood (*Artemisia absinthium*)	x	x	x
baby's breath (*Gypsophila*)		x	
black henbane (*Hyoscyamus niger*)		x	x
Canada thistle (*Cirsium arvense*)	x	x	x
common burdock (*Arctium minus*)		x	
dalmatian toadflax (*Linaria dalmatica*)	x	x	x
diffuse knapweed (*Centaurea diffusa*)	x	x	x
field bindweed (*Convolvulus arvensis*)		x	
halogeton (*Halogeton glomeratus*)		x	

Table 5.5-1
State and County Listed Noxious Weeds

Common and Scientific Name	State of North Dakota	McKenzie County	Dunn County
houndstongue (*Cynoglossum officinale*)		x	
leafy spurge (*Euphorbia esula*)	x	x	x
musk thistle (*Carduus nutans*)	x	x	x
purple loosestrife (*Lythrum salicaria*)	x	x	x
Russian knapweed (*Acroptilon repens*)	x	x	x
saltcedar (*Tamarix chinensis*)	x	x	x
spotted knapweed (*Centaurea maculosa*)	x	x	x
yellow starthistle (*Centaurea solstitialis*)		x	
yellow toadflax (*Linaria vulgaris*)	x	x	x

Field surveys conducted in June and August of 2015 documented areas of noxious weeds within the planned project area. A detailed description of these areas is included in the Natural Resources Survey Report included as Exhibit C.

It is ONEOK's intent to minimize the potential introduction and/or spread of undesirable species (i.e., invasive species and noxious weeds) along its ROW during pipeline construction activities and the revegetation timeframe. However, it is not practicable for ONEOK to eradicate undesirable species that are adjacent to its ROW. ONEOK will minimize the potential for the establishment of undesirable species by minimizing the time duration between final grading and permanent seeding. ONEOK will also require that construction equipment be cleaned before arriving on the construction spread to prevent the introduction of undesirable species to the Project area, as described in the Project's Revegetation Plan, which address weed control.

6.0 AGENCY NOTIFICATIONS AND PERMITTING

In August 2015, ONEOK initiated consultation and coordination with federal, state, and local agencies within the 1-mile study area that may be affected by the Project. Letters and/or emails were submitted with an accompanying mapset of the Project. A summary of these consultations is provided in table 6.0-1 below, and further details on each consultation are included in the following sections.

Table 6.0-1
Summary of Agency Notifications[1]

Agency	Applicable Resource/Program	Date Submitted	Response Received
FWS – Ecological Services Office	Federally listed threatened and endangered species, FWS managed lands, MBTA consultation BGEPA consultation	August 19, 2015	Pending
U.S. Forest Service (USFS)	Federally Managed Lands; Little Missouri National Grasslands – Special Use Permit	September 18, 2015	October 26, 2015
North Dakota SHPO	Natural Register of Historic Places, Cultural Resources Consultation	November 11, 2015	Pending
North Dakota Game and Fish Department (NDGFD)	State Conservation Priority Species, Game Refuges, Game Management Areas and Private Land Open to Sportsmen	August 19, 2015	September 16, 2015
North Dakota Parks and Recreation Department (NDPRD)	North Dakota Natural Heritage Inventory system, State Parks Recreation areas, Natural areas, and Land and Water Conservation Fund projects	August 19, 2015	August 19, 2015
North Dakota State Land Department (NDSLD) – School Trust	Identification of impacts to NDSLD-administered School Trust lands.	August 19, 2015	Pending
NDSLD – Mineral Trust	Identification of impacts to NDSLD-administered School Trust lands.	August 19, 2015	August 20, 2015
McKenzie County Building and Planning Department	Siting of pipelines within agricultural districts requires a Conditional Use Permit (CUP)	August 18, 2015	Pending
Dunn County Planning and Zoning	Siting of pipelines within agricultural districts requires a Conditional Use Permit (CUP)	October 20, 2015	November 18, 2015

[1] Copies of agency consultations are included in Exhibit D.

6.1 U.S. FISH AND WILDLIFE SERVICE

The FWS administers several programs designed to identify and protect special status plant and animal species, critical habitats and lands managed by the agency including the MBTA and the BGEPA.

Additionally the FWS administers National Wildlife Refuges and Waterfowl Production Areas (WPA) as well as wetland and grassland easements throughout North Dakota. ONEOK provided the FWS with project notification on August 19, 2015, which included a description of the Project, and an assessment of its impacts relative to the interests of the FWS. Formal written responses have not yet been received.

6.1.1 Federally Protected Species Review

Project-specific consultations were initiated with the FWS requesting confirmation regarding the presence or absence of federally protected species and their designated critical habitat.

E3 Environmental, LLC, provided ONEOK technical assistance with protected species review and subsequent correspondence with FWS. Results of this analysis are discussed in Section 5.3.1 of this application.

6.1.2 Migratory Bird Treaty Act

Migratory birds are federally protected by the MBTA, which prohibits the taking, killing, possession, and transportation of migratory birds, their eggs, parts, and nests, except when specifically permitted by regulations. In North Dakota, both native prairie and non-native grasslands provide breeding, nesting, foraging, brood-rearing, and dispersal habitat for many species of migratory birds. As summarized in Section 10, ONEOK will implement a MBTA Plan during construction to protect migratory birds and eagles/raptors.

6.1.3 Bald and Golden Eagle Protection Act

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

Aerial raptor surveys were conducted in May 2015 (refer to Section 5.3 and Exhibit C). As summarized in Section 10, ONEOK will implement a MBTA Plan during construction to protect migratory bird and eagle/raptors.

6.1.4 Wetland and Grassland Easements

The FWS administers National Wildlife Refuges and WPAs as well as wetland and grassland easements throughout North Dakota. A desktop review of information available in the public domain, including U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps, USGS Protected Areas Database-US dataset, and the FWS IPaC has been completed for the Project Corridor. Desktop analysis indicates no FWS managed lands are located within the Project Corridor. While a formal response from FWS has not been received as of this filing, ONEOK has initiated project-specific consultations with the FWS requesting notification should FWS managed lands be located within the Project area.

6.2 U.S. FOREST SERVICE

6 CFR Parts 251, 261, and 295 regulate land uses on National Forest System lands. According to these regulations, the installation of a pipeline utility on National Forest System lands is a use which requires a Special Use Permit by the U.S. Forest Service (USFS). The planned ONEOK Bear Creek NGL pipeline crosses USFS managed lands in T148N R098W Section 15.

On September 18, 2015, ONEOK submitted an application for Special Use Permit to the USFS via Standard Form (SF) 299. On October 26, 2015, USFS notified ONEOK that a 100 foot temporary construction ROW could not be granted and that USFS was bound by regulation to limit the project to a 50 foot temporary construction ROW and permanent 20 foot operational ROW. ONEOK submitted a revised SF299 to USFS on November 18, 2015 requesting the 50 foot temporary and 20 foot permanent ROW.

Acceptance and approval of the Special Use Permit by the USFS is pending. ONEOK anticipates that the Special Use Permit can be authorized under a Categorical Exclusion (CATEX) to the National Environmental Policy Act (NEPA) based upon the placement of the Bear Creek NGL line within a previously established and disturbed pipeline corridor.

A copy of ONEOK's correspondence with USFS is included in Exhibit D. A copy of the approved Special Use Permit will be supplied to the NDPSC upon receipt.

6.3 U.S. ARMY CORPS OF ENGINEERS

The U.S. Army Corps of Engineers (COE) regulates impacts to Waters of the United States[19] under Sections 404 and 10 of the federal Clean Water Act. Based on a review of the wetland and waterbody data collected during field surveys (see Section 5), the pipeline will cross features within the COE's jurisdiction. ONEOK expects that the Project will be eligible for coverage under the COE's Nationwide Permit 12, which authorizes temporary impacts to COE-jurisdictional waters due to construction of utility lines.

Furthermore, ONEOK believes the Project impacts will not exceed the minimum requirements needed for a Pre-Construction Notification (PCN) to be submitted to the COE. As such, ONEOK has not initiated consultation with the COE. Should the scope of the Project change and a PCN be required, ONEOK will engage the COE at that time.

6.4 U.S. DEPARTMENT OF AGRICULTURE, FARM SERVICE AGENCY

Lands enrolled in the U.S. Department of Agriculture's Farm Service Agency (FSA) administered Conservation Reserve Program (CRP) are privately owned; however FSA has administrative responsibilities to ensure the provisions of CRP are maintained throughout the contract period. The CRP program stipulates that lands enrolled in CRP may not have the vegetative cover disturbed during the Primary Nesting and Brood Rearing Season (April 15 through August 1) unless disturbance of the existing cover is minimal and a waiver of this provision is granted by the FSA.

[19] As defined in 40 CFR 230.3

ONEOK is working with landowners during the easement acquisition process to identify presence of CRP enrolled lands within the Project area. Should CRP land be impacted by the Project within the Primary Nesting and Brood Season noted above, ONEOK will apply for a waiver from FSA.

6.5 U.S. DEPARTMENT OF DEFENSE

Review of the data compiled by the University of Wyoming regarding current and historic missile site locations, including aerial imagery for each Minot Air Force Base Minuteman Intercontinental Ballistic Missile (ICBM) site has confirmed the absence of ICBM launch or launch control facilities within 1,200 feet of the Project Corridor.

6.6 NORTH DAKOTA GAME AND FISH DEPARTMENT

The NDGFD has oversight of the State's game species. On August 19, 2015, ONEOK provided project notification to the NDGFD requesting information regarding the presence or absence of State Conservation Priority Species within the Project Corridor. The NDGFD provided a written response dated September 16, 2015.

The NDGFD's response indicated their primary concern is the possible disturbance of native prairie and wooded draws. The Department requested every effort is made to prevent destruction of these areas and disturbed areas be reclaimed to pre-project conditions. The NDGFD identified that the Project will cross the Little Missouri River and recommended a directional boring crossing method. In the event this method is not feasible, construction should not take place within the waterway between April 15 and June 1, with control implemented to minimize erosion and sedimentation. In addition, the NDGFD recommended implementing precautions to minimize the potential for a pipeline failure such as pressure sensing valves on both sides of the waterway. The NDGFD requested appropriate precautions are taken to prevent the introduction or movement of aquatic nuisance species and that steps are taken to protect any wetlands that cannot be avoided. The NDGFD noted the Project is located adjacent to the Bureau of Land Management bighorn sheep herd and suggested construction activities be avoided in areas within line-of-sight of bighorn sheep lambing areas from April 1 through July 15 to minimize potential impacts to the population. Lastly, the NDGFD noted the need for raptor surveys and appropriate construction buffers.

As outlined in Section 10, ONEOK has already accounted for many of these concerns and has developed plans and procedures to address these items during construction. ONEOK will continue to review work plans and procedures to incorporate NDGFD's recommendations where feasible.

6.7 NORTH DAKOTA PARKS AND RECREATION DEPARTMENT

The NDPRD Natural Resource Division's scope of authority and expertise covers recreation and biological resources (in particular rare species and ecological communities). The NDPRD also maintains a database identifying the location and recorded occurrences of plant and animal species of special concern. The NDPRD authority includes management of state park lands and Land and Water Conservation funded recreation projects.

On August 19, 2015, project notification was initiated with the NDPRD seeking confirmation regarding the presence or absence of managed lands, ecological resources, rare species or their critical habitats within the Project Corridor. A response from the NDPRD is pending.

6.8 NORTH DAKOTA STATE HISTORIC PRESERVATION OFFICE

According to the North Dakota Energy Conversion and Transmission Facility Siting Act, among the "*factors to be considered [by the Commission] in evaluating applications and designation of sites, corridors, and routes,"* is the effect of the proposed site or route on existing scenic areas, historic sites and structures, and paleontological or archaeological sites. The repository in North Dakota for this information is the SHPO, which acts as a technical resource during identification and evaluation of areas, sites, and structures and during reviews of Project effects. The Commission tasks the Proponent to coordinate identification and effects discussions with the SHPO.

On November 12, 2015 project notification was initiated with the SHPO seeking concurrence on the Class III cultural resources inventory methods and results (Woodward et al. 2015). Supplemental correspondence regarding management of cultural sites identified by 3rd parties immediately west of the Bear Creek Plant is being developed. ONEOK met with SHPO representatives on November 10 and 23, 2015, to discuss the eastern extent of the project. ONEOK received comments from SHPO regarding the Class III cultural resource report (dated December 10) and will work with SHPO to clarify NRHP recommendations and finalize avoidance and mitigation measures.

6.9 NORTH DAKOTA DEPARTMENT OF HEALTH

The North Dakota Pollution Discharge Elimination System (NDPDES) is the regulatory program that regulates water discharges such as construction stormwater, site dewatering, and hydrostatic discharge permits. ONEOK will procure the following NDPDES permits from the North Dakota Department of Health (NDDH) as described below.

Construction Stormwater: The NDDH, through their NDPDES construction stormwater program, authorizes the discharge of stormwater associated with construction activities under their general permit NDR10-0000. Per the Energy Policy Act of 2005 and the remand of the U.S. EPA's rule by the Ninth Circuit Court of Appeals, this Project is exempt from requiring permit coverage under NDR10-0000. However, ONEOK will develop and implement a Storm Water Pollution Prevention Plan (SWPPP) to prevent pollutant runoff from the construction site to waters of the State.

Hydrostatic test water discharges: The NDDH also provides authorization to discharge water from hydrostatic testing of pipe and dewatering activities during construction under the NDPDES general permit NDG07-0000. ONEOK will apply for permit coverage and comply with the requirements of NDG07-0000 for hydrostatic test discharge and dewatering activities associated with the Project. Coverage under the permit is generally granted no more than 30 days after submittal of an application. ONEOK will file a copy of this permit with the commission upon receipt.

The NDDH also administers the North Dakota Source Water Protection Program, which was developed in response to the 1996 Safe Drinking Water Act amendments. The program identifies wellhead protection areas (WHPA) for groundwater-dependent public water systems or a source water protection area for surface water-dependent public water systems. Based on review of the NDDH Interactive Map of Wellhead Protection/Source Water Protection Areas,[20] accessed on November 18, 2015, the nearest

[20] NDDH Interactive Wellhead/Source Water Protection Area Interactive Mapper accessed at http://www.ndhealth.gov/wq/gw/sourcewater.htm.

protection area is a non-community WHPA, ND Indoor RV Park, located approximately 1 miles north of the Project and 6 miles south of Watford City. This WHPA is listed as “moderately susceptible”.

6.10 NORTH DAKOTA STATE WATER COMMISSION

Appropriation of water from the State’s water resources is permitted by the North Dakota State Water Commission (NDSWC). Typically ONEOK will truck in water for hydrostatic testing of the pipe, rather than appropriating water from a nearby surface or groundwater source. As such, ONEOK does not expect that the Project will require a permit from the NDSWC. Should the scope of the Project change and a permit be required, ONEOK will apply for permit coverage through the NDSWC at that time.

6.11 NORTH DAKOTA DEPARTMENT OF TRUST LANDS

On August 19, 2015 ONEOK provided project notification to the North Dakota Department of Trust Lands (NDDTL) Surface Management Division requesting comments regarding the presence of School Trust Lands within the Project Corridor. The NDDTL responded on August 19, 2015 confirming the presence of School Trust lands within the Project Corridor. Additionally this response documented that ONEOK had submitted an application to cross the NE4 16-148-98 McKenzie County and the receipt of draft survey plats for review were pending. Refer to Exhibit D for a copy of the correspondence.

On August 19, 2015 ONEOK provided project notification to the NDDTL Minerals Management Division requesting comments regarding the presence or absence of state Mineral Trust Lands within the Project Corridor. A preliminary review of publicly available Mineral Trust Land information concluded that the following State Lands intersect with mineral interests within the Project Corridor:

- Township 149N, Range 99W, Section 36
- Township 148N, Range 99W, Section 1
- Township 148N, Range 98W, Sections 5-9, 13, 16, 17, 22, 23
- Township 148N, Range 97W, Sections 16, 17, 19, 20, 36
- Township 147N, Range 96W, Sections 34, 36
- Township 146N, Range 96W, Section 11
- Township 146N, Range 95W, Section 18

The NDDTL Minerals Management Division responded on August 20, 2015 confirming the presence of Mineral Trust land tracts within the Project Corridor as depicted in the notification map. Refer Exhibit D for a copy of the correspondence.

7.0 POLICY CRITERIA

7.1 LOCATION AND DESIGN

The Project facilities are being sited in accordance with the North Dakota Energy Conversion and Transmission Facility Siting Act (NDCC chapter 49-22). Efforts to avoid and minimize environmental and human impacts are ongoing. Additionally, discussions with landowners regarding placement of the pipeline on respective tracts are taking place.

Facilities will be constructed and operated according to all applicable regulations. The Project will meet or exceed state and federal safety requirements and will be designed in accordance with 49 CFR part 195. All persons and firms providing service to ONEOK are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations and will be held accountable for their actions.

7.2 TRAINING AND UTILIZATION OF IN-STATE LABOR

Construction of the Project will require at least 120 workers in North Dakota.

7.3 ECONOMIES OF CONSTRUCTION AND OPERATION

ONEOK will invest approximately $45 million in North Dakota to develop this Project, generating approximately $675,000 of additional ad valorem tax revenues annually. Once constructed and in-service, the continued costs of maintenance and operation of the proposed pipeline are minimal. While the Bear Creek NGL Pipeline itself will not generate any direct tariff revenues, it is estimated that the gross NGL product value produced at the plants and transported through the Project will be in excess of $20 million annually, generating significant producer, royalty, and state tax revenues in the most efficient and minimally intrusive way possible.

7.4 USE OF CITIZEN COORDINATING COMMITTEES

ONEOK Partners has established and maintains a good relationship with the local residents through its long-term regional presence operating various assets in the area. Through these relationships, ONEOK has maintained several grassroots communication channels to inform local residents regarding the developments associated with the Project. ONEOK will continue to maintain contact with local government officials. Through this contact, Project-related information will be exchanged and should concerns arise, ONEOK will work with officials to resolve those issues.

7.5 COMMITMENT OF PORTION OF TRANSMITTED PRODUCT FOR USE IN STATE

The proposed Project will interconnect with an existing facility. The products currently handled, transferred, and shipped at the facility are currently delivered to markets located in and out of the state.

7.6 LABOR RELATIONS

ONEOK maintains positive labor relations with its staff and contract work force and does not anticipate encountering any adverse labor relations on this Project. ONEOK is an equal opportunity employer committed to diversity and inclusion. Additionally, the labor market in the region is generally supportive of the oil and gas industry.

7.7 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

ONEOK is committed to protecting the environment during all phases of construction of the Project. Before construction, surveys of the pipeline route were conducted to identify wetlands, streams, threatened and endangered species and their habitat, cultural resources, agricultural areas, and special land-use designations. In consultation with state and federal agencies, ONEOK developed mitigation plans to protect these sensitive areas during and after construction. Once the pipeline is operational, ongoing monitoring and maintenance activities will be implemented to ensure the safe operation of the pipeline.

7.8 COORDINATION OF FACILITIES

ORM, ONEOK's affiliate, owns and operates the Garden Creek Plants, Lonesome Creek Plant, Bear Greek Plant and Riverview Terminal. Coordination of the proposed 8-inch Bear Creek NGL Pipeline is anticipated to be seamless as the proposed Project will provide critical takeaway transport of NGLs allowing the Plants to operate at full capacity.

7.9 MONITORING IMPACTS

ONEOK has established and maintained positive landowner and community relationships throughout the region through its open communication and commitment to corporate citizenship standards that are based on integrity. ONEOK monitors landowner concerns through its ROW department and responds to all reasonable requests. In a similar manner, ONEOK monitors community concerns and responds to all reasonable concerns brought to its attention by local community leaders. ONEOK will select a contractor for construction of the Project and will coordinate the oversight responsibilities for construction activities with this contractor throughout the Project. Environmental responsibilities will be coordinated in the same manner.

During operation, pipeline control personnel provide 24-hour electronic surveillance of ONEOK pipeline operations. In addition, ONEOK uses a number of inspection methods and processes to mitigate corrosion and minimize the potential for third-party damage to the pipelines. These include regular ROW patrols, inspections of cathodic protection equipment, and coordination with the State One-Call Centers to mark the pipeline or to be present during excavation to ensure the public's safety and the integrity of the pipeline.

ONEOK designs, constructs, operates, and maintains its pipeline systems to ensure safety and reliability. If a leak were detected, the company has the ability to stop the flow of product remotely from its control center. ONEOK continues to establish and maintain contact with appropriate fire, police, and other public officials. This communication establishes the responsibility and resources of each government organization that may respond to a pipeline emergency. ONEOK also acquaints officials with the abilities of the pipeline operator when responding to an emergency. In all cases, emergency responders are directed to protect people first, then the environment next, and then property.

7.10 USING EXISTING AND PROPOSED ROWS AND CORRIDORS

ONEOK selected the preferred Project alignment in an effort to maximize the use of existing utility corridors. Of the 38 mile Preferred Route, approximately 60.5 percent (23 miles) of the Project is co-located with existing pipeline corridors. The Alternative Route is collocated across 23.8 miles (65.1%).

7.11 OTHER EXISTING OR PROPOSED TRANSMISSION FACILITIES

ONEOK Partners, ONEOK's parent company, is one of the largest publicly traded master limited partnerships and is a leader in the gathering, processing, storage, and transportation of natural gas and natural gas liquids in the U.S. The company operates natural gas liquids systems connecting NGL supply in the Rocky Mountain and Mid-Continent regions with key market centers. In addition, the company owns and operates:

- 15,500 miles of gathering pipelines;
- 7,000 miles of transmission pipelines;
- 52 billion cubic feet of storage capacity;
- 13 processing plants; and
- 770 MM cf/d of processing capacity.

ONEOK Partners' general partner, ONEOK, Inc., has owned and operated natural gas pipelines since 1906.

8.0 CRITERIA

The information presented in this section was developed to demonstrate conformance with the NDPSC's siting criteria for transmission facilities. ONEOK has conducted a thorough inventory of the Project Corridor and evaluated the resources within it to assess the compatibility of the Project with the NDPSC's siting criteria. The following sections identify and discuss the presence or absence of siting criteria within the Project Corridor and Route. Where siting criteria are identified, the location of each is shown on the maps in Exhibits B.3-B.5.

8.1 EXCLUSION AREAS

Table 8.1-1
Exclusion Areas
NDPSC Certificate of Corridor Compatibility and Route Permit

Exclusion Area	Located within Study Area[1]	Located within the Project Corridor[1]	Crossed by Preferred Route[1]	Crossed by Alternative Route[1]	Administering Agency
National Parks	No	No	No	No	U.S. National Park Service (USNPS)
National Memorial Parks	No	No	No	No	USNPS
National Historic Sites and	No	No	No	No	USNPS
National Natural Landmarks	No	No	No	No	USNPS
National Wilderness Areas	No	No	No	No	USNPS; USFS
National Monuments	No	No	No	No	USNPS
State Parks	No	No	No	No	NDPR
State Historic Sites	No	No	No	No	State Historical Board
State Monuments	No	No	No	No	State Historical Board
State Historical Markers	No	No	No	No	State Historical Society
State Archaeological Sites	Yes	Yes	No	No	State Historical Board
State Nature Preserves	No	No	No	No	State Park Service
County Parks and Recreation Areas, Municipal Parks, and Parks under other Governmental	No	No	No	No	Various
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No	No	No	No	FWS
Areas Where Animal or Plant Species Unique or Rare to the State Would be Irreversibly	No	No	No	No	Various
Areas within 1,200 feet of an ICBM facility	No	No	No	No	U.S. Department of Defense
Areas within 30 feet of direct line of ICBM launch facility	No	No	No	No	U.S. Department of Defense

[1] Study area and Project Corridor are defined in Section 5.0. The Preferred and Alternative Route considered in this table assumes a 100-foot-wide workspace as shown in the typical ROW configuration shown in Exhibit B.1; however, actual workspace design will be finalized prior to construction.

8.1.1 Federal Resource Review

Review of digital data[21] available from the USNPS, the USFS, and the FWS shows that there are no national parks, national memorial parks, national historic sites and landmarks, national wilderness areas, or national monuments located within the Project Corridor or Route. Therefore, there will be no direct impacts to national parks, sites, monuments, or wilderness. The nearest federally managed park land is the Theodore Roosevelt National Park (North Unit) located approximately 5 miles south and west of the Project.

The Project crosses lands managed by the USFS as a portion of the Little Missouri National Grassland. ONEOK selected the crossing area to be within a previously established pipeline corridor and a Special Use Permit with the USFS is currently pending.

8.1.2 State Resource Review

Review of digital data[22] available from the NDPRD indicates that there are no designated or registered state parks, sites, monuments, or nature preserves within the Project Corridor or Route. Little Missouri State Park is the nearest such area and is located approximately 6 miles northeast of the Project. Therefore, there will be no direct impacts to state parks, sites, monuments, or nature preserves.

8.1.3 County Resource Review

Review of publicly available data shows that there are no county parks and recreational areas, municipal parks, or parks owned or administered by other governmental subdivisions within the Project Corridor or crossed by the Route. The nearest such areas are located in the vicinity of Watford City approximately 8 miles northwest of the Project. Therefore, no direct impacts are anticipated.

8.1.4 Areas of Critical Habitat

ONEOK commissioned natural resource surveys of the proposed Route. The scope of the surveys included documentation of the presence or absence of federally listed and state listed species of concern or evidence of suitable habitats for these species. The results of these field studies are detailed in Section 5.3.1, and planned mitigation measures are discussed in Section 10 of this document. Additionally, no FWS-designated critical habitat was identified during desktop analysis of the Project Corridor. The nearest FWS-designated piping plover critical habitat is located approximately 12 miles north and east of the Project area along the Missouri River. The nearest known Dakota skipper designated critical habitat is located 14 miles northeast of the Project.

8.1.5 Areas where Unique or Rare Species Would Be Irreversibly Damaged

Based upon agency correspondence and subsequent field surveys, the proposed Project will not result in irreversible impacts that are detrimental to sensitive plant and animal species or their habitats. The

[21] http://www.nps.gov/state/nd/index.htm, http://www.nps.gov/lecl/planyourvisit/loader.cfm?csModule=security/getfile&PageID=76427, and http://www.wilderness.net/NWPS/stateView?state=ND

[22] http://www.parkrec.nd.gov/parks/parks.html

implementation of the proposed mitigation plans and full compliance with environmental permits will fully mitigate the potential for irreversible damage.

8.1.6 Areas within 1,200 Feet of ICBM Facility or 30 Feet of Direct Line of ICBM Launch Facility

Based upon information compiled by the University of Wyoming regarding current and historic missile site locations, which was comprised of both tabular data describing these sites and supported with additional aerial imagery for each Minot Air Force Base Minuteman ICBM site, ONEOK has confirmed the absence of ICBM launch or launch control facility is located within 1,200 feet of the Preferred and Alternative Route.

8.2 AVOIDANCE AREAS

Avoidance areas are geographic areas that may not be considered in the routing of a transmission facility unless it is shown there is no reasonable alternative under the circumstances. A route may contain avoidance areas; however, avoidance areas may not encompass more than 50 percent of the Project Corridor width at any point, unless there is no reasonable alternative. The following table and text identify and discuss avoidance areas within the Project Corridor.

Table 8.2-1
Avoidance Areas
NDPSC Certificate of Corridor Compatibility and Route Permit

Avoidance Area	Located within Study Area	Located within Project Corridor	Crossed by Preferred Route	Crossed by Alternative Route	Administering Agency
National Historic Districts	No	No	No	No	State Historic Society
National Wildlife Areas	No	No	No	No	FWS
National Wild, Scenic, or Recreational Rivers	No	No	No	No	Heritage Conservation Recreation Service, State
National Wildlife Refuges	No	No	No	No	FWS
National Grasslands	Yes	Yes	Yes	Yes	USFS
State Wild, Scenic or Recreational Rivers	Yes	Yes	Yes	Yes	State of North Dakota Legislative Assembly
State Game Refuges	No	No	No	No	NDGFD
State Game Management and Management Areas	No	No	No	No	NDGFD
State Forests	No	No	No	No	State Forest Service
State Forest Management	No	No	No	No	State Forest Service
State Grasslands	No	No	No	No	State Park Service
Historical Resources not specifically designated as Exclusion or Avoidance Areas	No	No	No	No	SHPO
Geologically Unstable Areas	Yes	Yes	Yes	Yes	State Geological Survey
Within 500 Feet of a Residences, School, or Place of Business	Yes	Yes	Yes	Yes	Landowner

Table 8.2-1
Avoidance Areas
NDPSC Certificate of Corridor Compatibility and Route Permit

Avoidance Area	Located within Study Area	Located within Project Corridor	Crossed by Preferred Route	Crossed by Alternative Route	Administering Agency
Reservoirs	No	No	No	No	COE; NDSWC
Municipal Water Supplies	No	No	No	No	NDSWC
Water Sources for Organized Rural Water Districts	No	No	No	No	NDSWC
Irrigated Land	NA	NA	NA	NA	NDSWC
Areas of Recreational Significance not designated as exclusion areas	Yes	Yes	Yes	Yes	Various

8.2.1 Federal Resource Review

ONEOK conducted a comprehensive review of publicly available information and field studies of the Project Corridor. This review confirmed the absence of designated or registered historic districts, refuges, and wild, scenic or recreational rivers within the Project Corridor.

The USFS managed Little Missouri National Grassland would be crossed by the Preferred and Alternative Route. The Project would cross this land within a previously cleared ROW and parallel an existing pipeline. ONEOK has engaged the USFS to obtain a Special Use Permit for Project construction and operation.

8.2.2 State Resource Review

ONEOK conducted a review of publicly available resources and concluded no designated or registered game refuges, game management areas, management areas, forests, forest management lands, or grasslands are within the Project Corridor.

The Little Missouri River would be crossed by the Preferred and Alternative Route. ONEOK plans to bore the river using HDD methods in order to place the pipeline under the river without disturbance to the surrounding habitat.

8.2.3 Historical Resources Not Designated as Exclusion/Avoidance Areas

See Section 5.1 for a discussion of historical resource desktop and field studies conducted for completion of Class I and Class III cultural resource reports, and see Section 6.7 for a discussion of agency consultations conducted with the SHPO regarding the Project.

8.2.4 Geologically Unstable Areas

A desktop review of the North Dakota Geological Survey landslide mapping data was completed. Review of landslide deposit data from the North Dakota Geological Survey confirmed the presence of six landslide prone landscape within the Project Corridor. Five of these areas intersect the Route. The location and details (if available) of each area are described below. Refer to Section 10 for mitigation measures.

Landslide deposit #1: Intersects the Route for 3,374 feet between milepost 8.9-9.5. The landslide deposit is a variable mixture of strata and deposits that have slid to the base of steep slopes.

Landslide deposit #2: Within the Project Corridor near milepost 19.6.

Landslide deposit #3: Intersects the Route for 3,462 feet between milepost 22.2-22.9.

Landslide deposit #4: Intersects the Route for 1,067 feet between MP 23.7-28.9.

Landslide deposit #5: Intersects with the Route for 586 feet at milepost 29.7. The landslide deposit is a variable mixture of strata and deposits that have slid to the base of steep slopes. Most of the landslides in this area are hundreds, if not thousands, of years old.

Landslide deposit #6: Intersects with the Route for 175 feet at milepost 29.8. The landslide deposit is a variable mixture of strata and deposits that have slid to the base of steep slopes. Most of the landslides in this area are hundreds, if not thousands, of years old.

North Dakota has not experienced an earthquake of sufficient magnitude to damage steel welded pipe or structural steel structures in recorded history. Sinkholes are known to occur in the region, but these are related to subsurface mining activities as opposed to limestone dissolution. According to review of NDPSC abandoned mine data, no mining activities are located within the Project Corridor.

8.2.5 Areas within 500 Feet of a Residence, School, or Place of Business

Aerial photography was utilized to identify structures located within 500 feet of the proposed pipeline alignment. ONEOK is in the process of verifying occupancy of each structure and obtaining a landowner waiver for those dwellings/businesses that are in fact occupied and located within 500-feet of the Project alignment. ONEOK will file the waivers once received (Exhibit E).

Preferred Route: Six potentially occupied structures are located within 500 feet of the Route.

Alternative Route: Six potentially occupied structures are located within 500 feet of the Route.

8.2.6 Reservoirs and Municipal Water Supplies

ONEOK has confirmed the absence of reservoirs or municipal source water protection areas for community water supply sources within the Project Corridor.

8.2.7 Water Sources for Organized Rural Water Districts

ONEOK has confirmed the absence of known water sources within the Project Corridor.

8.2.8 Irrigated Land

Irrigated land does not apply to underground transmission facilities.

8.2.9 Areas of Recreational Significance but Not Designated Exclusion Areas

One NDPRD-designated Scenic Byway or Backway is crossed by the Project, the Killdeer Mountain Four Bears Scenic Byway. The Project will result in only short-term visual effects related to the presence of heavy equipment, staging areas, and removal of vegetation within the construction workspace. Disturbed areas will be returned to preconstruction conditions and contours but may continue to show short-term visual disturbance until vegetation is fully reestablished. Once installed underground, the pipeline is not visible and is not expected to negatively impact any recreational areas. No aboveground facilities are expected to be installed within recreational areas.

8.3 SELECTION CRITERIA

The State of North Dakota Rules specifies selection criteria considered in designating a pipeline corridor or route.[23] These criteria are used to determine whether adverse effects from the location, construction, and maintenance of the facility will be at an acceptable minimum or whether these effects will be managed and maintained at an acceptable minimum.

The selection criteria that were considered for the Project include:

- Agricultural Production,
- Family Farms and Ranches,
- Land Suitable for Irrigation,
- Surface Drainage and Groundwater Flow Patterns,
- Sound Sensitive Areas,
- Visual Effects,
- Extractive and Storage Resources,
- Wetlands, Woodlands and Wooded Areas,
- Communication or Electric Control Facilities,
- Human Health and Safety,
- Animal Health and Safety, and
- Plant Life.

Potential impacts and measures to avoid and minimize these impacts, as they relate to each of the selection criteria, are discussed in the following subsections.

8.3.1 Agricultural Impacts

Agricultural Production: The Preferred Route would temporarily affect approximately 446 acres of private land in North Dakota. Of the 446 acres, approximately 180 acres are located on privately owned cropland. The Alternative Route would temporarily affect approximately 427 acres of private land in North Dakota. Of the 427 acres, approximately 175 acres are located on privately owned cropland. The majority of the land crossed can be characterized as either agricultural or natural vegetative cover. Once the construction is complete, the land will be restored to its pre-construction contours and land use. ONEOK will provide settlements to landowners for crop loss resulting from Project construction.

[23] NDR Section 69-06-08-02.3.

Family Farms and Ranches: The Preferred Route would temporarily affect approximately 446 acres of private land in North Dakota. Of the 446 acres, approximately 180 acres are located on privately owned cropland. The Alternative Route would temporarily affect approximately 427 acres of private land in North Dakota. Of the 427 acres, approximately 175 acres are located on privately owned cropland. Once construction is complete, the land will be restored to its pre-construction contours and land use. ONEOK will negotiate easements with all affected landowners. The Project will have no permanent impacts to lifestyle or farm/ranch operations once construction is completed.

The location of pipeline markers is defined under 49 CFR part 195 for pipelines. ONEOK works with local landowners and county officials to ensure that pipeline markers are located where required but also in an acceptable location for these parties. These markers are to be placed in full view so that they are not accidentally damaged by nor cause damage to landowner or county equipment.

Lands Suitable for Irrigation: This section is not applicable to buried pipelines (NDAC 69-06-08-02(2)(h)).

Surface Drainage: Standard pipeline construction techniques to be employed would not modify existing surface drainage patterns. Care will be taken throughout the construction process to minimize environmental impacts, including modification of drainage patterns. During restoration, those areas that were disturbed during construction will be restored, the local topography will be restored to its original contours, vegetation will be re-established and impacts will be minimal and temporary. BMPs will be implemented in accordance with the project-specific SWPPP, which will comply with the NDDH Construction Storm Water General Permit requirements. Permanent impacts to surface drainage will be minimized to the maximum extent possible.

Ground Water: Well data has been recorded by the State Water Commission for the Project Area. Well data indicates that groundwater is located more than 20 feet below the surface. The required tie-in excavations for the proposed Project are not anticipated to reach these depths as such no impact to ground water is anticipated

8.3.2 Sound-sensitive Land Uses

Temporary increases in ambient sound will occur in the areas immediately surrounding active construction. The Project is located in a rural setting away from major population centers. Construction activities at any given point along the Project are expected to be short-term (i.e., 2 to 4 weeks in any given area) and generally limited to daylight hours. The use of heavy equipment or trucks will be the primary noise during construction and excavation. The level of impact may vary by equipment type, duration of construction activity, and the distance between the noise source and the receptor. Once constructed and in-service, normal pipeline operations are not audible. Construction and operation of the Project is expected to comply with applicable noise requirements.

8.3.3 Visual Effect on Adjacent Areas

The proposed pipeline would include four mainline block valves, one meter site, and one receiver site. These facilities are typically enclosed with fences which are padlocked shut against vandalism and accidental activation. The location will be clearly marked with a small placard that details ownership and contact information. The visual piping and equipment will be finished and maintained with a tan or white painted surface. These features are common throughout the landscape and are not obtrusive. No other permanent aboveground features are proposed as a part of the Project.

8.3.4 Extractive and Storage Resources

This Project will not affect any known extractive or storage resources. Impacts on future extractive development would not constitute a substantial loss of resource availability because of the narrow, linear nature of the pipeline ROW relative to the expanse of areas with resource potential.

8.3.5 Wetlands, Woodlands, and Wooded Areas

A comprehensive desktop review of published data, including aerial photography and NWI data, was conducted to assess the presence or absence of wetlands, woodlands, and wooded areas. The review of the proposed Project Corridor confirmed the presence of these resources. ONEOK commissioned field surveys to further identify and record the locations of these resources along the Preferred and Alternative Route. The results of these field studies will be used to implement construction measures to avoid or minimize impacts to wetlands, woodlands and wooded areas. Land use and land cover information is shown in Exhibit B.4. The proposed mitigation is detailed in Section 10 of this document and detailed survey results can be found in Exhibit C.

8.3.6 Radio and TV Reception and Other Communication or Electronic Facilities

Based on review of publicly available information, no radio and TV reception and other communication or electronic facilities are located within the Project Corridor (refer to Exhibit B.5). The proposed Project is a buried, underground utility. No impacts on television or radio reception or communication or electronic control facilities are anticipated to occur as a result of the Project.

8.3.7 Human Health and Safety

During construction, residences and businesses in proximity to construction activities will be exposed to short-term increases in construction-related noise and dust. The construction ROW, access roads, and spoil piles near residential and commercial areas will be watered down as needed to control fugitive dust during construction. Following construction, measures to stabilize and revegetate the ROW will be taken promptly to minimize further dust emissions. Heavy construction equipment required for pipeline installation will generate unavoidable short term increases in sound levels. Increases in noise levels due to equipment operation will be limited to the period of active construction and will primarily be avoided during night-time hours (10pm – 7am). Twenty-four hour construction activities are generally limited to completing tasks that commenced during the day and where ceasing to complete could jeopardize the installation. Largely this can apply to some phases of HDDs, various bores, and occasional aboveground facility construction.

The DOT's pipeline standards are published in Part 195 of Title 49 of the CFR. The regulations are intended to ensure adequate protection of the public and to prevent accidents and failures. Part 195 addresses petroleum pipeline safety issues, specifying material selection and qualification, minimum design requirements, and protection from internal, external, and atmospheric corrosion.

Actual installation of the pipeline and all construction and testing records will be subject to inspection. All pipe installed along the Project will be externally coated with a fusion bonded epoxy to resist corrosion. Once installed, internal inspections will be conducted on the pipeline at regular intervals using

in-line inspection technology. The pipeline will undergo hydrostatic testing above maximum allowable operating pressure to ensure its integrity and will be placed into service only after successful completion and commissioning to verify compliance with all construction standards and requirements.

ONEOK will ensure that public education and outreach program is developed to promote public awareness of pipelines and pipeline safety in accordance with DOT requirements. Proper signage and warnings at road and highway crossings, railroad crossings, navigable rivers, and other locations will alert the public to the presence of underground lines and to provide information, contact numbers, and emergency data.

8.3.8 Animal Health and Safety

The wildlife currently inhabiting the Route is common and is generally mobile. The local wildlife inhabitants would not be permanently displaced by the Project and as such there would be no measurable impact to the viability of these populations. No species of special concern are anticipated to experience direct impacts due to construction or operation of the Project.

8.3.9 Plant Life

Field surveys conducted for the Project did not identify any sensitive plant species or critical habitat within the Project Corridor (see Exhibit C). All areas disturbed by construction of the Project will be revegetated in accordance with applicable county agency standards and landowner requests. No permanent impacts to vegetation are anticipated.

9.0 OTHER FACTORS CONSIDERED

9.1 PUBLIC HEALTH, WELFARE, NATURAL RESOURCES, AND THE ENVIRONMENT

Refer to Sections 5.0, 7.3, 7.7, 7.9, 8.1, 8.2, and 8.3.

9.2 TRANSMISSION TECHNOLOGIES AND SYSTEMS DESIGNED TO MINIMIZED ADVERSE ENVIRONMENTAL EFFECTS

The Project design is consistent with existing pipeline technologies. A variety of measures will be taken to avoid, minimize, or mitigate impacts to sensitive resources, including implementing trenchless construction (i.e., HDD, bores), narrowing ROW widths, rerouting and route deviations, etc. Trenchless techniques avoid the need for open cut trenches, thereby minimizing environmental impacts and eliminating ground-level surface hazards in sensitive areas along the route. BMPs will be used to minimize impacts from clearing, trenching, and reclamation of the construction ROW. Potential impacts to environmentally sensitive areas will be either avoided through rerouting, HDD/bore, or by protecting sites during construction.

ONEOK's Construction Mitigation and Restoration Plan (CMRP) prescribes construction techniques and mitigation measures that will be employed to minimize the effects of construction on environmental resources. Mitigation measures are also discussed in Section 10 of this application. The Project does not include new energy conversion or transmission technologies that are expressly designed to minimize adverse environmental effects.

9.3 BENEFICIAL USES OF WASTE ENERGY FROM A PROPOSED ENERGY CONVERSION FACILITY

The Project does not involve new energy conversion facilities; as such, the potential for beneficial uses of waste energy from a proposed energy conversion facility does not apply to the Project.

9.4 UNAVOIDABLE ADVERSE DIRECT AND INDIRECT ENVIRONMENTAL EFFECTS

Unavoidable adverse direct and indirect environment effects will be temporary and short-term and will be minimized to the extent practicable. The Project will co-locate and run parallel to existing infrastructure (e.g., pipelines, utility corridors, railway, etc.) to the extent possible and ONEOK will implement measures to mitigate potential impacts to resources such as vegetation, wildlife, agricultural, transportation, and noise levels. Impact minimization methods are described in Section 8.0; refer to Section 10.0 for a complete description of mitigation measures.

9.5 CORRIDOR OR ROUTE ALTERNATIVES DEVELOPED DURING THE HEARING THAT MINIMIZE ADVERSE EFFECTS

A description of the alternatives analyzed in the design of the Project is presented in Section 4.0 of this application. The Project Corridor and Route have been designed based on landowner engagement,

stakeholder outreach, civil surveys, environmental surveys, and constructability analysis, among others. Reroutes of varying lengths and for a variety of reasons have been made to minimize adverse effects to sensitive areas. ONEOK will continue to adjust the route based on additional constructability concerns and necessary feature avoidance. ONEOK will participate in the hearing process and will address any alternatives developed during the process, as applicable.

9.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF NATURAL RESOURCES IF DESIGNATED

The Project was designed to co-locate the pipeline within existing linear infrastructure (i.e., pipeline, utility, road, and railroad corridor) to the extent practicable. This design minimizes irreversible or irretrievable commitments of natural resources due to conversion of greenfield to industrial uses and optimizing existing fragmentation. Generally all areas impacted by pipeline construction (except for above ground facilities) will return to previous land use. Long-term vegetation impacts will result from converting wooded areas to herbaceous/scrub shrub areas to comply with federal pipeline regulations, ensure safety and integrity of the pipeline, and facilitate routing aerial inspections.

ONEOK provided Project-specific notification to various federal and state agencies, reviewed published information, and conducted a desktop analysis of the Project Corridor to determine if areas of critical animal or plant habitat may occur. Based on these studies, ONEOK has confirmed the absence of protected species and/or their critical habitats. Refer to Exhibit D for supporting documentation of agency correspondence.

9.7 DIRECT AND INDIRECT ECONOMIC IMPACTS OF THE FACILITY

Estimated total spending for construction of the Project is $45 million. This estimate includes construction of the pipeline, architectural, engineering and real estate services, easement payments, mitigation payments, and other support services. Construction outputs for the Project include employment, labor income, and production spending. The Project is expected to employ at least 120 workers for construction of the Project. These economic impacts will be realized during construction in 2016 and throughout operations and maintenance annually starting in 2016.

North Dakota imposes taxes on sales, use, gross receipts and lodging, and individual income. Local governments may impose taxes on the same tax bases; however, most unincorporated areas do not impose local option sales taxes. The Project will contribute directly and indirectly to tax bases at the state and local levels.

Construction of this Project would provide firm, reliable service for an additional 14,000 bpd of NGL and provide a critical transportation link between the Bear Creek Plant and connections to the Riverview Rail Facility near Sidney, Montana, or mid-continent by continuing southward on the Bakken pipeline.

9.8 EXISTING PLANS FOR OTHER DEVELOPMENTS IN THE VICINITY

ONEOK Partners, the parent company of ONEOK Bakken Pipeline, L.L.C., is the largest independent operator of natural gas gathering and processing facilities in the Williston Basin, with a natural gas gathering system of more than 6,500 miles and more than 3 million net acres where production is dedicated to its systems. ONEOK's 10-year plan describes the company's plans for future development in the region.

The Garden Creek III plant, a 100 MM cf/d natural gas processing facility in eastern McKenzie County, North Dakota, originally scheduled for completion during the first quarter of 2015, was completed more than three months ahead of schedule. The completion of the Garden Creek III plant increased ONEOK Partners' Williston Basin natural gas processing capacity to more than 600 MM cf/d, which is 6 times more than their natural gas processing capacity in the region in 2010.

The ONEOK Partners' Williston Basin natural gas processing capacity is expected to increase to approximately 980 MM cf/d by the end of 2016 with the completion of the Lonesome Creek and Bear Creek natural gas processing plants and the completion of additional natural gas compression facilities.

An expansion of the Bakken NGL Pipeline is complete, increasing the pipeline's capacity to 135,000 bpd from an initial capacity of 60,000 bpd with the installation of additional pump stations. A previously announced second expansion, which will increase the pipeline's capacity to 160,000 bpd, is expected to be completed in the fourth quarter of 2016.

ONEOK maintains contact with local and state agencies, and through normal communications with these entities, it has concluded that this Project is not conflicted with any known developments planned in the area.

Development occurring in the vicinity of the proposed Project by other entities includes[24]:

Energy Transfer Partners

Energy Transfer Partners plans to construct the Dakota Access pipeline, a 30-inch crude oil system from western North Dakota to Patoka, IL. The project is designed to have an initial capacity of 450,000 bpd and is scheduled to be placed into service in late 2016.

Enbridge

Enbridge's Sandpiper Project includes the installation of a new crude oil pipeline originating near Tioga, North Dakota and extending to Superior, Wisconsin.

Hiland Crude, LLC

A project sponsored by Hiland Crude, LLC will convert an existing 197-mile long crude oil gathering line into a transmission line that crosses Williams, McKenzie, and Mountrail counties.

Vantage Pipeline US LP

Vantage Pipeline US LP is proposing to construct and operate approximately 47.3 miles of new high vapor pressure, 8-inch steel pipeline from a natural gas processing plant near Williston, North Dakota, to an existing pipeline system near Stady, North Dakota.

[24] North Dakota Pipeline Authority, 2014. The Pipeline Publication, Volume 6. North Dakota Public Service Commission Case Search available at http://psc.nd.gov/index.php. Accessed June 24, 2015.

Hess North Dakota Pipelines LLC

Hess North Dakota Pipelines LLC has filed a ROW Grant application with the Bureau of Land Management to construct, operate, and maintain the Hawkeye Pipeline Project (includes crude oil, natural gas, and NGL pipelines) in McKenzie and Williams counties, North Dakota. As part of this project, the company proposes to repurpose existing pipelines, construct several aboveground project components, and operate a NGL pipeline. The projected in-service date for the Hawkeye Pipeline Project is October 2015. The expected life of the project is 30 years. The project would transport NGL from the Hawkeye Compressor Station near Charlson, North Dakota, to the Silurian Compressor Station near Tioga, North Dakota.

9.9 RECYCLING OF CONVERSION BYPRODUCTS AND EFFLUENTS

Recycling of conversion byproducts and effluents is not applicable to this type of project.

9.10 POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

ONEOK is committed to conducting its business in compliance with all applicable environmental laws and regulations. These laws, regulations, and standards are designed to safeguard the environment, human health, wildlife, and natural resources.

ONEOK will conduct its activities with the objectives of providing a healthful and safe workplace for its employees and preventing accidents and environmental incidents. All persons and firms providing service to ONEOK are required to conduct their work in compliance with environmental conditions, permit authorizations, and applicable regulations and will be held accountable for their actions in that regard.

9.11 ENERGY CONSERVATION THROUGH USE OF A PRIMARY ENERGY SOURCE OR RAW MATERIAL

ONEOK is committed to energy conservation through management of energy costs and energy usage in the operations of the Project.

9.12 NON-RELOCATION OF RESIDENTS

No residents will be relocated as a result of the Project.

9.13 DEDICATION OF AN AREA ADJACENT TO THE FACILITY FOR LAND USE SUCH AS RECREATION, AGRICULTURE, OR WILDLIFE MANAGEMENT

ONEOK does not own property adjacent to the proposed Project suitable for recreation, agricultural, or wildlife management purposes. The current land use of properties adjacent to the Project is primarily agricultural/range land (see Exhibit B.4).

The Project will result in the development of a buried pipeline and other industrial type ancillary facilities. No land is being acquired for the Project. Therefore, no areas are proposed for dedication.

9.14 SECONDARY USES OF APPROPRIATE ASSOCIATED FACILITIES FOR RECREATION AND THE ENHANCEMENT OF WILDLIFE

The Project will result in the development of a buried pipeline and other industrial type ancillary facilities. As such, these developments are not typically suitable for recreational or wildlife application.

9.15 PROBLEMS RAISED BY FEDERAL, STATE, AND LOCAL AGENCIES

ONEOK provided Project-specific notification to various federal, state, and local agencies; through this notification process, these agencies have the opportunity to identify possible sensitive environmental resources within the study area and any related agency concerns. Section 6.0 of this application summarizes the consultations that have taken place to date. ONEOK is actively working with federal, state, and local agencies and will address problems that are raised. A complete record of these agency communications is provided in Exhibit D.

10.0 MITIGATION MEASURES

ONEOK has developed or is in the process of developing several Project control documents that will be utilized during construction activities to minimize and mitigate impacts to environmental resources. These plans will be incorporated into contract documents and enforced by ONEOK:

- CMRP
  - Comprehensive control document that describes general mitigation measures related to erosion and sedimentation, stream/wetland crossings, highway/rail crossings, dewatering and hydrostatic testing, and revegetation.
- MBTA Plan
  - Protection of federally protected migratory birds and eagles/raptors.
- SWPPP
  - Construction stormwater management and erosion/sediment control.
- SPCC
  - Outlines spill prevention and BMPs and provides details on spill response and notification procedures in the event of a spill.
- HDD Inadvertent Release Control and Mitigation Contingency Plan
  - Minimize potential for release of drilling mud during HDD operations. Establishes procedures and responsibilities for containment/cleanup in the event of an inadvertent release.
- Unanticipated Discoveries Plan
  - Response measures to be followed in the event of a discovery of cultural resources or human remains.
- Revegetation Plan
  - Revegetation and permanent restoration of disturbed ROW. Appropriate seed mixes will be incorporated into this plan. This plan also addresses control of noxious and invasive weeds.
- Dust Control Plan
  - Control of fugitive dust caused by construction activities/soil exposure.

The plans as they relate to specific resources are referenced in the following sections. In addition to these plans, the Project will be subject to permits from various federal, state, and local agencies (environmental permits are discussed in Section 6). To further ensure compliance with permits, plans, obligations, and commitments, ONEOK will employ one or more Environmental Inspectors during the Project. The inspector(s) will be responsible for monitoring construction activities and will provide daily reports to ONEOK staff.

10.1 HUMAN ENVIRONMENT

ONEOK will require its construction contractor to clean up on a daily basis personal litter, bottles, and paper deposited by ROW preparation and construction crews. Waste and scrap that is the product of pipeline construction will be removed and properly disposed of in accordance with applicable regulations before construction is completed. To the maximum extent practicable, ONEOK will minimize noise and dust resulting from construction near residential areas.

Paved roads and railroad crossings will be bored; therefore, use of these facilities will not be disrupted as a result of the Project. Gravel roads will be open cut or bored. Open cutting a road will temporarily close it to traffic; however, the road network throughout the Project is sufficient that suitable alternative routes are readily available to prevent any significant delays in traffic. Further, the trench can be plated to allow for traffic crossing when construction is not active (i.e., after the end of the work day).

ONEOK will obtain applicable permits prior to conducting road crossings. Temporary signs will be posted at each crossing as appropriate to alert motorists of construction activity. Paved roads and railroads will be bored, which will minimize interference with traffic flow caused by construction activities.

As noted above, ONEOK has developed or is in the process of developing several Project control plans which will be utilized during construction activities to minimize and mitigation impacts.

10.2 TERRAIN AND GEOLOGICAL RESOURCES

ONEOK will, to the maximum extent practicable, restore the area affected by pipeline construction to its pre-construction condition. Restoration will be compatible with the safe operation, maintenance, and inspection of the pipeline. Measures such as slope breakers, erosion control blankets, and re-vegetation will be employed to maintain the stability of slopes along the ROW. No crown of backfill material will be left over the trench in wetlands.

10.3 SOILS

Pipeline construction activities such as clearing, grading, trench excavation, and backfilling, as well as the movement of construction equipment along the ROW, may result in impacts on soil resources (refer to Exhibit C for a list of soils in the Project area). Clearing removes protective cover and exposes soil to the effects of wind and precipitation, which may increase the potential for soil erosion and movement of sediments into sensitive environmental areas. Grading and equipment traffic may compact soil, reducing porosity and percolation rates, which could result in increased runoff potential. Trench excavation and backfilling could lead to a mixing of topsoil and subsoil and may introduce rocks to the soil surface from deeper soil horizons.

ONEOK will minimize or avoid these impacts on soils by implementing the mitigation measures described in its CMRP. The CMRP will be included in contract documents and enforced as such throughout the duration of the Project. Temporary erosion and sedimentation control measures may include installation of silt fence, straw bales, slope breakers, trench breakers, erosion control fabric, and mulch.

To minimize potential impacts on soil productivity, topsoil will be segregated during trench excavation in agricultural land, unsaturated wetlands, and if applicable, other areas where soil productivity is an important consideration. Unless otherwise requested by the landowner, topsoil in cropland will be removed to a maximum depth of 12 inches from the trench and spoil storage area and stored separately from the trench spoil. After the trench is backfilled, topsoil will be returned to its approximate original location in the soil horizon.

Compaction of agricultural soils will be minimized by restricting construction activities during periods of prolonged rainfall. Where unacceptable levels of compaction occur in agricultural lands, a chisel plow, or other deep tillage equipment will be utilized to loosen the soil during restoration.

ONEOK will retain environmental inspector(s) to monitor the contractor's compliance with applicable requirements to protect soil resources during construction of the Project.

Recognizing the unique terrain and soils within portions of the Project Corridor, ONEOK commissioned two additional studies to assist in project planning. A geotechnical investigation has been initiated at certain HDD locations to assist in planning the set-up, profile, and completion of boring efforts and to minimize risk for unexpected conditions during construction. Additionally, ONEOK has commissioned a baseline analysis of the soils throughout the project area by a professional soil scientist and restoration contractor. The purpose of this study is to identify the existing soil conditions across the entire project length, highlight problem areas, plan construction controls, and design restoration measures in a more site-specific manner. Both the geotechnical investigation and baseline soil analysis are currently underway and the results of these studies will be incorporated into the final project plans and specifications.

10.4 VEGETATION AND WILDLIFE

ONEOK will clear the ROW to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the pipeline. In areas that require permanent revegetation, ONEOK will specify appropriate seed mixes, application rates, and seeding dates, taking into account recommendations of appropriate state and federal agencies and landowner requests. In non-agricultural areas, vegetation cleared from extra workspace will be allowed to revegetate after construction depending on arrangements with the landowner. Consequently, significant changes in cover types are not anticipated.

ONEOK will take appropriate precautions to protect livestock and crops from being affected by construction. Operation of the proposed pipeline is not anticipated to significantly affect terrestrial wildlife, fisheries resources, or other aquatic species. Shelter belts and trees will be protected and restored by ONEOK to the extent practicable in a manner compatible with the safe operation, maintenance, and inspection of the pipeline.

Noxious Weeds: The Preferred Route and Alternative Route intersect 333 and 297 noxious weed patches, respectively. To mitigate the spread of noxious weeds, equipment leaving infested areas will be inspected visually prior to leaving the area, vegetation and soils will be cleaned from vehicles and equipment. The vehicles and equipment will be cleaned to remove remaining soils and vegetation prior to entering uninfected tracts.

Trees and shrubs: ONEOK will comply with the Commission's tree and shrub mitigation specifications. Field surveys included a pre-construction tree and shrub inventory. The clearing or removal of trees or shrubs will be done selectively, in a manner that minimizes the disturbance to woody vegetation and in compliance with the Commission's specifications. The replacement of trees and shrubs will be based upon actual impacts due to construction, will meet the 2:1 ratio specified, and will be fully documented.

Wetlands and Waterbodies: ONEOK will minimize impacts to wetland and waterbodies by minimizing workspace through these features and by utilizing low-impact crossing methods such as HDD where appropriate. Furthermore, ONEOK will conduct all regulated crossings in compliance with the COE Nationwide Permit #12. After completion of waterbody crossings, ONEOK will revegetate disturbed stream banks in accordance with the CMRP, Revegetation Plan, and requirements of applicable state or federal permits. During construction in unsaturated wetlands, topsoil will be segregated from the trench

line to preserve natural sources of seed and rootstock. After the trench is backfilled, the topsoil will be replaced to facilitate the natural revegetation process. Features will be returned to their pre-construction condition and contours.

Whooping crane: In North Dakota, the cranes would typically pass through the state during the fall migration occurring late August through mid-October with peak migration typically occurring in September. The spring migration typically occurs from late-March to mid-April. Construction activities for the proposed Project are scheduled to begin in the second quarter of 2016. To mitigate potential impacts to whooping cranes ONEOK will suspend heavy equipment operations when whooping cranes are observed within 0.5 mile (line of sight) from active construction activities. ONEOK will report whooping crane observations to the FWS. Suspended activities would resume once the absence of the whooping cranes is confirmed.

Dakota skipper: Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine deposits. Moderate and high quality habitat is present within the Project Corridor. ONEOK will implement site specific minimization measures within high quality habitat areas to reduce disturbance of native prairie vegetation to the minimum necessary to safely construct the pipeline and areas will be restored utilizing native seed mixes.

Bald and Golden Eagle: To mitigate potential adverse effects on nesting and breeding eagles, the FWS generally recommends maintaining a nest buffer of at least 0.5 miles for any eagles nesting in the area. ONEOK will work with the FWS as necessary if an eagle nest is identified within 0.5 miles of the proposed pipeline route.

Migratory Bird Treaty Act: The commonly observed timeframe for migration of protected species in North Dakota is February 1st to July 15th. Construction activities for the proposed Project are planned to begin in the second quarter of 2016. Based on the Project's schedule, construction activities are anticipated to occur during the recognized migration/breeding season. ONEOK will develop and implement a mitigation plan which may include conducting surveys for nesting birds prior to the commencement of ground disturbing activities and implementing avoidance and monitoring measures of any active nests.

The NDGFD raised specific concerns during the agency notification process. ONEOK is reviewing the project plans and specifications and, to the extent feasible, will adjust project execution with the objective of meeting the following goals:

- Clearing of wooded draws and native prairie will be minimized to the maximum extent possible and all disturbed areas will be returned to pre-project conditions.
- The Little Missouri River will be crossed via the HDD construction technique and designed to meet applicable DOT and PHMSA safety standards.
- The pipeline operation will be monitored in compliance with all DOT and PHMA requirements.
- ONEOK will implement BMPs to avoid the spread of aquatic nuisance species.
- ONEOK will implement standard BMPs which include measures specific to protecting wetlands when constructing in wetlands.
- ONEOK will restore the original contours and revegetate areas disturbed by pipeline construction as close to preconstruction conditions as reasonably possible.
- The placement of above-ground appurtenances will avoid wetland areas.

- ONEOK will minimize disruptive construction activities as much as feasible within line-of-sight of known and occupied bighorn sheep lambing areas between April 1 and July 15.
- ONEOK will conduct additional raptor surveys prior to construction and will implement appropriate buffers around active eagle nests.

10.5 LAND USE

ONEOK will obtain and comply with applicable county permits and zoning and land use regulations. Permits may include, but are not limited to, grade and fill permits, ditch crossing permits, road and utility permits, and conditional use permits. ONEOK will retain one or more Environmental Inspectors to monitor compliance with environmental conditions of county permits.

ONEOK will repair surface drains and drainage tiles disturbed during ROW preparation, construction, and maintenance activities. ONEOK will repair private roads and farm lanes damaged when moving equipment or when obtaining access to the ROW. ONEOK will repair or replace fences and gates removed or damaged as a result of ROW preparation, construction, or maintenance activities.

The Project will be installed at a minimum depth of 48 inches from the surface contour to minimize the potential for environmental damage resulting from deep tillage activities unless modified to accommodate special construction issues at the site. Upon installation of the pipeline, all Project locations will be returned to their original pre-construction contours and land use to the extent feasible.

10.6 CULTURAL RESOURCES

Consideration for impacts to cultural resources have occurred throughout the course of the Project. Avoidance is the preferred method of treatment for historic properties. In the event that a historic property cannot be avoided, ONEOK will consult with the SHPO to mitigate adverse effects and implement appropriate treatment plans.

As discussed in Section 5.1, ONEOK conducted Class III inventory surveys throughout the Project Corridor. ONEOK submitted the Class III cultural resource report to SHPO for a technical review on November 12, 2015 and requested review and comment on the NRHP recommendations (see Exhibit D). ONEOK received comments from SHPO regarding the Class III cultural resource report (dated December 10) and will work with SHPO to clarify NRHP recommendations and finalize avoidance and mitigation measures.

Subsequent discovery of additional cultural resources by a third party at the eastern terminus of the Project Corridor after the completion of ONEOK's Class III Inventory has necessitated supplemental correspondence with SHPO. ONEOK met with SHPO representatives on November 10 and 23, 2015, to discuss this additional data and is currently developing formal correspondence and plans to address the recent cultural discoveries. ONEOK will forward to the NDPSC any future written correspondence between ONEOK and SHPO.

There is always the potential during construction to encounter previously unknown cultural resources or human remains. As such, ONEOK will develop a Project-specific Unanticipated Discoveries Plan, which describes the actions to be taken in the event a previously unrecorded paleontological or cultural resource site is discovered during construction activities, specifically calling for work to stop until the appropriate authority can be contacted. This plan will be incorporated into contract documents and implemented throughout the Project.

10.7 AREAS OF KNOWN GEOLOGIC INSTABILITY

Desktop analysis identified six areas containing landslide deposits within the Project Corridor. Five of these areas intersect the Route. Mitigation will be implemented through minimizing impacts with construction techniques and restoring the area to its original condition. This will be accomplished through preserving top soil and continued monitoring of the area through restoration until the site reaches final stabilization per applicable permit(s) requirements. As discussed in Section 10.3, ONEOK has commissioned additional geotechnical and field studies for this project. The findings of both of these studies will be incorporated into final project plans and specifications.

11.0 DEVELOPMENT

11.1 PRESENT AND FUTURE NATURAL RESOURCE DEVELOPMENT IN THE AREA

A small percentage of North Dakota is held in public ownership. Of the 45 million acres of land in the state, less than 3 million are owned in fee title by state and federal land management agencies. Most of these agencies work in cooperation with private producers in managing these lands. For example, the NDGFD leases certain tracts of wildlife management areas for grazing, haying, and food plots. The USFS manages for multiple uses and the sustained yield of renewable resources such as water, forage, wildlife, and recreation, as well as industry such as oil and gas development.

As discussed in Section 8.1.1, there are no national parks, national memorial parks, national historic sites and landmarks, national wilderness areas, or national monuments located within the Project Corridor. There are no designated or registered state parks, sites, monuments, or nature preserves along the Project Corridor. There are no county parks, recreational areas, municipal parks, or parks owned or administered by other governmental subdivisions crossed by the route. As such, there will be no direct impacts to national parks, sites, monuments, or wilderness.

As discussed in Section 8.2.1, there are no federally managed wildlife areas; wild, scenic, or recreational rivers; or wildlife refuges within the study area, Project Corridor, or Route. The Project does cross federal grasslands managed by USFS. ONEOK has routed the project within a previously disturbed pipeline corridor within USFS lands and is currently seeking the appropriate permits from USFS for installation of the line. ONEOK will comply with all conditions of the USFS permit.

The project crosses the Little Missouri River. This crossing will be accomplished via HDD methodology thus eliminating any direct impacts to the river.

The land use along the pipeline route is primarily in agricultural production with a significant number of oil wells and other pipeline systems in the area. As the pipeline is a buried utility, surface land use will return to preexisting conditions once the pipeline is installed.

Other known development projects in the vicinity of the Project are discussed in Section 9.8 of this application. ONEOK is not aware of any federal, state, or local natural resource development plans within the Project Corridor or study area.

12.0 QUALIFICATIONS OF PREPARERS

Todd Kelvington, CEP
Environmental Project Manager
ONEOK Partners

M.S. Environmental Policy and Management (Concentration – Environmental Planning), American Military University; and B.S. Biology, Norwich University.

Mr. Kelvington is an environmental specialist with 17 years of environmental planning experience in a wide range of development projects. He has both performed and managed the assessment, siting, permitting, and construction of a wide range of federal, state, and municipal infrastructure projects throughout the mid-west and east coast regions. He is a Certified Environmental Professional with the Academy of Board Certified Environmental Professionals. Mr. Kelvington manages ONEOK's third party environmental and cultural resource consultants and serves as a coordinator for environmental and other necessary project permits.

Brent Bowling
Project Manager
ONEOK, Inc.

B.S. Mechanical Engineering, Oklahoma State University.

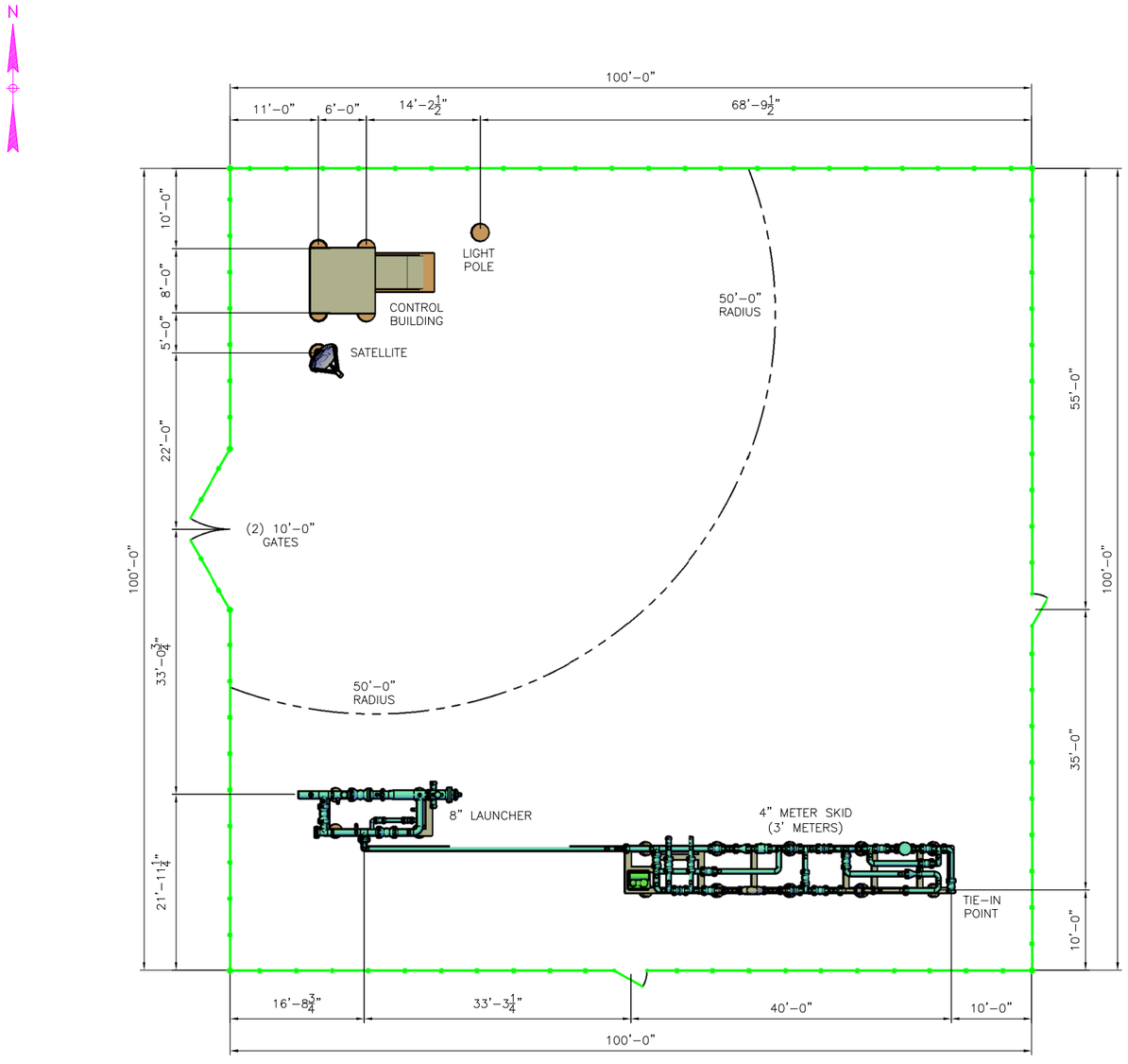
Mr. Bowling has been managing pipeline related projects in various regions which ONEOK operates in over the past 5 years. As project manager for the Bear Creek Pipeline, Mr. Bowling manages and coordinates activities of the project team to execute the Project. Mr. Bowling is responsible for oversight of the entire planning, siting, construction, and restoration process. He is tasked with meeting the commercial objectives and schedule of the project while maintaining strict compliance with all federal, state, and local regulations.

Jacob Yokum
Project Engineer
ONEOK, Inc.

B.S. Mechanical Engineering, Texas Tech University.

Mr. Yokum has two years of large projects and pipelines construction experience throughout the Niobrara Shale and Bakken Regions of Wyoming and North Dakota. Mr. Yokum has fulfilled the project engineer and project manager roles on a wide range of gathering and processing and natural gas liquids pipeline and facility projects for ONEOK Partners Large Projects group. Mr. Yokum is responsible for performing and managing tasks related to engineering and design on the project.

EXHIBIT A



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7					14				

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DWG. NO.	REFERENCE DRAWINGS

ONEOK HYDROCARBON, L.P.
P.O. BOX 29
MEDFORD, OK 73759

BEAR CREEK SITE# 661
OVERALL SITE LAYOUT

DES.:	AFE#:	DATE: 4/21/15	
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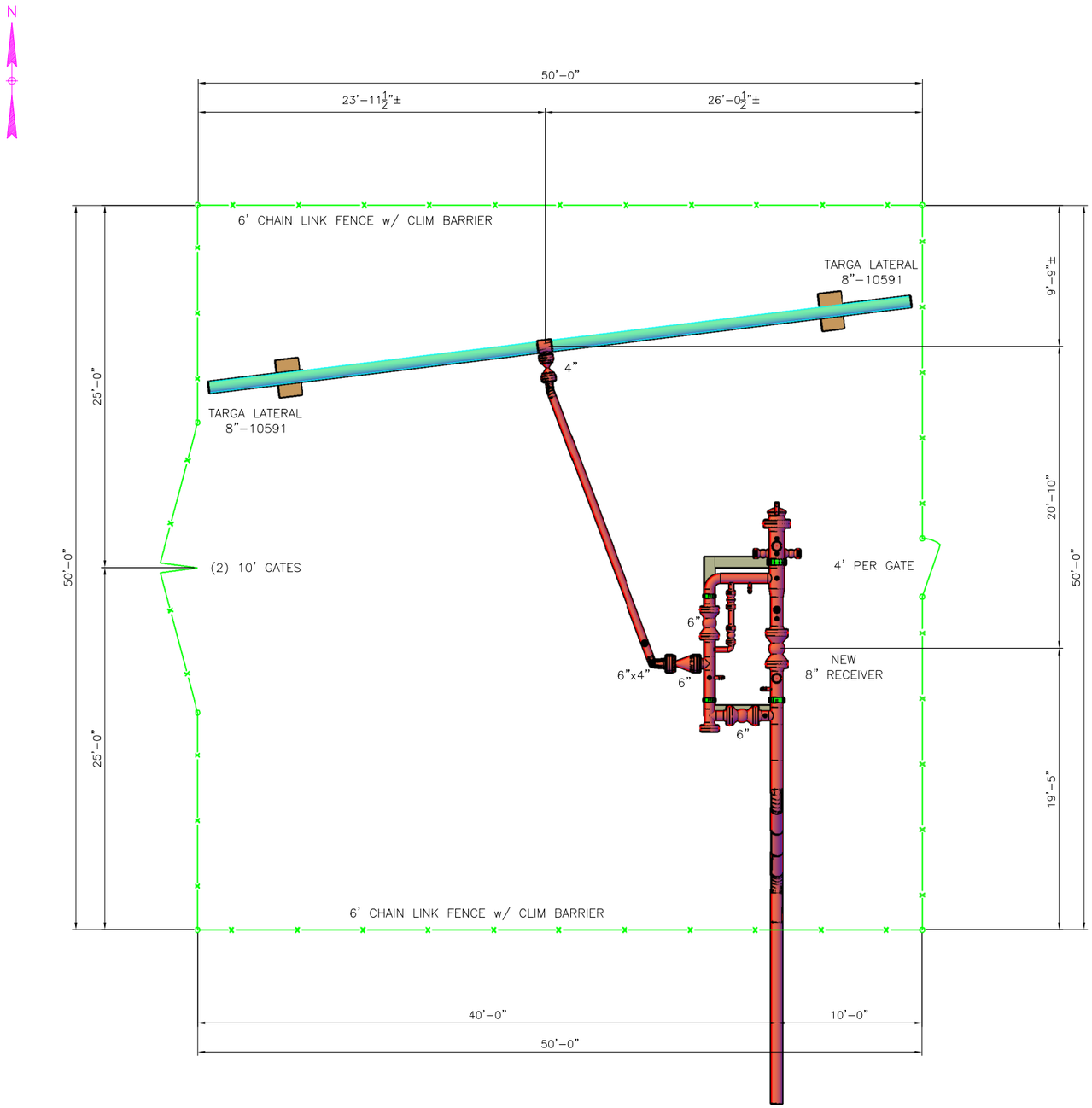

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ONEOK HYDROCARBON, L.P.
P.O. BOX 29
MEDFORD, OK 73759

BEAR CREEK TARGA JCT. SITE# 662
OVERALL SITE LAYOUT

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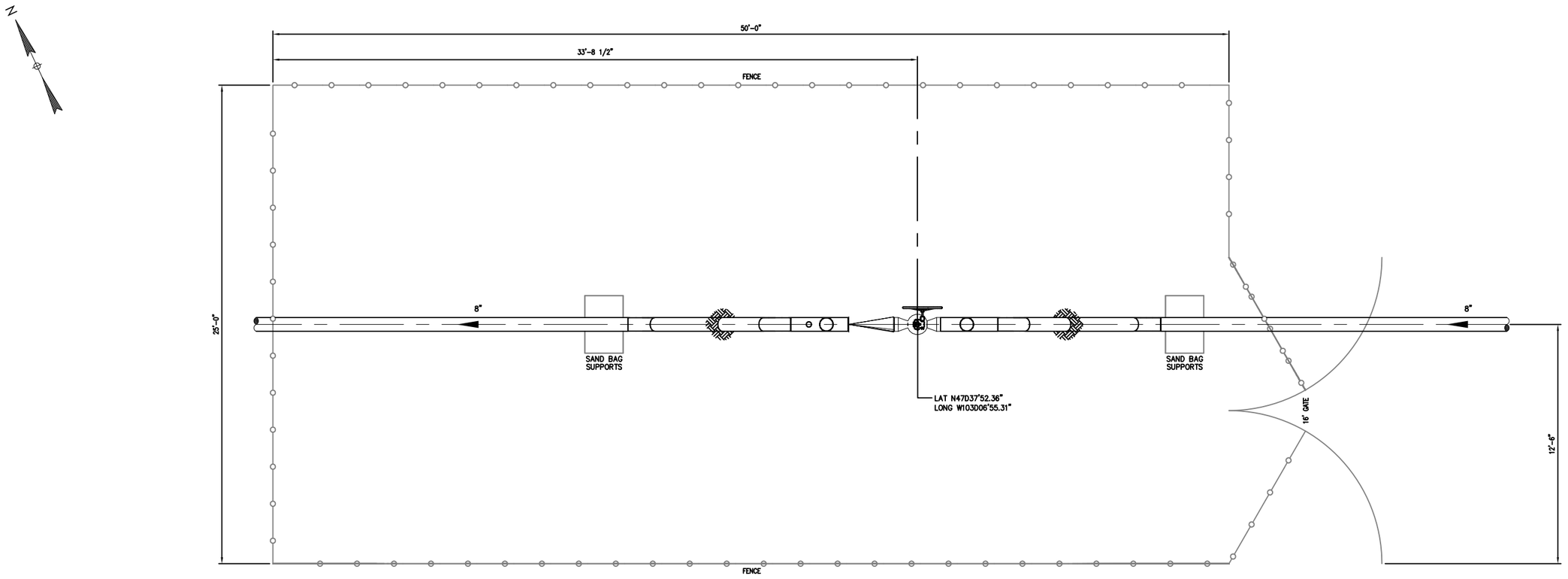

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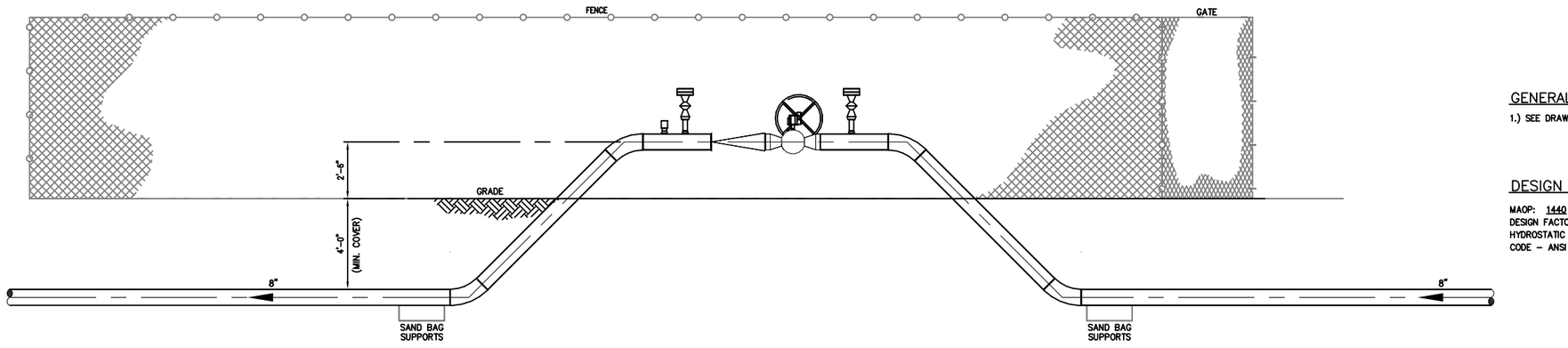

ELEVATION
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GENERAL NOTES:

1.) SEE DRAWING BCK-V004 FOR VALVE STATION DETAILS.

DESIGN BASIS

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DESIGN FACTOR: 0.72
HYDROSTATIC TEST PRESSURE: 2000 PSIG MIN., 2900 PSIG MAX.
CODE – ANSI ASME B-31.4, DOT TITLE 49, PART 195

ISSUE FOR
SIGNED 11/19/15
PERMIT

MK	DATE	REVISIONS	BY	AP.	MK	DATE	REVISIONS	BY	AP.
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2	9/25/15	REVISED ISSUED FOR APPROVAL	KSL	CH	9				
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4	11/19/15	ISSUED FOR PERMIT	CB	CH	11				
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7					14				

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DWG. NO.	REFERENCE DRAWINGS
BCK-V004	8"-900# MAINLINE VALVE WITH CHECK VALVE

ONEOK
BAKKEN PIPELINE
A SUBSIDIARY OF ONEOK PARTNERS

BEAR CREEK
8"-900# MAINLINE VALVE WITH CHECK VALVE
MP 27.80 – #599-123

DES.:	KCY	AFE#:	DATE: 10/23/15	
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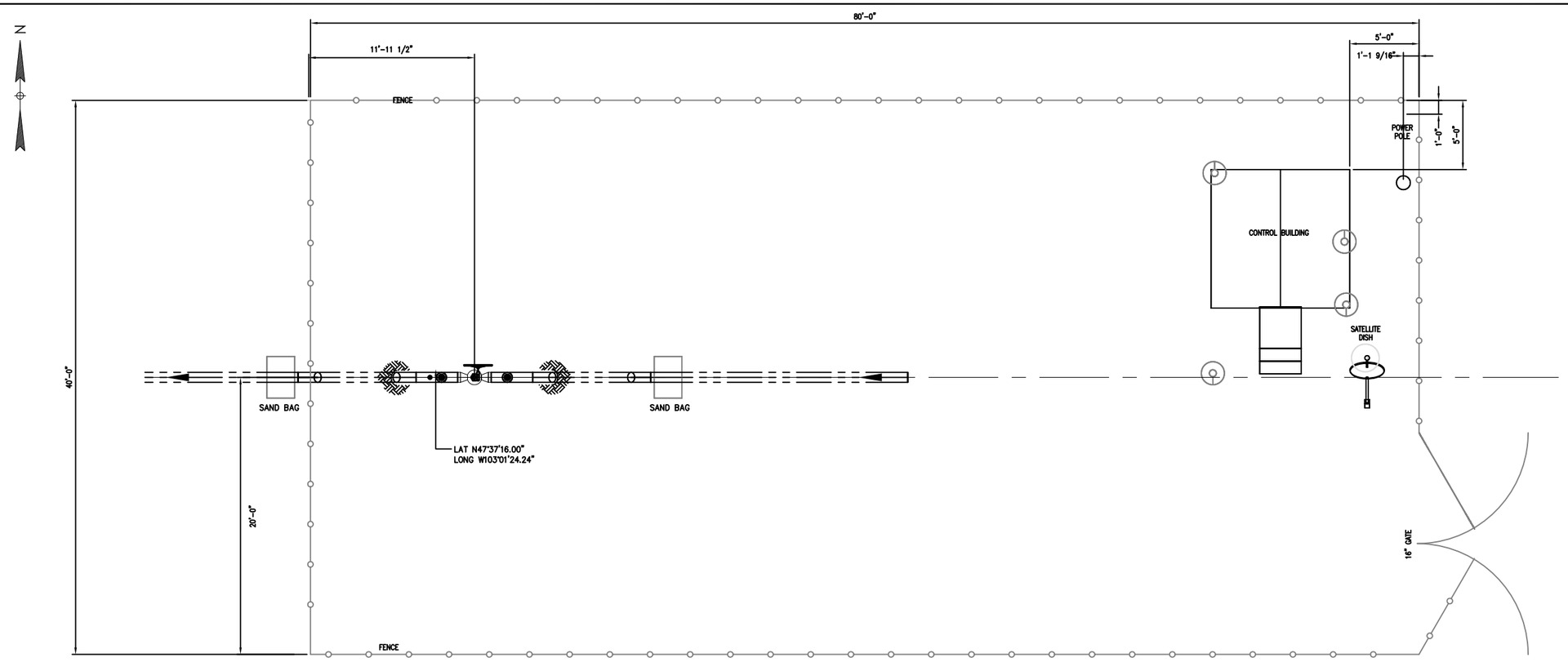

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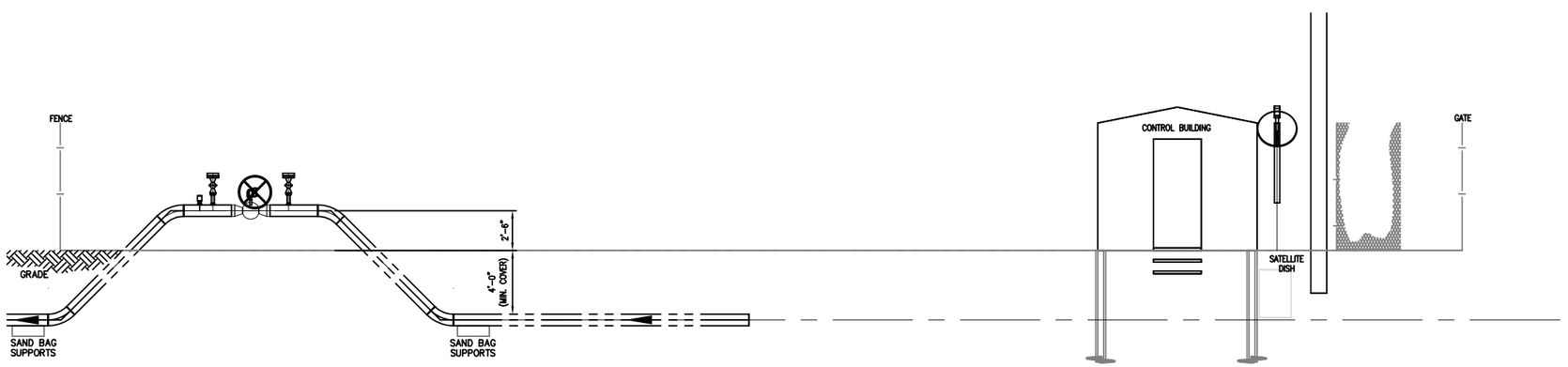

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GENERAL NOTES:

1.) SEE DRAWING BCK-V005 FOR VALVE STATION DETAILS.

DESIGN BASIS

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DESIGN FACTOR: 0.72
HYDROSTATIC TEST PRESSURE: 2000 PSIG MIN., 2900 PSIG MAX.
CODE – ANSI ASME B-31.4, DOT TITLE 49, PART 195

ISSUE FOR
SIGNED 11/19/15
PERMIT

MK	DATE	REVISIONS	BY	AP.	MK	DATE	REVISIONS	BY	AP.
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2	10/26/15	REVISED ISSUED FOR APPROVAL	BD	CH	9				
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4	11/19/15	ISSUED FOR PERMIT	CB	CH	11				
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DWG. NO.	REFERENCE DRAWINGS
BCK-V005	8"-900# MAINLINE VALVE W/PIG SIG

ONEOK
BAKKEN PIPELINE
A SUBSIDIARY OF ONEOK PARTNERS

BEAR CREEK
8"-900# MAINLINE VALVE W/PIG SIG
MP 22-92 – #599-123

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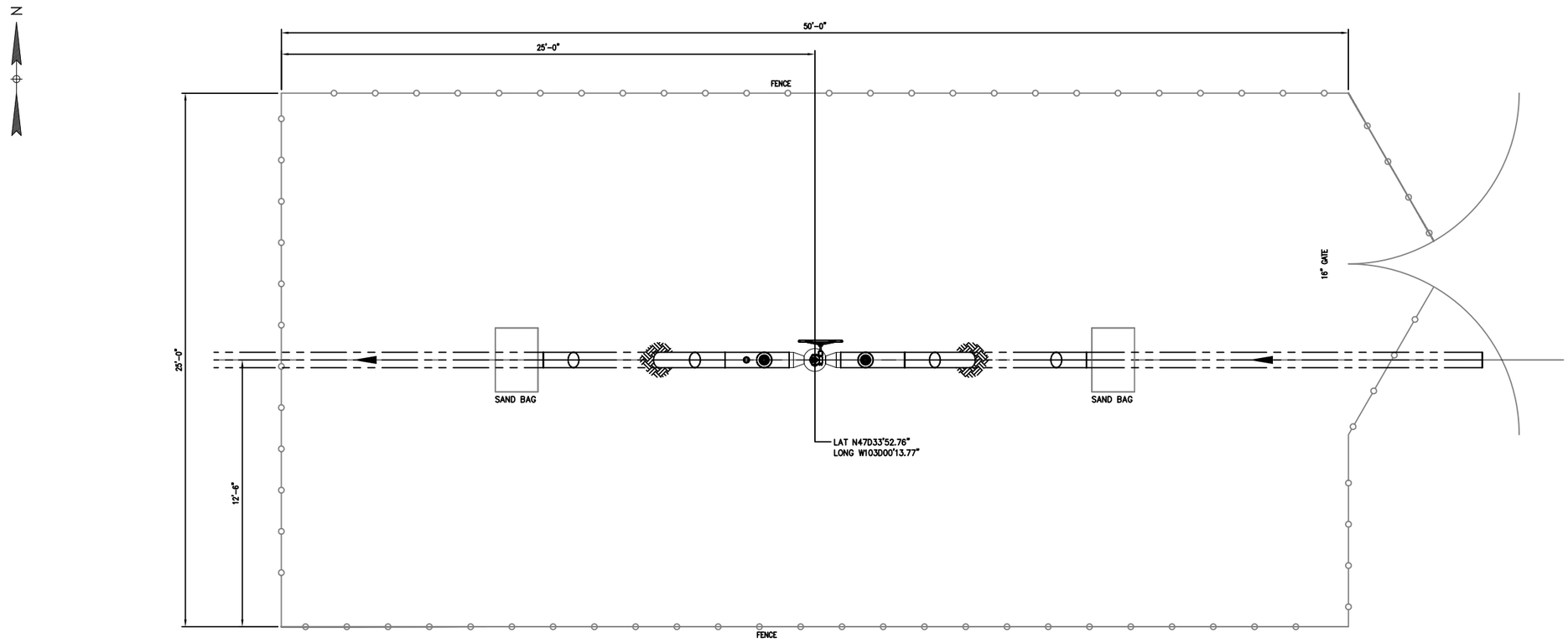

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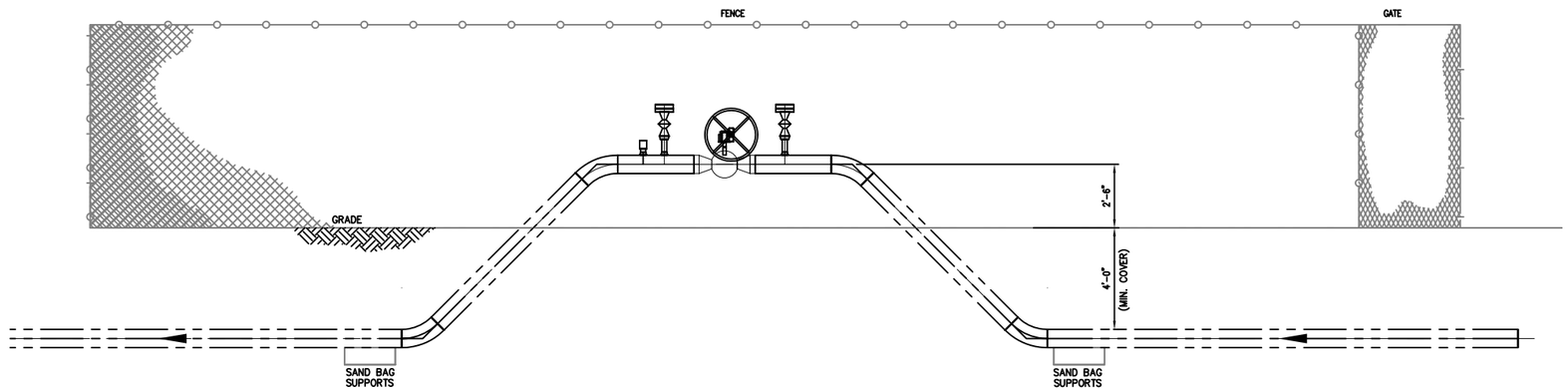

ELEVATION
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GENERAL NOTES:

1.) SEE DRAWING BCK-V005 FOR VALVE STATION DETAILS.

