SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

EXPLANATION		TAB
Supporting Information to Aid the Application Filing		**A**
Consolidated Application Checklist		
Definitions		
Acronyms		
Application Summary and Waiver Request		**B**
Application for Certificate of Corridor Compatibility		**C**
Application for a Route Permit		**D**
Exhibits to Application for Certificate of Corridor Compatibility and Route Permit for a Crude Oil Pipeline		**E**
Exhibit A	**Overview Maps**	
Exhibit A.1	Enbridge Pipelines (North Dakota) LLC System Map	
Exhibit A.2	Sandpiper Pipeline Project Overview Map	
Exhibit B	**ROW Construction Details**	
Exhibit C	**Station Maps**	
Exhibit C.1	Beaver Lodge Station Aerial, Topographic and Plot Plans	
Exhibit C.2	Stanley Station Aerial, Topographic and Plot Plans	
Exhibit C.3	Berthold Station Aerial, Topographic and Plot Plans	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

EXPLANATION		TAB
Exhibits to Application for Certificate of Corridor Compatibility and Route Permit for a Crude Oil Pipeline		**E**
Exhibit C.4	Lakota Station Aerial, Topographic and Plot Plan	
Exhibit D	**Route Maps**	
Exhibit E	**Cultural Resource Investigations**	
Exhibit E.1	Cultural Resources Abstract	
Exhibit E.2	State Historical Society of North Dakota Consultation	
Exhibit F	**Wetland and Waterbody Assessments**	
Exhibit F.1	Wetland Delineation Survey Report	
Exhibit F.2	Stream and Waterbody Crossings Table	
Exhibit G	**Habitat Assessments**	
Exhibit G.1	Piping Plover Habitat Assessment Report	
Exhibit G.2	Grassland Habitat Assessment Report	
Exhibit H	**Agency Consultations**	
Exhibit H.1	U.S. Department of Agriculture, Natural Resource Conservation Service Correspondence	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

EXPLANATION		TAB
Exhibits to Application for Certificate of Corridor Compatibility and Route Permit for a Crude Oil Pipeline		**E**
Exhibit H.2	North Dakota Game and Fish Department Correspondence	
Exhibit H.3	U.S. Department of Interior, Fish and Wildlife Service Correspondence	
Exhibit H.4	North Dakota Parks and Recreation Correspondence	
Exhibit H.5	North Dakota Department of Agriculture Correspondence	
Exhibit H.6	North Dakota Department of Health Correspondence	
Exhibit H.7	North Dakota Department of Trust Lands Correspondence	
Exhibit H.8	North Dakota State Water Commission Correspondence	
Exhibit H.9	U.S. Department of Agriculture, North Dakota Farm Service Agency Correspondence	
Exhibit H.10	U.S. Department of Interior, Bureau of Land Management Correspondence	
Exhibit H.11	U.S. Department of Interior, Bureau of Reclamation Correspondence	
Exhibit H.12	North Dakota County Water Resource Boards Correspondence	
Exhibit H.13	North Dakota County Weed Boards Correspondence	
Exhibit H.14	U.S. National Park Service Correspondence	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

EXPLANATION		TAB
Exhibits to Application for Certificate of Corridor Compatibility and Route Permit for a Crude Oil Pipeline		**E**
Exhibit H.15	U.S. Department of Defense, U.S. Air Force Cable Affairs	
Exhibit I	**Routing Selection Criteria Maps**	
Exhibit I.1	Exclusion Areas	
Exhibit I.2	Avoidance Areas	
Exhibit I.3	Other Criteria Considered	
Exhibit J	**Environmental Protection Plan**	
Exhibit K	**Unanticipated Discoveries Plan**	
Exhibit L	**Waivers for Inhabited Businesses, Schools, Residences within 500 feet of the Centerline**	
Exhibit M	**Contaminated Sites Management Plan**	
Exhibit N	**Enbridge Pipelines (North Dakota) LLC 10-Year Plan**	
Exhibit O	**Public Official and Landowner Correspondence**	

CONSOLIDATED APPLICATION CHECKLIST

AUTHORITY	DESCRIPTION		SECTION
	CENTURY CODE – Title 49		
Chapter 49-22	***ENERGY CONVERSION AND TRANSMISSION FACILITY***		
49-22-08	Application for a Certificate for a Corridor		
1.a	Description of size and type of facility	CC	Section A
1.b	Summary of any studies of environmental impacts	CC	Section B
1.c	Need for the facility	CC	Section C
1.d	Site for energy conversion facility		NA
1.e	Preferred transmission (pipeline) corridor	CC	Section D
1.f	Analysis of merits and detriments of facility location	CC RP	Section C &D Section B
1.g	Mitigating measures	RP	Section B.6
1.h	Corridor evaluation pursuant to 49-22-09 and 49-22-05.1	RP	Section B.2, B.4.a, B.4.b
1.i	Other relevant information	RP	B.9
49-22-08.1	Application for Route Permit		
1.a	Description of size and type of facility	CC	Section A.2, A.3
1.b	Description of the location	CC	Section A.3.b. (7)
1.c	Route evaluation relative to 49-22-09 and 49-22-05.1	RP	Section B.2, B.4.a, B.4.b
1.d	Mitigating measures	RP	Section B.6
1.e	Describe right-or-way preparation, construction, and reclamation	RP	B.9.b
1.f	Statement identifying how: 1. Landowners informed of right-of-way acquisition 2. How landowners will be compensated	RP	B.9.c.(1)
1.g	Other relevant information	RP	B.9
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	RP	B.2.a
2.	Effects of transmission technology and design to minimize adverse effects	RP	B.2.b
3.	Potential beneficial uses of waste energy from energy conversion facility	RP	B.2.c
4.	Unavoidable adverse direct and indirect environmental effects	RP	B.2.d
5.	Corridor or route alternatives developed during the hearing which minimize adverse effects	RP	B.2.e
6.	Irreversible and irretrievable commitments of natural resources if designated	RP	B.2.f

CONSOLIDATED APPLICATION CHECKLIST

AUTHORITY	DESCRIPTION		SECTION
7.	Direct and indirect economic impacts of the facility	RP	B.2.g
8.	Existing plans for other developments at or in the vicinity	RP	B.2.h
9.	Effect of project on scenic areas, historic sites and structures, paleontological and archaeological sites	RP	B.2.i
10.	Effect of route on unique biological areas	RP	B.2.j
11.	Problems raised by federal, state, or local entities	RP	B.2.k
	ADMINISTRATIVE RULES ARTICLE 69-06		
69-06-05-01	Application for a Transmission Facility Permit (Corridor Certificate)		
2.a. (1)	Type of facility proposed	CC	A.1.a
2. a. (2)	Purpose of facility	CC	A.1.b
2.a.(3)	Technology to be deployed	CC	A.1
2.a.(4)	Type of product to be transmitted	CC	A.2
2.a.(5)	Source of product being transmitted	CC	A.2
2.a.(6)	Final destination of product being transmitted	CC	A.2
2.a.(7)	Size and design detail and any alternative size and design	CC	A.3.b, A.3.b(8)
2.a.(7)(a)	The width of right of way	CC	A.3.b.(1)
2.a.(7)(b)	The approximate length of facility	CC	A.3.b(4)
2.a.(7)(c)	The estimated span length for electric facilities		NA
2.a.(7)(d)	The anticipated type of structure for electric facilities		NA
2.a.(7)(e)	The voltage for electric facilities		NA
2.a.(7)(f)	The requirement for and general location of any new associated facilities	CC	A.3.b(7)
2.a.(7)(g)