DESIGN BASIS

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DESIGN FACTOR: 0.72
HYDROSTATIC TEST PRESSURE: 2000 PSIG MIN., 2900 PSIG MAX.
CODE – ANSI ASME B-31.4, DOT TITLE 49, PART 195

ISSUE FOR
SIGNED 11/19/15
PERMIT

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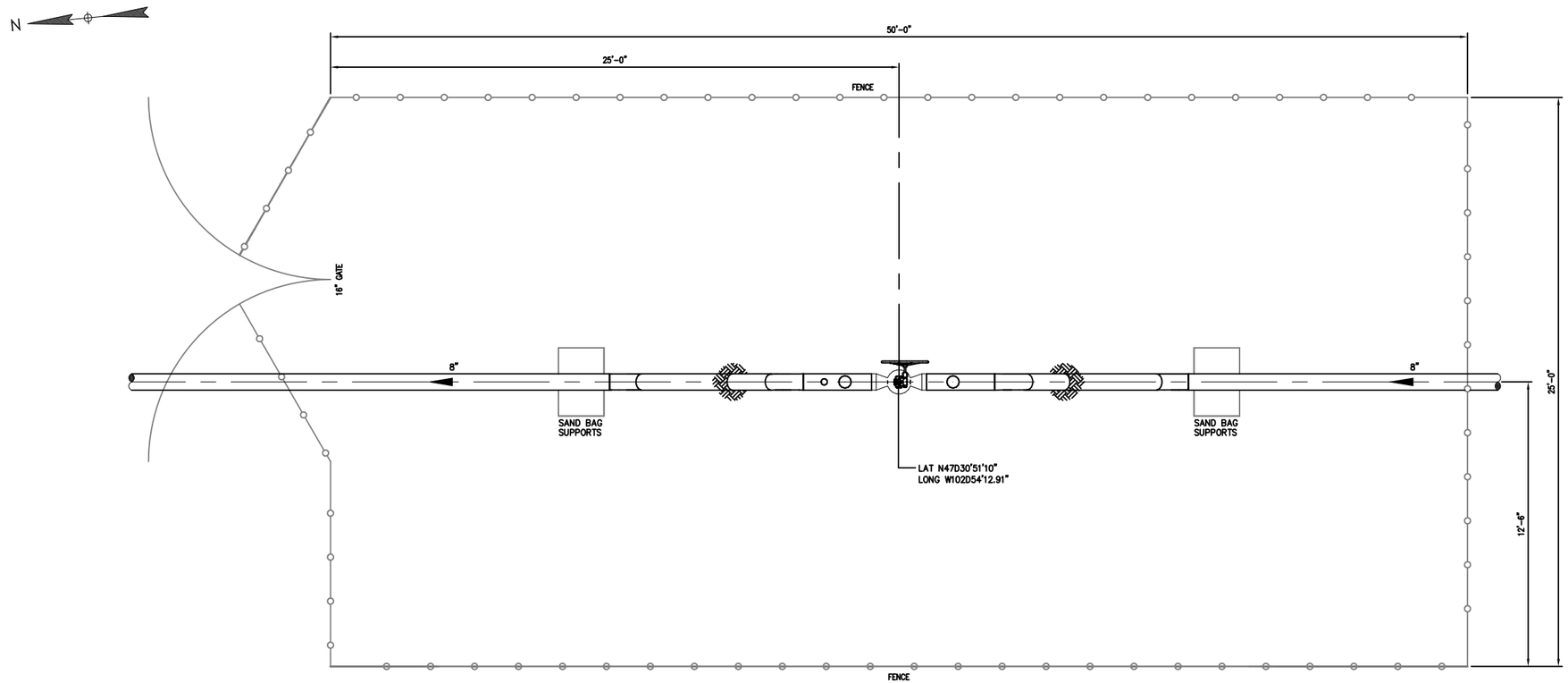
DWG. NO.	REFERENCE DRAWINGS
BCK-V005	8"-900# MAINLINE VALVE W/PIG SIG

ONEOK
BAKKEN PIPELINE
A SUBSIDIARY OF ONEOK PARTNERS

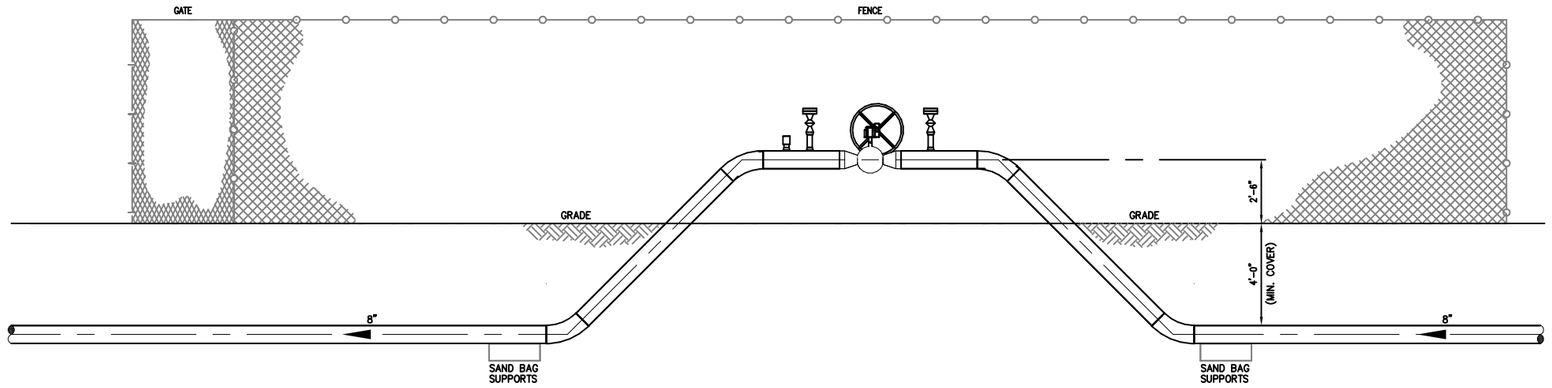
BEAR CREEK
8"-900# MAINLINE VALVE W/PIG SIG
MP 17.65 – #599-122

DES.:	KCY	AFE#:	DATE: 10/23/15	
DR.:	KCY		DWG. NO.:	REV.
CH.:	CH	SCALE: 3/8"=1'-0"	BCK-VS-17.65	3
AP.:	CH	CAD#:BCK-VS-17.65		

S:\PJCT\Pjts\10803 ONEOK Bear Creek NGL\07 CAD\7.4 Piping\BCK-VS-17.65



PLAN
SCALE 3/8"=1'-0"



ELEVATION
SCALE 3/8"=1'-0"

GENERAL NOTES:

1.) SEE DRAWING BCK-V001 FOR VALVE STATION DETAILS.

DESIGN BASIS

MOP: 1440 PSIG @ 100°F
DESIGN FACTOR: 0.72
HYDROSTATIC TEST PRESSURE: 1800 PSIG MIN., 2220 PSIG MAX.
CODE – ANSI ASME B-31.4, DOT TITLE 49, PART 195

ISSUE FOR
SIGNED 11/19/15
PERMIT

MK	DATE	REVISIONS	BY	AP.	MK	DATE	REVISIONS	BY	AP.
1	8/6/15	ISSUED FOR APPROVAL	KCY	CH	8				
2	9/25/15	REVISED ISSUED FOR APPROVAL	KSL	CH	9				
3	10/26/15	REREVISED ISSUED FOR APPROVAL	BD	CH	10				
4	11/19/15	ISSUED FOR PERMIT	CB	CH	11				
5					12				
6					13				
7					14				

NOTICE

This drawing has not been published and is the sole property of ONEOK NGL PIPELINE and is loaned to the borrower for his confidential use only; and in consideration of the loan of this drawing the borrower promises and agrees that it shall not be reproduced, copied, loaned, or otherwise disposed of directly or indirectly, nor used for any purpose other than for which it is specifically furnished.

DWG. NO.	REFERENCE DRAWINGS
BCK-V001	8"-600# MAINLINE VALVE W/PIG SIG

ONEOK
BAKKEN PIPELINE
A SUBSIDIARY OF ONEOK PARTNERS

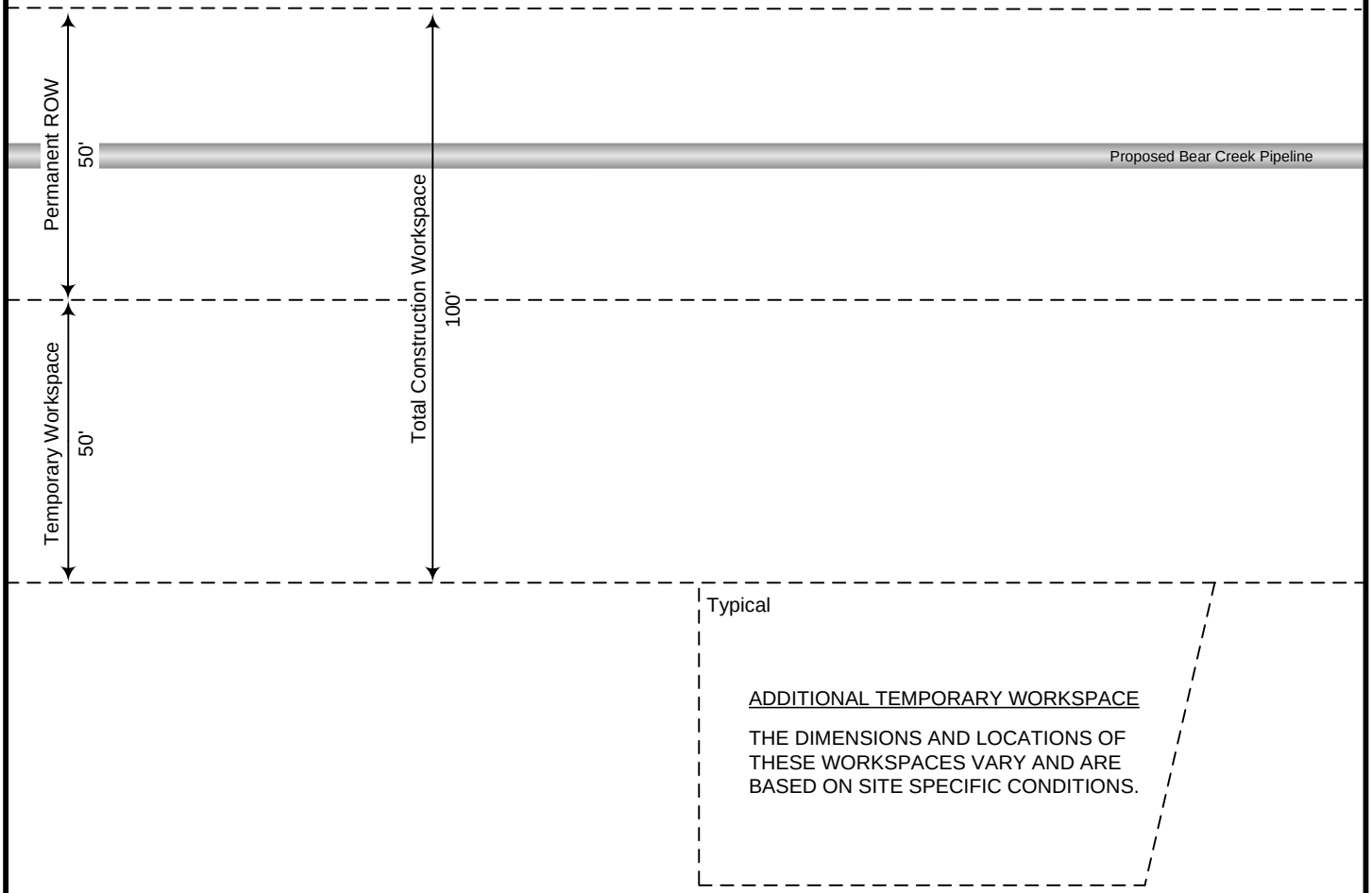
BEAR CREEK
8"-600# MAINLINE VALVE W/PIG SIG
MP 10.65 – #599-121

DES.:	KCY	AFE#:	DATE:	10/23/15	
DR.:	KCY		DWG. NO.:	BCK-VS-10.65	REV. 4
CH.:	CH	SCALE: 3/8"=1'-0"			
AP.:	CH	CAD#:BCK-VS-10.65			

S:\PJCT\Pjts\10803 ONEOK Bear Creek NGL\07 CAD\7.4 Piping\BCK-VS-10.65

chad.brown Thursday, November 19, 2015 8:44:37 AM

EXHIBIT B



Typical

ADDITIONAL TEMPORARY WORKSPACE

THE DIMENSIONS AND LOCATIONS OF THESE WORKSPACES VARY AND ARE BASED ON SITE SPECIFIC CONDITIONS.

ONEOK

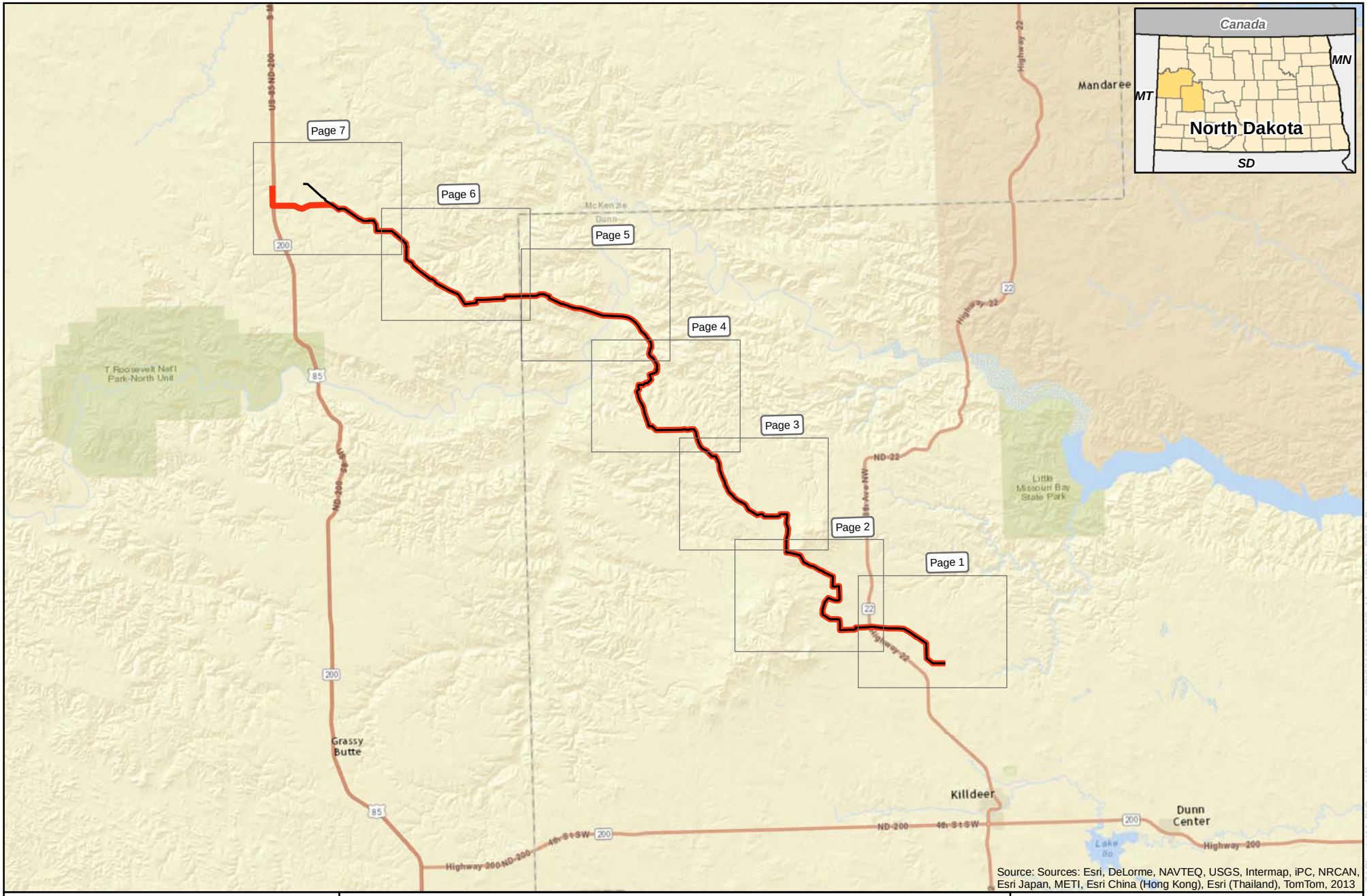
Exhibit B.1
Typical Right-of-Way Configuration

ONEOK Bakken Pipeline

8-inch Bear Creek NGL Pipeline Project

Drawn by: Merjent

11/18/2015



0 2.3 4.6 Miles

1 inch = 4.6 miles

N W E S

merjent

For Environmental Review Purposes Only

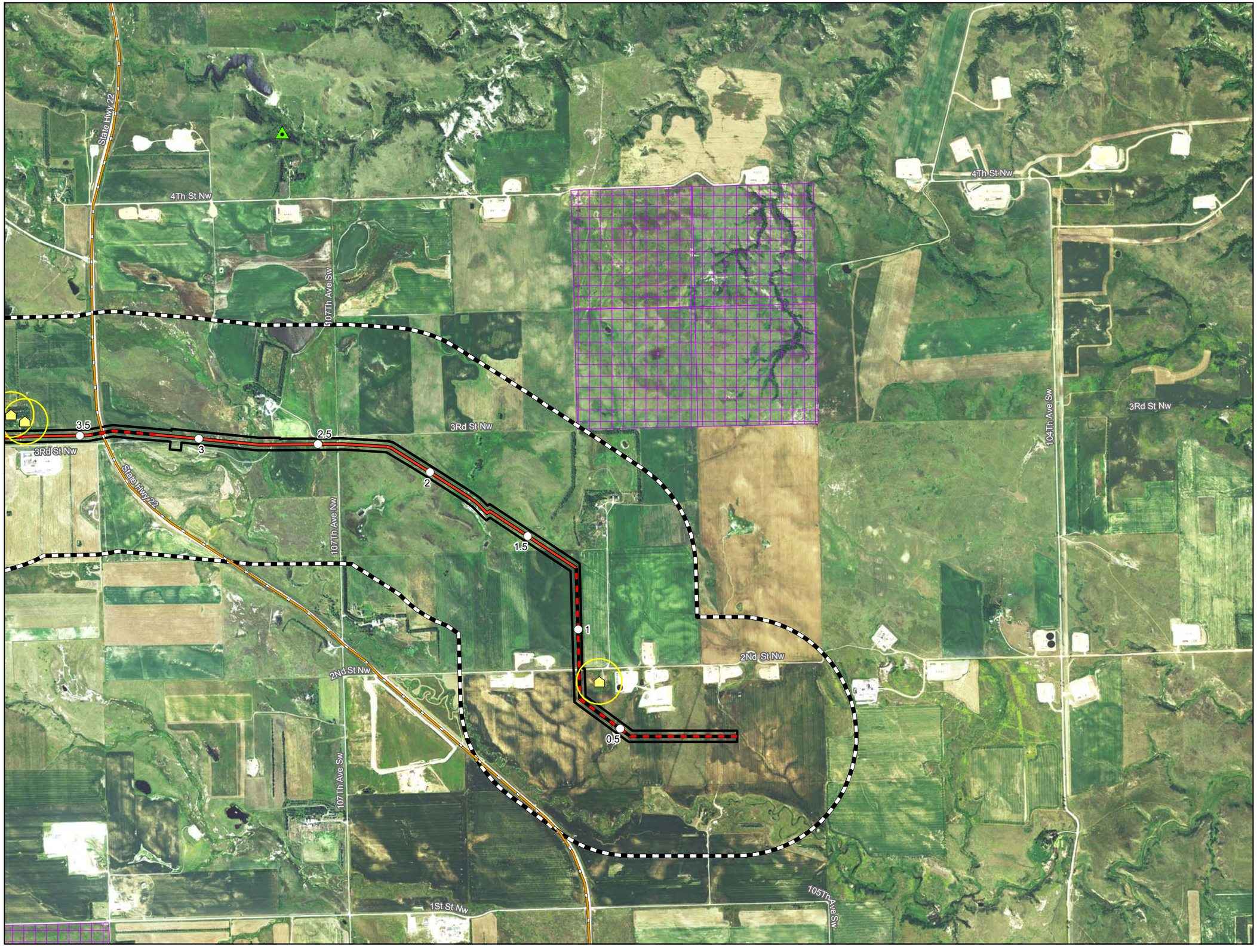
Exhibit B.2
ONEOK Bakken Pipeline
8-inch Bear Creek NGL Pipeline Project
Project Location Map

Preferred Route

Alternative Route

Source: Z:\Clients\M_P\Oneok\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Project_Overview.mxd

Date: (12/7/2015)



0 1,000 2,000 Feet

1 inch = 2,000 feet

Imagery Source: USDA-FSA Aerial Photography Field Office, NAIP 2014

N W E S

- Milepost
- Centerline: Co-located
- Centerline: Not Co-located
- Project Corridor
- 1-mile Study Area

Avoidance Areas

- Abandoned Mine
- Occupied Structure within 500' of Route
- State Scenic River
- State Scenic Byway
- Occupied Structure (500' Buffer)
- National Grassland
- Landslide Deposits
- NDDTL - School Trust Land
- Wellhead Non-Community Protection Area

Exhibit B.3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Avoidance and Exclusion Areas

Page 1 of 7
Dunn County

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Source: Z:\Clients\M_P\ONEOK\Bear_Creek\ArcGIS\2015\11\PSC_Maps\stDCK_PSC_Avoidance_Exclusion_Area_Map_Book.mxd
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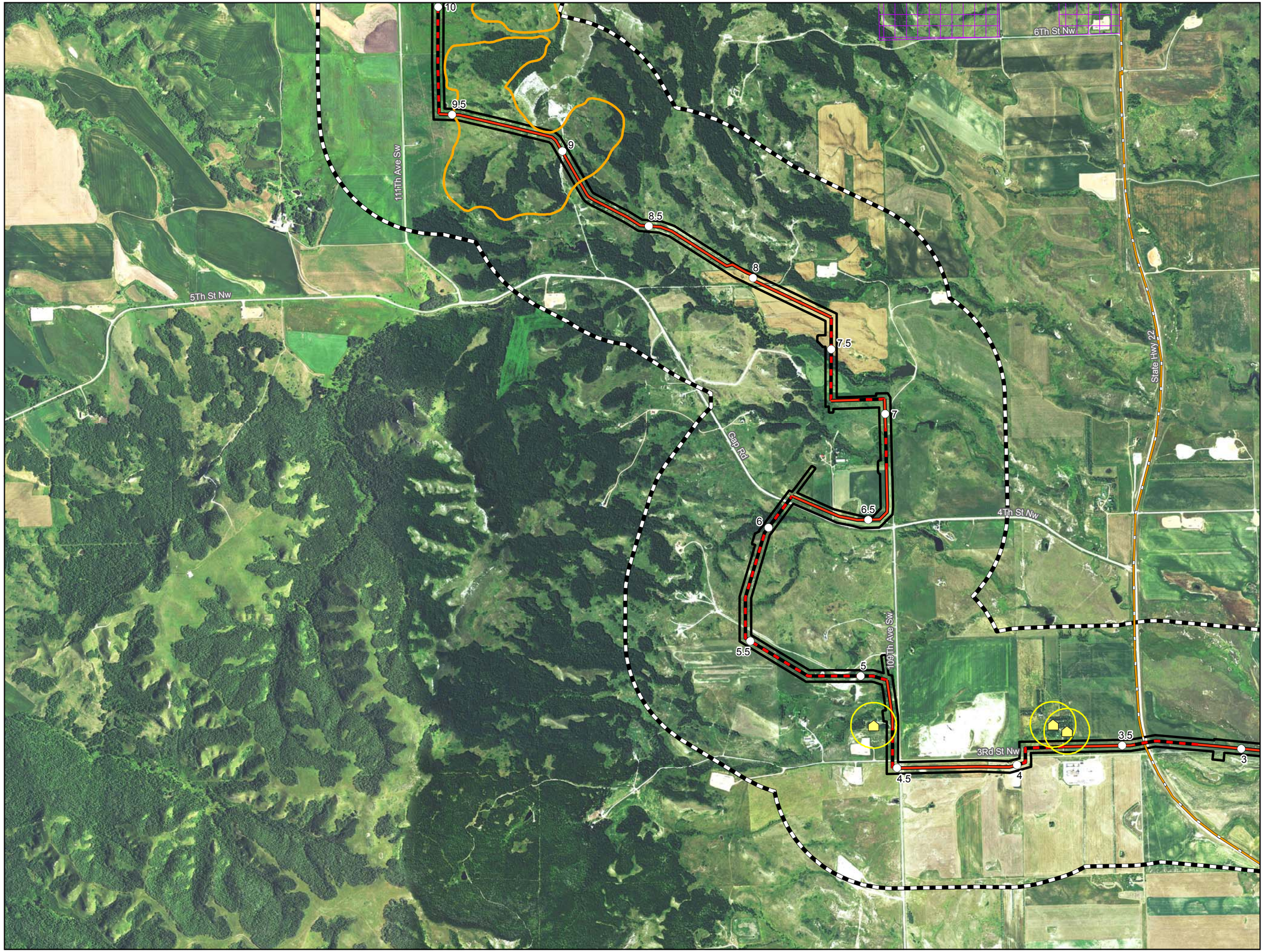

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Exhibit B.3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Avoidance and Exclusion Areas

Page 2 of 7
Dunn County

Source: Z:\Clients\M_P\ONEOK\Bear_Creek\ArcGIS\2015\11\PSC_Mapsts\DCK_PSC_Avoidance_Exclusion_Area_Map_Book.mxd
Date: (12/10/2015)

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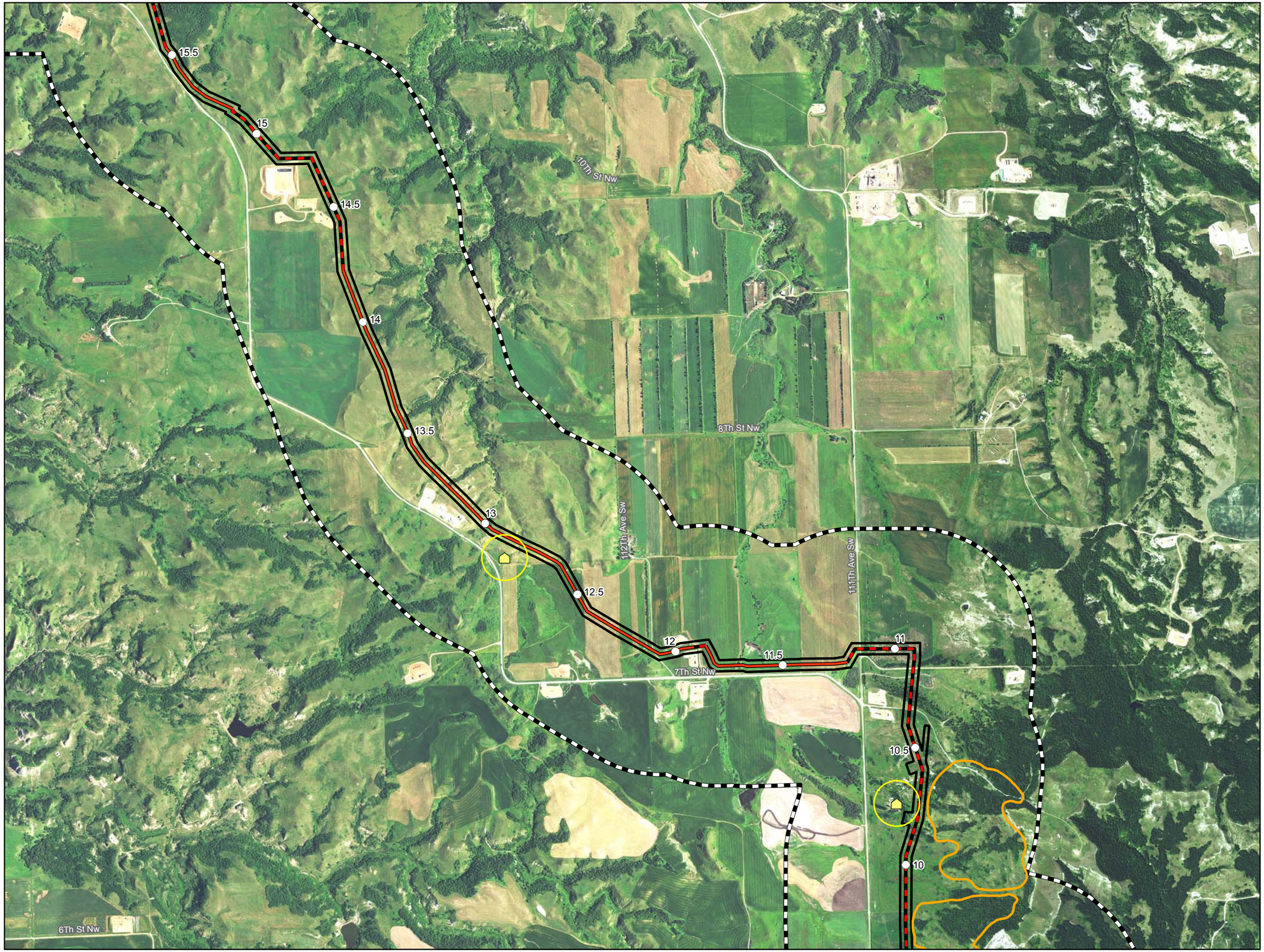

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Exhibit B.3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Avoidance and Exclusion Areas

Page 3 of 7
Dunn County

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Source: Z:\Clients\M_P\ONeok\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Avoidance_Exclusion_Area_Map_Book.mxd
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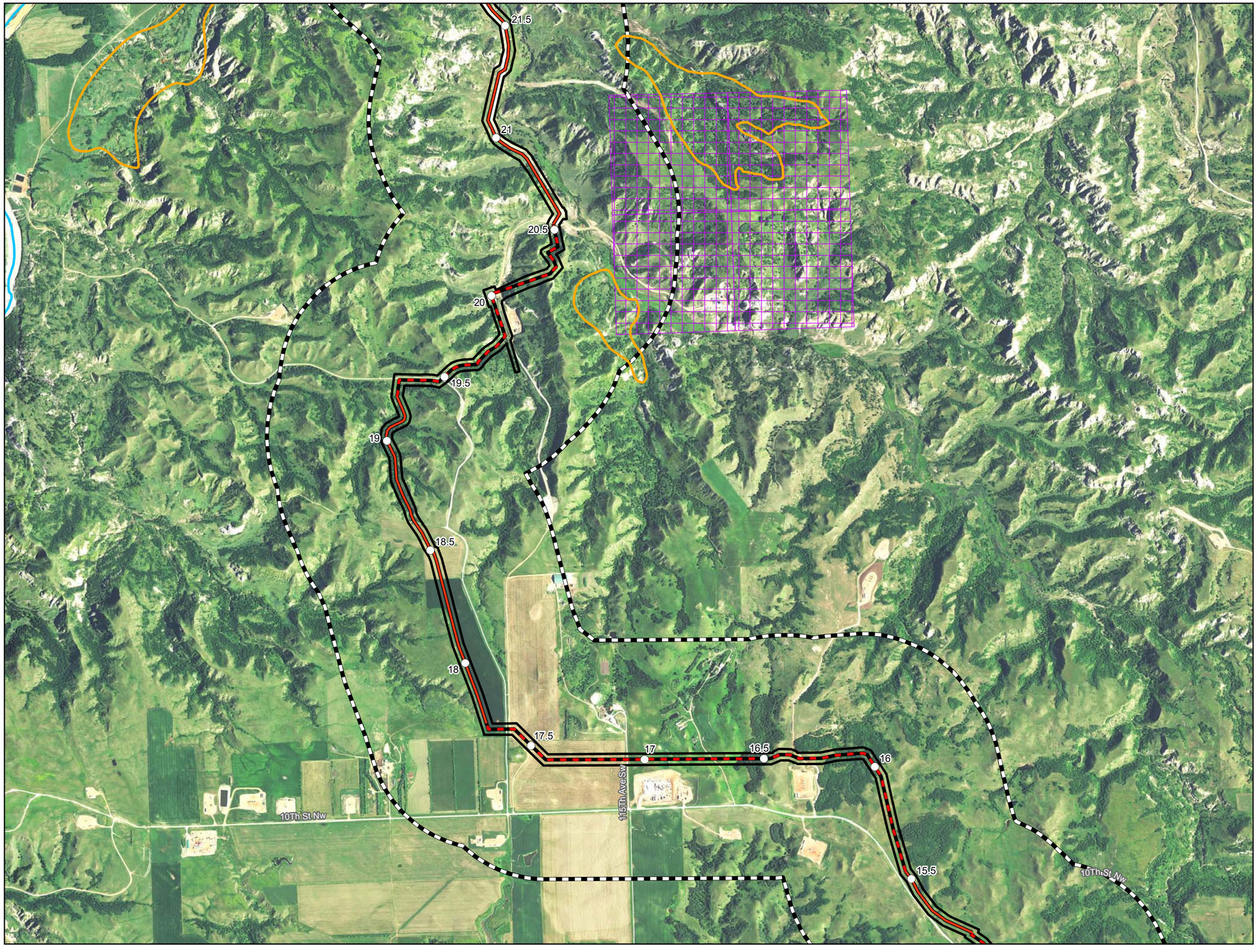

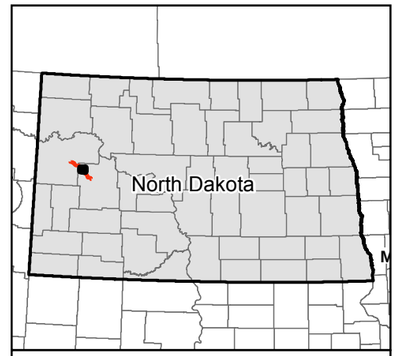

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Exhibit B.3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Avoidance and Exclusion Areas

Page 4 of 7
Dunn County

Source: Z:\Clients\M_P\Oneok\Bear_Creek\ArcIS\2015\11\PSC_Maps\BCK_PSC_Avoidance_Exclusion_Area_Map_Book.mxd
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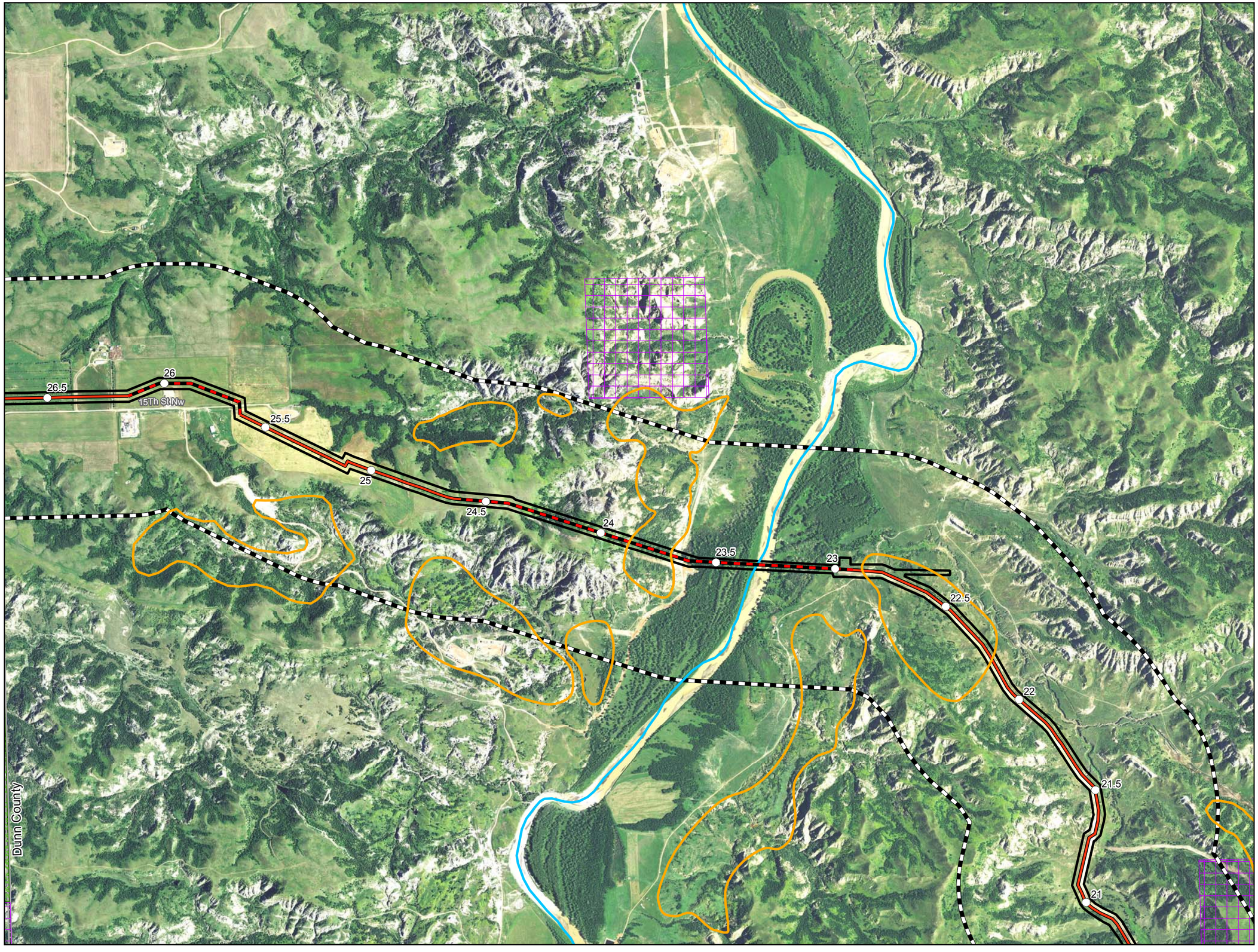

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Exhibit B.3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Avoidance and Exclusion Areas

Page 5 of 7
Dunn County

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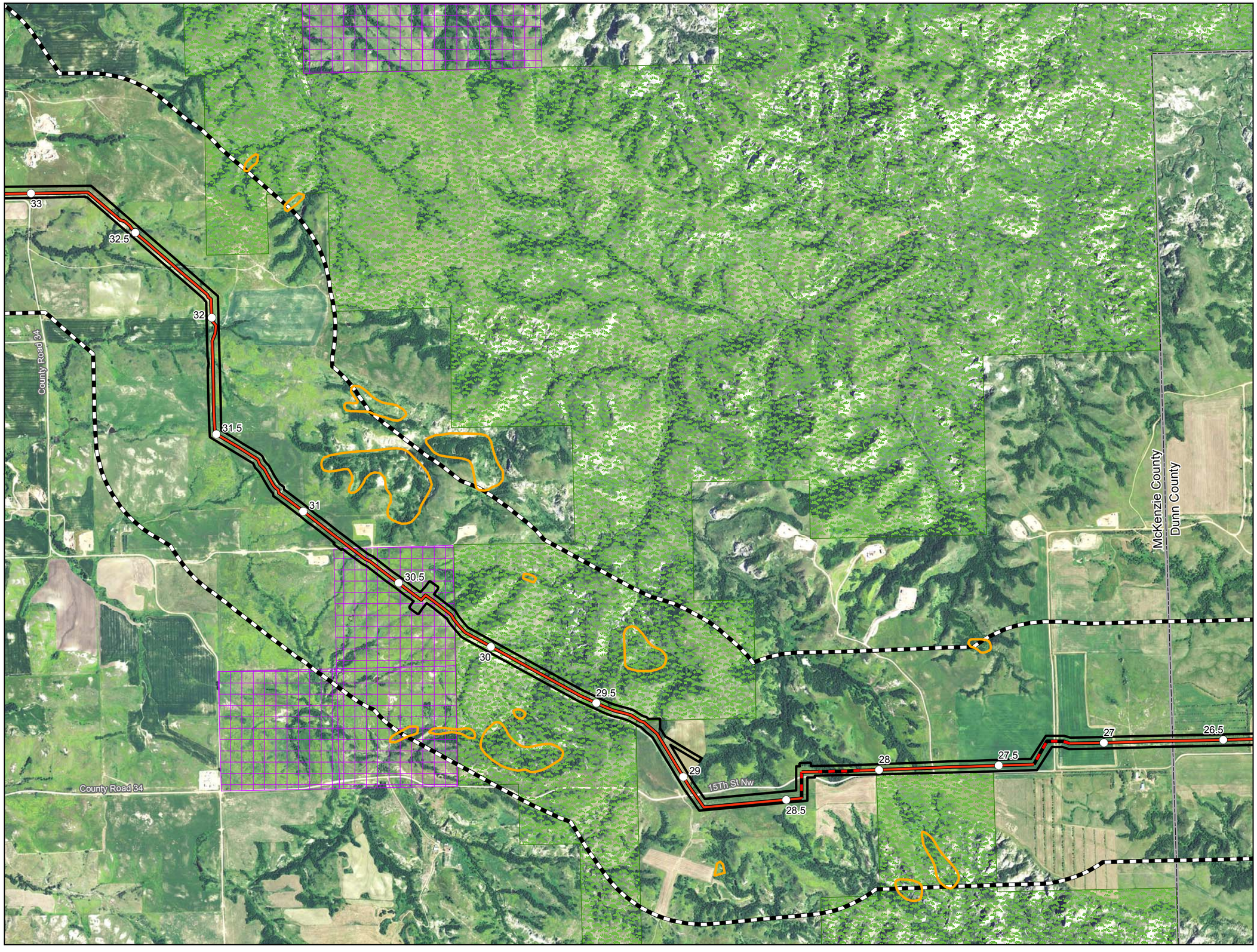

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Exhibit B.3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Avoidance and Exclusion Areas

Page 6 of 7
McKenzie County

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Source: Z:\Clients\M_P\Oneok\Bear_Creek\ArcIS\2015\11\PSC_Maps\BCK_PSC_Avoidance_Exclusion_Area_Map_Book.mxd
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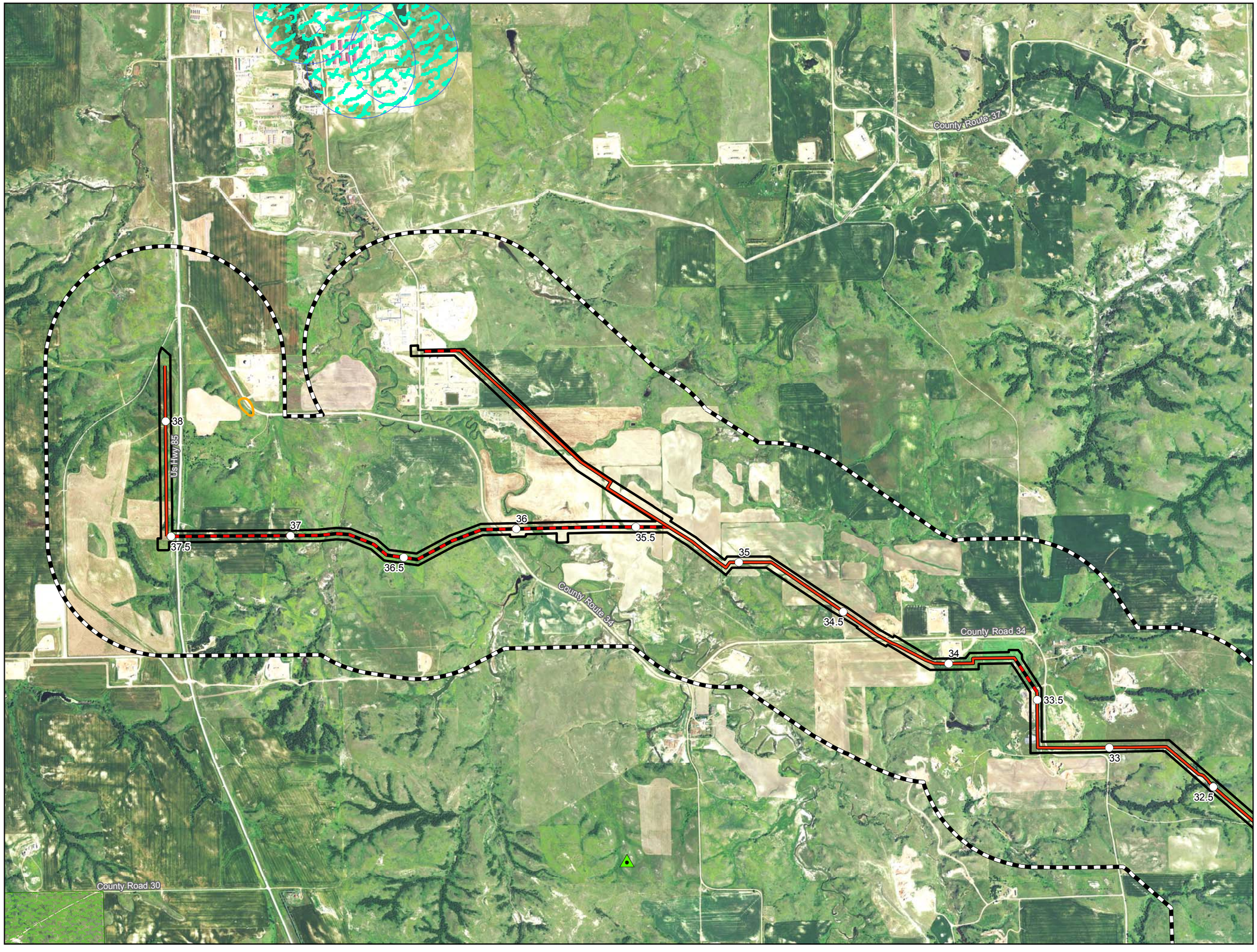

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Exhibit B.3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Avoidance and Exclusion Areas

Page 7 of 7
McKenzie County

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12/10/2015

Source: Z:\Clients\M_P\ONeok\Bear_Creek\ArcGIS\2015\11\PSC_Maps\dCK_PSC_Avoidance_Exclusion_Area_Map_Book.mxd
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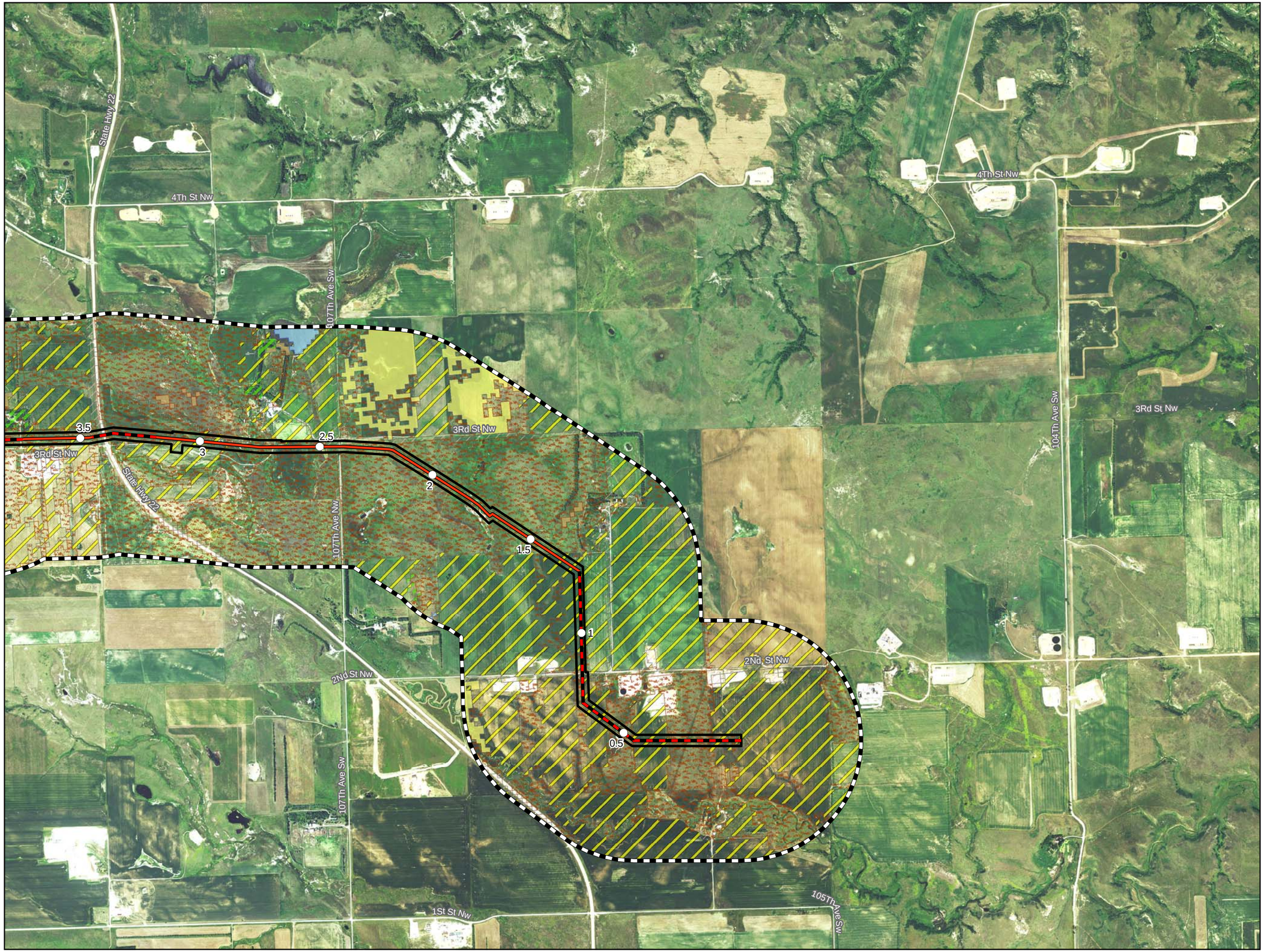

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N W E S

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- Project Corridor
- 1-mile Study Area

LULC Classification

- Barren Land
- Cultivated Crops
- Forested
- Developed
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous
- Hay/Pasture
- Open Water
- Shrub/Scrub
- Woody Wetlands

Exhibit B.4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Land Use Land Cover

Dunn County

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12/2/2015

Source: Z:\Clients\M_P\ONeok\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Land_Use_Map_Book.mxd
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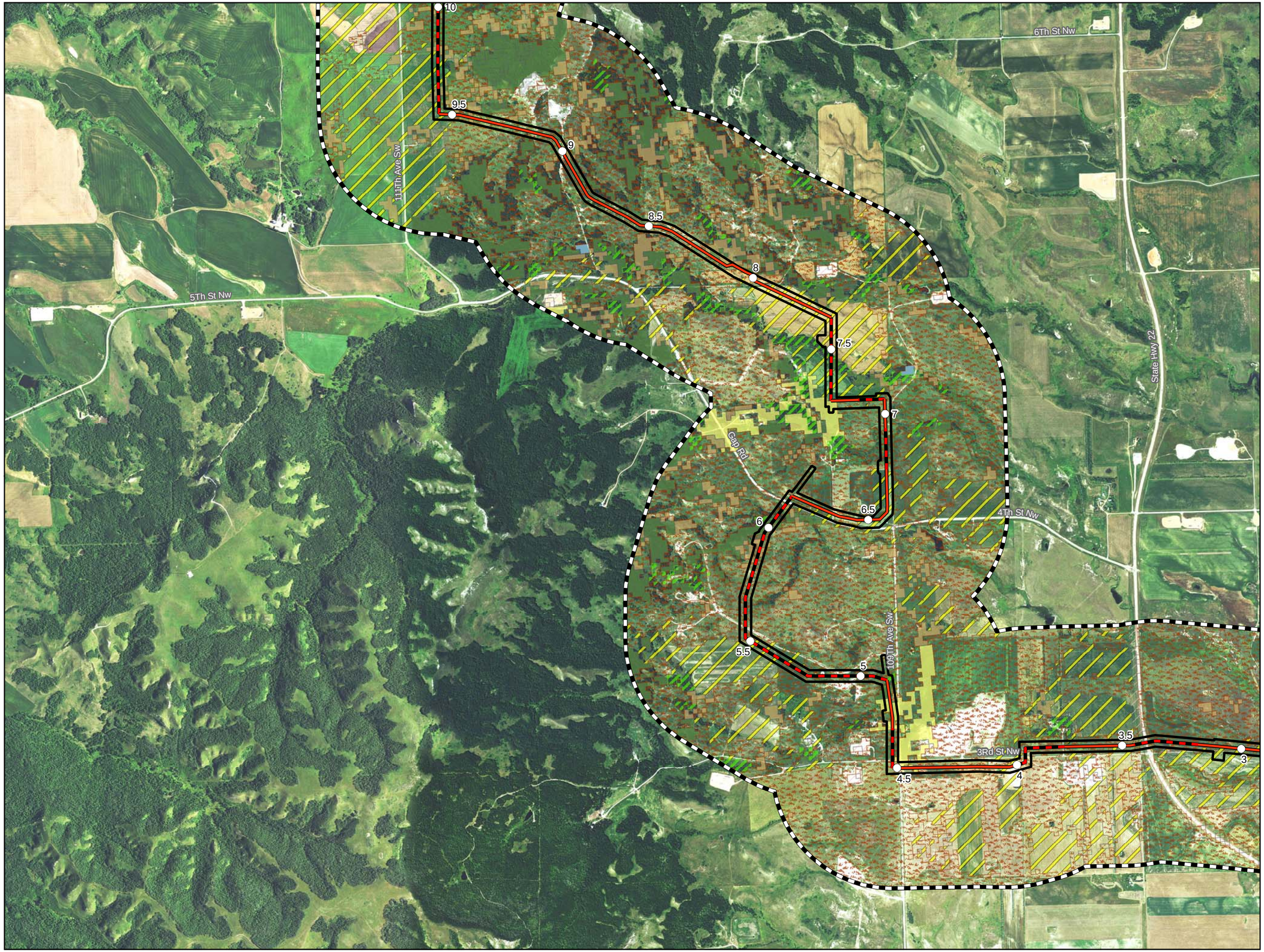

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Exhibit B.4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Land Use Land Cover

Page 2 of 7
Dunn County

Source: Z:\Clients\M_P\Oneok\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Land_Use_Map_Book.mxd
Date: (12/2/2015)

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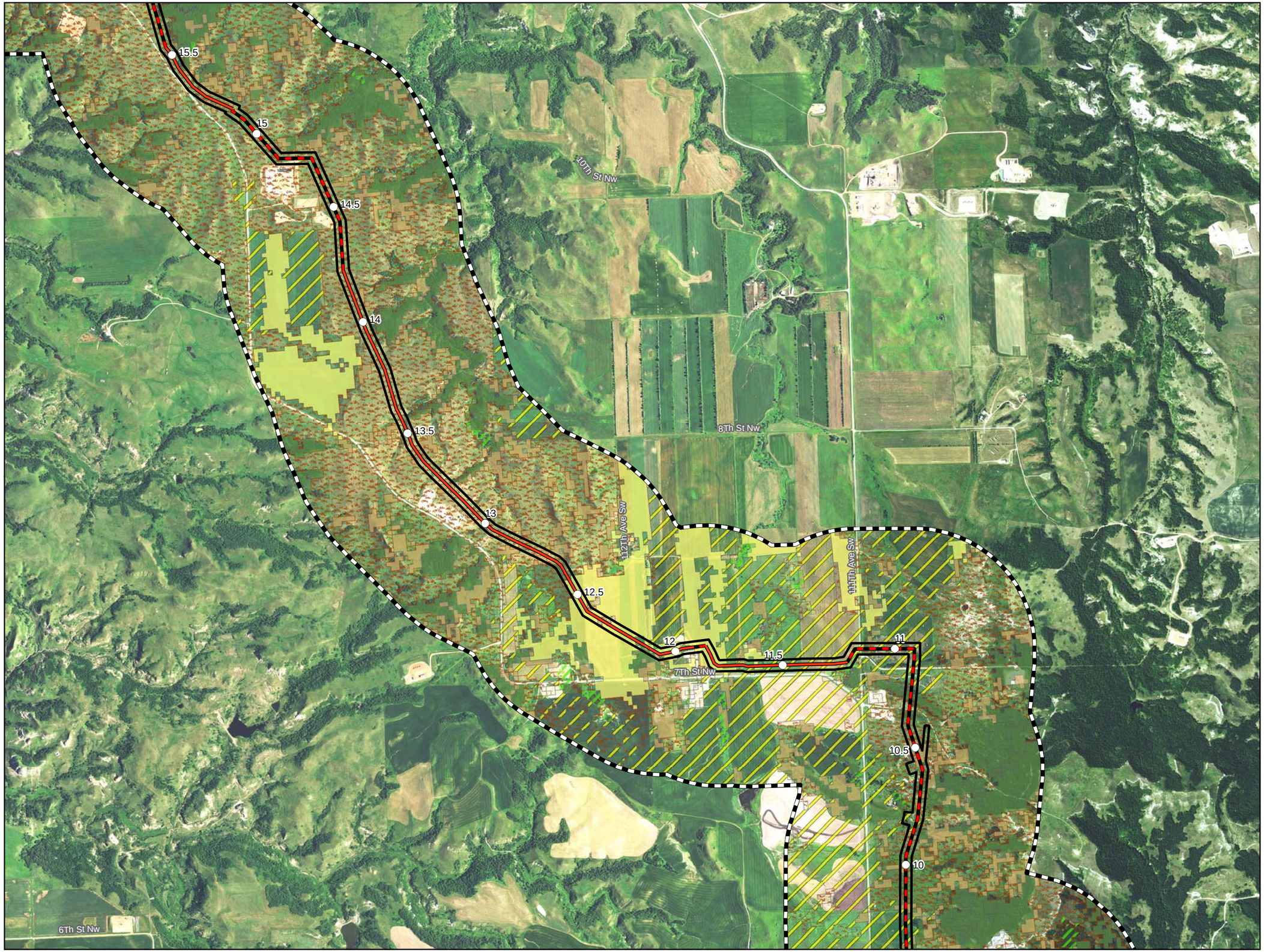
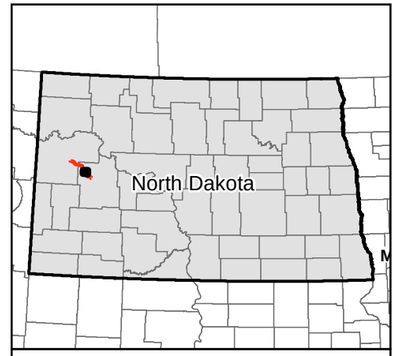
12/2/2015





0 1,000 2,000 Feet

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N
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LULC Classification

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- Hay/Pasture
- Open Water
- Shrub/Scrub
- Woody Wetlands

Exhibit B.4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Land Use Land Cover

Dunn County

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12/2/2015

Source: Z:\Clients\M_P\ONEOK\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Land_Use_Map_Book.mxd
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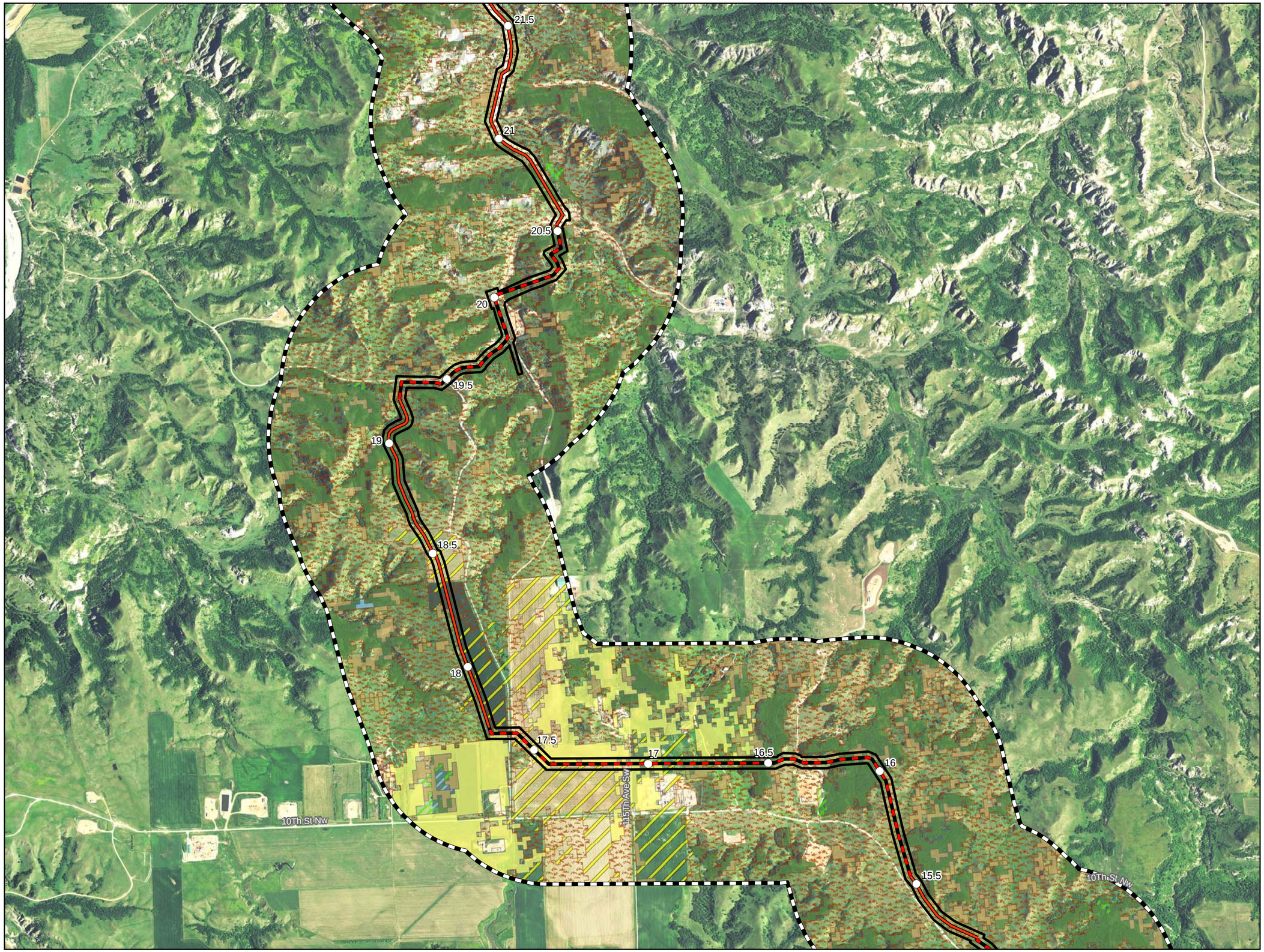

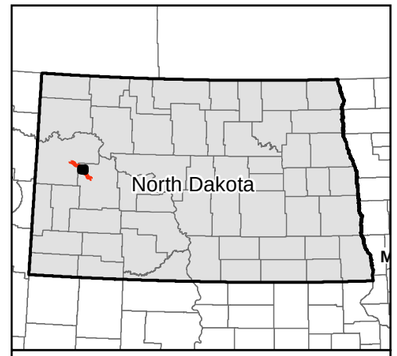

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Exhibit B.4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Land Use Land Cover

Source: Z:\Clients\M_P\Oneok\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Land_Use_Map_Book.mxd
Date: (12/2/2015)

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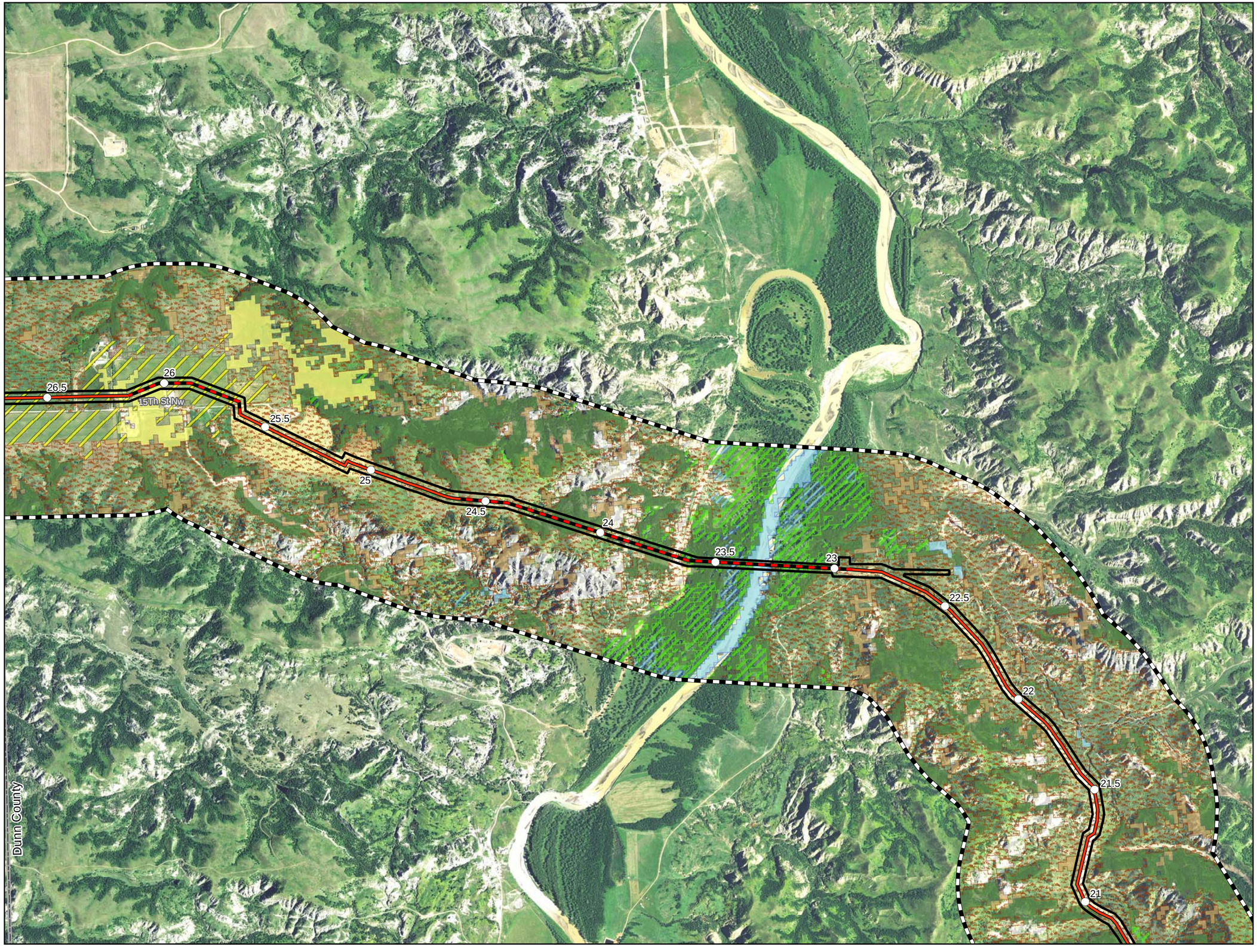

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Exhibit B.4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Land Use Land Cover

Page 5 of 7
Dunn County

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For Environmental Review Purposes Only

12/2/2015

Source: Z:\Clients\M_P\Oneok\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Land_Use_Map_Book.mxd
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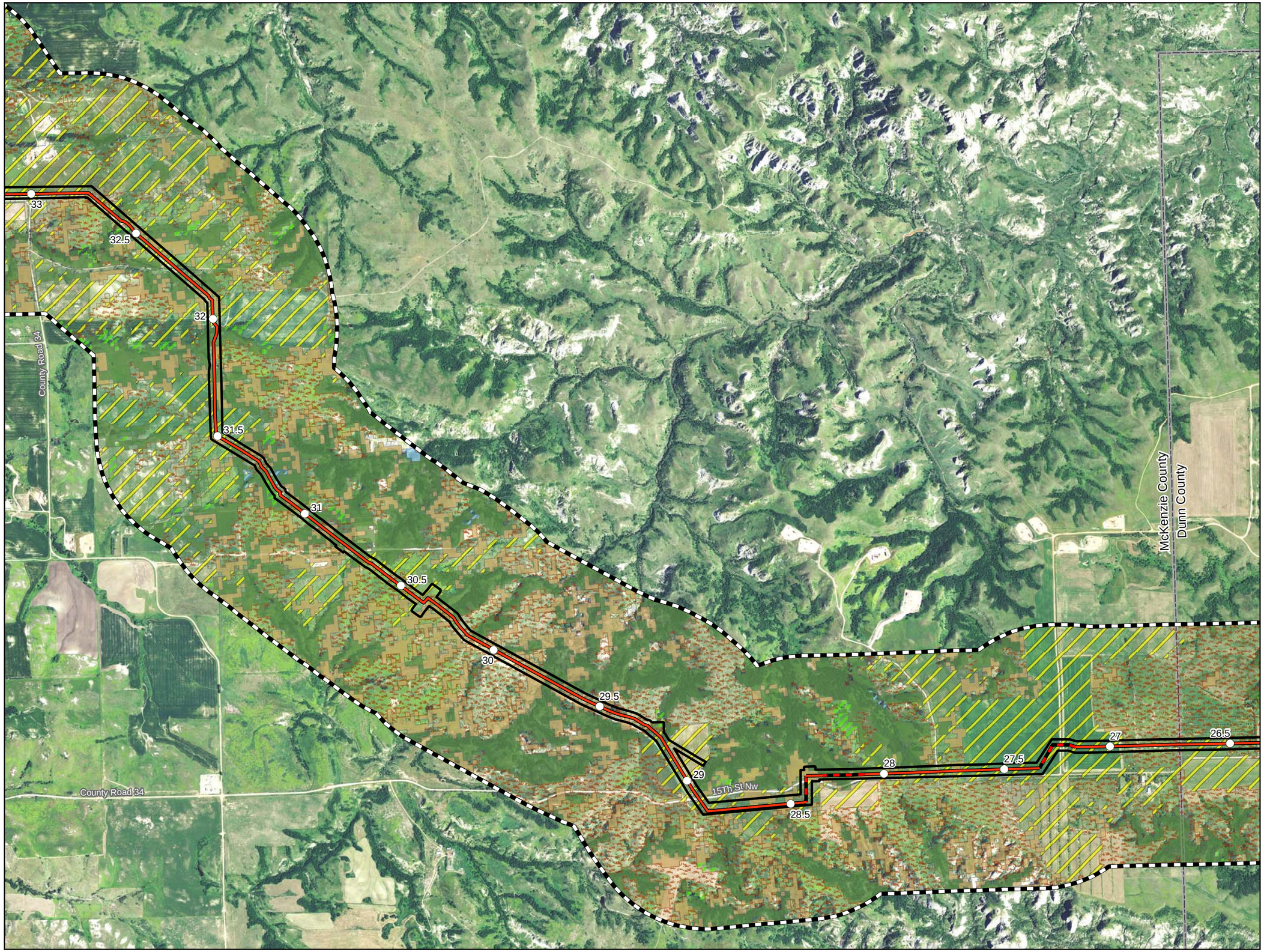

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Exhibit B.4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Land Use Land Cover

Page 6 of 7
McKenzie County

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12/2/2015

Source: Z:\Clients\M_P\ONEOK\Bear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Land_Use_Map_Book.mxd
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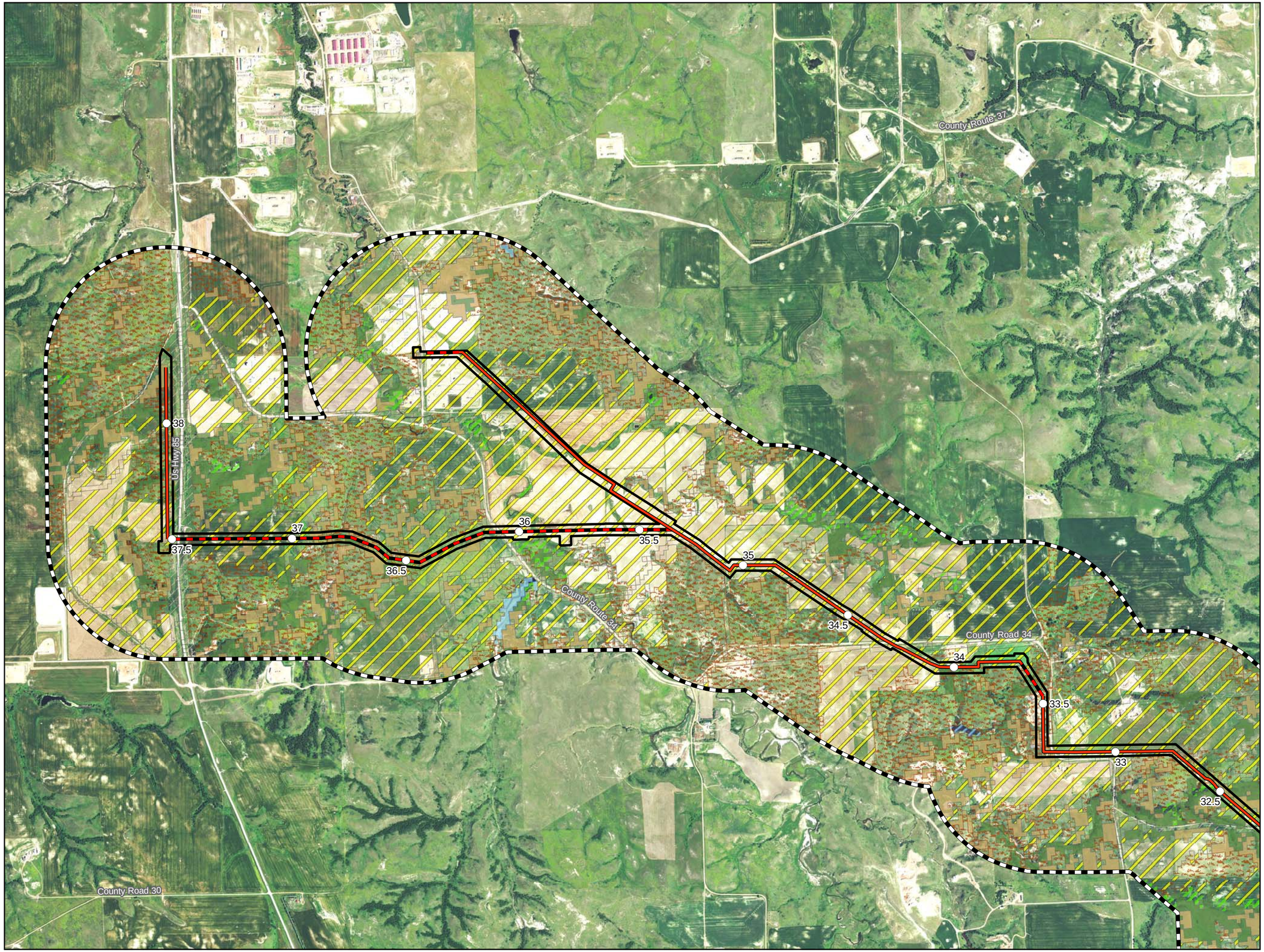

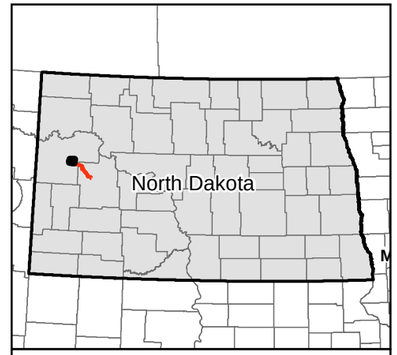

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Exhibit B.4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Land Use Land Cover

McKenzie County

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For Environmental Review Purposes Only

12/2/2015

Source: Z:\Clients\M_P\OneokBear_Creek\ArcGIS\2015\11\PSC_Maps\BCK_PSC_Land_Use_Map_Book.mxd

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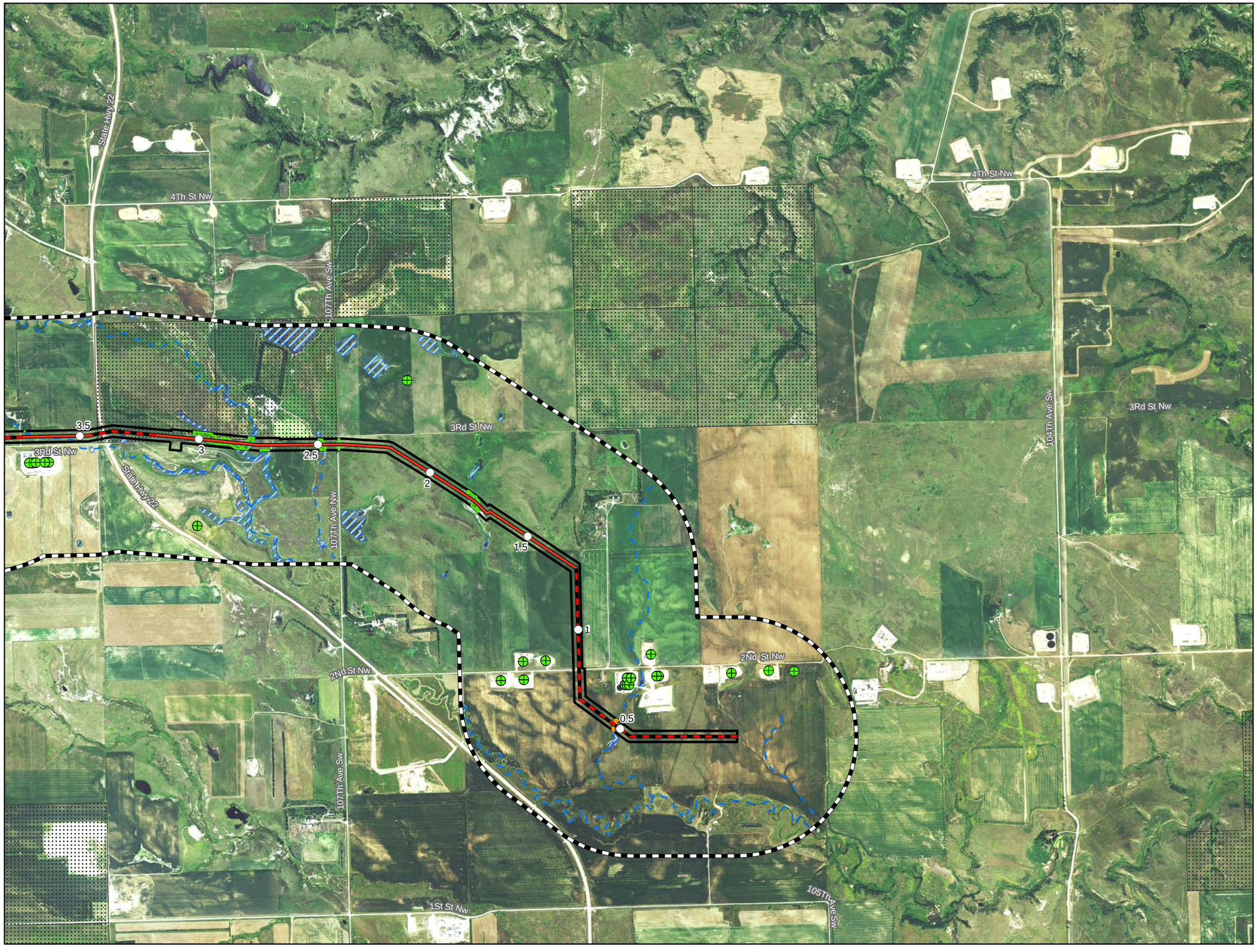

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1 inch = 2,000 feet

Imagery Source: USDA-FSA Aerial Photography Field Office, NAIP 2014

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- Milepost
- Centerline: Co-located
- Centerline: Not Co-located
- Project Corridor
- 1-mile Study Area
- Oil and Gas Well
- Antenna Structure
- Microwave Station
- NDDTL - Mineral Trust Land
- Field Delineated Waterbody
- Field Delineated Wetland
- NWI Wetland

USGS Streams

- Intermittent Stream
- Perennial Stream

Exhibit B.5
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Other Criteria Considered

Page 1 of 7
Dunn County

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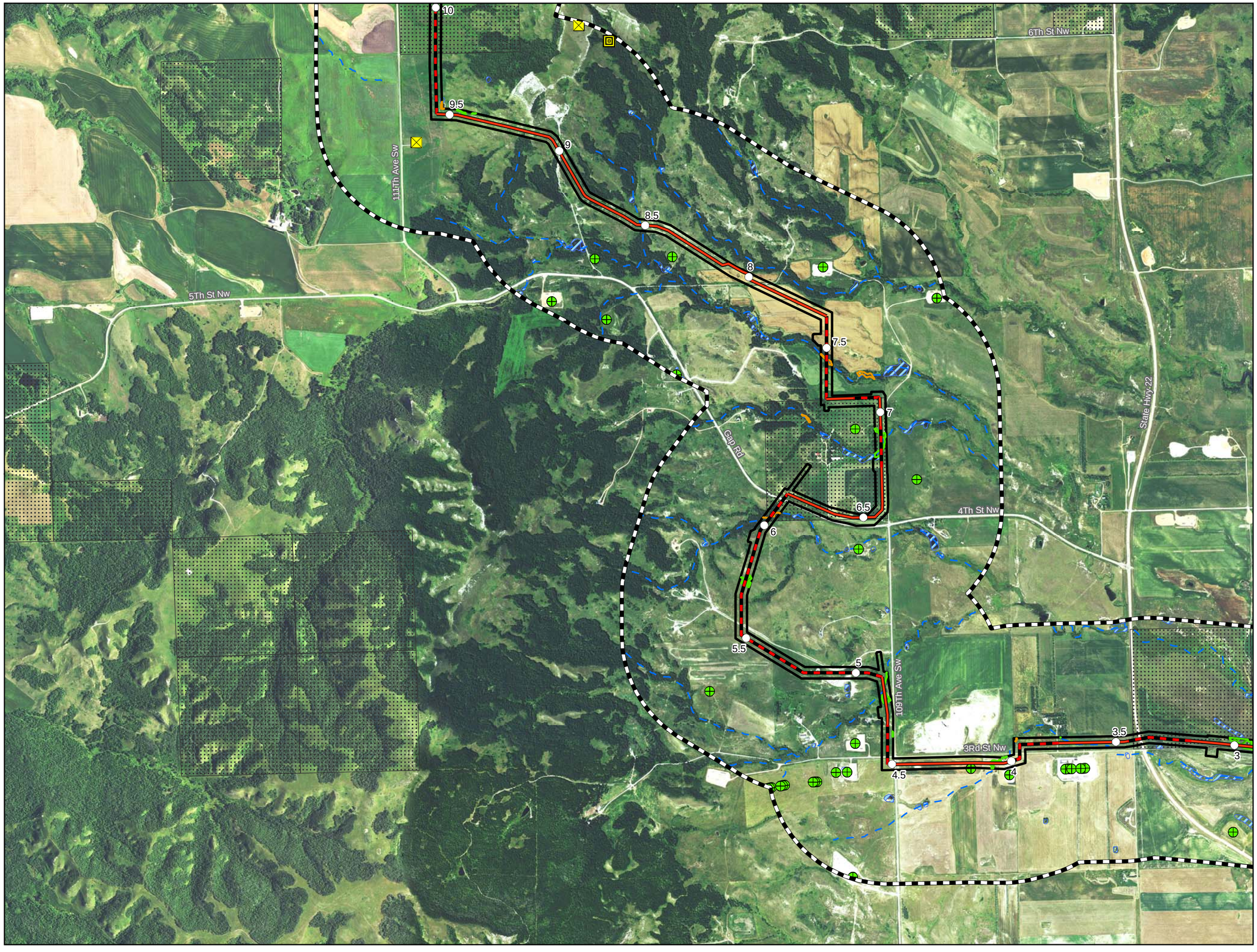

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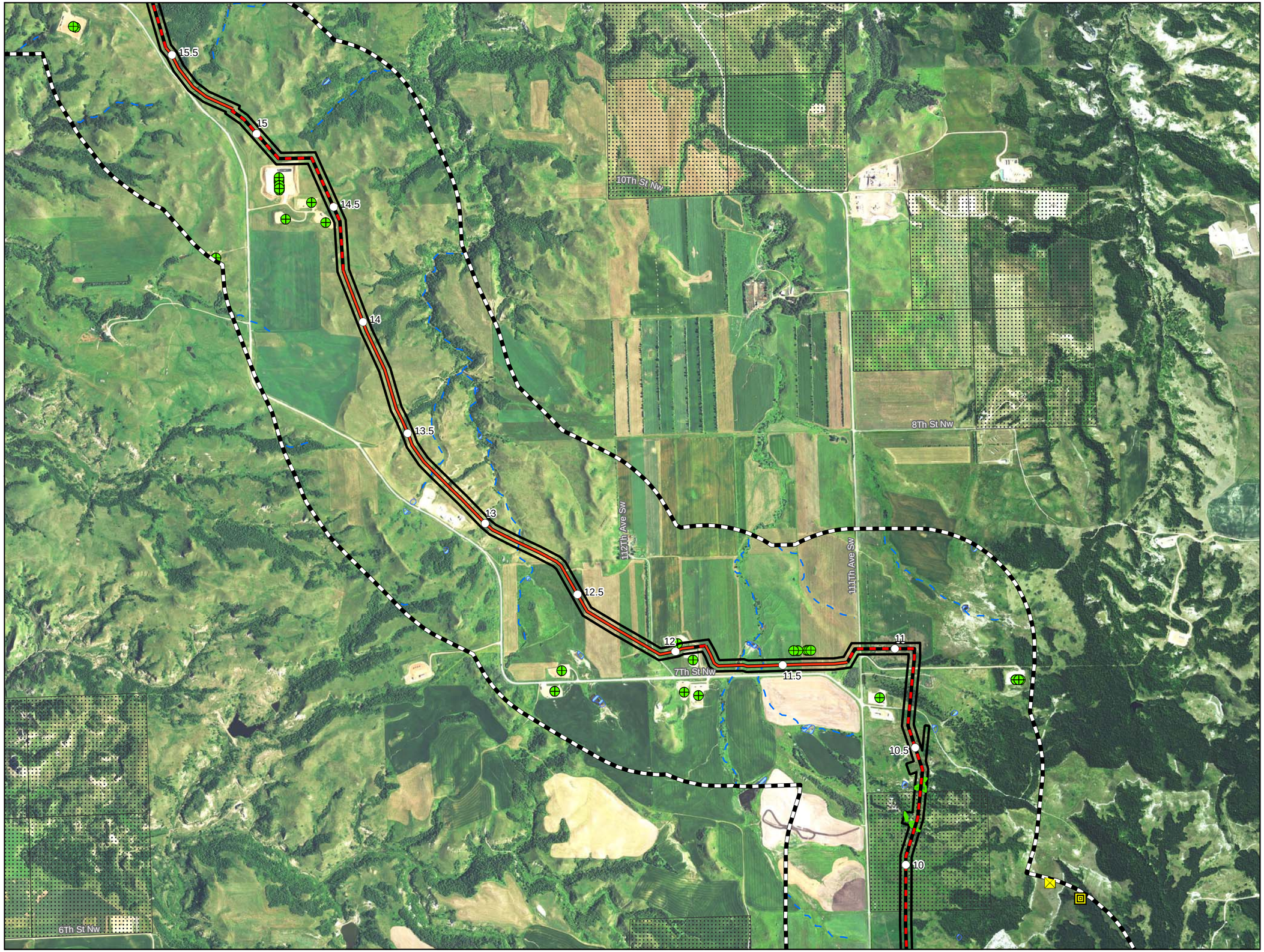

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Exhibit B.5
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

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Page 3 of 7
Dunn County

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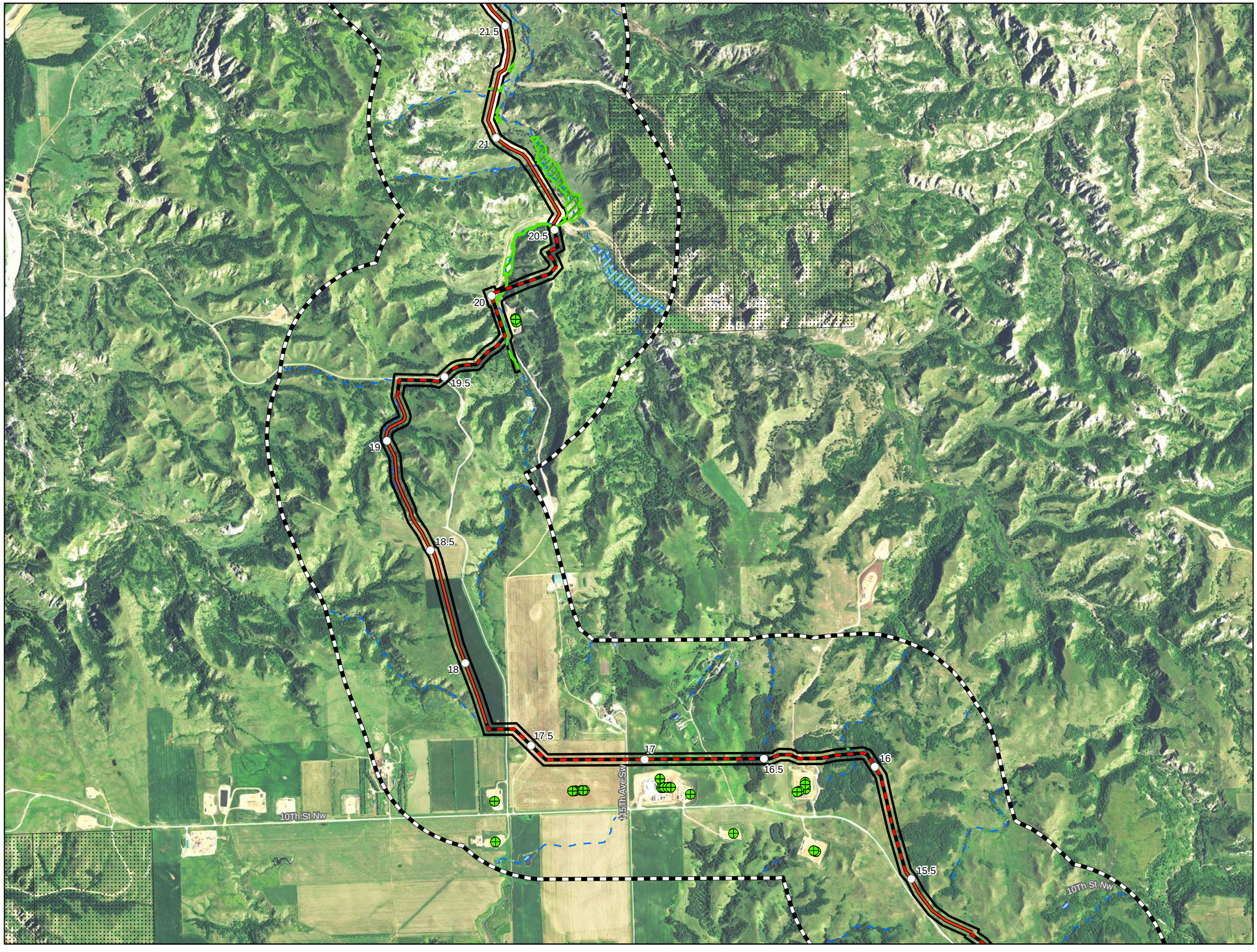

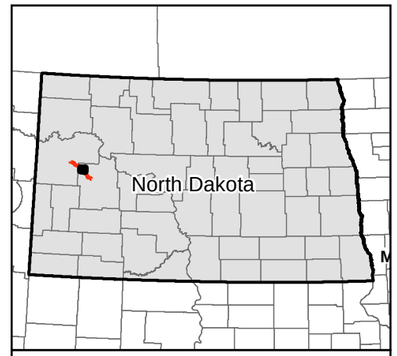

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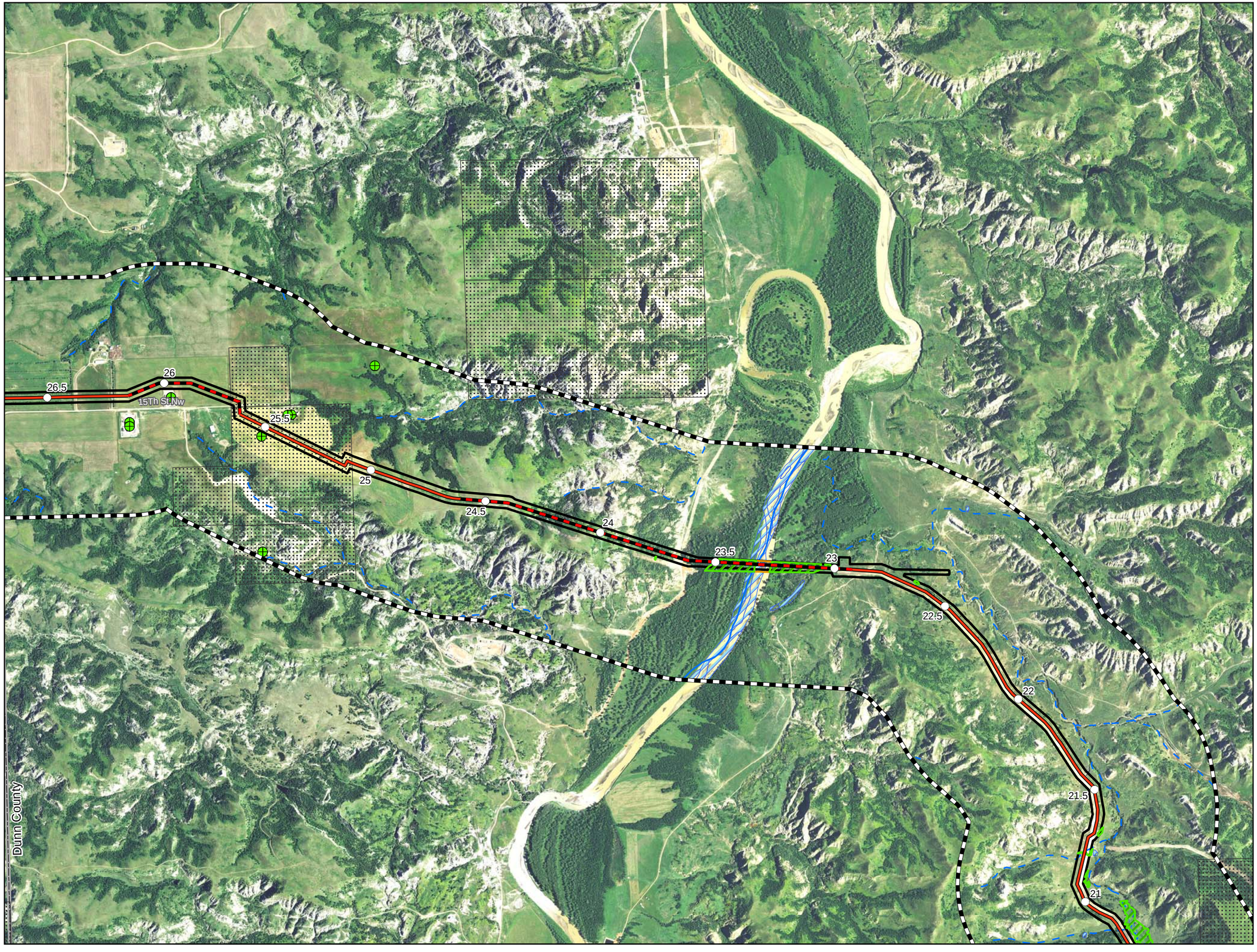

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USGS Streams

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- Perennial Stream

Exhibit B.5
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Other Criteria Considered

Page 5 of 7
Dunn County

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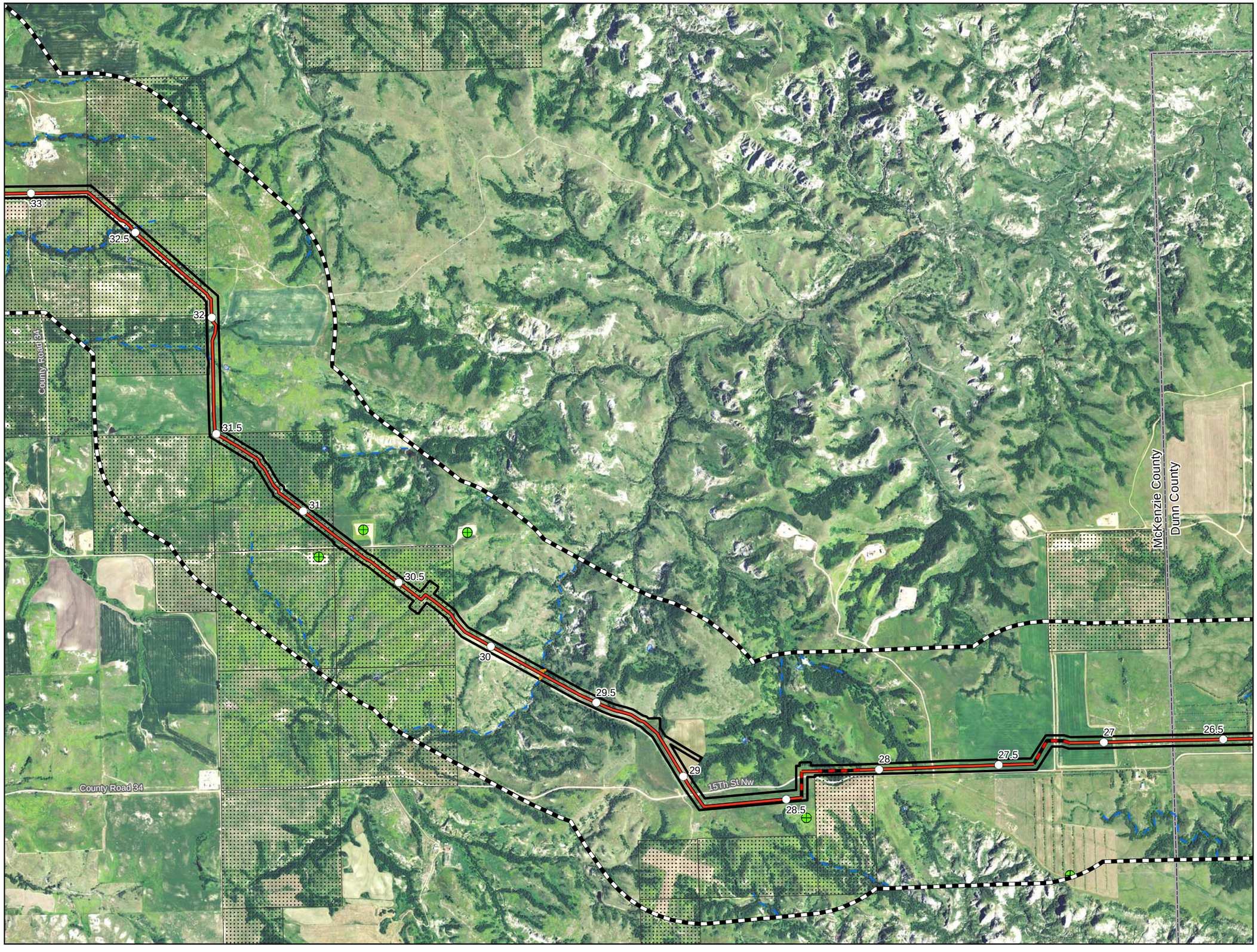

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Exhibit B.5
ONEOK Bakken Pipeline
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Other Criteria Considered

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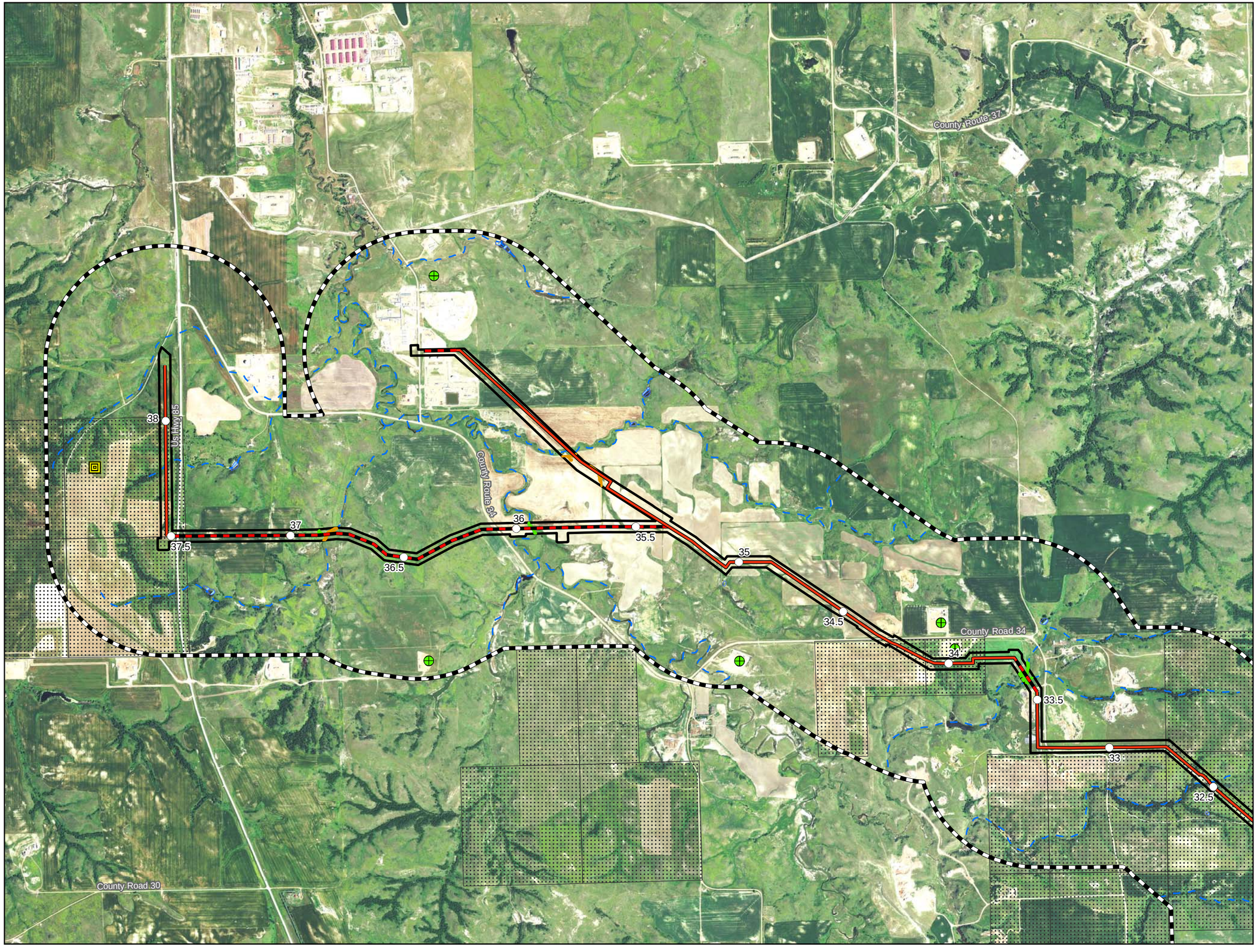

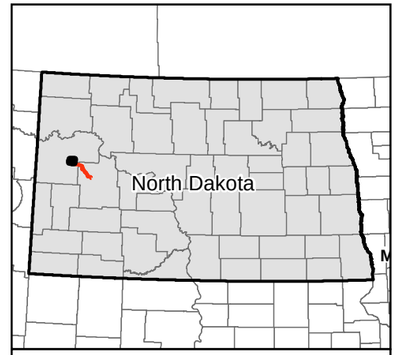

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USGS Streams

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- Perennial Stream

Exhibit B.5
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Other Criteria Considered

Page 7 of 7
McKenzie County

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12/2/2015

EXHIBIT C

Photos courtesy of: Jon Knudsen

Natural Resource Survey Report — Bear Creek NGL Pipeline McKenzie and Dunn Counties, North Dakota.

Prepared for:

ONEOK Bakken Pipeline, L.L.C

Prepared by:

E3 Environmental, LLC

September 2015

E3 Environmental

Enhancing Execution with Experience

TABLE OF CONTENTS

List of Tables ii
List of Appendices ii
SECTION 1: INTRODUCTION 1
1.1 Background 1
1.2 Regulatory Justification 1
SECTION 2: SURVEY CORRIDOR 3
2.1 General Landscape Characterization 3
2.2 Vegetation Communities 4
2.3 Climate 7
2.4 Soils 8
SECTION 3: SURVEY METHODOLOGY 13
3.1 Raptors 13
3.2 Wetlands 14
3.3 Waterbodies 15
3.4 Woody Vegetation 16
3.5 Noxious Weeds 16
3.6 Threatened and Endangered Species 18
3.7 Wildlife Inventory 24
SECTION 4: RESULTS 24
4.1 Raptors 24
4.2 Wetlands 26
4.3 Waterbodies 26
4.4 Woody Vegetation 28
4.5 Noxious Weeds 30
4.6 Threatened and Endangered Species 30
4.7 Wildlife Inventory 35
SECTION 5: RECOMMENDATIONS 39
SECTION 6: REFERENCES 41

LIST OF TABLES

Table 1. GAP vegetation types 6
Table 2. Monthly recorded precipitation - Williston, North Dakota. 7
Table 3. Monthly recorded precipitation - Dickinson, North Dakota. 8
Table 4. NRCS soil components and acreages. 10
Table 5. State and county designated noxious weeds. 17
Table 6. Federally listed species within the Project Area. 18
Table 7. Indicator plants associated with Dakota skipper habitat types.. 22
Table 8. Raptor nests.. 25
Table 9. Wetlands and waterbodies. 26
Table 10. Tree mitigation requirements by species. 28
Table 11. Dakota skipper habitat. 33
Table 12. Grass and forb species across all Dakota skipper habitats. 33
Table 13. Indicator plant species across all Dakota skipper habitats 34
Table 14. Vertebrate species inventory. 36

LIST OF APPENDICES

Appendix A. Natural Resource Maps

Appendix B. Field Photographs

Appendix C. Woody Vegetation Table

Appendix D. Noxious Weed Table

SECTION 1: INTRODUCTION

1.1 BACKGROUND

E3 Environmental, LLC (E3), at the request of ONEOK Bakken Pipeline, L.L.C. (ONEOK), performed natural resource surveys and subsequent reporting necessary to obtain permits to construct the Bear Creek Natural Gas Liquids (NGL) Pipeline Project (Project). The proposed Project would transport NGLs from the Bear Creek Gas Plant in Dunn County, North Dakota to a tie-in at the existing Targa Pipeline in McKenzie County, North Dakota. E3 biologists conducted surveys to identify, delineate, and inventory natural resources that could potentially be impacted by pipeline construction and maintenance in order to comply with the North Dakota Public Service Commission's (PSC) siting authority requirements. These surveys included:

- Raptor surveys
- Woody vegetation delineation and inventory
- Wetland and waterbody delineation and jurisdictional characterization
- Noxious weed inventory and delineation
- Protected species surveillance and habitat assessment
- Wildlife surveillance and inventory

This report details the methodologies used by E3 biologists to complete the above surveys and presents the results and recommendations of the surveys to ensure ONEOK is in compliance with laws overseen by the regulatory agencies.

1.2 REGULATORY JUSTIFICATION

Several federal and state laws protect native wildlife and natural resources from being destroyed or degraded by anthropogenic disturbance. The following Acts and regulations protect certain species and natural resources within Dunn and McKenzie Counties (Project Area), and compliance with these Acts and regulations serves as justification for conducting the completed surveys.

1.2.1 CLEAN WATER ACT

The Clean Water Act of 1972 (CWA) (33 U.S.C. §1251 et seq.) prohibits the discharge of fill materials or pollutants into Waters of the United States or associated wetlands (jurisdictional waterbodies) without a permit from the U.S. Army Corps of Engineers (USACE). Wetland and waterbody delineations and associated jurisdictional characterizations were therefore conducted for the Project. The USACE administers the Nationwide Permit Program (NWP) which is a series of general permits that regulate construction activities. This Project will seek coverage under the NWP No.12 utility line discharge, which regulates pipeline construction and maintenance in jurisdictional waterbodies.

1.2.2 MIGRATORY BIRD TREATY ACT

The Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. §§ 703–712) protects the majority of native birds species from being killed, sold, transported, harassed, or harmed. This also applies to bird parts, nests, feathers, and eggs. Most species found within the Project Area are protected under this Act, including raptors, which will frequently reuse nest sites.

1.2.3 BALD AND GOLDEN EAGLE PROTECTION ACT

The Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. §§ 668-668c) offers comprehensive protection for bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) in the United States. The BGEPA prohibits the take of eagles, including parts, nests, or eggs; and any disturbance of protected species, including any activity that could cause injury to the species, nest abandonment, or a decrease in productivity. Suitable habitat and previously recorded nests for bald and golden eagles are present within the Project Area, particularly along the riparian corridor and cliffs associated with the Little Missouri River.

1.2.4 ENDANGERED SPECIES ACT

The Endangered Species Act of 1973 (ESA) (16 U.S.C. § 1531 et seq.) contains a suite of protective measures pertaining to critically imperiled species at risk of extinction. These include species classified as threatened and endangered (T & E) that are defined as a species that has the potential of becoming endangered and species which are in danger of extinction, respectively. Species are listed as threatened or endangered due to natural and anthropogenic factors threatening their existence, including disease, predation, habitat degradation, or inadequate regulation. The ESA also identifies habitats critical to listed species and provides mitigation strategies relating to activities within these habitats. Projects that impact listed species may be required to acquire permits to allow for take or to conduct more intensive field studies. The Dakota skipper (*Hesperia dacotae*) and northern long-eared bat (*Myotis septentrionalis*) have been identified by the United States Fish and Wildlife Service (USFWS) as being particularly vulnerable to construction activities within the Project Area.

1.2.5 NORTH DAKOTA PUBLIC SERVICE COMMISSION MITIGATION REQUIREMENTS

The PSC requires utilities to conduct natural resource surveys to obtain a *Certificate of Corridor Compatibility and Route Permit* in order to construct an energy conversion facility or transmission facility (North Dakota Century Code, 2015)(N.D.C.C. Ch. 49-22). These surveys include T & E surveillance, noxious weed delineation, wetland and waterbody delineation and classification, and woody vegetation delineation and inventory for replacement.

SECTION 2: SURVEY CORRIDOR

The Project, which is approximately 38 miles in length, is located in McKenzie and Dunn Counties, North Dakota. The Project originates at the ONEOK Bear Creek Gas Plant located within Section 28 T146N:R95W and trends to the northwest, crossing the Little Missouri River and terminating where it ties into the ONEOK Targa Pipeline in Section 25 T149N:R99W (Preferred Route). An alternative terminus for the Project is proposed at the Targa Little Missouri Gas Plant in Sections 30 and 29 T149N:R98W. This route diverts from the Preferred Route in Sections 32 and 33 T149N:R98W and trends northwest to the ONEOK Targa Little Missouri Gas Plant (Alternative Route). The Project crosses private lands, federal lands administered by the United States Forest Service (USFS), and state lands administered by the state of North Dakota. E3 conducted natural resource surveys utilizing a typical 250-foot corridor centered upon the proposed Project alignment (Preferred and Alternative Routes); furthermore, several extra-temporary extra workspaces (ETWS) of various dimensions were included, totaling approximately 1,511 acres (Survey Corridor). Natural resource features that occur within the Preferred and Alternative Routes are separated throughout this report. Refer to Appendix A for maps depicting the Project, Primary Route, Alternative Route, and Survey Corridor locations. Surveys were conducted in May, June, and August of 2015, encompassing portions of 58 sections within 8 townships and ranges, including:

- T146N:R95W, Sections 18, 19, 20, 28, 29
- T146N:R96W, Sections 2, 3, 11, 13, 14, 23, 24
- T147N:R96W, Sections 7, 18, 19, 20, 27, 28, 29, 34
- T147N:R97W, Sections 2, 3, 4, 11, 12
- T148N:R97W, Sections 17, 18, 19, 20, 21, 22, 23, 26, 28, 29, 30, 32, 33, 35
- T148N:R98W, Sections 4, 5, 6, 8, 9, 13, 14, 15, 16, 22, 23, 24
- T149N:R98W, Sections 29*, 30*, 31º, 32, 33, 34, 35
- T149N:R99W, Sections 25º, 36º

ºSections intersected only by Preferred Route Survey Corridor

*Sections intersected only by Alternative Route Survey Corridor

In total, surface ownership within the Survey Corridor is composed of:

- 1467 acres (97.1%) private
- 28 acres (1.9%) USFS
- 16 acres (1.1%) State of North Dakota

2.1 GENERAL LANDSCAPE CHARACTERIZATION

The Survey Corridor is located entirely within the Northwestern Great Plains (43) Level III ecoregion, encompassing the Missouri Plateau of west-central North Dakota (Omernik, 1987; United States Environmental Protection Agency, 2013). The Northwestern Great Plains is characterized as a semiarid rolling plain of shale, siltstone,

and sandstone punctuated by scattered sandstone buttes and badland formations with minimal wetland basins (Omernik & Griffith, 2008). Native shortgrass prairie persists in areas devoid of steep or broken topography, but native prairie has been largely replaced by dryland farming of spring wheat, alfalfa, oats, and sunflowers and by pasture for cattle grazing throughout most of the ecoregion. Habitat zones present in both uplands and wetlands consist of cultivated cropland, introduced perennial grassland and forbland, native grassland, shrubland, forest and woodland, riparian areas, and herbaceous wetlands (Bryce, et al., 1998).

Within the Northwestern Great Plains ecoregion, the Survey Corridor crosses the Missouri Plateau (43a) and Little Missouri Badlands (43b) Level IV ecoregion (USEPA, 2013). The Missouri Plateau (43a) ecoregion was largely unaffected by glaciation and retains its original soils and complex stream drainage pattern (Bryce, et al., 1998). Physiography of the Missouri Plateau is described as moderately dissected, level to rolling plains with isolated sandstone buttes. This area is underlain by soft, calcareous shales, sandstones, and lignite coal. Dryland farming and cattle grazing are typical throughout this ecoregion.

The Little Missouri Badlands (43b) are composed of erosional, sparsely vegetated landscape features that include down-cut channels and sedimentary hillslopes associated with the Little Missouri River (Bryce, et al., 1998). Erosion rates are extremely high in this ecoregion, with ephemeral streams carrying high loads of sediment from the soft silt and clay formations. Rocky mountain juniper (*Juniperus scopulorum*) is prevalent in the uplands, whereas green ash (*Fraxinus pennsylvanica*) and plains cottonwood (*Populus deltoides*) dominate the riparian areas and wooded draws (refer to photo in Appendix B). Cattle ranching and outdoor recreation such as hunting and hiking are typical through this ecoregion.

2.2 VEGETATION COMMUNITIES

Vegetation communities are described by their location within United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Major Land Resource Areas (MLRA), which are broad geographic areas characterized by a particular pattern of soil, climate, vegetation, and land use. The Survey Corridor crosses two MLRAs, including Rolling Soft Shale Plains (MLRA 54) and Northern Rolling High Plains, Northeastern Part (MLRA 58C) (USDA, NRCS, 2006).

The Rolling Soft Shale Plains are characterized by natural grasslands dominated by western wheatgrass (*Pascopyrum smithii*), green needlegrass (*Nassella viridula*), blue grama (*Bouteloua gracilis*), and little bluestem (*Schizachyrium scoparium*) (USDA, NRCS, 2006). Shrub and forb species including prairie rose (*Rosa arkansana*), western snowberry (*Symphoricarpos occidentalis*), and leadplant (*Amorpha canescens*) are interspersed throughout the uplands and mixed-prairie. Large patches of green ash,

chokecherry (*Prunus virginiana*), and silver buffaloberry (*Shepherdia argentea*) typically occur in the draws and steep valleys common in this region.

The Northern Rolling High Plains, Northeastern Part are characterized by mixed-grass prairies dominated by western wheatgrass, bluebunch wheatgrass (*Pseudoroegneria spicata*), green needlegrass, and needle-and-thread (*Hesperostipa comate*) (USDA, NRCS, 2006). In the eastern portion of the MLRA where the Survey Corridor occurs, little bluestem replaces bluebunch wheatgrass as the dominant species.

Fifteen vegetation cover types, modeled by the Gap Analysis Program (GAP) as ecological systems, occur within the Survey Corridor. The most dominant ecological systems include, Northwestern Great Plains Mixedgrass Prairie, Cultivated Cropland, Western Great Plains Wooded Draw and Ravine, Pasture/Hay, and Western Great Plains Depressional Wetland Systems (described below). All ecological systems within the Survey Corridor are included in Table 1 based on United States Geological Survey (USGS) GAP land cover data (US Geological Survey, 2011).

- Northwestern Great Plains Mixedgrass Prairie: This vegetation cover type dominates the upland portions of the Survey Corridor undisturbed by agricultural practices, woody draws, and broken lands (refer to photo in Appendix B). Dominant grasses for this ecological system include western wheatgrass, green needlegrass, and fescue (*Festuca spp.*), although blue grama and needle-and-thread may also dominate. Shrub species including western snowberry, fringed sagewort (*Artemisia frigida*), and silver sagebrush (*Artemisia cana*) are also associated with this ecological system, and were observed within the Survey Corridor. Cool-season exotics such as Kentucky bluegrass (*Poa pratensis*), smooth bromegrass (*Bromus inermis*), and Japanese brome (*Bromus japonicas*) can increase in dominance due to intensive grazing. This system is one of the most disturbed grassland systems in North Dakota (Comer, et al., 2003).

- Cultivated Cropland: This vegetation cover type is dominant along the plateaus and flat areas of the Survey Corridor, typically concentrated at the beginning and end of the Project. These areas would have been composed of Northwestern Great Plains Shrubland or Northwestern Great Plains Mixedgrass Prairie before being developed for agricultural purposes. Canola, corn, wheat, and alfalfa are the most common crop species being cultivated within the Survey Corridor (refer to photo in Appendix B).

- Western Great Plains Wooded Draw and Ravine: This ecological system is dominant among the breaks and badlands surrounding the Little Missouri River within the Survey Corridor (refer to photo in Appendix B). These areas are typically identified by woody vegetation associated with steep topography; shrublands composed of silver sagebrush and woodlands composed of Rocky

Mountain juniper, green ash, or aspen (*Populus deltoids*) are dominant components of the landscape (Comer, et al., 2003).

- Pasture/Hay: This disturbed ecological system occurs within flat areas and drainage bottoms within the Survey Corridor, similar to where Cultivated Cropland is found. Alfalfa is the most common hay plant in the Survey Corridor. Heavy agricultural use and grazing within the Survey Corridor have introduced noxious weed infestations, which are found in large densities. These areas would have been composed of natural ecological systems (such as Northwestern Great Plains Mixedgrass Prairie) before being developed.

- Western Great Plains Depressional Wetland Systems: This ecological system is identified by low-lying depressions and emergent wetland vegetation, typically adjacent to permanent or semi-permanent streams. Sedge (*Carex spp.*), bulrush (*Typha spp.*), and rush (*Juncus spp.*) are the dominant mesic vegetation types found in proximity to wetland margins (Comer, et al., 2003). This ecological system is common near the Little Missouri River and associated tributaries, such as Jim Creek, where floodplains and open basins occur between steep slopes and badlands (refer to photo in Appendix B).

Table 1. GAP vegetation types and acreages within the Survey Corridor.

Vegetation Type	Acres	% of Survey Corridor
Northwestern Great Plains Mixedgrass Prairie	716.6	57.5
Cultivated Cropland	308.1	24.7
Western Great Plains Wooded Draw and Ravine	85.3	6.8
Pasture/Hay	45.7	3.7
Western Great Plains Depressional Wetland Systems	37.4	3.0
Developed, Open Space	16.1	1.3
Western Great Plains Floodplain Systems	11.1	0.9
Northwestern Great Plains Shrubland	8.0	0.6
Western Great Plains Dry Bur Oak Forest and Woodland	6.4	0.5
Western Great Plains Sand Prairie	5.4	0.4
Introduced Upland Vegetation – Perennial Grassland and Forbland	3.1	0.2
Disturbed, Non-specific	0.9	0.1
Open Water (Fresh)	0.8	0.1
Developed, Low Intensity	0.3	0.0
Inter-Mountain Basins Greasewood Flat	0.2	0.0
Total	**1,245.4**	**100.1**

2.3 CLIMATE

The Project Area climate is semi-arid to sub-humid and continental, with warm summers and very cold winters (Aziz, Champa, & Vanderbusch, 2006). In winter, the average temperature is 13 degrees Fahrenheit, with an average daily minimum temperature of 1 degree Fahrenheit. In summer, the average temperature is 72 degrees Fahrenheit, with an average daily maximum temperature of 88 degrees Fahrenheit. Mean annual precipitation for the Project Area is 15 inches. Most of the precipitation falls during the warm period with about 80 percent falling April through September (Aziz, Champa, & Vanderbusch, 2006). The average seasonal snowfall is approximately 35 inches.

National Weather Service data for the Williston, North Dakota monitoring station (located approximately 37 miles northwest of Survey Corridor) recorded precipitation totals for the period from January 2015 to August 2015 to be 7.84 inches as described in Table 2 below (National Oceanic and Atmospheric Adminsistration (NOAA), 2015). The normal precipitation average for this time period is 11.12 inches. For this time period, rainfall was 3.28 inches below normal.

Table 2. Monthly recorded precipitation at National Weather Service Station in Williston, North Dakota.

Month	Recorded Precipitation	Normal Precipitation	Difference (inches)
January	0.48	0.59	-0.11
February	0.46	0.39	0.07
March	0.47	0.71	-0.24
April	0.27	1.00	-0.73
May	1.82	1.92	-0.10
June	1.90	2.52	-0.62
July	1.55	2.54	-0.99
August	0.89	1.45	-0.56
Total	**7.84**	**11.12**	**-3.28**

Source: NOAA preliminary climate Data Reports

National Weather Service data for the Dickinson, North Dakota monitoring station (located approximately 38 miles south of Survey Corridor) recorded precipitation totals for the period from January 2015 to August 2015 to be 9.46 inches as described in Table 3 below (NOAA, 2015). The normal precipitation average for this time period is 12.29. For this time period, rainfall was 2.80 inches below normal.

Table 3. Monthly recorded precipitation at National Weather Service Station in Dickinson, North Dakota.

Month	Recorded Precipitation	Normal Precipitation	Difference (inches)
January	0.12	0.30	-0.18
February	0.15	0.33	-0.18
March	0.47	0.69	-0.22
April	1.03	1.47	-0.44
May	1.66	2.32	-0.66
June	2.93	3.20	-0.27
July	2.37	2.44	-0.07
August	0.76	1.54	-0.78
Total	**9.49**	**12.29**	**-2.80**

Source: NOAA preliminary climate Data Reports

2.4 SOILS

Soil types intersected by the Survey Corridor were analyzed through the NRCS Web Soil Survey in September of 2015 (NRCS, 2015). Described below are the components of dominant soil orders within the Survey Corridor, including Arikara, Boxwell, Cabba, Cabbart, Dogtooth, Kremlin, Parshall, Shambo, and Vebar. A list of all soil classifications and the acreage encompassed by the Survey Corridor are located in Table 4.

2.4.1 ARIKARA

The Arikara series consists of very deep, well drained soils that form in wooded slope colluvium, with moderate permeability and 9 to 70 percent slopes. These soils occur in climates with a mean temperature of 40 degrees Fahrenheit and mean average precipitation of 15 inches. Arikara soils are used primarily as grazeable woodland, with common native vegetation including bur oak (*Quercus macrocarpa*), green ash, quaking aspen (*Populus tremuloides*), white birch (*Betula papyrifera*), and Rocky Mountain juniper, with an understory consisting of common shrubs, sedges, and grasses (NRCS, 2015b).

2.4.2 BOXWELL

The Boxwell series consists of moderately deep, well-drained soils that are formed from the residue of partial consolidations of sandstone, shale, siltstone, and mudstone sedimentary beds, and are found on sedimentary plains and hills with slopes of 0 to 60 percent. Boxwell series soils occur in climates with a mean annual precipitation of 12 inches, and a mean annual temperature of 42 degrees Fahrenheit. Land use within Boxwell soil zones centers around dryland crop agriculture. Common native vegetation

includes needle-and-thread, bluebunch wheatgrass, green needlegrass, Sandberg bluegrass (*Poa secunda*), and western wheatgrass (NRCS, 2015b).

2.4.3 CABBA

The Cabba series consists of shallow, well-drained soils that are formed from residuum or colluvium of partial consolidations of loamy, sedimentary soil beds, and are found on sedimentary plains, escarpments, and hills with slopes of 2 to 70 percent. Cabba series soils occur in climates with a mean annual precipitation of 16 inches, and a mean annual temperature of 43 degrees Fahrenheit. Predominantly subject to rangeland use, common native vegetation in the Cabba series consists of, little bluestem, western wheatgrass, needle-and-thread, prairie sandreed (*Calamovilfa longifolia*), bluebunch wheatgrass, green needlegrass, plains muhly (*Muhlenbergia cuspidata*), and many common forbs and shrubs (NRCS, 2015b).

2.4.4 CABBART

The Cabbart series consists of shallow, well-drained soils that are formed from partial consolidations of sedimentary loam beds 10 to 20 inches deep. Soils in this series may be found on hills, ridges, escarpments, and sedimentary plains with slopes of 2 to 75 percent. Cabbart soils occur in climates with a mean annual precipitation of 12 inches, and a mean annual temperature of 43 degrees Fahrenheit. Although commonly used for rangeland purposes, Cabbart soils are also suitable for small grain agriculture. Potential native vegetation includes western wheatgrass, bluebunch wheatgrass, green needlegrass, plains reedgrass (*Calamagrostis montanensis*), little bluestem, needle-and-thread, blue grama, dryland sedges, and common forbs, with sparsely scattered ponderosa pine (*Pinus ponderosa*) and Rocky Mountain juniper stands (NRCS, 2015b).

2.4.5 DOGTOOTH

The Dogtooth series consists of moderately deep, well drained, high permeability soils formed from residual components of weathered saline-alkali, calcareous, soft shale, siltstone or mudstone, and occur on upland slopes of 0 to 25 percent. Dogtooth soils occur in climates with mean annual precipitations of 15 inches, with mean annual temperatures at 42 degrees Fahrenheit. Most soils in this series are dominated by short and mid-prairie grasses including western, blue grama, inland saltgrass, and sedges, with some prickly pear, clubmoss, and legumes. This results in rangeland and pasture as primary land uses (NRCS, 2015b).

2.4.6 KREMLIN

The Kremlin series consists of very deep, well drained soils that are formed in alluvium from mixed rock sources, partially consolidated sedimentary beds, or glaciofluvial deposits, and occur on alluvial fans, stream terraces, sedimentary plains, drainage ways, and till plains on slops of 0 to 25 percent. These soils exist in climates with mean annual precipitation values of 12 inches and mean annual air temperatures of 43 degrees Fahrenheit. Kremlin soil use predominantly consists of non-irrigated crops, with

a native plant community consisting of blue-bunch wheatgrass, western wheatgrass, green needlegrass, needle-and-thread, and common shrubs and forbs (NRCS, 2015b).

2.4.7 PARSHALL

The Parshall series consists of very deep, moderately to well drained, rapidly permeable soils formed in alluvium. Soils in this series occur on terraces, outwash plains, and upland swales with slopes of 0 to 25 percent. Parshall series soils exist in climates with a mean annual temperatures of 42 degrees Fahrenheit and a mean annual precipitation of 16 inches. These soils are predominantly used in areas of small grain agriculture, flax, tame grass, and alfalfa, with common native vegetation of short to medium prairie grasses, with needle-and-thread and some legumes (NRCS, 2015b).

2.4.8 SHAMBO

The Shambo series consists of deep and very deep, well drained, moderately permeable soils resulting from calcareous alluvium from soft sandstone, mudstone, and shale. Soils in this series occur on terraces along stream valleys, and stream valley and upland fans with slops from 0 to 35 percent. Shambo soils are found in climates with a mean annual temperature of 42 degrees Fahrenheit, and a mean annual precipitation of 15 inches. This series is subject to small grain, hay, and pasture agriculture as a predominant land use, with native vegetation consisting of green needlegrass, needle-and-thread, western wheatgrass, prairie junegrass, blue grama, and a variety of common forbs (NRCS, 2015b).

2.4.9 VEBAR

The Vebar series consists of well drained, moderately deep, moderately rapidly permeable soils that are formed from weathered soft calcareous sandstone residue. These soils occur predominantly in upland areas with slopes of 0 to 65 percent. Suitable climate for this soil series includes a mean annual air temperature of 42 degrees Fahrenheit and a mean annual precipitation value of 16 inches. Corn and small grain agriculture are the most common land uses within this soil series, with some hay or pasture usage. Common native grasses include needle-and-thread and prairie sandreed (NRCS, 2015b).

Table 4. NRCS soil components and acreages within Survey Corridor.

Map Unit Symbol	Soil Types	Slopes (percent)	Acres within Survey Corridor	Percent within Map Unit
Dunn County Major Soils				
E0403A	Belfield-Daglum-Farland silt loams	0 to 2	3.8	0.3
E0454B	Daglum-Rhoades complex	0 to 6	13.4	0.9
E0515B	Rhoades-Daglum complex	0 to 6	29.8	2.1
E0605A	Belfield-Grail clay loams	0 to 2	22.4	1.6
E0617B	Belfield-Savage-Daglum complex	2 to 6	17.0	1.2
E0629B	Farnuf-Belfield-Rhoades complex	2 to 6	2.7	0.2
E0651B	Regent-Janesburg complex	3 to 6	13.6	0.9
E0679B	Savage-Daglum complex	2 to 6	2.5	0.2

Map Unit Symbol	Soil Types	Slopes (percent)	Acres within Survey Corridor	Percent within Map Unit
E0811A	Grail silty clay loam	0 to 2	4.9	0.3
E1025B	Regent-Savage silty clay loams	3 to 6	1.3	0.1
E1025C	Regent-Savage silty clay loams	6 to 9	11.3	0.8
E1231B	Ekalaka-Yegen fine sandy loams	0 to 6	1.7	0.1
E1333D	Vebar-Cohagen fine sandy loams	9 to 15	55.6	3.9
E1423F	Flasher-Vebar-Parshall complexs	9 to 35	10.3	0.7
E1625B	Vebar-Parshall fine sandy loams	3 to 6	45.7	3.2
E1635C	Vebar-Tally fine sandy loams	6 to 9	29.7	2.1
E1805B	Lihen-Parshall complex	0 to 6	8.7	0.6
E1823A	Parshall fine sandy loam	0 to 2	6.3	0.4
E1823B	Parshall fine sandy loam	2 to 6	0.2	0.0
E1875D	Telfer loamy fine sand	6 to 15	0.9	0.1
E2107A	Arnegard loam	0 to 2	3.3	0.2
E2145A	Shambo loam	0 to 2	1.9	0.1
E2145B	Shambo loam	2 to 6	0.9	0.1
E2203A	Farland silt loam	0 to 2	0.0	0.0
E2401B	Belfield-Morton silt loams	3 to 6	0.1	0.0
E2439B	Sen-Janesburg silt loams	3 to 6	5.9	0.4
E2601C	Amor-Cabba loams	6 to 9	9.8	0.7
E2601D	Amor-Cabba loams	9 to 15	7.0	0.5
E2617F	Cabba-Chama-Shambo loams	9 to 50	6.9	0.5
E2737C	Chama-Cabba-Sen silt loams	6 to 9	3.9	0.3
E2803B	Amor-Shambo loams	3 to 6	8.7	0.6
E2927B	Morton-Farland silt loams	3 to 6	15.2	1.1
E3198F	Lakoa loam	15 to 45	5.6	0.4
E3199F	Arikara-Cabba loams	15 to 70	5.7	0.4
E4005A	Harriet loam	0 to 2	21.6	1.5
E4139A	Korchea-Fluvaquents complex, channeled	0 to 2	13.6	0.9
E4503F	Baahish fine sandy loam	9 to 50	76.9	5.4
E4505F	Baahish-Rock outcrop complex	15 to 70	6.0	0.4
E4507A	Hidatsa loam	0 to 2	27.9	1.9
E4507B	Hidatsa loam	2 to 6	17.6	1.2
E4559C	Manning-Wabek complex	6 to 9	0.9	0.1
E4585B	Manning fine sandy loam	2 to 6	7.7	0.5
E6151B	Lefor fine sandy loam	3 to 6	28.9	2.0
E6151C	Lefor fine sandy loam	6 to 9	3.5	0.2
L1355C	Rhame-Chinook fine sandy loams	6 to 9	28.6	2.0
L1355D	Rhame-Chinook fine sandy loams	9 to 15	32.1	2.2
L1425F	Rhame-Fleak complex	9 to 50	73.2	5.1
L1639B	Chinook-Rhame fine sandy loams	3 to 6	39.8	2.8
L1661F	Rhame-Arikara-Fleak complex	9 to 70	35.9	2.5
L2601C	Boxwell-Cabbart loams	6 to 9	3.1	0.2
Dunn County Minor Soils				
L2601D	Boxwell-Cabbart loams	9 to 15	2.9	0.2
L2621F	Cabbart-Kremlin-Boxwell loams	9 to 40	45.7	3.2
L2803B	Boxwell-Kremlin loams	3 to 6	5.3	0.4
L2807D	Boxwell-Kremlin loams	9 to 15	0.3	0.0
L3191F	Badland-Arikara-Cabbart complex	15 to 70	70.3	4.9
L3197F	Badland	9 to 150	4.4	0.3
L3199F	Arikara-Cabbart loams	15 to 70	8.2	0.6
L3203C	Lonna silt loam	6 to 9	7.4	0.5
L3235B	Lonna-Patent, gullied-Havre, occasionally flooded complex	0 to 6	0.0	0.0
L3247C	Patent, occasionally flooded-Vanda-Gerda, barren complex	0 to 9	52.0	3.6

Map Unit Symbol	Soil Types	Slopes (percent)	Acres within Survey Corridor	Percent within Map Unit
L4121A	Havre loam, occasionally flooded	0 to 2	4.7	0.3
L4155A	Glendive-Havre-Fluvaquents complex, channeled, frequently flooded	0 to 2	16.9	1.2
L4193A	Glendive fine sandy loam, wooded, occasionally flooded	0 to 2	4.8	0.3
L4209B	Hanly fine sandy loam, occasionally flooded	0 to 6	5.9	0.4
L4999	Water	Water	1.1	0.1
Dunn County Total			**1004.4**	**70.0**
McKenzie County Major Soils				
E0447B	Daglum-Belfield complex	0 to 6	7.7	0.5
E0515B	Rhoades-Daglum complex	0 to 6	0.4	0.0
E0559B	Dogtooth-Janesburg silt loams	0 to 6	20.8	1.5
E0651B	Regent-Janesburg complex	3 to 6	4.1	0.3
E0701F	Dogtooth-Janesburg-Cabba complex	6 to 35	19.9	1.4
E0837B	Savage silty clay loam	2 to 6	0.1	0.0
E0907D	Moreau-Cabba complex	9 to 15	3.0	0.2
E0921C	Regent-Cabba complex	6 to 9	3.7	0.3
E1009B	Moreau-Barkof silty clays	3 to 6	13.6	0.9
E1025B	Regent-Savage silty clay loams	3 to 6	10.1	0.7
E1333C	Vebar-Cohagen fine sandy loams	6 to 9	6.1	0.4
E2120B	Farnuf loam	2 to 6	9.6	0.7
E2617F	Cabba-Chama-Shambo loams	9 to 50	27.1	1.9
E2725F	Arikara-Shambo-Cabba loams	9 to 70	0.9	0.1
E2737C	Chama-Cabba-Sen silt loams	6 to 9	17.8	1.2
E2741D	Cabba-Chama-Sen silt loams	9 to 15	32.1	2.2
E2819B	Reeder-Farnuf loams	3 to 6	5.5	0.4
E3013D	Brandenburg-Searing-Dogtooth complex	6 to 15	10.5	0.7
E3013F	Brandenburg-Cabba-Dogtooth complex	15 to 70	25.9	1.8
E3541B	Williams-Zahl loams	3 to 6	39.2	2.7
E3541C	Williams-Zahl loams	6 to 9	6.0	0.4
E3609F	Zahl-Cabba-Maschetah complex	6 to 70	11.3	0.8
E3639C	Zahl-Williams-Cabba	6 to 9	22.4	1.6
E3641D	Zahl-Cabba-Williams complex	9 to 15	31.2	2.2
E4137A	Korchea loam, occasionally flooded	0 to 2	9.2	0.6
E4139A	Korchea-Fluvaquents complex, channeled, frequently flooded	0 to 2	3.9	0.3
E4190F	Cabba-Chama-Havrelon, occasionally flooded complex	2 to 70	15.7	1.1
L0454B	Maltese-Gerda complex	0 to 6	1.4	0.1
L1425F	Rhame-Fleak complex	9 to 50	11.4	0.8
L2311E	Scairt-Maltese-Boxwell complex	2 to 25	4.6	0.3
L2633F	Boxwell-Cabbart-Arikara complex	9 to 70	17.2	1.2
L2803B	Boxwell-Kremlin loams	3 to 6	23.7	1.7
L2807D	Boxwell-Kremlin loams	9 to 15	14.3	1.0
L3161F	Lonna-Cabbart silt loams	6 to 35	0.7	0.1
L3191F	Badland-Arikara-Cabbart complex	15 to 70	0.0	0.0
McKenzie County Total			**431.0**	**30.0**
Survey Corridor Total			**1435.5**	**100.0**

Source: (NRCS, 2015)

SECTION 3: SURVEY METHODOLOGY

E3 completed the pedestrian natural resource surveys of the Survey Corridor, including ETWS, on June 6-21 and August 19-27 of 2015. In addition, an aerial raptor nest survey was conducted on May 8, 2015. Natural resource surveys, with the exception of the aerial raptor nest survey, were performed on foot by a team of E3 biologists following guidelines published by the USFWS, USFS, and Bureau of Land Management (BLM). Data was collected using handheld Trimble® Juno T41/5, Trimble® GeoExplorer 6000 XT, or Trimble® GeoExplorer 6000 XH facilitated with Terrasync® GIS software. Binoculars and spotting scopes assisted biologists with the observation and identification of wildlife in the Survey Corridor. Surveys were typically conducted between 0700 and 1800 hours, however times varied based on the survey protocols for each natural resource. Surveys were generally conducted concurrently, allowing entire tracts of the Survey Corridor to be completed during a single site visit.

3.1 RAPTORS

E3 biologists inventoried nesting raptors within the Survey Corridor and surrounding landscape by conducting aerial and terrestrial surveys during nesting season (April-July). Aerial surveys were recommended by the USFWS and BLM (T. Zachmeier, personal communication, April 24, 2015) to locate and confirm activity status of nests before deciduous trees were leafed. Terrestrial surveys were conducted to locate nests and determine if construction activities could impact active nests within line-of-site, defined as nests visible from the Survey Corridor. These surveys were conducted so surface disturbance stipulations could be applied in accordance with recommendations by the USFWS.

3.1.1 AERIAL RAPTOR SURVEY

Aerial surveys were conducted on May 8, 2015 following protocols outlined by the USFWS (Pagel, Whittington, & Allen, 2010). Two E3 biologists surveyed for raptor nests within suitable substrate from a Bell Jet-Ranger; cliffs, trees, rough drainages, and pinnacles were surveyed for nesting raptors, focusing on golden eagles, bald eagles, ferruginous hawks (*Buteo regalis*), and peregrine falcons (*Falco peregrinus*). Surveys were conducted within 0.5 mile of the Project centerline for all nesting raptors by flying transects over potential nesting habitat and investigating high-quality habitats. Helicopter speeds varied depending on visibility and terrain, but ranged between 20-70 miles per hour (mph), with short periods of hovering to assess nesting status. For each nest located, GPS coordinates were recorded along with the species, activity status, nest stage, nest quality, and nest substrate. These surveys were also conducted within one mile of the Project centerline, where high-quality eagle, peregrine falcon, and ferruginous hawk substrate occur; these include steep cliffs, large trees, steep plateaus, and pinnacles.

3.1.2 TERRESTRIAL RAPTOR SURVEY

Pedestrian raptor nest surveys were conducted by E3 biologists within the Survey Corridor and within line-of-site from the Survey Corridor during site visits to determine activity status for known nests and record new or previously undocumented nests, particularly of late-nesting raptors such as Swainson's hawks (*Buteo swainsonii*). This included reevaluating the activity status of nests discovered during the aerial survey conducted in May of 2015. Suitable nesting substrate, such as ash and elm galleries, were searched for raptor nests (stick nests or cavities) within the Survey Corridor. Nests were observed from a distance suitable to avoid disturbing the birds, using binoculars or spotting scopes to identify adult birds exhibiting nesting or brooding behavior (e.g. incubating or behaving agonistically). If adult raptors were present, the biologist estimated the age of the nest and number of young present. If it was determined no adult birds were present, the areas under, around, and in the nests were searched for signs of recent activity (e.g. fresh mute, regurgitated pellets, eggs, eggshell fragments, prey remains). Accurate GPS locations of raptor nests were recorded at the nest site and the nest status, condition, substrate, and species of raptor using the nests were documented. Suitable habitat within the line-of-site of the Survey Corridor was also surveyed to document raptor nests that could potentially be disturbed by construction activities. This included scanning suitable nesting substrate by scope or binoculars from within the Survey Corridor.

3.2 WETLANDS

Remote sensing of the Survey Corridor indicates both lentic and lotic wetlands are prevalent across the landscape, especially near the Little Missouri River and its major tributaries. The National Wetlands Inventory (NWI) contains several features that are intersected by the Survey Corridor, including pond, emergent, and riverine wetlands (USFWS, 2015a). E3 biologists identified, defined, and delineated all wetlands observed during field surveys using methodology in accordance with the USACE *Wetlands Delineation Manual* (Environmental Laboratory, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (Environmental Laboratory, 2010). For an area to be delineated as a regulated wetland, the hydrophytic vegetative, wetland hydrology, and hydric soils must all be present and consistent with federal classification criteria. Wetlands inventoried within the Survey Corridor were classified using the Cowardin System, developed by the USFWS (Cowardin et al. 1979).

3.2.1 WETLAND VEGETATION

More than 50 percent of the vegetative cover must consist of obligate or facultative wetland species as determined by the dominance test using the 50/20 rule; the prevalence index; or by evidence of morphological adaptation (USACE 1987). Hydrophytic vegetation was determined to be present if any of these three indicators were satisfied. If none of the indicators are satisfied, then hydrophytic vegetation is

absent unless (1) indicators of hydric soil and wetland hydrology are present and (2) the site meets the requirements for a problematic wetland situation.

3.2.2 WETLAND HYDROLOGY

To be considered a wetland, there must be evidence of periodic or permanent ground inundation. The presence of wetland hydrology was evaluated by recording the extent of observed surface flows, the depth of inundation, the depth to saturated soils, and the depth to free water in soil test pits. Other evidence such as water-stained leaves or general drainage patterns can indicate a site has the proper hydrology to be a wetland. These indicators were especially prevalent in floodplains near the Little Missouri River.

3.2.3 WETLAND SOILS

The National Technical Committee for Hydric Soils (NTCHS) defines a hydric soil as a soil that is formed under conditions of saturation, flooding, or ponding that occurs long enough during the growing season to develop anaerobic conditions (or conditions of limited oxygen) at or near the soil surface and that favor the establishment of hydrophytic vegetation. The USDA-NRCS *Field Indicators of Hydric Soils in the United States*—Guide for Identifying and Delineating Hydric Soils, Version. 7.0 was used to determine the presence of hydric soils (2010). The soil conditions within the Survey Corridor were sampled by taking cores along wetland/upland boundary to examine the water table depth and to identify hydric indicators.

3.3 WATERBODIES

A review of the National Hydrography Dataset (NHD) identified five rivers/streams and one lacustrine waterbody that intersect the Survey Corridor, most of which are jurisdictional waterways and direct tributaries to the Little Missouri River. E3 biologists confirmed the presence of these waterbodies and delineated their boundaries by identifying and mapping the ordinary high water mark (OHWM) of each feature. Common indicators of an OHWM include open water or evidence of a natural line visible on the bank, shelving or terracing, changes in soil characteristics, vegetation changes, 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's jurisdiction. However, the USACE has full discretion in determining the jurisdictional status of referenced wetlands and waterbodies in this report.

Additional waterbodies were located and delineated in the field during field surveys to provide a comprehensive summary of wetland and waterbody features intersected by the Survey Corridor. A jurisdictional characterization was made for each waterbody, following the criteria outlined in the *U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook* (2007).

3.4 WOODY VEGETATION

The PSC requires that utilities adhere to their tree and shrub mitigation plan (TMSP of Plan), which is designed to mitigate project impacts on woody vegetation. To do so, the Plan stipulates the maximum allowable clearing width of 50 feet in wooded areas, thereby reducing project impacts. Additionally, the Plan mandates the replacement of impacted woody vegetation, stipulating replacement ratios and minimum survival rates to mitigate actual project impacts with in-kind materials. E3 biologists mapped, characterized, and inventoried woody vegetation, defined as trees and shrubs, present within the Survey Corridor. The boundaries of each distinct woody vegetation habitat were mapped and are depicted on the Project maps in Appendix A. Woody vegetation within each habitat was inventoried using several PSC-approved techniques, depending on habitat type and size. Direct tallies (100%) were employed in forested upland lands, shrublands, and riparian zones for all trees greater than one-inch diameter at breast height (DBH) when possible; sub-sampling was employed in woodlands too dense to count. Large shrublands (typically dominated by snowberry) were inventoried by measuring percent cover, unless habitat patches were small enough to count each individual. Regardless of DBH, all trees were mapped, characterized, and inventoried within shelterbelts and windbreaks. E3 biologists taxonomically identified and tallied all species within each habitat. Refer to Appendix C for a table detailing the woody vegetation identified within the Survey Corridor.

3.5 NOXIOUS WEEDS

Because North Dakota is home to many large-scale energy infrastructure construction projects, the proliferation of noxious weed and invasive plant species is a growing concern. Noxious weeds are defined by the Federal Noxious Weed Act of 1974 as “a plant which is of foreign origin, is new to, or is not widely prevalent in the United States, and can directly or indirectly injure crops or other useful plants, livestock or the fish and wildlife resources of the United States, or public health” (Title 7 United States Code 2801-2814, 2011). The State of North Dakota defines noxious weeds as “weeds that are difficult to control, easily spread, and injurious to public health, crops, livestock, land, or other property” (North Dakota Century Code 4.1-47-01, 2015). North Dakota has County Weed Boards in all 53 counties, each of which has the opportunity to add noxious weeds to the state list for regulation only within their jurisdiction.

Noxious weeds are often nonnative and acclimated to survive in opportunistic conditions. Known to easily proliferate on disturbed lands, these plants actively invade landscapes and prevent native plant species from growing, often resulting in monocultures. Noxious weeds could also adversely affect a wide range of ecosystems by increasing bare soil, which could have detrimental impacts to water quality and sedimentation (U.S. Forest Service, 2007); reducing the quality of habitat for many terrestrial species, while also decreasing the carrying capacity of the land; and losses in agricultural productivity.

The North Dakota Department of Agriculture identifies 11 plant species as noxious weeds. McKenzie and Dunn Counties recognize 18 and 11 noxious weed species, respectively, which are identified as being problematic within their respective environments (North Dakota Department of Agriculture, 2015) (Table 5).

Table 5. State and county designated noxious weeds with the potential to occur within the Survey Corridor.

Common Name	Scientific Name	Noxious Designation		
		North Dakota	McKenzie County	Dunn County
Absinth wormwood	*Artemisia absinthium*	X	X	X
Baby's breath	*Gypsophila paniculata*		X	
Black henbane	*Hyoscyamus niger*		X	X
Canada thistle	*Cirsium arvense*	X	X	X
Common Burdock	*Arctium minus*		X	
Dalmatian toadflax	*Linaria dalmatica*	X	X	X
Diffuse knapweed	*Centaurea diffusa*	X	X	X
Field bindweed	*Convolvulus arvensis*		X	
Halogeton	*Halogeton glomeratus*		X	
Houndstongue	*Cynoglossum officinale*		X	
Leafy spurge	*Euphorbia esula*	X	X	X
Musk thistle	*Carduus nutans*	X	X	X
Purple loosestrife	*Lythrum salicaria*	X	X	X
Russian knapweed	*Acroptilon repens*	X	X	X
Saltcedar	*Tamarix ramosissima*	X	X	X
Spotted knapweed	*Centaurea stoebe*	X	X	X
Yellow starthistle	*Centaurea solstitialis*		X	
Yellow toadflax	*Linaria vulgaris*	X	X	X

Source: North Dakota Department of Agriculture, 2015

E3 conducted surveys for noxious weeds recognized by North Dakota, McKenzie County, and Dunn County within the Survey Corridor during the growing season in 2015. Noxious weed infestations were identified and delineated in the field by mapping their boundaries using Trimble GPS units. Percent cover for all noxious weeds within each patch was estimated for each species. Refer to Appendix D for a table detailing the woody vegetation identified within the Survey Corridor.

3.6 THREATENED AND ENDANGERED SPECIES

The USFWS Information, Planning, and Conservation System (IPaC) was accessed on May 15, 2015 to obtain information regarding the presence of T & E species within the Project Area. This information does not represent a comprehensive survey, but rather acknowledges the potential presence of listed species within the Survey Corridor. The USFWS identifies 10 threatened, endangered, or candidate species that have the potential to occur or could potentially be impacted by development within the Survey Corridor (Table 6). However, no critical habitat for these species is currently identified within the Survey Corridor. Although E3 did not employ structured surveys for listed species, general surveillance for individuals and habitat was conducted opportunistically during field visits in 2015. Direct communication with the USFWS and USFS confirmed suitable habitat for the Dakota skipper and northern long-eared bat likely occurs within the Survey Corridor, and would need to be evaluated if the Project centerline crossed a federal nexus (K. Shelly & J. Kienzle, personal communication, May 27, 2015). Although the Survey Corridor will not ultimately impact federal lands (with exception of Categorical Exclusion USFS lands), ONEOK requested E3 conduct habitat surveys for both species. Methodologies and results for these habitat surveys are located in discrete report sections.

Table 6. Federally listed species with the potential to occur within the Project Area.

Common Name	Scientific Name	Federal Status
Interior least tern	*Sterna antillarum athalassos*	Endangered
Piping plover	*Charadrius melodus*	Threatened
Rufa red knot	*Calidris canutus rufa*	Threatened
Sprague's pipit	*Anthus spragueii*	Candidate
Whooping crane	*Grus americana*	Endangered
Pallid sturgeon	*Scaphirhynchus albus*	Endangered
Dakota skipper	*Hesperia dacotae*	Threatened
Black-footed ferret	*Mustela nigripes*	Experimental, non-essential
Gray wolf	*Canis lupus*	Endangered
Northern long-eared bat	*Myotis septentrionalis*	Threatened

Source: (USFWS, 2015b).

3.6.1 INTERIOR LEAST TERN

Federal Status: Endangered

The interior least tern is the smallest member of the gull and is federally listed as endangered due to river channelization and impoundment, water pollution, and lower water levels. The interior least tern is found throughout major interior rivers of the United States, including the Mississippi and Missouri rivers, where terns nest in bare, sandy areas along open water bodies. Nests are shallow holes and constructed between late April and August. Least terns prefer habitat near open or flowing water, where they hover in search of food, and dive for small fish in the water (USFWS, 2015c). The interior least tern is identifiable by its small size, measuring at approximately nine inches in length. Breeding adults have gray upper bodies and white lower bodies, with a black cap, black nape, and black eye stripe. Vocalization is short and high pitched (USFWS, 2015c).

3.6.2 PIPING PLOVER

Federal Status: Threatened

The piping plover is a small shorebird that is federally listed as threatened due to human disturbance and habitat destruction. The piping plover is identifiable by its small size and stocky stature, with a sandy brown colored upper body, and white lower body. During the breeding season, adults have a black forehead, a black breast band, and an orange bill (USFWS, 2015c). This species nest 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, 2015c).

3.6.3 RUFA RED KNOT

Federal Status: Threatened

The rufa subspecies of the red knot is a medium sized shorebird that is federally listed as threatened due to horseshoe crab overharvesting, coastal development, and climate change. The rufa red knot is identifiable by its proportionally large wingspan of 20 inches to its body length of 9 inches. This bird is a larger member of the sandpiper family, with a short, straight bill that tapers to the tip. During breeding, rufa red knots bear a reddish breeding plumage, which is gray the rest of the year (USFWS, 2015c). Migratory habits and habitat requirements of this species are poorly understood, especially for populations utilizing midcontinent and intercontinental flyways. Migration routes are typically between South America and Canada, with inland stopovers in the Great Plains, Great Lakes, and various areas within the Mississippi Valley (USFWS, 2015c).

3.6.4 SPRAGUE'S PIPIT

Federal Status: Candidate

The Sprague's pipit is a small songbird that is a candidate for federal listing due to human habitat disturbance and habitat loss. The Sprague's pipit is identified by its light gray plumage, with dark brown primaries that are edged in white. This small bird delivers a distinctive flight song, and is known to hover in the air for minutes at a time, before steeply diving down to its nest (National Audubon Society, 2015). This species prefers prairie and grassland areas with little disturbance; it is deterred by the grazing and agricultural practices which have replaced much of its natural habitat. Sprague's pipit, unlike the American pipit, does not occur in flocks and eludes observation by covering in short grass within dry prairies. Nesting occurs on bare ground within prairie depressions or grass clumps.

3.6.5 WHOOPING CRANE

Federal Status: Endangered

The whooping crane is a large bird species that is federally listed as endangered due to habitat destruction and historic over-hunting. The whooping crane is identified by its height, standing erect at five feet, and by its snow white plumage, with black primaries. This large-bodied bird is known by its vocal tone, which is a loud, single note that is vocalized when alarmed. The whooping crane may live up to 30 years (USFWS, 2015c). This species prefers a variety of wetland habitats in both salt and fresh water. Nesting occurs in wetland potholes in Canada, predominantly consisting of bulrush, but also including populations of cattail, sedge, musk-grass, and other common aquatic plants. Nest sites are typically found in shallow diatom ponds. Migration paths include stops in a variety of landscapes, although wetlands are preferred throughout the route (USFWS, 2015c).

3.6.6 PALLID STURGEON

Federal Status: Endangered

The pallid sturgeon is an aquatic fish that is federally endangered, primarily due to the habitat destruction resulting from river channelization and damming. The pallid sturgeon is identified by its flat, shovel-shaped snout, with a long, slender, and fully plated caudal peduncle. Consistent with other sturgeon species, the mouth of the pallid sturgeon is ventrally positioned, protrusible, and toothless. This species has a cartilaginous skeletal structure (USFWS, 2015c). The pallid sturgeon is a large river obligate, primarily in Missouri and Mississippi River Systems, in areas with diverse habitat options. Pallid sturgeons prefer benthic environments with predominantly sandy and fine substrates, with successful populations of micro-invertebrates and deep water for spawning activity (USFWS, 2015c).

3.6.7 BLACK-FOOTED FERRET

Federal Status: Experimental Population, Non-essential

The black-footed ferret is a small member of the weasel family listed as federally endangered due to habitat destruction. The black-footed ferret is identified by its slender, tan body with black limbs, and short paws developed for digging. This species has a large skull and strong jaws developed for carnivorous diets, consisting primarily of prairie dogs (USFWS, 2015c). This species is an obligate of prairie dog colonies where they predate upon prairie dogs and use their burrows to brood young. The black-footed ferret was extirpated from the wild by 1986, however numerous experimental populations have been introduced throughout the central United States and northern Mexico (USFWS, 2015c).

3.6.8 GRAY WOLF

Federal Status: Endangered

The gray wolf is a large canine species that is federally listed as endangered due to habitat destruction, human interference, and overhunting. The gray wolf is identifiable by its canine body shape, long bushy tail with a black tip, and a mix of gray and brown coat colors. The average size of a gray wolf is 3-5 feet in length, weighing approximately 60-145 pounds (USFWS, 2015c). This species prefers a wide range of habitat, including forests, plains, prairies, agricultural areas, swamps, and barren lands, but has been extirpated from most of its historic range. Dens are located near water and dug into well-drained soil on a south-facing slope, under boulders, among tree roots, or in cut banks, hollow logs, or other natural structures. This species is a roaming animal, therefore are wide-ranging and rare to encounter (USFWS, 2015c).

3.6.9 DAKOTA SKIPPER

Federal Status: Threatened

The Dakota skipper is a butterfly species listed as federally threatened due to habitat replacement for agricultural development. The Dakota skipper is identified by its one-inch wingspan and thick body, with an orange-brown color and brown characteristic wing markings. This butterfly has stronger wing motions compared to other species, resulting in faster and more powerful flight (USFWS, 2015c). The Dakota skipper is a low mobility species, therefore has short dispersal ranges (USFWS, 2015d). Suitable Dakota skipper habitat is described as native prairie grasslands with minimal degradation due to anthropogenic disturbance or invasive species composition (USFWS, 2015d). Two distinct habitat types for the Dakota skipper, Type A and Type B, are identified throughout its range (USFWS, 2015d). These habitats provide suitable nectar sources for adults and habitat for larvae growth, and are identified by the presence of grass and nectar species considered to be positive indicators. Thirty-four total species are listed as possible components of plant communities suitable for Dakota skipper presence (Table 7). In McKenzie and Dunn Counties, Type B habitat occurs along the

rolling hills and plateaus between river breaks (Royer & Marrone, 1992). However, indicator species from both habitat types occur within the Project Area. Plants associated with either habitat type were surveyed for during field visits.

Table 7. Indicator plants associated with Dakota skipper habitat types.

Species	Scientific Name	Type A Indicator	Type B Indicator
Big bluestem	*Andropogon gerardii*	X	X
Little bluestem	*Schizachyrium*	X	X
Indian grass	*Sorhastrum nutans*	X	
Prairie lily	*Lilium philadelphicum*	X	X
Bluebell bellflower	*Camponula rotundifolia*	X	X
Death camas	*Zigadenus elegans*	X	X
Meadow blazingstar	*Liatris ligulistylis*	X	
Canada goldenrod	*Solidago canadensis*	X	
Strict blue-eyed grass	*Sisyrinchium montanum*	X	
Common goldenstar	*Hypoxis hirsuta*	X	
Black-eyed susan	*Rudbeckia hirta*	X	
Stiff sunflower	*Helianthus pauciflorus*	X	
Needlegrass	*Hesperostipa spartea*	X	X
Sideoats grama	*Bouteloua curtipendula*		X
Needle-and-Thread	*Hesperostipa comata*		X
Prairie dropseed	*Sporobolus curtipendula*		X
Western wheatgrass	*Pascopyrum smithii*		X
Kentucky bluegrass	*Poa pratensis*		X
Purple coneflower	*Echinacea angustifolia*		X
Upright prairie coneflower	*Ratibida columnifera*		X
Blanketflower	*Gaillardia aristrata*		X
Prairie clover	*Dalea purpurea*		X
Yellow sundrops	*Calylophus serrulatus*		X
Prairie groundsel	*Packera plattensis*		X
Groundplum milkvetch	*Astragulus crassicarpus*		X
American pasqueflower	*Anemone patens*		X
Prairie smoke	*Geum triflorum*		X
Western silver aster	*Sympyotrichum sericeum*		X
Dotted blazingstar	*Liatris punctate*		X
Tall blazingstar	*Liatris aspera*		X
Meadow zizia	*Zizia aptera*		X
Fringed sagewort	*Artemisia frigida*		X
Leadplant	*Amorpha canescens*		X
Prairie milkvetch	*Astragalus adsurgens*		X

Source: (USFWS, 2015d)

Dakota skipper habitat was evaluated during field visits by E3 biologists on two separate visits; habitat was delineated and characterized during surveys in June of 2015 and vegetation cover on previously-delineated patches was quantified via point-intercept counts in August of 2015. Because of the different blooming phenology of indicator plants for the Dakota skipper, two site visits allowed E3 biologists to identify both early (e.g. blue-eyed grass) and late season (e.g. coneflower) species.

3.6.9.1 DAKOTA SKIPPER HABITAT DELINEATION

Dakota skipper habitat was identified and delineated during field surveys in June of 2015 by inventorying the presence of indicator plants species. Suitable habitat patches were mapped and identified as High Quality or Medium Quality and the percent cover of each indicator species was estimated for each patch. Low Quality habitat included the remainder of the landscape, and was not characterized, measured, or mapped. High Quality patches were defined as vegetation communities that were dominated by native grass indicator species (e.g. little blue stem or green needlegrass), contained at least five species of nectar plant indicator species, and were undisturbed by roads, grazing, woody vegetation, or invasive species. Medium Quality patches were defined as vegetation communities that were dominated by native or non-native grass indicator species (e.g. Kentucky bluegrass), contained at least three species of nectar plant indicator species, and were relatively undisturbed by roads, grazing, woody vegetation, or invasive species.

3.6.9.2 DAKOTA SKIPPER VEGETATION COVER

Dakota skipper habitat patches identified as Medium Quality or High Quality delineated during surveys in June were revisited by E3 biologists in August of 2015 to determine plant community composition and total cover. Community composition was quantified following the point-intercept method as defined in Sampling Vegetation Attributes Interagency Technical Reference (Coullodon et al., 1999). This method is used to determine species composition and percent cover. Sampling transects were established at each Dakota skipper habitat patch within vegetation that was representative of the entire patch. Transects were laid out with two 50-foot tape measures stretched in each cardinal direction (North-to-South and East-to-West) with the two tapes bisecting one another at the 25-foot marker. Point measurements were collected every foot along the tape measure with a pin, recording the first species the pin contacted (highest growth), totaling 50 points per transect and 100 points per site. Point measurements were collected on the west side of North-to-South transect and the north side of the East-to-West transect. One sampling location per three acres of habitat size within each habitat patch were used to assess plant composition (e.g. three sampling locations for Dakota skipper habitat measuring eight acres).

3.6.10 NORTHERN LONG-EARED BAT

Federal Status: Threatened

The northern long-eared bat (NLEB) is a federally threatened species not only due to habitat destruction, but also due to onset white-nose syndrome (WNS), which affects

many bat species in the United States. NLEBs are medium sized bats with a body length of 3-4 inches and a wingspan of 9-10 inches. Their fur color ranges medium to dark brown on the back and light brown on the underside. This bat is distinguished by its long ears (USFWS, 2015c). During the summer months, this small mammal roosts individually or in colonies underneath bark, or in any indentations on both live and dead trees. The NLEBs tend to select tree stand roosts based on a range of factors, including the ability of the tree to retain loose bark and provide crevices or cavities for cover. Signs of roost presence include fallen loose bark and fecal matter in concentrated areas near tree bases in older stands. Breeding begins in late summer or early fall (USFWS, 2015c).

This species is a likely resident of McKenzie and Dunn Counties, and has therefore been identified as the USFS and USFWS as a species needing additional monitoring or surveys (K. Shelly & J. Kienzle, personal communication, May 27, 2015). However, WNS has not yet been reported within the Project Area. E3 biologists mapped suitable roosting habitat in conjunction with woody vegetation mapping and identified woody vegetation patches containing trees with roost characteristics. Suitable NLEB roosting habitat was defined as a loose or dense woodlot containing trees greater than three inches DBH and exhibiting at least one of the following characteristics: exfoliating bark, cracks, crevices, or cavities (USFWS, 2014).

3.7 WILDLIFE INVENTORY

In addition to natural resource surveys required by the PSC, USFWS, and BLM, E3 biologists recorded all vertebrate species observed during field surveys. This inventory was completed to provide ONEOK with a comprehensive list of resident species within the Survey Corridor.

SECTION 4: RESULTS

4.1 RAPTORS

4.1.1 AERIAL RAPTOR SURVEY

Twenty raptor nest sites were documented within the one-mile of the Survey Corridor during the aerial survey on May 8, 2015, including: eight red-tailed hawk (*Buteo jamaicensis*) nests, one golden eagle nest (refer to photo in Appendix B), three great horned owl (*Bubo virginianus*) nests, and eight nests of unknown raptor species (Table 8, Appendix A). Of these nests, 11 were active with either incubating adults or nestlings and nine were inactive. Recommended seasonal disturbance buffers based on collaboration between ONEOK and the USFWS are provided in Table 8. The seasonal disturbance buffers of three red-tailed hawks and one great horned owl were intersected by Survey Corridor in 2015. The Preferred Route intersects the buffers of three red-tailed hawk nests and one great horned owl nest and the Alternative Route intersects the buffers two red-tailed hawk nests and one great horned owl nest. Note, raptors may

choose different nesting locations from year to year, and disturbance buffers are only applied to active nests. All nests discovered in 2015 will be re-surveyed in 2016 to evaluate activity status.

Table 8. Raptor nests found during aerial surveys within one mile of the Survey Corridor in 2015.

Nest ID	Raptor Species	Activity Status*	Number of Chicks	Recommended Buffer Distance (miles)
01°	Red-tailed hawk	Active - Chicks	**	0.25
02	Red-tailed hawk	Inactive	0	-
03	Unknown species	Inactive	0	-
04	Red-tailed hawk	Active - Incubation	**	0.25
05	Great Horned owl	Active - Chicks	*	0.25
06	Unknown species	Inactive	0	-
07	Golden eagle	Active - Chicks	2	0.25
08	Red-tailed hawk	Active - Incubation	*	0.50
09	Unknown species	Inactive	0	0.25
10	Red-tailed hawk	Active - Incubation	**	0.25
11	Unknown species	Inactive	0	-
12	Red-tailed hawk	Active - Chicks	1	0.25
13	Red-tailed hawk	Active - Incubation	**	0.25
14	Great Horned owl	Active - Chicks	2	0.25
15	Unknown species	Inactive	0	-
16	Unknown species	Inactive	0	-
17	Unknown species	Inactive	0	-
18	Great Horned owl	Active - Chicks	2	0.25
19	Unknown species	Inactive	0	0.25
20	Red-tailed hawk	Active - Incubation	**	0.25

*Status of nest on May 8, 2015
**Unable to determine number of young during survey
°Nest located only within Preferred Route Survey Corridor

4.1.2 TERRESTRIAL RAPTOR SURVEY

No new raptor nests were discovered by E3 biologists within the Survey Corridor or within line-of-site of the Survey Corridor during pedestrian surveys in June or August. Activity status of raptor nests discovered during the aerial survey could not be re-evaluated during ground surveys, due to visual obstructions from leaves and topography. Therefore, it is unknown whether active nests observed during the aerial survey were successful, failed, or were still active. Although no new nests were detected during the terrestrial raptor surveys, many incidental raptor observations were recorded during field surveys. The complete inventory of raptor species observed within the

Survey Corridor includes American kestrels (*Falco sparverius*), bald eagles, Cooper's hawks (*Accipiter cooperii*), golden eagles, ferruginous hawks, great horned owls, northern harriers (*Circus cyanus*), sharp-shinned hawks (*Accipiter striatus*), short-eared owls (*Asio flammeus*), prairie falcons (*Falco mexicanus*), red-tailed hawks, and Swainson's hawks.

4.2 WETLANDS

E3 identified and delineated 32 wetlands within the Survey Corridor totaling approximately 36.7 acres; all 32 wetlands (36.7 acres) are located within the Preferred Route and 30 wetlands (36.5 acres) are located within the Alternative Route (Table 9, Appendix A). Wetlands within the Survey Corridor were typically Palustrine Emergent (PEM) features or wetlands adjacent to intermittent streams/swales (refer to photo in Appendix B). Twelve of the 32 total wetlands were characterized as jurisdictional during surveys; however, the USACE has final authority on jurisdictional status. The Preferred Route intersects all 12 jurisdictional wetlands and the Alternative Route intersects 10 jurisdictional wetlands. Refer to the Project maps in Appendix A for the location of these features.

4.3 WATERBODIES

E3 identified and delineated 10 waterbodies within the Survey Corridor totaling approximately 3.7 acres; 7 of these waterbodies (3.3 acres) are located within the Preferred Route and 9 waterbodies (3.3 acres) are located within the Alternative Route (Table 9, Appendix A). Waterbodies within Survey Corridor included the Little Missouri River, Jim Creek, Rough Creek, and Cottonwood Creek, which all exhibited an OHWM (refer to photos in Appendix B). Five total waterbodies intersected by the Survey Corridor were characterized as jurisdictional during surveys; however, the USACE has final authority on jurisdictional status. The Preferred Route intersects all five jurisdictional waterbodies and the Alternative Route intersects four jurisdictional waterbodies. The NHD also identifies one pond and several smaller drainage crossings within the Survey Corridor which did not exhibit an OHWM, and are likely upland swales which seasonally drain the uplands after snowmelt and rain storms. These features were not determined to be jurisdictional. Refer to the Project maps in Appendix A for the location of these features.

Table 9. Wetlands, waterbodies, and their associated acreages and jurisdictional characterizations within the Survey Corridor.

Water Feature ID	Feature Type	Jurisdictional Determination[1]	PCN Required	Milepost	Crossing Length (ft)	Surveyed Acres
FV_01*◦	Waterbody	No	No	0.5	61	0.20
FV_02*◦	Wetland	No	No	1.8	372	1.22
FV_03*◦	Wetland	No	No	2.4	22	0.12
FV_04*◦	Wetland	Yes	No	2.5	112	0.59

Water Feature ID	Feature Type	Jurisdictional Determination[1]	PCN Required	Milepost	Crossing Length (ft)	Surveyed Acres
FV_05*◦	Wetland	Yes	Yes	2.9	955	3.56
FV_06*◦	Wetland	No	No	3.6	56	0.02
FV_07*◦	Wetland	No	No	3.7	0	0.001
FV_08*◦	Wetland	No	No	3.7	58	0.01
FV_09*◦	Waterbody	No	No	3.9	0	0.03
FV_10*◦	Wetland	No	No	4.0	0	0.03
FV_11*◦	Wetland	No	No	4.1	240	0.30
FV_12*◦	Wetland	No	No	4.6	0	0.05
FV_13*◦	Wetland	Yes	No	4.8	399	0.70
FV_14*◦	Wetland	No	No	5.8	282	0.56
FV_15*◦	Waterbody	Yes	No	6.0	12	0.07
FV_16*◦	Wetland	Yes	Yes	6.9	395	1.02
FV_17*◦	Waterbody	Yes	No	7.4	89	0.22
FV_18*◦	Wetland	No	No	9.4	0	0.02
FV_19*◦	Wetland	No	No	9.5	75	0.13
FV_20*◦	Waterbody	No	No	9.6	0	0.09
FV_21*◦	Wetland	No	No	10.1	85	0.34
FV_22*◦	Wetland	No	No	10.1	156	0.16
FV_23*◦	Wetland	No	No	10.2	23	0.02
FV_24*◦	Wetland	Yes	No	10.3	145	0.59
FV_25*◦	Wetland	No	No	10.3	75	0.12
FV_26*◦	Wetland	No	No	16.1	0	0.01
FV_27A*◦	Wetland	No	No	20.0	902	3.46
FV_27B*◦	Wetland	Yes	No	20.8	0	11.79
FV_28*◦	Wetland	Yes	No	21.2	60	0.17
FV_29*◦	Wetland	No	No	22.6	0	0.11
FV_30*◦	Waterbody	Yes	Yes	23.3	2578	1.90
FV_31*◦	Wetland	Yes	Yes	23.0	2578	5.41
FV_32*◦	Wetland	Yes	Yes	23.3	2578	5.69
FV_33*◦	Wetland	No	No	23.7	15	0.03
FV_34*◦	Waterbody	Yes	No	29.7	70	0.07
FV_35*◦	Wetland	No	No	33.6	62	0.27
FV_36*◦	Wetland	Yes	No	33.6	115	0.43
FV_37◦	Wetland	Yes	No	35.9	26	0.16
FV_38◦	Waterbody	Yes	No	36.8	176	0.37
FV_39◦	Wetland	Yes	No	36.8	177	0.06
FV_40*	Waterbody	No	No	--	82	0.23
FV_41*	Waterbody	No	No	--	143	0.18

◦Feature located within Preferred Route
*Feature located within Alternative Route
[1]USACE has final authority over jurisdictional status

4.4 WOODY VEGETATION

Woody vegetation was prevalent throughout the Survey Corridor, where thick stands of green ash and chokecherry dominate the hillsides and draws (refer to photos in Appendix B). Shrub communities of western snowberry, silver buffaloberry, and silver sage intermix within the grasslands, periodically forming dense stands along draws and slopes (refer to photos in Appendix B). The Little Missouri River riparian corridor contains large cottonwood and boxelder (*Acer negundo*) trees, particularly within the floodplain zones. Rocky mountain juniper is common among the badlands and dry uplands within the Little Missouri breaks. Quaking aspen and bur oak, though less common than other deciduous tree species, form dense woodlands in several areas within the Survey Corridor (refer to photo in Appendix B).

A total of 967 woody vegetation patches were mapped within the Survey Corridor during field surveys, totaling 279.6 acres. Of the 967 patches, 285 (148.2 acres) are woodlands or shelterbelts and 682 (131.4 acres) are shrub communities (Appendix A, Appendix C). The Preferred Route and Alternative Route intersects 959 (279.3 acres) and 885 (269.0 acres) of woody vegetation patches, respectively. Appendix C lists the species inventory within each patch, the estimated number of trees that will be destroyed with a 50-foot permanent ROW, and the estimated mitigation (2:1) for each woody vegetation patch in both the Preferred and Alternative routes. Because trees and shrubs will likely be restored using different methods, Appendix C lists the two patch-types separately. Table 10 lists all woody vegetation mapped within the Survey Corridor by species, with the total number disturbed and the estimated mitigation for both the Preferred and Alternative routes.

Table 10. Total number of trees/shrubs by species disturbed by the 50-ft ROW and the estimated mitigation number per tree species.

Species	Preferred Route			Alternative Route		
	Sum within Survey Corridor	Sum within Const. ROW	Sum of Est. Mit.	Sum within Survey Corridor	Sum within Const. ROW	Sum of Est. Mit.
American Elm	1951	359	718	1950	359	718
American Hazelnut	45	3	6	45	3	6
American Plum	657	91	182	637	85	170
Balsam Poplar	5	0	0	5	0	0
Black Currant	58	9	18	58	9	18
Boxelder	852	195	390	852	195	390
Bur Oak	1322	214	428	1322	214	428
Cherry	10	0	0	10	0	0
Chokecherry	10725	2310	4620	10684	2289	4578

Species	Preferred Route			Alternative Route		
	Sum within Survey Corridor	Sum within Const. ROW	Sum of Est. Mit.	Sum within Survey Corridor	Sum within Const. ROW	Sum of Est. Mit.
Common Buckthorn	87	18	36	87	18	36
Common Juniper	176	48	96	176	48	96
Crabapple	15	7	14	15	7	14
Creeping Juniper	67	4	8	67	4	8
Fireberry Hawthorn	734	180	360	734	180	360
Fleshy Hawthorn	160	71	142	160	71	142
Green Ash	22177	4053	8106	21916	3920	7840
Mountain Mahogany	5	3	6	5	3	6
Nannyberry	21	1	2	21	1	2
Northern Gooseberry	9	1	2	9	1	2
Paper Birch	45	9	18	45	9	18
Peachleaf Willow	88	20	40	88	20	40
Plains Cottonwood	1389	279	558	1389	279	558
Prairie Rose	328	54	108	312	46	92
Prickly Rose	933	176	352	933	176	352
Quaking Aspen	3006	393	786	3006	393	786
Red-Osier Dogwood	412	100	200	412	100	200
R. M. Juniper	3523	583	1166	3523	583	1166
Roundleaf Hawthorn	877	156	312	862	151	302
Rubber Rabbitbrush	3	1	2	3	1	2
Russian Olive	113	27	54	27	3	6
Sandbar Willow	90	15	30	90	15	30
Saskatoon Serviceberry	980	150	300	940	133	266
Shrubby Cinquefoil	123	31	62	123	31	62
Siberian Elm	517	112	224	515	112	224
Silver Buffaloberry	3064	679	1358	2987	663	1326
Silver Sagebrush	765	234	468	715	234	468
Skunkbush Sumac	697	78	156	684	76	152
Snow Berry	3398	912	1824	3364	904	1808
Tartarian Honeysuckle	14	1	2	14	1	2
Plains Yucca	8	6	12	8	6	12
Total	**59,449**	**11,583**	**23,166**	**58,793**	**11,343**	**22,686**

*PSC requires construction activities to be conducted in corridor with a width of 50 feet or less

4.5 NOXIOUS WEEDS

A total of 342 noxious weed patches were mapped by E3 biologists within the Survey Corridor, totaling 205 acres (Appendix D). The Preferred Route and Alternative Route intersect 333 and 297 noxious weed patches, respectively. Seven total species listed by McKenzie County and four species listed by Dunn County were mapped throughout the Survey Corridor, typically in areas disturbed by farming, grazing, or road construction. Most weed infestations contained dense patches of Canada thistle (68.7% of patches). Large patches of field bindweed were prevalent within agricultural areas and disturbed fields, particularly outside of the Little Missouri River breaks. Leafy spurge was found in high concentrations near the Little Missouri River and associated tributaries, frequently forming patches along mesic margins and floodplains. Common burdock was scattered infrequently across the landscape, mostly found within woodlands or other shady areas. Refer to the Project maps in Appendix A for the location of these features and Appendix D for a table detailing the mapped boundaries and weed coverages.

4.6 THREATENED AND ENDANGERED SPECIES

No candidate, threatened, or endangered species were encountered by E3 biologists during field surveys within the Survey Corridor. The following sections explain the potential effects the Project could have on listed species.

4.6.1 INTERIOR LEAST TERN

Federal Status: Endangered

The Missouri River, located approximately 12 miles to the east of the Project, provides suitable breeding and nesting habitat for least terns. However, the Survey Corridor does not contain the sandbars, riverbanks, and broad beaches necessary for colonial nesting. In order to minimize disturbance downstream into the Missouri River, Oasis will utilize the HDD method for crossing waterbodies with the hydrologic capability of carrying sediment loads downstream. Due to the lack of nesting habitat within the Survey Corridor and the method of crossing these intermittent and ephemeral streams to avoid runoff, impacts to the interior least tern are not anticipated.

4.6.2 PIPING PLOVER

Federal Status: Threatened

Lake Sakakawea and the Missouri River, located approximately 12 miles to the east of the Project, provide suitable breeding and nesting habitat for piping plovers. However, the Survey Corridor does not contain the sandbars or gravel beaches necessary for nesting. In order to minimize disturbance downstream into the Missouri River, Oasis will utilize the HDD method for crossing waterbodies with the hydrologic capability of carrying sediment loads downstream. Due to the lack of nesting habitat within the Survey Corridor and the method of crossing these intermittent and ephemeral streams to avoid runoff, impacts to the piping plover are not anticipated.

4.6.3 RUFA RED KNOT

Federal Status: Threatened

North Dakota is a possible migration stopover in spring and autumn for the rufa red knot, particularly within Lake Sakakawea and its major tributaries. In order to minimize disturbance via sedimentation and contamination downstream into this watershed, ONEOK will utilize the HDD method for crossing the Little Missouri River. Due to the lack of suitable foraging habitat within the Survey Corridor and methodologies to reduce downstream effects, impacts to this species and its associated habitat are not anticipated.

4.6.4 SPRAGUE'S PIPIT

Federal Status: Candidate

Because the Survey Corridor includes relatively undisturbed grasslands, the Sprague's pipet is a likely summer resident. Construction is also planned to begin in April, which is encompassed by its breeding season, when it nests on the ground. Furthermore, impacts to this species could occur due to disturbance activities destroying nests. Therefore, E3 suggests conducting a nesting bird sweep along the Survey Corridor within two weeks of ground-disturbance activities. Following this guidance, impacts to this species are not likely to occur

4.6.5 WHOOPING CRANE

Federal Status: Endangered

North Dakota provides suitable migratory habitat for the whooping crane; desktop review has identified potentially suitable habitat within the Survey Corridor. Precautionary measures will be implemented if whooping cranes are cited near the Project, and ONEOK will voluntary suspend all heavy equipment operation and notify the USFWS should a whooping crane be spotted within a half-mile of any Project activity. However, impacts to this species and its associated habitat are not anticipated, as stop-over or feeding wetlands will either be avoided or bored. Mitigation measures including scheduling Project activities around avoidance periods coinciding with typical migration patterns will be implemented if necessary.

4.6.6 PALLID STURGEON

Federal Status: Endangered

The Project crosses the Little Missouri River, which is suitable habitat for the pallid sturgeon. ONEOK proposes to utilize the HDD installation method at this crossing, likely resulting in minimal to no impacts to this listed species.

4.6.7 BLACK-FOOTED FERRET

Federal Status: Experimental Population, Non-essential

The Survey Corridor falls within the black-footed ferret's historical range, however no habitat or introduced populations are present. Therefore, the Project will not affect this species.

4.6.8 GRAY WOLF

Federal Status: Endangered

The Survey Corridor intersects potentially suitable habitat for the gray wolf, however potential habitat is not expansive, and is near regular human activity. Because the Project would likely act as a deterrent to this species, impacts to this species are unlikely.

4.6.9 DAKOTA SKIPPER

Federal Status: Threatened

The Survey Corridor intersects areas desktop and field reviews have identified as suitable habitat, however the nearest critical habitat is 14 miles northeast from the Project. The Survey Corridor contains several patches of suitable Dakota skipper habitat delineated by E3 biologists (described below). Although no Dakota skippers have been identified within the Survey Corridor, disturbance to potential habitat will be unavoidable. To minimize potential loss of habitat due to project impacts, E3 recommends minimizing ground disturbance activities to the maximum extent practicable when working in suitable Dakota skipper habitat.

4.6.9.1 DAKOTA SKIPPER HABITAT DELINEATION

E3 biologists identified and delineated 14 patches of Dakota skipper habitat during field surveys in June of 2015, totaling 53.7 acres (Table 11). All 14 patches were located within the Primary Route. Of these patches, three were characterized as High Quality and 11 were characterized as Medium Quality. Although these patches were defined as Type B habitat, several Type A indicator species were observed intermixed with the expected species. Populations of little bluestem, green needlegrass, Kentucky bluegrass, purple coneflower, bluebell bellflower, upright prairie coneflower, prairie lily, fringed sagewort, prairie smoke, and milkvetch were observed in high abundance, and served as visual indicators between suitable and unsuitable Dakota skipper habitat (refer to photo in Appendix B).

Table 11. Dakota skipper patches, quality, and acreages within the Survey Corridor.

Habitat ID	Milepost	Quality	Acres
BCNGL-DS-01	30.5	High	4.6
BCNGL-DS-02	29.3	High	1.4
BCNGL-DS-03	16.3	Medium	1.4
BCNGL-DS-04	15.9	Medium	4.8
BCNGL-DS-05	14.7	Medium	1.0
BCNGL-DS-06	14.3	Medium	4.0
BCNGL-DS-07	13.6	Medium	1.0
BCNGL-DS-08	13.5	Medium	2.1
BCNGL-DS-09	12.9	Medium	2.1
BCNGL-DS-10	9.3	Medium	11.3
BCNGL-DS-11	9.0	Medium	7.2
BCNGL-DS-12	5.8	High	8.2
BCNGL-DS-13	5.6	Medium	3.5
BCNGL-DS-14	5.1	Medium	1.3

4.6.9.2 DAKOTA SKIPPER VEGETATION COVER

Dakota skipper habitat patches identified as Medium or High quality during surveys in June of 2015 were revisited by E3 biologists in August of 2015 to determine plant community composition and total cover. In total, 24 transects were used to sample the 14 Dakota skipper habitat patches. Following the methodology detailed above, 2,400 total vegetation coverage points were therefore recorded across habitats. The total percent cover of the most abundant grass and forb species within all Dakota skipper habitat is summarized below in Table 12.

Table 12. Percent cover of the most abundant grass and forb Species across all Dakota skipper habitats sampled in 2015.

Species	Type	Total Count	Total Percent Cover
Little bluestem	Grass	448	18.7%
Prairie junegrass	Grass	221	9.2%
Green needlegrass	Grass	191	8.0%
Blue grama	Grass	163	6.8%
Upright prairie coneflower	Forb	105	4.4%
Purple coneflower	Forb	86	3.6%
Prairie rose	Forb	47	2.0%
Canada goldenrod	Forb	33	1.4%
Stiff goldenrod	Forb	27	1.1%
Fringed sagewort	Forb	25	1.0%
Grand Total		**1346**	**56.1%**

Vegetative communities varied between habitat patches, with monocultures of native grasses and forbs forming a mosaic across the landscape. The most dominant grass species within suitable Dakota skipper habitat include little bluestem, prairie junegrass, green needlegrass, and blue grama. The most dominant forb species within suitable Dakota skipper habitat included upright prairie coneflower, purple coneflower, prairie rose, Canada goldenrod, stiff goldenrod, and fringed sagewort. These species were typically present within each habitat patch, although their coverages varied greatly between sites.

Overall, 24 of 34 (70.6%) Dakota skipper indicator species were identified within the Survey Corridor during field surveys. Indicator species identified and their total percent coverages within Dakota skipper habitat patches are listed below in Table 13. Note, some species observed during the first Dakota skipper habitat survey were no longer discernable or were not sampled during the quantitative assessment in August of 2015.

Table 13. Percent cover and presence/absence of all Dakota skipper indicator plant species across all Dakota skipper habitats sampled in 2015.

Species	Total Count	Total Percent Cover
Big bluestem	14	0.6%
Black-eyed susan	*	--
Blanketflower	*	--
Blazing star	31	1.3%
Bluebell bellflower	9	0.4%
Candle anemone	7	0.3%
Dotted Blazing star	31	1.3%
Fringed sagewort	31	1.3%
Green needle grass	191	8.0%
Groundplum milkvetch	8	0.3%
Indian grass	*	--
Kentucky bluegrass	86	3.6%
Little bluestem	448	18.7%
Meadow blazing star	3	0.1%
Needle and thread	5	0.2%
Prairie clover	*	--
Prairie groundsel	*	--
Prairie lily	*	--
Purple coneflower	86	3.6%
Side-outs grama	57	2.4%
Strict blue-eyed grass	*	--
Tall goldenrod	33	1.4%
Upright coneflower	105	4.4%
Western wheatgrass	107	4.5%
Total	**1252**	**52.2%**

*Species detected within Dakota skipper habitat only during delineation in June of 2015.

In total, Dakota skipper habitat patches were composed of 52.2% indicator species (1,252 of 1,400 data points) The most abundant indicator grass species included little blue stem, green needlegrass, and western wheatgrass, but grass cover varied between and among sites. The most common nectar plant indicator species include purple coneflower, upright coneflower, Canada goldenrod, and fringed sagewort; these species were present in almost every habitat patch. It should also be noted several indicator species known to occur in Type A habitats were found within the Type B habitats which occur within the Survey Corridor.

4.6.10 NORTHERN LONG-EARED BAT

Federal Status: Threatened

Any records of the NLEB are limited to mapped hibernacula, none of which are located in North Dakota. However, because the NLEB occurs in similar habitats to other *Myotis* species, suitable habitat does exist within the Survey Corridor. Substantial roosting habitat for the NLEB was identified and mapped throughout the Survey Corridor, particularly due to the high abundance of green ash, cottonwood, and elm trees forming upland and riparian woodlands. A total of 207 suitable habitat patches were delineated in conjunction with woody vegetation surveys, totaling 143.8 acres within the Survey Corridor (Appendix C). Most woodlands that contained ash, cottonwood, elm, boxelder, oak, or large plum trees were characterized as suitable roosting habitat.

E3 recommends minimizing ground disturbance activities to the maximum extent practicable or drill underneath large woodlands to reduce their impact on habitat associated with this threatened species. If the ROW is reduced to 50 feet, a total of 27.53 acres of NLEB habitat will be disturbed. This strategy, in conjunction with the scope and timing of the Project, will minimize impacts to the NLEB and its associated habitat.

4.7 WILDLIFE INVENTORY

In order to assemble a complete inventory of species that occur within the Survey Corridor, opportunistic sightings of wildlife species were recorded over the course of field surveys by E3 biologists (refer to photos in Appendix B). The complete list of species observed 2015 includes: 74 birds, 3 amphibians, 15 mammals, and 6 reptiles (Table 4.9.1).

Table 14. Complete inventory of vertebrate species observed within the Survey Corridor during field survey.

Common Name	Scientific Name
Birds	
American avocet	*Recurvirostra americana*
American crow	*Corvus brachyrhynchos*
American kestrel	*Falco sparverius*
American pipit	*Anthus rubescens*
American robin	*Turdus migratorius*
American white pelican	*Pelecanus erythrorhynchos*
American wigeon	*Anas americana*
Baird's sparrow	*Ammodramus bairdii*
Bald eagle	*Haliaeetus leucocephalus*
Baltimore oriole	*Icterus galbula*
Barn wwallow	*Hirundo rustica*
Black-and-white warbler	*Mniotilta varia*
Black-billed magpie	*Pica hudsonia*
Black-capped chickadee	*Poecile atricapillus*
Bobolink	*Dolichonyx oryzivorus*
Brewer's blackbird	*Euphagus cyanocephalus*
Brown thrasher	*Toxostoma rufum*
Brown-headed cowbird	*Molothrus ater*
California gull	*Larus californicus*
Canada goose	*Branta canadensis*
Cedar waxwing	*Bombycilla cedrorum*
Clay-colored sparrow	*Spizella pallida*
Common grackle	*Quiscalus quiscula*
Common nighthawk	*Chordeiles minor*
Common raven	*Corvus corax*
Common yellowthroat	*Geothlypis trichas*
Cooper's hawk	*Accipiter cooperii*
Double-crested cormorant	*Phalacrocorax auritus*
Downy woodpecker	*Picoides pubescens*
Eastern kingbird	*Tyrannus tyrannus*
Eurasian collared dove	*Streptopelia decaocto*
European starling	*Sturnus vulgaris*
Ferruginous hawk	*Buteo regalis*
Grasshopper sparrow	*Ammodramus savannarum*
Gray partridge	*Perdix perdix*
Great blue heron	*Ardea herodias*
Great horned owl	*Bubo virginianus*
Hairy woodpecker	*Leuconotopicus villosus*
Horned lark	*Eremophila alpestris*
House finch	*Carpodacus mexicanus*
House wren	*Troglodytes aedon*
Indigo bunting	*Passerina cyanea*

Common Name	**Scientific Name**
Killdeer	*Charadrius vociferus*
Lark bunting	*Calamospiza melanocorys*
Lark sparrow	*Chondestes grammacus*
Lazuli bunting	*Passerina amoena*
Mallard	*Anas platyrhynchos*
Mourning dove	*Zenaida macroura*
Northern flicker	*Colaptes auratus*
Northern harrier	*Circus cyaneus*
Ovenbird	*Seiurus aurocapilla*
Prairie falcon	*Falco mexicanus*
Red-eyed vireo	*Vireo olivaceus*
Red-tailed hawk	*Buteo jamaicensis*
Red-winged blackbird	*Agelaius phoeniceus*
Ring-billed gull	*Larus delawarensis*
Ring-necked pheasant	*Phasianus colchicus*
Rock pigeon	*Columba livia*
Say's phoebe	*Sayornis saya*
Sharp-tailed grouse	*Tympanuchus phasianellus*
Short-eared owl	*Asio flammeus*
Spotted towhee	*Pipilo maculatus*
Swainson's hawk	*Buteo swainsoni*
Swainson's thrush	*Catharus ustulatus*
Tree swallow	*Tachycineta bicolor*
Turkey vulture	*Cathartes aura*
Upland sandpiper	*Bartramia longicauda*
Vesper sparrow	*Pooecetes gramineus*
Western kingbird	*Tyrannus verticalis*
Western meadowlark	*Sturnella neglecta*
Western wood-pewee	*Contopus sordidulus*
Wild turkey	*Meleagris gallopavo*
White-breasted nuthatch	*Sitta carolinensis*
Yellow warbler	*Setophaga petechia*
Mammals	
Badger	*Taxidea taxus*
Black-tailed prairie dog	*Cynomys ludovicianus*
Coyote	*Canis latrans*
Eastern gray squirrel	*Sciurus carolinensis*
Elk	*Cervus canadensis*
Long-tailed weasel	*Mustela frenata*
Meadow vole	*Microtus pennsylvanicus*
Mink	*Neovison vison*
Mule deer	*Odocoileus hemionus*
Northern pocket gopher	*Thomomys talpoides*
Porcupine	*Erethizon dorsatum*

Common Name	**Scientific Name**
Pronghorn	*Antilocapra americana*
Red fox	*Vulpes vulpes*
Thirteen-lined ground squirrel	*Ictidomys tridecemlineatus*
White-tailed deer	*Odocoileus virginianus*
Herpetofauna	
Boreal chorus frog	*Pseudacris maculata*
Bullsnake	*Pituophis catenifer*
Common garter snake	*Thamnophis sirtalis*
Eastern yellowbelly racer	*Coluber constrictor flaviventris*
Greater short-horned lizard	*Phrynosoma hernandesi*
Northern leopard frog	*Lithobates pipiens*
Plains garter snake	*Thamnophis radix*
Prairie rattlesnake	*Crotalus viridis*
Woodhouse's soad	*Anaxyrus woodhousii*

SECTION 5: RECOMMENDATIONS

Based on the findings during field surveys, E3 recommends the following guidance to maintain compliance with regulatory agencies and minimize its impact on resident natural resources:

Raptors:

- Conduct spring surveys (March 1 – May 15, if aerial; April 15 – June 15, if terrestrial) prior to initiating clearing and associated construction activities
- Adhere to USFWS-suggested timing and distance buffers for active raptor nests during nesting season (approximately March 1 – July 30)
- If active nests are discovered during construction activity, notify the USFWS

Woody vegetation:

- Follow PSC guidelines for tree-clearing activity
- Restrict clearing of woody vegetation to a maximum width of 50 feet
- Approximately 23,116 saplings may need to be replanted to fulfill the 2:1 mitigation requirement within the Preferred Route, and 22,686 within the Alternate Route
- Replace native and non-native trees with native trees
- Seed mixes will likely be required to replace dense shrubs such as western snowberry and silver buffaloberry

Wetlands/waterbodies:

- Decrease ROW to minimum when constructing through wetlands
- HDD underneath potential jurisdictional wetlands
- HDD underneath wetlands that involve crossing lengths greater than 500 feet
- Follow conditions of NWP 12

Noxious weeds:

- Minimize top soil spread and traffic in areas with high concentrations of noxious weeds
- Visually inspect equipment prior to leaving infested areas – clean vegetation and soils from vehicles and equipment prior to entering uninfected tracts
- Contractors should thoroughly clean the equipment and materials (e.g., timber mates, bridges, etc.) at the contractor yard prior to mobilization to the Project and upon departure from locations of infestations to prevent spread of nuisance weeds

Threatened and Endangered Species:

- If any threatened or endangered species are encountered during construction activities, contact the USFWS.
- HDD underneath Little Missouri River to avoid downstream sedimentation and contamination
- If construction activities occur between April 15-July15, conduct a breeding bird sweep of the impacted area within two weeks of construction to minimize impacts to protected bird species (including Sprague's pipit)
- Decrease ground disturbance activities to the maximum extent practicable through delineated Dakota skipper habitat to minimize potential impacts
- Decrease ground disturbance activities to the maximum extent practicable through suitable NLEB habitat to minimize potential impacts, which includes a maximum of 50 feet through woodlands and shelterbelts

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Appendix A

Natural Resource Maps

Targa Little Missouri Gas Plant

Bear Creek Gas Plant

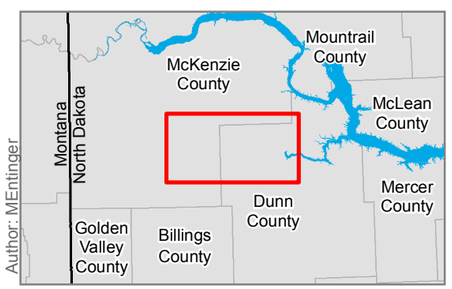
McKenzie County

Dunn County

Document Path: P:\ONEOK\BearCreekNGL_2015\MXDs\BC_Overview.mxd

Date: 9/28/2015

Author: MEntinger



- Milepost
- Preferred Route
- Alternative Route
- Corridor (1-mile)
- NHD Stream
- NHD Waterbody
- Bureau of Land Management
- Fort Berthold Reservation
- State of North Dakota
- Theodore Roosevelt National Park
- US Army Corp of Engineers
- USFS Little Missouri National Grassland
- County Boundary
- Township Boundary
- Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 2 4 8 Miles

1:150,000

Map not to scale, for environmental review purposes only.

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

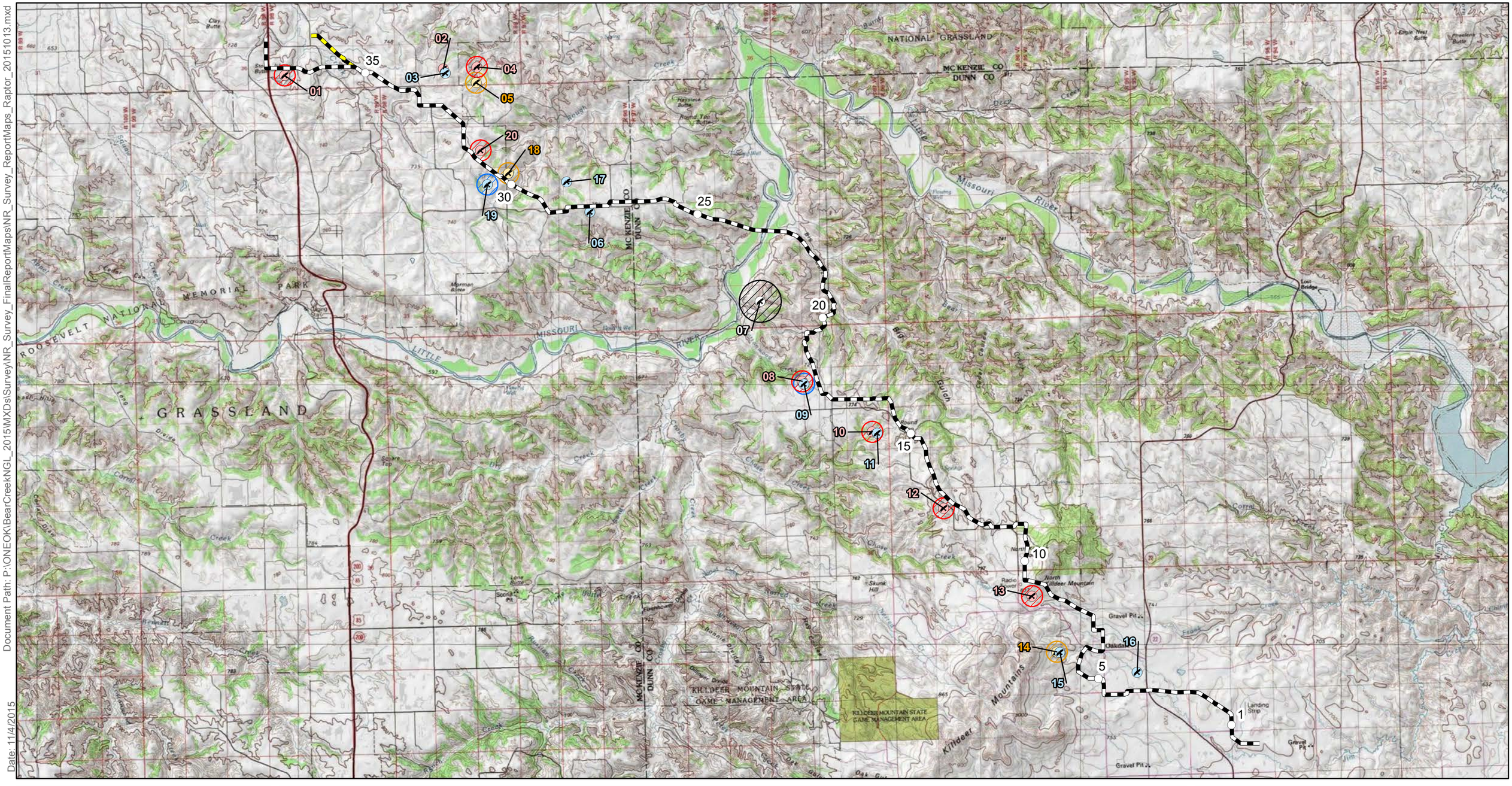
Topo Overview Map

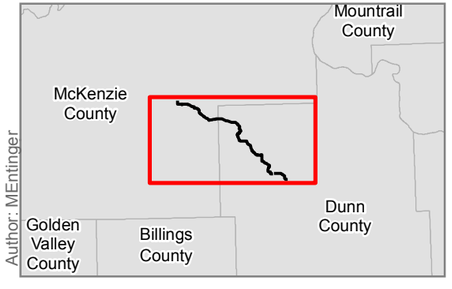
McKenzie and Dunn Counties, North Dakota

Author: MEntinger

Date: 11/4/2015

Document Path: P:\ONEOK\BearCreekNGL_2015\MXDs\Survey\NR_Survey_FinalReportMaps\NR_Survey_ReportMaps_Raptor_20151013.mxd





- Milepost
- Centerline
- Targa Tie-in (Alternative Route)

Raptor Nest Location

- Golden Eagle
- Great Horned Owl
- Red-tailed Hawk
- Unknown Species

Nest Avoidance Buffer

- Golden Eagle
- Great Horned Owl
- Red-tailed Hawk
- Unknown Species

N

0 10,000 20,000 40,000 Feet

1:136,948

Map not to scale, for environmental review purposes only.

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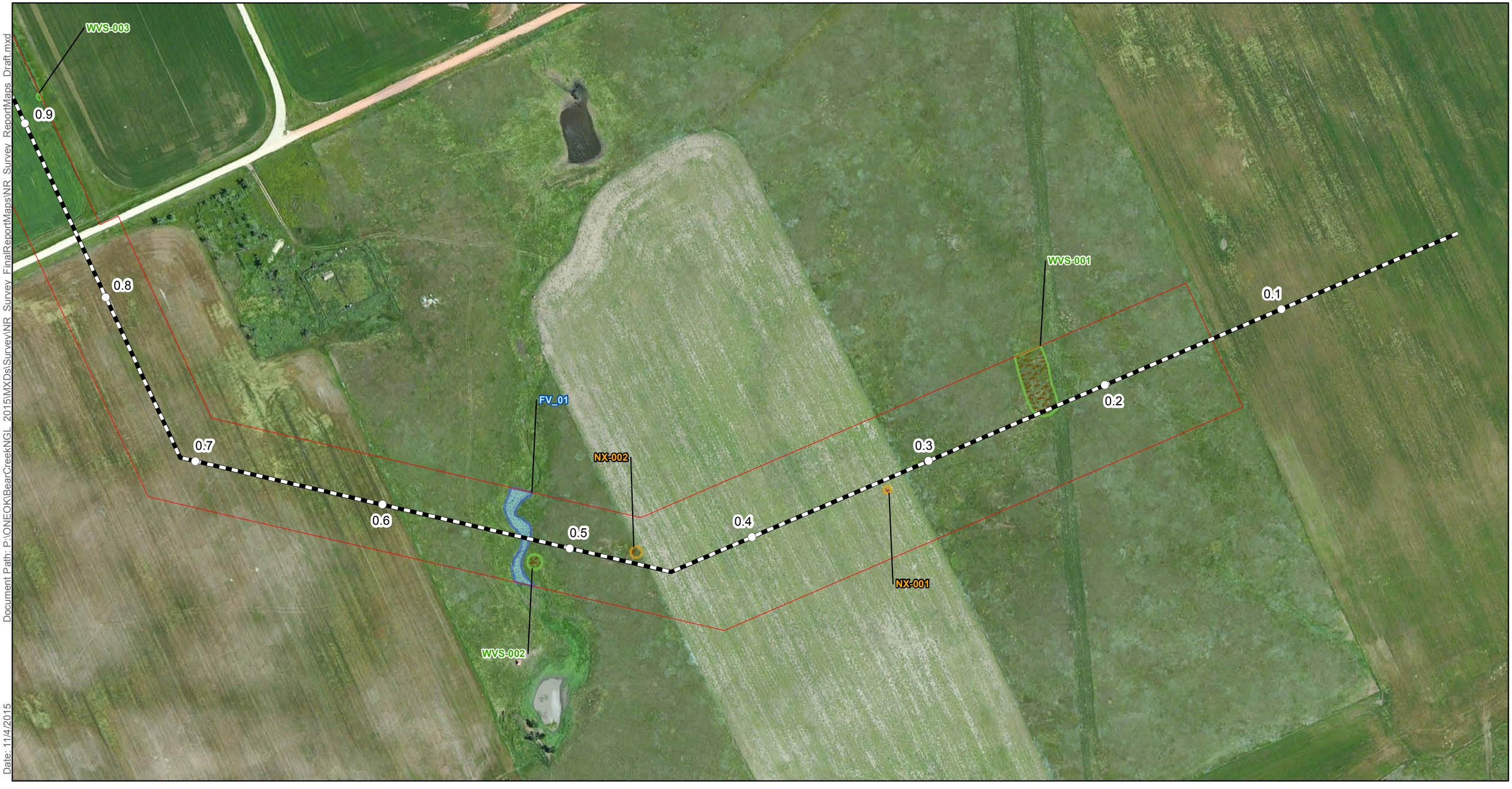
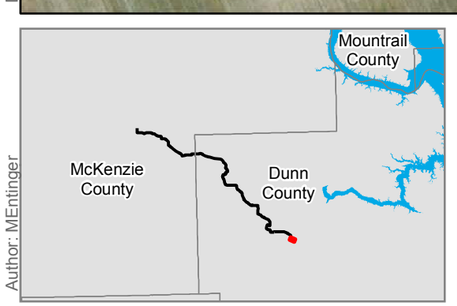
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Raptor Nest Location Map

McKenzie and Dunn Counties, ND





Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 ENVIRONMENTAL
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0 100 200 400 Feet
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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 1 of 49

McKenzie and Dunn Counties, ND

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Author: MEntinger

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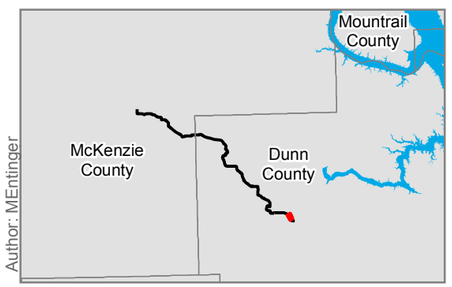

- Milepost
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- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

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- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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WVS-008
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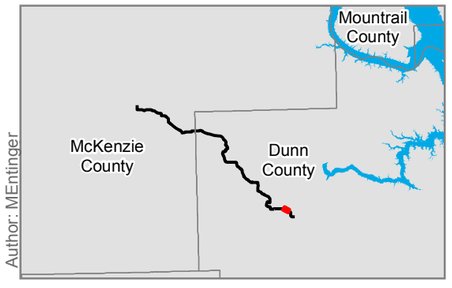

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Enhancing Execution with Experience

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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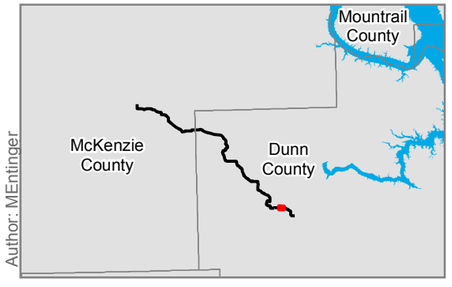

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- Natural Resouce Survey Corridor

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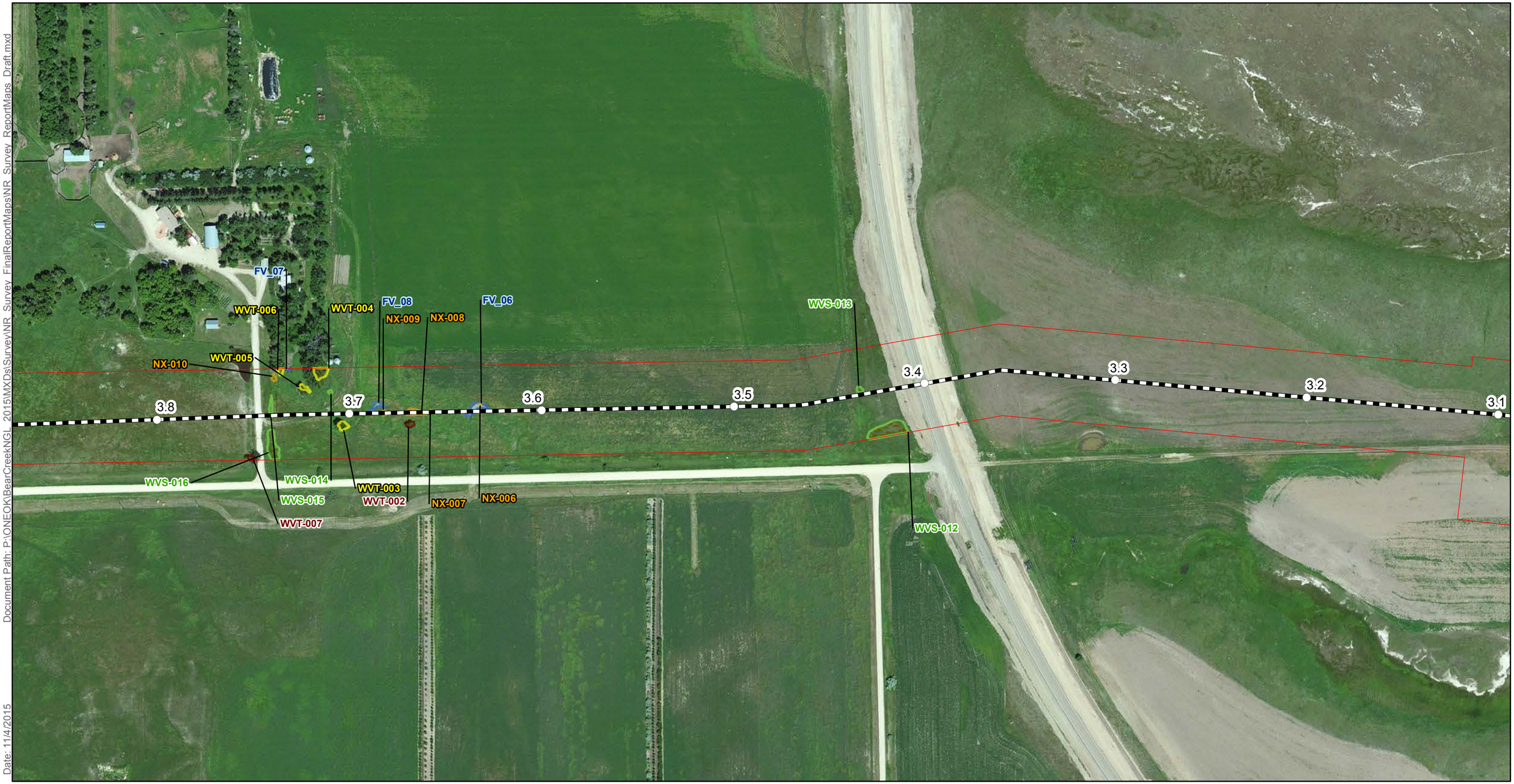
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND



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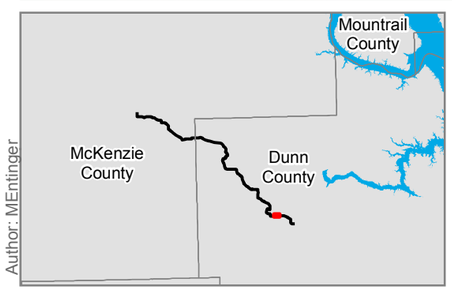

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Waterbody Features

Class, Jurisdictional Determination

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Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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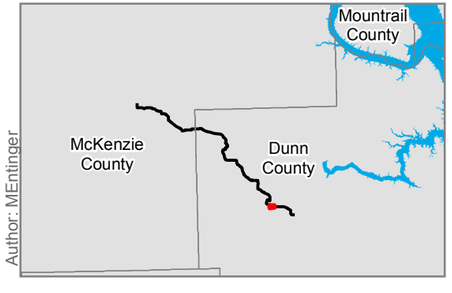

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

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NLEB Habitat
Woody Vegetation -Trees

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Waterbody Features

Class, Jurisdictional Determination

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Waterbody, Yes
Wetland, No
Wetland, Yes

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Enhancing Execution with Experience

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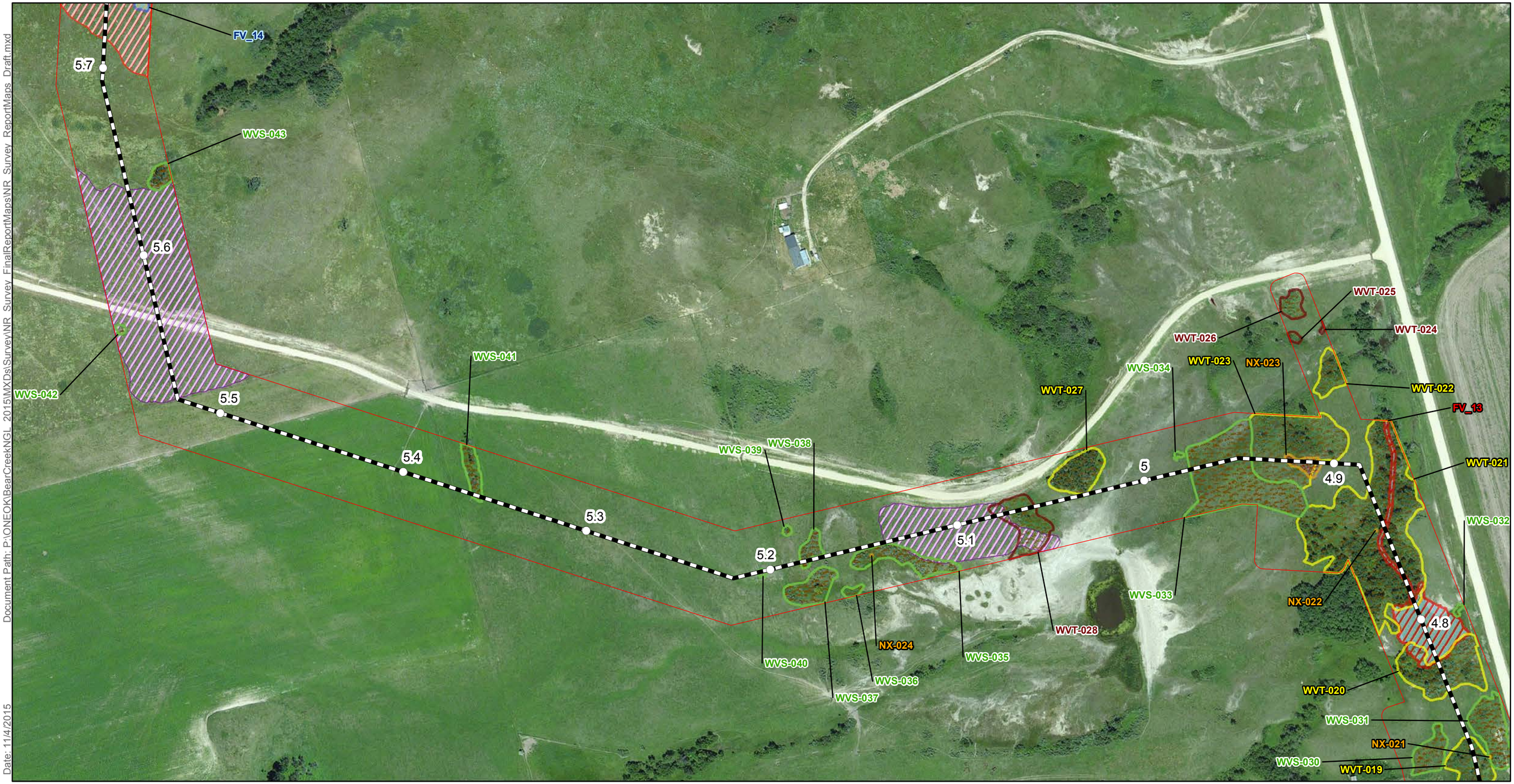
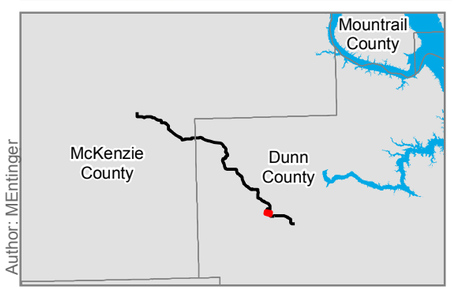
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND





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Natural Resource Survey Data

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Waterbody Features

Class, Jurisdictional Determination

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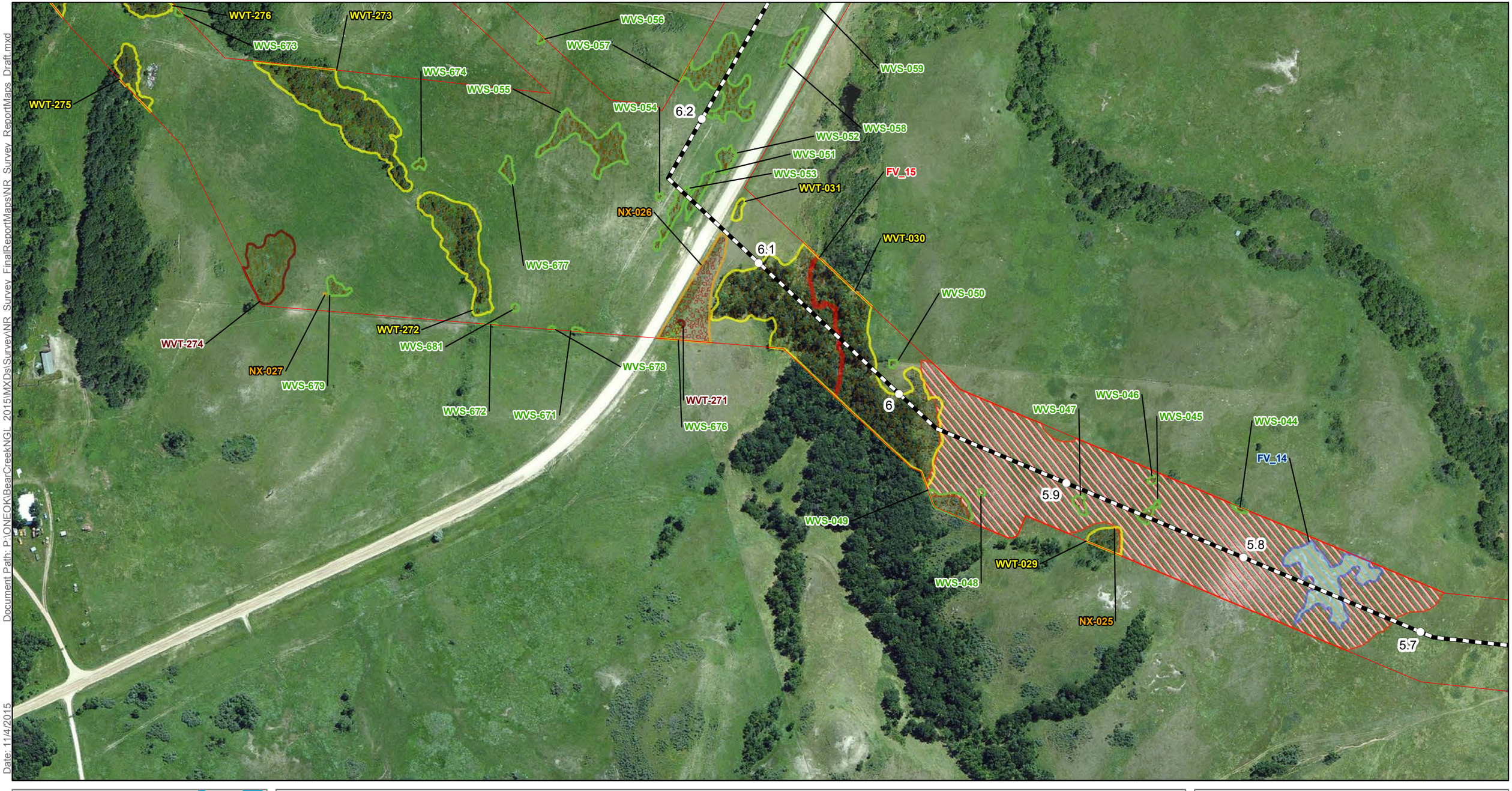
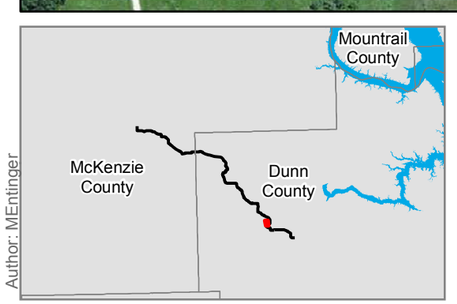
Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND





Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

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E3 ENVIRONMENTAL
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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 8 of 49

McKenzie and Dunn Counties, ND

Document Path: P:\ONEOK\BearCreekNGL_2015\MXDs\Survey\NR_Survey_FinalReportMaps\NR_Survey_ReportMaps_Draft.mxd

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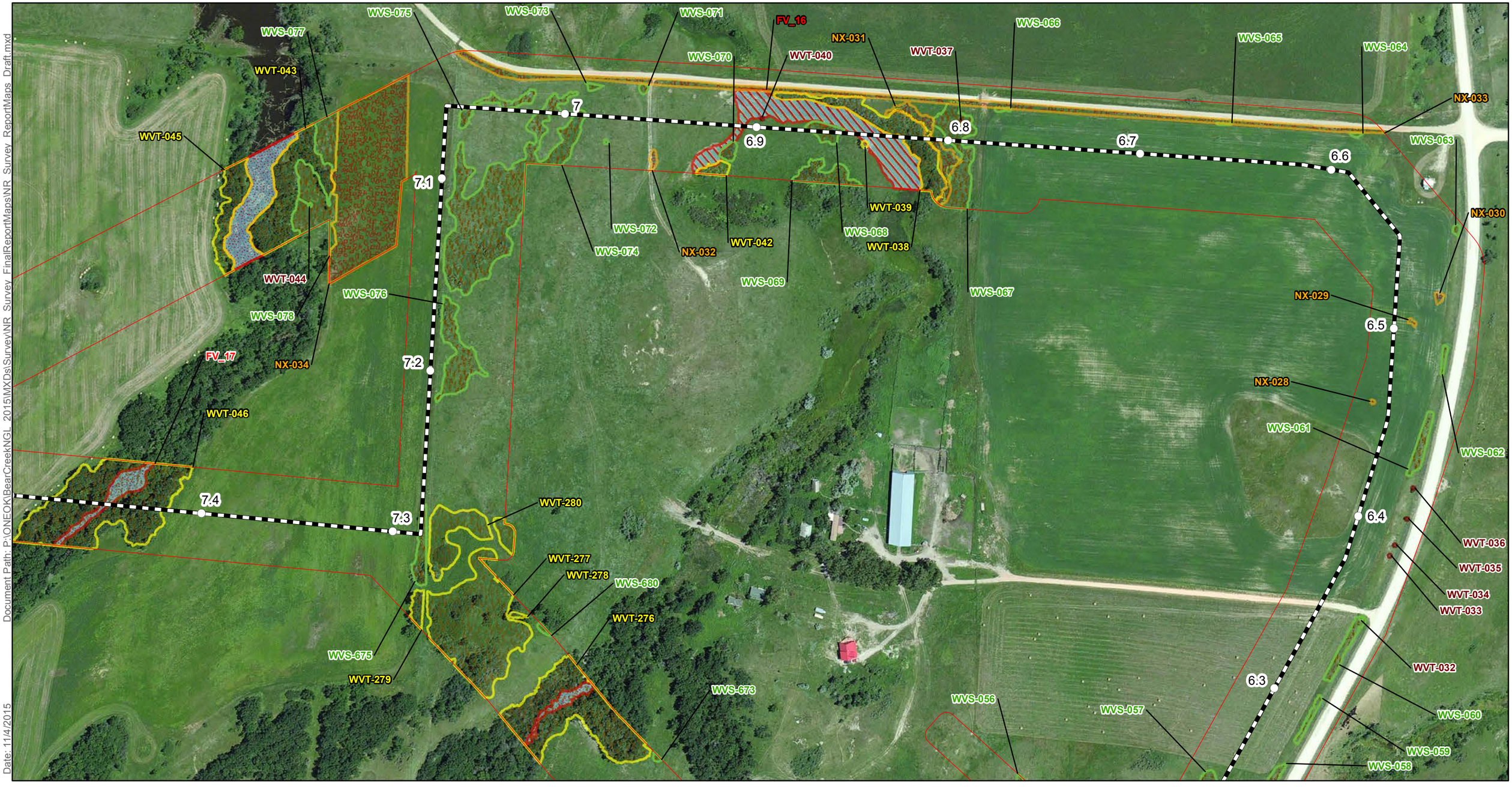

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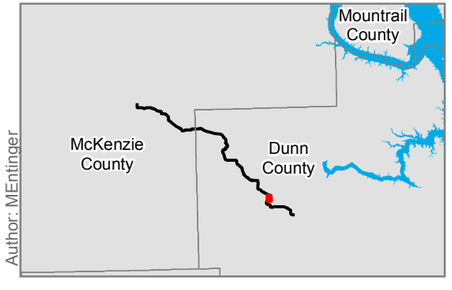

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
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Dakota Skipper Habitat Quality

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Waterbody Features

Class, Jurisdictional Determination

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E3 Environmental
Enhancing Execution with Experience

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Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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WVS-079

NX-035

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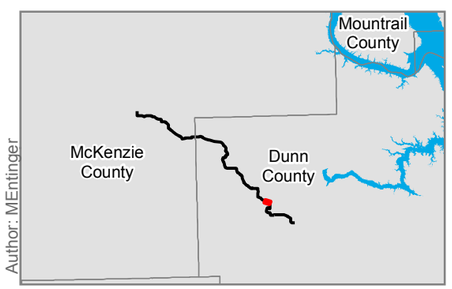

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N

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Enhancing Execution with Experience

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Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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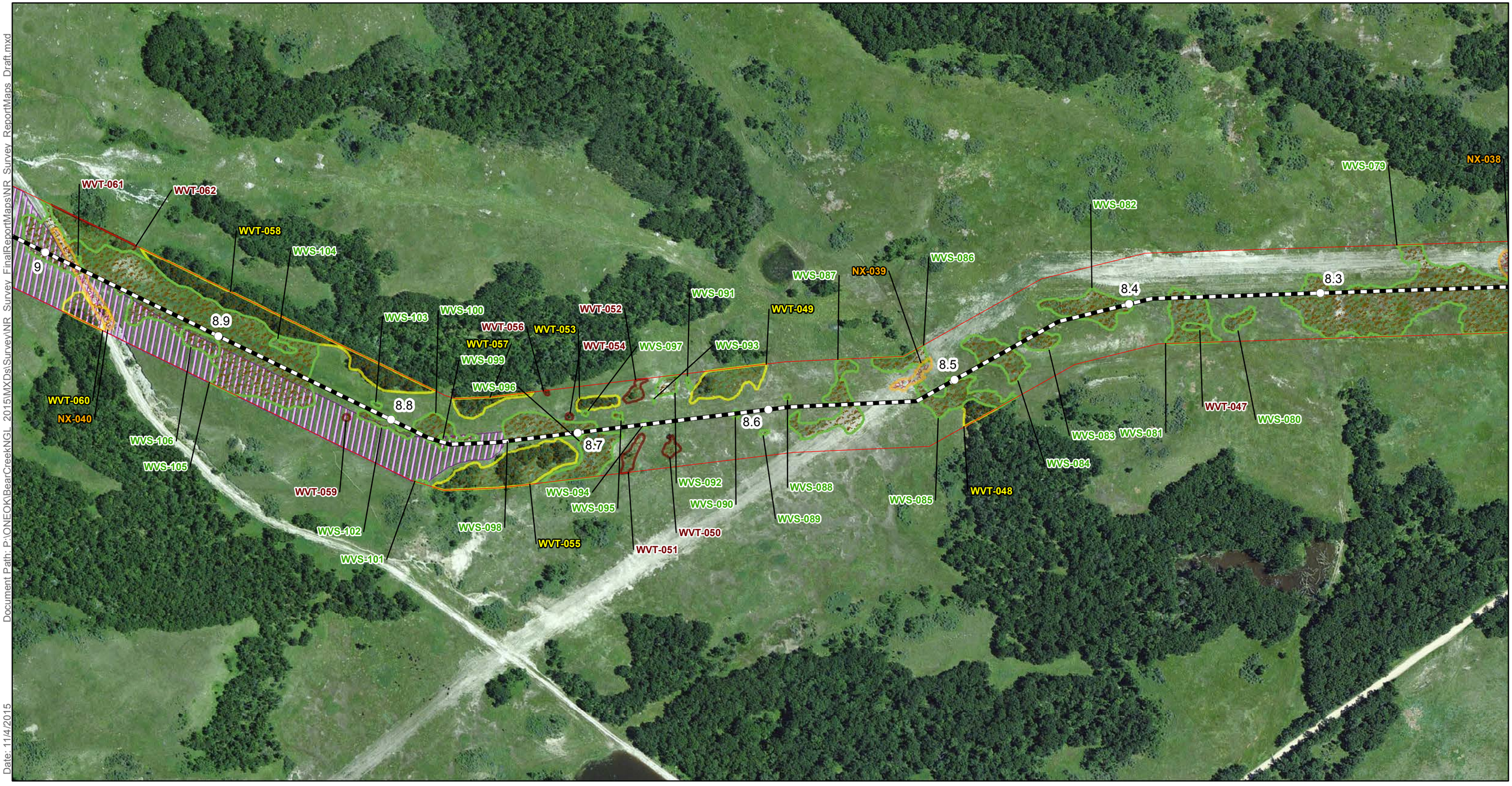

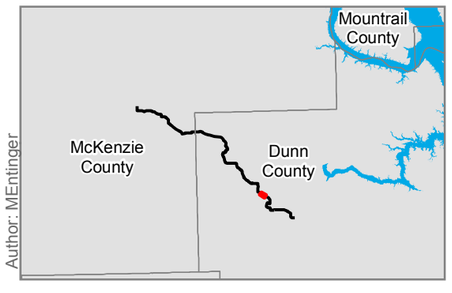

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 11 of 49

McKenzie and Dunn Counties, ND

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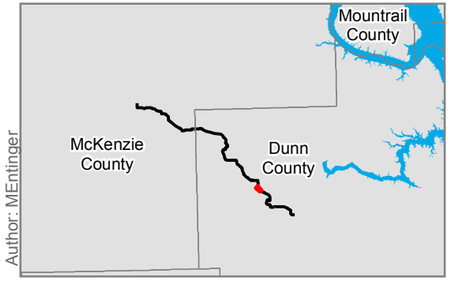

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Natural Resource Survey Data

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Dakota Skipper Habitat Quality

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Waterbody Features

Class, Jurisdictional Determination

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E3 Environmental — Enhancing Execution with Experience

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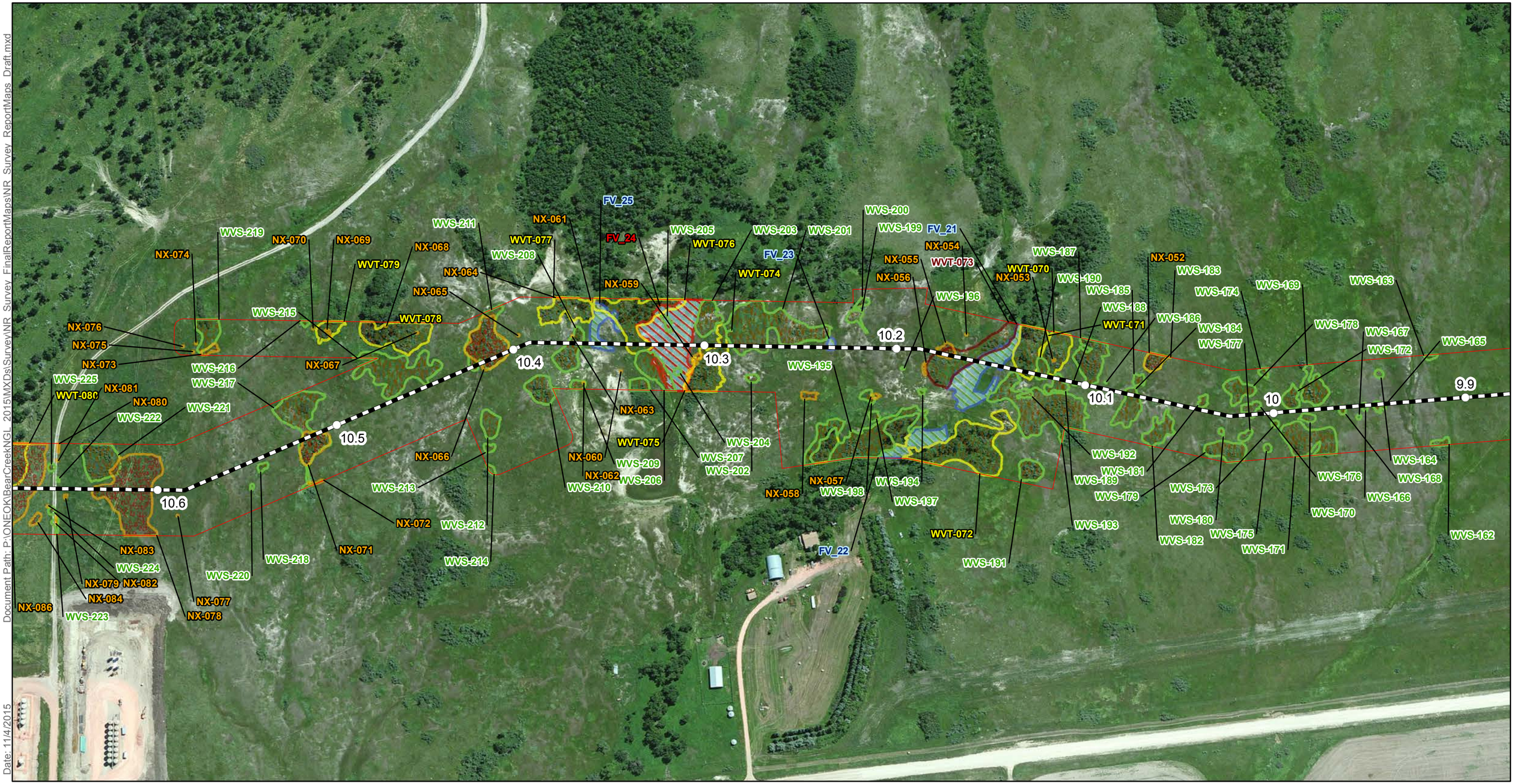

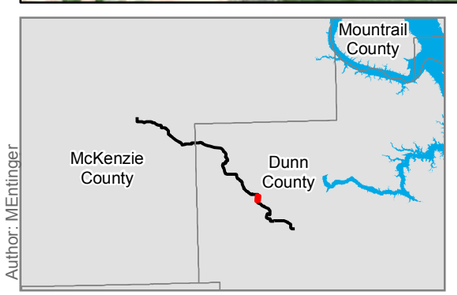

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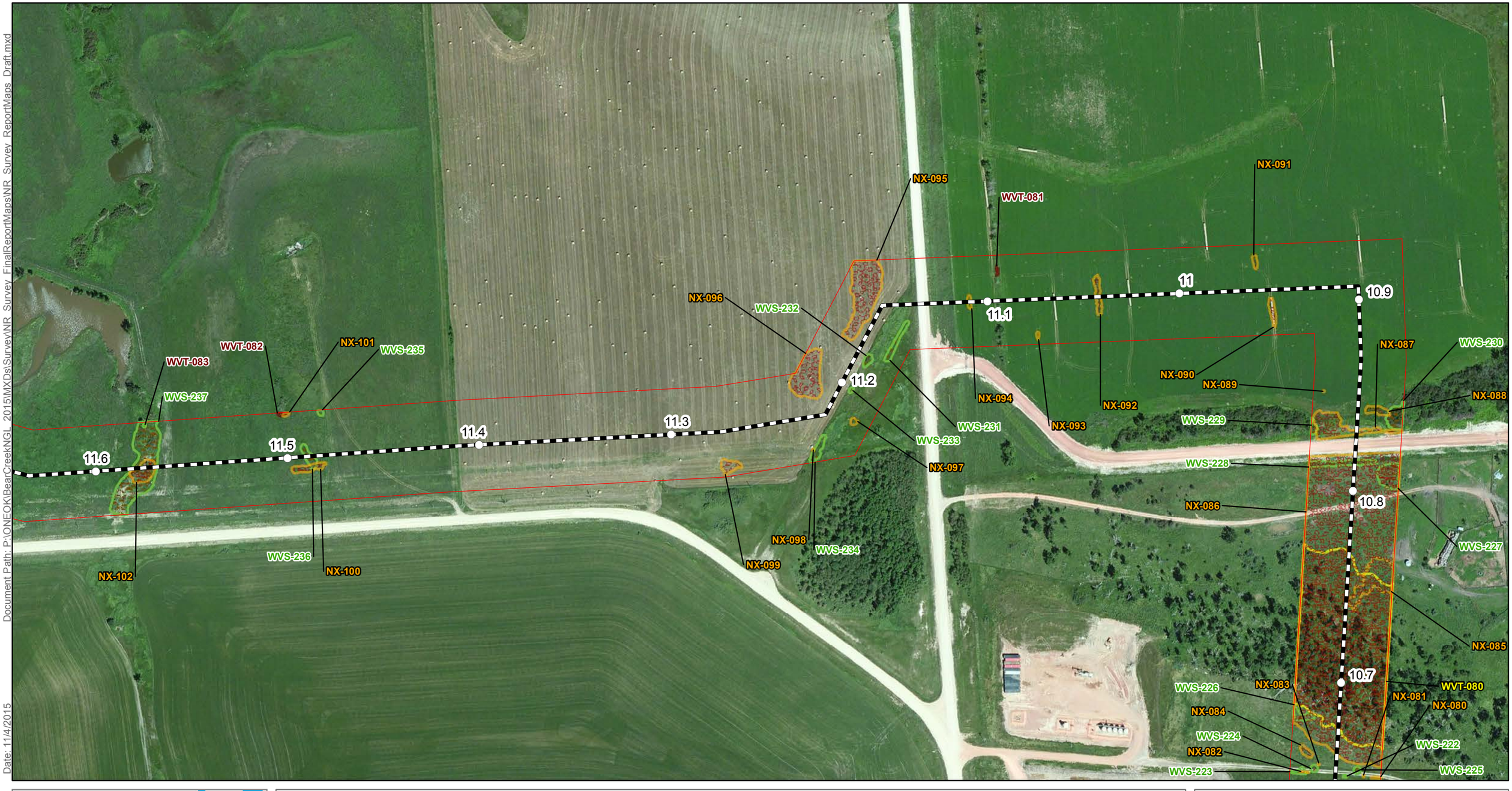

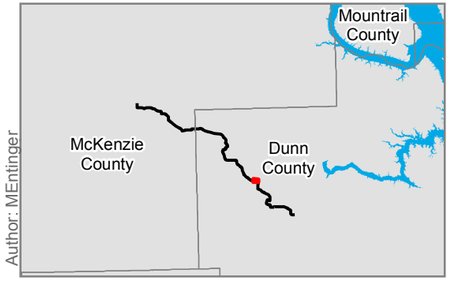

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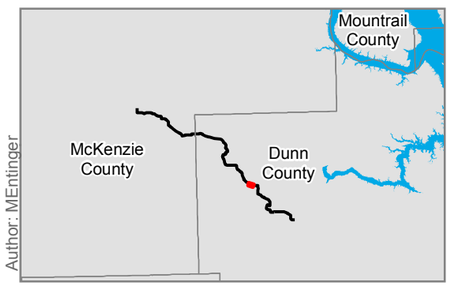

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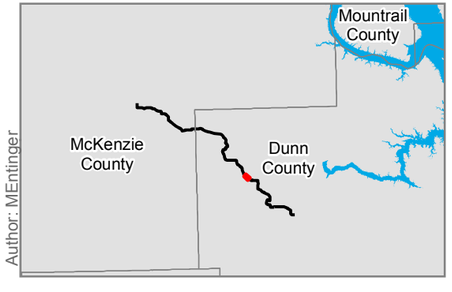

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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Map not to scale, for environmental review purposes only.

ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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Author: MEntinger

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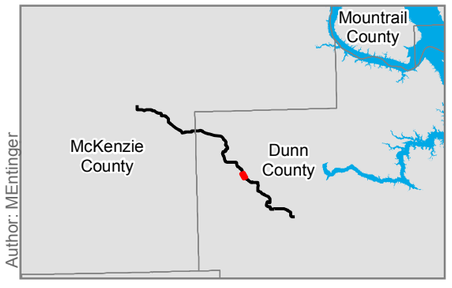

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental
Enhancing Execution with Experience

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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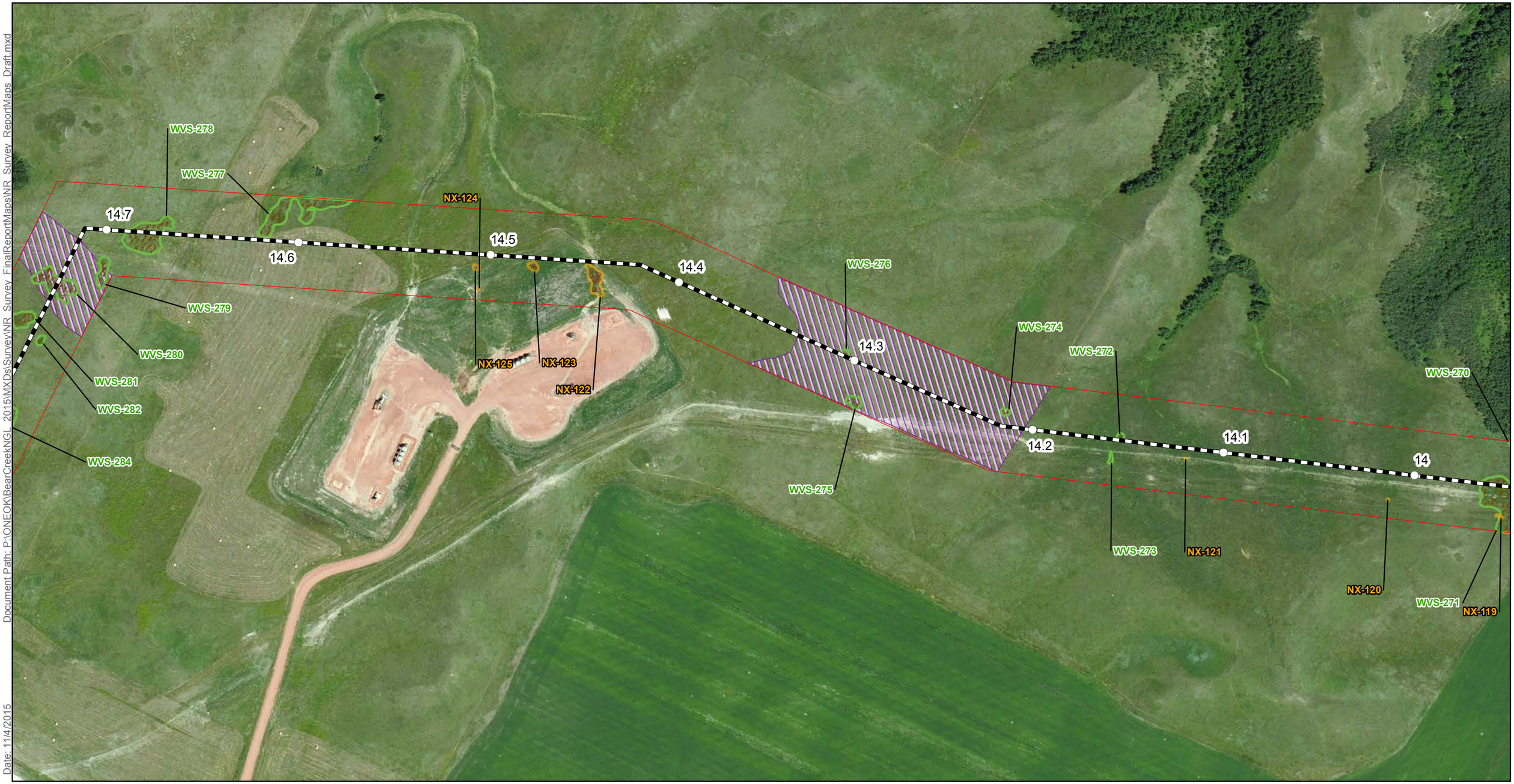

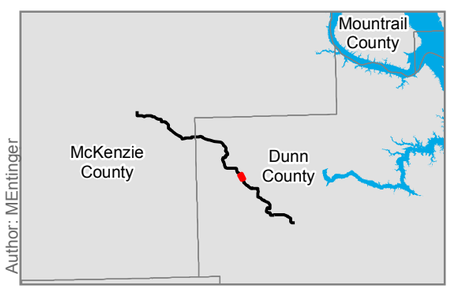

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental
Enhancing Execution with Experience

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

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McKenzie and Dunn Counties, ND

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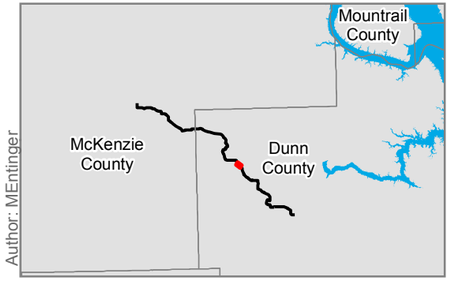

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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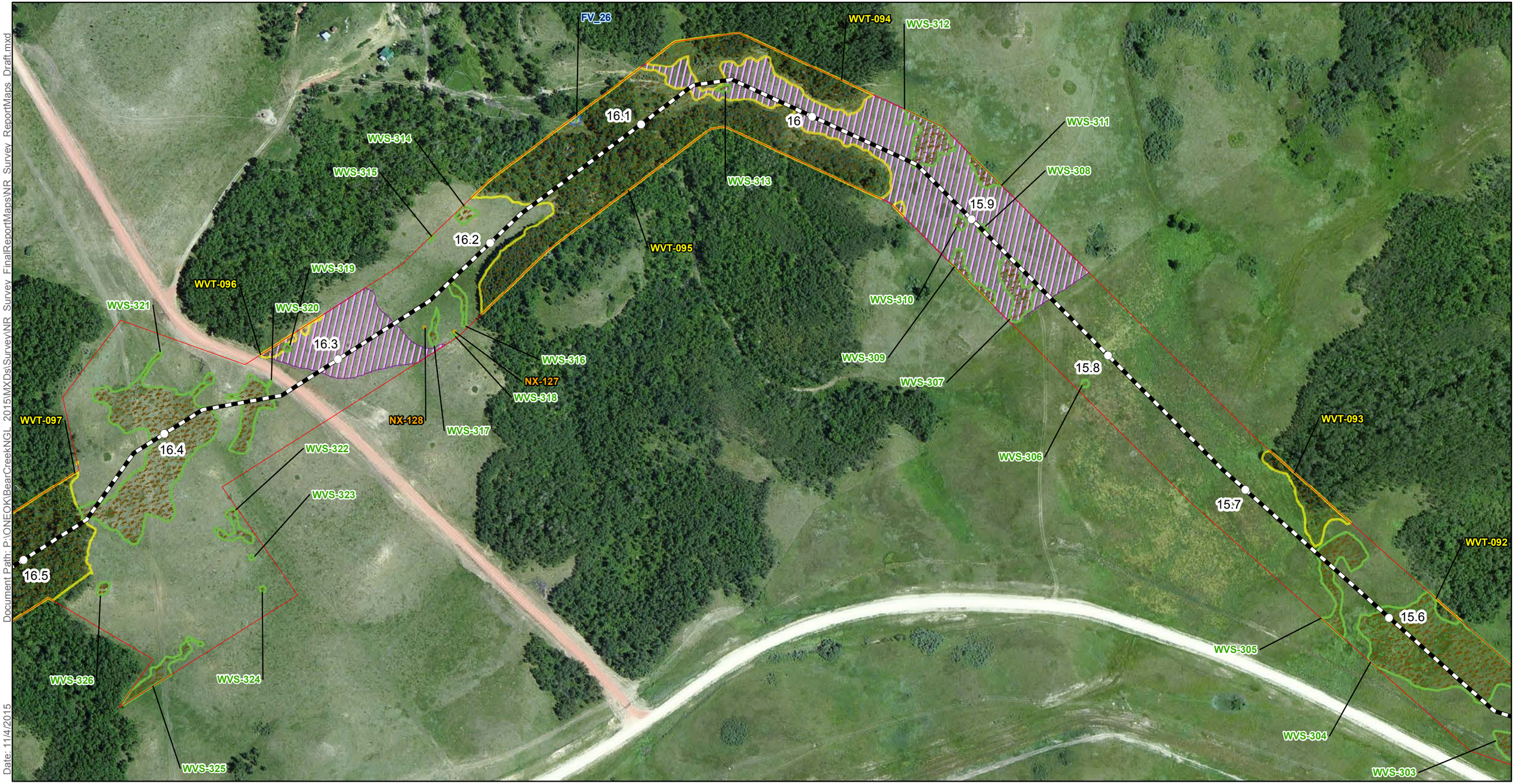
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 19 of 49

McKenzie and Dunn Counties, ND



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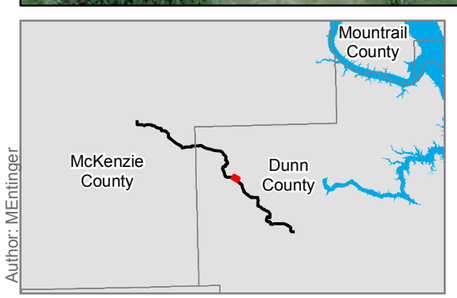

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental — Enhancing Execution with Experience

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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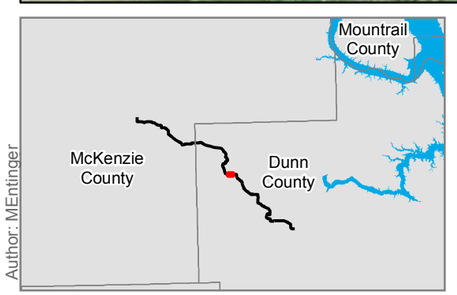

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 21 of 49

McKenzie and Dunn Counties, ND

Document Path: P:\ONEOK\BearCreekNGL_2015\MXDs\Survey\NR_Survey_FinalReportMaps\NR_Survey_ReportMaps_Draft.mxd

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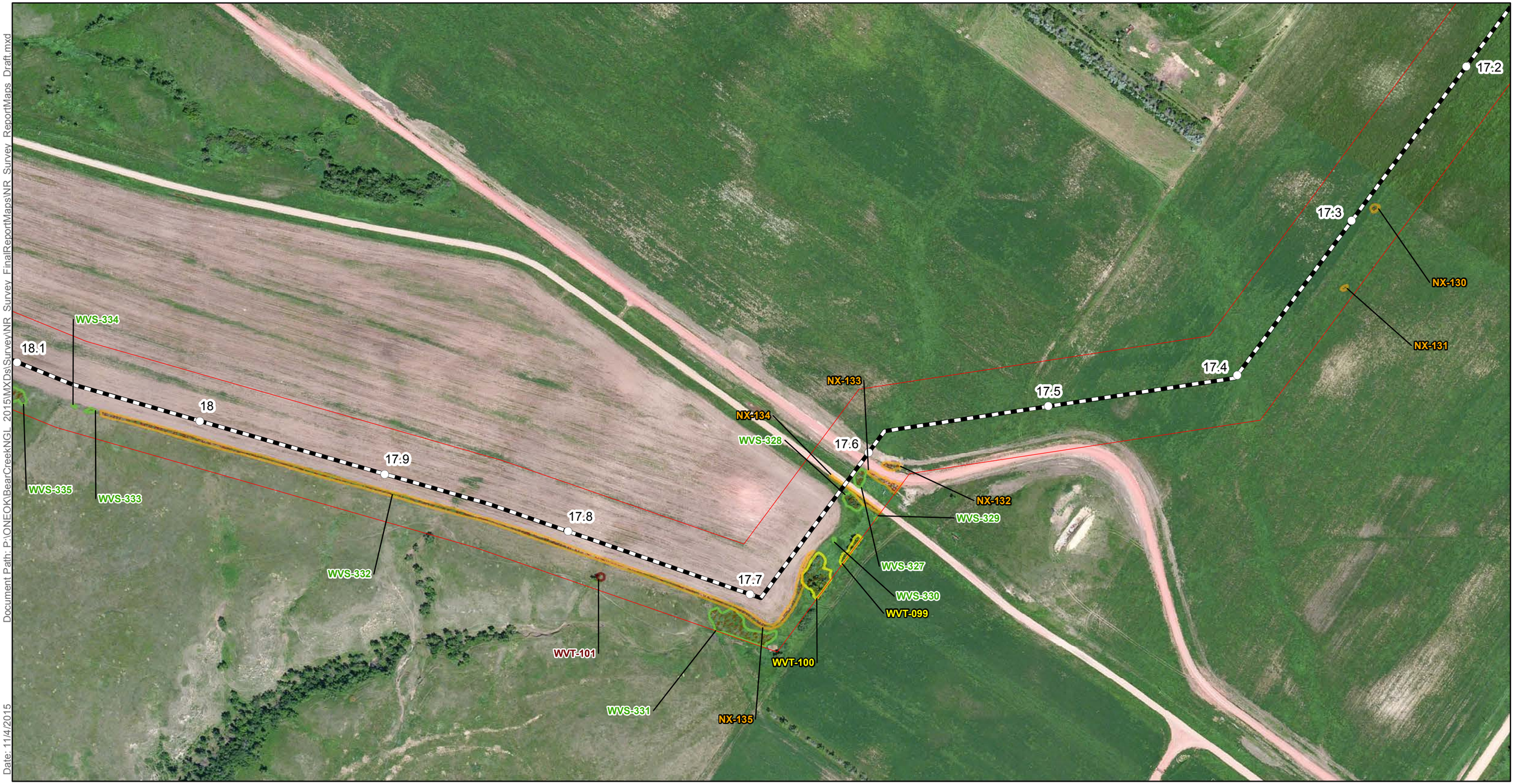

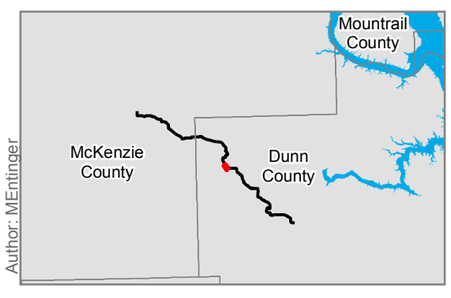

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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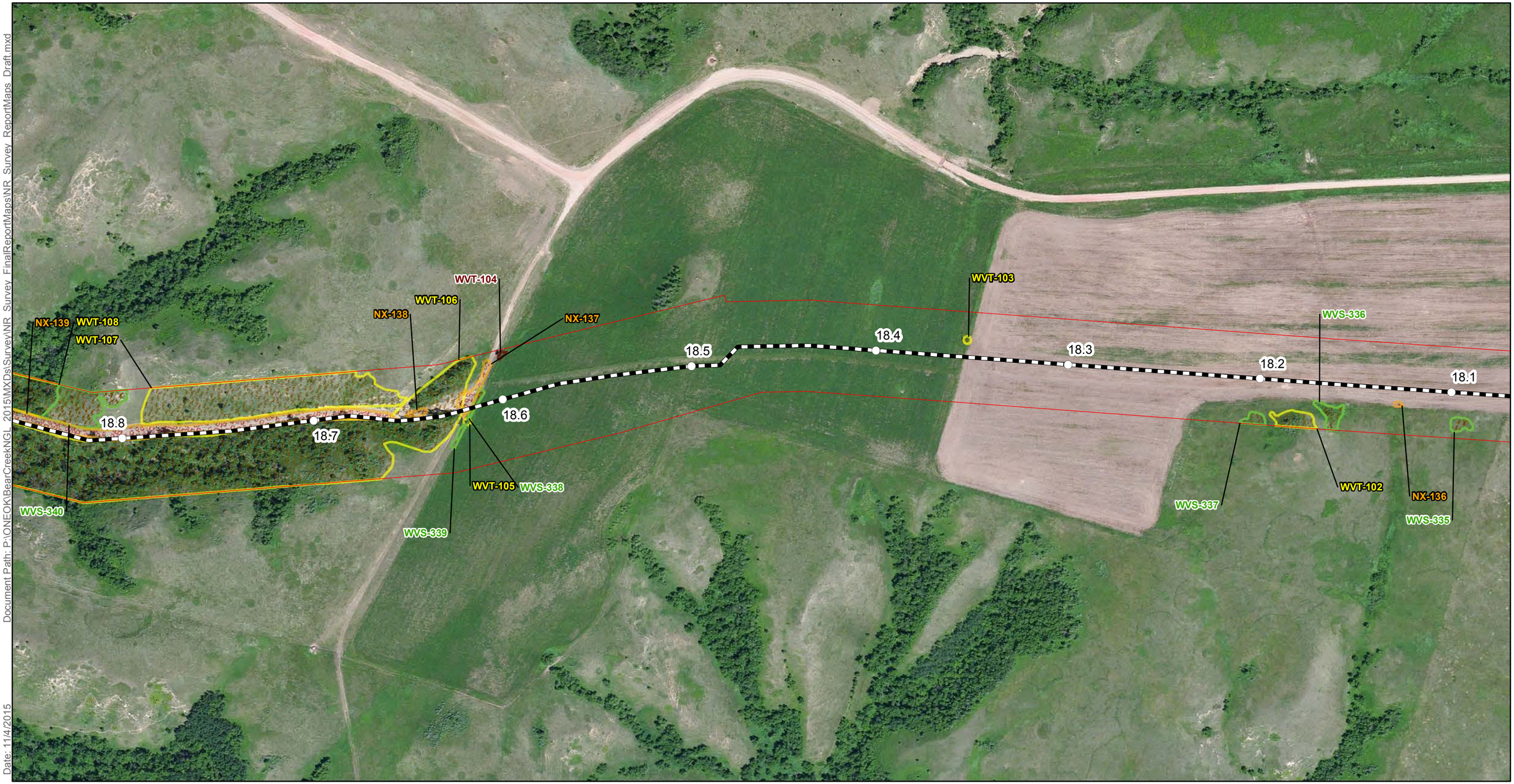

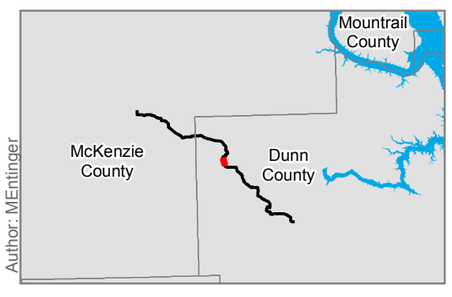

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

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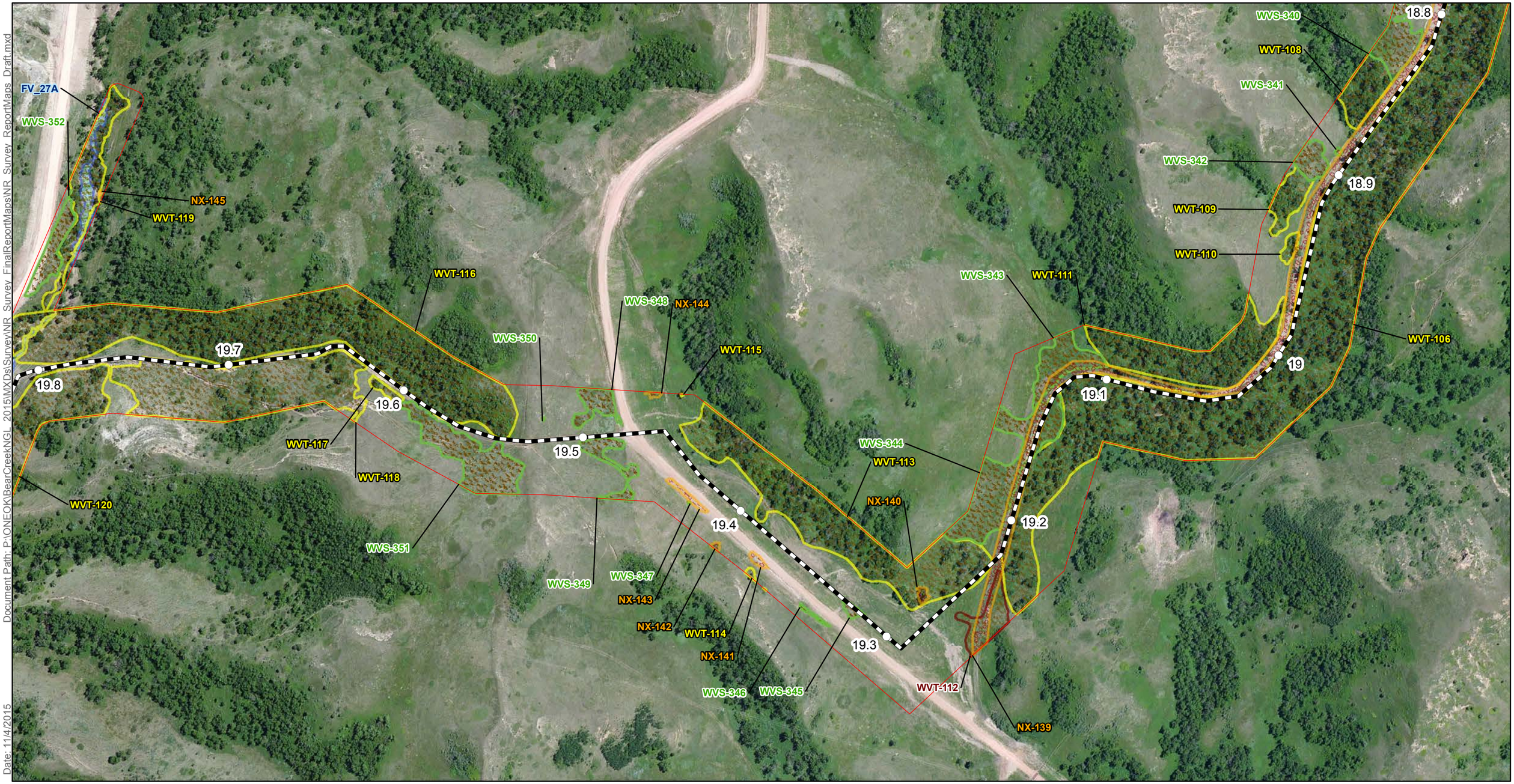
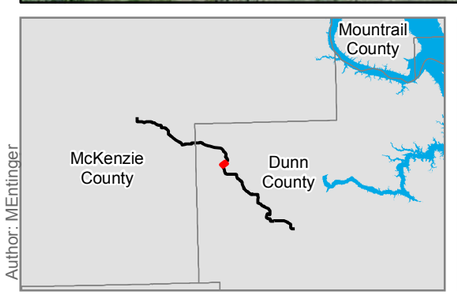
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND





Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 ENVIRONMENTAL
Enhancing Execution with Experience

0 100 200 400 Feet
1:3,000

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 24 of 49

McKenzie and Dunn Counties, ND

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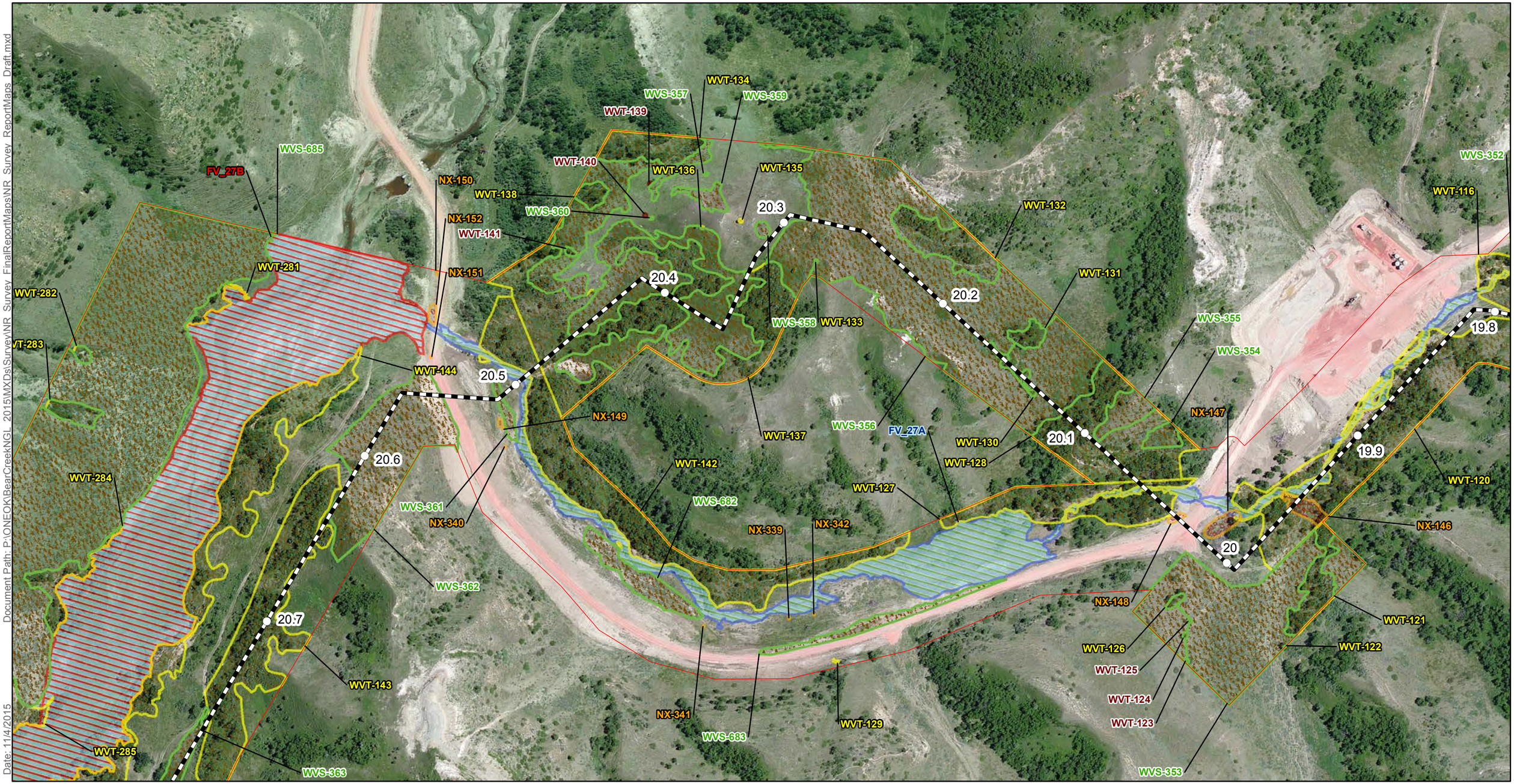

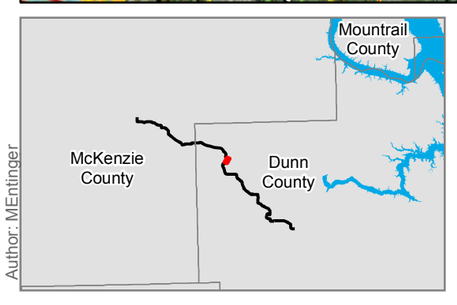

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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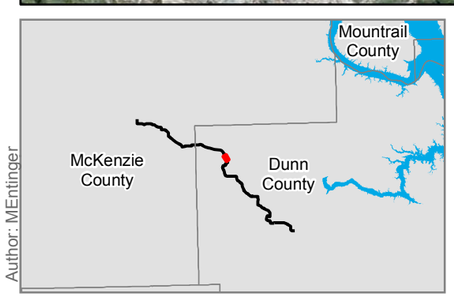

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet
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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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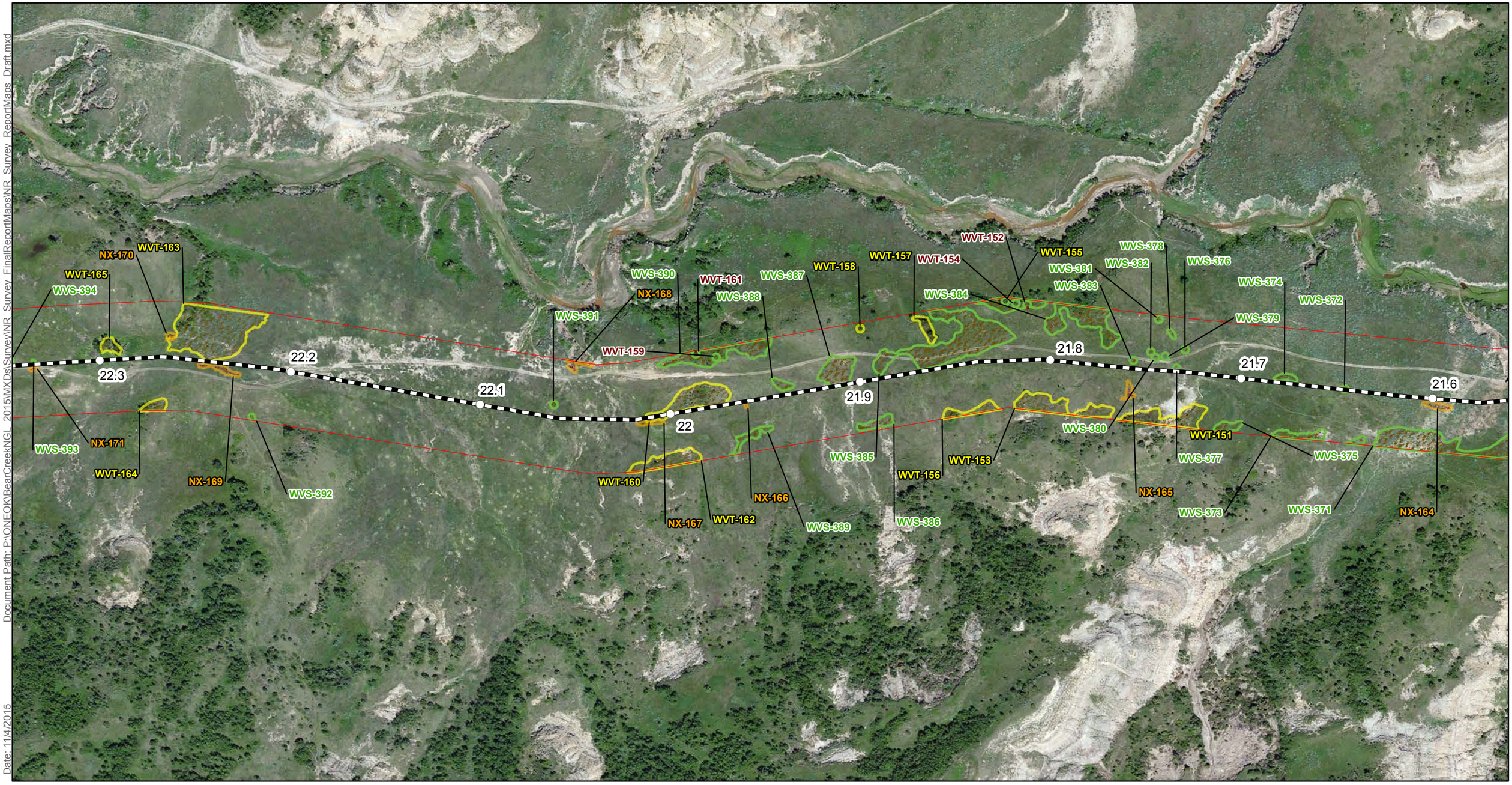

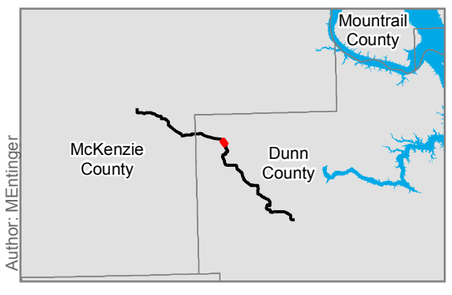

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Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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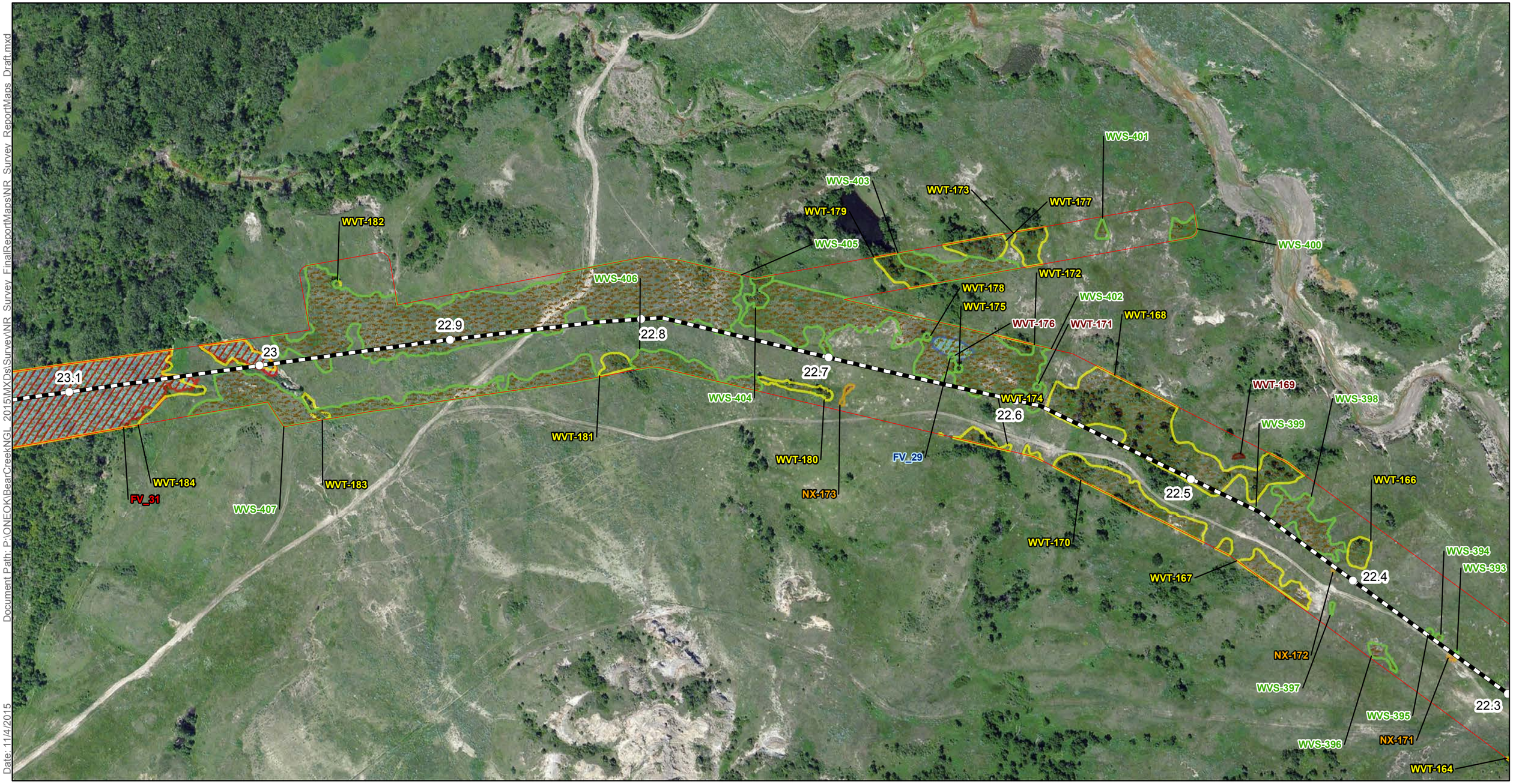
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 27 of 49

McKenzie and Dunn Counties, ND



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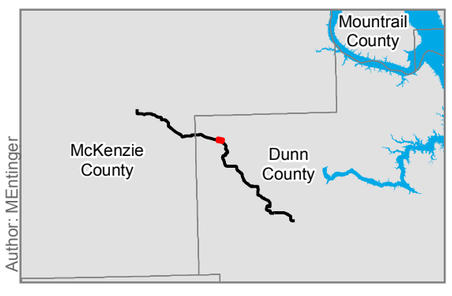

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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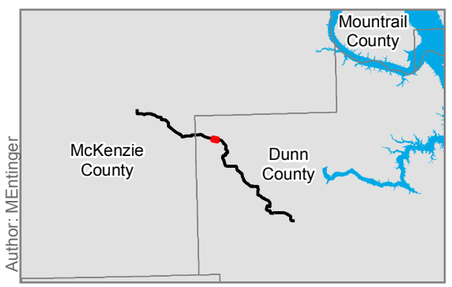

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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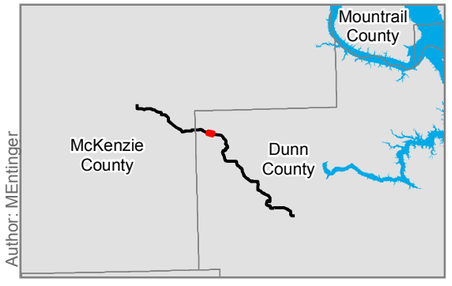

- Milepost
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- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet
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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

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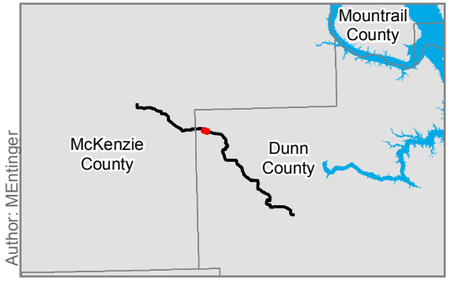

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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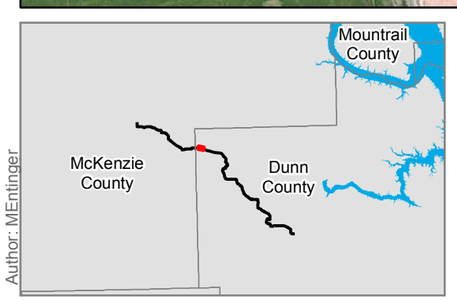
Map not to scale, for environmental review purposes only.

ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND



Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 ENVIRONMENTAL
Enhancing Execution with Experience

0 100 200 400 Feet
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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 32 of 49

McKenzie and Dunn Counties, ND

Document Path: P:\ONEOK\BearCreekNGL_2015\MXDs\Survey\NR_Survey_FinalReportMaps\NR_Survey_ReportMaps_Draft.mxd

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Author: MEntinger

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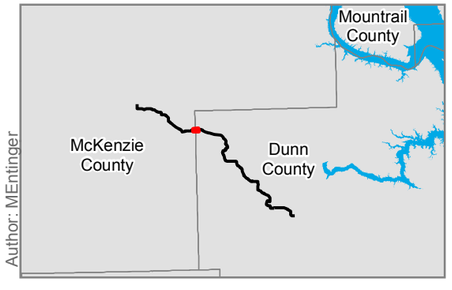

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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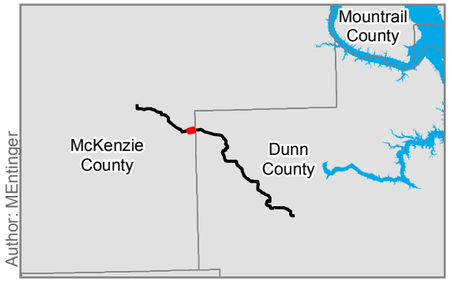
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND



- Milepost
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- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

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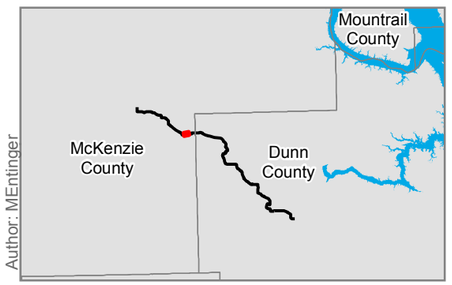

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

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Enhancing Execution with Experience

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McKenzie and Dunn Counties, ND

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NX-203
NX-202

Mountrail County
McKenzie County
Dunn County

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

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Document Path: P:\ONEOK\BearCreekNGL_2015\MXDs\Survey\NR_Survey_FinalReportMaps\NR_Survey_ReportMaps_Draft.mxd

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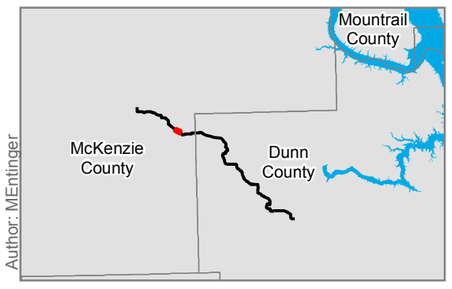

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet
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ONEOK Bakken Pipeline L.L.C.

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McKenzie and Dunn Counties, ND

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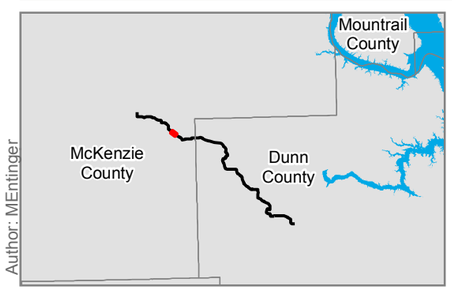

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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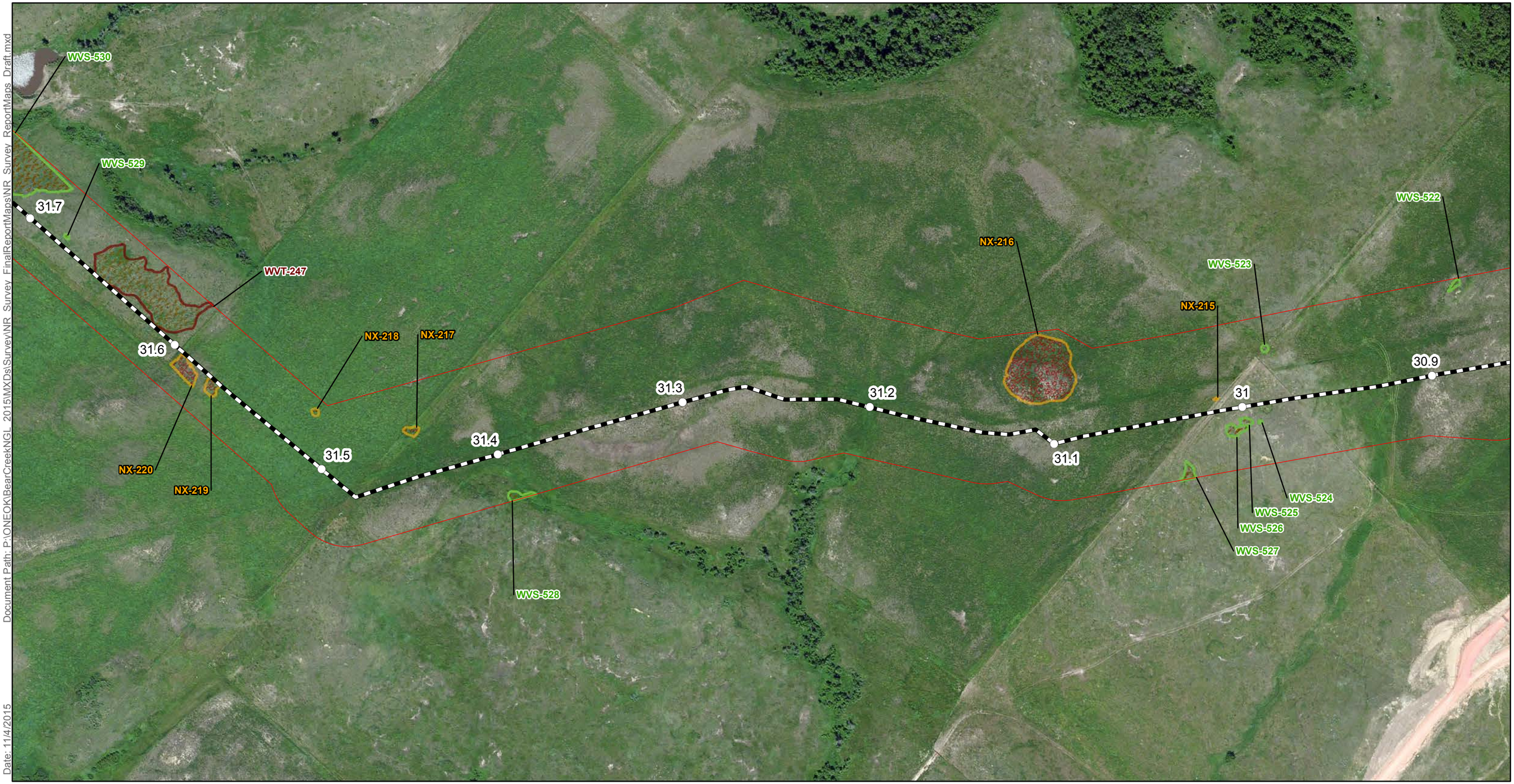
ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND



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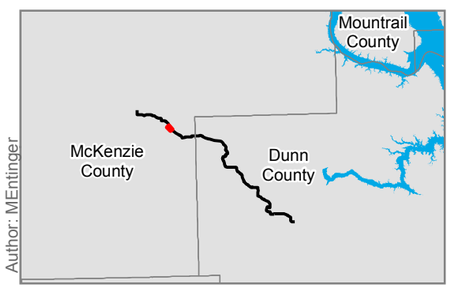

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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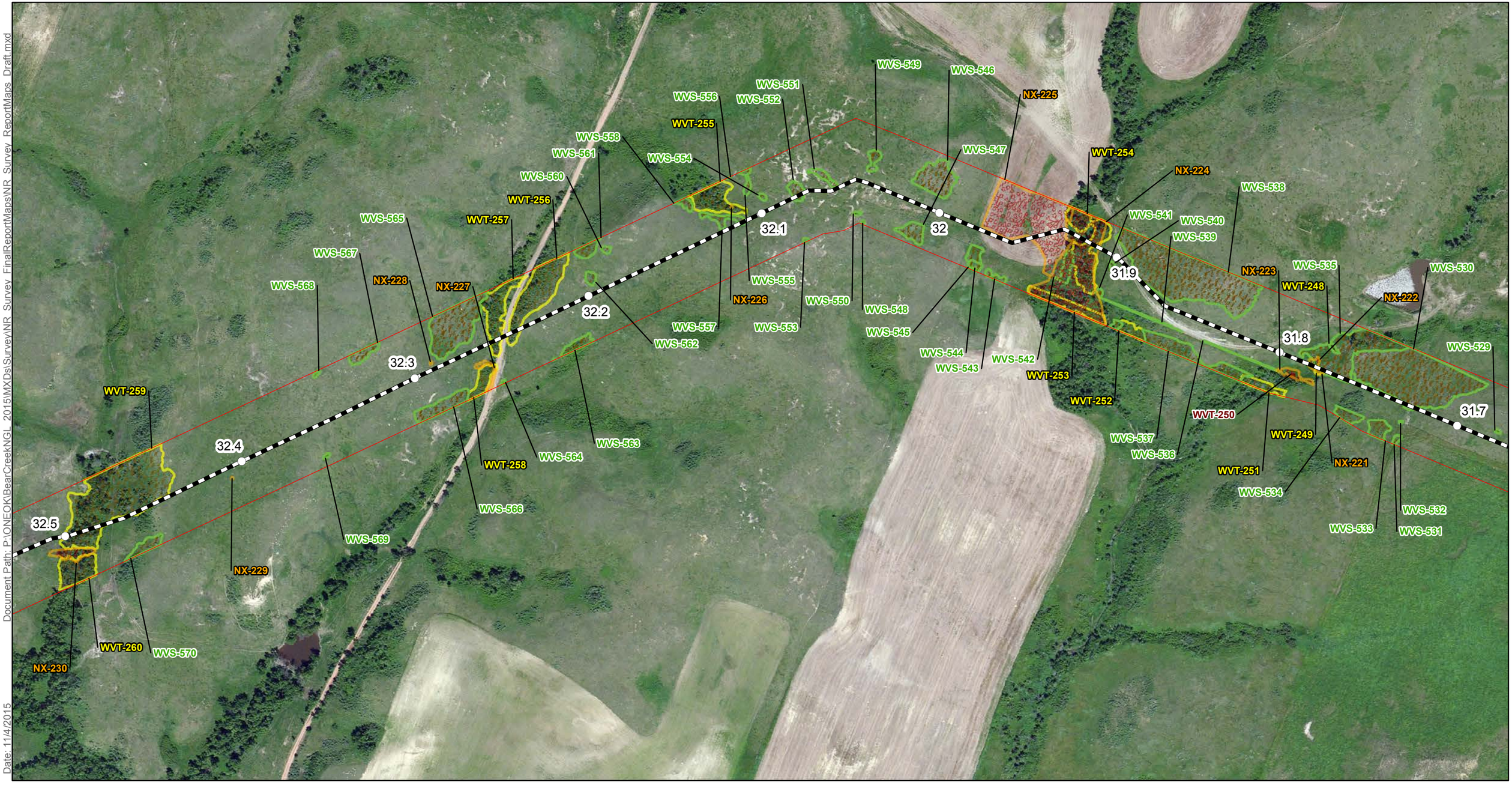

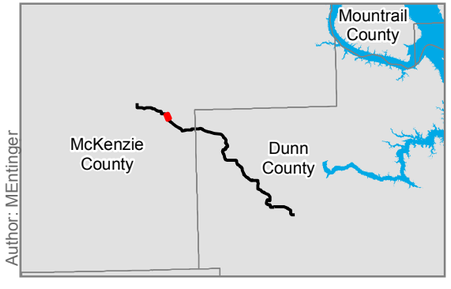

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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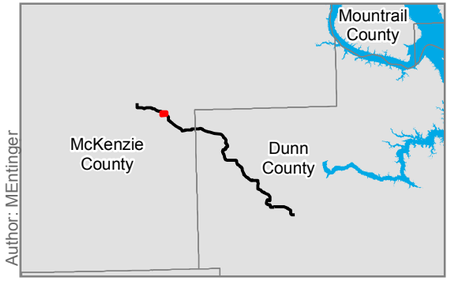

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

Page 41 of 49

McKenzie and Dunn Counties, ND

Document Path: P:\ONEOK\BearCreekNGL_2015\MXDs\Survey\NR_Survey_FinalReportMaps\NR_Survey_ReportMaps_Draft.mxd
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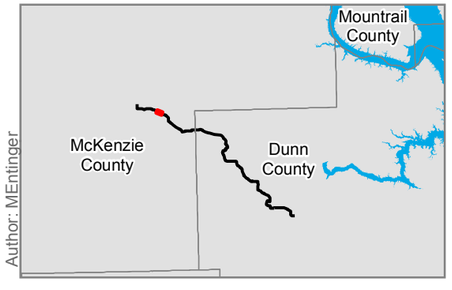

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

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Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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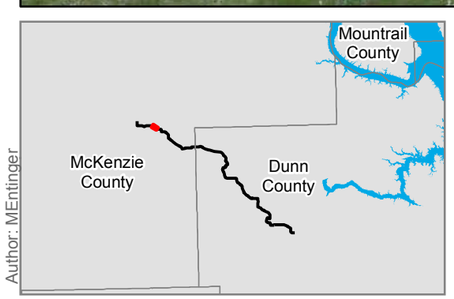

- Milepost
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Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
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Dakota Skipper Habitat Quality

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Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

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ONEOK Bakken Pipeline L.L.C.

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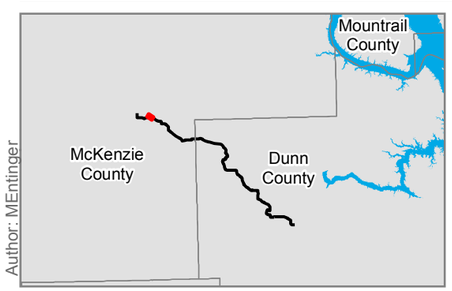

- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

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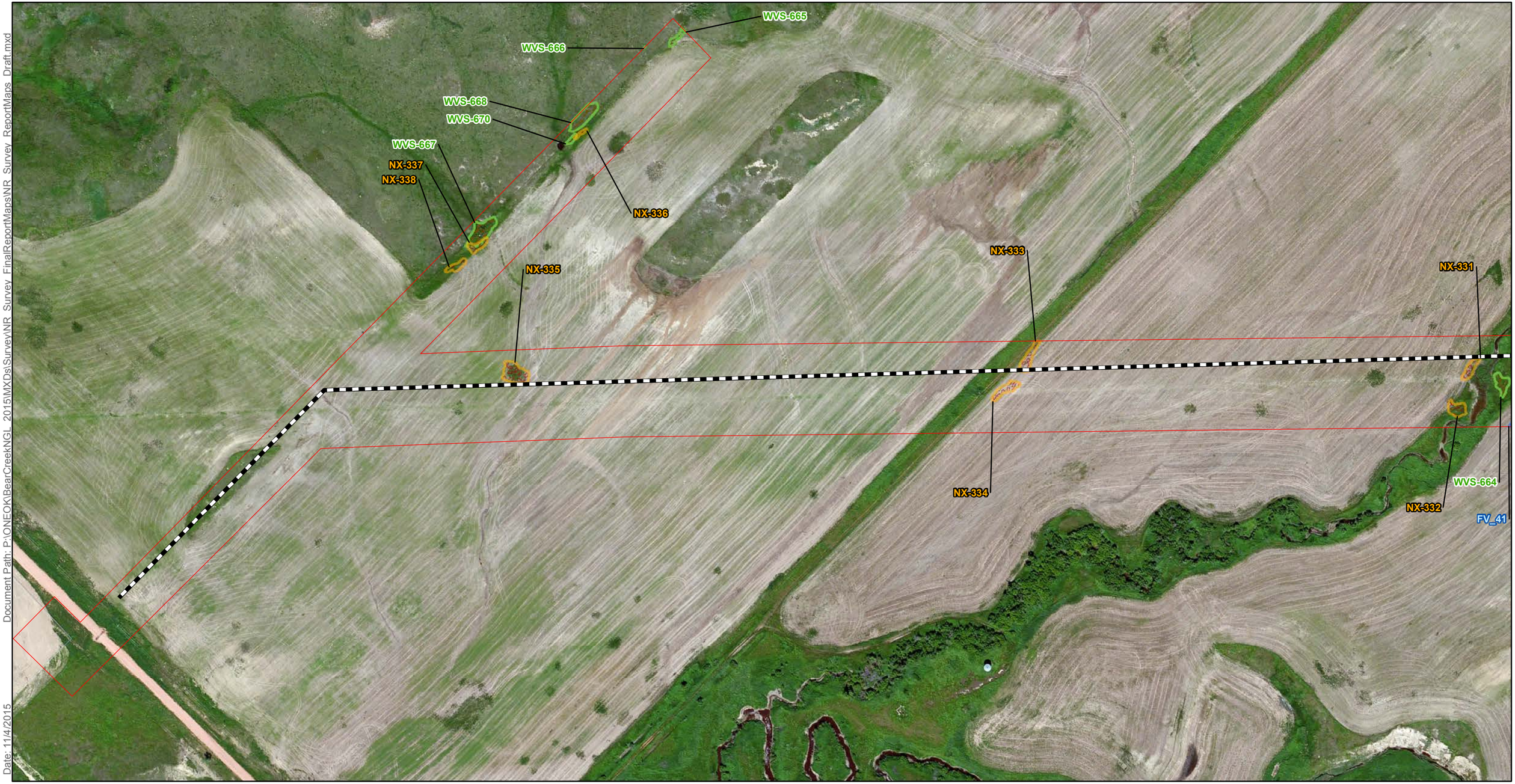
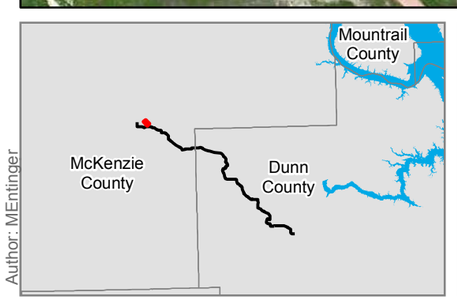
Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND





- Milepost
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- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

E3 Environmental — Enhancing Execution with Experience

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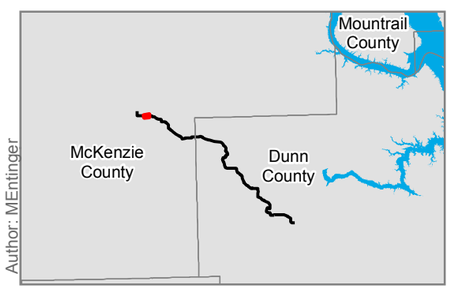
WVS-595



- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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Map not to scale, for environmental review purposes only.

ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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Date: 11/4/2015
Author: MEntinger

WVS-640
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WVS-638
WVS-637
WVS-634
WVS-633
WVS-631
WVS-630
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WVS-642
WVS-641
FV_38
WVS-629
NX-319
NX-318
WVS-614
WVS-618
WVS-616
WVS-621

Mountrail County
McKenzie County
Dunn County

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet
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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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Date: 11/4/2015

Author: MEntinger

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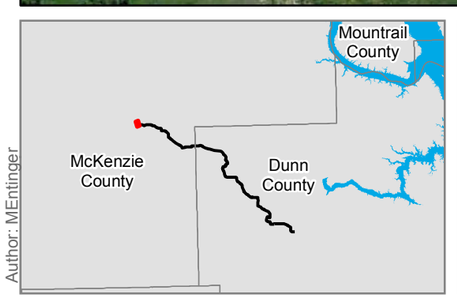

Milepost
Centerline
Natural Resouce Survey Corridor

Natural Resource Survey Data

Noxious Weed
Woody Vegetation - Shrubs
NLEB Habitat
Woody Vegetation -Trees

Dakota Skipper Habitat Quality

High
Medium

Waterbody Features

Class, Jurisdictional Determination

Waterbody, No
Waterbody, Yes
Wetland, No
Wetland, Yes

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

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ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

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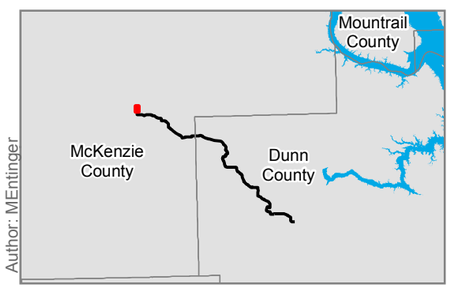
Date: 11/4/2015

Author: MEntinger



- Milepost
- Centerline
- Natural Resouce Survey Corridor

Natural Resource Survey Data

- Noxious Weed
- Woody Vegetation - Shrubs
- NLEB Habitat
- Woody Vegetation -Trees

Dakota Skipper Habitat Quality

- High
- Medium

Waterbody Features

Class, Jurisdictional Determination

- Waterbody, No
- Waterbody, Yes
- Wetland, No
- Wetland, Yes

N

E3 Environmental
Enhancing Execution with Experience

0 100 200 400 Feet

1:3,000

Map not to scale, for environmental review purposes only.

ONEOK Bakken Pipeline L.L.C.

Bear Creek NGL

Natural Resource Survey

McKenzie and Dunn Counties, ND

Appendix B

Field Photographs

Photo 1. Little Missouri Badlands ecoregion within the Survey Area, observed during golden eagle surveys.

Photo 2. Northwestern Great Plains Mixedgrass Prairie located within the Survey Corridor.

Photo 3. Cultivated Cropland located within the Survey Corridor.

Photo 4. Western Great Plains Wooded Draw and Ravine located within the Survey Corridor.

Photo 5. Western Great Plains Depressional Wetland System located within the Survey Corridor.

Photo 6. Golden eagle nest with incubating adult and chicks observed during helicopter surveys near the Survey Corridor.

Photo 7. Palustrine emergent wetland (PEM) associated with a minor creek identified within the Survey Corridor.

Photo 8. The Little Missouri River, a jurisdictional waterbody, and its associated floodplain within the Survey Corridor.

Photo 9. Green ash and chokecherry woodland prevalent throughout the draws and ephemeral streams within the Survey Corridor.

Photo 10. Silver buffaloberry and chokecherry-dominated shrubland prevalent across the uplands within the Survey Corridor.

Photo 11. Aspen woodland located along a protected hillside within the Survey Corridor.

Photo 12. High Quality Dakota skipper habitat located within the Survey Corridor.

Photo 13. Black-tailed prairie dog pups remaining vigilant near the Survey Corridor.

Photo 14. Common snapping turtle sunning itself within typical wetland habitat near the Survey Corridor.

Appendix C

Woody Vegetation

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-001*º	Upland Deciduous	Plains Cottonwood	8	3	**6**	0.095	0.030	**Yes**
		Northern Gooseberry	1	0	**0**			
		Snow Berry	10%	10%	**10%**			
WVT-002*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**No**
WVT-003*º	Upland Deciduous	Prickly Rose	6	0	**0**	0.010	0.0008	**Yes**
		Green Ash	1	0	**0**			
WVT-004*º	Upland Deciduous	American Elm	1	0	**0**	0.021	0	**Yes**
		Plains Cottonwood	1	0	**0**			
WVT-005*º	Upland Deciduous	Green Ash	2	0	**0**	0.007	0	**Yes**
WVT-006*º	Upland Deciduous	Siberian Elm	2	0	**0**	0.004	0	**Yes**
WVT-007*º	Upland Deciduous	American Elm	2	0	**0**	0.004	0	**No**
WVT-008*º	Upland Deciduous	Roundleaf Hawthorn	2	0	**0**	0.022	0	**Yes**
		Green Ash	1	0	**0**			
WVT-009*º	Upland Deciduous	Green Ash	16	0	**0**	0.102	0	**Yes**
		Prickly Rose	15	0	**0**			
		Tartarian Honeysuckle	9	0	**0**			
		Fleshy Hawthorn	6	0	**0**			
		Snow Berry	1	0	**0**			
WVT-010*º	Upland Deciduous	Snow Berry	10	0	**0**	0.086	0	**Yes**
		American Plum	6	0	**0**			
		Boxelder	4	0	**0**			
		Silver Buffaloberry	3	0	**0**			
		Chokecherry	2	0	**0**			
WVT-011*º	Upland Deciduous	Chokecherry	10	10	**20**	0.002	0.002	**No**
WVT-012*º	Upland Deciduous	Chokecherry	5	0	**0**	0.008	0	**No**
		Prickly Rose	3	0	**0**			
		Roundleaf Hawthorn	3	0	**0**			
WVT-013*º	Upland Deciduous	Chokecherry	75	0	**0**	0.043	0	**No**
		Saskatoon Serviceberry	10	0	**0**			
		Roundleaf Hawthorn	4	0	**0**			
WVT-014*º	Upland Deciduous	Boxelder	1	0	**0**	0.007	0	**Yes**
WVT-015*º	Upland Deciduous	Roundleaf Hawthorn	50	9	**18**	0.023	0.004	**Yes**
		Snow Berry	5	1	**2**			
WVT-016*º	Upland Deciduous	Green Ash	2	2	**4**	0.002	0.002	**No**
WVT-017*º	Upland Deciduous	Plains Cottonwood	3	1	**2**	0.007	0.003	**No**
WVT-018*º	Upland Deciduous	Green Ash	30	0	**0**	0.097	0	**Yes**
		Common Buckthorn	25	0	**0**			
		Snow Berry	10	0	**0**			
		Roundleaf Hawthorn	5	0	**0**			
		American Plum	4	0	**0**			
		Boxelder	4	0	**0**			
WVT-019*º	Upland Deciduous	Common Buckthorn	20	11	**22**	0.312	0.169	**Yes**
		Green Ash	16	9	**18**			
		Prickly Rose	10	5	**10**			

ºPreferred Route
*****Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Roundleaf Hawthorn	6	3	**6**			
		Black Currant	5	3	**6**			
		Chokecherry	4	2	**4**			
WVT-020*º	Upland Deciduous	Green Ash	41	8	**16**	0.597	0.110	**Yes**
		Chokecherry	40	7	**14**			
		Silver Buffaloberry	40	7	**14**			
		Prickly Rose	30	6	**12**			
		Black Currant	20	4	**8**			
		Snow Berry	15	3	**6**			
		Common Buckthorn	5	1	**2**			
		Tartarian Honeysuckle	4	1	**2**			
WVT-021*º	Riparian Deciduous	Green Ash	80	14	**28**	2.293	0.398	**Yes**
		Fleshy Hawthorn	40	7	**14**			
		Common Buckthorn	35	6	**12**			
		Chokecherry	20	3	**6**			
		Snow Berry	20	3	**6**			
		Silver Buffaloberry	15	3	**6**			
		Prickly Rose	10	2	**4**			
		Boxelder	8	1	**2**			
WVT-022*º	Riparian Deciduous	Fleshy Hawthorn	60	33	**66**	0.154	0.084	**Yes**
		Snow Berry	20	11	**22**			
		Snow Berry	10	5	**10**			
		Green Ash	5	3	**6**			
		American Elm	2	1	**2**			
WVT-023*º	Upland Deciduous	Snow Berry	30	8	**16**	0.935	0.261	**Yes**
		Roundleaf Hawthorn	25	7	**14**			
		Chokecherry	10	3	**6**			
		Green Ash	10	3	**6**			
		American Plum	5	1	**2**			
		Black Currant	5	1	**2**			
		American Elm	1	0	**0**			
WVT-024*º	Upland Deciduous	Snow Berry	80	0	**0**	0.005	0	**No**
		Fireberry Hawthorn	1	0	**0**			
WVT-025*º	Upland Deciduous	Chokecherry	40	3	**6**	0.018	0.001	**No**
		Fireberry Hawthorn	40	3	**6**			
		Prickly Rose	15	1	**2**			
WVT-026*º	Upland Deciduous	Silver Buffaloberry	60	47	**94**	0.091	0.072	**No**
		Snow Berry	40	32	**64**			
WVT-027*º	Upland Deciduous	Green Ash	150	15	**30**	0.284	0.028	**Yes**
WVT-028*º	Upland Deciduous	Silver Buffaloberry	30	10	**20**	0.350	0.122	**No**
		Roundleaf Hawthorn	20	7	**14**			
		Roundleaf Hawthorn	20	7	**14**			
		Chokecherry	5	2	**4**			
		Green Ash	1	0	**0**			

ºPreferred Route
*Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-029*º	Upland Deciduous	Silver Buffaloberry	75	0	**0**	0.114	0	**Yes**
		Snow Berry	15	0	**0**			
		Green Ash	5	0	**0**			
WVT-030*º	Upland Deciduous	Chokecherry	1081	226	**452**	3.299	0.690	**Yes**
		Bur Oak	648	136	**272**			
		Green Ash	81	17	**34**			
		American Elm	27	6	**12**			
		Silver Buffaloberry	10	2	**4**			
		Shrubby Cinquefoil	2	0	**0**			
		Snow Berry	2	0	**0**			
WVT-031*º	Upland Deciduous	Silver Buffaloberry	80	0	**0**	0.027	0	**Yes**
		Black Currant	5	0	**0**			
		Green Ash	1	0	**0**			
WVT-032*º	Upland Deciduous	Green Ash	3	0	**0**	0.002	0	**No**
WVT-033*º	Upland Deciduous	Green Ash	1	0	**0**	0.002	0	**No**
WVT-034*º	Upland Deciduous	Green Ash	2	0	**0**	0.002	0	**No**
WVT-035*º	Upland Deciduous	Green Ash	2	0	**0**	0.002	0	**No**
WVT-036*º	Upland Deciduous	Green Ash	3	0	**0**	0.002	0	**No**
WVT-037*º	Upland Deciduous	Green Ash	1	0	**0**	0.0002	0	**No**
WVT-038*º	Riparian Deciduous	Silver Buffaloberry	30	6	**12**	0.577	0.112	**Yes**
		Green Ash	21	4	**8**			
		Red-Osier Dogwood	15	3	**6**			
		Russian Olive	5	1	**2**			
		Snow Berry	3	1	**2**			
		American Plum	2	0	**0**			
		Chokecherry	2	0	**0**			
		Common Buckthorn	2	0	**0**			
		Prickly Rose	1	0	**0**			
WVT-039*º	Upland Deciduous	Russian Olive	3	1	**2**	0.006	0.002	**Yes**
WVT-040*º	Upland Deciduous	Russian Olive	1	1	**2**	0.002	0.001	**No**
WVT-042*º	Upland Deciduous	Silver Buffaloberry	55	0	**0**	0.054	0	**Yes**
		Prairie Rose	5	0	**0**			
		Snow Berry	3	0	**0**			
		American Elm	1	0	**0**			
WVT-043*º	Upland Deciduous	Green Ash	155	0	**0**	0.727	0	**Yes**
		American Elm	73	0	**0**			
		Boxelder	20	0	**0**			
		Bur Oak	13	0	**0**			
		Snow Berry	5	0	**0**			
		Chokecherry	2	0	**0**			
		Prairie Rose	1	0	**0**			
WVT-044*º	Upland Deciduous	Green Ash	2	0	**0**	0.002	0	**No**
WVT-045*º	Upland Deciduous	Green Ash	44	0	**0**	0.318	0	**Yes**
		Bur Oak	26	0	**0**			

ºPreferred Route
***Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		American Elm	9	0	**0**			
		Snow Berry	2	0	**0**			
		Boxelder	1	0	**0**			
		Chokecherry	1	0	**0**			
WVT-046*º	Riparian Deciduous	Bur Oak	149	33	**66**	1.656	0.361	**Yes**
WVT-047*º	Upland Deciduous	Skunkbush Sumac	27	0	**0**	0.022	0	**No**
		Snow Berry	15	0	**0**			
		Chokecherry	5	0	**0**			
		Green Ash	2	0	**0**			
WVT-048*º	Upland Deciduous	Bur Oak	23	0	**0**	0.085	0	**Yes**
		Roundleaf Hawthorn	6	0	**0**			
WVT-049*º	Upland Deciduous	Roundleaf Hawthorn	20	0	**0**	0.292	0	**Yes**
		Silver Buffaloberry	20	0	**0**			
		Snow Berry	20	0	**0**			
		Green Ash	9	0	**0**			
		Bur Oak	1	0	**0**			
WVT-050*º	Upland Deciduous	Silver Buffaloberry	20	10	**20**	0.038	0.020	**No**
		Snow Berry	15	8	**16**			
		Green Ash	1	1	**2**			
WVT-051*º	Upland Deciduous	Silver Buffaloberry	50	22	**44**	0.065	0.028	**No**
		Snow Berry	20	9	**18**			
		Chokecherry	5	2	**4**			
		Green Ash	2	1	**2**			
WVT-052*º	Upland Deciduous	Chokecherry	30	0	**0**	0.050	0	**No**
		Silver Buffaloberry	10	0	**0**			
		Snow Berry	10	0	**0**			
		Fleshy Hawthorn	5	0	**0**			
		Green Ash	3	0	**0**			
WVT-053*º	Upland Deciduous	Bur Oak	28	0	**0**	0.084	0	**Yes**
		Chokecherry	10	0	**0**			
		Green Ash	3	0	**0**			
WVT-054*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**No**
WVT-055*º	Upland Deciduous	Bur Oak	126	25	**50**	0.626	0.126	**Yes**
		Green Ash	26	5	**10**			
		Snow Berry	20	4	**8**			
		Chokecherry	2	0	**0**			
		Silver Buffaloberry	2	0	**0**			
WVT-056*º	Upland Deciduous	Bur Oak	4	0	**0**	0.003	0	**No**
WVT-057*º	Upland Deciduous	Quaking Aspen	30	0	**0**	0.128	0	**Yes**
		Bur Oak	16	0	**0**			
		Chokecherry	10	0	**0**			
		Roundleaf Hawthorn	10	0	**0**			
		Green Ash	3	0	**0**			
WVT-058*º	Upland Deciduous	Bur Oak	182	0	**0**	0.772	0	**Yes**

ºPreferred Route
*****Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Roundleaf Hawthorn	20	0	**0**			
		Chokecherry	10	0	**0**			
		American Hazelnut	5	0	**0**			
		Silver Buffaloberry	5	0	**0**			
		Green Ash	4	0	**0**			
		Quaking Aspen	2	0	**0**			
WVT-059*º	Upland Mixed	Fleshy Hawthorn	3	3	**6**	0.007	0.007	**No**
WVT-060*º	Upland Deciduous	Bur Oak	30	14	**28**	0.165	0.075	**Yes**
		Snow Berry	20	9	**18**			
		Crabapple	15	7	**14**			
		Siberian Elm	4	2	**4**			
WVT-061*º	Upland Deciduous	Siberian Elm	2	1	**2**	0.007	0.005	**No**
WVT-062*º	Upland Deciduous	Roundleaf Hawthorn	20	0	**0**	0.265	0	**No**
		Silver Buffaloberry	15	0	**0**			
		American Hazelnut	10	0	**0**			
		Green Ash	5	0	**0**			
WVT-063*º	Upland Deciduous	Green Ash	1	0	**0**	0.002	0	**No**
WVT-064*º	Upland Deciduous	Bur Oak	35	0	**0**	0.155	0	**Yes**
		Snow Berry	10	0	**0**			
		American Elm	3	0	**0**			
WVT-065*º	Upland Deciduous	Green Ash	1	0	**0**	0.008	0	**No**
WVT-066*º	Upland Deciduous	Green Ash	2	0	**0**	0.007	0	**Yes**
WVT-067*º	Riparian Deciduous	Silver Buffaloberry	30	0	**0**	0.428	0	**Yes**
		American Hazelnut	20	0	**0**			
		Chokecherry	10	0	**0**			
		Snow Berry	10	0	**0**			
		Green Ash	9	0	**0**			
		Shrubby Cinquefoil	5	0	**0**			
		American Elm	1	0	**0**			
WVT-068*º	Upland Deciduous	Roundleaf Hawthorn	30	0	**0**	0.207	0	**Yes**
		Snow Berry	30	0	**0**			
		Chokecherry	20	0	**0**			
		Nannyberry	16	0	**0**			
		Silver Buffaloberry	15	0	**0**			
		Green Ash	12	0	**0**			
		Prickly Rose	5	0	**0**			
		Black Currant	2	0	**0**			
WVT-069*º	Upland Deciduous	Silver Buffaloberry	25	0	**0**	0.004	0	**No**
		Snow Berry	5	0	**0**			
WVT-070*º	Upland Deciduous	Silver Buffaloberry	50	3	**6**	0.145	0.008	**Yes**
		Chokecherry	10	1	**2**			
		Snow Berry	7	0	**0**			
		Green Ash	3	0	**0**			
WVT-071*º	Upland Deciduous	Snow Berry	35	8	**16**	0.207	0.045	**Yes**

ºPreferred Route
*****Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Silver Buffaloberry	20	4	**8**			
		Roundleaf Hawthorn	15	3	**6**			
		Green Ash	8	2	**4**			
		Black Currant	5	1	**2**			
WVT-072*º	Riparian Deciduous	Green Ash	42	13	**26**	0.718	0.225	**Yes**
		Silver Buffaloberry	20	6	**12**			
		Chokecherry	5	2	**4**			
		Snow Berry	3	1	**2**			
		Russian Olive	1	0	**0**			
		Saskatoon Serviceberry	1	0	**0**			
WVT-073*º	Upland Deciduous	Silver Buffaloberry	30	19	**38**	0.331	0.215	**No**
		Snow Berry	25	16	**32**			
		Roundleaf Hawthorn	20	13	**26**			
		Green Ash	2	1	**2**			
WVT-074*º	Upland Deciduous	Green Ash	1	0	**0**	0.0003	0	**Yes**
WVT-075*º	Upland Deciduous	Silver Buffaloberry	70	13	**26**	0.258	0.049	**Yes**
		Green Ash	25	5	**10**			
		Snow Berry	10	2	**4**			
		Chokecherry	5	1	**2**			
		Roundleaf Hawthorn	5	1	**2**			
WVT-076*º	Upland Deciduous	Green Ash	20	3	**6**	0.351	0.060	**Yes**
		Silver Buffaloberry	15	3	**6**			
		Snow Berry	15	3	**6**			
		Common Juniper	2	0	**0**			
		American Elm	1	0	**0**			
WVT-077*º	Upland Deciduous	Silver Buffaloberry	75	0	**0**	0.172	0	**Yes**
		Snow Berry	20	0	**0**			
		Green Ash	5	0	**0**			
WVT-078*º	Upland Deciduous	Fleshy Hawthorn	40	25	**50**	0.279	0.173	**Yes**
		Silver Buffaloberry	20	12	**24**			
		Bur Oak	5	3	**6**			
		Green Ash	4	2	**4**			
WVT-079*º	Upland Deciduous	Snow Berry	6	3	**6**	0.064	0.030	**Yes**
		American Elm	4	2	**4**			
		Green Ash	1	0	**0**			
WVT-080*º	Upland Deciduous	Green Ash	137	29	**58**	2.635	0.552	**Yes**
		Paper Birch	30	6	**12**			
		Roundleaf Hawthorn	25	5	**10**			
		Snow Berry	20	4	**8**			
		Silver Buffaloberry	10	2	**4**			
		Northern Gooseberry	5	1	**2**			
		Roundleaf Hawthorn	5	1	**2**			
		American Elm	1	0	**0**			
		Bur Oak	1	0	**0**			

ºPreferred Route
***Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-081*º	Upland Deciduous	Siberian Elm	2	0	**0**	0.002	0	**No**
WVT-082*º	Upland Deciduous	Siberian Elm	10	0	**0**	0.003	0	**No**
WVT-083*º	Upland Deciduous	Green Ash	1	0	**0**	0.001	0	**No**
WVT-084*º	Upland Deciduous	Silver Sagebrush	70	0	**0**	0.055	0	**Yes**
		Green Ash	5	0	**0**			
		Siberian Elm	3	0	**0**			
		Russian Olive	1	0	**0**			
WVT-085*º	Upland Deciduous	Roundleaf Hawthorn	40	11	**22**	0.273	0.077	**Yes**
		Green Ash	25	7	**14**			
		Chokecherry	20	6	**12**			
		American Hazelnut	10	3	**6**			
		Snow Berry	10	3	**6**			
WVT-086*º	Upland Deciduous	American Elm	2	2	**4**	0.007	0.007	**No**
WVT-087*º	Upland Deciduous	Roundleaf Hawthorn	5	0	**0**	0.035	0	**Yes**
		Chokecherry	3	0	**0**			
		Quaking Aspen	2	0	**0**			
		Green Ash	1	0	**0**			
WVT-088*º	Upland Deciduous	Green Ash	2	1	**2**	0.085	0.038	**No**
		American Plum	1	0	**0**			
WVT-089*º	Upland Deciduous	Quaking Aspen	156	50	**100**	0.933	0.301	**Yes**
		Chokecherry	72	23	**46**			
		Green Ash	25	8	**16**			
		Prairie Rose	21	7	**14**			
		Skunkbush Sumac	8	3	**6**			
		American Plum	7	2	**4**			
WVT-090*º	Upland Deciduous	Silver Buffaloberry	50	0	**0**	0.210	0	**Yes**
		Chokecherry	20	0	**0**			
		Snow Berry	20	0	**0**			
		Green Ash	4	0	**0**			
WVT-091*º	Upland Deciduous	Quaking Aspen	145	12	**24**	0.587	0.050	**Yes**
		Chokecherry	120	10	**20**			
		American Plum	20	2	**4**			
		Green Ash	14	1	**2**			
		Siberian Elm	8	1	**2**			
WVT-092*º	Upland Deciduous	Quaking Aspen	22	0	**0**	0.050	0	**Yes**
		Green Ash	2	0	**0**			
WVT-093*º	Upland Deciduous	Chokecherry	78	2	**4**	0.327	0.009	**Yes**
		Quaking Aspen	54	2	**4**			
		Prairie Rose	6	0	**0**			
		American Plum	4	0	**0**			
		Creeping Juniper	1	0	**0**			
WVT-094*º	Upland Deciduous	Green Ash	47	9	**18**	1.035	0.209	**Yes**
		Chokecherry	25	5	**10**			
		Prickly Rose	7	1	**2**			

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		American Plum	6	1	**2**			
WVT-095*º	Upland Deciduous	Green Ash	3020	399	**798**	4.768	0.629	**Yes**
		Quaking Aspen	1923	254	**508**			
		Chokecherry	811	107	**214**			
		Prickly Rose	285	38	**76**			
		American Plum	90	12	**24**			
		American Elm	30	4	**8**			
		Snow Berry	2	0	**0**			
		Silver Buffaloberry	1	0	**0**			
WVT-096*º	Upland Deciduous	Quaking Aspen	45	0	**0**	0.063	0	**Yes**
		Snow Berry	5	0	**0**			
		Green Ash	3	0	**0**			
WVT-097*º	Upland Deciduous	Quaking Aspen	1	0	**0**	3.938	0.794	**Yes**
WVT-098*º	Upland Deciduous	American Plum	50	0	**0**	0.130	0	**Yes**
		Green Ash	2	0	**0**			
WVT-099*º	Upland Deciduous	Chokecherry	10	0	**0**	0.027	0	**Yes**
		Prairie Rose	10	0	**0**			
		Saskatoon Serviceberry	10	0	**0**			
		Green Ash	7	0	**0**			
WVT-100*º	Upland Deciduous	Chokecherry	10	0	**0**	0.133	0	**Yes**
		Roundleaf Hawthorn	10	0	**0**			
		Boxelder	2	0	**0**			
WVT-101*º	Upland Mixed	Boxelder	2	0	**0**	0.007	0	**No**
WVT-102*º	Upland Deciduous	Silver Buffaloberry	30	0	**0**	0.104	0	**Yes**
		Snow Berry	20	0	**0**			
		Chokecherry	10	0	**0**			
		Green Ash	1	0	**0**			
WVT-103*º	Upland Deciduous	American Elm	1	1	**2**	0.007	0.007	**Yes**
WVT-104*º	Upland Deciduous	Snow Berry	15	0	**0**	0.005	0	**No**
		Green Ash	2	0	**0**			
WVT-105*º	Upland Deciduous	American Elm	1	0	**0**	0.007	0	**Yes**
WVT-106*º	Upland Deciduous	Chokecherry	3914	1175	**2350**	11.631	3.491	**Yes**
		Green Ash	2532	760	**1520**			
		American Elm	633	190	**380**			
		Fireberry Hawthorn	576	173	**346**			
		Prickly Rose	288	86	**172**			
		Saskatoon Serviceberry	230	69	**138**			
		Siberian Elm	230	69	**138**			
		Boxelder	173	52	**104**			
		Rocky Mountain Juniper	58	17	**34**			
		Snow Berry	10	3	**6**			
WVT-107*º	Upland Deciduous	Creeping Juniper	25	0	**0**	1.491	0	**Yes**
		Green Ash	12	0	**0**			
		Prairie Rose	10	0	**0**			

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Snow Berry	10	0	**0**			
		Rocky Mountain Juniper	6	0	**0**			
		Common Juniper	5	0	**0**			
		Silver Buffaloberry	5	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Silver Sagebrush	3	0	**0**			
WVT-108*º	Upland Deciduous	Green Ash	189	0	**0**	0.368	0	**Yes**
		Saskatoon Serviceberry	19	0	**0**			
		Chokecherry	15	0	**0**			
		Snow Berry	10	0	**0**			
		American Elm	4	0	**0**			
		Rocky Mountain Juniper	4	0	**0**			
WVT-109*º	Upland Deciduous	Green Ash	135	0	**0**	0.249	0	**Yes**
		Chokecherry	25	0	**0**			
		Snow Berry	15	0	**0**			
		American Elm	5	0	**0**			
		Saskatoon Serviceberry	5	0	**0**			
WVT-110*º	Upland Deciduous	Green Ash	17	0	**0**	0.059	0	**Yes**
		Snow Berry	15	0	**0**			
		Chokecherry	12	0	**0**			
		Saskatoon Serviceberry	10	0	**0**			
		Prairie Rose	5	0	**0**			
WVT-111*º	Upland Deciduous	Green Ash	387	0	**0**	1.282	0	**Yes**
		American Elm	142	0	**0**			
		Saskatoon Serviceberry	65	0	**0**			
		Chokecherry	39	0	**0**			
		Prairie Rose	35	0	**0**			
		American Plum	26	0	**0**			
		Fireberry Hawthorn	26	0	**0**			
		Snow Berry	10	0	**0**			
WVT-112*º	Upland Deciduous	Snow Berry	40	9	**18**	0.295	0.065	**No**
		Silver Buffaloberry	25	6	**12**			
		Prickly Rose	5	1	**2**			
		Green Ash	2	0	**0**			
WVT-113*º	Upland Deciduous	Green Ash	205	12	**24**	2.469	0.142	**Yes**
		American Elm	29	2	**4**			
		Boxelder	15	1	**2**			
		Chokecherry	15	1	**2**			
		Snow Berry	10	1	**2**			
		American Plum	8	0	**0**			
		Rocky Mountain Juniper	3	0	**0**			
		Siberian Elm	3	0	**0**			
		Silver Buffaloberry	2	0	**0**			
		Roundleaf Hawthorn	1	0	**0**			

ºPreferred Route
***Alternative Route

% = Percent Cover

Trees

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-114*º	Upland Deciduous	Skunkbush Sumac	40	0	**0**	0.014	0	**Yes**
		Green Ash	2	0	**0**			
WVT-115*º	Upland Deciduous	Green Ash	3	0	**0**	0.001	0	**Yes**
WVT-116*º	Upland Deciduous	Chokecherry	829	107	**214**	4.589	0.590	**Yes**
		Green Ash	655	84	**168**			
		American Elm	135	17	**34**			
		Saskatoon Serviceberry	77	10	**20**			
		American Plum	39	5	**10**			
		Rocky Mountain Juniper	39	5	**10**			
		Roundleaf Hawthorn	39	5	**10**			
		Quaking Aspen	19	2	**4**			
		Prairie Rose	5	1	**2**			
		Snow Berry	5	1	**2**			
WVT-117*º	Upland Deciduous	Silver Buffaloberry	30	30	**60**	0.060	0.060	**Yes**
		Snow Berry	20	20	**40**			
		Green Ash	5	5	**10**			
		Chokecherry	3	3	**6**			
WVT-118*º	Upland Deciduous	Green Ash	95	29	**58**	2.184	0.657	**Yes**
		Snow Berry	30	9	**18**			
		Rocky Mountain Juniper	25	8	**16**			
		Skunkbush Sumac	15	5	**10**			
		Chokecherry	10	3	**6**			
		Silver Buffaloberry	10	3	**6**			
		Silver Sagebrush	10	3	**6**			
		Common Juniper	5	2	**4**			
		Creeping Juniper	5	2	**4**			
WVT-119*º	Upland Mixed	Green Ash	85	45	**90**	0.663	0.352	**Yes**
		American Elm	17	9	**18**			
		Saskatoon Serviceberry	6	3	**6**			
		Skunkbush Sumac	5	3	**6**			
		Snow Berry	5	3	**6**			
		Fireberry Hawthorn	2	1	**2**			
		Prairie Rose	2	1	**2**			
		Rocky Mountain Juniper	2	1	**2**			
		Chokecherry	1	1	**2**			
		Silver Sagebrush	1	1	**2**			
WVT-120*º	Upland Deciduous	Green Ash	732	251	**502**	3.193	1.093	**Yes**
		Chokecherry	244	84	**168**			
		Rocky Mountain Juniper	136	47	**94**			
		American Elm	52	18	**36**			
		Snow Berry	30	10	**20**			
		Saskatoon Serviceberry	27	9	**18**			
		Common Juniper	5	2	**4**			
		Prairie Rose	5	2	**4**			

ºPreferred Route
*Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-121*º	Upland Deciduous	Silver Buffaloberry	30	0	**0**	0.393	0	**Yes**
		Green Ash	17	0	**0**			
		Rocky Mountain Juniper	5	0	**0**			
		American Elm	2	0	**0**			
WVT-122*º	Upland Deciduous	Green Ash	2	0	**0**	0.001	0	**Yes**
WVT-123*º	Upland Deciduous	Green Ash	1	0	**0**	0.002	0	**No**
WVT-124*º	Upland Deciduous	Skunkbush Sumac	80	0	**0**	0.005	0	**No**
		Chokecherry	1	0	**0**			
		Green Ash	1	0	**0**			
WVT-125*º	Upland Deciduous	Green Ash	1	0	**0**	0.002	0	**No**
WVT-126*º	Upland Deciduous	Common Juniper	20	0	**0**	0.025	0	**Yes**
		Green Ash	10	0	**0**			
		Rocky Mountain Juniper	6	0	**0**			
WVT-127*º	Riparian Deciduous	Green Ash	249	26	**52**	1.161	0.122	**Yes**
		American Elm	76	8	**16**			
		Snow Berry	35	4	**8**			
		Rocky Mountain Juniper	11	1	**2**			
		Prairie Rose	3	0	**0**			
		Skunkbush Sumac	2	0	**0**			
		Common Juniper	1	0	**0**			
WVT-128*º	Upland Deciduous	Green Ash	296	60	**120**	1.531	0.311	**Yes**
		Rocky Mountain Juniper	39	8	**16**			
		American Elm	29	6	**12**			
		Silver Buffaloberry	5	1	**2**			
		Skunkbush Sumac	5	1	**2**			
		Snow Berry	5	1	**2**			
		Silver Sagebrush	3	1	**2**			
		Chokecherry	2	0	**0**			
		Black Currant	1	0	**0**			
		Common Juniper	1	0	**0**			
WVT-129*º	Upland Mixed	Green Ash	65	0	**0**	0.002	0	**Yes**
		Silver Buffaloberry	20	0	**0**			
		Skunkbush Sumac	20	0	**0**			
		Rocky Mountain Juniper	15	0	**0**			
		Snow Berry	15	0	**0**			
		Silver Sagebrush	10	0	**0**			
		Common Juniper	4	0	**0**			
		Prickly Rose	2	0	**0**			
		Saskatoon Serviceberry	1	0	**0**			
WVT-130*º	Upland Deciduous	Snow Berry	15	15	**30**	0.067	0.067	**Yes**
		Green Ash	11	11	**22**			
		Skunkbush Sumac	5	5	**10**			
		Silver Sagebrush	2	2	**4**			
		Chokecherry	1	1	**2**			

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			Survey Area	Const. ROW	Est. Mitigation			
		Prairie Rose	1	1	**2**			
WVT-131*º	Upland Deciduous	Skunkbush Sumac	40	0	**0**	0.109	0	**Yes**
		Snow Berry	20	0	**0**			
		Green Ash	13	0	**0**			
		Silver Sagebrush	5	0	**0**			
WVT-132*º	Upland Deciduous	Green Ash	75	0	**0**	0.621	0	**Yes**
		Rocky Mountain Juniper	23	0	**0**			
		Silver Buffaloberry	10	0	**0**			
		Skunkbush Sumac	10	0	**0**			
		Snow Berry	5	0	**0**			
		Common Juniper	2	0	**0**			
		Creeping Juniper	2	0	**0**			
		Silver Sagebrush	2	0	**0**			
WVT-133*º	Upland Deciduous	Rocky Mountain Juniper	4	0	**0**	0.002	0	**Yes**
WVT-134*º	Upland Deciduous	Green Ash	55	0	**0**	0.455	0	**Yes**
		Silver Buffaloberry	20	0	**0**			
		American Elm	13	0	**0**			
		Snow Berry	10	0	**0**			
		Rocky Mountain Juniper	8	0	**0**			
		Skunkbush Sumac	3	0	**0**			
		Chokecherry	2	0	**0**			
		Creeping Juniper	2	0	**0**			
WVT-135*º	Upland Deciduous	Rocky Mountain Juniper	2	0	**0**	0.002	0	**Yes**
WVT-136*º	Upland Deciduous	Rocky Mountain Juniper	1	0	**0**	0.002	0	**Yes**
WVT-137*º	Upland Deciduous	Green Ash	124	11	**22**	2.984	0.264	**Yes**
		Rocky Mountain Juniper	58	5	**10**			
		Silver Buffaloberry	20	2	**4**			
		American Elm	12	1	**2**			
		Skunkbush Sumac	10	1	**2**			
		Snow Berry	5	0	**0**			
		Creeping Juniper	4	0	**0**			
		Common Juniper	2	0	**0**			
		Silver Sagebrush	2	0	**0**			
		Chokecherry	1	0	**0**			
WVT-138*º	Upland Deciduous	Silver Buffaloberry	20	0	**0**	0.106	0	**Yes**
		Green Ash	11	0	**0**			
		American Elm	2	0	**0**			
WVT-139*º	Upland Deciduous	Green Ash	1	0	**0**	0.002	0	**No**
WVT-140*º	Upland Deciduous	Rocky Mountain Juniper	1	0	**0**	0.002	0	**No**
WVT-141*º	Upland Deciduous	Rocky Mountain Juniper	8	0	**0**	0.013	0	**No**
WVT-142*º	Riparian Deciduous	Green Ash	249	5	**10**	2.689	0.051	**Yes**
		American Elm	76	1	**2**			
		Snow Berry	35	1	**2**			
		Rocky Mountain Juniper	11	0	**0**			

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			Survey Area	Const. ROW	Est. Mitigation			
		Prairie Rose	3	0	**0**			
		Skunkbush Sumac	2	0	**0**			
		Common Juniper	1	0	**0**			
WVT-143*º	Upland Deciduous	Green Ash	288	83	**166**	2.505	0.725	**Yes**
		American Elm	100	29	**58**			
		Rocky Mountain Juniper	31	9	**18**			
		Chokecherry	15	4	**8**			
		Silver Buffaloberry	15	4	**8**			
		Prickly Rose	5	1	**2**			
		Silver Sagebrush	5	1	**2**			
		Snow Berry	5	1	**2**			
		Common Juniper	2	1	**2**			
		Boxelder	1	0	**0**			
WVT-144*º	Riparian Deciduous	American Elm	65	0	**0**	2.473	0	**Yes**
		Green Ash	55	0	**0**			
		Rocky Mountain Juniper	12	0	**0**			
		Silver Buffaloberry	10	0	**0**			
		Chokecherry	5	0	**0**			
		Siberian Elm	4	0	**0**			
		Roundleaf Hawthorn	2	0	**0**			
		Silver Sagebrush	2	0	**0**			
		Snow Berry	2	0	**0**			
		Skunkbush Sumac	1	0	**0**			
WVT-145*º	Upland Deciduous	Green Ash	155	21	**42**	0.808	0.111	**Yes**
		Silver Buffaloberry	40	6	**12**			
		Rocky Mountain Juniper	21	3	**6**			
		Snow Berry	10	1	**2**			
		Skunkbush Sumac	2	0	**0**			
WVT-146*º	Upland Mixed	American Elm	26	0	**0**	1.338	0	**Yes**
		Silver Buffaloberry	25	0	**0**			
		Snow Berry	20	0	**0**			
		Green Ash	19	0	**0**			
		Skunkbush Sumac	15	0	**0**			
		Fireberry Hawthorn	10	0	**0**			
		Silver Sagebrush	10	0	**0**			
		Prairie Rose	6	0	**0**			
		American Plum	2	0	**0**			
		Siberian Elm	2	0	**0**			
WVT-147*º	Upland Deciduous	Prairie Rose	50	0	**0**	0.021	0	**Yes**
		Silver Buffaloberry	3	0	**0**			
		Green Ash	1	0	**0**			
		Siberian Elm	1	0	**0**			
WVT-148*º	Upland Deciduous	Rocky Mountain Juniper	1	0	**0**	0.007	0	**No**
WVT-149*º	Upland Deciduous	Green Ash	1	1	**2**	0.007	0.007	**No**

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-150*º	Upland Deciduous	Silver Buffaloberry	25	0	**0**	0.151	0	**Yes**
		Skunkbush Sumac	15	0	**0**			
		Silver Sagebrush	5	0	**0**			
		Rocky Mountain Juniper	3	0	**0**			
		Chokecherry	2	0	**0**			
		Green Ash	1	0	**0**			
WVT-151*º	Upland Deciduous	Creeping Juniper	20	0	**0**	0.193	0	**Yes**
		Silver Buffaloberry	20	0	**0**			
		Skunkbush Sumac	10	0	**0**			
		Rocky Mountain Juniper	8	0	**0**			
		Snow Berry	5	0	**0**			
		Common Juniper	1	0	**0**			
WVT-152*º	Upland Deciduous	Siberian Elm	2	0	**0**	0.007	0	**No**
WVT-153*º	Upland Deciduous	Silver Sagebrush	10	0	**0**	0.198	0	**Yes**
		Skunkbush Sumac	5	0	**0**			
		Snow Berry	5	0	**0**			
		Rocky Mountain Juniper	4	0	**0**			
		Common Juniper	2	0	**0**			
		Creeping Juniper	2	0	**0**			
		Silver Buffaloberry	2	0	**0**			
WVT-154*º	Upland Deciduous	Siberian Elm	1	0	**0**	0.007	0	**No**
WVT-155*º	Upland Deciduous	Green Ash	2	0	**0**	0.007	0	**Yes**
WVT-156*º	Upland Deciduous	Silver Buffaloberry	30	0	**0**	0.063	0	**Yes**
		Skunkbush Sumac	20	0	**0**			
		Silver Sagebrush	5	0	**0**			
		Creeping Juniper	2	0	**0**			
		Snow Berry	2	0	**0**			
		Green Ash	1	0	**0**			
		Prairie Rose	1	0	**0**			
		Rocky Mountain Juniper	1	0	**0**			
WVT-157*º	Upland Deciduous	Green Ash	9	0	**0**	0.046	0	**Yes**
WVT-158*º	Upland Deciduous	Siberian Elm	1	0	**0**	0.007	0	**Yes**
WVT-159*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**No**
WVT-160*º	Upland Deciduous	Silver Buffaloberry	60	28	**56**	0.241	0.113	**Yes**
		Rocky Mountain Juniper	13	6	**12**			
		Common Juniper	10	5	**10**			
		Skunkbush Sumac	5	2	**4**			
		Chokecherry	2	1	**2**			
WVT-161*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**No**
WVT-162*º	Upland Deciduous	Rocky Mountain Juniper	18	0	**0**	0.137	0	**Yes**
		Snow Berry	15	0	**0**			
		Silver Buffaloberry	5	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Silver Sagebrush	2	0	**0**			

ºPreferred Route
*****Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-163*º	Upland Mixed	Silver Sagebrush	30	11	**22**	0.625	0.231	**Yes**
		Silver Buffaloberry	20	7	**14**			
		Snow Berry	20	7	**14**			
		American Elm	6	2	**4**			
		Roundleaf Hawthorn	6	2	**4**			
		Prairie Rose	5	2	**4**			
		Green Ash	3	1	**2**			
		Rocky Mountain Juniper	2	1	**2**			
WVT-164*º	Upland Deciduous	Rocky Mountain Juniper	28	0	**0**	0.039	0	**Yes**
		Snow Berry	8	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Green Ash	3	0	**0**			
		Silver Buffaloberry	2	0	**0**			
WVT-165*º	Upland Deciduous	Green Ash	8	8	**16**	0.038	0.038	**Yes**
		Siberian Elm	1	1	**2**			
WVT-166*º	Upland Deciduous	Skunkbush Sumac	20	11	**22**	0.102	0.054	**Yes**
		Silver Buffaloberry	10	5	**10**			
		Snow Berry	10	5	**10**			
		Green Ash	2	1	**2**			
		Siberian Elm	1	1	**2**			
WVT-167*º	Upland Deciduous	Silver Buffaloberry	20	0	**0**	0.210	0	**Yes**
		Snow Berry	15	0	**0**			
		Skunkbush Sumac	10	0	**0**			
		Rocky Mountain Juniper	6	0	**0**			
		Common Juniper	4	0	**0**			
		Green Ash	1	0	**0**			
WVT-168*º	Upland Deciduous	Green Ash	74	13	**26**	1.774	0.322	**Yes**
		Skunkbush Sumac	20	4	**8**			
		Silver Buffaloberry	15	3	**6**			
		Chokecherry	9	2	**4**			
		Rocky Mountain Juniper	8	1	**2**			
		Silver Sagebrush	5	1	**2**			
		Snow Berry	5	1	**2**			
		Siberian Elm	4	1	**2**			
		Common Juniper	2	0	**0**			
WVT-169*º	Upland Deciduous	Roundleaf Hawthorn	4	0	**0**	0.007	0	**No**
WVT-170*º	Upland Deciduous	Green Ash	35	0	**0**	0.563	0	**Yes**
		Silver Buffaloberry	30	0	**0**			
		Snow Berry	20	0	**0**			
		American Plum	12	0	**0**			
		Chokecherry	9	0	**0**			
		Fireberry Hawthorn	3	0	**0**			
		Rocky Mountain Juniper	3	0	**0**			
		Skunkbush Sumac	2	0	**0**			

ºPreferred Route
*Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Prickly Rose	1	0	**0**			
		Russian Olive	1	0	**0**			
WVT-171*º	Upland Deciduous	Green Ash	1	1	**2**	0.007	0.007	**No**
WVT-172*º	Upland Deciduous	Green Ash	9	0	**0**	0.056	0	**Yes**
		Siberian Elm	1	0	**0**			
WVT-173*º	Upland Deciduous	Snow Berry	15	7	**14**	0.156	0.076	**Yes**
		Silver Sagebrush	5	2	**4**			
		Skunkbush Sumac	5	2	**4**			
		Green Ash	4	2	**4**			
		Siberian Elm	4	2	**4**			
WVT-174*º	Upland Deciduous	Green Ash	13	0	**0**	0.071	0	**Yes**
		Silver Sagebrush	10	0	**0**			
		Snow Berry	10	0	**0**			
		Silver Buffaloberry	2	0	**0**			
		Skunkbush Sumac	2	0	**0**			
WVT-175*º	Upland Deciduous	Green Ash	1	1	**2**	0.007	0.007	**Yes**
WVT-176*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**No**
WVT-177*º	Upland Deciduous	Snow Berry	15	7	**14**	0.170	0.076	**Yes**
		Green Ash	8	4	**8**			
		Silver Sagebrush	5	2	**4**			
		Skunkbush Sumac	5	2	**4**			
		Siberian Elm	3	1	**2**			
WVT-178*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**Yes**
WVT-179*º	Upland Deciduous	Green Ash	23	12	**24**	0.174	0.091	**Yes**
		Snow Berry	20	10	**20**			
		Rocky Mountain Juniper	10	5	**10**			
		Silver Buffaloberry	10	5	**10**			
		Skunkbush Sumac	10	5	**10**			
		Siberian Elm	4	2	**4**			
		Chokecherry	3	2	**4**			
WVT-180*º	Upland Deciduous	Green Ash	4	0	**0**	0.086	0	**Yes**
		Fireberry Hawthorn	2	0	**0**			
WVT-181*º	Upland Deciduous	American Plum	20	0	**0**	0.087	0	**Yes**
		Silver Buffaloberry	15	0	**0**			
		Snow Berry	15	0	**0**			
		Chokecherry	10	0	**0**			
		Rocky Mountain Juniper	2	0	**0**			
		Silver Sagebrush	2	0	**0**			
		Green Ash	1	0	**0**			
		Prairie Rose	1	0	**0**			
WVT-182*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**Yes**
WVT-183*º	Upland Deciduous	Skunkbush Sumac	20	0	**0**	0.044	0	**Yes**
		Snow Berry	20	0	**0**			
		Prairie Rose	5	0	**0**			

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Silver Sagebrush	5	0	**0**			
		Green Ash	4	0	**0**			
WVT-184*º	Riparian Deciduous	Green Ash	1493	363	**726**	5.253	1.277	**Yes**
		Red-Osier Dogwood	395	96	**192**			
		Plains Cottonwood	247	60	**120**			
		Boxelder	198	48	**96**			
		Chokecherry	198	48	**96**			
		American Elm	99	24	**48**			
		Peachleaf Willow	49	12	**24**			
		Prairie Rose	10	2	**4**			
		Snow Berry	5	1	**2**			
		Silver Buffaloberry	1	0	**0**			
WVT-185*º	Riparian Deciduous	Sandbar Willow	80	15	**30**	0.406	0.078	**No**
		Peachleaf Willow	10	2	**4**			
WVT-186*º	Riparian Deciduous	Green Ash	1126	214	**428**	9.372	1.780	**Yes**
		Plains Cottonwood	1126	214	**428**			
		Chokecherry	433	82	**164**			
		Rocky Mountain Juniper	87	17	**34**			
		Boxelder	29	6	**12**			
		Peachleaf Willow	29	6	**12**			
		Snow Berry	5	1	**2**			
		Prickly Rose	3	1	**2**			
WVT-187*º	Upland Mixed	Rocky Mountain Juniper	1	1	**2**	0.007	0.007	**No**
WVT-188*º	Upland Mixed	Rocky Mountain Juniper	1	0	**0**	0.007	0	**No**
WVT-189*º	Upland Mixed	Rocky Mountain Juniper	2	0	**0**	0.014	0	**No**
WVT-190*º	Upland Deciduous	Rocky Mountain Juniper	1665	293	**586**	5.285	0.929	**Yes**
		Green Ash	396	70	**140**			
		Chokecherry	106	19	**38**			
		Skunkbush Sumac	10	2	**4**			
		Snow Berry	8	1	**2**			
		Silver Sagebrush	5	1	**2**			
		Rubber Rabbitbrush	3	1	**2**			
WVT-191*º	Upland Deciduous	Rocky Mountain Juniper	112	0	**0**	0.507	0	**Yes**
		Green Ash	51	0	**0**			
		Chokecherry	6	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Snow Berry	5	0	**0**			
		Silver Sagebrush	3	0	**0**			
WVT-192*º	Upland Deciduous	Rocky Mountain Juniper	5	0	**0**	0.077	0	**No**
		Silver Sagebrush	5	0	**0**			
		Green Ash	4	0	**0**			
WVT-193*º	Upland Deciduous	Silver Sagebrush	15	0	**0**	0.040	0	**No**
		Snow Berry	15	0	**0**			
		Rocky Mountain Juniper	1	0	**0**			

ºPreferred Route
*****Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-194*º	Upland Deciduous	Chokecherry	20	0	**0**	0.097	0	**Yes**
		Green Ash	18	0	**0**			
		Rocky Mountain Juniper	7	0	**0**			
		Silver Sagebrush	5	0	**0**			
		Snow Berry	5	0	**0**			
		Skunkbush Sumac	2	0	**0**			
WVT-195*º	Upland Deciduous	Rocky Mountain Juniper	647	110	**220**	1.534	0.261	**Yes**
		Green Ash	71	12	**24**			
		Skunkbush Sumac	52	9	**18**			
		Common Juniper	15	3	**6**			
		Chokecherry	5	1	**2**			
WVT-196*º	Upland Mixed	Rocky Mountain Juniper	32	4	**8**	0.447	0.051	**Yes**
		Common Juniper	5	1	**2**			
		Silver Sagebrush	5	1	**2**			
		Chokecherry	3	0	**0**			
		Green Ash	3	0	**0**			
WVT-197*º	Upland Deciduous	Rocky Mountain Juniper	28	0	**0**	1.509	0	**Yes**
		Green Ash	21	0	**0**			
		Silver Sagebrush	15	0	**0**			
		Chokecherry	10	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Snow Berry	5	0	**0**			
		Common Juniper	3	0	**0**			
WVT-198*º	Upland Mixed	Green Ash	58	15	**30**	0.486	0.124	**Yes**
		Rocky Mountain Juniper	12	3	**6**			
		Chokecherry	10	3	**6**			
		Snow Berry	5	1	**2**			
		American Elm	2	1	**2**			
		American Plum	2	1	**2**			
		Skunkbush Sumac	2	1	**2**			
		Black Currant	1	0	**0**			
		Prairie Rose	1	0	**0**			
		Silver Sagebrush	1	0	**0**			
WVT-199*º	Upland Deciduous	Rocky Mountain Juniper	21	0	**0**	0.157	0	**Yes**
		Chokecherry	15	0	**0**			
		Green Ash	6	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Snow Berry	5	0	**0**			
WVT-200*º	Upland Deciduous	Green Ash	263	66	**132**	0.392	0.099	**Yes**
		Saskatoon Serviceberry	50	13	**26**			
		Rocky Mountain Juniper	31	8	**16**			
		Chokecherry	5	1	**2**			
		Red-Osier Dogwood	2	1	**2**			
		Prickly Rose	1	0	**0**			

ºPreferred Route
*****Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants: Survey Area	Number of Plants: Const. ROW	Number of Plants: Est. Mitigation	Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
		Snow Berry	1	0	**0**			
WVT-201*º	Upland Deciduous	Common Juniper	10	5	**10**	0.034	0.017	**Yes**
		Rocky Mountain Juniper	6	3	**6**			
		Skunkbush Sumac	5	3	**6**			
		Silver Buffaloberry	1	1	**2**			
WVT-202*º	Upland Deciduous	Snow Berry	30	0	**0**	0.102	0	**Yes**
		Green Ash	8	0	**0**			
		Chokecherry	5	0	**0**			
		Rocky Mountain Juniper	1	0	**0**			
		Skunkbush Sumac	1	0	**0**			
WVT-203*º	Upland Mixed	Rocky Mountain Juniper	4	0	**0**	0.001	0	**No**
WVT-204*º	Upland Deciduous	Snow Berry	20	0	**0**	0.136	0	**No**
		Cherry	10	0	**0**			
		Chokecherry	5	0	**0**			
		Rocky Mountain Juniper	1	0	**0**			
		Silver Sagebrush	1	0	**0**			
WVT-205*º	Upland Deciduous	Green Ash	2758	484	**968**	4.390	0.770	**Yes**
		Saskatoon Serviceberry	145	25	**50**			
		American Elm	91	16	**32**			
		Rocky Mountain Juniper	54	9	**18**			
		Chokecherry	25	4	**8**			
		Siberian Elm	18	3	**6**			
		Snow Berry	3	1	**2**			
		Northern Gooseberry	1	0	**0**			
		Skunkbush Sumac	1	0	**0**			
		Snow Berry	1	0	**0**			
WVT-206*º	Upland Mixed	Rocky Mountain Juniper	5	0	**0**	0.033	0	**Yes**
WVT-207*º	Upland Mixed	Rocky Mountain Juniper	1	0	**0**	0.002	0	**No**
WVT-208*º	Upland Deciduous	Green Ash	651	0	**0**	2.175	0	**Yes**
		Chokecherry	366	0	**0**			
		Saskatoon Serviceberry	224	0	**0**			
		Rocky Mountain Juniper	41	0	**0**			
		American Plum	20	0	**0**			
		Snow Berry	8	0	**0**			
		Silver Buffaloberry	4	0	**0**			
		Silver Sagebrush	1	0	**0**			
WVT-209*º	Upland Deciduous	Green Ash	41	6	**12**	0.443	0.070	**Yes**
		American Plum	20	3	**6**			
		Chokecherry	20	3	**6**			
		American Elm	5	1	**2**			
		Rocky Mountain Juniper	4	1	**2**			
		Black Currant	1	0	**0**			
		Prickly Rose	1	0	**0**			
		Snow Berry	1	0	**0**			

ºPreferred Route
***Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-210*º	Upland Mixed	Chokecherry	10	0	**0**	0.098	0	**Yes**
		Snow Berry	10	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Rocky Mountain Juniper	3	0	**0**			
		Common Juniper	1	0	**0**			
WVT-211*º	Upland Deciduous	Green Ash	46	0	**0**	0.872	0	**Yes**
		Chokecherry	15	0	**0**			
		Snow Berry	15	0	**0**			
		Rocky Mountain Juniper	10	0	**0**			
		Prickly Rose	3	0	**0**			
		Skunkbush Sumac	3	0	**0**			
		Creeping Juniper	1	0	**0**			
		Saskatoon Serviceberry	1	0	**0**			
WVT-212*º	Upland Mixed	Quaking Aspen	125	0	**0**	0.663	0	**Yes**
		Green Ash	119	0	**0**			
		Chokecherry	60	0	**0**			
		Rocky Mountain Juniper	60	0	**0**			
		Bur Oak	13	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Snow Berry	5	0	**0**			
WVT-213*º	Upland Deciduous	Quaking Aspen	96	0	**0**	0.115	0	**Yes**
		Green Ash	2	0	**0**			
WVT-214*º	Upland Deciduous	Green Ash	11	6	**12**	0.058	0.033	**Yes**
		Bur Oak	6	3	**6**			
		Chokecherry	5	3	**6**			
WVT-215*º	Upland Mixed	Common Juniper	1	1	**2**	0.001	0.001	**No**
WVT-216*º	Upland Deciduous	Green Ash	24	1	**2**	0.158	0.005	**Yes**
		Bur Oak	7	0	**0**			
		American Plum	5	0	**0**			
		Snow Berry	3	0	**0**			
		Prickly Rose	2	0	**0**			
		American Elm	1	0	**0**			
WVT-217*º	Upland Deciduous	Chokecherry	51	51	**102**	0.011	0.011	**No**
WVT-218*º	Upland Deciduous	Chokecherry	27	0	**0**	0.038	0	**Yes**
		Green Ash	6	0	**0**			
WVT-219*º	Riparian Deciduous	Bur Oak	9	0	**0**	0.045	0	**Yes**
		Green Ash	4	0	**0**			
WVT-220*º	Shelterbelt	Siberian Elm	12	5	**10**	0.037	0.015	**Yes**
WVT-221*º	Shelterbelt	Siberian Elm	4	0	**0**	0.014	0	**Yes**
WVT-222*º	Shelterbelt	Siberian Elm	53	1	**2**	0.660	0.018	**Yes**
WVT-223*º	Shelterbelt	Siberian Elm	27	0	**0**	0.691	0	**Yes**
WVT-224*º	Upland Deciduous	Green Ash	246	49	**98**	0.403	0.081	**Yes**
		Chokecherry	48	10	**20**			
		American Elm	16	3	**6**			

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			Survey Area	Const. ROW	Est. Mitigation			
		Roundleaf Hawthorn	16	3	**6**			
		Prairie Rose	10	2	**4**			
		Siberian Elm	8	2	**4**			
		American Plum	4	1	**2**			
		Skunkbush Sumac	2	0	**0**			
		Snow Berry	2	0	**0**			
WVT-225*º	Upland Deciduous	Snow Berry	15	0	**0**	0.013	0	**No**
		Silver Buffaloberry	8	0	**0**			
		Green Ash	7	0	**0**			
WVT-226*º	Upland Deciduous	Green Ash	129	18	**36**	0.082	0.011	**Yes**
		Snow Berry	5	1	**2**			
WVT-227*º	Upland Deciduous	Green Ash	391	30	**60**	0.611	0.048	**Yes**
		Chokecherry	116	9	**18**			
		Roundleaf Hawthorn	48	4	**8**			
		American Elm	6	0	**0**			
		Siberian Elm	6	0	**0**			
		Northern Gooseberry	2	0	**0**			
		Rocky Mountain Juniper	2	0	**0**			
		Silver Buffaloberry	2	0	**0**			
		Skunkbush Sumac	2	0	**0**			
		Common Juniper	1	0	**0**			
WVT-228*º	Upland Deciduous	Green Ash	9	0	**0**	0.076	0	**Yes**
		Chokecherry	7	0	**0**			
		Skunkbush Sumac	4	0	**0**			
		Silver Buffaloberry	3	0	**0**			
		Siberian Elm	1	0	**0**			
WVT-229*º	Upland Deciduous	Silver Buffaloberry	25	6	**12**	0.310	0.071	**Yes**
		Snow Berry	20	5	**10**			
		Chokecherry	10	2	**4**			
		Rocky Mountain Juniper	6	1	**2**			
		Silver Sagebrush	5	1	**2**			
		Skunkbush Sumac	5	1	**2**			
		Green Ash	3	1	**2**			
		American Elm	2	0	**0**			
WVT-230*º	Upland Deciduous	Green Ash	1101	242	**484**	3.292	0.725	**Yes**
		Boxelder	392	86	**172**			
		Roundleaf Hawthorn	211	46	**92**			
		Siberian Elm	60	13	**26**			
		Chokecherry	15	3	**6**			
		Paper Birch	15	3	**6**			
		Quaking Aspen	15	3	**6**			
		Snow Berry	3	1	**2**			
		Prickly Rose	2	0	**0**			
		Silver Buffaloberry	2	0	**0**			

ºPreferred Route
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% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-231*º	Upland Deciduous	Green Ash	14	2	**4**	0.309	0.049	**Yes**
		Roundleaf Hawthorn	10	2	**4**			
		Chokecherry	5	1	**2**			
		Snow Berry	5	1	**2**			
WVT-232*º	Upland Deciduous	Green Ash	35	5	**10**	0.040	0.006	**Yes**
		Chokecherry	12	2	**4**			
		Snow Berry	5	1	**2**			
		American Plum	1	0	**0**			
WVT-233*º	Upland Deciduous	Quaking Aspen	260	70	**140**	0.514	0.138	**Yes**
		Green Ash	242	65	**130**			
		Chokecherry	125	34	**68**			
		Prickly Rose	22	6	**12**			
		Common Juniper	7	2	**4**			
		Saskatoon Serviceberry	5	1	**2**			
		Nannyberry	4	1	**2**			
		Snow Berry	4	1	**2**			
		American Elm	3	1	**2**			
		Boxelder	2	1	**2**			
WVT-234*º	Upland Deciduous	Rocky Mountain Juniper	1	1	**2**	0.007	0.007	**No**
WVT-235*º	Upland Deciduous	Silver Buffaloberry	77	24	**48**	0.478	0.150	**Yes**
		Green Ash	53	17	**34**			
		Silver Sagebrush	8	3	**6**			
		Rocky Mountain Juniper	2	1	**2**			
		Skunkbush Sumac	2	1	**2**			
		Common Juniper	1	0	**0**			
		Nannyberry	1	0	**0**			
		Prairie Rose	1	0	**0**			
WVT-236*º	Upland Deciduous	Green Ash	45	13	**26**	2.620	0.775	**Yes**
		Silver Buffaloberry	28	8	**16**			
		Chokecherry	12	4	**8**			
		Prickly Rose	12	4	**8**			
		Snow Berry	10	3	**6**			
		Skunkbush Sumac	4	1	**2**			
WVT-237*º	Riparian Deciduous	Green Ash	36	8	**16**	0.825	0.181	**Yes**
		Silver Buffaloberry	35	8	**16**			
		Prickly Rose	25	5	**10**			
		Skunkbush Sumac	11	2	**4**			
		Snow Berry	10	2	**4**			
		Common Juniper	7	2	**4**			
		American Elm	3	1	**2**			
		Roundleaf Hawthorn	3	1	**2**			
		Siberian Elm	2	0	**0**			
		Silver Sagebrush	2	0	**0**			
WVT-238*º	Upland Deciduous	Green Ash	22	4	**8**	0.972	0.193	**Yes**

ºPreferred Route
*Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Snow Berry	20	4	**8**			
		Silver Buffaloberry	15	3	**6**			
		Silver Sagebrush	8	2	**4**			
		Common Juniper	7	1	**2**			
		Chokecherry	6	1	**2**			
		Skunkbush Sumac	6	1	**2**			
		Siberian Elm	3	1	**2**			
		American Elm	2	0	**0**			
WVT-239*º	Upland Deciduous	Chokecherry	10	0	**0**	0.015	0	**Yes**
		Silver Buffaloberry	10	0	**0**			
		Snow Berry	5	0	**0**			
		American Elm	1	0	**0**			
		Green Ash	1	0	**0**			
WVT-240*º	Upland Deciduous	Silver Buffaloberry	90	23	**46**	1.931	0.500	**Yes**
		Green Ash	19	5	**10**			
		Silver Sagebrush	10	3	**6**			
		Snow Berry	10	3	**6**			
		Common Juniper	3	1	**2**			
WVT-241*º	Upland Deciduous	Chokecherry	70	0	**0**	0.204	0	**Yes**
		Green Ash	11	0	**0**			
		Snow Berry	10	0	**0**			
		Silver Sagebrush	5	0	**0**			
		Skunkbush Sumac	3	0	**0**			
		Prairie Rose	2	0	**0**			
		Silver Buffaloberry	2	0	**0**			
WVT-242*º	Upland Deciduous	Green Ash	76	38	**76**	0.321	0.159	**Yes**
		Chokecherry	26	13	**26**			
		Snow Berry	10	5	**10**			
		Prairie Rose	5	2	**4**			
		Silver Buffaloberry	5	2	**4**			
		American Elm	1	0	**0**			
WVT-243*º	Upland Deciduous	Silver Buffaloberry	15	0	**0**	0.087	0	**Yes**
		Chokecherry	10	0	**0**			
		Green Ash	10	0	**0**			
WVT-244*º	Upland Deciduous	Snow Berry	30	0	**0**	0.233	0	**No**
		Silver Buffaloberry	15	0	**0**			
		Chokecherry	10	0	**0**			
		Green Ash	6	0	**0**			
		Skunkbush Sumac	2	0	**0**			
WVT-245*º	Upland Deciduous	Chokecherry	35	5	**10**	0.279	0.039	**Yes**
		Green Ash	12	2	**4**			
		American Plum	7	1	**2**			
		Silver Buffaloberry	5	1	**2**			
		Snow Berry	5	1	**2**			

ºPreferred Route
*Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-246*º	Upland Deciduous	Green Ash	4	4	**8**	0.002	0.002	**No**
WVT-247*º	Upland Deciduous	Silver Sagebrush	25	13	**26**	0.715	0.377	**No**
		Snow Berry	10	5	**10**			
		Prairie Rose	2	1	**2**			
		Siberian Elm	1	1	**2**			
WVT-248*º	Upland Deciduous	Green Ash	8	0	**0**	0.008	0	**Yes**
WVT-249*º	Upland Deciduous	Green Ash	1	1	**2**	0.007	0.005	**Yes**
WVT-250*º	Upland Deciduous	Green Ash	8	0	**0**	0.002	0	**No**
		Prairie Rose	5	0	**0**			
WVT-251*º	Upland Mixed	Green Ash	57	0	**0**	0.058	0	**Yes**
		Chokecherry	15	0	**0**			
		American Elm	8	0	**0**			
		Saskatoon Serviceberry	6	0	**0**			
		Siberian Elm	4	0	**0**			
		American Plum	2	0	**0**			
WVT-252*º	Upland Mixed	Snow Berry	10	0	**0**	0.049	0	**Yes**
		Green Ash	4	0	**0**			
		Chokecherry	2	0	**0**			
		Prairie Rose	2	0	**0**			
WVT-253*º	Upland Mixed	Chokecherry	37	0	**0**	0.114	0	**Yes**
		Snow Berry	30	0	**0**			
		American Elm	9	0	**0**			
		American Plum	4	0	**0**			
		Green Ash	4	0	**0**			
		Prairie Rose	1	0	**0**			
WVT-254*º	Upland Deciduous	Green Ash	29	7	**14**	0.295	0.067	**Yes**
		American Plum	10	2	**4**			
		Chokecherry	5	1	**2**			
		Plains Cottonwood	4	1	**2**			
		Siberian Elm	2	0	**0**			
WVT-255*º	Upland Deciduous	Green Ash	161	19	**38**	0.171	0.020	**Yes**
		Silver Buffaloberry	31	4	**8**			
		American Plum	20	2	**4**			
		Chokecherry	10	1	**2**			
		Prairie Rose	5	1	**2**			
		Saskatoon Serviceberry	1	0	**0**			
WVT-256*º	Upland Deciduous	Green Ash	158	51	**102**	0.335	0.107	**Yes**
		American Plum	120	39	**78**			
		Silver Buffaloberry	58	19	**38**			
		American Elm	13	4	**8**			
		Saskatoon Serviceberry	5	2	**4**			
		Snow Berry	5	2	**4**			
		Prairie Rose	4	1	**2**			
		Chokecherry	3	1	**2**			

ºPreferred Route
*Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVT-257*º	Upland Deciduous	Green Ash	187	33	**66**	0.206	0.037	**Yes**
		Fireberry Hawthorn	10	2	**4**			
		Snow Berry	10	2	**4**			
		Chokecherry	5	1	**2**			
		Prairie Rose	5	1	**2**			
		Siberian Elm	4	1	**2**			
		Roundleaf Hawthorn	3	1	**2**			
		American Elm	2	0	**0**			
WVT-258*º	Upland Deciduous	American Plum	20	0	**0**	0.075	0	**Yes**
		Fireberry Hawthorn	20	0	**0**			
		Prairie Rose	15	0	**0**			
		Snow Berry	10	0	**0**			
		American Elm	2	0	**0**			
		Green Ash	1	0	**0**			
WVT-259*º	Upland Deciduous	Green Ash	81	30	**60**	0.978	0.358	**Yes**
		American Elm	21	8	**16**			
		Silver Buffaloberry	15	5	**10**			
		Roundleaf Hawthorn	7	3	**6**			
		Siberian Elm	6	2	**4**			
		Prairie Rose	3	1	**2**			
		American Plum	2	1	**2**			
		Green Ash	1	0	**0**			
		Silver Sagebrush	1	0	**0**			
		Skunkbush Sumac	1	0	**0**			
WVT-260*º	Upland Deciduous	Green Ash	94	0	**0**	0.162	0	**Yes**
		American Elm	10	0	**0**			
		Saskatoon Serviceberry	8	0	**0**			
		Chokecherry	6	0	**0**			
		Prairie Rose	5	0	**0**			
		Snow Berry	5	0	**0**			
		Fireberry Hawthorn	2	0	**0**			
WVT-261*º	Upland Deciduous	Snow Berry	10	0	**0**	0.079	0	**Yes**
		American Elm	9	0	**0**			
		Green Ash	9	0	**0**			
		Saskatoon Serviceberry	8	0	**0**			
		Chokecherry	5	0	**0**			
		Prairie Rose	5	0	**0**			
		Roundleaf Hawthorn	3	0	**0**			
		Skunkbush Sumac	3	0	**0**			
WVT-262*º	Upland Deciduous	Green Ash	98	19	**38**	0.498	0.096	**Yes**
		Chokecherry	38	7	**14**			
		American Plum	17	3	**6**			
		Snow Berry	10	2	**4**			
		Fireberry Hawthorn	7	1	**2**			

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		American Elm	3	1	**2**			
		Saskatoon Serviceberry	3	1	**2**			
WVT-263*º	Upland Deciduous	Snow Berry	20	0	**0**	0.200	0	**No**
		Saskatoon Serviceberry	10	0	**0**			
		Fireberry Hawthorn	5	0	**0**			
		Green Ash	4	0	**0**			
		Siberian Elm	4	0	**0**			
WVT-264*º	Upland Deciduous	Snow Berry	50	0	**0**	0.097	0	**No**
		American Plum	7	0	**0**			
WVT-265*º	Upland Deciduous	Chokecherry	40	16	**32**	0.790	0.319	**Yes**
		Snow Berry	20	8	**16**			
		American Plum	5	2	**4**			
		Green Ash	2	1	**2**			
		American Elm	1	0	**0**			
WVT-266º	Upland Deciduous	Green Ash	16	5	**10**	0.154	0.044	**No**
WVT-267º	Upland Deciduous	Green Ash	209	120	**240**	0.343	0.197	**Yes**
		Saskatoon Serviceberry	20	11	**22**			
		Chokecherry	10	6	**12**			
		Silver Buffaloberry	10	6	**12**			
		Prairie Rose	5	3	**6**			
		Snow Berry	2	1	**2**			
WVT-268º	Upland Deciduous	Green Ash	28	9	**18**	0.320	0.099	**Yes**
		American Plum	20	6	**12**			
		Saskatoon Serviceberry	20	6	**12**			
		Roundleaf Hawthorn	15	5	**10**			
		Chokecherry	10	3	**6**			
		Prairie Rose	8	2	**4**			
		Snow Berry	5	2	**4**			
WVT-269º	Upland Deciduous	Snow Berry	20	5	**10**	0.288	0.066	**Yes**
		Chokecherry	10	2	**4**			
		Skunkbush Sumac	10	2	**4**			
		Green Ash	1	0	**0**			
		Siberian Elm	1	0	**0**			
		Siberian Elm	1	0	**0**			
WVT-270*	Upland Deciduous	Green Ash	1	1	**2**	0.007	0.007	**No**
WVT-271*º	Upland Deciduous	Green Ash	1	0	**0**	0.007	0	**No**
WVT-272*º	Upland Deciduous	Green Ash	87	0	**0**	0.658	0	**Yes**
		Fireberry Hawthorn	30	0	**0**			
		Saskatoon Serviceberry	10	0	**0**			
		Chokecherry	5	0	**0**			
		Snow Berry	5	0	**0**			
		American Plum	3	0	**0**			
WVT-273*º	Riparian Deciduous	American Plum	20	0	**0**	1.059	0	**Yes**
WVT-274*º	Upland Deciduous	Snow Berry	35	0	**0**	0.410	0	**No**

ºPreferred Route
*****Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Chokecherry	8	0	**0**			
		American Plum	7	0	**0**			
		Silver Buffaloberry	3	0	**0**			
WVT-275*º	Upland Deciduous	Quaking Aspen	96	0	**0**	0.156	0	**Yes**
		Chokecherry	25	0	**0**			
		Roundleaf Hawthorn	15	0	**0**			
		Snow Berry	15	0	**0**			
		American Plum	6	0	**0**			
		Green Ash	3	0	**0**			
WVT-276*º	Riparian Deciduous	Snow Berry	5	0	**0**	1.218	0	**Yes**
WVT-277*º	Upland Deciduous	Chokecherry	25	0	**0**	1.491	0.015	**Yes**
		Snow Berry	25	0	**0**			
		Quaking Aspen	15	0	**0**			
		Silver Buffaloberry	15	0	**0**			
		Green Ash	10	0	**0**			
		American Plum	5	0	**0**			
		Balsam Poplar	5	0	**0**			
		Roundleaf Hawthorn	3	0	**0**			
		Prickly Rose	2	0	**0**			
WVT-278*º	Upland Deciduous	Green Ash	3	0	**0**	0.012	0	**Yes**
WVT-279*º	Upland Deciduous	Chokecherry	25	0	**0**	0.064	0	**Yes**
		Snow Berry	10	0	**0**			
		Green Ash	7	0	**0**			
		American Plum	3	0	**0**			
WVT-280*º	Upland Deciduous	Chokecherry	45	10	**20**	0.395	0.091	**Yes**
		Snow Berry	35	8	**16**			
		Prickly Rose	30	7	**14**			
		American Plum	10	2	**4**			
		Green Ash	3	1	**2**			
WVT-281*º	Riparian Deciduous	Snow Berry	10	0	**0**	0.111	0	**Yes**
		Green Ash	6	0	**0**			
		Prickly Rose	3	0	**0**			
WVT-282*º	Upland Deciduous	Snow Berry	10	0	**0**	0.041	0	**Yes**
		Prairie Rose	5	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Green Ash	2	0	**0**			
WVT-283*º	Upland Deciduous	Snow Berry	10	0	**0**	0.160	0	**Yes**
		Green Ash	5	0	**0**			
		Prairie Rose	5	0	**0**			
		Skunkbush Sumac	5	0	**0**			
WVT-284*º	Riparian Deciduous	Silver Buffaloberry	25	0	**0**	0.298	0	**Yes**
		Green Ash	11	0	**0**			
		American Elm	10	0	**0**			
		Prickly Rose	5	0	**0**			

ºPreferred Route
*****Alternative Route

% = Percent Cover

Trees

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Common Juniper	2	0	**0**			
		Silver Sagebrush	2	0	**0**			
WVT-285*º	Riparian Deciduous	Green Ash	55	0	**0**	0.741	0	**Yes**
		Silver Buffaloberry	25	0	**0**			
		American Elm	21	0	**0**			
		Prickly Rose	15	0	**0**			
		Silver Sagebrush	5	0	**0**			
		Snow Berry	5	0	**0**			
		Common Juniper	4	0	**0**			
		Siberian Elm	3	0	**0**			
		Skunkbush Sumac	2	0	**0**			
WVT-286*º	Upland Deciduous	Green Ash	9	0	**0**	0.512	0	**Yes**
		Silver Buffaloberry	9	0	**0**			
		Silver Sagebrush	5	0	**0**			
		Skunkbush Sumac	5	0	**0**			
		Snow Berry	5	0	**0**			
WVT-287*º	Riparian Deciduous	Green Ash	5	3	**6**	0.013	0.008	**No**
		Siberian Elm	3	2	**4**			
WVT-288*º	Upland Deciduous	Green Ash	2	0	**0**	0.007	0	**No**
WVT-289*º	Upland Deciduous	Green Ash	1	1	**2**	0.003	0.003	**No**

ºPreferred Route
*****Alternative Route

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-001*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.320	0.110	**No**
WVS-002*º	Upland Shrub	Snow Berry	40%	0	**0**	0.029	0	**No**
WVS-003*º	Upland Shrub	Chokecherry	10	0	**0**	0.004	0	**No**
WVS-004*º	Upland Shrub	Chokecherry	20	0	**0**	0.001	0	**No**
WVS-005*º	Upland Shrub	Sandbar Willow	10	0	**0**	0.007	0	**No**
WVS-006*º	Upland Shrub	Snow Berry	15	0	**0**	0.002	0	**No**
WVS-007*º	Upland Shrub	Snow Berry	25	25	**50**	0.016	0	**No**
WVS-008*º	Riparian Shrub	Snow Berry	15%	15%	**15%**	0.116	0	**No**
		Prairie Rose	5%	5%	**5%**			
WVS-009*º	Upland Shrub	Snow Berry	50	0	**0**	0.029	0	**No**
WVS-010*º	Upland Shrub	Silver Buffaloberry	25	0	**0**	0.024	0	**No**
WVS-011*º	Upland Shrub	Silver Buffaloberry	25	21	**42**	0.159	0.134	**No**
WVS-012*º	Upland Shrub	Snow Berry	125	0	**0**	0.075	0	**No**
WVS-013*º	Upland Shrub	Snow Berry	50	50	**100**	0.005	0	**No**
WVS-014*º	Upland Shrub	American Plum	3	3	**6**	0.002	0	**No**
WVS-015*º	Upland Shrub	Snow Berry	50	50	**100**	0.008	0	**No**
WVS-016*º	Upland Shrub	Chokecherry	50	0	**0**	0.043	0	**No**
		Snow Berry	50	0	**0**			
WVS-017*º	Upland Shrub	Snow Berry	5%	5%	**5%**	0.059	0	**No**
WVS-018*º	Upland Shrub	Snow Berry	30%	0	**0**	0.008	0	**No**
WVS-019*º	Upland Shrub	Snow Berry	4%	4%	**4%**	0.023	0	**No**
WVS-020*º	Upland Shrub	Snow Berry	20	0	**0**	0.010	0	**No**
WVS-021*º	Upland Shrub	Chokecherry	12	1	**2**	0.051	0.005	**No**
		Roundleaf Hawthorn	11	1	**2**			
		American Plum	5	1	**2**			
WVS-022*º	Upland Shrub	Roundleaf Hawthorn	35	2	**4**	0.057	0	**No**
		Chokecherry	15	1	**2**			
WVS-023*º	Upland Shrub	Snow Berry	30	0	**0**	0.012	0	**No**
		Chokecherry	6	0	**0**			
WVS-024*º	Upland Shrub	Silver Buffaloberry	8	0	**0**	0.007	0	**No**
		Snow Berry	20%	0	**0**			
WVS-025*º	Upland Shrub	Snow Berry	15%	0	**0**	0.014	0	**No**
WVS-026*º	Upland Shrub	Snow Berry	15	0	**0**	0.004	0	**No**
WVS-027*º	Upland Shrub	Silver Buffaloberry	10	2	**4**	0.110	0.026	**No**
		Snow Berry	20%	20%	**20%**			
WVS-028*º	Upland Shrub	Silver Buffaloberry	3	0	**0**	0.191	0	**No**
		Snow Berry	10%	0	**0**			
WVS-029*º	Upland Shrub	Prickly Rose	6	0	**0**	0.003	0	**No**
		Chokecherry	2	0	**0**			
WVS-030*º	Upland Shrub	Snow Berry	50%	0	**0**	0.189	0	**No**
WVS-031*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.346	0	**No**
		American Plum	20%	20%	**20%**			
		Silver Buffaloberry	20%	20%	**20%**			
		Prairie Rose	2%	2%	**2%**			

ºPreferred Route
*Alternative Route

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-032*º	Upland Shrub	Snow Berry	100	0	**0**	0.011	0	**No**
		Prickly Rose	30	0	**0**			
		Black Currant	10	0	**0**			
WVS-033*º	Upland Shrub	Snow Berry	10%	10%	**10%**	1.076	0	**No**
		Silver Buffaloberry	5%	5%	**5%**			
WVS-034*º	Upland Shrub	Prickly Rose	50	0	**0**	0.009	0	**No**
		Roundleaf Hawthorn	10	0	**0**			
WVS-035*º	Upland Shrub	Silver Buffaloberry	65%	65%	**65%**	0.280	0.053	**No**
		Prickly Rose	5%	5%	**5%**			
		Black Currant	1%	1%	**1%**			
WVS-036*º	Upland Shrub	Black Currant	70%	0	**0**	0.029	0	**No**
WVS-037*º	Upland Shrub	Silver Buffaloberry	50%	0	**0**	0.217	0	**No**
		Snow Berry	20%	0	**0**			
WVS-038*º	Upland Shrub	Prickly Rose	4	2	**4**	0.092	0	**No**
		Silver Buffaloberry	70%	70%	**70%**			
WVS-039*º	Upland Shrub	Silver Buffaloberry	10	0	**0**	0.012	0	**No**
		Snow Berry	10%	0	**0**			
WVS-040*º	Upland Shrub	Silver Buffaloberry	2	2	**4**	0.007	0.007	**No**
WVS-041*º	Upland Shrub	Snow Berry	20	4	**8**	0.124	0	**No**
		Roundleaf Hawthorn	50	10	**20**			
		Tartarian Honeysuckle	1	0	**0**			
WVS-042*º	Upland Shrub	Snow Berry	50	8	**16**	0.013	0	**No**
WVS-043*º	Upland Shrub	Silver Buffaloberry	80%	0	**0**	0.077	0	**No**
		Snow Berry	10%	0	**0**			
WVS-044*º	Upland Shrub	Silver Buffaloberry	80%	0	**0**	0.010	0	**No**
		Snow Berry	10%	0	**0**			
WVS-045*º	Upland Shrub	Silver Buffaloberry	12	9	**18**	0.034	0.026	**No**
		Shrubby Cinquefoil	8	6	**12**			
WVS-046*º	Upland Shrub	Silver Buffaloberry	11	0	**0**	0.011	0	**No**
WVS-047*º	Upland Shrub	Silver Buffaloberry	50	50	**100**	0.031	0.031	**No**
WVS-048*º	Upland Shrub	Rocky Mountain Juniper	1	1	**2**	0.007	0.007	**No**
WVS-049*º	Upland Shrub	Silver Buffaloberry	50%	0	**0**	0.131	0	**No**
WVS-050*º	Upland Shrub	Silver Buffaloberry	60%	0	**0**	0.010	0	**No**
		Snow Berry	30%	0	**0**			
WVS-051*º	Upland Shrub	Roundleaf Hawthorn	9	4	**8**	0.074	0	**No**
		Chokecherry	2	1	**2**			
		Snow Berry	30%	30%	**30%**			
WVS-052*º	Upland Shrub	Silver Buffaloberry	60%	0	**0**	0.056	0	**No**
		Snow Berry	5%	0	**0**			
WVS-053*º	Upland Shrub	Snow Berry	25%	25%	**25%**	0.092	0	**No**
WVS-054*º	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.007	0.007	**No**
WVS-055*º	Upland Shrub	Prickly Rose	6	1	**2**	0.351	0	**No**
		Snow Berry	15%	15%	**15%**			
WVS-056*º	Upland Shrub	Snow Berry	42	0	**0**	0.008	0	**No**

ºPreferred Route
*Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Prickly Rose	2	0	**0**			
WVS-057*º	Upland Shrub	Snow Berry	12%	12%	**12%**	0.426	0	**No**
WVS-058*º	Upland Shrub	Silver Buffaloberry	30%	0	**0**	0.061	0	**No**
		Snow Berry	10%	0	**0**			
		Green Ash	5%	0	**0**			
WVS-059*º	Upland Shrub	Silver Buffaloberry	20%	0	**0**	0.042	0	**No**
		Prairie Rose	5%	0	**0**			
		Snow Berry	5%	0	**0**			
WVS-060*º	Upland Shrub	Snow Berry	30%	0	**0**	0.099	0	**No**
		Silver Buffaloberry	10%	0	**0**			
		Prairie Rose	2%	0	**0**			
WVS-061*º	Upland Shrub	Snow Berry	30%	0	**0**	0.102	0	**No**
		Chokecherry	5%	0	**0**			
		Prairie Rose	2%	0	**0**			
WVS-062*º	Upland Shrub	Silver Buffaloberry	10%	0	**0**	0.020	0	**No**
		Snow Berry	10%	0	**0**			
WVS-063*º	Upland Shrub	Chokecherry	40%	0	**0**	0.011	0	**No**
WVS-064*º	Upland Shrub	Snow Berry	20%	0	**0**	0.006	0	**No**
WVS-065*º	Upland Shrub	Snow Berry	30%	0	**0**	0.005	0	**No**
WVS-066*º	Upland Shrub	Snow Berry	20%	0	**0**	0.010	0	**No**
WVS-067*º	Upland Shrub	Silver Buffaloberry	3	0	**0**	0.415	0.062	**No**
		Snow Berry	25%	25%	**25%**			
WVS-068*º	Upland Shrub	Silver Buffaloberry	60%	60%	**60%**	0.089	0.083	**No**
		Snow Berry	10%	10%	**10%**			
		Prairie Rose	2%	2%	**2%**			
WVS-069*º	Upland Shrub	American Plum	35%	0	**0**	0.162	0	**No**
		Fireberry Hawthorn	25%	0	**0**			
		Silver Buffaloberry	25%	0	**0**			
		Snow Berry	3%	0	**0**			
		Chokecherry	2%	0	**0**			
WVS-070*º	Upland Shrub	Silver Buffaloberry	90%	0	**0**	0.039	0	**No**
WVS-071*º	Upland Shrub	Silver Buffaloberry	7	0	**0**	0.012	0	**No**
WVS-072*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.003	0.003	**No**
WVS-073*º	Upland Shrub	Snow Berry	15%	0	**0**	0.012	0	**No**
WVS-074*º	Upland Shrub	Snow Berry	40%	40%	**40%**	1.598	0.099	**No**
		Silver Buffaloberry	15%	15%	**15%**			
		Prairie Rose	2%	2%	**2%**			
WVS-075*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.118	0.080	**No**
WVS-076*º	Upland Shrub	Silver Buffaloberry	10	0	**0**	0.343	0	**No**
		Snow Berry	20%	20%	**20%**			
		Prickly Rose	1%	1%	**1%**			
WVS-077*º	Upland Shrub	Silver Buffaloberry	3	0	**0**	0.168	0	**No**
		Snow Berry	40%	0	**0**			
		Prairie Rose	1%	0	**0**			

ºPreferred Route
*Alternative Route

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Skunkbush Sumac	1%	0	**0**			
WVS-078*º	Upland Shrub	Snow Berry	40%	0	**0**	0.368	0	**No**
		Chokecherry	1%	0	**0**			
WVS-079*º	Upland Shrub	Snow Berry	15%	15%	**15%**	4.497	1.339	**No**
		Silver Buffaloberry	10%	10%	**10%**			
		Silver Sagebrush	1%	1%	**1%**			
WVS-080*º	Upland Shrub	Silver Buffaloberry	40%	40%	**40%**	0.077	0	**No**
		Snow Berry	40%	40%	**40%**			
WVS-081*º	Upland Shrub	Skunkbush Sumac	27	7	**14**	0.329	0.089	**No**
		Snow Berry	15%	15%	**15%**			
		Chokecherry	5%	5%	**5%**			
WVS-082*º	Upland Shrub	Silver Buffaloberry	65%	65%	**65%**	0.330	0	**No**
WVS-083*º	Upland Shrub	Silver Buffaloberry	35%	35%	**35%**	0.110	0	**No**
		Snow Berry	15%	15%	**15%**			
WVS-084*º	Upland Shrub	Snow Berry	70%	70%	**70%**	0.255	0.096	**No**
WVS-085*º	Upland Shrub	Chokecherry	30%	30%	**30%**	0.289	0.120	**No**
		Snow Berry	10%	10%	**10%**			
WVS-086*º	Upland Shrub	Chokecherry	12	0	**0**	0.133	0	**No**
		Snow Berry	45%	0	**0**			
WVS-087*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.345	0	**No**
WVS-088*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.005	0.002	**No**
WVS-089*º	Upland Shrub	Silver Buffaloberry	5	5	**10**	0.007	0	**No**
WVS-090*º	Upland Shrub	Common Juniper	1	1	**2**	0.007	0	**No**
WVS-091*º	Upland Shrub	Silver Sagebrush	10%	0	**0**	0.008	0	**No**
WVS-092*º	Upland Shrub	Silver Sagebrush	25%	0	**0**	0.059	0	**No**
		Snow Berry	10%	0	**0**			
WVS-093*º	Upland Shrub	Silver Buffaloberry	5	0	**0**	0.001	0	**No**
WVS-094*º	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.007	0	**No**
WVS-095*º	Upland Shrub	Snow Berry	65%	65%	**65%**	0.012	0.001	**No**
WVS-096*º	Upland Shrub	Silver Buffaloberry	40%	40%	**40%**	0.292	0.044	**No**
		Snow Berry	30%	30%	**30%**			
WVS-097*º	Upland Shrub	Silver Buffaloberry	60%	0	**0**	0.005	0	**No**
WVS-098*º	Upland Shrub	Snow Berry	25%	25%	**25%**	0.305	0.161	**No**
		SIlver Buffaloberry	5%	5%	**5%**			
WVS-099*º	Upland Shrub	Silver Buffaloberry	60%	60%	**60%**	0.014	0.014	**No**
WVS-100*º	Upland Shrub	Snow Berry	70%	70%	**70%**	0.152	0.074	**No**
WVS-101*º	Upland Shrub	Silver Buffaloberry	10	0	**0**	0.006	0	**No**
WVS-102*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.079	0.079	**No**
		Snow Berry	20%	20%	**20%**			
WVS-103*º	Upland Shrub	Prairie Rose	20	20	**40**	0.007	0	**No**
WVS-104*º	Upland Shrub	Silver Buffaloberry	40	0	**0**	0.033	0	**No**
WVS-105*º	Upland Shrub	Snow Berry	40%	40%	**40%**	2.633	0.882	**No**
		Chokecherry	20%	20%	**20%**			
WVS-106*º	Upland Shrub	Silver Buffaloberry	70	19	**38**	0.112	0.030	**No**

ºPreferred Route
***Alternative Route

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-107*º	Upland Shrub	Shrubby Cinquefoil	1	0	**0**	0.007	0.002	**No**
WVS-108*º	Upland Shrub	Creeping Juniper	50%	50%	**50%**	0.009	0.009	**No**
		Silver Buffaloberry	20%	20%	**20%**			
WVS-109*º	Upland Shrub	Snow Berry	25%	25%	**25%**	0.407	0	**No**
		Silver Buffaloberry	15%	15%	**15%**			
		Chokecherry	3%	3%	**3%**			
WVS-110*º	Upland Shrub	Silver Buffaloberry	10	0	**0**	0.001	0	**No**
WVS-111*º	Upland Shrub	Shrubby Cinquefoil	6	6	**12**	0.007	0.007	**No**
WVS-112*º	Upland Shrub	Chokecherry	40%	40%	**40%**	0.069	0.069	**No**
		Shrubby Cinquefoil	1%	1%	**1%**			
WVS-113*º	Upland Shrub	Snow Berry	6%	6%	**6%**	0.011	0	**No**
WVS-114*º	Upland Shrub	Silver Buffaloberry	8	0	**0**	0.003	0	**No**
		Shrubby Cinquefoil	1	0	**0**			
WVS-115*º	Upland Shrub	Shrubby Cinquefoil	10	10	**20**	0.039	0.037	**No**
WVS-116*º	Upland Shrub	Snow Berry	25	17	**34**	0.032	0.022	**No**
		Shrubby Cinquefoil	10	7	**14**			
		Chokecherry	1	1	**2**			
WVS-117*º	Upland Shrub	Shrubby Cinquefoil	10	0	**0**	0.119	0	**No**
		Snow Berry	50%	0	**0**			
WVS-118*º	Upland Shrub	Creeping Juniper	60%	60%	**60%**	0.304	0.013	**No**
		Snow Berry	20%	20%	**20%**			
		Chokecherry	15%	15%	**15%**			
		Shrubby Cinquefoil	5%	5%	**5%**			
WVS-119*º	Upland Shrub	Chokecherry	15	6	**12**	0.275	0.108	**No**
		Silver Buffaloberry	20	8	**16**			
		Snow Berry	70%	70%	**70%**			
WVS-120*º	Upland Shrub	Shrubby Cinquefoil	20	0	**0**	0.031	0	**No**
WVS-121*º	Upland Shrub	Creeping Juniper	75%	0	**0**	0.115	0	**No**
		Silver Buffaloberry	5%	0	**0**			
WVS-122*º	Upland Shrub	Creeping Juniper	40%	40%	**40%**	0.045	0.043	**No**
		Shrubby Cinquefoil	5%	5%	**5%**			
WVS-123*º	Upland Shrub	Chokecherry	30%	30%	**30%**	0.467	0.118	**No**
		Snow Berry	25%	25%	**25%**			
		Creeping Juniper	5%	5%	**5%**			
		Shrubby Cinquefoil	4%	4%	**4%**			
WVS-124*º	Upland Shrub	Creeping Juniper	50%	0	**0**	0.097	0	**No**
		Common Juniper	5%	0	**0**			
		Shrubby Cinquefoil	5%	0	**0**			
WVS-125*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.848	0.192	**No**
		Shrubby Cinquefoil	6%	6%	**6%**			
		Creeping Juniper	5%	5%	**5%**			
		Silver Buffaloberry	1%	1%	**1%**			
WVS-126*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.010	0.006	**No**
WVS-127*º	Upland Shrub	Common Juniper	1	1	**2**	0.263	0	**No**

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Creeping Juniper	60%	60%	**60%**			
		Snow Berry	20%	20%	**20%**			
		Shrubby Cinquefoil	1%	1%	**1%**			
WVS-128*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.027	0.027	**No**
		Snow Berry	30%	30%	**30%**			
WVS-129*º	Upland Shrub	Silver Buffaloberry	40%	40%	**40%**	0.002	0.002	**No**
WVS-130*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.019	0.019	**No**
WVS-131*º	Upland Shrub	Silver Buffaloberry	50%	50%	**50%**	0.004	0	**No**
WVS-132*º	Upland Shrub	Snow Berry	150	129	**258**	0.046	0.039	**No**
WVS-133*º	Upland Shrub	Shrubby Cinquefoil	5	1	**2**	0.097	0.017	**No**
		Snow Berry	20%	20%	**20%**			
		Creeping Juniper	15%	15%	**15%**			
WVS-134*º	Upland Shrub	Chokecherry	20	2	**4**	0.292	0.023	**No**
		Shrubby Cinquefoil	15	1	**2**			
		Common Juniper	3	0	**0**			
		Creeping Juniper	50%	50%	**50%**			
WVS-135*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.002	0.002	**No**
WVS-136*º	Upland Shrub	Creeping Juniper	70%	70%	**70%**	0.249	0	**No**
		Snow Berry	10%	10%	**10%**			
		Silver Buffaloberry	5%	5%	**5%**			
WVS-137*º	Upland Shrub	Mountain Mahogany	1	1	**2**	0.006	0	**No**
		Silver Buffaloberry	40%	40%	**40%**			
WVS-138*º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.006	0.006	**No**
		Shrubby Cinquefoil	1%	1%	**1%**			
WVS-139*º	Upland Shrub	Shrubby Cinquefoil	4%	4%	**4%**	0.030	0.023	**No**
WVS-140*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.009	0	**No**
WVS-141*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.055	0	**No**
		Silver Buffaloberry	10%	10%	**10%**			
WVS-142*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.034	0	**No**
		Silver Buffaloberry	10%	10%	**10%**			
WVS-143*º	Upland Shrub	Snow Berry	60%	60%	**60%**	0.200	0.177	**No**
		Silver Buffaloberry	5%	5%	**5%**			
WVS-144*º	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.036	0	**No**
		Snow Berry	56%	0	**0**			
WVS-145*º	Upland Shrub	Shrubby Cinquefoil	30	0	**0**	0.026	0	**No**
		Snow Berry	10%	0	**0**			
WVS-146*º	Upland Shrub	Silver Buffaloberry	15	10	**20**	0.005	0	**No**
WVS-147*º	Upland Shrub	Silver Buffaloberry	60	5	**10**	0.235	0	**No**
		Snow Berry	15%	15%	**15%**			
WVS-148*º	Upland Shrub	Chokecherry	30%	0	**0**	0.180	0	**No**
		Silver Buffaloberry	30%	0	**0**			
		Snow Berry	20%	0	**0**			
		Shrubby Cinquefoil	10%	0	**0**			
WVS-149*º	Upland Shrub	Silver Buffaloberry	70	11	**22**	0.274	0.043	**No**

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Chokecherry	10	2	**4**			
		Snow Berry	50%	50%	**50%**			
		Black Currant	5%	5%	**5%**			
WVS-150*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.132	0	**No**
WVS-151*º	Upland Shrub	Snow Berry	50	50	**100**	0.004	0.004	**No**
WVS-152*º	Upland Shrub	Snow Berry	50%	0	**0**	0.007	0	**No**
WVS-153*º	Upland Shrub	Silver Buffaloberry	70%	0	**0**	0.005	0	**No**
		Snow Berry	10%	0	**0**			
WVS-154*º	Upland Shrub	Prairie Rose	5	0	**0**	0.032	0	**No**
		Mountain Mahogany	1	0	**0**			
		Snow Berry	10%	0	**0**			
WVS-155*º	Upland Shrub	Chokecherry	70%	0	**0**	0.006	0	**No**
WVS-156*º	Upland Shrub	Chokecherry	5	1	**2**	0.058	0.007	**No**
		Silver Buffaloberry	70%	70%	**70%**			
		Snow Berry	20%	20%	**20%**			
WVS-157*º	Upland Shrub	Silver Buffaloberry	5	0	**0**	0.017	0	**No**
WVS-158*º	Upland Shrub	Mountain Mahogany	1	1	**2**	0.007	0.007	**No**
WVS-159*º	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.007	0.007	**No**
WVS-160*º	Upland Shrub	Silver Buffaloberry	9	9	**18**	0.022	0.022	**No**
WVS-161*º	Upland Shrub	Silver Buffaloberry	25	0	**0**	0.019	0	**No**
		Snow Berry	10	0	**0**			
WVS-162*º	Upland Shrub	Snow Berry	30	0	**0**	0.018	0	**No**
		Silver Buffaloberry	15	0	**0**			
WVS-163*º	Upland Shrub	Silver Buffaloberry	75%	0	**0**	0.009	0	**No**
WVS-164*º	Upland Shrub	Snow Berry	30%	0	**0**	0.009	0	**No**
WVS-165*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.014	0.014	**No**
WVS-166*º	Upland Shrub	Snow Berry	6%	6%	**6%**	0.005	0.005	**No**
WVS-167*º	Upland Shrub	Snow Berry	30	30	**60**	0.003	0.003	**No**
WVS-168*º	Upland Shrub	Snow Berry	25	25	**50**	0.007	0.007	**No**
WVS-169*º	Upland Shrub	Silver Buffaloberry	65%	65%	**65%**	0.115	0.009	**No**
		Snow Berry	5%	5%	**5%**			
WVS-170*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.019	0.019	**No**
WVS-171*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.234	0.098	**No**
		Snow Berry	20%	20%	**20%**			
WVS-172*º	Upland Shrub	Silver Buffaloberry	50%	50%	**50%**	0.050	0.015	**No**
		Snow Berry	10%	10%	**10%**			
WVS-173*º	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.007	0.007	**No**
WVS-174*º	Upland Shrub	Snow Berry	15%	0	**0**	0.011	0	**No**
		Silver Buffaloberry	5%	0	**0**			
WVS-175*º	Upland Shrub	Snow Berry	40%	0	**0**	0.009	0	**No**
WVS-176*º	Upland Shrub	Snow Berry	3	2	**4**	0.031	0.024	**No**
		Silver Buffaloberry	10%	10%	**10%**			
WVS-177*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.017	0.017	**No**
WVS-178*º	Upland Shrub	Snow Berry	10%	0	**0**	0.084	0	**No**

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Shrubby Cinquefoil	2%	0	**0**			
WVS-179*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.115	0.005	**No**
		Snow Berry	10%	10%	**10%**			
WVS-180*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.005	0.005	**No**
WVS-181*º	Upland Shrub	Silver Buffaloberry	45%	45%	**45%**	0.016	0.008	**No**
		Snow Berry	5%	5%	**5%**			
WVS-182*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.098	0.042	**No**
WVS-183*º	Upland Shrub	Silver Buffaloberry	75%	0	**0**	0.050	0	**No**
		Snow Berry	15%	0	**0**			
WVS-184*º	Upland Shrub	Prickly Rose	10	3	**6**	0.118	0	**No**
		Snow Berry	15%	15%	**15%**			
WVS-185*º	Upland Shrub	Snow Berry	45%	0	**0**	0.019	0	**No**
WVS-186*º	Upland Shrub	Snow Berry	90%	90%	**90%**	0.0004	0.0004	**No**
WVS-187*º	Upland Shrub	Silver Buffaloberry	85%	85%	**85%**	0.171	0	**No**
		Red Raspberry	25%	25%	**25%**			
		Snow Berry	10%	10%	**10%**			
WVS-188*º	Upland Shrub	Silver Buffaloberry	20	20	**40**	0.003	0	**No**
WVS-189*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.045	0.045	**No**
WVS-190*º	Upland Shrub	Silver Buffaloberry	20	13	**26**	0.036	0	**No**
		Snow Berry	15%	15%	**15%**			
WVS-191*º	Upland Shrub	Silver Buffaloberry	25	0	**0**	0.071	0	**No**
		Snow Berry	5%	0	**0**			
WVS-192*º	Upland Shrub	Silver Buffaloberry	15%	15%	**15%**	0.011	0	**No**
		Snow Berry	10%	10%	**10%**			
WVS-193*º	Upland Shrub	Silver Buffaloberry	40%	40%	**40%**	0.521	0	**No**
		Snow Berry	10%	10%	**10%**			
		Prairie Rose	2%	2%	**2%**			
WVS-194*º	Upland Shrub	Silver Buffaloberry	25	25	**50**	0.005	0	**No**
WVS-195*º	Upland Shrub	Silver Buffaloberry	20%	20%	**20%**	0.417	0	**No**
		Snow Berry	15%	15%	**15%**			
WVS-196*º	Upland Shrub	Silver Buffaloberry	5%	5%	**5%**	0.001	0	**No**
WVS-197*º	Upland Shrub	Snow Berry	3%	0	**0**	0.015	0	**No**
WVS-198*º	Upland Shrub	Snow Berry	30%	0	**0**	0.022	0	**No**
WVS-199*º	Upland Shrub	Snow Berry	15	0	**0**	0.031	0.001	**No**
		Silver Buffaloberry	5	0	**0**			
		Silver Sagebrush	1%	1%	**1%**			
WVS-200*º	Upland Shrub	Silver Buffaloberry	7	0	**0**	0.015	0	**No**
		Chokecherry	10%	0	**0**			
		Snow Berry	10%	0	**0**			
WVS-201*º	Upland Shrub	Silver Buffaloberry	20%	20%	**20%**	0.522	0.126	**No**
		Snow Berry	20%	20%	**20%**			
		Prairie Rose	5%	5%	**5%**			
WVS-202*º	Upland Shrub	Silver Sagebrush	15%	0	**0**	0.014	0	**No**
WVS-203*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.110	0.0003	**No**

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Chokecherry	2%	2%	**2%**			
WVS-204*º	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.007	0	**No**
WVS-205*º	Upland Shrub	Silver Buffaloberry	8	0	**0**	0.017	0	**No**
WVS-206*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.143	0.006	**No**
		Prairie Rose	5%	5%	**5%**			
		Roundleaf Hawthorn	5%	5%	**5%**			
WVS-207*º	Upland Shrub	Roundleaf Hawthorn	60%	0	**0**	0.037	0	**No**
		Silver Buffaloberry	15%	0	**0**			
WVS-208*º	Upland Shrub	Silver Buffaloberry	70%	70%	**70%**	0.126	0.047	**No**
		Snow Berry	10%	10%	**10%**			
WVS-209*º	Upland Shrub	Silver Buffaloberry	12	0	**0**	0.021	0	**No**
WVS-210*º	Upland Shrub	Silver Buffaloberry	60%	60%	**60%**	0.106	0.063	**No**
		Black Currant	5%	5%	**5%**			
		Prickly Rose	5%	5%	**5%**			
WVS-211*º	Upland Shrub	Green Ash	2	1	**2**	0.281	0.205	**No**
		Silver Buffaloberry	50%	50%	**50%**			
		Snow Berry	10%	10%	**10%**			
		Red Raspberry	5%	5%	**5%**			
		Common Juniper	2%	2%	**2%**			
WVS-212*º	Upland Shrub	Snow Berry	75	75	**150**	0.069	0.069	**No**
WVS-213*º	Upland Shrub	Snow Berry	50	24	**48**	0.014	0.007	**No**
WVS-214*º	Upland Shrub	Silver Buffaloberry	70%	0	**0**	0.009	0	**No**
WVS-215*º	Upland Shrub	Snow Berry	25%	25%	**25%**	0.354	0.025	**No**
WVS-216*º	Upland Shrub	Snow Berry	25	0	**0**	0.007	0	**No**
WVS-217*º	Upland Shrub	Silver Buffaloberry	25%	25%	**25%**	0.337	0	**No**
		Snow Berry	20%	20%	**20%**			
		Roundleaf Hawthorn	10%	10%	**10%**			
		Prickly Rose	1%	1%	**1%**			
WVS-218*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.011	0.011	**No**
WVS-219*º	Upland Shrub	Fleshy Hawthorn	6	3	**6**	0.098	0.053	**No**
		Snow Berry	20%	20%	**20%**			
WVS-220*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.003	0.003	**No**
WVS-221*º	Upland Shrub	Silver Buffaloberry	28%	28%	**28%**	0.199	0	**No**
		Snow Berry	10%	10%	**10%**			
WVS-222*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.001	0.001	**No**
WVS-223*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.011	0.003	**No**
WVS-224*º	Upland Shrub	Mountain Mahogany	1	1	**2**	0.007	0.007	**No**
WVS-225*º	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.007	0	**No**
WVS-226*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.025	0.011	**No**
WVS-227*º	Upland Shrub	Roundleaf Hawthorn	10	0	**0**	0.080	0	**No**
WVS-228*º	Upland Shrub	Chokecherry	20%	20%	**20%**	0.056	0.016	**No**
		Roundleaf Hawthorn	20%	20%	**20%**			
		Snow Berry	20%	20%	**20%**			
		Prairie Rose	5%	5%	**5%**			

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Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-229*º	Upland Shrub	Roundleaf Hawthorn	30%	0	**0**	0.013	0	**No**
		Chokecherry	5%	0	**0**			
		Snow Berry	2%	0	**0**			
WVS-230*º	Upland Shrub	Roundleaf Hawthorn	50%	0	**0**	0.060	0	**No**
		Chokecherry	40%	0	**0**			
WVS-231*º	Upland Shrub	Snow Berry	5%	5%	**5%**	0.035	0.001	**No**
WVS-232*º	Upland Shrub	Chokecherry	40%	0	**0**	0.014	0	**No**
		Snow Berry	5%	0	**0**			
WVS-233*º	Upland Shrub	Chokecherry	25%	25%	**25%**	0.003	0.001	**No**
		Snow Berry	2%	2%	**2%**			
WVS-234*º	Upland Shrub	Chokecherry	20%	0	**0**	0.031	0	**No**
		Snow Berry	10%	0	**0**			
WVS-235*º	Upland Shrub	Snow Berry	15	0	**0**	0.005	0	**No**
WVS-236*º	Upland Shrub	Prairie Rose	10%	10%	**10%**	0.032	0.029	**No**
WVS-237*º	Upland Shrub	Roundleaf Hawthorn	50%	50%	**50%**	0.389	0	**No**
		Prairie Rose	2%	2%	**2%**			
		Chokecherry	1%	1%	**1%**			
WVS-238*º	Upland Shrub	Roundleaf Hawthorn	70%	70%	**70%**	0.249	0	**No**
		Snow Berry	10%	10%	**10%**			
		Chokecherry	5%	5%	**5%**			
WVS-239*º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.010	0	**No**
WVS-240*º	Upland Shrub	Common Juniper	20	17	**34**	0.120	0.100	**No**
		Snow Berry	20%	20%	**20%**			
		Silver Buffaloberry	15%	15%	**15%**			
WVS-241*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.487	0	**No**
WVS-242*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.738	0	**No**
WVS-243*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.026	0.016	**No**
		Roundleaf Hawthorn	5%	5%	**5%**			
WVS-244*º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.037	0.028	**No**
		Common Juniper	5%	5%	**5%**			
WVS-245*º	Upland Shrub	Silver Buffaloberry	80%	0	**0**	0.005	0	**No**
		Snow Berry	2%	0	**0**			
WVS-246*º	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.716	0	**No**
		Snow Berry	25%	25%	**25%**			
WVS-247*º	Upland Shrub	Snow Berry	40%	40%	**40%**	1.157	0	**No**
		Chokecherry	10%	10%	**10%**			
		Creeping Juniper	5%	5%	**5%**			
WVS-248*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.229	0.075	**No**
		Silver Buffaloberry	15%	15%	**15%**			
		Prairie Rose	10%	10%	**10%**			
WVS-249*º	Upland Shrub	Snow Berry	3%	3%	**3%**	0.065	0	**No**
WVS-250*º	Upland Shrub	Roundleaf Hawthorn	60%	60%	**60%**	0.334	0	**No**
		Chokecherry	20%	20%	**20%**			
		Snow Berry	10%	10%	**10%**			

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		American Hazelnut	5%	5%	**5%**			
WVS-251*º	Upland Shrub	Snow Berry	20%	0	**0**	0.036	0	**No**
		Prairie Rose	10%	0	**0**			
WVS-252*º	Upland Shrub	American Elm	25	0	**0**	0.124	0	**No**
		Green Ash	1	0	**0**			
		Snow Berry	5%	0	**0**			
WVS-253*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.901	0	**No**
		Chokecherry	10%	10%	**10%**			
		Roundleaf Hawthorn	10%	10%	**10%**			
		Prairie Rose	5%	5%	**5%**			
WVS-254*º	Upland Shrub	Skunkbush Sumac	1	0	**0**	0.007	0	**No**
WVS-255*º	Upland Shrub	Silver Buffaloberry	2	0	**0**	0.004	0	**No**
WVS-256*º	Upland Shrub	Snow Berry	15%	0	**0**	0.030	0	**No**
WVS-257*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.083	0	**No**
		Creeping Juniper	20%	20%	**20%**			
WVS-258*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.003	0	**No**
WVS-259*º	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.145	0.053	**No**
		Snow Berry	50%	50%	**50%**			
WVS-260*º	Upland Shrub	Snow Berry	4	0	**0**	0.001	0	**No**
WVS-261*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.575	0	**No**
		Chokecherry	5%	5%	**5%**			
WVS-262*º	Upland Shrub	Snow Berry	50%	50%	**50%**	1.260	0	**No**
		Roundleaf Hawthorn	5%	5%	**5%**			
		Chokecherry	3%	3%	**3%**			
WVS-263*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.445	0	**No**
		Chokecherry	5%	5%	**5%**			
		Creeping Juniper	2%	2%	**2%**			
WVS-264*º	Upland Shrub	American Plum	15%	15%	**15%**	0.290	0	**No**
		Snow Berry	6%	6%	**6%**			
		Silver Buffaloberry	3%	3%	**3%**			
WVS-265*º	Upland Shrub	Snow Berry	10%	0	**0**	0.019	0	**No**
		Prairie Rose	5%	0	**0**			
WVS-266*º	Upland Shrub	Snow Berry	15%	0	**0**	0.009	0	**No**
		Prairie Rose	5%	0	**0**			
WVS-267*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.063	0	**No**
		Prairie Rose	5%	5%	**5%**			
WVS-268*º	Upland Shrub	Snow Berry	10%	0	**0**	0.002	0	**No**
WVS-269*º	Upland Shrub	Snow Berry	5%	5%	**5%**	0.052	0	**No**
WVS-270*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.162	0	**No**
		Chokecherry	5%	5%	**5%**			
		Quaking Aspen	3%	3%	**3%**			
WVS-271*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.544	0	**No**
		Prairie Rose	5%	5%	**5%**			
WVS-272*º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.007	0	**No**

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Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-273*º	Upland Shrub	Snow Berry	2%	0	**0**	0.006	0	**No**
WVS-274*º	Upland Shrub	Snow Berry	1%	1%	**1%**	0.009	0	**No**
WVS-275*º	Upland Shrub	Creeping Juniper	50%	0	**0**	0.023	0	**No**
		Snow Berry	5%	0	**0**			
WVS-276*º	Upland Shrub	Creeping Juniper	90%	90%	**90%**	0.009	0	**No**
WVS-277*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.210	0	**No**
		Creeping Juniper	15%	15%	**15%**			
		Silver Buffaloberry	5%	5%	**5%**			
WVS-278*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.189	0.110	**No**
WVS-279*º	Upland Shrub	Snow Berry	50%	0	**0**	0.044	0	**No**
		Prairie Rose	5%	0	**0**			
WVS-280*º	Upland Shrub	Creeping Juniper	60%	60%	**60%**	0.132	0.056	**No**
WVS-281*º	Upland Shrub	Snow Berry	45%	45%	**45%**	0.052	0.052	**No**
WVS-282*º	Upland Shrub	Creeping Juniper	90%	90%	**90%**	0.011	0.008	**No**
WVS-283*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.029	0.003	**No**
WVS-284*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.050	0	**No**
WVS-285*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.181	0	**No**
		Prairie Rose	10%	10%	**10%**			
WVS-286*º	Upland Shrub	Creeping Juniper	95%	95%	**95%**	0.033	0.033	**No**
WVS-287*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.023	0	**No**
		Prairie Rose	5%	5%	**5%**			
WVS-288*º	Upland Shrub	Snow Berry	35%	35%	**35%**	2.476	1	**No**
		Chokecherry	10%	10%	**10%**			
		Creeping Juniper	4%	4%	**4%**			
WVS-289*º	Upland Shrub	Snow Berry	40%	40%	**40%**	1.890	0	**No**
		Creeping Juniper	30%	30%	**30%**			
		Chokecherry	10%	10%	**10%**			
		Silver Buffaloberry	10%	10%	**10%**			
WVS-290*º	Upland Shrub	Snow Berry	40%	0	**0**	0.178	0	**No**
WVS-291*º	Upland Shrub	Creeping Juniper	80%	80%	**80%**	0.088	0.088	**No**
		Common Juniper	10%	10%	**10%**			
WVS-292*º	Upland Shrub	Snow Berry	40%	40%	**40%**	1.028	0	**No**
		Chokecherry	5%	5%	**5%**			
		Creeping Juniper	5%	5%	**5%**			
WVS-293*º	Upland Shrub	Snow Berry	50%	50%	**50%**	1.757	0	**No**
		Chokecherry	10%	10%	**10%**			
		Common Juniper	5%	5%	**5%**			
		Creeping Juniper	5%	5%	**5%**			
		Silver Buffaloberry	1%	1%	**1%**			
WVS-294*º	Upland Shrub	Snow Berry	45%	45%	**45%**	0.007	0	**No**
WVS-295*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.469	0	**No**
		Silver Buffaloberry	10%	10%	**10%**			
		Chokecherry	5%	5%	**5%**			
WVS-296*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.172	0	**No**

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Shrubs

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			Survey Area	Const. ROW	Est. Mitigation			
		Chokecherry	20%	20%	**20%**			
		Creeping Juniper	10%	10%	**10%**			
		Silver Buffaloberry	10%	10%	**10%**			
WVS-297*º	Upland Shrub	Common Juniper	3	1	**2**	0.031	0	**No**
		Creeping Juniper	1	0	**0**			
		Snow Berry	10%	10%	**10%**			
WVS-298*º	Upland Shrub	Snow Berry	20%	0	**0**	0.016	0	**No**
		Chokecherry	10%	0	**0**			
WVS-299*º	Upland Shrub	Creeping Juniper	1	1	**2**	0.046	0	**No**
WVS-300*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.168	0	**No**
WVS-301*º	Upland Shrub	Chokecherry	8	0	**0**	0.386	0	**No**
		Snow Berry	15%	0	**0**			
WVS-302*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.246	0	**No**
WVS-303*º	Upland Shrub	Snow Berry	20%	0	**0**	0.219	0	**No**
WVS-304*º	Upland Shrub	Chokecherry	5	1	**2**	1.888	0.506	**No**
		Snow Berry	15%	15%	**15%**			
		Creeping Juniper	1%	1%	**1%**			
WVS-305*º	Upland Shrub	Snow Berry	25%	25%	**25%**	0.351	0	**No**
		Creeping Juniper	2%	2%	**2%**			
WVS-306*º	Upland Shrub	Snow Berry	5	0	**0**	0.007	0	**No**
WVS-307*º	Upland Shrub	Snow Berry	55%	55%	**55%**	0.219	0.051	**No**
WVS-308*º	Upland Shrub	Snow Berry	60%	60%	**60%**	0.012	0.012	**No**
WVS-309*º	Upland Shrub	Snow Berry	40%	0	**0**	0.090	0	**No**
WVS-310*º	Upland Shrub	Creeping Juniper	90%	90%	**90%**	0.026	0.009	**No**
WVS-311*º	Upland Shrub	Snow Berry	40%	0	**0**	0.068	0	**No**
		Silver Buffaloberry	30%	0	**0**			
WVS-312*º	Upland Shrub	Silver Buffaloberry	30	8	**16**	0.250	0.068	**No**
		Creeping Juniper	60%	60%	**60%**			
WVS-313*º	Upland Shrub	Silver Buffaloberry	15	12	**24**	0.012	0.009	**No**
		Snow Berry	10%	10%	**10%**			
WVS-314*º	Upland Shrub	Chokecherry	4	0	**0**	0.039	0	**No**
		Rocky Mountain Juniper	2	0	**0**			
WVS-315*º	Upland Shrub	Rocky Mountain Juniper	1	0	**0**	0.004	0	**No**
		Snow Berry	5%	0	**0**			
WVS-316*º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.047	0	**No**
WVS-317*º	Upland Shrub	Snow Berry	35%	0	**0**	0.034	0	**No**
WVS-318*º	Upland Shrub	Silver Buffaloberry	4	0	**0**	0.002	0	**No**
WVS-319*º	Upland Shrub	Rocky Mountain Juniper	1	0	**0**	0.007	0.003	**No**
WVS-320*º	Upland Shrub	Snow Berry	5%	5%	**5%**	0.264	0	**No**
WVS-321*º	Upland Shrub	Snow Berry	10%	10%	**10%**	1.806	0	**No**
		Creeping Juniper	2%	2%	**2%**			
WVS-322*º	Upland Shrub	Snow Berry	10%	0	**0**	0.076	0	**No**
WVS-323*º	Upland Shrub	Snow Berry	50%	0	**0**	0.004	0	**No**
WVS-324*º	Upland Shrub	Snow Berry	20%	0	**0**	0.005	0	**No**

ºPreferred Route
*Alternative Route

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-325*º	Upland Shrub	Snow Berry	30%	0	**0**	0.148	0	**No**
		Creeping Juniper	5%	0	**0**			
WVS-326*º	Upland Shrub	Common Juniper	1	0	**0**	0.021	0	**No**
		Creeping Juniper	80%	0	**0**			
		Rocky Mountain Juniper	5%	0	**0**			
WVS-327*º	Upland Shrub	Prairie Rose	1	1	**2**	0.026	0	**No**
		Snow Berry	60%	60%	**60%**			
WVS-328*º	Upland Shrub	Chokecherry	170	102	**204**	0.037	0.022	**No**
		Snow Berry	30%	30%	**30%**			
WVS-329*º	Upland Shrub	Snow Berry	40%	0	**0**	0.001	0	**No**
WVS-330*º	Upland Shrub	Chokecherry	15	0	**0**	0.002	0	**No**
WVS-331*º	Upland Shrub	Snow Berry	20%	0	**0**	0.193	0	**No**
WVS-332*º	Upland Shrub	Chokecherry	17	0	**0**	0.001	0	**No**
WVS-333*º	Upland Shrub	Snow Berry	50	0	**0**	0.005	0	**No**
WVS-334*º	Upland Shrub	Chokecherry	25	0	**0**	0.001	0	**No**
WVS-335*º	Upland Shrub	Chokecherry	20	0	**0**	0.044	0	**No**
		Snow Berry	5%	0	**0**			
WVS-336*º	Upland Shrub	Chokecherry	62	0	**0**	0.075	0	**No**
		Snow Berry	25%	0	**0**			
WVS-337*º	Upland Shrub	Silver Buffaloberry	10	0	**0**	0.038	0	**No**
		Snow Berry	10%	0	**0**			
WVS-338*º	Upland Shrub	Silver Buffaloberry	27	17	**34**	0.022	0.014	**No**
		Snow Berry	5%	5%	**5%**			
		Chokecherry	2%	2%	**2%**			
WVS-339*º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.016	0.001	**No**
WVS-340*º	Upland Shrub	Rocky Mountain Juniper	3	0	**0**	0.357	0	**No**
		Green Ash	1	0	**0**			
		Creeping Juniper	40%	0	**0**			
		Chokecherry	10%	0	**0**			
		Common Juniper	10%	0	**0**			
		Snow Berry	10%	0	**0**			
		Silver Buffaloberry	5%	0	**0**			
WVS-341*º	Upland Shrub	Skunkbush Sumac	1	0	**0**	0.007	0	**No**
WVS-342*º	Upland Shrub	Creeping Juniper	60%	0	**0**	0.160	0	**No**
		Snow Berry	10%	0	**0**			
		Chokecherry	5%	0	**0**			
WVS-343*º	Upland Shrub	Snow Berry	55%	55%	**55%**	0.373	0	**No**
		Prickly Rose	2%	2%	**2%**			
WVS-344*º	Upland Shrub	Common Juniper	1	0	**0**	0.958	0	**No**
		Snow Berry	60%	60%	**60%**			
		Prickly Rose	5%	5%	**5%**			
WVS-345*º	Upland Shrub	Prickly Rose	5%	5%	**5%**	0.033	0	**No**
		Snow Berry	5%	5%	**5%**			
WVS-346*º	Upland Shrub	Snow Berry	5%	0	**0**	0.017	0	**No**

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-347*º	Upland Shrub	Snow Berry	6	4	**8**	0.001	0.0005	**No**
		Prickly Rose	5	3	**6**			
WVS-348*º	Upland Shrub	Snow Berry	25%	25%	**25%**	0.177	0	**No**
		Silver Buffaloberry	20%	20%	**20%**			
		Skunkbush Sumac	20%	20%	**20%**			
		Creeping Juniper	15%	15%	**15%**			
WVS-349*º	Upland Shrub	Common Juniper	1	1	**2**	0.183	0	**No**
		Snow Berry	20%	20%	**20%**			
		Silver Buffaloberry	10%	10%	**10%**			
		Skunkbush Sumac	10%	10%	**10%**			
		Silver Sagebrush	8%	8%	**8%**			
WVS-350*º	Upland Shrub	Skunkbush Sumac	95%	0	**0**	0.001	0	**No**
WVS-351*º	Upland Shrub	Common Juniper	1	0	**0**	0.719	0	**No**
		Snow Berry	20%	20%	**20%**			
		Skunkbush Sumac	10%	10%	**10%**			
		Creeping Juniper	8%	8%	**8%**			
		Silver Sagebrush	5%	5%	**5%**			
WVS-352*º	Upland Shrub	Silver Sagebrush	10%	10%	**10%**	0.251	0.142	**No**
WVS-353*º	Upland Shrub	Silver Sagebrush	50%	50%	**50%**	2.792	0.185	**No**
		Snow Berry	15%	15%	**15%**			
		Skunkbush Sumac	3%	3%	**3%**			
WVS-354*º	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.117	0	**No**
		Snow Berry	70%	0	**0**			
		Silver Sagebrush	12%	0	**0**			
WVS-355*º	Upland Shrub	Skunkbush Sumac	4	0	**0**	0.252	0	**No**
		Snow Berry	20%	20%	**20%**			
		Common Juniper	5%	5%	**5%**			
		Silver Buffaloberry	5%	5%	**5%**			
		Silver Sagebrush	5%	5%	**5%**			
WVS-356*º	Upland Shrub	Silver Sagebrush	20%	20%	**20%**	9.851	2	**No**
		Silver Buffaloberry	18%	18%	**18%**			
		Skunkbush Sumac	10%	10%	**10%**			
		Snow Berry	10%	10%	**10%**			
		Creeping Juniper	6%	6%	**6%**			
		Chokecherry	5%	5%	**5%**			
		Common Juniper	2%	2%	**2%**			
		Prairie Rose	2%	2%	**2%**			
WVS-357*º	Upland Shrub	Yucca Glauca	1	0	**0**	0.002	0	**No**
		Snow Berry	40%	0	**0**			
		Chokecherry	15%	0	**0**			
		Skunkbush Sumac	15%	0	**0**			
WVS-358*º	Upland Shrub	Silver Buffaloberry	80%	80%	**80%**	0.033	0	**No**
		Skunkbush Sumac	30%	30%	**30%**			
WVS-359*º	Upland Shrub	Yucca Glauca	6%	0	**0**	0.125	0	**No**

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Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Skunkbush Sumac	3%	0	**0**			
		Silver Sagebrush	2%	0	**0**			
		Snow Berry	2%	0	**0**			
		Chokecherry	1%	0	**0**			
WVS-360*º	Upland Shrub	Common Juniper	100%	0	**0**	0.002	0	**No**
WVS-361*º	Upland Shrub	Silver Sagebrush	30%	30%	**30%**	0.092	0.026	**No**
WVS-362*º	Upland Shrub	Silver Sagebrush	40%	40%	**40%**	1.954	0.519	**No**
		Silver Buffaloberry	10%	10%	**10%**			
		Snow Berry	5%	5%	**5%**			
WVS-363*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.218	0	**No**
		Silver Sagebrush	10%	10%	**10%**			
		Skunkbush Sumac	10%	10%	**10%**			
WVS-364*º	Upland Shrub	Silver Sagebrush	50%	50%	**50%**	1.408	0.579	**No**
WVS-365*º	Upland Shrub	Silver Sagebrush	60%	60%	**60%**	0.394	0.177	**No**
		Big Sagebrush	2%	2%	**2%**			
WVS-366*º	Upland Shrub	Silver Sagebrush	40%	0	**0**	0.042	0	**No**
WVS-367*º	Upland Shrub	Silver Sagebrush	20	4	**8**	1.301	0.250	**No**
		Big Sagebrush	10%	10%	**10%**			
WVS-368*º	Upland Shrub	Silver Sagebrush	4	0	**0**	0.013	0	**No**
		Common Juniper	1	0	**0**			
WVS-369*º	Upland Shrub	Silver Sagebrush	30%	30%	**30%**	2.144	1	**No**
		Snow Berry	15%	15%	**15%**			
		Prairie Rose	10%	10%	**10%**			
		Silver Buffaloberry	5%	5%	**5%**			
WVS-370*º	Upland Shrub	Silver Buffaloberry	80%	80%	**80%**	0.007	0	**No**
WVS-371*º	Upland Shrub	Silver Sagebrush	40%	0	**0**	0.855	0	**No**
		Snow Berry	4%	0	**0**			
		Big Sagebrush	2%	0	**0**			
		Prickly Rose	1%	0	**0**			
WVS-372*º	Upland Shrub	Rocky Mountain Juniper	1	1	**2**	0.007	0	**No**
WVS-373*º	Upland Shrub	Snow Berry	15%	0	**0**	0.057	0	**No**
		Silver Sagebrush	10%	0	**0**			
		Silver Buffaloberry	5%	0	**0**			
		Skunkbush Sumac	5%	0	**0**			
WVS-374*º	Upland Shrub	Silver Sagebrush	30%	30%	**30%**	0.022	0	**No**
		Prairie Rose	20%	20%	**20%**			
WVS-375*º	Upland Shrub	Silver Sagebrush	5%	0	**0**	0.036	0	**No**
WVS-376*º	Upland Shrub	Silver Sagebrush	1	1	**2**	0.007	0	**No**
WVS-377*º	Upland Shrub	Silver Sagebrush	1	1	**2**	0.007	0	**No**
WVS-378*º	Upland Shrub	Silver Sagebrush	15%	0	**0**	0.008	0	**No**
WVS-379*º	Upland Shrub	Silver Sagebrush	2	2	**4**	0.007	0	**No**
WVS-380*º	Upland Shrub	Silver Sagebrush	1	1	**2**	0.007	0	**No**
WVS-381*º	Upland Shrub	Rocky Mountain Juniper	1	0	**0**	0.007	0	**No**
WVS-382*º	Upland Shrub	Silver Sagebrush	2	2	**4**	0.007	0	**No**

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Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-383*º	Upland Shrub	Silver Sagebrush	2	2	**4**	0.007	0	**No**
WVS-384*º	Upland Shrub	Silver Sagebrush	20%	20%	**20%**	0.319	0	**No**
		Snow Berry	10%	10%	**10%**			
		Silver Buffaloberry	5%	5%	**5%**			
		Skunkbush Sumac	5%	5%	**5%**			
		Rocky Mountain Juniper	2%	2%	**2%**			
WVS-385*º	Upland Shrub	Silver Sagebrush	10	6	**12**	0.573	0.348	**No**
		Rocky Mountain Juniper	5	3	**6**			
		Snow Berry	10%	10%	**10%**			
		Skunkbush Sumac	2%	2%	**2%**			
		Prairie Rose	1%	1%	**1%**			
WVS-386*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.051	0	**No**
		Snow Berry	30%	0	**0**			
WVS-387*º	Upland Shrub	Rocky Mountain Juniper	4	3	**6**	0.143	0	**No**
		Common Juniper	1	1	**2**			
		Silver Sagebrush	5%	5%	**5%**			
		Snow Berry	2%	2%	**2%**			
WVS-388*º	Upland Shrub	Silver Sagebrush	3	3	**6**	0.028	0.028	**No**
		Rocky Mountain Juniper	1	1	**2**			
		Snow Berry	3%	3%	**3%**			
		Prairie Rose	2%	2%	**2%**			
WVS-389*º	Upland Shrub	Snow Berry	30%	0	**0**	0.049	0	**No**
WVS-390*º	Upland Shrub	Silver Buffaloberry	15%	0	**0**	0.214	0	**No**
		Creeping Juniper	10%	0	**0**			
		Silver Sagebrush	10%	0	**0**			
		Chokecherry	5%	0	**0**			
		Skunkbush Sumac	5%	0	**0**			
		Snow Berry	5%	0	**0**			
		Common Juniper	3%	0	**0**			
		Rocky Mountain Juniper	3%	0	**0**			
WVS-391*º	Upland Shrub	Rocky Mountain Juniper	1	1	**2**	0.007	0	**No**
WVS-392*º	Upland Shrub	Common Juniper	3	0	**0**	0.007	0	**No**
WVS-393*º	Upland Shrub	Snow Berry	60%	60%	**60%**	0.002	0	**No**
WVS-394*º	Upland Shrub	Silver Sagebrush	1	1	**2**	0.007	0	**No**
WVS-395*º	Upland Shrub	Silver Sagebrush	1	1	**2**	0.007	0	**No**
WVS-396*º	Upland Shrub	Silver Sagebrush	10%	0	**0**	0.054	0	**No**
		Prairie Rose	5%	0	**0**			
		Skunkbush Sumac	2%	0	**0**			
WVS-397*º	Upland Shrub	Silver Sagebrush	5	0	**0**	0.007	0	**No**
		Snow Berry	10%	0	**0**			
WVS-398*º	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.383	0.227	**No**
		Snow Berry	15%	15%	**15%**			
		Silver Sagebrush	5%	5%	**5%**			
		Green Ash	1%	1%	**1%**			

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Prairie Rose	1%	1%	**1%**			
WVS-399*º	Upland Shrub	Common Juniper	99%	99%	**99%**	0.001	0	**No**
WVS-400*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.085	0	**No**
		Silver Buffaloberry	10%	10%	**10%**			
		Prairie Rose	5%	5%	**5%**			
		Silver Sagebrush	5%	5%	**5%**			
WVS-401*º	Upland Shrub	Rocky Mountain Juniper	10%	10%	**10%**	0.029	0	**No**
		Silver Sagebrush	5%	5%	**5%**			
		Skunkbush Sumac	5%	5%	**5%**			
		Snow Berry	5%	5%	**5%**			
WVS-402*º	Upland Shrub	Snow Berry	30%	30%	**30%**	2.207	1	**No**
		Silver Sagebrush	6%	6%	**6%**			
		Common Juniper	1%	1%	**1%**			
		Fireberry Hawthorn	1%	1%	**1%**			
		Rocky Mountain Juniper	1%	1%	**1%**			
		Silver Buffaloberry	1%	1%	**1%**			
		Skunkbush Sumac	1%	1%	**1%**			
WVS-403*º	Upland Shrub	Silver Sagebrush	10%	10%	**10%**	0.330	0.169	**No**
		Snow Berry	10%	10%	**10%**			
		American Plum	5%	5%	**5%**			
		Silver Buffaloberry	5%	5%	**5%**			
WVS-404*º	Upland Shrub	Chokecherry	10	6	**12**	0.084	0.049	**No**
		Fireberry Hawthorn	45%	45%	**45%**			
		Silver Buffaloberry	30%	30%	**30%**			
		Snow Berry	5%	5%	**5%**			
		Prairie Rose	3%	3%	**3%**			
WVS-405*º	Upland Shrub	Common Juniper	1	0	**0**	4.329	2	**No**
		Silver Sagebrush	15%	15%	**15%**			
		Snow Berry	10%	10%	**10%**			
		Prairie Rose	1%	1%	**1%**			
WVS-406*º	Upland Shrub	Silver Sagebrush	50%	0	**0**	0.296	0	**No**
		Snow Berry	20%	0	**0**			
WVS-407*º	Upland Shrub	Silver Sagebrush	40%	40%	**40%**	1.182	0.050	**No**
		Snow Berry	20%	20%	**20%**			
		Skunkbush Sumac	2%	2%	**2%**			
WVS-410*º	Upland Shrub	Black Currant	3	0	**0**	0.827	0	**No**
		Silver Sagebrush	4%	4%	**4%**			
		Snow Berry	1%	1%	**1%**			
WVS-411*º	Upland Shrub	Silver Sagebrush	30%	0	**0**	0.035	0	**No**
WVS-412*º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.047	0	**No**
WVS-413*º	Upland Shrub	Silver Sagebrush	67	19	**38**	0.306	0.088	**No**
		Snow Berry	5%	5%	**5%**			
WVS-414*º	Upland Shrub	Rocky Mountain Juniper	20%	0	**0**	0.013	0	**No**
		Silver Sagebrush	10%	0	**0**			

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			Survey Area	Const. ROW	Est. Mitigation			
		Snow Berry	5%	0	**0**			
WVS-415*º	Upland Shrub	Silver Sagebrush	25%	0	**0**	0.027	0	**No**
		Snow Berry	20%	0	**0**			
WVS-416*º	Upland Shrub	Rocky Mountain Juniper	12	4	**8**	0.475	0	**No**
		Silver Sagebrush	20%	20%	**20%**			
		Chokecherry	15%	15%	**15%**			
		Snow Berry	10%	10%	**10%**			
		Creeping Juniper	2%	2%	**2%**			
		Skunkbush Sumac	2%	2%	**2%**			
WVS-417*º	Upland Shrub	Snow Berry	70%	0	**0**	0.013	0	**No**
WVS-418*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.474	0.078	**No**
		Chokecherry	10%	10%	**10%**			
WVS-419*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.917	0.001	**No**
		Silver Sagebrush	1%	1%	**1%**			
		Yucca Glauca	1%	1%	**1%**			
WVS-420*º	Upland Shrub	Snow Berry	45%	0	**0**	0.182	0	**No**
		Silver Sagebrush	4%	0	**0**			
WVS-421*º	Upland Shrub	Skunkbush Sumac	1	0	**0**	0.007	0	**No**
WVS-422*º	Upland Shrub	Snow Berry	20%	20%	**20%**	1.172	0.224	**No**
		Silver Sagebrush	5%	5%	**5%**			
		Skunkbush Sumac	5%	5%	**5%**			
WVS-423*º	Upland Shrub	Snow Berry	7	0	**0**	0.0003	0	**No**
WVS-424*º	Upland Shrub	Cherry	60%	0	**0**	0.153	0	**No**
WVS-425*º	Upland Shrub	Snow Berry	63	0	**0**	0.003	0	**No**
WVS-426*º	Upland Shrub	Snow Berry	15%	0	**0**	0.332	0	**No**
		Silver Sagebrush	10%	0	**0**			
WVS-427*º	Upland Shrub	Yucca Glauca	2	2	**4**	0.0001	0	**No**
WVS-428*º	Upland Shrub	Chokecherry	35%	35%	**35%**	0.119	0	**No**
		Snow Berry	20%	20%	**20%**			
		Skunkbush Sumac	5%	5%	**5%**			
WVS-429*º	Upland Shrub	Yucca Glauca	2	2	**4**	0.0002	0	**No**
WVS-430*º	Upland Shrub	Snow Berry	35%	0	**0**	0.289	0	**No**
		Silver Sagebrush	10%	0	**0**			
		Chokecherry	5%	0	**0**			
WVS-431*º	Upland Shrub	Snow Berry	25%	0	**0**	0.101	0	**No**
WVS-432*º	Upland Shrub	Skunkbush Sumac	1	0	**0**	0.007	0	**No**
WVS-433*º	Upland Shrub	Snow Berry	40%	0	**0**	0.021	0	**No**
WVS-434*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.112	0.034	**No**
		Chokecherry	8%	8%	**8%**			
WVS-435*º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.172	0.070	**No**
		Chokecherry	8%	8%	**8%**			
WVS-436*º	Upland Shrub	Yucca Glauca	2	2	**4**	0.0004	0	**No**
WVS-437*º	Upland Shrub	Yucca Glauca	1	0	**0**	0.048	0	**No**
		Snow Berry	35%	0	**0**			

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-438*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.113	0.113	**No**
WVS-439*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.036	0.036	**No**
WVS-440*º	Upland Shrub	Snow Berry	40%	0	**0**	0.021	0	**No**
WVS-441*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.285	0.134	**No**
		Prairie Rose	5%	5%	**5%**			
WVS-442*º	Upland Shrub	Snow Berry	10%	0	**0**	0.022	0	**No**
WVS-443*º	Upland Shrub	Snow Berry	20%	0	**0**	0.046	0	**No**
WVS-444*º	Upland Shrub	Snow Berry	30%	0	**0**	0.018	0	**No**
WVS-445*º	Upland Shrub	Silver Buffaloberry	20%	0	**0**	0.119	0	**No**
		Snow Berry	10%	0	**0**			
		Prickly Rose	5%	0	**0**			
		Silver Sagebrush	5%	0	**0**			
		Green Ash	2%	0	**0**			
WVS-446*º	Upland Shrub	Silver Buffaloberry	6	0	**0**	0.003	0	**No**
WVS-447*º	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.018	0	**No**
		Snow Berry	20%	0	**0**			
		Prairie Rose	10%	0	**0**			
WVS-448*º	Upland Shrub	Silver Sagebrush	9	0	**0**	0.029	0	**No**
		Skunkbush Sumac	3	0	**0**			
		Prairie Rose	10%	0	**0**			
WVS-449*º	Upland Shrub	Skunkbush Sumac	40%	0	**0**	0.004	0	**No**
WVS-450*º	Upland Shrub	Silver Sagebrush	12	6	**12**	0.039	0	**No**
		Prairie Rose	15%	15%	**15%**			
		Snow Berry	10%	10%	**10%**			
WVS-451*º	Upland Shrub	Silver Sagebrush	18	0	**0**	0.005	0	**No**
WVS-452*º	Upland Shrub	Skunkbush Sumac	10%	10%	**10%**	0.034	0.024	**No**
		Snow Berry	10%	10%	**10%**			
WVS-453*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.054	0	**No**
WVS-454*º	Upland Shrub	Prairie Rose	15	0	**0**	0.002	0	**No**
WVS-455*º	Upland Shrub	Silver Buffaloberry	3	0	**0**	0.011	0	**No**
		Prairie Rose	10%	0	**0**			
		Snow Berry	10%	0	**0**			
WVS-456*º	Upland Shrub	Skunkbush Sumac	5	0	**0**	0.007	0	**No**
WVS-457*º	Upland Shrub	Prairie Rose	30%	0	**0**	0.037	0	**No**
WVS-458*º	Upland Shrub	Silver Buffaloberry	5%	5%	**5%**	0.014	0	**No**
WVS-459*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.114	0	**No**
		Skunkbush Sumac	6%	6%	**6%**			
WVS-460*º	Upland Shrub	Silver Buffaloberry	3	1	**2**	0.329	0	**No**
		Snow Berry	90%	90%	**90%**			
		Skunkbush Sumac	2%	2%	**2%**			
WVS-461*º	Upland Shrub	Silver Sagebrush	70	70	**140**	0.002	0	**No**
WVS-462*º	Upland Shrub	Snow Berry	30%	0	**0**	0.043	0	**No**
WVS-463*º	Upland Shrub	Tatarian Honeysuckle	25%	0	**0**	0.056	0	**No**
		Silver Sagebrush	2%	0	**0**			

ºPreferred Route
*Alternative Route

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-464*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.014	0	**No**
		Silver Sagebrush	8%	8%	**8%**			
WVS-465*º	Upland Shrub	Silver Sagebrush	20%	20%	**20%**	0.010	0	**No**
WVS-466*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.018	0	**No**
		Prairie Rose	15%	15%	**15%**			
WVS-467*º	Upland Shrub	Silver Buffaloberry	1	1	**2**	0.030	0	**No**
		Silver Sagebrush	1	1	**2**			
		Prairie Rose	10%	10%	**10%**			
		Snow Berry	10%	10%	**10%**			
WVS-468*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.007	0	**No**
WVS-469*º	Upland Shrub	Snow Berry	11	1	**2**	0.007	0	**No**
WVS-470*º	Upland Shrub	Silver Sagebrush	8	3	**6**	0.190	0	**No**
		Prickly Rose	6	3	**6**			
		Common Juniper	1	0	**0**			
		Snow Berry	20%	20%	**20%**			
WVS-471*º	Upland Shrub	Silver Sagebrush	80%	0	**0**	0.001	0	**No**
WVS-472*º	Upland Shrub	Snow Berry	60%	0	**0**	0.031	0	**No**
WVS-473*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.007	0	**No**
WVS-474*º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.003	0	**No**
WVS-475*º	Upland Shrub	Snow Berry	100	100	**200**	0.023	0	**No**
WVS-476*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.117	0	**No**
WVS-477*º	Upland Shrub	Snow Berry	30%	0	**0**	0.009	0	**No**
WVS-478*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.003	0	**No**
WVS-479*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.009	0	**No**
WVS-480*º	Upland Shrub	Snow Berry	30%	0	**0**	0.005	0	**No**
WVS-481*º	Upland Shrub	Snow Berry	25	0	**0**	0.007	0	**No**
WVS-482*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.037	0	**No**
		Silver Sagebrush	5%	5%	**5%**			
WVS-483*º	Upland Shrub	Silver Buffaloberry	15	5	**10**	0.218	0.066	**No**
		Common Juniper	1	0	**0**			
		Creeping Juniper	30%	30%	**30%**			
		Snow Berry	10%	10%	**10%**			
		Silver Sagebrush	5%	5%	**5%**			
		Skunkbush Sumac	5%	5%	**5%**			
WVS-484*º	Upland Shrub	Silver Buffaloberry	3	0	**0**	0.964	0.155	**No**
		Snow Berry	40%	40%	**40%**			
		Silver Sagebrush	2%	2%	**2%**			
WVS-485*º	Upland Shrub	Snow Berry	40%	40%	**40%**	1.761	0	**No**
		Skunkbush Sumac	10%	10%	**10%**			
		Silver Buffaloberry	5%	5%	**5%**			
WVS-486*º	Upland Shrub	Silver Buffaloberry	4	0	**0**	0.007	0	**No**
WVS-487*º	Upland Shrub	Skunkbush Sumac	3	0	**0**	0.007	0	**No**
WVS-488*º	Upland Shrub	Snow Berry	20%	0	**0**	0.007	0	**No**
WVS-489*º	Upland Shrub	Silver Buffaloberry	52	20	**40**	0.349	0	**No**

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			Survey Area	Const. ROW	Est. Mitigation			
		Skunkbush Sumac	7	3	**6**			
		Snow Berry	10%	10%	**10%**			
WVS-490*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.169	0	**No**
		Skunkbush Sumac	5%	5%	**5%**			
WVS-492*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.002	0	**No**
WVS-493*º	Upland Shrub	Snow Berry	15%	0	**0**	0.128	0	**No**
WVS-494*º	Upland Shrub	Silver Sagebrush	15%	0	**0**	0.054	0	**No**
		Snow Berry	5%	0	**0**			
WVS-495*º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.072	0	**No**
WVS-496*º	Upland Shrub	Silver Buffaloberry	45%	0	**0**	0.058	0	**No**
WVS-497*º	Upland Shrub	Snow Berry	30%	0	**0**	0.169	0	**No**
		Silver Buffaloberry	5%	0	**0**			
		Prairie Rose	2%	0	**0**			
WVS-498*º	Upland Shrub	Skunkbush Sumac	5	0	**0**	0.002	0	**No**
WVS-499*º	Upland Shrub	Silver Buffaloberry	10	10	**20**	0.021	0	**No**
		Snow Berry	60%	60%	**60%**			
WVS-500*º	Upland Shrub	Silver Sagebrush	4	0	**0**	0.009	0	**No**
WVS-501*º	Upland Shrub	Silver Sagebrush	8	0	**0**	0.010	0	**No**
WVS-502*º	Upland Shrub	Silver Sagebrush	3	0	**0**	0.002	0	**No**
WVS-503*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.002	0	**No**
WVS-504*º	Upland Shrub	Skunkbush Sumac	1	0	**0**	0.002	0	**No**
WVS-505*º	Upland Shrub	Snow Berry	20%	0	**0**	0.198	0	**No**
		Silver Buffaloberry	10%	0	**0**			
		Silver Sagebrush	5%	0	**0**			
WVS-506*º	Upland Shrub	Silver Buffaloberry	50%	0	**0**	0.076	0	**No**
		Snow Berry	10%	0	**0**			
WVS-507*º	Upland Shrub	Snow Berry	10%	0	**0**	0.006	0	**No**
WVS-508*º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.131	0	**No**
WVS-509*º	Upland Shrub	Snow Berry	65%	0	**0**	0.016	0	**No**
WVS-510*º	Upland Shrub	Skunkbush Sumac	1	1	**2**	0.002	0	**No**
WVS-511*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.002	0	**No**
WVS-512*º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.021	0	**No**
		Snow Berry	5%	0	**0**			
WVS-513*º	Upland Shrub	Silver Buffaloberry	6	0	**0**	0.015	0	**No**
		Skunkbush Sumac	2	0	**0**			
WVS-514*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.007	0	**No**
WVS-515*º	Upland Shrub	Chokecherry	25	0	**0**	0.011	0	**No**
		Silver Buffaloberry	3	0	**0**			
WVS-516*º	Upland Shrub	Chokecherry	40	0	**0**	0.003	0	**No**
WVS-517*º	Upland Shrub	Skunkbush Sumac	5	0	**0**	0.007	0	**No**
WVS-518*º	Upland Shrub	Chokecherry	10%	0	**0**	0.103	0	**No**
		Skunkbush Sumac	5%	0	**0**			
		Silver Buffaloberry	2%	0	**0**			
WVS-519*º	Upland Shrub	Snow Berry	13	0	**0**	0.002	0	**No**

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-520*º	Upland Shrub	Snow Berry	35%	0	**0**	0.024	0	**No**
WVS-521*º	Upland Shrub	Silver Sagebrush	5	0	**0**	0.003	0	**No**
WVS-522*º	Upland Shrub	Prairie Rose	10%	0	**0**	0.010	0	**No**
		Snow Berry	10%	0	**0**			
WVS-523*º	Upland Shrub	Silver Sagebrush	5	0	**0**	0.007	0	**No**
WVS-524*º	Upland Shrub	Creeping Juniper	1	1	**2**	0.002	0	**No**
WVS-525*º	Upland Shrub	Silver Sagebrush	6	6	**12**	0.014	0.014	**No**
WVS-526*º	Upland Shrub	Silver Sagebrush	3	2	**4**	0.031	0	**No**
		Snow Berry	15%	15%	**15%**			
		Prairie Rose	5%	5%	**5%**			
WVS-527*º	Upland Shrub	Silver Sagebrush	10%	0	**0**	0.026	0	**No**
		Snow Berry	5%	0	**0**			
WVS-528*º	Upland Shrub	Chokecherry	70%	0	**0**	0.024	0	**No**
		Snow Berry	10%	0	**0**			
WVS-529*º	Upland Shrub	Silver Sagebrush	35	35	**70**	0.003	0.003	**No**
WVS-530*º	Upland Shrub	Silver Sagebrush	15%	15%	**15%**	0.879	0.284	**No**
		Snow Berry	10%	10%	**10%**			
		Prairie Rose	3%	3%	**3%**			
WVS-531*º	Upland Shrub	Snow Berry	15%	0	**0**	0.009	0	**No**
WVS-532*º	Upland Shrub	Silver Sagebrush	20	0	**0**	0.001	0	**No**
WVS-533*º	Upland Shrub	Silver Sagebrush	10	0	**0**	0.054	0	**No**
		Silver Buffaloberry	7	0	**0**			
		Snow Berry	25%	0	**0**			
		Prairie Rose	2%	0	**0**			
WVS-534*º	Upland Shrub	Silver Buffaloberry	75%	0	**0**	0.047	0	**No**
		American Plum	5%	0	**0**			
		Snow Berry	5%	0	**0**			
WVS-535*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.391	0	**No**
WVS-536*º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.012	0	**No**
		American Plum	5%	0	**0**			
WVS-537*º	Upland Shrub	Silver Buffaloberry	30	0	**0**	0.205	0	**No**
		Chokecherry	5	0	**0**			
		Snow Berry	20%	0	**0**			
		Prairie Rose	2%	0	**0**			
WVS-538*º	Upland Shrub	Silver Sagebrush	20%	20%	**20%**	0.958	0.393	**No**
		Prairie Rose	5%	5%	**5%**			
		Snow Berry	5%	5%	**5%**			
WVS-539*º	Upland Shrub	Snow Berry	20%	0	**0**	0.014	0	**No**
		Silver Buffaloberry	10%	0	**0**			
		Silver Sagebrush	10%	0	**0**			
WVS-540*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.006	0	**No**
		Snow Berry	20%	0	**0**			
WVS-541*º	Upland Shrub	Snow Berry	30%	0	**0**	0.007	0	**No**
WVS-542*º	Upland Shrub	Snow Berry	35%	0	**0**	0.047	0	**No**

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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Chokecherry	25%	0	**0**			
WVS-543*º	Upland Shrub	Silver Sagebrush	5	0	**0**	0.019	0	**No**
		Snow Berry	20%	0	**0**			
WVS-544*º	Upland Shrub	Snow Berry	25%	0	**0**	0.047	0	**No**
WVS-545*º	Upland Shrub	Snow Berry	80%	0	**0**	0.018	0	**No**
WVS-546*º	Upland Shrub	Silver Sagebrush	4%	4%	**4%**	0.179	0.036	**No**
WVS-547*º	Upland Shrub	Snow Berry	25%	0	**0**	0.065	0	**No**
		American Plum	20%	0	**0**			
		Silver Sagebrush	5%	0	**0**			
WVS-548*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.002	0	**No**
WVS-549*º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.031	0	**No**
		Prickly Rose	10%	10%	**10%**			
		Silver Sagebrush	5%	5%	**5%**			
WVS-550*º	Upland Shrub	Silver Sagebrush	15%	0	**0**	0.004	0	**No**
WVS-551*º	Upland Shrub	Silver Sagebrush	30%	30%	**30%**	0.029	0.029	**No**
WVS-552*º	Upland Shrub	Silver Buffaloberry	25%	25%	**25%**	0.041	0	**No**
		Silver Sagebrush	6%	6%	**6%**			
		Prairie Rose	3%	3%	**3%**			
		Snow Berry	2%	2%	**2%**			
WVS-553*º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.003	0	**No**
WVS-554*º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.007	0	**No**
WVS-555*º	Upland Shrub	Silver Sagebrush	15%	15%	**15%**	0.023	0.004	**No**
WVS-556*º	Upland Shrub	Silver Buffaloberry	40%	0	**0**	0.0003	0	**No**
WVS-557*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.047	0	**No**
		Silver Buffaloberry	10%	10%	**10%**			
WVS-558*º	Upland Shrub	Snow Berry	20%	0	**0**	0.021	0	**No**
WVS-560*º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.009	0	**No**
WVS-561*º	Upland Shrub	Silver Buffaloberry	25%	0	**0**	0.043	0	**No**
		Snow Berry	25%	0	**0**			
		Prairie Rose	2%	0	**0**			
WVS-562*º	Upland Shrub	Silver Sagebrush	20%	20%	**20%**	0.018	0.018	**No**
WVS-563*º	Upland Shrub	American Plum	40%	0	**0**	0.045	0	**No**
		Snow Berry	10%	0	**0**			
		Prairie Rose	8%	0	**0**			
		Silver Sagebrush	2%	0	**0**			
WVS-564*º	Upland Shrub	Snow Berry	30%	0	**0**	0.003	0	**No**
WVS-565*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.354	0	**No**
		Prairie Rose	10%	10%	**10%**			
		Silver Sagebrush	5%	5%	**5%**			
WVS-566*º	Upland Shrub	Silver Sagebrush	10%	0	**0**	0.118	0	**No**
		Prairie Rose	5%	0	**0**			
WVS-567*º	Upland Shrub	Snow Berry	25%	0	**0**	0.050	0	**No**
		Prairie Rose	10%	0	**0**			
		Silver Sagebrush	5%	0	**0**			

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-568*º	Upland Shrub	Silver Sagebrush	16%	0	**0**	0.004	0	**No**
WVS-569*º	Upland Shrub	Silver Sagebrush	3	0	**0**	0.004	0	**No**
WVS-570*º	Upland Shrub	Silver Buffaloberry	50%	0	**0**	0.058	0	**No**
		Snow Berry	10%	0	**0**			
		Chokecherry	5%	0	**0**			
		Saskatoon Serviceberry	5%	0	**0**			
		Skunkbush Sumac	2%	0	**0**			
		Common Juniper	1%	0	**0**			
WVS-571*º	Upland Shrub	American Plum	2	1	**2**	0.469	0	**No**
		Snow Berry	30%	30%	**30%**			
		Silver Sagebrush	10%	10%	**10%**			
WVS-572*º	Upland Shrub	Silver Sagebrush	10%	10%	**10%**	0.027	0.027	**No**
WVS-573*º	Upland Shrub	Silver Buffaloberry	30%	30%	**30%**	0.016	0	**No**
		Chokecherry	25%	25%	**25%**			
		Snow Berry	10%	10%	**10%**			
WVS-574*º	Upland Shrub	Silver Buffaloberry	30%	0	**0**	0.038	0	**No**
		Snow Berry	20%	0	**0**			
WVS-575*º	Upland Shrub	Green Ash	3	3	**6**	0.121	0.118	**No**
		Silver Buffaloberry	40%	40%	**40%**			
		Snow Berry	10%	10%	**10%**			
WVS-576*º	Upland Shrub	Russian Olive	15	0	**0**	0.017	0	**No**
		Snow Berry	5%	0	**0**			
WVS-577*º	Upland Shrub	Rocky Mountain Juniper	1	0	**0**	0.007	0	**No**
WVS-578*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.141	0	**No**
		Fireberry Hawthorn	5%	5%	**5%**			
		Prairie Rose	2%	2%	**2%**			
		Saskatoon Serviceberry	2%	2%	**2%**			
WVS-579*º	Upland Shrub	Snow Berry	60%	60%	**60%**	0.396	0	**No**
		Prairie Rose	10%	10%	**10%**			
WVS-580*º	Upland Shrub	Snow Berry	40%	0	**0**	0.214	0	**No**
		Prairie Rose	15%	0	**0**			
WVS-581*º	Upland Shrub	Chokecherry	50	7	**14**	0.137	0.020	**No**
		Snow Berry	40%	40%	**40%**			
WVS-582*º	Upland Shrub	Snow Berry	35%	35%	**35%**	0.162	0	**No**
		Creeping Juniper	25%	25%	**25%**			
		Chokecherry	5%	5%	**5%**			
		Silver Buffaloberry	2%	2%	**2%**			
WVS-583*º	Upland Shrub	Snow Berry	30%	30%	**30%**	0.090	0	**No**
		Big Sagebrush	2%	2%	**2%**			
		Silver Sagebrush	1%	1%	**1%**			
WVS-584*º	Upland Shrub	Silver Sagebrush	1	0	**0**	0.108	0.018	**No**
		Snow Berry	20%	20%	**20%**			
		Prairie Rose	10%	10%	**10%**			
		Silver Buffaloberry	2%	2%	**2%**			

ºPreferred Route
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% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-585*º	Upland Shrub	Snow Berry	15%	0	**0**	0.031	0	**No**
		Prairie Rose	10%	0	**0**			
		American Plum	5%	0	**0**			
WVS-586º	Upland Shrub	Prairie Rose	10%	10%	**10%**	0.021	0.0003	**No**
		Snow Berry	2%	2%	**2%**			
WVS-587º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.027	0	**No**
WVS-588º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.068	0	**No**
		Prairie Rose	10%	10%	**10%**			
WVS-589º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.083	0	**No**
WVS-590º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.020	0	**No**
WVS-591º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.028	0	**No**
		Prairie Rose	5%	5%	**5%**			
WVS-592º	Upland Shrub	Snow Berry	7	0	**0**	0.002	0	**No**
WVS-593º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.003	0	**No**
WVS-594º	Upland Shrub	Snow Berry	20%	0	**0**	0.004	0	**No**
WVS-595º	Upland Shrub	Snow Berry	20%	0	**0**	0.009	0	**No**
WVS-596º	Upland Shrub	American Plum	80%	80%	**80%**	0.026	0	**No**
		Prairie Rose	5%	5%	**5%**			
		Snow Berry	5%	5%	**5%**			
WVS-597º	Upland Shrub	Snow Berry	35%	35%	**35%**	0.379	0	**No**
		Chokecherry	20%	20%	**20%**			
WVS-598º	Upland Shrub	Chokecherry	85%	85%	**85%**	0.028	0.001	**No**
		Snow Berry	6%	6%	**6%**			
WVS-599º	Upland Shrub	Snow Berry	60%	0	**0**	0.014	0	**No**
WVS-600º	Upland Shrub	Snow Berry	60%	0	**0**	0.003	0	**No**
WVS-601º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.003	0	**No**
WVS-602º	Riparian Shrub	Snow Berry	60%	0	**0**	0.007	0	**No**
		Prairie Rose	5%	0	**0**			
WVS-603º	Riparian Shrub	Snow Berry	75%	0	**0**	0.027	0	**No**
WVS-604º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.047	0	**No**
		Prairie Rose	1%	1%	**1%**			
WVS-605º	Upland Shrub	Silver Buffaloberry	53	10	**20**	3.009	1	**No**
		Snow Berry	45%	45%	**45%**			
		Chokecherry	5%	5%	**5%**			
		Prairie Rose	5%	5%	**5%**			
		Saskatoon Serviceberry	5%	5%	**5%**			
		Silver Sagebrush	3%	3%	**3%**			
		Skunkbush Sumac	3%	3%	**3%**			
WVS-606º	Upland Shrub	Prairie Rose	3	3	**6**	0.004	0.004	**No**
		Snow Berry	30%	30%	**30%**			
WVS-607º	Upland Shrub	Snow Berry	60%	0	**0**	0.050	0	**No**
WVS-608º	Upland Shrub	Snow Berry	5%	5%	**5%**	0.006	0	**No**
WVS-609º	Upland Shrub	Prairie Rose	15%	15%	**15%**	0.026	0.026	**No**
		Snow Berry	15%	15%	**15%**			

ºPreferred Route
*Alternative Route

% = Percent Cover

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-610º	Upland Shrub	Silver Sagebrush	40%	40%	**40%**	0.007	0.007	**No**
WVS-611º	Upland Shrub	Silver Sagebrush	40%	40%	**40%**	0.015	0.002	**No**
WVS-612º	Upland Shrub	Silver Sagebrush	10	0	**0**	0.020	0	**No**
		Skunkbush Sumac	2	0	**0**			
		Prairie Rose	5%	0	**0**			
WVS-613º	Upland Shrub	Skunkbush Sumac	1	0	**0**	0.031	0	**No**
		Silver Sagebrush	10%	0	**0**			
		Snow Berry	5%	0	**0**			
WVS-614º	Upland Shrub	Skunkbush Sumac	20%	20%	**20%**	0.007	0.001	**No**
WVS-615º	Upland Shrub	Silver Sagebrush	2	1	**2**	0.077	0	**No**
		Snow Berry	5%	5%	**5%**			
		Prairie Rose	1%	1%	**1%**			
WVS-616º	Upland Shrub	Snow Berry	15%	0	**0**	0.005	0	**No**
WVS-617º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.116	0	**No**
		Chokecherry	5%	0	**0**			
		Snow Berry	5%	0	**0**			
WVS-618º	Upland Shrub	Snow Berry	20%	0	**0**	0.015	0	**No**
WVS-619º	Upland Shrub	Silver Sagebrush	8	8	**16**	0.002	0	**No**
WVS-620º	Upland Shrub	Silver Sagebrush	7	0	**0**	0.002	0	**No**
WVS-621º	Upland Shrub	Silver Sagebrush	18%	0	**0**	0.051	0	**No**
		Silver Buffaloberry	10%	0	**0**			
		Snow Berry	5%	0	**0**			
		Prickly Rose	3%	0	**0**			
WVS-622º	Upland Shrub	Silver Sagebrush	8	0	**0**	0.003	0	**No**
WVS-623º	Upland Shrub	Silver Sagebrush	10	10	**20**	0.011	0	**No**
WVS-624º	Upland Shrub	Silver Sagebrush	5	0	**0**	0.005	0	**No**
WVS-625º	Upland Shrub	Russian Olive	86	24	**48**	0.654	0.183	**No**
		Silver Buffaloberry	1	0	**0**			
WVS-626º	Upland Shrub	Silver Sagebrush	10	0	**0**	0.003	0	**No**
WVS-627º	Upland Shrub	Snow Berry	5%	0	**0**	0.012	0	**No**
WVS-628º	Upland Shrub	Silver Sagebrush	6	0	**0**	0.005	0	**No**
WVS-629º	Upland Shrub	Snow Berry	10%	10%	**10%**	1.323	0	**No**
		Creeping Juniper	5%	5%	**5%**			
		Silver Buffaloberry	5%	5%	**5%**			
		Prickly Rose	3%	3%	**3%**			
		Silver Sagebrush	3%	3%	**3%**			
		Skunkbush Sumac	2%	2%	**2%**			
		Common Juniper	1%	1%	**1%**			
WVS-630º	Upland Shrub	Silver Sagebrush	5%	0	**0**	0.061	0	**No**
WVS-631º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.370	0	**No**
		Creeping Juniper	2%	2%	**2%**			
		Silver Buffaloberry	2%	2%	**2%**			
WVS-632º	Upland Shrub	Snow Berry	20%	20%	**20%**	0.007	0	**No**
		Silver Sagebrush	10%	10%	**10%**			

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
WVS-633º	Upland Shrub	Snow Berry	15%	15%	**15%**	0.178	0	**No**
WVS-634º	Upland Shrub	American Elm	1	0	**0**	0.039	0	**No**
		Chokecherry	40%	0	**0**			
		Snow Berry	15%	0	**0**			
		Skunkbush Sumac	10%	0	**0**			
WVS-635º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.197	0	**No**
WVS-636º	Upland Shrub	Silver Buffaloberry	14	0	**0**	0.014	0	**No**
		Snow Berry	15%	0	**0**			
WVS-637º	Upland Shrub	Snow Berry	2%	0	**0**	0.002	0	**No**
WVS-638º	Upland Shrub	Silver Sagebrush	4	1	**2**	0.456	0	**No**
		Snow Berry	45%	45%	**45%**			
WVS-639º	Upland Shrub	Snow Berry	30%	0	**0**	0.052	0	**No**
WVS-640º	Upland Shrub	Chokecherry	50%	50%	**50%**	0.162	0	**No**
		Saskatoon Serviceberry	5%	5%	**5%**			
		Snow Berry	5%	5%	**5%**			
		Skunkbush Sumac	2%	2%	**2%**			
WVS-641º	Upland Shrub	Silver Buffaloberry	15%	15%	**15%**	0.291	0	**No**
		Skunkbush Sumac	10%	10%	**10%**			
		Snow Berry	10%	10%	**10%**			
		Chokecherry	5%	5%	**5%**			
		Silver Sagebrush	5%	5%	**5%**			
WVS-642º	Upland Shrub	Silver Sagebrush	20%	20%	**20%**	0.065	0	**No**
		Chokecherry	5%	5%	**5%**			
		Snow Berry	5%	5%	**5%**			
WVS-643º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.174	0	**No**
		Chokecherry	3%	3%	**3%**			
WVS-644º	Upland Shrub	Snow Berry	50%	50%	**50%**	0.017	0	**No**
		Green Ash	25%	25%	**25%**			
WVS-645º	Upland Shrub	Green Ash	7	0	**0**	0.324	0	**No**
		Chokecherry	50%	0	**0**			
		Snow Berry	15%	0	**0**			
		Green Ash	5%	0	**0**			
WVS-646º	Upland Shrub	Snow Berry	40%	40%	**40%**	0.071	0	**No**
		Chokecherry	10%	10%	**10%**			
WVS-647º	Upland Shrub	Chokecherry	60%	0	**0**	0.034	0	**No**
		Prairie Rose	5%	0	**0**			
WVS-648º	Upland Shrub	Chokecherry	30%	30%	**30%**	0.040	0.012	**No**
		Snow Berry	20%	20%	**20%**			
WVS-649º	Upland Shrub	Snow Berry	20%	0	**0**	0.025	0	**No**
		Prairie Rose	5%	0	**0**			
WVS-650º	Upland Shrub	Chokecherry	1	0	**0**	0.007	0	**No**
WVS-651º	Upland Shrub	Creeping Juniper	80%	0	**0**	0.021	0	**No**
WVS-652º	Upland Shrub	Saskatoon Serviceberry	40%	40%	**40%**	0.217	0.094	**No**
		Fireberry Hawthorn	10%	10%	**10%**			

ºPreferred Route
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Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Snow Berry	10%	10%	**10%**			
		Chokecherry	8%	8%	**8%**			
		Prairie Rose	5%	5%	**5%**			
WVS-653º	Upland Shrub	Chokecherry	35%	35%	**35%**	0.121	0.026	**No**
		Snow Berry	10%	10%	**10%**			
WVS-654º	Upland Shrub	Green Ash	1	0	**0**	0.067	0	**No**
		Chokecherry	40%	0	**0**			
WVS-655º	Upland Shrub	Saskatoon Serviceberry	80%	0	**0**	0.012	0	**No**
WVS-656º	Upland Shrub	Creeping Juniper	25%	25%	**25%**	0.119	0	**No**
		Silver Buffaloberry	25%	25%	**25%**			
		Snow Berry	10%	10%	**10%**			
		Chokecherry	8%	8%	**8%**			
WVS-657º	Upland Shrub	Snow Berry	20%	0	**0**	0.015	0	**No**
WVS-658º	Upland Shrub	Creeping Juniper	90%	90%	**90%**	0.026	0	**No**
WVS-659º	Upland Shrub	Skunkbush Sumac	25%	25%	**25%**	0.001	0.001	**No**
WVS-660º	Upland Shrub	Snow Berry	25%	0	**0**	0.006	0	**No**
WVS-661º	Upland Shrub	Chokecherry	10	10	**20**	0.003	0.003	**No**
WVS-662º	Upland Shrub	Snow Berry	10%	10%	**10%**	0.034	0	**No**
WVS-663º	Upland Shrub	Snow Berry	30%	0	**0**	0.003	0	**No**
WVS-664*	Upland Shrub	Snow Berry	20%	0	**0**	0.036	0	**No**
WVS-665*	Upland Shrub	Silver Sagebrush	25%	25%	**25%**	0.016	0.016	**No**
WVS-666*	Upland Shrub	Silver Sagebrush	15%	15%	**15%**	0.0001	0.0001	**No**
WVS-667*	Upland Shrub	American Plum	60%	60%	**60%**	0.081	0	**No**
		Snow Berry	10%	10%	**10%**			
WVS-668*	Upland Shrub	Silver Sagebrush	20	20	**40**	0.060	0.060	**No**
WVS-669*	Upland Shrub	Silver Buffaloberry	1	0	**0**	0.062	0	**No**
		Creeping Juniper	20%	0	**0**			
		Snow Berry	20%	0	**0**			
		Chokecherry	15%	0	**0**			
WVS-670*	Upland Shrub	Snow Berry	15%	15%	**15%**	0.009	0	**No**
WVS-671*º	Upland Shrub	Silver Buffaloberry	60%	0	**0**	0.007	0	**No**
WVS-672*º	Upland Shrub	Chokecherry	30%	0	**0**	0.002	0	**No**
		Snow Berry	20%	0	**0**			
		Silver Buffaloberry	15%	0	**0**			
WVS-673*º	Upland Shrub	Snow Berry	20%	0	**0**	0.007	0	**No**
WVS-674*º	Upland Shrub	Snow Berry	15%	0	**0**	0.018	0	**No**
WVS-675*º	Upland Shrub	Chokecherry	65	23	**46**	0.124	0.043	**No**
		Silver Buffaloberry	6	2	**4**			
		Green Ash	1	0	**0**			
		Snow Berry	35%	35%	**35%**			
WVS-676*º	Upland Shrub	Snow Berry	10%	0	**0**	0.015	0	**No**
		Silver Buffaloberry	1%	0	**0**			
WVS-677*º	Upland Shrub	Snow Berry	15%	0	**0**	0.042	0	**No**
WVS-678*º	Upland Shrub	Saskatoon Serviceberry	3	0	**0**	0.003	0	**No**

ºPreferred Route
*Alternative Route

% = Percent Cover

Shrubs

Woody Veg ID	Patch Type	Species	Number of Plants			Area Surveyed (Acres)	Anticipated Disturbance (Acres)	NLEB Habitat
			Survey Area	Const. ROW	Est. Mitigation			
		Siberian Elm	1	0	**0**			
WVS-679*º	Upland Shrub	Snow Berry	10%	0	**0**	0.051	0	**No**
		Prairie Rose	1%	0	**0**			
WVS-680*º	Upland Shrub	American Plum	5	0	**0**	0.011	0	**No**
		Snow Berry	20%	0	**0**			
		Chokecherry	15%	0	**0**			
WVS-681*º	Upland Shrub	Mountain Mahogany	1	0	**0**	0.007	0	**No**
WVS-682*º	Upland Shrub	Silver Sagebrush	20%	0	**0**	0.443	0	**No**
WVS-683*º	Upland Shrub	Silver Sagebrush	30%	0	**0**	0.285	0	**No**
		Snow Berry	10%	0	**0**			
WVS-685*º	Upland Shrub	Silver Sagebrush	30%	0	**0**	11.971	0	**No**
		Snow Berry	5%	0	**0**			
WVS-686*º	Upland Shrub	Silver Buffaloberry	6	0	**0**	0.027	0	**No**
WVS-687*º	Upland Shrub	Silver Buffaloberry	2	0	**0**	0.058	0	**No**
		Snow Berry	50%	0	**0**			
		Prairie Rose	15%	0	**0**			

ºPreferred Route
*****Alternative Route

% = Percent Cover

Appendix D

Noxious Weeds

Noxious Weeds

Weed ID	Patch Type	Surveyed Acres
NX-001*º	Canada Thistle 30%	0.01
NX-002*º	Leafy Spurge 40%	0.02
NX-003*º	Leafy Spurge 50%	0.10
NX-004*º	Leafy Spurge 20%	0.01
NX-005*º	Canada Thistle 4%	0.10
NX-006*º	Canada Thistle 5 ind.	0.0005
NX-007*º	Field Bindweed 3 ind.	0.0005
NX-008*º	Field Bindweed 5%	0.01
NX-009*º	Canada Thistle 5%	0.003
NX-010*º	Canada Thistle 10%	0.004
NX-011*º	Field Bindweed 5%	0.0005
NX-012*º	Field Bindweed 15%	0.01
NX-013*º	Canada Thistle 2 ind.	0.0005
NX-014*º	Canada Thistle 4% Field Bindweed 5%	0.01
NX-015*º	Canada Thistle 5%	0.001
NX-016*º	Field Bindweed 15%	0.06
NX-017*º	Absinth Wormwood 4%	0.02
NX-018*º	Field Bindweed 5%	10.63
NX-019*º	Field Bindweed 5%	0.04
NX-020*º	Absinth Wormwood 4% Canada Thistle 4%	0.002
NX-021*º	Canada Thistle 10 ind.	0.0005
NX-022*º	Canada Thistle 5 ind.	0.0005
NX-023*º	Leafy Spurge 20%	0.07
NX-024*º	Canada Thistle 50 ind.	0.0005
NX-025*º	Canada Thistle 5 ind.	0.0005
NX-026*º	Absinth Wormwood 5%	0.51
NX-027*º	Absinth Wormwood 1 ind.	0.0005
NX-028*º	Absinth Wormwood 25%	0.003
NX-029*º	Canada Thistle 30%	0.01
NX-030*º	Canada Thistle 30%	0.01
NX-031*º	Absinth Wormwood 15% Canada Thistle 10% Common Burdock 10%	0.21
NX-032*º	Absinth Wormwood 15%	0.02
NX-033*º	Absinth Wormwood 5%	0.81
NX-034*º	Field Bindweed 1%	2.01
NX-035*º	Field Bindweed 4 ind.	0.0005

Weed ID	Patch Type	Surveyed Acres
NX-036*º	Canada Thistle 15%	0.01
NX-037*º	Canada Thistle 5%	0.005
NX-038*º	Absinth Wormwood 1 ind. Canada Thistle 20%	0.77
NX-039*º	Canada Thistle 30%	0.07
NX-040*º	Absinth Wormwood 15%	0.16
NX-041*º	Absinth Wormwood 2% Canada Thistle 10%	0.27
NX-042*º	Field Bindweed 5%	0.01
NX-043*º	Absinth Wormwood 2 ind.	0.001
NX-044*º	Canada Thistle 1%	0.01
NX-045*º	Canada Thistle 3 ind.	0.0005
NX-046*º	Canada Thistle	0.0005
NX-047*º	Absinth Wormwood 1 ind.	0.0005
NX-048*º	Canada Thistle 40%	0.05
NX-049*º	Canada Thistle 3 ind.	0.0005
NX-050*º	Absinth Wormwood 1 ind.	0.0005
NX-051*º	Absinth Wormwood 1 ind.	0.0005
NX-052*º	Absinth Wormwood 10% Canada Thistle 20%	0.05
NX-053*º	Canada Thistle 2%	0.001
NX-054*º	Absinth Wormwood 2 ind.	0.0005
NX-055*º	Absinth Wormwood 5% Canada Thistle 5%	0.03
NX-056*º	Canada Thistle	0.005
NX-057*º	Absinth Wormwood 4%	0.01
NX-058*º	Absinth Wormwood 6 ind.	0.02
NX-059*º	Absinth Wormwood 1% Canada Thistle 2%	0.02
NX-060*º	Absinth Wormwood 1 ind.	0.0005
NX-061*º	Absinth Wormwood 7 ind. Canada Thistle	0.0005
NX-062*º	Canada Thistle 1 ind.	0.0005
NX-063*º	Absinth Wormwood	0.0005
NX-064*º	Canada Thistle 15%	0.002
NX-065*º	Absinth Wormwood 1 ind.	0.0005
NX-066*º	Absinth Wormwood 2% Canada Thistle 10%	0.25
NX-067*º	Absinth Wormwood 2 ind.	0.0005
NX-068*º	Absinth Wormwood 1 ind.	0.0002

ºPreferred Route
***Alternative Route**

Noxious Weeds

Weed ID	Patch Type	Surveyed Acres
NX-069*º	Absinth Wormwood 1% Canada Thistle 6%	0.004
NX-070*º	Absinth Wormwood 1 ind.	0.0005
NX-071*º	Absinth Wormwood 15% Canada Thistle 5%	0.11
NX-072*º	Absinth Wormwood 10%	0.01
NX-073*º	Absinth Wormwood 10% Canada Thistle 5%	0.02
NX-074*º	Absinth Wormwood 1 ind.	0.0005
NX-075*º	Absinth Wormwood 1 ind.	0.0005
NX-076*º	Absinth Wormwood 1 ind.	0.0005
NX-077*º	Absinth Wormwood 1 ind.	0.0005
NX-078*º	Absinth Wormwood 10%	0.58
NX-079*º	Absinth Wormwood 15%	0.002
NX-080*º	Absinth Wormwood 5%	0.003
NX-081*º	Absinth Wormwood Canada Thistle	0.0005
NX-082*º	Absinth Wormwood 5%	0.001
NX-083*º	Absinth Wormwood 3 ind.	0.0005
NX-084*º	Absinth Wormwood 10%	0.02
NX-085*º	Canada Thistle 6%	0.18
NX-086*º	Absinth Wormwood 10% Canada Thistle 5%	4.66
NX-087*º	Absinth Wormwood 15% Canada Thistle 10%	0.16
NX-088*º	Absinth Wormwood 20% Canada Thistle 5%	0.03
NX-089*º	Absinth Wormwood 1 ind.	0.0005
NX-090*º	Absinth Wormwood 15%	0.02
NX-091*º	Absinth Wormwood Canada Thistle 5%	0.01
NX-092*º	Absinth Wormwood 7% Canada Thistle 5%	0.03
NX-093*º	Absinth Wormwood 5%	0.003
NX-094*º	Absinth Wormwood 2%	0.01
NX-095*º	Absinth Wormwood 15%	0.31
NX-096*º	Absinth Wormwood 10%	0.20
NX-097*º	Absinth Wormwood 2% Field Bindweed 5%	0.01

Weed ID	Patch Type	Surveyed Acres
NX-098*º	Absinth Wormwood 2 ind.	0.0005
NX-099*º	Absinth Wormwood 1% Canada Thistle 15%	0.03
NX-100*º	Absinth Wormwood 5%	0.03
NX-101*º	Canada Thistle 5%	0.003
NX-102*º	Canada Thistle 10%	0.07
NX-103*º	Absinth Wormwood 2% Canada Thistle 15%	0.03
NX-104*º	Absinth Wormwood 1 ind.	0.0005
NX-105*º	Canada Thistle 2%	0.02
NX-106*º	Canada Thistle 5%	0.01
NX-107*º	Absinth Wormwood 2% Canada Thistle 25% Field Bindweed 10%	0.08
NX-108*º	Canada Thistle 10%	0.03
NX-109*º	Canada Thistle 10%	0.07
NX-110*º	Absinth Wormwood 1 ind.	0.001
NX-111*º	Absinth Wormwood 10%	0.18
NX-112*º	Absinth Wormwood 10%	0.19
NX-113*º	Absinth Wormwood 45%	0.01
NX-114*º	Musk Thistle 1 ind.	0.0005
NX-115*º	Musk Thistle 10%	0.004
NX-116*º	Absinth Wormwood 8% Canada Thistle 2%	0.10
NX-117*º	Canada Thistle	0.0005
NX-118*º	Canada Thistle	0.0005
NX-119*º	Canada Thistle 4%	0.003
NX-120*º	Canada Thistle 2 ind.	0.0005
NX-121*º	Canada Thistle 3 ind.	0.0005
NX-122*º	Canada Thistle 10%	0.06
NX-123*º	Canada Thistle 3%	0.01
NX-124*º	Canada Thistle 3 ind.	0.0005
NX-125*º	Canada Thistle 15%	0.01
NX-126*º	Canada Thistle 5%	0.02
NX-127*º	Black Henbane 1 ind.	0.0005
NX-128*º	Canada Thistle 30 ind.	0.0005
NX-129*º	Field Bindweed 4 ind.	0.0005
NX-130*º	Field Bindweed 20%	0.01
NX-131*º	Field Bindweed 20%	0.004

ºPreferred Route
***Alternative Route**

Noxious Weeds

Weed ID	Patch Type	Surveyed Acres
NX-132*º	Canada Thistle 2%	0.02
	Field Bindweed 5%	
NX-133*º	Canada Thistle 5%	0.04
	Field Bindweed 5%	
NX-134*º	Field Bindweed 20%	0.03
NX-135*º	Canada Thistle 5%	0.57
	Field Bindweed 25%	
NX-136*º	Canada Thistle 20%	0.01
NX-137*º	Field Bindweed 2%	0.08
NX-138*º	Absinth Wormwood 10%	0.02
	Canada Thistle 2%	
	Field Bindweed 5%	
NX-139*º	Absinth Wormwood 10%	2.06
	Canada Thistle 5%	
	Field Bindweed 1%	
NX-140*º	Common Burdock 25%	0.02
	Field Bindweed 5%	
NX-141*º	Canada Thistle 10%	0.02
	Field Bindweed 5%	
NX-142*º	Canada Thistle 25%	0.01
NX-143*º	Canada Thistle 15%	0.04
NX-144*º	Canada Thistle 45%	0.01
NX-145*º	Canada Thistle 20%	0.003
NX-146*º	Canada Thistle 30%	0.12
	Common Burdock 10%	
NX-147*º	Canada Thistle 30%	0.10
NX-148*º	Canada Thistle 20%	0.02
NX-149*º	Canada Thistle 30%	0.01
NX-150*º	Absinth Wormwood 6%	0.002
	Canada Thistle 5%	
NX-151*º	Absinth Wormwood 1 ind.	0.0005
NX-152*º	Canada Thistle 15%	0.02
NX-153*º	Canada Thistle	0.0005
NX-154*º	Canada Thistle 20%	0.002
NX-155*º	Canada Thistle 40%	0.0003
NX-156*º	Canada Thistle 30%	0.06
	Field Bindweed 2%	
	Halogeton 3%	
NX-157*º	Canada Thistle 20%	0.04
NX-158*º	Canada Thistle 55%	0.0001

Weed ID	Patch Type	Surveyed Acres
NX-159*º	Canada Thistle 20%	0.11
NX-160*º	Canada Thistle 20%	0.005
NX-161*º	Canada Thistle 10%	0.004
NX-162*º	Canada Thistle 25%	0.0003
NX-163*º	Canada Thistle 20%	0.0002
NX-164*º	Canada Thistle 2%	0.03
	Leafy Spurge 3%	
NX-165*º	Canada Thistle 45%	0.02
	Leafy Spurge 4%	
NX-166*º	Canada Thistle 20%	0.003
NX-167*º	Canada Thistle 30%	0.01
NX-168*º	Canada Thistle 20%	0.02
NX-169*º	Canada Thistle 20%	0.03
NX-170*º	Canada Thistle 25%	0.01
NX-171*º	Field Bindweed 15%	0.01
NX-172*º	Canada Thistle 15%	0.0005
NX-173*º	Canada Thistle 15%	0.01
NX-174*º	Canada Thistle 2%	2.12
	Leafy Spurge 10%	
NX-175*º	Canada Thistle 10%	0.001
	Common Burdock 5%	
	Field Bindweed 10%	
NX-176*º	Canada Thistle 50%	0.02
NX-177*º	Canada Thistle 10%	1.79
	Common Burdock 5%	
NX-178*º	Absinth Wormwood 2%	2.05
	Canada Thistle 5%	
NX-179*º	Leafy Spurge 1 ind.	0.0005
NX-180*º	Canada Thistle 5%	0.26
	Common Burdock 2%	
	Field Bindweed 10%	
NX-181*º	Canada Thistle 5%	0.80
NX-182*º	Canada Thistle 5%	3.34
	Common Burdock 2%	
	Field Bindweed 10%	
NX-183*º	Canada Thistle 5%	1.86
	Common Burdock 1%	
	Field Bindweed 5%	
NX-184*º	Canada Thistle 25%	2.31
	Field Bindweed 5%	

ºPreferred Route
***Alternative Route**

Noxious Weeds

Weed ID	Patch Type	Surveyed Acres
NX-185*º	Canada Thistle 55% Field Bindweed 3%	0.05
NX-186*º	Canada Thistle 10% Field Bindweed 10% Russian Knapweed 5%	5.50
NX-187*º	Canada Thistle 20% Common Burdock 3% Field Bindweed 20%	8.72
NX-188*º	Canada Thistle 10%	4.88
NX-189*º	Canada Thistle 25% Common Burdock 1%	0.01
NX-190*º	Canada Thistle 25% Common Burdock 2%	0.02
NX-191*º	Common Burdock	0.0005
NX-192*º	Canada Thistle 6%	0.01
NX-193*º	Common Burdock 10%	0.40
NX-194*º	Canada Thistle 6%	0.02
NX-195*º	Canada Thistle 2% Common Burdock 5%	0.02
NX-196*º	Common Burdock 7%	0.08
NX-197*º	Common Burdock 5 ind.	0.0005
NX-198*º	Canada Thistle 10%	0.01
NX-199*º	Canada Thistle 5%	0.01
NX-200*º	Common Burdock 5 ind.	0.0005
NX-201*º	Canada Thistle 2% Common Burdock 2%	0.001
NX-202*º	Common Burdock 1%	1.01
NX-203*º	Leafy Spurge	0.0003
NX-204*º	Canada Thistle 25%	1.99
NX-205*º	Canada Thistle 20%	0.39
NX-206*º	Canada Thistle 25%	0.70
NX-207*º	Common Burdock 20%	0.28
NX-208*º	Canada Thistle	0.0005
NX-209*º	Field Bindweed	0.0005
NX-210*º	Field Bindweed 5%	0.13
NX-211*º	Canada Thistle 10%	0.02
NX-212*º	Field Bindweed 20%	0.02
NX-213*º	Canada Thistle	0.0005
NX-214*º	Canada Thistle 40%	0.18

Weed ID	Patch Type	Surveyed Acres
NX-215*º	Canada Thistle 7%	0.002
NX-216*º	Canada Thistle 1%	0.65
NX-217*º	Field Bindweed 15%	0.02
NX-218*º	Canada Thistle 15%	0.01
NX-219*º	Field Bindweed 10%	0.03
NX-220*º	Field Bindweed 2%	0.07
NX-221*º	Canada Thistle 30% Common Burdock 5%	0.003
NX-222*º	Canada Thistle 40%	0.02
NX-223*º	Canada Thistle 30%	0.03
NX-224*º	Canada Thistle 50% Common Burdock 5%	0.75
NX-225*º	Canada Thistle 3% Common Burdock 5% Field Bindweed 15%	0.76
NX-226*º	Common Burdock	0.0005
NX-227*º	Canada Thistle 7% Common Burdock 2%	0.02
NX-228*º	Field Bindweed 2%	0.001
NX-229*º	Field Bindweed 1 ind.	0.0005
NX-230*º	Canada Thistle 2% Common Burdock 2% Field Bindweed 4% Yellow Toadflax 3%	0.07
NX-231*º	Canada Thistle 55%	0.01
NX-232*º	Canada Thistle 30%	0.02
NX-233*º	Canada Thistle 10%	0.003
NX-234*º	Canada Thistle 5% Common Burdock 2%	0.05
NX-235*º	Canada Thistle 15%	0.03
NX-236*º	Common Burdock 5%	0.25
NX-237*º	Common Burdock 10%	0.45
NX-238*º	Canada Thistle 4 ind.	0.0005
NX-239*º	Canada Thistle 20%	0.01
NX-240*º	Canada Thistle 25%	0.04
NX-241*º	Canada Thistle 2%	0.17
NX-242*º	Common Burdock 1 ind.	0.0005
NX-243*º	Common Burdock	0.0005
NX-244*º	Canada Thistle 20%	0.001

ºPreferred Route
***Alternative Route**

Noxious Weeds

Weed ID	Patch Type	Surveyed Acres
NX-245*º	Field Bindweed 2%	1.95
NX-246*º	Canada Thistle 10%	0.10
NX-247*º	Canada Thistle 5% Field Bindweed 5%	0.58
NX-248*º	Canada Thistle 2% Field Bindweed 2%	0.04
NX-249*º	Canada Thistle 5% Field Bindweed 2%	0.83
NX-250*º	Canada Thistle 5% Common Burdock 5% Field Bindweed 2%	0.15
NX-251*º	Canada Thistle 5% Field Bindweed 5%	0.04
NX-252*º	Canada Thistle 5% Field Bindweed 5%	0.01
NX-253*º	Canada Thistle 2% Field Bindweed 2%	0.003
NX-254*º	Canada Thistle 5% Field Bindweed 2%	0.43
NX-255*º	Canada Thistle 5% Field Bindweed 15%	3.02
NX-256*º	Canada Thistle Field Bindweed 15%	0.06
NX-257*º	Canada Thistle 5%	2.91
NX-258*º	Field Bindweed 40%	0.06
NX-259*º	Field Bindweed 20%	0.001
NX-260*º	Field Bindweed 40%	0.13
NX-261*º	Canada Thistle 3% Field Bindweed 60%	7.93
NX-262*º	Canada Thistle 90% Field Bindweed 8%	0.06
NX-263*º	Canada Thistle 30% Field Bindweed 25%	10.86
NX-264*º	Canada Thistle 65% Field Bindweed 5%	0.32
NX-265*º	Canada Thistle 90% Field Bindweed 5%	0.40
NX-266*º	Canada Thistle 80% Field Bindweed 10%	0.40
NX-267*º	Canada Thistle 80% Field Bindweed 15%	0.09
NX-268*º	Canada Thistle 85% Field Bindweed 10%	0.87
NX-269*º	Canada Thistle 90% Field Bindweed 5%	0.11
NX-270*º	Canada Thistle 15% Field Bindweed 25%	0.02
NX-271*º	Canada Thistle 15% Field Bindweed 10%	1.04
NX-272*º	Canada Thistle 10% Field Bindweed 10%	0.98
NX-273*º	Canada Thistle 15%	0.03
NX-274*º	Canada Thistle 5%	0.02
NX-275*º	Canada Thistle 2% Field Bindweed 1%	0.39
NX-276*º	Canada Thistle 10%	0.73
NX-277*º	Canada Thistle 10% Field Bindweed 10%	0.02
NX-278*º	Canada Thistle 1% Field Bindweed 2%	0.05
NX-279*º	Canada Thistle 20% Field Bindweed 2%	0.01
NX-280*º	Canada Thistle 10%	0.02
NX-281*º	Canada Thistle 10% Field Bindweed 2%	0.08
NX-282*º	Canada Thistle 10%	0.001
NX-283*º	Canada Thistle 10%	0.04
NX-284*º	Canada Thistle Field Bindweed 15%	0.01
NX-285º	Canada Thistle 1%	0.001
NX-286º	Canada Thistle 5%	0.01
NX-287º	Canada Thistle 15%	0.02
NX-288º	Field Bindweed 30%	0.02
NX-289º	Canada Thistle 35%	0.02
NX-290º	Canada Thistle 55%	0.06
NX-291º	Canada Thistle 10% Field Bindweed 10%	0.04
NX-292º	Canada Thistle 5%	0.002
NX-293º	Canada Thistle 5%	0.01

ºPreferred Route
***Alternative Route**

Noxious Weeds

Weed ID	Patch Type	Surveyed Acres
NX-294º	Canada Thistle 10% Field Bindweed 20%	0.10
NX-295º	Field Bindweed 5%	0.01
NX-296º	Field Bindweed 15%	0.003
NX-297º	Field Bindweed 20%	0.02
NX-298º	Field Bindweed 10%	0.01
NX-299º	Canada Thistle 10%	0.003
NX-300º	Canada Thistle 20% Field Bindweed 3%	1.43
NX-301º	Canada Thistle 30%	0.44
NX-302º	Canada Thistle 10%	0.003
NX-303º	Canada Thistle 20%	0.01
NX-304º	Canada Thistle 10 ind.	0.0005
NX-305º	Canada Thistle 15% Field Bindweed 10%	0.18
NX-306º	Canada Thistle 5%	0.04
NX-307º	Canada Thistle 15% Field Bindweed 2%	1.12
NX-308º	Field Bindweed 10%	0.04
NX-309º	Canada Thistle 10% Field Bindweed 5%	0.54
NX-310º	Canada Thistle 15% Field Bindweed 12%	0.30
NX-311º	Canada Thistle 10% Field Bindweed 40%	0.03
NX-312º	Canada Thistle 10%	0.001
NX-313º	Field Bindweed 50%	0.01
NX-314º	Field Bindweed 60%	0.09
NX-315º	Canada Thistle 60%	0.14
NX-316º	Canada Thistle 70%	0.01
NX-317º	Canada Thistle	0.0005
NX-318º	Canada Thistle 20%	0.09
NX-319º	Canada Thistle 4%	0.04
NX-320º	Canada Thistle 10%	0.02
NX-321º	Canada Thistle 10%	0.01
NX-322º	Canada Thistle 10%	0.001
NX-323º	Field Bindweed 1%	0.001
NX-324º	Canada Thistle 10%	0.004
NX-325º	Canada Thistle 10%	0.005

Weed ID	Patch Type	Surveyed Acres
NX-326º	Field Bindweed 2%	0.001
NX-327º	Canada Thistle 10%	0.003
NX-328º	Canada Thistle 20%	0.01
NX-329º	Canada Thistle	0.0005
NX-330*	Black Henbane 2% Canada Thistle 10%	0.01
NX-331*	Canada Thistle 25%	0.03
NX-332*	Canada Thistle 15%	0.04
NX-333*	Canada Thistle 5%	0.04
NX-334*	Canada Thistle 20%	0.04
NX-335*	Canada Thistle 50%	0.07
NX-336*	Canada Thistle 10%	0.01
NX-337*	Canada Thistle 25%	0.02
NX-338*	Canada Thistle 30%	0.02
NX-339*º	Absinth Wormwood 1 ind.	0.0005
NX-340*º	Absinth Wormwood 1 ind.	0.0005
NX-341*º	Absinth Wormwood 1 ind.	0.0005
NX-342*º	Absinth Wormwood 2 ind.	0.0005

ºPreferred Route
***Alternative Route**

EXHIBIT D

ONEOK PARTNERS

CERTIFIED MAIL 7014 1200 0000 2237 3233
RETURN RECEIPT REQUESTED

August 19, 2015

Mr. Kevin Shelley, Acting Supervisor
U.S. Fish and Wildlife Service
North Dakota Field Office
3425 Miriam Avenue
Bismarck, ND 58501-7926

ONEOK Bakken Pipeline, L.L.C. – Bear Creek Natural Gas Liquids Pipeline Project
Federally Listed Species, USFWS Managed Lands, and Migratory Bird Consultation

ONEOK Bakken Pipeline, L.L.C. (ONEOK) is proposing to construct the Bear Creek Natural Gas Liquids Pipeline Project (Project) in response to growing demand for gas processing capacity of natural gas and natural gas liquids (NGL) produced in North Dakota. The proposed project is a new, 8-inch diameter NGL pipeline that will originate at the Bear Creek Gas Plant in Dunn County, North Dakota and will terminate at the existing Targa Gas Processing Plant in McKenzie County, North Dakota. Final routing to tie into the Targa Gas Processing Plant is pending and two options are being considered (Option A and B are outlined on the attached maps). A tie-in route will be determined prior to the commencement of construction and as such, ONEOK requests a review of both options.

Pipeline construction activities would typically occupy a 100-foot right-of-way. Following construction, the pipeline would be operated within a 50-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Preparation and associated construction activities for the Project under consideration would be initiated during the second quarter of 2016, requiring approximately six months to place into service. Initial restoration activities would commence upon completion of construction activities to the extent conditions allow and would continue as weather conditions permit. To satisfy state siting authority requirements, ONEOK is providing this project notification for your consideration.

The proposed Project corridor is described below and depicted on the attached map and aerial photograph.

In Dunn and McKenzie County, North Dakota the pipeline crosses:

- Township 146N, Range 95W, Sections 18, 19, 20, 28, 29
- Township 146N, Range 96W, Sections 2, 3, 11, 13, 14, 23, 24
- Township 147N, Range 96W, Sections 7, 18, 19, 20, 27, 28, 29, 34
- Township 147N, Range 97W, Sections 2, 11, 12
- Township 148N, Range 97W, Sections 17, 18, 20, 21, 22, 23, 26, 35
- Township 148N, Range 98W, Sections 4, 5, 6, 9, 13, 14, 15, 16, 22, 23
- Township 149N, Range 98W, Sections 29, 30, 31, 32, 33
- Township 149N, Range 99W, Sections 25, 36

100 West Fifth Street, Tulsa, OK 74103-4298
P. O. Box 871, Tulsa, OK 74102-0871

The purpose of this request is to provide the U.S. Fish and Wildlife Service (USFWS) with notification of the proposed Project and to share ONEOK's analysis of the environmental topics relevant to the North Dakota Public Service Commission's siting requirements for Energy Conversion Facilities. On August 12, 2015, E3 Environmental, LLC (E3) conducted a web-based consultation using USFWS's IPaC system. This analysis is based upon results of the project specific query of the IPaC system.

Federally Listed Species Analysis:

The results of the search of the USFWS's IPaC system on August 12, 2015 found the following:

- Least tern – endangered
- Piping plover – threatened, and designated critical habitat
- Rufa red knot – threatened
- Whooping crane – endangered
- Pallid sturgeon – endangered
- Dakota skipper – threatened, and proposed critical habitat
- Gray wolf – endangered
- Northern long-eared bat – threatened

Least Tern
The interior populations of the least tern have historically been associated with large river systems for breeding and migratory habitats. Breeding birds are known to congregate in colonies, utilizing sandbar habitat common to larger rivers. The least tern is found in North Dakota during the late spring and summer breeding season (mid-May through late August, with the peak of the nesting season occurring from mid-June to mid-July). Regionally, Lake Sakakewea, which is approximately 25 straight-line miles from the Project, are known to host remnant breeding populations of terns. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the least tern are not anticipated.

Piping plover
The piping plover is associated with shorelines along small alkaline lakes, large reservoir beaches, and river islands and adjacent sand pits. Breeding birds select wide beaches with highly clumped vegetation covering less than 25 percent of the area. Breeding season in North Dakota occurs mid-April through August. The closest designated critical habitat is located approximately 18 miles northeast of the Project. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore, impacts to the piping plover or its designated critical habitat are not anticipated.

Rufa red knot
The rufa red knot migrates between breeding grounds in Canada and wintering grounds in South America. A significant factor threatening the rufa red knot is destruction and modification of its habitat due to beach erosion and shoreline protection and stabilization projects. Migratory behavior and habitat requirements of this species are poorly understood particularly for those populations occupying the midcontinent flyways. Inland stopovers include the Mississippi Valley, Great Lakes, and Great Plains. Desktop analysis has concluded that no suitable habitat is present within the Project area; therefore impacts to the rufa red knot are not anticipated.

Whooping crane
The whooping crane is a large bodied marsh species that breeds primarily in Canada and winters in the Gulf of Mexico. This species has been closely studied and monitored in recent years due to its small population. North Dakota provides migratory habitat for the species, providing roosting and feeding

opportunities during migration. This species prefers larger wetland complexes for roosting habitat, typically using adjacent uplands for foraging opportunities.

Precautionary measures will be implemented if whooping cranes are sighted in or near the Project area. ONEOK will voluntarily suspend all heavy equipment operation activities and notify the USFWS should a whooping crane be spotted within 0.5 mile of the Project area. Heavy equipment activities will resume upon the departure of the individual(s). The Project under consideration will not result in a loss of crane habitat. The project schedule would avoid typical migration periods coupled with restoration of disturbed areas to their original land use will largely avoid and minimize impacts to this species.

Pallid Sturgeon

The pallid sturgeon's preferred habitat includes the benthic environment associated with swift waters of large turbid, free-flowing rivers with braided channels, dynamic flow patterns, periodic flooding of terrestrial habitats, and requiring extensive micro habitat diversity. The species inhabits the Missouri and Mississippi Rivers from Montana to Louisiana. In North Dakota, reaches of the Missouri River system have been cited as providing suitable habitat for the pallid sturgeon; however much of the habitat has been compromised from channelization, installation of impoundments, and altered flow regimes. Potential suitable habitat would be crossed by the Project (Little Missouri River), however ONEOK proposes to utilize a horizontal direction drill which is a low/no impact crossing technique to mitigate potential impacts.

Dakota skipper

Dakota skippers require untilled, high-quality prairie. Habitat preferred by the skipper is wet-mesic prairie with little topographic relief on near-shore glacial lake deposits and in rolling native-prairie terrain over gravelly glacial moraine deposits. Larvae feed on grasses, favoring little bluestem (*Schizachyrium scoparium*). Adults commonly feed on nectar of flowering native forbs such as harebell (*Campanula rotundifolia*), wood lily (*Lilium philadelphicum*), and purple coneflower (*Echinacea angustifolia*). This species is not known to disperse widely and has low mobility, dispersing a maximum of 0.6-mile. The species is threatened by conversion of native prairie to cultivated agriculture or shrublands, over-grazing, invasive species, gravel mining, and inbreeding. Desktop analysis has concluded that suitable habitat may be present within the Project area; however the closest designated critical habitat is approximately 14 miles northeast of the Project and impacts to the Dakota skipper are not anticipated.

Gray wolf

The gray wolf is a large carnivore that through conservation measures has experienced strong population recovery, particularly in the Great Lakes states of the upper Midwest. As populations rebound, individuals may break from packs to explore opportunities to establish packs in unoccupied territory. Roaming individuals can cover great distances without establishing viable breeding populations in previously unoccupied habitat(s). This species is not tolerant of human disturbance and will tend to avoid interaction with humans. The activities associated with construction would likely serve as a deterrent to this species. Therefore, this Project will have no effect on the gray wolf.

Northern long-eared bat

The northern long-eared bat roost underneath bark, in cavities, or in crevices of both live and dead trees. Populations have also been found in cool environments such as caves and mines and prefer to spend winter hibernating in locations with high humidity and no air currents. Breeding occurs in late summer or early fall in maternity colonies where females give birth around the same time, which may occur anywhere from late May to late July. Desktop analysis has concluded that suitable habitat is present within the Project area. To mitigate any adverse effects, if construction activities take place between April and September, surveys would be conducted to confirm the presence or absence of the species.

USFWS Managed Lands:

Conservation programs such as Waterfowl Production Areas and wetland and grassland easements represent an important tool used by USFWS to identify and manage high quality wildlife habitat. A review of public records failed to identify any of these USFWS managed lands in the Project area. ONEOK requests that USFWS notify ONEOK of any USFWS managed lands located within the proposed Project area.

Migratory Bird Consultation:

USFWS administers various wildlife related mandates of national concern including the Migratory Bird Treaty Act (MBTA). ONEOK understands that unlike the Endangered Species Act, the MBTA has no provisions for the allowance of a take and therefore compliance may best be achieved by avoiding or minimizing the potential to interact with migratory species during the active breeding season. ONEOK also understands that in North Dakota, the breeding season is typically defined as occurring annually from February 1 through July 15.

ONEOK has proposed to initiate construction during the second quarter of 2016, requiring approximately six months to complete. The proposed project schedule would overlap with the 2016 breeding season; however ONEOK would implement its MBTA Conservation Plan to avoid impacts to breeding birds. Conservation measures would include such actions as habitat manipulation (e.g. brushing and/or topsoiling); physical screening for presence/absence of breeding birds; and buffering of active nest sites. Furthermore, construction activities one initiated would serve as an effective deterrent for breeding birds.

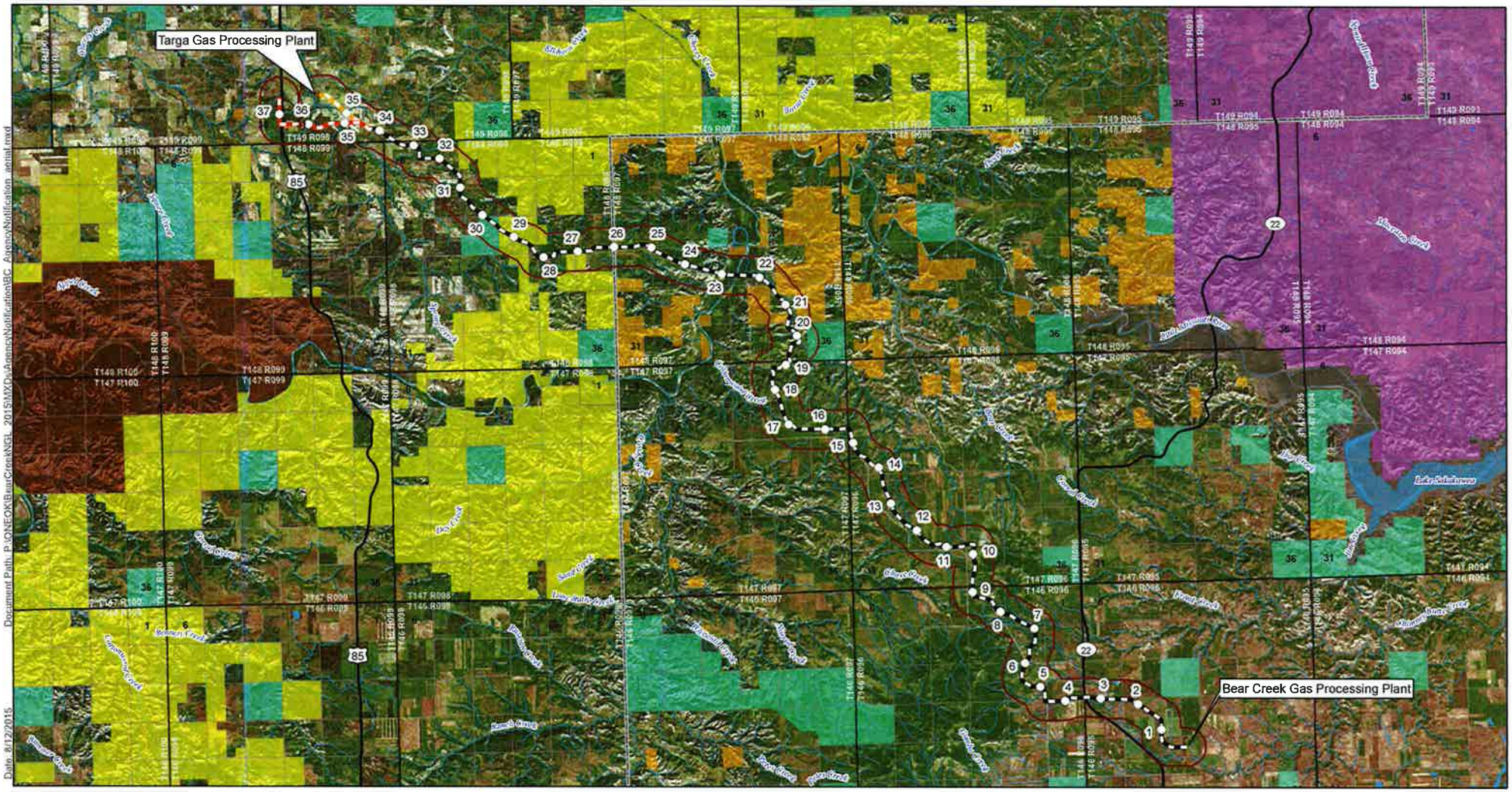
In closing, E3 Environmental, LLC has been retained by ONEOK to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact Bill McCarthy at 651.282.0650 or wmcarthy@go2e3.com; you may also contact me at 918.732.1472 or Todd.Kelvington@oneok.com.

Sincerely,

Todd Kelvington
Environmental Project Manager

Enclosures: Project Map – USGS topographic
Project Map – Aerial photograph

cc Bill McCarthy, E3 (pdf)
Brent Bowling/Todd Kelvington, ONEOK (pdf)
Tulsa Large Construction – Bear Creek NGL PL



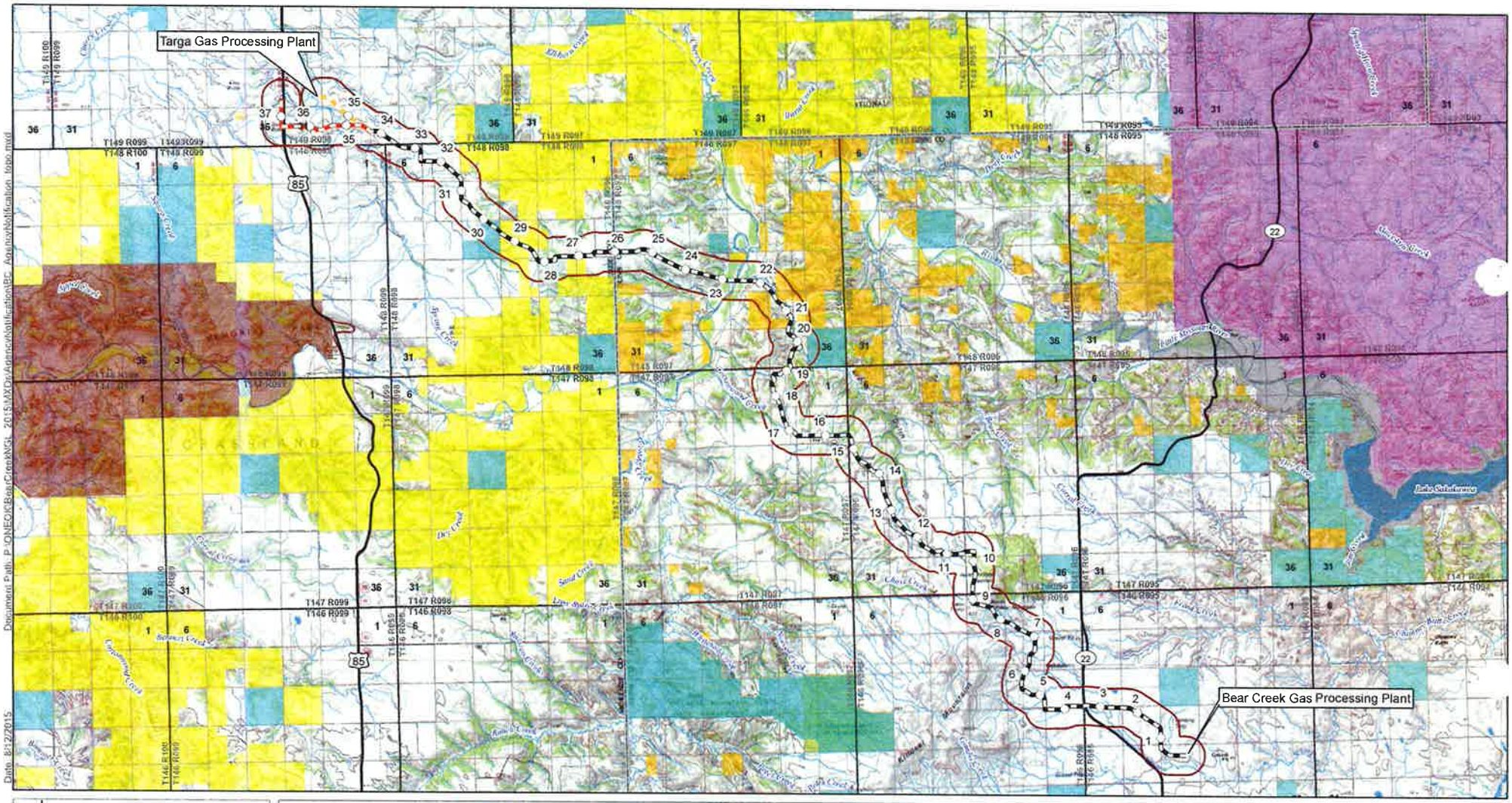
ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Aerial Overview Map

McKenzie and Dunn Counties, North Dakota

*Only one option will be utilized but comments are requested for both.



*Only one option will be utilized but comments are requested for both.

E3 Environmental
Enhancing Execution with Experience

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Topo Overview Map

McKenzie and Dunn Counties, North Dakota

Document Path: P:\ONEOK\BearCreekNGL_2015\MXD\Agency\Notification\BC_AgencyNotification_topo.mxd

Date: 8/12/2015

Author: LDennison

ONEOK PARTNERS

CERTIFIED MAIL 7014 1200 0000 2237 3738
RETURN RECEIPT REQUESTED

December 4, 2015

Mr. Dustin Beaty
McKenzie Ranger District
1901 South Main Street
Watford City, ND 58854

ONEOK Bakken Pipeline, L.L.C.
Bear Creek NGL Pipeline Project SF-299 Application

Dear Mr. Beaty:

Per our phone meeting today, ONEOK Bakken Pipeline, L.L.C. (ONEOK) is submitting the enclosed Revised SF-299 Application for Transportation and Utility Systems and Facilities on Federal Lands for the proposed Bear Creek NGL Pipeline Project (Project).

ONEOK proposes the Project in response to growing demand for gas processing capacity of natural gas liquids (NGL) produced in North Dakota. The proposed project is a new approximately 38 mile, 8-inch diameter NGL pipeline that will originate at the proposed Bear Creek Gas Plant in Dunn County, North Dakota and will terminate at an interconnect with ONEOK's Targa Pipeline in McKenzie County, North Dakota (refer to Figure 1).

Pipeline construction activities would typically occupy a 50-foot right-of-way. Following construction, the pipeline would be operated within a 20-foot permanent easement. Additionally, due to the terrain restrictions and to allow ONEOK working space to conduct a horizontal directional drill (HDD) across the majority of USFS land, ONEOK is requesting approximately 2.15 acres of additional temporary work space. ONEOK has positioned this work space over previously disturbed pipeline corridors to minimize any additional impact to undisturbed USFS lands. Pipeline construction involves temporary impacts, with a post-construction restoration standard of restoring disturbed areas to their original pre-construction condition.

Should you have any questions or require additional information, please contact Todd Kelvington at 918-732-1472 or Todd.Kelvington@oneok.com; you may also contact Brent Bowling at 918.561.5371 or Brent.Bowling@oneok.com.

Sincerely,

Todd Kelvington
Environmental Project Manager

Enclosures: SF-299 Application
Figures 1,2, and Bear Creek Exhibit – U.S.D.A. Forest Service

Xc: Tulsa Environment – Large Construction – Bear Creek NGL PL

STANDARD FORM 299 (05/09)
Prescribed by DOI/USDA/DOT
P.L. 96-487 and Federal
Register Notice 5-22-95

APPLICATION FOR TRANSPORTATION AND UTILITY SYSTEMS AND FACILITIES ON FEDERAL LANDS

FORM APPROVED
OMB NO. 0596-0082

FOR AGENCY USE ONLY

NOTE: Before completing and filing the application, the applicant should completely review this package and schedule a preapplication meeting with representatives of the agency responsible for processing the application. Each agency may have specific and unique requirements to be met in preparing and processing the application. Many times, with the help of the agency representative, the application can be completed at the preapplication meeting.

Application Number

Date Filed

1. Name and address of applicant *(include zip code)*

Brent Bowling
ONEOK Bakken Pipeline, L.L.C.
100 West Fifth Street
Tulsa, OK 74103

2. Name, title, and address of authorized agent if different from item 1 *(include zip code)*

Todd Kelvington
ONEOK Bakken Pipeline, L.L.C.
100 West Fifth Street
Tulsa, OK 74103

3. Telephone (area code)
Applicant
918-561-5371
Authorized Agent
OBP
651-282-0650

4. As applicant are you? *(check one)*
- a. ☐ Individual
- b. ☒ Corporation*
- c. ☐ Partnership/Association*
- d. ☐ State Government/State Agency
- e. ☐ Local Government
- f. ☐ Federal Agency

* *If checked, complete supplemental page*

5. Specify what application is for: *(check one)*
- a. ☒ New authorization
- b. ☐ Renewing existing authorization No.
- c. ☐ Amend existing authorization No.
- d. ☐ Assign existing authorization No.
- e. ☐ Existing use for which no authorization has been received *
- f. ☐ Other*

* *If checked, provide details under item 7*

6. If an individual, or partnership are you a citizen(s) of the United States? ☐ Yes ☐ No

7. Project description (describe in detail): (a) Type of system or facility, *(e.g., canal, pipeline, road);* (b) related structures and facilities; (c) physical specifications *(Length, width, grading, etc.)*; (d) term of years needed: (e) time of year of use or operation; (f) Volume or amount of product to be transported; (g) duration and timing of construction; and (h) temporary work areas needed for construction *(Attach additional sheets, if additional space is needed.)*

(a) ONEOK Bakken Pipeline, L.L.C. (OBP) a wholly owned subsidiary of ONEOK Partners, L.P., is proposing the Bear Creek NGL Pipeline Project (Project). The Project is a new approximately 38 mile, steel, 8-inch diameter NGL pipeline that would originate from the Bear Creek Gas Plant located in Dunn County, North Dakota and terminate at an inter-connect with ONEOK's Targa Pipeline located in McKenzie County, North Dakota (Figure 1).

(b) No above ground block valve, receiver and appurtenances would be installed on USFS lands.

(c) The Project is approximately 201,696 feet in lengh, approximately 4,723 feet of which is located on USFS land. All construction on USFS land would occur within the previously approved corridor of the Hiland Operating, L.L.C. Natural Gas Gathering Pipeline Project (Record of Decision issued October 17, 2012). Refer to Bear Creek Exhibit.

(d) The Project would be needed for the life of the gas plant and gathering system.

(e) The Project would be in use year round.

(f) The Project would be constructed with a designed capacity of 14,000 barrels per day.

(g) Construction would commence in the second quarter of 2016 and is estimated to take 5 months to complete. Construction on USFS land is estimated to take 3 months. The proposed in-service date of the Project is August 1, 2016.

(h) The Project would generally require a 50-foot right-of-way. Following construction, the Project would be operated within a 20-foot permanent easement. To account for terrain, safety, equipment ingress/egress, and a horizontal directional drill (HDD), ONEOK is requested limited extra temporary work space of approximately 2.15 acres as illustrated in the attached Bear Creek Exhibit. This work space is primarily situated entirely over previously disturbed pipeline corridors.

8. Attach a map covering area and show location of project proposal

9. State or Local government approval: ☐ Attached ☐ Applied for ☒ Not Required

10. Nonreturnable application fee: ☐ Attached ☐ Not required

(Continued on page 2)

11. Does project cross international boundary or affect international waterways? ☐ Yes ☒ No *(if "yes," indicate on map)*

12. Give statement of your technical and financial capability to construct, operate, maintain, and terminate system for which authorization is being requested.

OBP is a subsidiary of ONEOK Partners, L.P. OBP is a regional industry leader in the gathering and processing of natural gas liquids through an extensive network of pipelines and facilities located throughout the Midwest. OBP has the technical and financial capability to construct, install, operate and maintain the proposed pipeline. A Certificate of Good Standing from the State of North Dakota Secretary of State is attached.

13a. Describe other reasonable alternative routes and modes considered.

OBP considered multiple alternatives for connection of the proposed Bear Creek Plant to the existing Targa pipeline. After detailed routing investigations and commerical analysis, three alternatives were carried forward for additional consideration: No Action, Alternative 1, and Alternative 2 (Preferred Alternative). Figure 1 depicts Alternatices 1 and 2.

b. Why were these alternatives not selected?

The No Action Alternative was immediately rejected as it does not meet the operational needs of the Bear Creek Plant. Transporation of the liquids from the plant would be required by truck or rail which carry significant safety, environmental, and economic restrictions. These transportation methods would significantly impact the operational capacity of the plant which is critical to the reduction of ongoing regional flaring. The No Action Alternative does not serve the needs of OBP or the public.

Alternative 1: After detailed route, environmental and engineering review, including a review of the necessary crossing of the Little Missouri River, Alternative 1 was determined to have significant construction challenges and access limitations. The route would cross undisturbed federal land (approximatley 6,496 feet of Bureau of Land Management (BLM) land) , require extensive environmental work under NEPA, and cross difficult terrain further adding to environmental and constructability concerns. OBP was unable to develop a feasible route that would be environmentally safe, constructable, and in line with the concerns of private landholders and local citizens.

c. Give explanation as to why it is necessary to cross Federal Lands.

After thorough and detailed analysis of engineering, environmental, construction, cost, and schedule factors, Alternative 2 (Preferred Alternative) presented as the most reasonable and constructable route. The route can be constructed with minimal environmental impacts and follows, to the greatest extent possible, a previously disturbed corridor (Northern Border).

14. List authorizations and pending applications filed for similar projects which may provide information to the authorizing agency. *(Specify number, date, code, or name)*

OBP does not have any current pending applications filed for federal land crossings in the project area. OBP's parent company (ONEOK,) and affiliated companies (ONEOK Rockies Midstream, ONEOK Partners, L.P.) have extensive holdings and operations in the region.

15. Provide statement of need for project, including the economic feasibility and items such as: (a) cost of proposal (construction, operation, and maintenance); (b) estimated cost of next best alternative; and (c) expected public benefits.

The need to reduce gas flaring in the region is widely documented and supported by the public as well as federal, state, and local agencies. In order to reduce flaring, gas must be captured and processed. The Bear Creek Plant is a proposed 80 MM cf/d gas processing plant scheduled for completion in 2016 and will be a significant component in the regional gas processing infrastructure. The Bear Creek NGL Pipeline will serve the needs of the proposed Bear Creek Gas Processing Plant by transporting produced liquids away from the plant and on to other transportation infrastructure. Without the Bear Creek NGL line, the plant cannot efficiently operate or would be forced to move liquids via truck or rail. The purpose of the Bear Creek NGL pipeline is to transport produced natural gas liquids in a safe, reliable, cost effective, and environmentally feasible manner from the plant where they are produced, to other transportation networks where they can be further processed or distributed.

(a) The Project, as proposed, would cost approximately $45 million to construct. Operation and maintenance of the Project will cost approximately $200,000 per year.
(b) The construction and operational cost of Alternative 1 as discussed above would be similar in scale to the Preferred Alternative. However, this route carries significant constructability, engineering, environmental, and land concerns that are difficult to quantify at this time.
(c) Construction of oil and gas infrastructure provides immediate short term benefits to the public by way of employment, retail sales, and tax revenue during construction. The operation of the Bear Creek Plant, which this line serves, provides additional long term

(Continued on page 3)

employment and tax revenues. The ability to process additional gas in the region is also a critical component in the reduction of flaring and meeting local, regional and state goals. A pipeline, as opposed to truck and rail options, increases safety to the public and the environment.

16. Describe probable effects on the population in the area, including the social and economic aspects, and the rural lifestyles.

Consistent with similar construction projects, construction of the Bear Creek NGL pipeline will have short term and temporary impacts to traffic, noise, and congestion in the project area. Following completion of the project, the local population will benefit from the long term economic and environmental improvements previously discussed. OBP will mitigate the short term temporary impacts to the local poplulation through the use of project controls and Best Management Practices (BMPs) as necessary.

17. Describe likely environmental effects that the proposed project will have on: (a) air quality; (b) visual impact; (c) surface and ground water quality and quantity; (d) the control or structural change on any stream or other body of water; (e) existing noise levels; and (f) the surface of the land, including vegetation, permafrost, soil, and soil stability.

The Project, as designed, will have short term and temporary impacts to air (dust) and noise (construction equipment) during the construction phase. As with any project of this type, immediate and short term impacts to surface soils and vegetation during installation of the pipe are anticipated. Short term impacts to surface water, groundwater, streams, and wetlands will be minimized and controlled through the use of BMPs and will be designed in a manner compliant with federal, state, and local regulations. Restoration practices will be employed which will minimize the temporal extent of impacts and mitigate construction phase impacts. The Project is being designed and planned in a manner that long term and permanent impact to sensitive environmental features is not anticipated.

18. Describe the probable effects that the proposed project will have on (a) populations of fish, plantlife, wildlife, and marine life, including threatened and endangered species; and (b) marine mammals, including hunting, capturing, collecting, or killing these animals.

The Project is not anticipated to have any appreciable impacts on fish and wildlife including special status species. Resource studies will be conducted to fully analyze the potential impacts to protected species and/or their critical habitat and appropriate control measures will be utilized during the construction phase of the project to avoid or mitigate these potential impacts in coordination with appropriate federal and state agencies. Once constructed, the fully operational line is not anticpated to have any appreciable impacts on wildlife in the project area.

19. State whether any hazardous material, as defined in this paragraph, will be used, produced, transported or stored on or within the right-of-way or any of the right-of-way facilities, or used in the construction, operation, maintenance or termination of the right-of-way or any of its facilities. "Hazardous material" means any substance, pollutant or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. 9601 et seq., and its regulations. The definition of hazardous substances under CERCLA includes any "hazardous waste" as defined in the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, 42 U.S.C. 6901 et seq., and its regulations. The term hazardous materials also includes any nuclear or byproduct material as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq. The term does not include petroleum, including crude oil or any fraction thereof that is not otherwise specifically listed or designated as a hazardous substance under CERCIA Section 101(14), 42 U.S.C. 9601(14), nor does the term include natural gas.

No hazardous materials are expected to be used in the construction, operation, or maintenance of the proposed Project.

20. Name all the Department(s)/Agency(ies) where this application is being filed.

U.S. Forest Service

I HEREBY CERTIFY, That I am of legal age and authorized to do business in the State and that I have personally examined the information contained in the application and believe that the information submitted is correct to the best of my knowledge.

Signature of Applicant	Date
Brent Bowling	12/4/2015

Title 18, U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 3)

GENERAL INFORMATION
ALASKA NATIONAL INTEREST LANDS

This application will be used when applying for a right-of-way, permit, license, lease, or certificate for the use of Federal lands which lie within conservation system units and National Recreation or Conservation Areas as defined in the Alaska National Interest lands Conservation Act. Conservation system units include the National Park System, National Wildlife Refuge System, National Wild and Scenic Rivers System, National Trails System, National Wilderness Preservation System, and National Forest Monuments.

Transportation and utility systems and facility uses for which the application may be used are:

1. Canals, ditches, flumes, laterals, pipes, pipelines, tunnels, and other systems for the transportation of water.

2. Pipelines and other systems for the transportation of liquids other than water, including oil, natural gas, synthetic liquid and gaseous fuels, and any refined product produced therefrom.

3. Pipelines, slurry and emulsion systems, and conveyor belts for transportation of solid materials.

4. Systems for the transmission and distribution of electric energy.

5. Systems for transmission or reception of radio, television, telephone, telegraph, and other electronic signals, and other means of communications.

6. Improved right-of-way for snow machines, air cushion vehicles, and all-terrain vehicles.

7. Roads, highways, railroads, tunnels, tramways, airports, landing strips, docks, and other systems of general transportation.

This application must be filed simultaneously with each Federal department or agency requiring authorization to establish and operate your proposal.

In Alaska, the following agencies will help the applicant file an application and identify the other agencies the applicant should contact and possibly file with:

Department of Agriculture
Regional Forester, Forest Service (USFS)
Federal Office Building,
P.O. Box 21628
Juneau, Alaska 99802-1628
Telephone: (907) 586-7847 *(or a local Forest Service Office)*

Department of the Interior
Bureau of Indian Affairs (BIA)
Juneau Area Office
Federal Building Annex
9109 Mendenhall Mall Road, Suite 5
Juneau, Alaska 99802
Telephone: (907) 586-7177

Department of the Interior
Bureau of Land Management
222 West 7th Avenue
P.O. Box 13
Anchorage, Alaska 99513-7599
Telephone: (907) 271-5477 (or a local BLM Office)

U.S. Fish & Wildlife Service (FWS)
Office of the Regional Director
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: (907) 786-3440

National Park Service (NPA)
Alaska Regional Office,
2225 Gambell St., Rm. 107
Anchorage, Alaska 99502-2892
Telephone: (907) 786-3440

Note - Filings with any Interior agency may be filed with any office noted above or with the Office of the Secretary of the Interior, Regional Environmental Office,r P.O. Box 120, 1675 C Street, Anchorage, Alaska 9513.

Department of Transportation
Federal Aviation Administration
Alaska Region AAL-4, 222 West 7th Ave., Box 14
Anchorage, Alaska 99513-7587
Telephone: (907) 271-5285

NOTE - The Department of Transportation has established the above centra filing point for agencies within that Department. Affected agencies are: Federa Aviation Administration (FAA), Coast Guard (USCG), Federal Highwa Administration (FHWA), Federal Railroad Administration (FRA).

OTHER THAN ALASKA NATIONAL INTEREST LANDS

Use of this form is not limited to National Interest Conservation Lands of Alaska.

Individual department/agencies may authorize the use of this form by applicants for transportation and utility systems and facilities on other Federal lands outside those areas described above.

For proposals located outside of Alaska, applications will be filed at the local agency office or at a location specified by the responsible Federal agency.

SPECIFIC INSTRUCTIONS
(Items not listed are self-explanatory)

7 Attach preliminary site and facility construction plans. The responsible agency will provide instructions whenever specific plans are required.

8 Generally, the map must show the section(s), township(s), and range(s) within which the project is to be located. Show the proposed location o the project on the map as accurately as possible. Some agencies require detailed survey maps. The responsible agency will provide additiona instructions.

9, 10, and 12 The responsible agency will provide additional instructions.

13 Providing information on alternate routes and modes in as much detail as possible, discussing why certain routes or modes were rejected and why it is necessary to cross Federal lands will assist the agency(ies) ir processing your application and reaching a final decision. Include only reasonable alternate routes and modes as related to current technology and economics.

14 The responsible agency will provide instructions.

15 Generally, a simple statement of the purpose of the proposal will be sufficient. However, major proposals located in critical or sensitive areas may require a full analysis with additional specific information. The responsible agency will provide additional instructions.

16 through 19 Providing this information is as much detail as possible wil assist the Federal agency(ies) in processing the application and reaching a decision. When completing these items, you should use a sounc judgment in furnishing relevant information. Fore example, if the projec is not near a stream or other body of water, do not address this subject The responsible agency will provide additional instructions.

Application must be signed by the applicant or applicant's authorized representative.

EFFECT OF NOT PROVIDING INFORMATION: Disclosure of the information is voluntary. If all the information is not provided, the application may be rejected.

DATA COLLECTION STATEMENT

The Federal agencies collect this information from applicants requesting right-of-way, permit, license, lease, or certification for the use of Federal lands. The Federal agencies use this information to evaluate the applicant's proposal. The public is obligated to submit this form if they wish to obtain permission to use Federal lands.

(For supplemental, see page 4)

SUPPLEMENTAL		
NOTE: The responsible agency(ies) will provide instructions	CHECK APPROPRIATE BLOCK	
I - PRIVATE CORPORATIONS	ATTACHED	FILED*
a. Articles of Incorporation	☐	☐
b. Corporation Bylaws	☐	☐
c. A certification from the State showing the corporation is in good standing and is entitled to operate within the State	☐	☐
d. Copy of resolution authorizing filing	☐	☐
e. The name and address of each shareholder owning 3 percent or more of the shares, together with the number and percentage of any class of voting shares of the entity which such shareholder is authorized to vote and the name and address of each affiliate of the entity together with, in the case of an affiliate controlled by the entity, the number of shares and the percentage of any class of voting stock of that affiliate owned, directly or indirectly, by that entity, and in the case of an affiliate which controls that entity, the number of shares and the percentage of any class of voting stock of that entity owned, directly or indirectly, by the affiliate.	☐	☐
f. If application is for an oil or gas pipeline, describe any related right-of-way or temporary use permit applications, and identify previous applications.	☐	☐
g. If application is for an oil and gas pipeline, identify all Federal lands by agency impacted by proposal.	☐	☐
II - PUBLIC CORPORATIONS		
a. Copy of law forming corporation	☐	☐
b. Proof of organization	☐	☐
c. Copy of Bylaws	☐	☐
d. Copy of resolution authorizing filing	☐	☐
e. If application is for an oil or gas pipeline, provide information required by item "I-f" and "I-g" above.	☐	☐
III - PARTNERSHIP OR OTHER UNINCORPORATED ENTITY		
a. Articles of association, if any	☐	☐
b. If one partner is authorized to sign, resolution authorizing action is	☐	☐
c. Name and address of each participant, partner, association, or other	☐	☐
d. If application is for an oil or gas pipeline, provide information required by item "I-f" and "I-g" above.	☐	☐

* If the required information is already filed with the agency processing this application and is current, check block entitled "Filed." Provide the file identification information *(e.g., number, date, code, name)*. If not on file or current, attach the requested information.

(Continued on page 5)

NOTICES

Note: This applies to the Department of Agriculture/Forest Service (FS)

This information is needed by the Forest Service to evaluate the requests to use National Forest System lands and manage those lands to protect natural resources, administer the use, and ensure public health and safety. This information is required to obtain or retain a benefit. The authority for that requirement is provided by the Organic Act of 1897 and the Federal Land Policy and Management Act of 1976, which authorize the secretary of Agriculture to promulgate rules and regulations for authorizing and managing National Forest System lands. These statutes, along with the Term Permit Act, National Forest Ski Area Permit Act, Granger-Thye Act, Mineral Leasing Act, Alaska Term Permit Act , Act of September 3, 1954, Wilderness Act, National Forest Roads and Trails Act, Act of November 16, 1973, Archeological Resources Protection Act, and Alaska National Interest Lands Conservation Act, authorize the Secretary of Agriculture to issue authorizations or the use and occupancy of National Forest System lands. The Secretary of Agriculture's regulations at 36 CFR Part 251, Subpart B, establish procedures for issuing those authorizations.

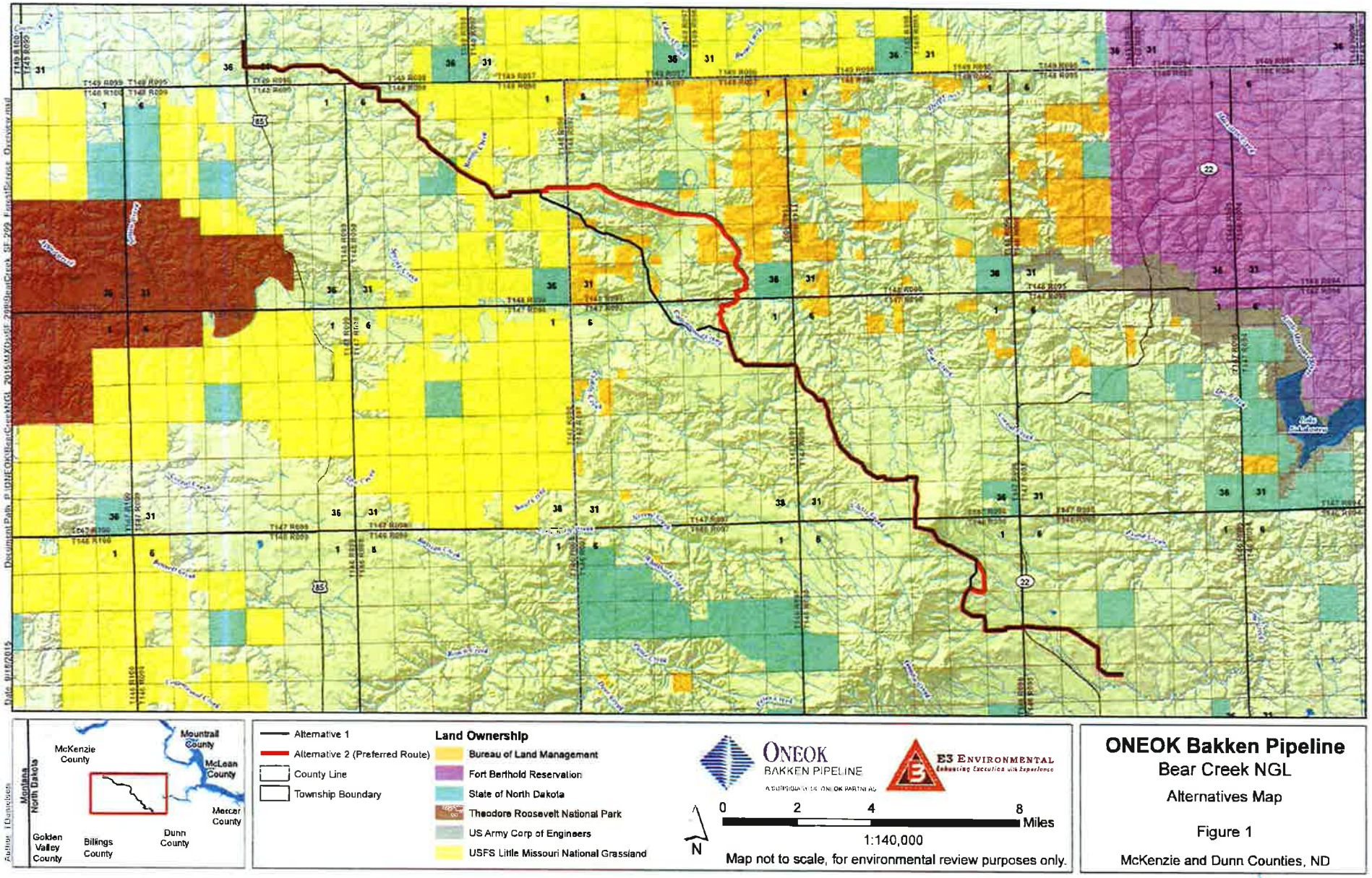
BURDEN AND NONDISCRIMINATION STATEMENTS

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0596-0082. The time required to complete this information collection is estimated to average 8 hours hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on th basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial statu parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all part of an individual's income is derived from any public assistance. (Not all prohibited bases apply to a programs.) Persons with disabilities who require alternative means for communication of progra information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-26((voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independenc Avenue, SW, Washington, DC 20250-9410 or call toll free (866) 632-9992 (voice). TDD users can conta USDA through local relay or the Federal relay at (800) 877-8339 (TDD) or (866) 377-8642 (relay voice USDA is an equal opportunity provider and employer.

The Privacy Act of 1974 (5 U.S.C. 552a) and the Freedom of Information Act (5 U.S.C. 552) govern the confidentiality to be provided for information received by the Forest Service.


Mountrail County
McKenzie County
McLean County
Mercer County
Dunn County
Billings County
Golden Valley County
Montana
North Dakota
Alternative 1
Alternative 2 (Preferred Route)
County Line
Township Boundary
Land Ownership
Bureau of Land Management
Fort Berthold Reservation
State of North Dakota
Theodore Roosevelt National Park
US Army Corp of Engineers
USFS Little Missouri National Grassland
ONEOK
BAKKEN PIPELINE
E3 ENVIRONMENTAL
Embracing Execution with Experience
0 2 4 8 Miles
1:140,000
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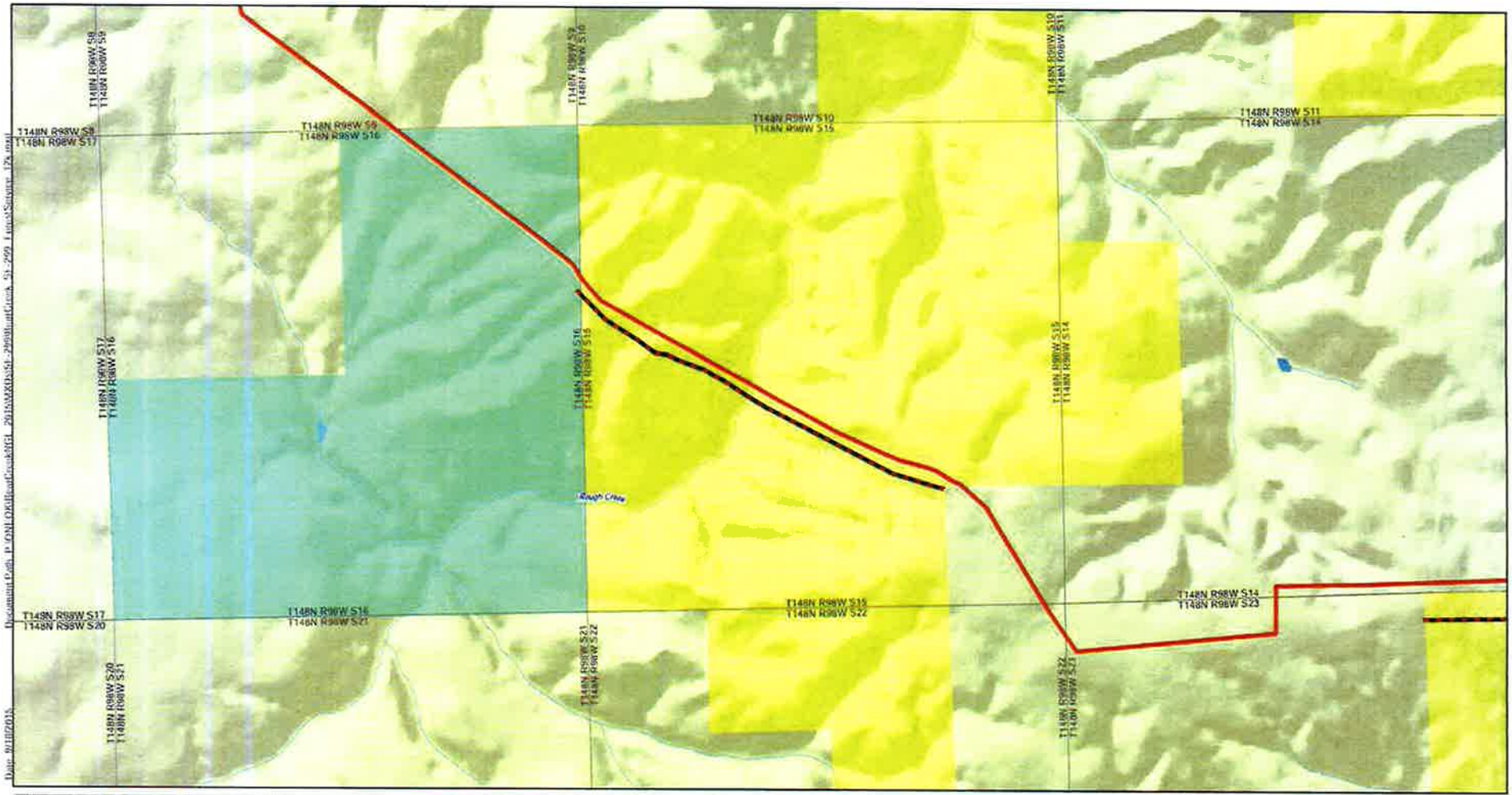
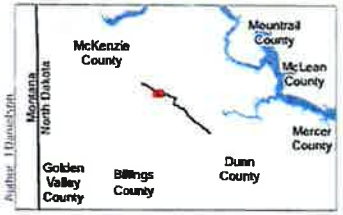
Map not to scale, for environmental review purposes only.
ONEOK Bakken Pipeline
Bear Creek NGL
Alternatives Map
Figure 1
McKenzie and Dunn Counties, ND





Bear Creek NGL
Colocated Pipeline

Land Ownership
State of North Dakota
USFS Little Missouri National Grassland

ONEOK BAKKEN PIPELINE

E3 ENVIRONMENTAL
Delivering Execution with Experience

N

0 0.2 0.4 0.8 Miles

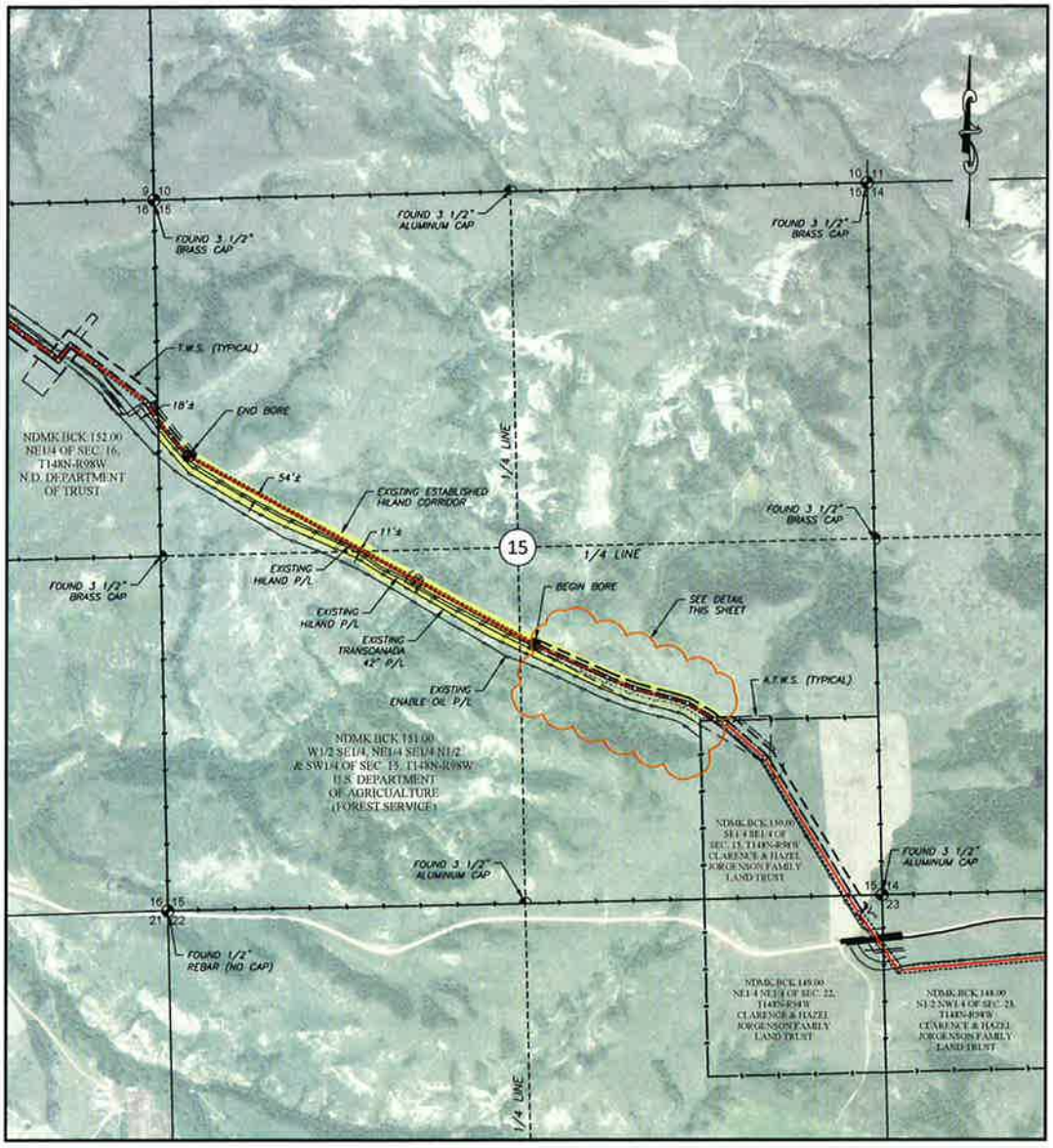
1:12,000

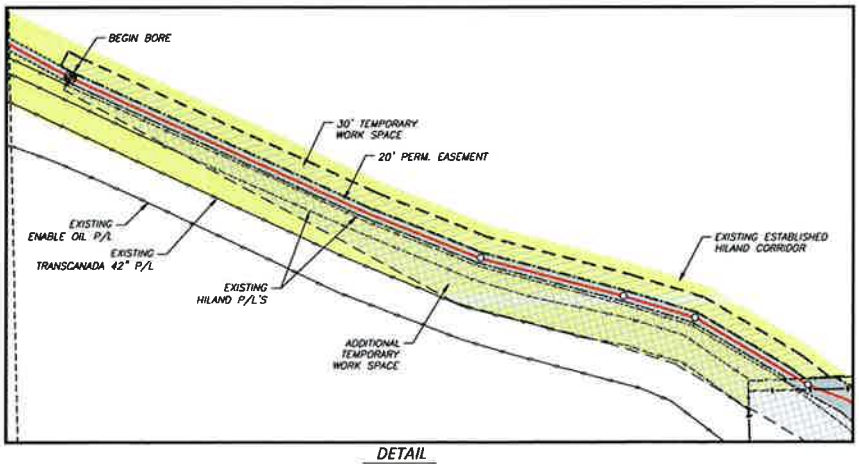
Map not to scale, for environmental review purposes only.

ONEOK Bakken Pipeline
Bear Creek NGL
US Forest Service Land Crossing Map
Figure 2

McKenzie County, ND

McKENZIE COUNTY, NORTH DAKOTA
SECTION 15, T-148-N, R-98-W





DETAIL
1"=200'

NOTE:
NOT FOR RECORDING PURPOSES.

SHEET 1 OF 1

Prepared for:
ONEOK
ROCKIES MIDSTREAM
A SUBSIDIARY OF ONEOK PARTNERS

BEAR CREEK EXHIBIT
U.S.D.A. – FOREST SERVICE

SCALE:	SHEET No.
1"=800'	
Drawn By: JBC	Checked By:
	A.F.E. #

Prepared by:
Golden
Field Services, Inc.
(918) 610-0014

State of North Dakota
SECRETARY OF STATE

CERTIFICATE OF GOOD STANDING
OF

ONEOK BAKKEN PIPELINE, L.L.C.

The undersigned, as Secretary of State of the State of North Dakota, hereby certifies that ONEOK BAKKEN PIPELINE, L.L.C., a FOREIGN LIMITED LIABILITY COMPANY, authorized to transact business in the State of North Dakota on March 15, 2013, and according to the records of this office as of this date, has paid all fees due this office as required by North Dakota statutes governing a FOREIGN LIMITED LIABILITY COMPANY.

ACCORDINGLY the undersigned, as such Secretary of State, and by virtue of the authority vested in him by law, hereby issues this Certificate of Good Standing to

ONEOK BAKKEN PIPELINE, L.L.C.

Issued: May 06, 2015

Alvin A. Jaeger
Secretary of State

ONEOK PARTNERS

CERTIFIED MAIL 7014 1200 0000 2237 3219
RETURN RECEIPT REQUESTED

August 19, 2015

Mr. Greg Link, Division Chief
Conservation and Communication Division
North Dakota Game and Fish Department
100 N. Bismarck Expressway
Bismarck, ND 58501-5095

ONEOK Bakken Pipeline, L.L.C. –Bear Creek Natural Gas Liquids Pipeline Project
State Conservation Priority Species Consultation

ONEOK Bakken Pipeline, L.L.C. (ONEOK) is proposing to construct the Bear Creek Natural Gas Liquids Pipeline Project (Project) in response to growing demand for gas processing capacity of natural gas and natural gas liquids (NGL) produced in North Dakota. The proposed project is a new, 8-inch diameter NGL pipeline that will originate at the Bear Creek Gas Plant in Dunn County, North Dakota and will terminate at the existing Targa Gas Processing Plant in McKenzie County, North Dakota. Final routing to tie into the Targa Gas Processing Plant is pending and two options are being considered (Option A and B are outlined on the attached maps). A tie-in route will be determined prior to the commencement of construction and as such, ONEOK requests a review of both options.

Pipeline construction activities would typically occupy a 100-foot right-of-way. Following construction, the pipeline would be operated within a 50-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Preparation and associated construction activities for the Project under consideration would be initiated during the second quarter of 2016, requiring approximately six months to place into service. Initial restoration activities would commence upon completion of construction activities to the extent conditions allow and would continue as weather conditions permit. To satisfy the North Dakota Public Service Commission's siting authority requirements, ONEOK is providing this project notification for your consideration.

The purpose of this correspondence to afford the North Dakota Game and Fish Department (Department) the opportunity to assess the Project corridor for the presence or absence of State Conservation Priority Species.

The proposed Project corridor is described below and depicted on the attached map and aerial photograph. These have been provided to assist the Department's review of the Project.

In Dunn and McKenzie County, North Dakota the pipeline crosses:

- Township 146N, Range 95W, Sections 18, 19, 20, 28, 29
- Township 146N, Range 96W, Sections 2, 3, 11, 13, 14, 23, 24

100 West Fifth Street, Tulsa, OK 74103-4298
P. O. Box 871, Tulsa, OK 74102-0871

- Township 147N, Range 96W, Sections 7, 18, 19, 20, 27, 28, 29, 34
- Township 147N, Range 97W, Sections 2, 11, 12
- Township 148N, Range 97W, Sections 17, 18, 20, 21, 22, 23, 26, 35
- Township 148N, Range 98W, Sections 4, 5, 6, 9, 13, 14, 15, 16, 22, 23

- Township 149N, Range 98W, Sections 29, 30, 31, 32, 33
- Township 149N, Range 99W, Sections 25, 36

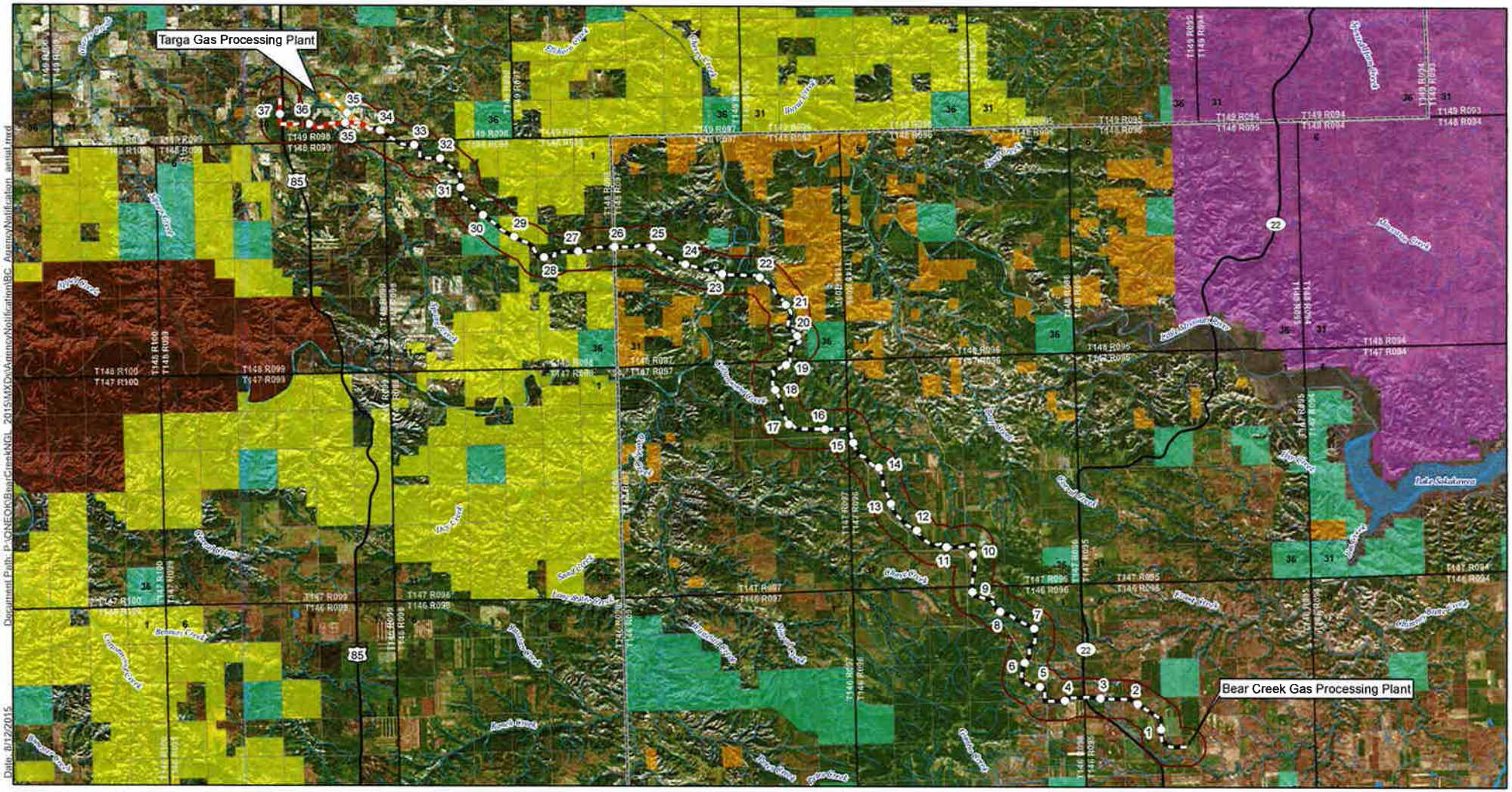
In closing, E3 Environmental, LLC has been retained by ONEOK to provide environmental consulting support for this project. Should you have any questions or require additional information, please contact Bill McCarthy at 651.282.0650 or wmcarthy@go2e3.com; you may also contact me at 918.732.1472 or Todd.Kelvington@oneok.com.

Sincerely,

Todd Kelvington
Environmental Project Manager

Enclosures: Project Map – USGS topographic
Project Map – Aerial photograph

cc Bill McCarthy, E3 (pdf)
Brent Bowling/Todd Kelvington, ONEOK (pdf)
Tulsa Large Construction – Bear Creek NGL PL



E3 Environmental
Enhancing Execution with Experience

ONEOK Bakken Pipeline, L.L.C.

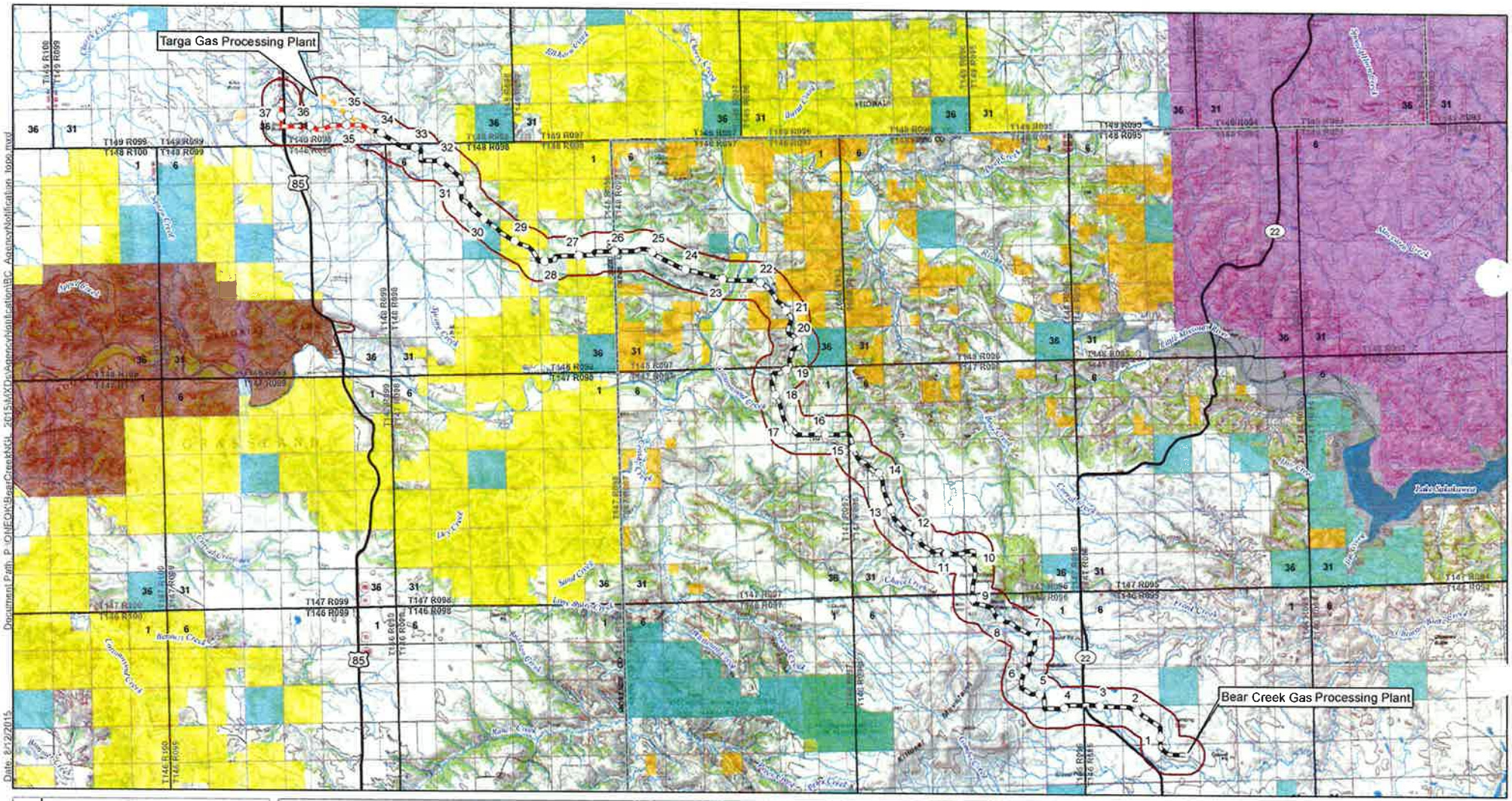
Bear Creek NGL Pipeline

Aerial Overview Map

McKenzie and Dunn Counties, North Dakota

*Only one option will be utilized but comments are requested for both.

Author: LDanielson
Date: 8/12/2015
Document Path: P:\ONEOK\BearCreekNGL_2015\MXD\AgencyNotification\BC_AgencyNotification_aerial.mxd



*Only one option will be utilized but comments are requested for both.

E3 Environmental
Enhancing Execution with Experience

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Topo Overview Map

McKenzie and Dunn Counties, North Dakota

Document Path: P:\ONEOK\BearCreekNGL\2015\MXDs\AgencyNotification\BC_AgencyNotification_topo.mxd

Date: 8/12/2015

Author: JDanielson

RECEIVED
SEP 22 2015
ONEOK
CORP ENVIRONMENTAL

"VARIETY IN HUNTING AND FISHING"

NORTH DAKOTA GAME AND FISH DEPARTMENT

100 NORTH BISMARCK EXPRESSWAY BISMARCK, NORTH DAKOTA 58501-5095 PHONE 701-328-6300 FAX 701-328-6352

September 16, 2015

Todd Kelvington
Environmental Project Manager
ONEOK Partners
P.O. Box 871
Tulsa, OK 74102-0871

Dear Mr. Kelvington:

RE: Bear Creek Natural Gas Liquids Pipeline Project

ONEOK Bakken Pipeline, LLC is proposing to construct approximately a new 8-inch diameter NGL pipeline that will originate at the Bear Creek Gas Plant in Dunn County and terminate at the existing Tarega Gas Processing Plant in McKenzie County, North Dakota. The North Dakota Game and Fish Department has reviewed this project for wildlife concerns.

A primary concern is the possible disturbance of native prairie and wooded draws associated with construction of the pipeline and access roads. We ask that work within these areas be avoided to the extent possible, every effort be made to prevent destruction of woody vegetation, and disturbed areas be reclaimed to pre-project conditions.

The pipeline route will cross the Little Missouri River, a Classified fishery. We recommend that this stream be crossed by directional boring to protect the resource. If this method is not feasible, construction should not take place within the waterway between April 15 and June 1, and controls should be implemented to minimize erosion and sedimentation. The department also recommends that additional precautions be implemented into the design of pipes crossing under the State's waterways. One means of minimizing a potentially large pipeline failure is to incorporate pressure sensing valves on both sides of the waterway. These valves should be placed as close to the waterway as possible while staying out of the floodplain to reduce potential damage from ice and other floating debris. A maintenance schedule should be developed to insure the integrity of the pipe for the life of the project.

Aquatic nuisance species (ANS) are a major concern in North Dakota. State law requires that the contractor, including any and all subcontractors involved in this project, take appropriate precautions to prevent the introduction or movement of ANS within the state. The contractor

should provide the department a reasonable opportunity to inspect any equipment prior to these items being launched or placed into waters of the state. The department's Aquatic Nuisance Species Coordinator, Mr. Fred Ryckman, can be contacted at 701-770-0920 for equipment inspections or additional information regarding ANS prevention protocols.

The National Wetland Inventory indicates various wetlands within the proposed project corridor. Steps should be taken to protect any wetlands that cannot be avoided, no alterations should be made to existing drainage patterns, and above-ground appurtenances should not be placed in wetland areas. Unavoidable destruction or degradation of wetland acres should be mitigated in kind.

The proposed project is located adjacent to the BLM bighorn sheep herd. We ask that construction activity be avoided in areas within line-of-sight of bighorn sheep lambing areas from April 1 through July 15 to minimize possible impacts to the population. Mr. Brett Wiedmann, Big Game Management Biologist, should be contacted at 701-225-2043 for more information regarding bighorn sheep lambing restrictions.

Aerial surveys should be conducted for raptor nests before construction begins. We recommend that a ½-mile construction buffer be implemented around active eagle nest sites (known occupied within the past 5 years). Ms. Sandra Johnson, Conservation Biologist, may be contacted at 701-328-6327 for additional information on golden eagle nest sites in the state.

Sincerely,

Greg Link
Chief
Conservation & Communication Division

js

ONEOK PARTNERS

CERTIFIED MAIL 7014 1200 0000 2237 3226
RETURN RECEIPT REQUESTED

August 19, 2015

Kathy Duttenhefner
North Dakota Parks and Recreation
1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649

ONEOK Bakken Pipeline, L.L.C. – Bear Creek Natural Gas Liquids Pipeline Project
Natural Heritage Inventory Review Request

ONEOK Bakken Pipeline, L.L.C. (ONEOK) is proposing to construct the Bear Creek Natural Gas Liquids Pipeline Project (Project) in response to growing demand for gas processing capacity of natural gas and natural gas liquids (NGL) produced in North Dakota. The proposed project is a new, 8-inch diameter NGL pipeline that will originate at the Bear Creek Gas Plant in Dunn County, North Dakota and will terminate at the existing Targa Gas Processing Plant in McKenzie County, North Dakota. Final routing to tie into the Targa Gas Processing Plant is pending and two options are being considered (Option A and B are outlined on the attached maps). A tie-in route will be determined prior to the commencement of construction and as such, ONEOK requests a review of both options.

Pipeline construction activities would typically occupy a 100-foot right-of-way. Following construction, the pipeline would be operated within a 50-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Preparation and associated construction activities for the Project under consideration would be initiated during the second quarter of 2016, requiring approximately six months to place into service. Initial restoration activities would commence upon completion of construction activities to the extent conditions allow and would continue as weather conditions permit.

The purpose of this correspondence is to provide the North Dakota Parks and Recreation Department (Department) notice of the Project, and to request comments from the Department pertaining to environmental topics that are relevant to the North Dakota Public Service Commission's siting requirements for Energy Transmission Facility Siting. It is our understanding that the Department administers the following state programs:

- State Park Lands
- Land and Water Conservation Fund
- Natural Heritage Inventory

The proposed Project corridor is described below and depicted on the attached map and aerial photograph. These have been provided to assist the Department's review of the Project for the presence or absence of any lands, projects, and sensitive species.

In Dunn and McKenzie County, North Dakota the pipeline crosses:

- Township 146N, Range 95W, Sections 18, 19, 20, 28, 29
- Township 146N, Range 96W, Sections 2, 3, 11, 13, 14, 23, 24
- Township 147N, Range 96W, Sections 7, 18, 19, 20, 27, 28, 29, 34
- Township 147N, Range 97W, Sections 2, 11, 12

- Township 148N, Range 97W, Sections 17, 18, 20, 21, 22, 23, 26, 35
- Township 148N, Range 98W, Sections 4, 5, 6, 9, 13, 14, 15, 16, 22, 23
- Township 149N, Range 98W, Sections 29, 30, 31, 32, 33
- Township 149N, Range 99W, Sections 25, 36

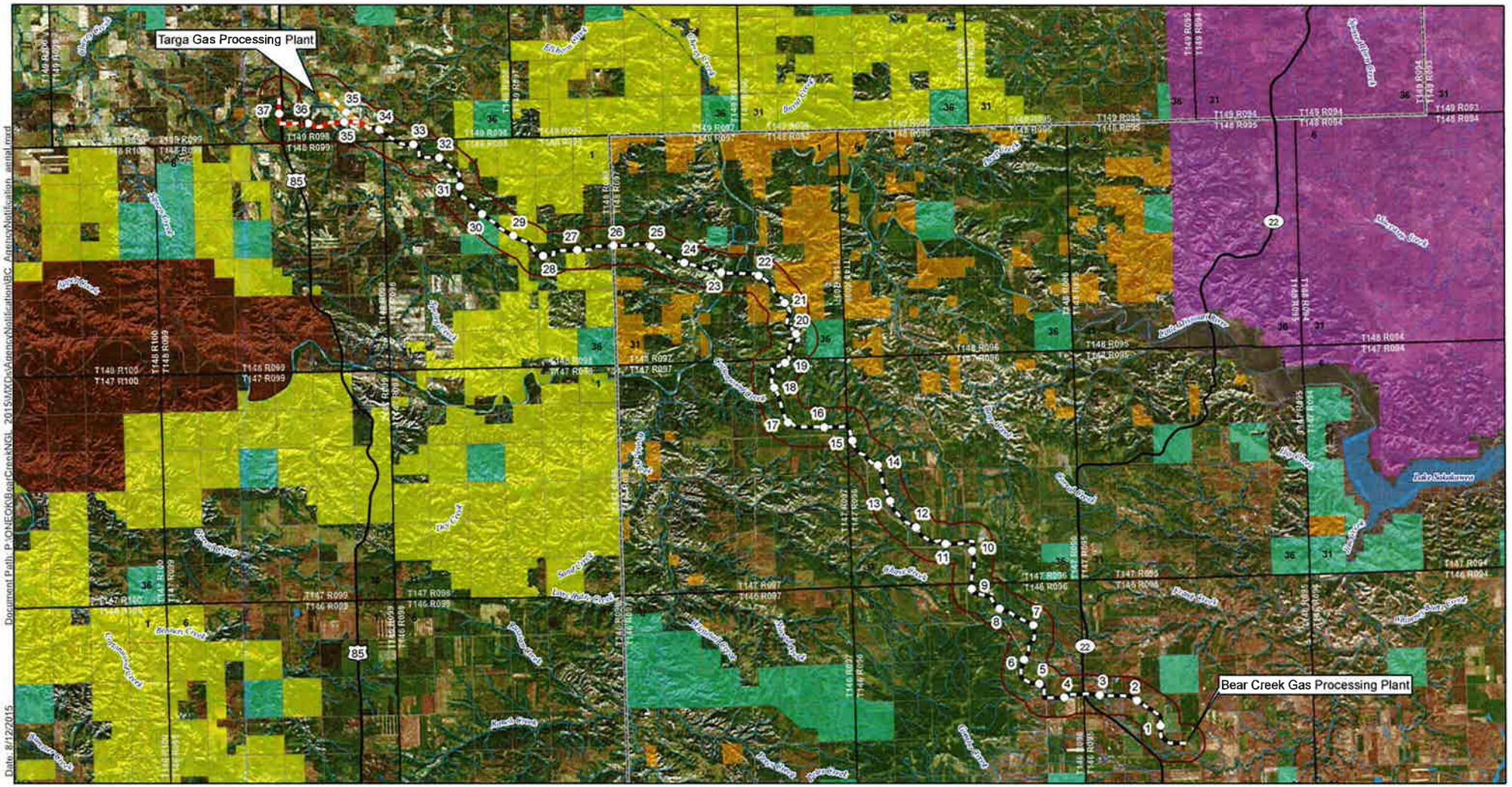
In closing, E3 Environmental, LLC has been retained by ONEOK to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact Bill McCarthy at 651.282.0650 or wmcarthy@go2e3.com; you may also contact me at 918.732.1472 or Todd.Kelvington@oneok.com.

Sincerely,

Todd Kelvington
Environmental Project Manager

Enclosures: Project Map – USGS topographic
Project Map – Aerial photograph

cc Bill McCarthy, E3 (pdf)
Brent Bowling/Todd Kelvington, ONEOK (pdf)
Tulsa Large Construction – Bear Creek NGL PL



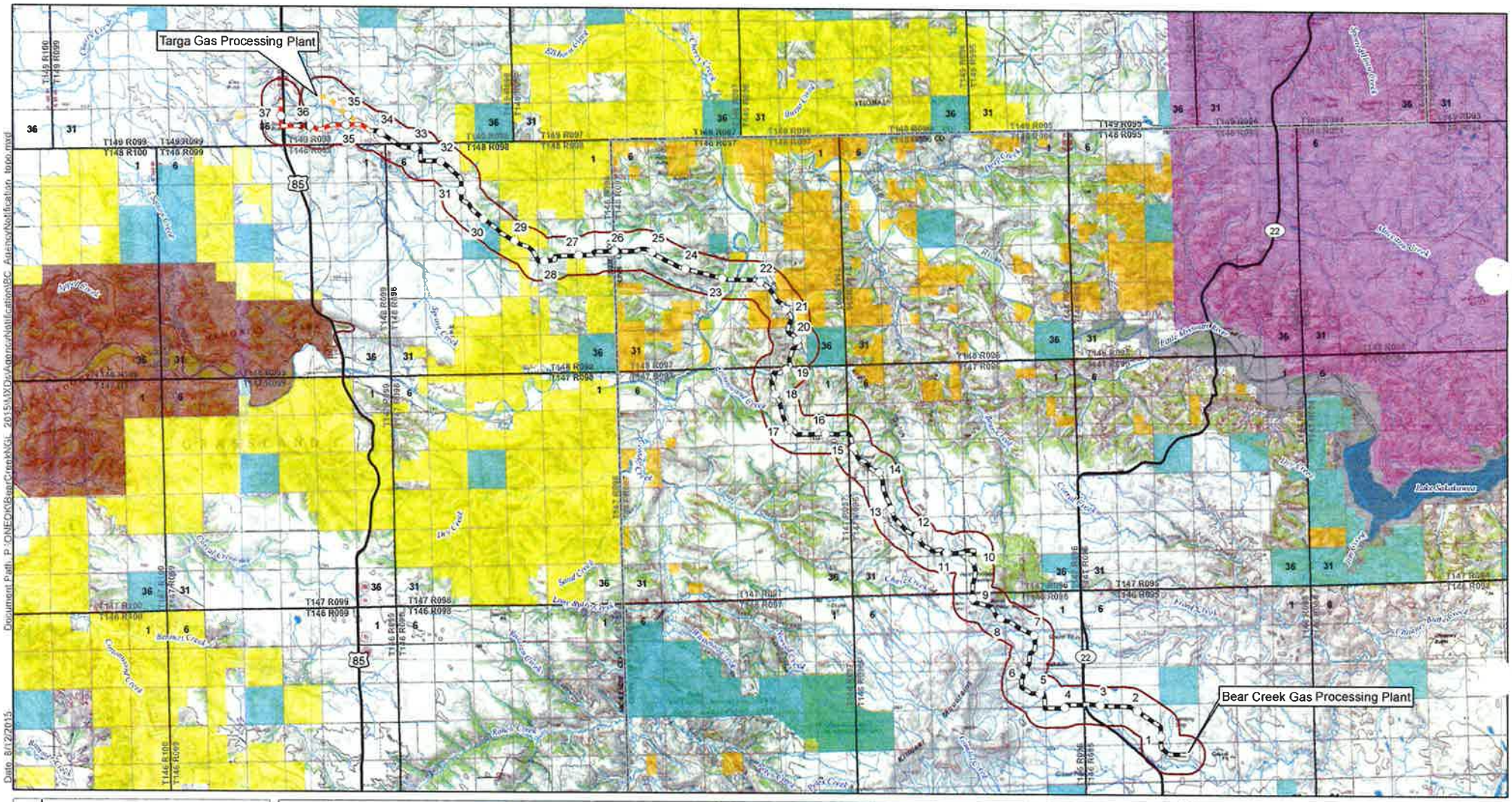
*Only one option will be utilized but comments are requested for both.

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Aerial Overview Map

McKenzie and Dunn Counties, North Dakota



*Only one option will be utilized but comments are requested for both.

E3 Environmental
Enhancing Execution with Experience

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Topo Overview Map

McKenzie and Dunn Counties, North Dakota

Author: LDannebom
Document Path: P:\ONEOK\BearCreekNGL_2015\MXD\Agency\Notification\BC_AgencyNotification_topo.mxd
Date: 8/12/2015

ONEOK PARTNERS

CERTIFIED MAIL 7014 1200 0000 2237 3257
RETURN RECEIPT REQUESTED

August 19, 2015

Mr. Michael Haupt, Land Management Professional
North Dakota Department of Trust Lands
Surface Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

ONEOK Bakken Pipeline, L.L.C. – Bear Creek Natural Gas Liquids Pipeline Project
School Trust Lands Consultation

ONEOK Bakken Pipeline, L.L.C. (ONEOK) is proposing to construct the Bear Creek Natural Gas Liquids Pipeline Project (Project) in response to growing demand for gas processing capacity of natural gas and natural gas liquids (NGL) produced in North Dakota. The proposed project is a new, 8-inch diameter NGL pipeline that will originate at the Bear Creek Gas Plant in Dunn County, North Dakota and will terminate at the existing Targa Gas Processing Plant in McKenzie County, North Dakota. Final routing to tie into the Targa Gas Processing Plant is pending and two options are being considered (Option A and B are outlined on the attached maps). A tie-in route will be determined prior to the commencement of construction and as such, ONEOK requests a review of both options.

Pipeline construction activities would typically occupy a 100-foot right-of-way. Following construction, the pipeline would be operated within a 50-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Preparation and associated construction activities for the Project under consideration would be initiated during the second quarter of 2016, requiring approximately six months to place into service. Initial restoration activities would commence upon completion of construction activities to the extent conditions allow and would continue as weather conditions permit. To satisfy state siting authority requirements, ONEOK is providing this project notification for your consideration.

The purpose of this correspondence is to request a review of the Project corridor (see attached) for the presence or absence of State School Trust Lands. This information will be included in a North Dakota Public Service Commission application for the Project.

The proposed Project corridor is described below and depicted on the attached map and aerial photograph. These have been provided to assist the Department's review of the Project.

In Dunn and McKenzie County, North Dakota the pipeline crosses:

- Township 146N, Range 95W, Sections 18, 19, 20, 28, 29
- Township 146N, Range 96W, Sections 2, 3, 11, 13, 14, 23, 24
- Township 147N, Range 96W, Sections 7, 18, 19, 20, 27, 28, 29, 34
- Township 147N, Range 97W, Sections 2, 11, 12

100 West Fifth Street, Tulsa, OK 74103-4298
P. O. Box 871, Tulsa, OK 74102-0871

- Township 148N, Range 97W, Sections 17, 18, 20, 21, 22, 23, 26, 35
- Township 148N, Range 98W, Sections 4, 5, 6, 9, 13, 14, 15, 16, 22, 23
- Township 149N, Range 98W, Sections 29, 30, 31, 32, 33
- Township 149N, Range 99W, Sections 25, 36

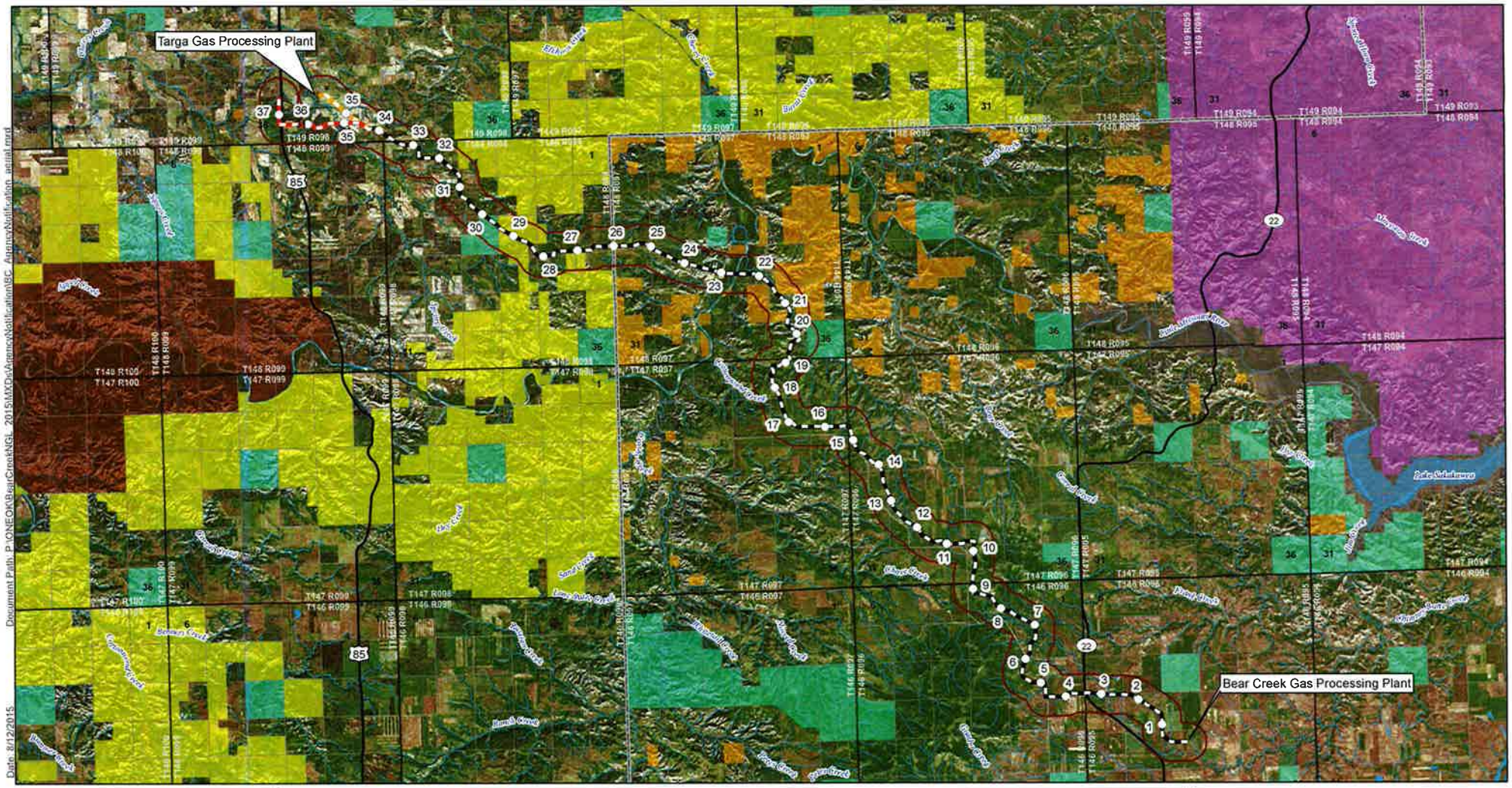
In closing, E3 Environmental, LLC has been retained by ONEOK to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact Bill McCarthy at 651.282.0650 or wmcarthy@go2e3.com; you may also contact me at 918.732.1472 or Todd.Kelvington@oneok.com.

Sincerely,

Todd Kelvington
Environmental Project Manager

Enclosure: Project Map – USGS topographic
Project Aerial photograph

cc Bill McCarthy, E3 (pdf)
Brent Bowling/Todd Kelvington, ONEOK (pdf)
Tulsa Large Construction – Bear Creek NGL PL



*Only one option will be utilized but comments are requested for both.

E3 Environmental
Enhancing Execution with Experience

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

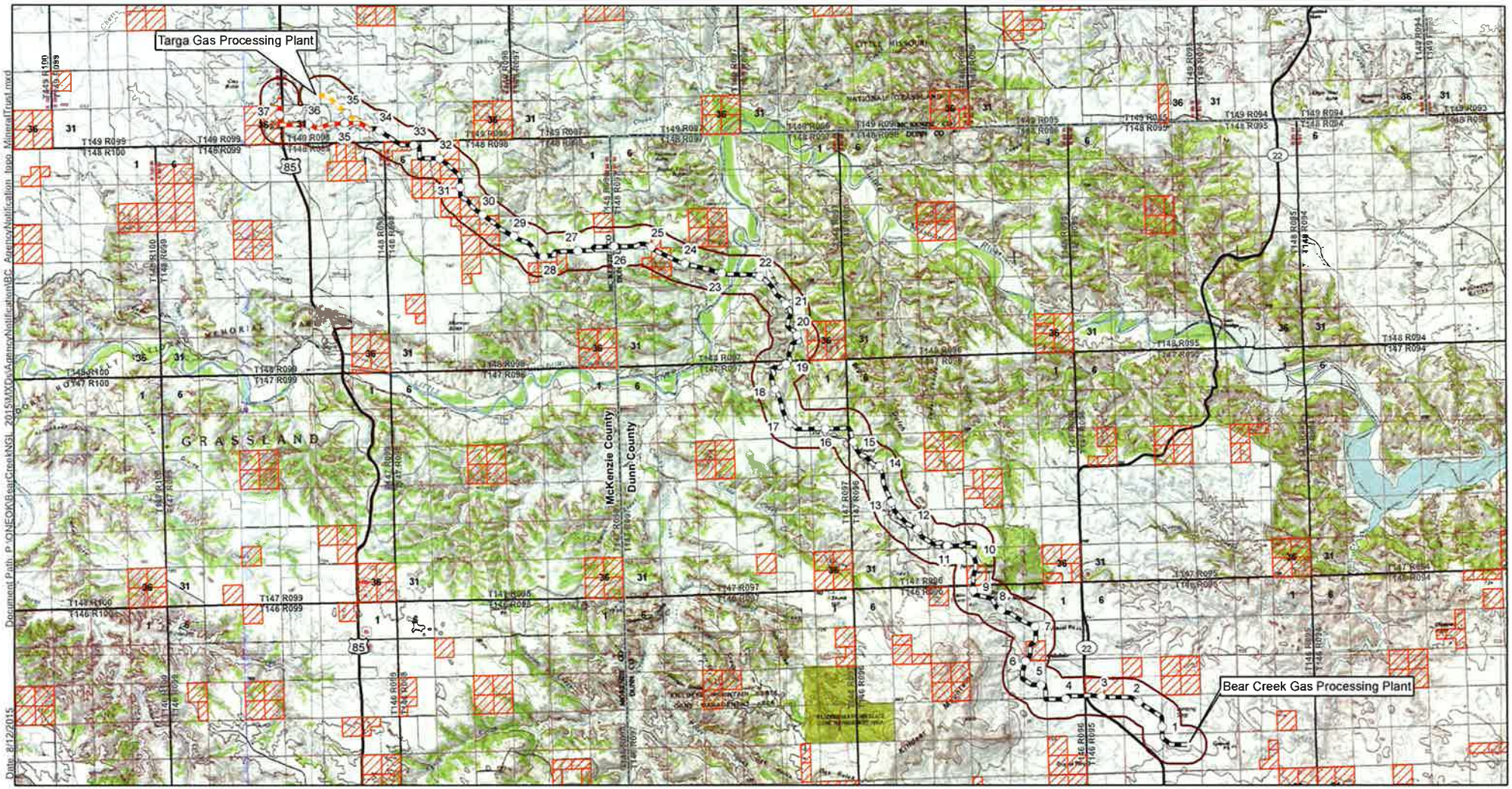
Aerial Overview Map

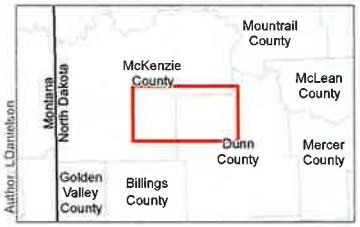
McKenzie and Dunn Counties, North Dakota

Document Path: P:\ONEOK\BearCreekNGL_2015\MXD\AgencyNotification\BC_AgencyNotification_aerial.mxd

Date: 8/12/2015

Author: LDanielson





Milepost
Proposed Pipeline
Proposed Route Option A
Proposed Route Option B
Corridor (1-mile)
Mineral Trust Land
County Boundary
Township Boundary
Section Boundary

N

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0 1.5 3 6 Miles

1:150,000

Map not to scale, for environmental review purposes only.

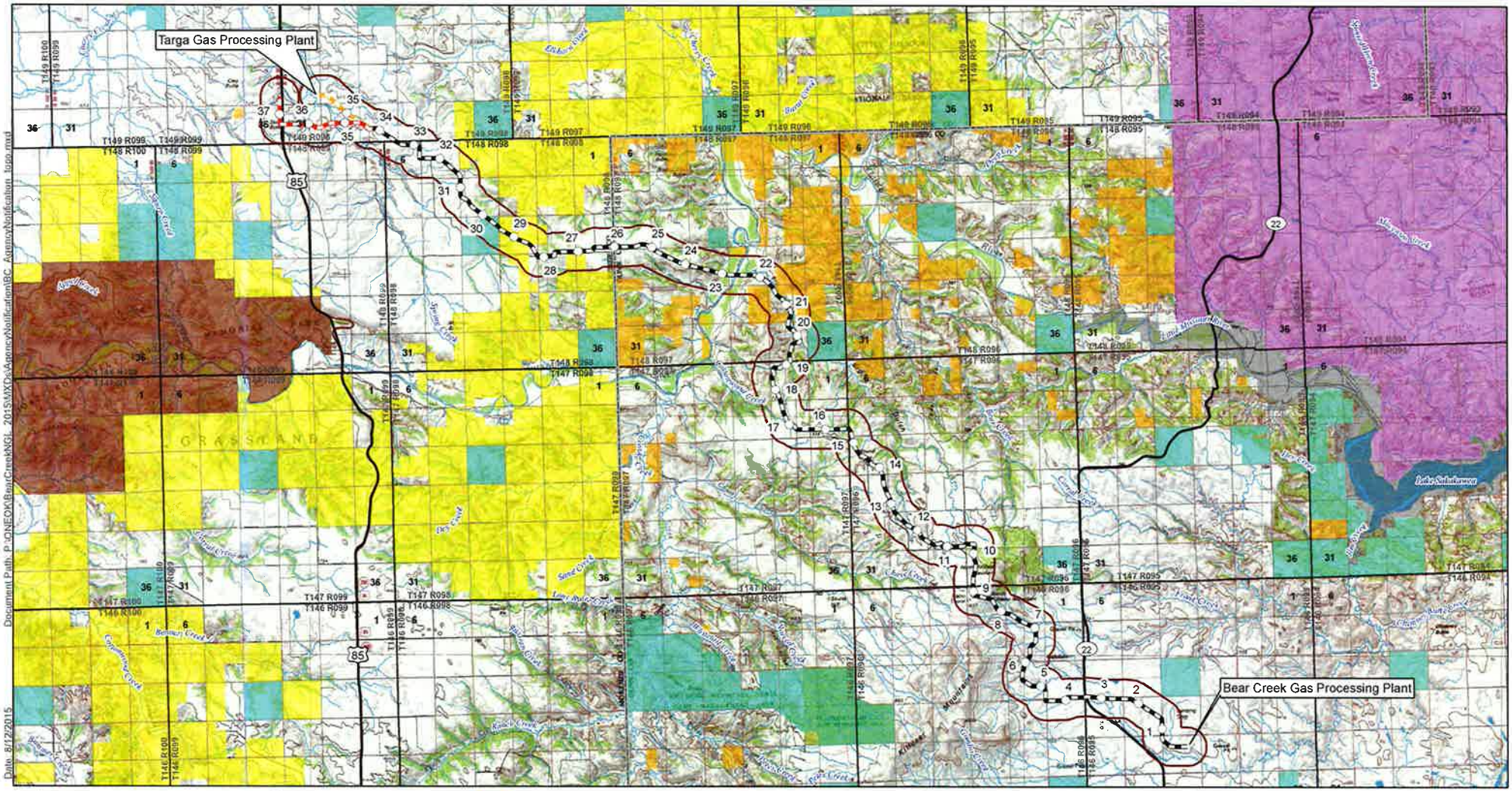
*Only one option will be utilized but comments are requested for both.

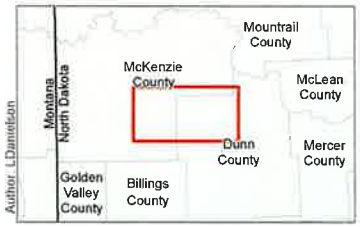
ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Mineral Trust Land Overview Map

McKenzie and Dunn Counties, North Dakota





- Milepost
- Proposed Pipeline
- Proposed Route Option A
- Proposed Route Option B
- Corridor (1-mile)
- NHD Stream
- NHD Waterbody
- Bureau of Land Management
- Fort Berthold Reservation
- State of North Dakota
- Theodore Roosevelt National Park
- US Army Corp of Engineers
- USFS Little Missouri National Grassland
- County Boundary
- Township Boundary
- Section Boundary

N

E3 Environmental
Enhancing Execution with Experience

0 1.5 3 6 Miles

1:150,000

Map not to scale, for environmental review purposes only.

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Topo Overview Map

McKenzie and Dunn Counties, North Dakota

*Only one option will be utilized but comments are requested for both.

From:	Melissa Schmit
To:	mhaupt@nd.gov
Cc:	Kelvington, Todd E.
Subject:	(External) ONEOK Bear Creek NGL Project Notification
Date:	Wednesday, August 19, 2015 12:19:24 PM
Attachments:	image003.png Bear_Creek_NGL_Surface_Management_Division_Agency_Notification.pdf

---

Dear Mr. Haupt:

E3 Environmental, LLC has been retained by ONEOK Bakken Pipeline, L.L.C. (ONEOK) to provide environmental consulting support for the Bear Creek NGL Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter and maps to assist in your review of the Project. ONEOK will send concurrently with this mailing the original notification letter and project map via certified/return receipt mail.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant
E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
M: 651.263.7916
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

E3 ENVIRONMENTAL
Enhancing Execution with Experience

******* Internet Email Confidentiality ******* The information contained in this message may be privileged and confidential and protected from disclosure. If the reader of this message is not the intended recipient, or an employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that it is strictly prohibited (a) to disseminate, distribute or copy this communication or any of the information contained in it, or (b) to take any action based on the information in it. If you have received this communication in error, please notify us immediately by replying to the message and deleting it from your computer.

From:	Haupt, Michael L.
To:	Melissa Schmit
Cc:	Kelvington, Todd E.
Subject:	(External) RE: ONEOK Bear Creek NGL Project Notification
Date:	Wednesday, August 19, 2015 1:35:32 PM
Attachments:	image001.png 148-98-16MCK.pdf

Melissa,

Good afternoon! Oneok has submitted an application (ROW#7445) to cross the NE4 16-148-98 McKenzie County, as shown on the attached aerial photo. We are waiting for draft survey plats to review. Let me know if you have questions. Thanks.

Michael L. Haupt
Land Management Professional, CPRM
North Dakota Department of Trust lands
1707 Nth 9th Street
Bismarck ND 58506-5523
701-328-1916
mhaupt@nd.gov

Note: You can track the real time status of your right-of-way application 24/7 at http://www.land.nd.gov/surface/right-of-way.aspx using either the ROW number or by entering at least the first three letters of the company name. By checking this site you can find the name, telephone number and email address of the person working on the application as well as its current status in real time.

From: Melissa Schmit [mailto:MSchmit@go2e3.com]
Sent: Wednesday, August 19, 2015 12:19 PM
To: Haupt, Michael L.
Cc: Kelvington, Todd E.
Subject: ONEOK Bear Creek NGL Project Notification

Dear Mr. Haupt:

E3 Environmental, LLC has been retained by ONEOK Bakken Pipeline, L.L.C. (ONEOK) to provide environmental consulting support for the Bear Creek NGL Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter and maps to assist in your review of the Project. ONEOK will send concurrently with this mailing the original notification letter and project map via certified/return receipt mail.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant

E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
M: 651.263.7916
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

******* Internet Email Confidentiality ******* The information contained in this message may be privileged and confidential and protected from disclosure. If the reader of this message is not the intended recipient, or an employee or agent responsible for delivering this message to the intended recipient, you are hereby notified that it is strictly prohibited (a) to disseminate, distribute or copy this communication or any of the information contained in it, or (b) to take any action based on the information in it. If you have received this communication in error, please notify us immediately by replying to the message and deleting it from your computer.

ONEOK PARTNERS

CERTIFIED MAIL 7014 1200 0000 2237 3240
RETURN RECEIPT REQUESTED

August 19, 2015

Mr. Keith Bayley, Land Professional
North Dakota Department of Trust Lands
Minerals Management Division
1707 North 9th Street, P.O. Box 5523
Bismarck, ND 58506-5523

ONEOK Bakken Pipeline, L.L.C. – Bear Creek Natural Gas Liquids Pipeline Project
State Mineral Trust Lands Consultation

ONEOK Bakken Pipeline, L.L.C. (ONEOK) is proposing to construct the Bear Creek Natural Gas Liquids Pipeline Project (Project) in response to growing demand for gas processing capacity of natural gas and natural gas liquids (NGL) produced in North Dakota. The proposed project is a new, 8-inch diameter NGL pipeline that will originate at the Bear Creek Gas Plant in Dunn County, North Dakota and will terminate at the existing Targa Gas Processing Plant in McKenzie County, North Dakota. Final routing to tie into the Targa Gas Processing Plant is pending and two options are being considered (Option A and B are outlined on the attached maps). A tie-in route will be determined prior to the commencement of construction and as such, ONEOK requests a review of both options.

Pipeline construction activities would typically occupy a 100-foot right-of-way. Following construction, the pipeline would be operated within a 50-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Preparation and associated construction activities for the Project under consideration would be initiated during the second quarter of 2016, requiring approximately six months to place into service. Initial restoration activities would commence upon completion of construction activities to the extent conditions allow and would continue as weather conditions permit. To satisfy the North Dakota Public Service Commission's siting authority requirements, ONEOK is providing this project notification for your consideration.

The proposed Project corridor is described below and depicted on the attached map and aerial photo.

In Dunn and McKenzie County, North Dakota the pipeline crosses:

- Township 146N, Range 95W, Sections 18, 19, 20, 28, 29
- Township 146N, Range 96W, Sections 2, 3, 11, 13, 14, 23, 24
- Township 147N, Range 96W, Sections 7, 18, 19, 20, 27, 28, 29, 34
- Township 147N, Range 97W, Sections 2, 11, 12
- Township 148N, Range 97W, Sections 17, 18, 20, 21, 22, 23, 26, 35
- Township 148N, Range 98W, Sections 4, 5, 6, 9, 13, 14, 15, 16, 22, 23

100 West Fifth Street, Tulsa, OK 74103-4298
P. O. Box 871, Tulsa, OK 74102-0871

- Township 149N, Range 98W, Sections 29, 30, 31, 32, 33
- Township 149N, Range 99W, Sections 25, 36

A review of the Project corridor (see attached) for the presence of State Mineral Trust Lands was conducted using available information at www.land.nd.gov. The enclosed topographic map depicts the Project corridor and State Mineral Trust Lands within the corridor. This has been provided to assist the Department's review of the Project. The results of this search concluded that the following State Lands fall within the Project corridor:

- Township 149N, Range 99W, Section 36
- Township 148N, Range 99W, Section 1
- Township 148N, Range 98W, Sections 5-9, 13, 16, 17, 22, 23
- Township 148N, Range 97W, Sections 16, 17, 19, 20, 36
- Township 147N, Range 96W, Sections 34, 36
- Township 146N, Range 96W, Section 11
- Township 146N, Range 95W, Section 18

The purpose of this correspondence is to seek your concurrence with this analysis. This information will be included in a North Dakota Public Service Commission application for the project. For your convenience, I have directed E3 Environmental, LLC (E3) to submit an electronic copy of this letter, attached map, and shapefiles concurrently with this mailing.

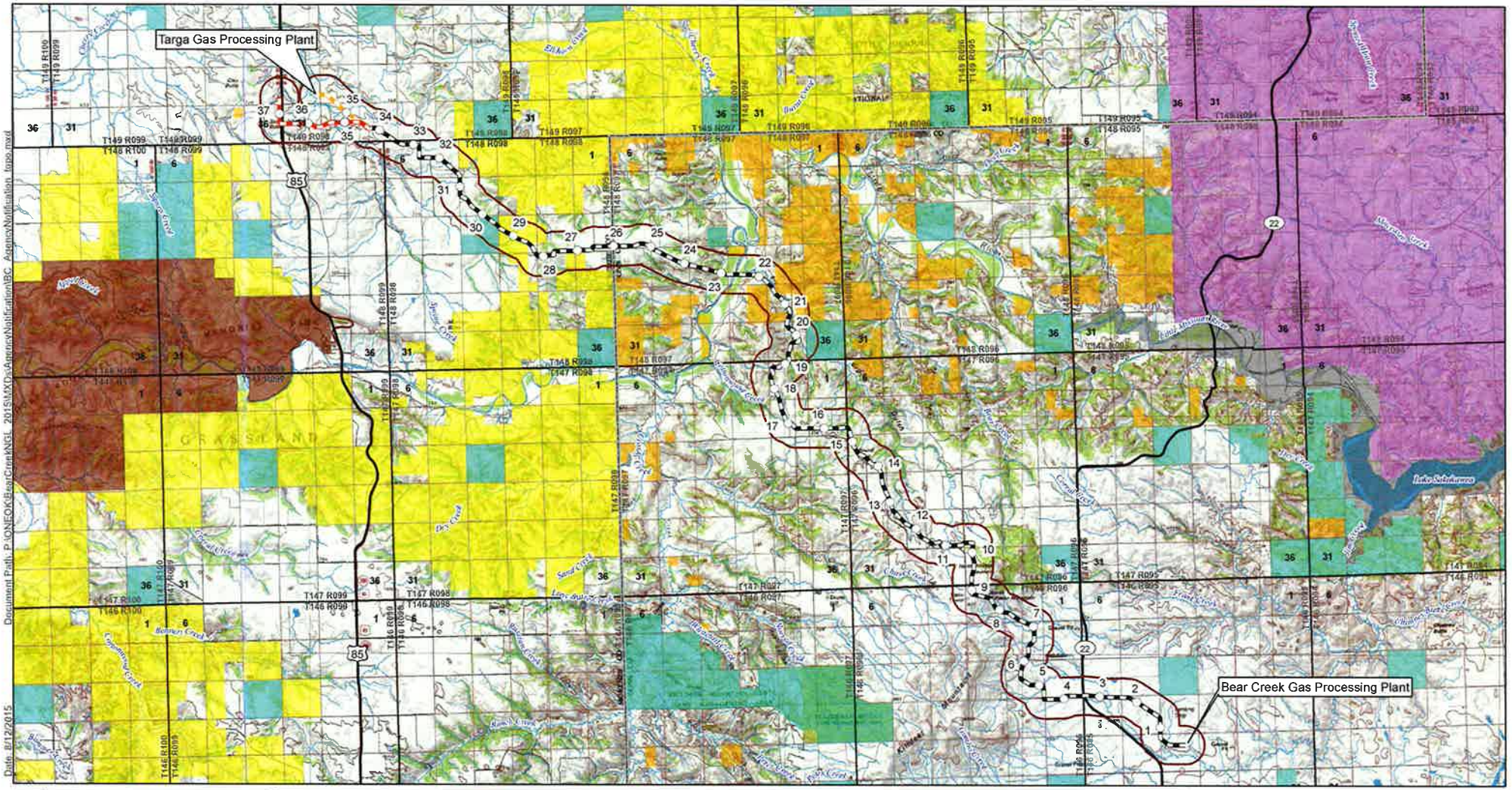
In closing, E3 has been retained by ONEOK to provide environmental consulting support for this Project. Should you have any questions or require additional information, please contact Bill McCarthy at 651.282.0650 or wmcarthy@go2e3.com; you may also contact me at 918.732.1472 or Todd.Kelvington@oneok.com.

Sincerely,

Todd Kelvington
Environmental Project Manager

Enclosures: Project Map and State Mineral Trust Lands – USGS topographic
Project Map – Aerial photograph

cc Bill McCarthy, E3 (pdf)
Brent Bowling/Todd Kelvington, ONEOK (pdf)
Tulsa Large Construction – Bear Creek NGL PL



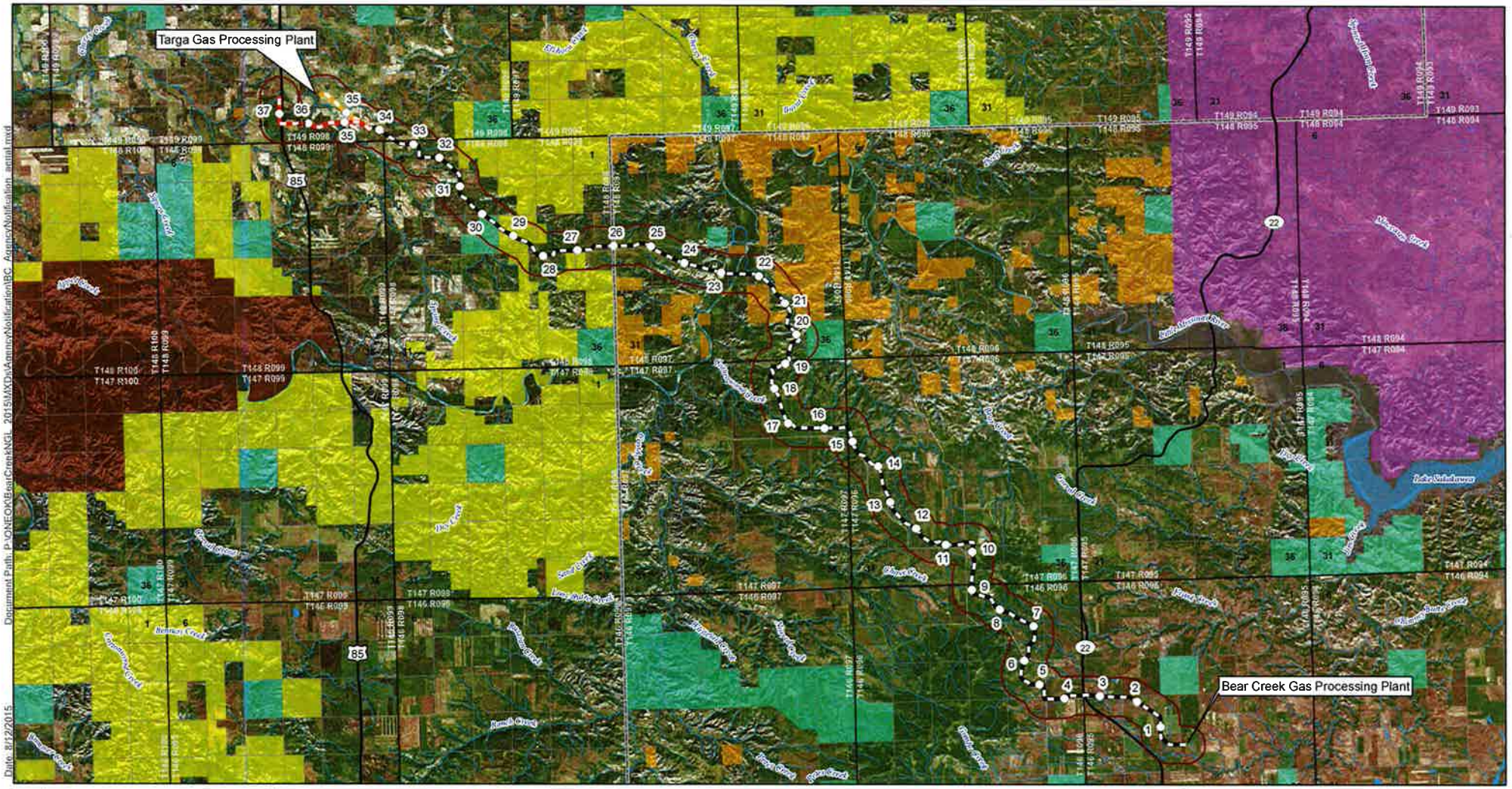
ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Topo Overview Map

McKenzie and Dunn Counties, North Dakota

*Only one option will be utilized but comments are requested for both.



*Only one option will be utilized but comments are requested for both.

ONEOK Bakken Pipeline, L.L.C.

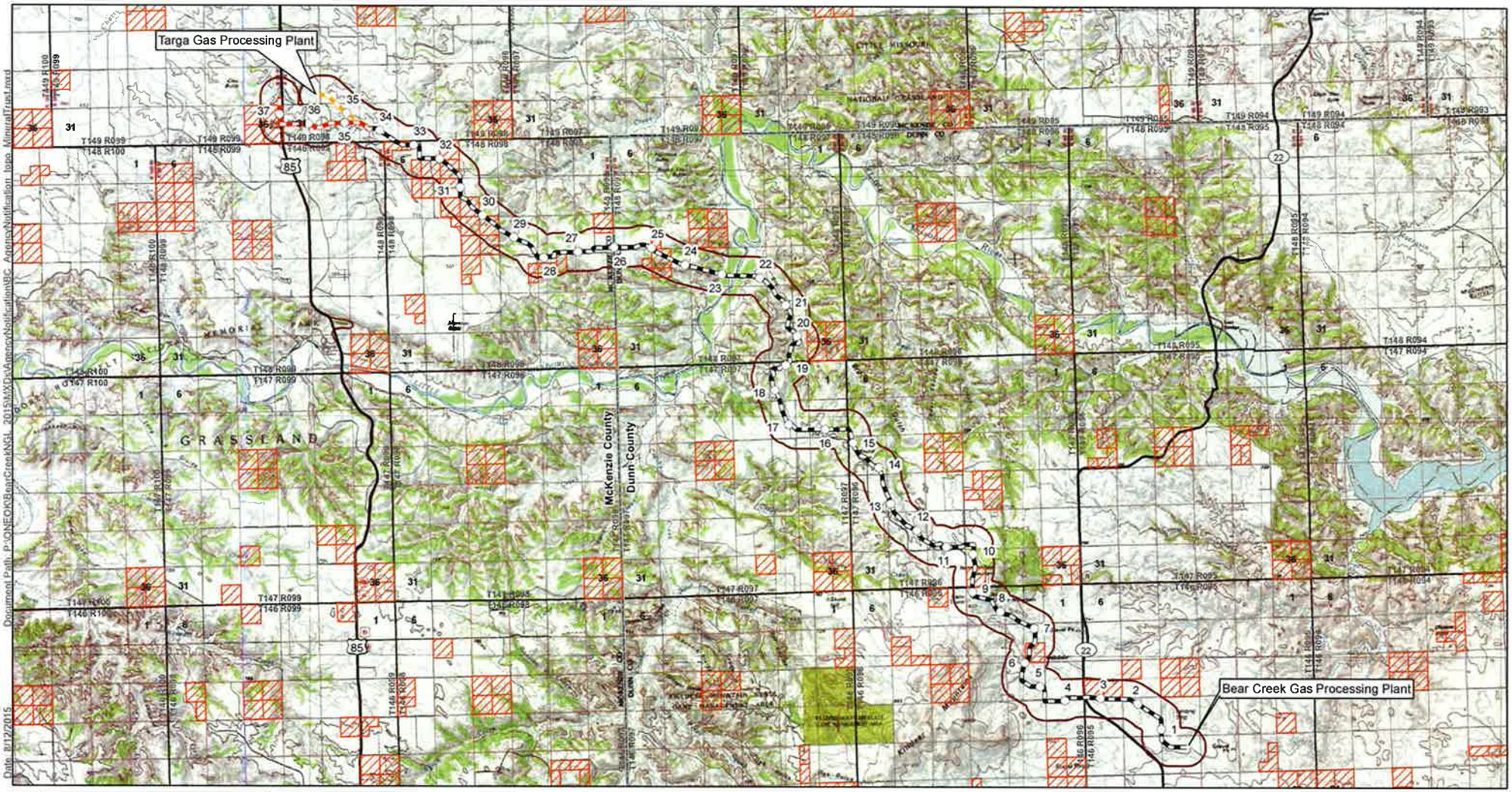
Bear Creek NGL Pipeline

Aerial Overview Map

McKenzie and Dunn Counties, North Dakota

E3 Environmental
Enhancing Execution with Experience

Author: LDanielson
Date: 8/12/2015
Document Path: P:\ONEOK\BearCreekNGL_2015\MXD\AgencyNotification\BC_AgencyNotification_aerial.mxd



*Only one option will be utilized but comments are requested for both.

E3 Environmental
Enhancing Execution with Experience

ONEOK Bakken Pipeline, L.L.C.

Bear Creek NGL Pipeline

Mineral Trust Land Overview Map

McKenzie and Dunn Counties, North Dakota

Author: LDanielson
Date: 8/12/2015
Document Path: P:\ONEOK\BearCreekNGL_2015\MXD\AgencyNotification\BC_AgencyNotification_topo_MineralTrust.mxd

From:	Melissa Schmit
To:	abement@nd.gov
Cc:	kbayley@nd.gov; Kelvington, Todd E.
Subject:	(External) ONEOK Bear Creek NGL Project Notification
Date:	Wednesday, August 19, 2015 12:14:29 PM
Attachments:	image002.png Bear Creek NGL Mineral Management Agency Notification.pdf BearCreek_1MileCorridor.shp BearCreek_1MileCorridor.shx BearCreekNGL_CL.dbf BearCreekNGL_CL.prj BearCreekNGL_CL.sbn BearCreekNGL_CL.sbx BearCreekNGL_CL.shp BearCreekNGL_CL.shx BearCreek_1MileCorridor.dbf BearCreek_1MileCorridor.prj BearCreek_1MileCorridor.sbn BearCreek_1MileCorridor.sbx

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Ms. Bement-

E3 Environmental, LLC (E3) has been retained by ONEOK Bakken Pipeline, L.L.C. (ONEOK) to provide environmental consulting support for the Bear Creek NGL Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter, a map, and shapefiles to assist in your review of the Project. ONEOK will send concurrently with this mailing the original notification letter and project map via certified/return receipt mail.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant
E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
M: 651.263.7916
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

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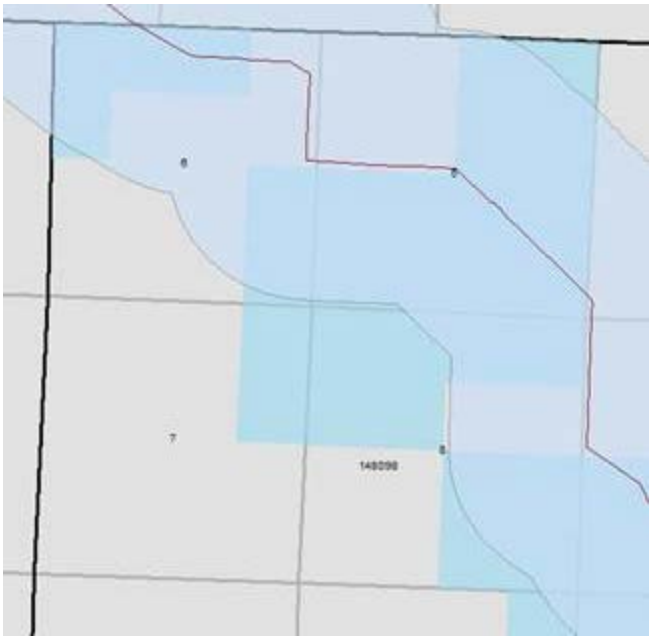
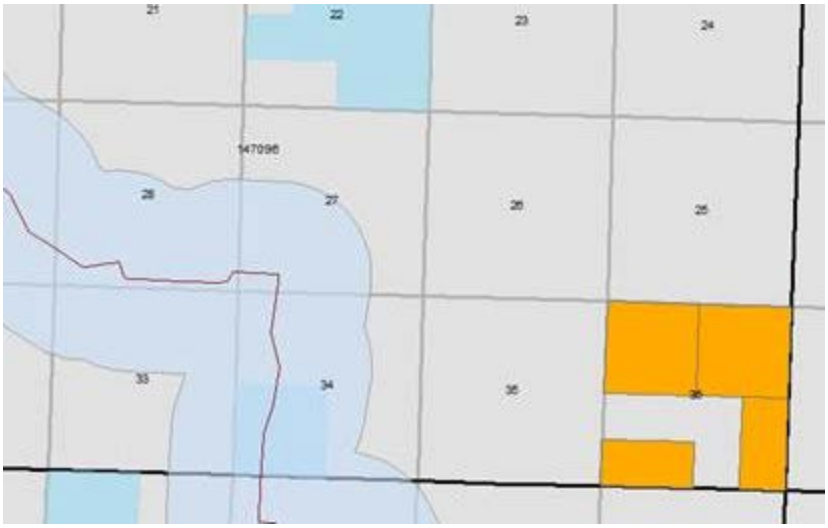
From: Bement, Allisen C.
To: Melissa Schmit
Cc: Kelvington, Todd E.
Subject: (External) RE: ONEOK Bear Creek NGL Project Notification
Date: Thursday, August 20, 2015 11:05:01 AM
Attachments: image001.png

Melissa,

We agree that the data provided fairly represents the approximate location of the Natural Gas Line as indicated by E3 Environmental and the proximity of mineral interests managed by this office, for use in a filing with the PSC in the state of North Dakota. As indicated in your letter, it appears the project corridor does not cover the mineral estates in T148N-R98W-7 or T147N-R96W-36 as shown below.





Thank you, please feel free to contact me if you have any questions.

Allisen Bement
Land Professional
ND Department of Trust Lands
701.328.1952
abement@nd.gov

From: Melissa Schmit [mailto:MSchmit@go2e3.com]
Sent: Wednesday, August 19, 2015 12:14 PM
To: Bement, Allisen C.
Cc: Bayley, Keith W.; Kelvington, Todd E.
Subject: ONEOK Bear Creek NGL Project Notification

Ms. Bement-

E3 Environmental, LLC (E3) has been retained by ONEOK Bakken Pipeline, L.L.C. (ONEOK) to provide environmental consulting support for the Bear Creek NGL Pipeline Project (see attached). For your convenience, E3 is submitting an electronic copy of the project notification letter, a map, and shapefiles to assist in your review of the Project. ONEOK will send concurrently with this mailing the original notification letter and project map via certified/return receipt mail.

Please let me know if I can be of further assistance, or if you have any questions or concerns regarding the attached files.

Thank you for your time and consideration.

Sincerely,

Melissa Schmit
Consultant
E3 Environmental, LLC
mschmit@go2e3.com
O: 651.282.0656
M: 651.263.7916
871 Jefferson Avenue
St. Paul, MN 55102
www.go2e3.com

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Dunn County Zoning
Sandy Rohde
Code Administrator
205 Owens Street
Manning, ND 58642
Phone: 701-573-4609 email: sandy.rohde@dunncountynd.org

November 18, 2015

Dear Joshua Emerson and ONEOK Bakken Pipeline

Please find enclosed the Application for the Conditional Use Permit for an 8" Steel Pipeline for the transportation of Natural Gas and Natural Gas Liquids. The pipeline is located along a 21 mile route in SE Dunn County to NW Dunn County that was approved by the County Commissioners on November 18th, 2015 with the following conditions:

- Follow all setbacks and all applicable regulations of Dunn Counties Land Development Code
- 100% of easements agreements signed prior to construction

It has been a real pleasure working with you and if I can assist you in any other way please let me know.

If you have further questions please contact Sandy Rohde at 701-573-4609 or sandy.rohde@dunncountynd.org.

Sincerely,

Sandy Rohde
Code Administration

APPLICATION FOR A CONDITIONAL USE PERMIT
DUNN COUNTY, NORTH DAKOTA

TO THE DUNN COUNTY PLANNING COMMISSION:

The undersigned owner or representative of the property herein described
Requests a Conditional Use Permit to construct operate or maintain the following:
8" Steel Pipeline for the transportation of Natural Gas and Natural Gas Liquids

The construction, operation or maintenance of the above will be located on the following described property: (MUST BE LEGAL DISCRIPTION) See Attached Route Map
21 mile pipeline located in SE Dunn County to NW Dunn County

The above described property is located in a Rural Preservation zoned district and is owned by Oneok Bakken Pipeline, LLC.

The undersigned respectfully submits this application for consideration and certifies that the owner of the property (if different from the applicant) has been notified of this request and is in agreement and that they (the applicant) will abide by all the rules, regulations and conditions attached to this permit, if any.

Joshua Emerson (1429 ~~South~~ Reno Dr. ~~Bismarck~~ ND 58504)

J. BRIAN BOULTER / ~~Kay Weazel~~
Print Name

J. Brian Boulter
Signature of Applicant

FEE: $250.00 Payable to Dunn County
205 Owens Street
Manning, ND 58642

ONEOK Bakken Pipeline
Company or Corporation

ONEOK LAND APPROVED

Joshua.Emerson@Oneok.com
100 West 5th Street, Tulsa, OK, 74103 - Send address
Physical Address & e-mail

918-588-7736
Telephone

Date of Zoning Hearing: Oct 20, 2015. Tabled Nov 8th 2015.

Recommendation to County Commission: X **Approve** ____ **Not Approve**

Conditions Attached to this Permit, if any:

See conditions of attached sheet.

Action by County Commission: X **Approve** ____ **Not Approve**

Sandy Nelson
Signature of Code Administrator

November 18th, 2015
Date

Date Received 9.15.15

Receipt Number 4474

APPLICATION FOR A

CONDITIONAL USE PERMIT (CUP)

McKenzie County, ND Building and Planning

Fee: $350.00

McKENZIE COUNTY

Building & Planning Department

Date: _____

Name of Applicant: ONEOK Bakken Pipeline LLC Phone: 918-588-7736

Local Agent: Kory Wenzel Phone: 701-226-4852

Address: 2700 Lincoln Ave SE, Sidney, MT, 59270

Engineer/Architect/Surveyor: Golden Field Services Phone: 406-433-4047

Address: 2745 West Holly Street, Suite C, Sidney, MT, 59270

Owner on Record: ONEOK Bakken Pipeline LLC Phone: 918-588-7736

Address: 100 West 5th Street, Tulsa, OK, 74103

Existing Zoning: Agriculture Proposed Zoning: Agriculture

Existing Use: Agriculture Proposed Conditional Use: Transmission Pipeline

Surrounding Land Use: Agriculture

Legal Description:

See Attached route

1. Please provide a one paragraph narrative description of the development project:

Example: "The project is to construct a housing development in a Residential zoning district. Proposed are X number of units on X number of lots. This application for a Conditional Use Permit is requested because the proposed use is conditionally permitted in the existing zoning district. Additional required applications are also requested and included in this development application package."

ONEOK Bakken Pipeline LLC (ONEOK) has proposed the construction of the Bear Creek Pipeline Project (Project). The proposed project is a 37.5 mile, 8" diameter, Natural Gas Liquids pipeline. The pipeline will originate at ONEOK's Bear Creek Gas Plant located in Dunn County and terminate at an interconnect with ONEOK's Targa 8" pipeline in McKenzie County. Pipeline construction activities would typically occupy a 100-foot right-of-way. Following construction, the pipeline would be operated within a 50-foot permanent easement.

2. Does this project require a Zone Change, Zone Variance, or an Amendment to the Zoning Ordinance or Comprehensive Plan?

Applicant	☐Yes	☒No	☐Not Applicable
Office Only	**☐Yes**	**☐No**	**☐Not Applicable**

Please list all other required applications and include them in this submission. If not required, explain how the project conforms to existing zoning:

3. Is a subdivision application required for the development project?

Applicant	☐Yes	☒No
Office Only	**☐Yes**	**☐No**

4. Are all other necessary development application included in a bound application package?

Applicant	☒Yes	☐No	☐Not Applicable
Office Only	**☐Yes**	**☐No**	**☐Not Applicable**

If not applicable please explain:

5. Are the following items attached to the application
   a. Sketch plan displaying lot and building configuration?
   b. Certified survey map or subdivision site plan (if applicable)?

Applicant	☒Yes	☐No	☐Not Applicable
Office Only	**☐Yes**	**☐No**	**☐Not Applicable**

If not applicable please explain:

6. List all contiguous land holdings in the same ownership:

7. No conditional use permit shall be granted by the County Commission unless the applicant shall have met all of the following criteria:

   a. The establishment, maintenance, or operation of the conditional use shall not be detrimental to or endanger the public health, safety, comfort or general welfare.
   b. The conditional use shall not substantially impair or diminish the value and enjoyment of other property in the area.
   c. The conditional use shall not impede the normal and orderly development of the surrounding property.

d. Adequate utilities, access roads, drainage or other necessary site improvements have been or are being provided.
e. Adequate measures will be taken to provide ingress and egress to the property without adverse effects on the adjoining properties and traffic congestion in the public street. The conditional use shall conform to all applicable regulations of the district within which it is located.
f. Owners of record of property surrounding the proposed conditional use will be notified by McKenzie County Building & Planning Office at the discretion of the Administrator based on the proposed conditional use.

IN THE EVENT OF CORPORATE OWNERSHIP: a list of all directors, officers, stockholders of each corporation owning more than five per cent (5%) of any class of stock must be attached.

Acknowledgement NONE

I hereby certify under penalty of perjury and the laws of the State of North Dakota that the information submitted herein, on all other forms, documents, plans or any other information submitted as part of this application to be true, complete, and accurate to the best of my knowledge. Should any information or representation submitted in connection with this application be incorrect or untrue, I understand and approval based thereon may be rescinded and other enforcement action taken. The signing of this application signifies approval for representatives of McKenzie County to be present on the property for routine monitoring and inspection during the approval and development process.

Signature of Applicant: _____ Date: 8/31/15

Please submit all documents back to the McKenzie County Building & Planning Department

ONEOK LAND APPROVED

0102-15-CUP

October 20, 2015

ONEOK Bakken Pipeline LLC
ATTN: Kory Wenzel
2700 Lincoln Ave. SE
Sidney, MT 59270

This is to inform you that at the October 12, 2015 Planning and Zoning Commission Meeting your Conditional Use Permit request for a 37.5 mile natural gas pipeline, known as Bear Creek Pipeline was recommended for approval and this recommendation for approval was confirmed by the Board of County Commissioners at their meeting on October 20, 2015.

Keep in mind that the following conditions were placed on the project:

1. The applicant shall obtain a building permit for any proposed structures within the proposed development.
2. The applicant shall not deposit any snow or water onto neighboring properties and dispose of storm water onsite through an approved engineering method. Additionally, the applicant shall design the storm water and culvert system to convey a 25 year event.
3. The applicant shall maintain adequate weed control.
4. The applicant shall maintain adequate garbage control during construction.
5. The applicant shall share all final approvals and continuing approvals/reviews with all County/State/Federal agencies as they are obtained or altered, along with any violations and as it relates to this conditional use approval for the County permit file.
6. The applicant shall continually control dust and tracking during construction and operation on site to not track or create a nuisance to the neighboring property owners and the traveling public.
7. All lighting on site during construction shall be downward facing and shall not glare on adjacent property owners or the public travel ways.
8. The applicant shall reseed the corridor with appropriate grass mixture to minimize erosion and level the pipeline easement area after installation of pipeline.
9. An approved emergency plan should be submitted and updated with the county Emergency Manager and Zoning Enforcement Officer (annually) for this pipeline so that emergency responders understand what is present onsite and the risks that they would face during response to an incident.
10. All above-ground facilities, such as pipe valve stations or electrical and communication buildings shall be painted earth tone colors to better blend in with the surroundings.

11. The applicant shall coordinate with the Emergency Manager's office on an annual basis to run an Emergency exercise.

12. The conditional use permit will be reviewed annually to ensure compliance with the listed conditions.

If you have any questions, please feel free to contact me at 701-444-6494.

Sincerely,

Jim Talbert
Planning Director
McKenzie County

ONEOK

CERTIFIED MAIL 7014 1200 0000 2237 3769
RETURN RECEIPT REQUESTED

December 10, 2015

Ms. Susan Quinnell
Review and Compliance Coordinator
State Historical Society of North Dakota
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 58505-0830

ONEOK Bakken NGL, L.L.C. – Bear Creek Natural Gas Liquids Pipeline Project
Clarification of October 28, 2015 Correspondence and Request for Review

Dear Ms. Quinnell,

ONEOK Bakken Pipeline, L.L.C. (ONEOK) is proposing to construct the Bear Creek Natural Gas Liquids Pipeline Project (Project) in response to growing demand for gas processing capacity of natural gas and natural gas liquids (NGL) produced in North Dakota. The proposed project is a new, 8-inch diameter NGL pipeline that will originate at the Bear Creek Gas Plant in Dunn County, North Dakota and will terminate at the existing Targa Gas Processing Plant in McKenzie County, North Dakota. Final routing to tie into the Targa Gas Processing Plant is pending and two options are being considered (Option A and Option B are outlined on the attached maps). A tie-in route will be determined prior to the commencement of construction and as such, ONEOK requests a review of both options.

Pipeline construction activities would typically occupy a 100-foot right-of-way. Following construction, the pipeline would be operated within a 50-foot permanent easement. Pipeline construction involves temporary impacts, with post-construction restoration standard of restoring disturbed areas to their original pre-construction condition. Preparation and associated construction activities for the Project under consideration would be initiated during the second quarter of 2016, requiring approximately six months to place into service. Initial restoration activities would commence upon completion of construction activities to the extent conditions allow and would continue as weather conditions permit.

The purpose of this request is to provide the North Dakota State Historic Preservation Office (SHPO) with notification of the proposed Project, seek a review of a cultural resources report provided on October 28, 2015 (from Garrett Knudsen of E3 Environmental, LLC), and to solicit comments from SHPO on the effects to sites listed on or eligible for listing on the National Register of Historic Places (NRHP). This request is made to address the North Dakota Public Service Commission's siting requirements for Energy Conversion Facilities. ONEOK has yet to submit a Corridor Certification and Route Permit application to be filed with the NDPSC but expects to do so yet in 2015.

ONEOK, Inc.
100 West Fifth Street
Tulsa, OK 74103
www.oneok.com

The proposed Project corridor is described below and depicted on the attached map and aerial photograph.

In Dunn and McKenzie County, North Dakota the proposed pipeline crosses the following legal locations:

Township	Range	Sections
146 North	95 West	18, 19, 20, 28, 29
146 North	96 West	2, 3, 11, 13, 14, 23, 24
147 North	96 West	7, 18, 19, 20, 27, 28, 29, 34
147 North	97 West	2, 11, 12
148 North	97 West	17, 18, 20, 21, 22, 23, 26, 35
148 North	98 West	4, 5, 6, 9, 13, 14, 15, 16, 22, 23
149 North	98 West	29, 30, 31, 32, 33
149 North	99 West	25, 36

A detailed routing analysis was performed on this Project taking into consideration a significant amount of information to avoid and minimize impacts of known and suspected resources, including archaeological and historic resources. As demonstrated in the October, 2015 technical report (Woodward et al. 2015), ONEOK conducted Class III archaeological and historic resources field surveys of the route in 2015. The majority of the route (approximately 60%) will be co-located with existing linear utilities.

Woodward et al. (2015) surveyed a corridor 37 miles long that encompassed 1,613 acres. The archaeologists visited 16 previously-recorded sites, recorded 17 new sites, and documented 21 new isolated finds. Table 1 may be useful to inform your review of this information.

As of this writing with the exception of one archaeological site (32DU2216), ONEOK is committed to avoid all Eligible, Potentially Eligible, or Not Evaluated cultural resources identified within the survey corridor. In the cases of sites 32MZ487 and 32DU99 which are eligible for the NRHP, ONEOK is committed to construct the NGL in areas that do not contribute to the eligibility of these sites. With the exception of site 32DU2216, we request that the SHPO comment in writing on the adequacy of the field review and the recommendations of significance provided in the report so that we may provide your comments to the North Dakota Public Service Commission.

After the submission of Woodward et al. (2015), a third party identified additional cultural resources associated with site 32DU2216 at the eastern terminus of the Project corridor. As you know, ONEOK met with SHPO representatives on November 10 (in person) and 23 (via phone) to discuss this additional data and is currently developing formal correspondence and plans to address the recent cultural discoveries once the data is made available from the third party. We expect that the third party data will recommend that site 22DU2216 is eligible for listing on the NRHP.

December 10, 2015
Ms. Susan Quinnell

We appreciate your assistance with this request and look forward to additional coordination with your office regarding site 32DU2216. ONEOK has retained Merjent, Inc. (Merjent) as its environmental consultant for this project. Should you have any questions or require additional information, please contact Maddy Steffenson of Merjent at 612-924-3973 or msteffenson@merjent.com or me at 918-732-1472 or todd.kelvington@oneok.com.

Sincerely,

Todd Kelvington
Environmental Project Manager
ONEOK, Inc.

Enclosures: Project overview maps
October 28, 2015 Correspondence from E3 Environmental

xc: Maddy Steffenson/Mike Madson, Merjent (pdf)
Tulsa Environment – Large Construction – Bear Creek NGL

Table 1. Archaeological sites and isolated finds discussed in Woodward et al. 2015

Site Number	Site Type	Report Page Reference (Woodward et al. 2015)	Previous (identified during 2015 survey)/New	NRHP Recommendation
32MZ1560	Historic roadway	38	Previous (identified)	Eligible
32MZ1561	Electrical transmission line	38	Previous (identified)	Not Eligible
32MZX61	Isolated precontact lithic scatter	38	Previous (not identified)	Not Eligible
32MZX1283	Isolated historic artifact scatter	38-39	Previous (not identified)	Not Eligible
32MZX1285	Isolated historic artifact	39	Previous (not identified)	Not Eligible
32MZ479	Isolated precontact lithic scatter	39	Previous (not identified)	Not Eligible
32MZ2604	Precontact cairn	39	Previous (identified)	Eligible
32MZX1282	Isolated cairn	39	Previous (identified)	Not Eligible but avoidance recommended
32MZ477	Precontact lithic scatter	39	Previous (identified)	Not Eligible
32MZ482	Precontact lithic scatter	39-40	Previous (not identified)	Not Eligible
32MZ487	Precontact artifact scatter	40-42	Previous (identified)	Eligible, although portion within the survey corridor is non-contributing; monitoring recommended during construction
32DUX69	Historic post office location	42	Previous (not identified)	Not evaluated
32DUX65	Historic post office location	42	Previous (not identified)	Not evaluated
32DUX93	Isolated precontact lithic artifact	42	Previous (not identified)	Not Eligible
32DU99	Precontact artifact scatter	43-44	Previous (identified)	Eligible, although portion within the survey corridor is non-contributing; monitoring recommended during construction

Table 1. Archaeological sites and isolated finds discussed in Woodward et al. 2015

Site Number	Site Type	Report Page Reference (Woodward et al. 2015)	Previous (identified during 2015 survey)/New	NRHP Recommendation
32DU2216	Precontact lithic scatter	44	Previous (not identified)	Not evaluated
32MZ2950	Precontact stone features and single lithic artifact	48-54	New	Potentially Eligible
32MZ2951	Historic field wall	55-58	New	Not Eligible
32MZ2952	Historic earthen berm	59-61	New	Not Eligible
32DU2287	Historic farmstead	62-68	New	Not Eligible
32DU2288	Historic artifact scatter	69-72	New	Not Eligible
32DU2289	Precontact lithic scatter	73-77	New	Not Eligible
32DU2290	Precontact lithic scatter	78-80	New	Not Eligible
32DU2291	Historic artifact scatter	81-85	New	Not Eligible
32SU2292	Precontact stone features	86-91	New	Potentially Eligible
32DU2293	Precontact stone feature	92-94	New	Potentially Eligible
32DU2294	Precontact lithic scatter	95-98	New	Not Eligible
32DU2295	Precontact lithic scatter	99-109	New	Not evaluated
32DU2296	Historic depression and artifact scatter	110-113	New	Not Eligible
32DU2297	Precontact lithic scatter	114-120	New	Not evaluated
32DU2298	Precontact lithic scatter	121-124	New	Potentially eligible
32DU2299	Precontact lithic scatter	125-127	New	Not Eligible
32DU2300	Depression (cultural affiliation unknown)	128-130	New	Not Eligible
32MZX1525	Prehistoric isolate	131	New	Not Eligible
32MZX1526	Prehistoric isolate	131	New	Not Eligible

Table 1. Archaeological sites and isolated finds discussed in Woodward et al. 2015

Site Number	Site Type	Report Page Reference (Woodward et al. 2015)	Previous (identified during 2015 survey)/New	NRHP Recommendation
32MZX1527	Prehistoric isolate	131	New	Not Eligible
32MZX1528	Prehistoric isolate	131	New	Not Eligible
32MZX1529	Prehistoric isolate	131	New	Not Eligible
32DUX1414	Prehistoric isolate	131	New	Not Eligible
32DUX1415	Prehistoric isolate	131	New	Not Eligible
32DUX1416	Prehistoric isolate	131	New	Not Eligible
32DUX1417	Prehistoric isolate	131	New	Not Eligible
32DUX1418	Prehistoric isolate	131	New	Not Eligible
32DUX1419	Prehistoric isolate	131	New	Not Eligible
32DUX1420	Prehistoric isolate	131	New	Not Eligible
32DUX1421	Prehistoric isolate	131	New	Not Eligible
32DUX1422	Prehistoric isolate	131	New	Not Eligible
32DUX1423	Prehistoric isolate	131	New	Not Eligible
32DUX1424	Prehistoric isolate	131	New	Not Eligible
32DUX1425	Prehistoric isolate	131	New	Not Eligible
32DUX1426	Prehistoric isolate	131	New	Not Eligible
32DUX1427	Prehistoric isolate	131	New	Not Eligible
32DUX1428	Prehistoric isolate	131	New	Not Eligible
32DUX1530	Historic isolate	131	New	Not Eligible

October 28, 2015

Susan Quinnell
Review and Compliance Coordinator
State Historic Society of North Dakota
North Dakota Heritage Center
612 East Boulevard Avenue
Bismarck, ND 58505-0830
Phone: (701) 328-3576
Email: squinnell@nd.gov

ONEOK Bakken Pipeline L.L.C. -- Bear Creek NGL Pipeline Class I and Class III Cultural Resource Inventory, Dunn and McKenzie Counties, North Dakota

Dear Ms. Quinnell,

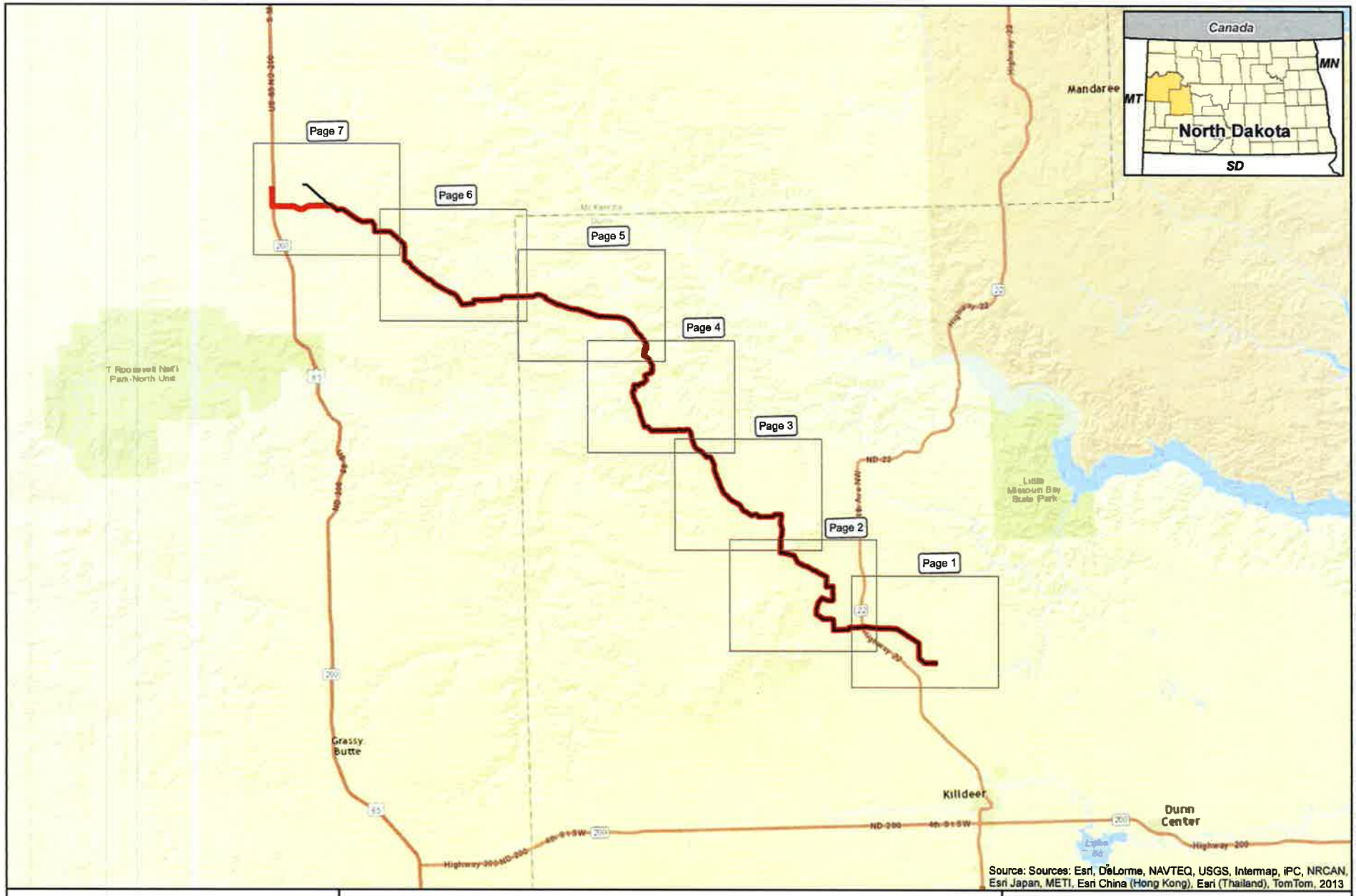
August through October, 2015, E3 Environmental, LLC conducted a Class I and a Class III cultural resources inventory for the proposed ONEOK Bakken Pipeline, L.L.C Bear Creek NGL Pipeline Project in Dunn and McKenzie Counties, North Dakota. The Survey Corridor consisted of approximately 37-miles of proposed NGL pipeline, encapsulating 1,613 acres. A total of 15 previously-recorded sites, 17 unrecorded sites, and 21 previously-unrecorded isolated finds were documented during field survey. Of the 17 newly-recorded sites, four (32MZ2950, 32DU2292, 32DU2293, and 32DU2298) are recommended ***potentially eligible*** for inclusion to the NRHP and two (32DU2295 and 32DU2297) are left ***unevaluated***. Please find enclosed a Class I and Class III cultural resource inventory detailing survey and study findings.

Please contact me with any questions or comments, as needed.

Sincerely,

Garrett Knudsen
Senior Archaeologist
E3 Environmental, LLC
871 W Jefferson Ave
St Paul, MN 55102
Direct: (651) 900-0501
gknudsen@go2e3.com

Enclosures: Hard copy of Class I and Class III Cultural Resource Inventory, Dunn and McKenzie County, North Dakota.



0 2.3 4.6 Miles

1 inch = 4.6 miles

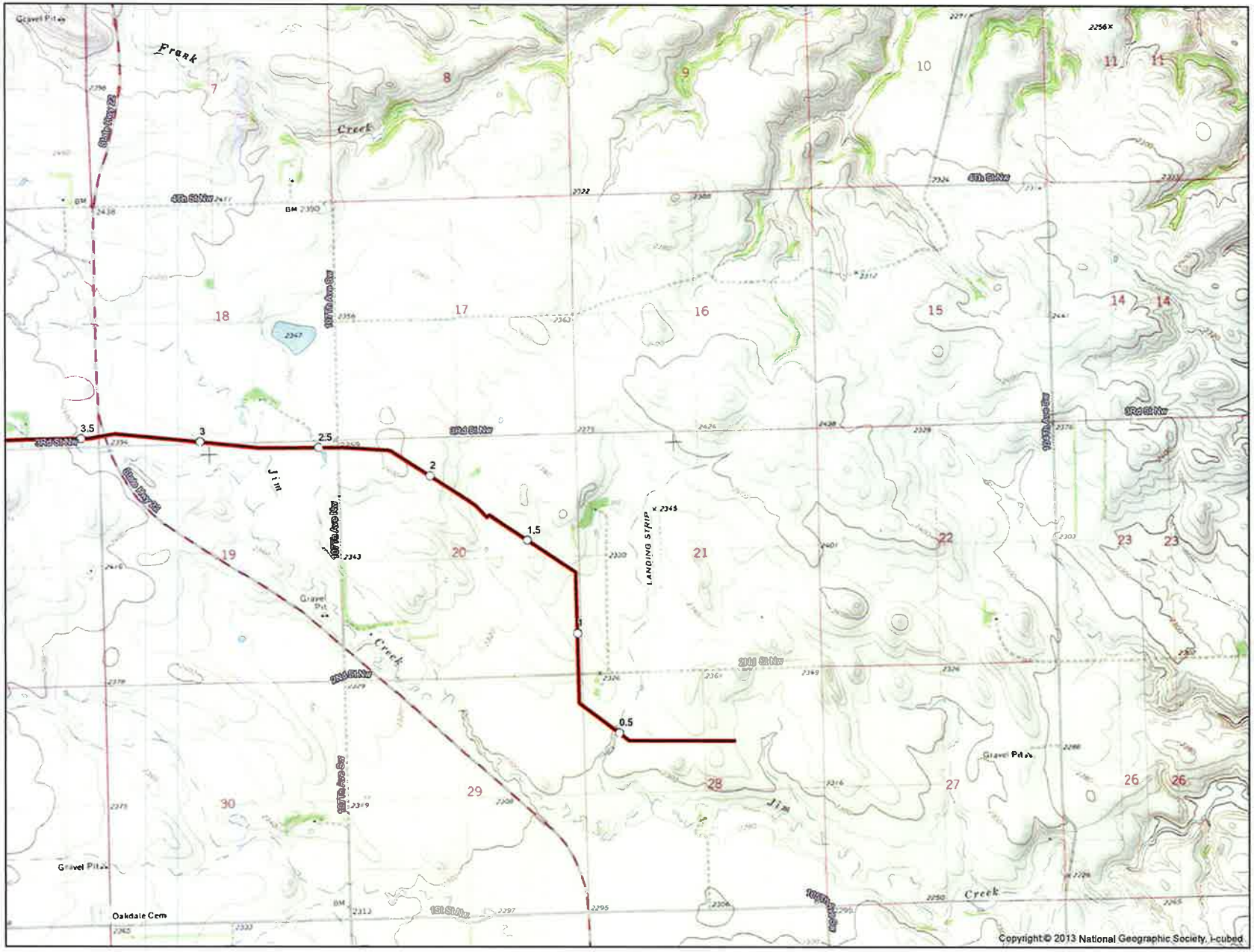
N W E S

Emerjent
For Environmental Review Purposes Only

Figure 1
ONEOK Bakken Pipeline
8-inch Bear Creek NGL Pipeline Project
Project Location Map

Preferred Route

Alternative Route



0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

- Milepost
- Preferred Route
- Alternative Route

Figure 2
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Page 1 of 7
Dunn County

Merjent

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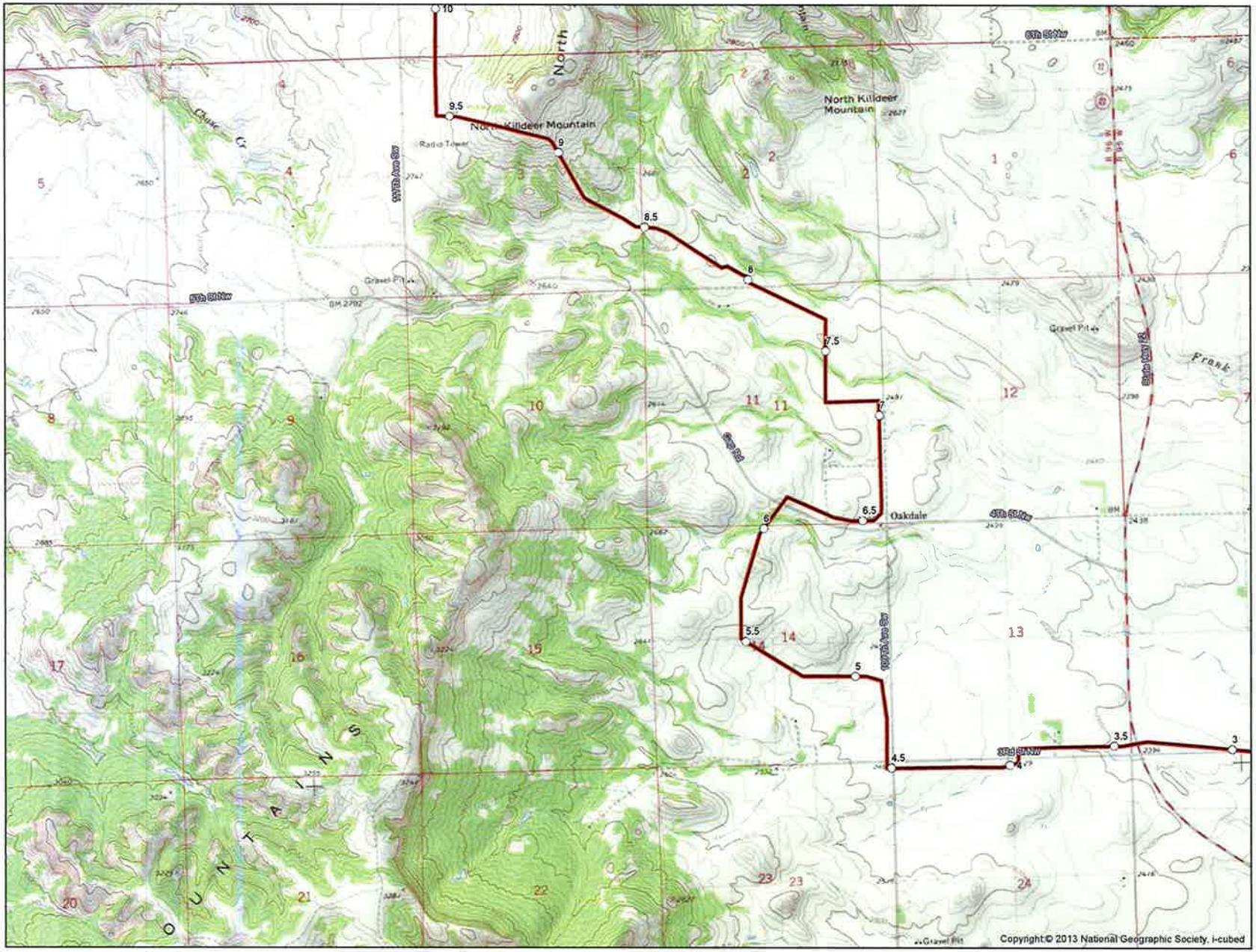
12/7/2015



0 1,000 2,000 Feet

1 Inch = 2,000 feet

N W E S

○ Milepost

Preferred Route

Alternative Route

Figure 3
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Page 2 of 7
Dunn County

Merjent

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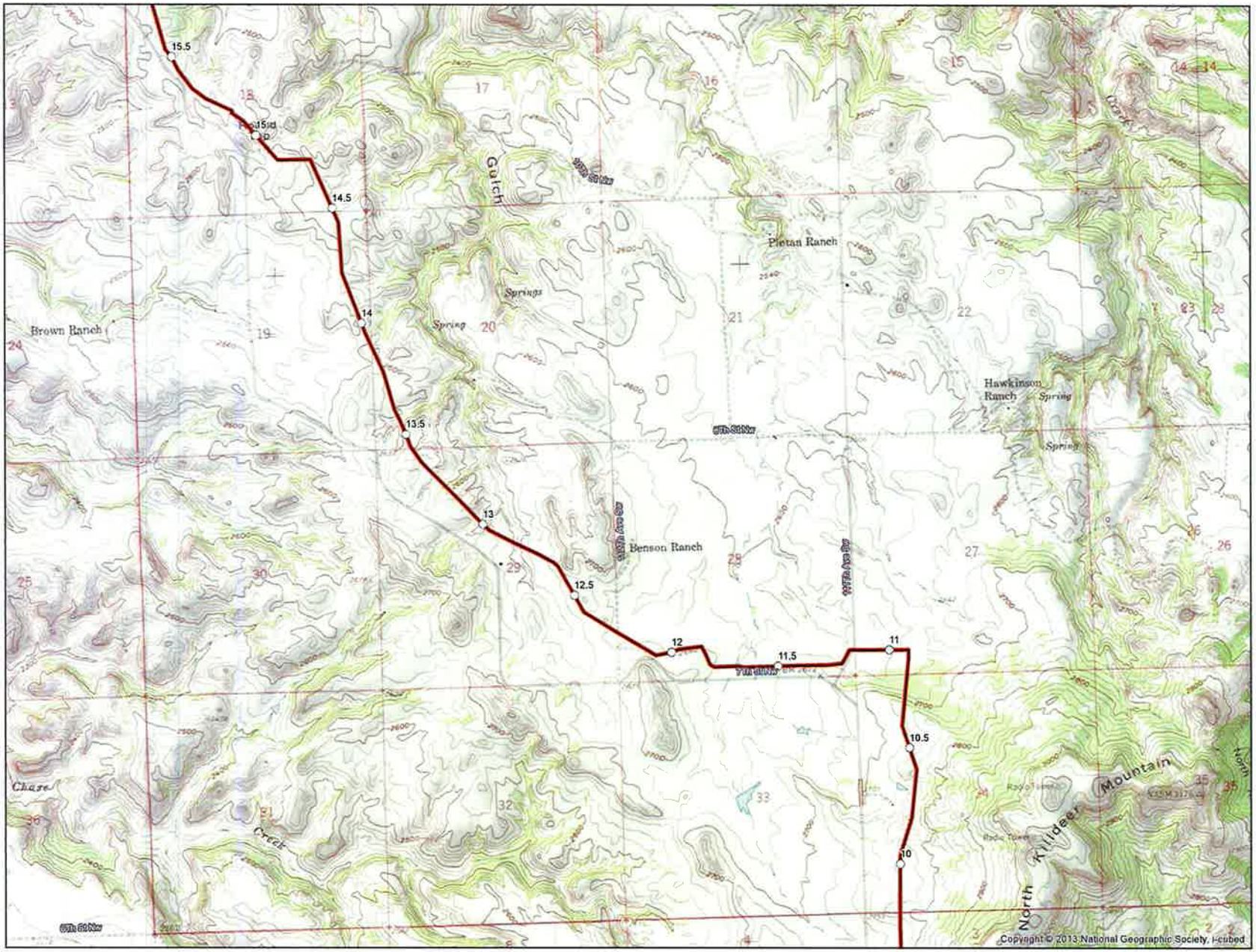
12/7/2015



0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

○ Milepost

Preferred Route

Alternative Route

Figure 4
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Merjent

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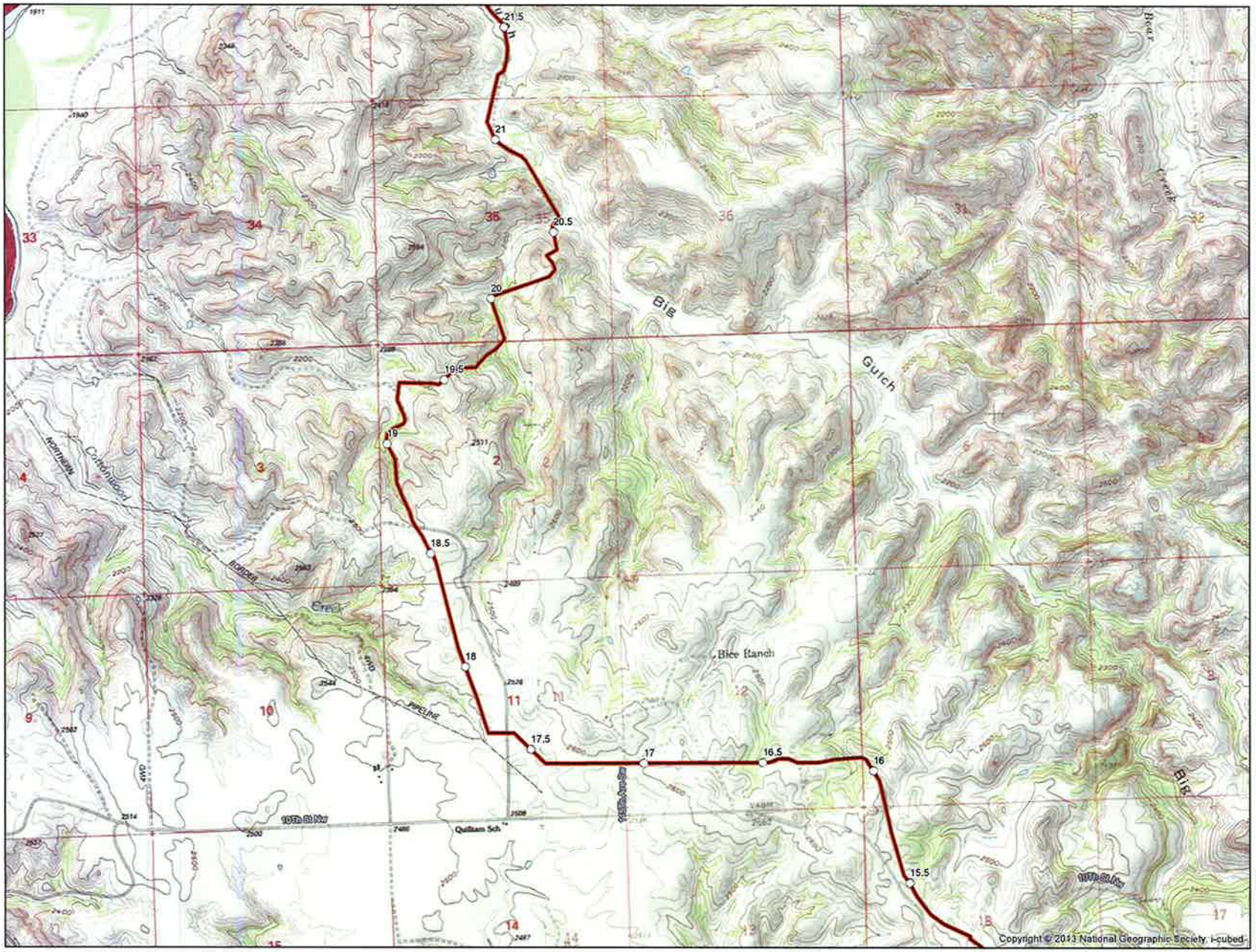

0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

○ Milepost

Preferred Route

Alternative Route

Figure 5
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Page 4 of 7
Dunn County

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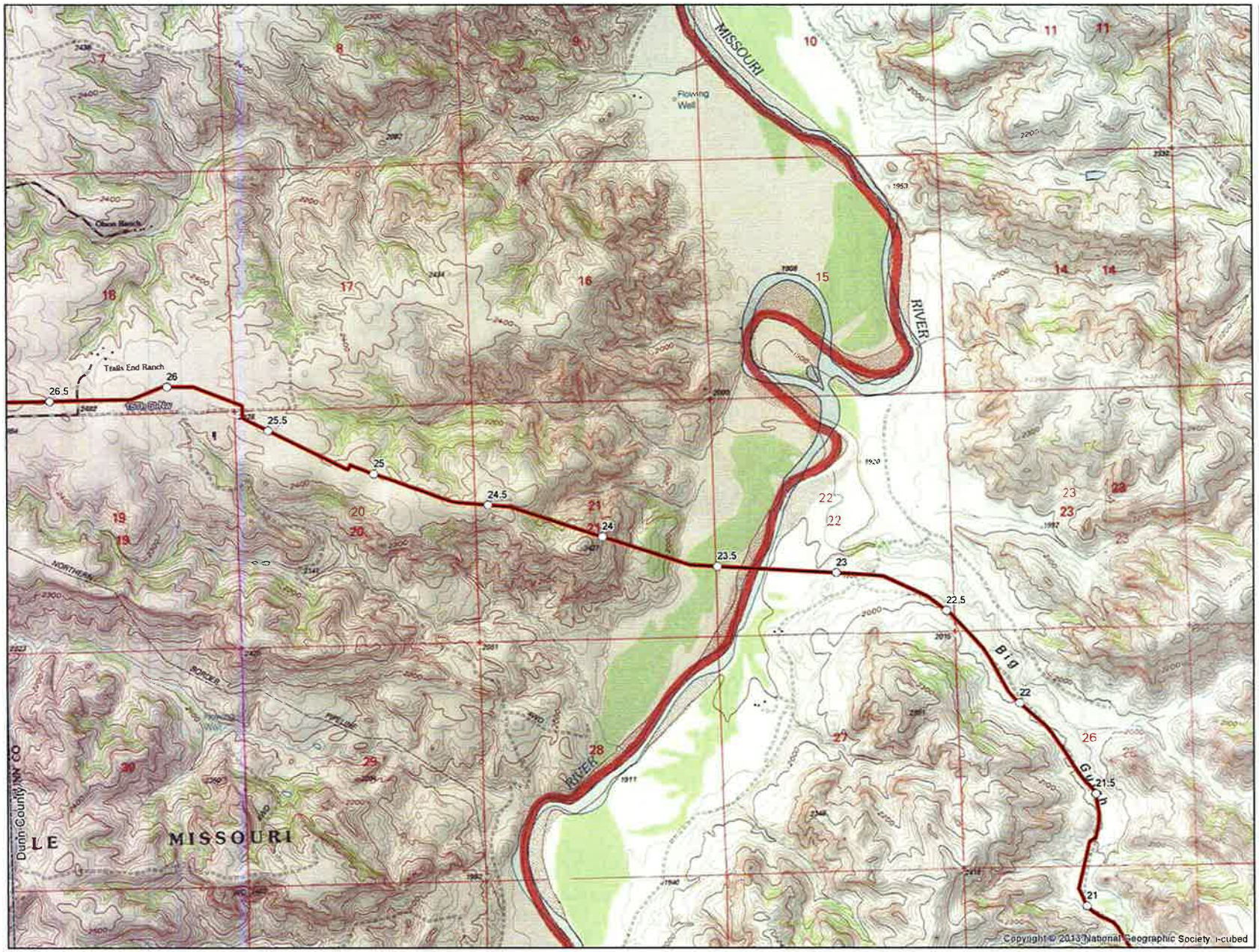

- Milepost
- Preferred Route
- Alternative Route

Figure 6
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

Merjent

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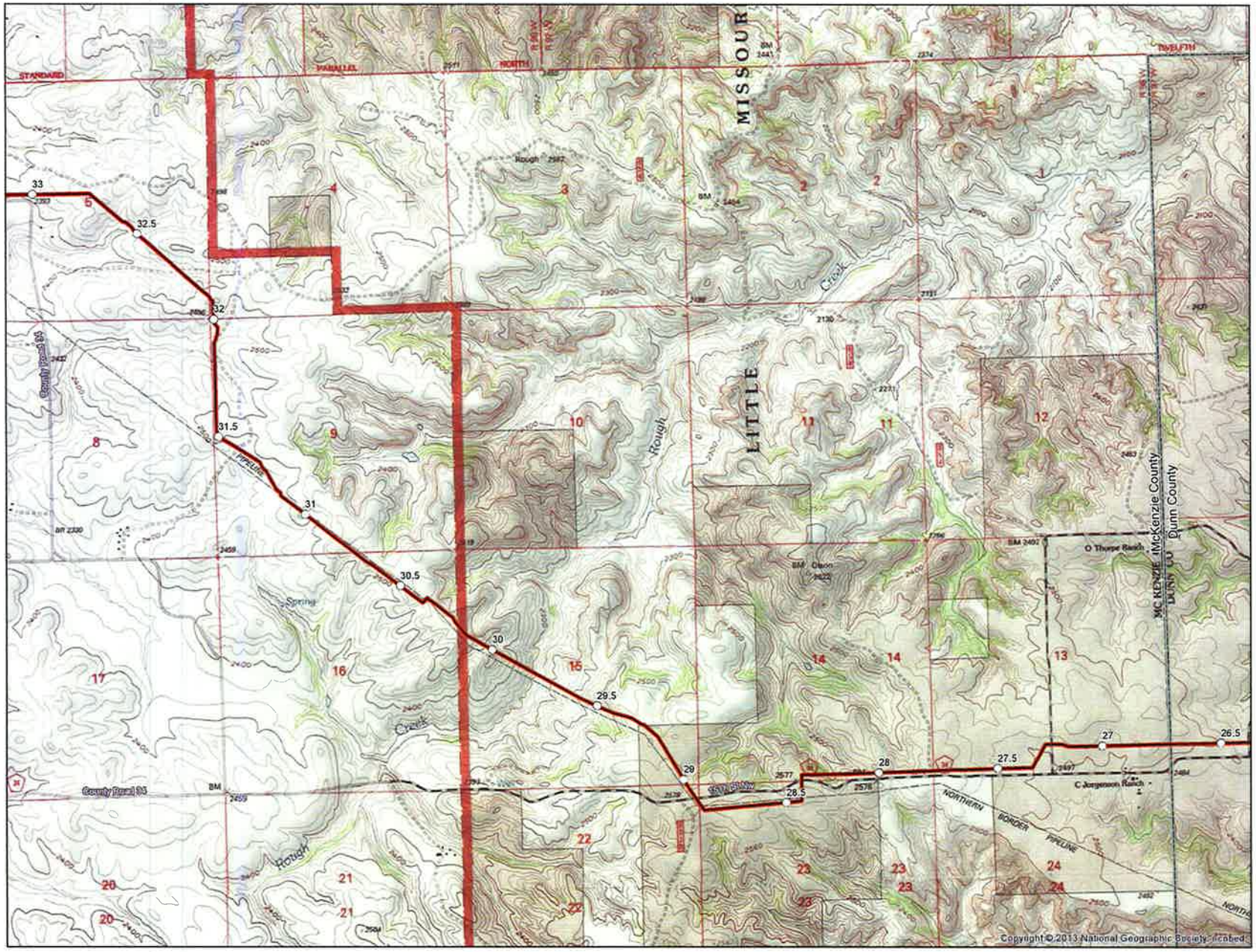

0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

○ Milepost

Preferred Route

Alternative Route

Figure 7
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

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12/7/2015

0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

○ Milepost

Preferred Route

Alternative Route

Figure 8
ONEOK Bakken Pipeline
Bear Creek NGL Pipeline

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12/7/2015

STATE HISTORICAL SOCIETY OF NORTH DAKOTA

Jack Dalrymple
Governor of North Dakota

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Jamestown

Sara Otte Coleman
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Tourism Division

Kelly Schmidt
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Alvin A. Jaeger
Secretary of State

Mark Zimmerman
Director
Parks and Recreation Department

Grant Levi
Director
Department of Transportation

Claudia J. Berg
Director
Accredited by the American Alliance of Museums since 1986

December 17, 2015

Mr. Todd Kelvington
Environmental Project Manager
ONEOK, Inc.
100 West Fifth Street
Tulsa, OK 74103

ND SHPO Ref: 16-0421a PSC ONEOK Bakken Pipeline LLC, Bear Creek NGL Class I and Class III Cultural Resource Inventory Report, Dunn and McKenzie Counties, ND

Dear Mr. Kelvington:

We have received your December 10, 2015 ONEOK letter correspondence with respect to the previously received and reviewed submitted document: "ONEOK Bakken Pipeline Bear Creek NGL Pipeline Project Class I and Class III Cultural Resource Inventory" by Daniel J. Woodward, Joseph K. Pnewski, and Garrett L. Knudsen (E3 Environmental, October 2015) and wish to inform you that on December 5, 2015, we provided written comments and letter correspondence to E3 Environmental on it.

In sum, we requested a revised report submitted to this office that addresses the aforementioned comments was necessary prior to concurrence on determinations of site significance and eligibility and on findings of project effect. Clarifications are sought: (a) concerning sites that may be impacted by the project (n= 3) and, (b) those sites that warrant additional investigations (n = 4) to establish significance are identified as well as site 32DU2216 that you referenced. Both matters are to be addressed in the revised report.

Thank you for the opportunity to review the current project, and we look forward to further consultation on the project. Please include the ND SHPO reference number listed above in any further correspondence for this specific project. If you have any questions, please contact either Paul Picha at (701) 328-3574 or ppicha@nd.gov or Susan Quinnell at (701) 328-3576 or squinnell@nd.gov.

Sincerely,

for Claudia J. Berg
State Historic Preservation Officer (North Dakota)
and
Director, State Historical Society of North Dakota
c: Maddy Steffenson, and Michael Madson Merjent, Inc. (email only)

EXHIBIT E

ONEOK

October 26, 2015

RE: ONEOK Bakken NGL, L.L.C. – Bear Creek NGL
Project Notification and Request for Review

Dear Thomas Murphy and Amy Murphy,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Bear Creek NGL Pipeline application that ONEOK Bakken NGL, L.L.C. (ONEOK) intends to file the North Dakota Public Service Commission. The Project involves the construction of approximately 34.2 miles of 8-inch-diameter steel pipeline in Dunn County and McKenzie County, North Dakota.

The attached site map indicates that the Project will be located within 500 feet of your residence or business. By signing below you are confirming that you have no objection to the Project, or the future operation and maintenance of the pipeline. Your cordial cooperation in this manner is greatly appreciated.

Respectfully

Skip Evanson
Right-of-Way Agent
ONEOK Bakken NGL, L.L.C

Thomas John Murphy
Date: Nov 4 2015

Amy Murphy
Date: 10/4/15

ONEOK, Inc.
100 West Fifth Street
Tulsa, OK 74103
www.oneok.com

ONEOK

October 26, 2015

RE: ONEOK Bakken NGL, L.L.C. – Bear Creek NGL
Project Notification and Request for Review

Dear Arnold Skachenko, General Partner of Skachenko, L.L.L.P.

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Bear Creek NGL Pipeline application that ONEOK Bakken NGL, L.L.C. (ONEOK) intends to file the North Dakota Public Service Commission. The Project involves the construction of approximately 34.2 miles of 8-inch-diameter steel pipeline in Dunn County and McKenzie County, North Dakota.

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Respectfully

Skip Evanson
Right-of-Way Agent
ONEOK Bakken NGL, L.L.C

Arnold Skachenko
Arnold Skachenko
General Partner of Skachenko, L.L.L.P.

Date: 11-12-15

ONEOK, Inc.
100 West Fifth Street
Tulsa, OK 74103
www.oneok.com

ONEOK

October 26, 2015

RE: ONEOK Bakken NGL, L.L.C. – Bear Creek NGL
Project Notification and Request for Review

Dear Rodney Rychner,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Bear Creek NGL Pipeline application that ONEOK Bakken NGL, L.L.C. (ONEOK) intends to file the North Dakota Public Service Commission. The Project involves the construction of approximately 34.2 miles of 8-inch-diameter steel pipeline in Dunn County and McKenzie County, North Dakota.

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Respectfully

Skip Evanson
Right-of-Way Agent
ONEOK Bakken NGL, L.L.C

Rodney Rychner

Rodney Rychner

Date: 3 Nov 15

ONEOK, Inc.
100 West Fifth Street
Tulsa, OK 74103
www.oneok.com

ONEOK

October 26, 2015

RE: ONEOK Bakken NGL, L.L.C. – Bear Creek NGL
Project Notification and Request for Review

Dear Timothy and Sally Dvirnak,

Please review the attached site map noting the proposed location of an underground pipeline and associated facilities that are included in the Bear Creek NGL Pipeline application that ONEOK Bakken NGL, L.L.C. (ONEOK) intends to file the North Dakota Public Service Commission. The Project involves the construction of approximately 34.2 miles of 8-inch-diameter steel pipeline in Dunn County and McKenzie County, North Dakota.

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Respectfully

Skip Evanson
Right-of-Way Agent
ONEOK Bakken NGL, L.L.C

Timothy Dvirnak

Date: 11-3-2015

Sally Dvirnak

Date: 12-9-2015

ONEOK, Inc.
100 West Fifth Street
Tulsa, OK 74103
www.oneok.com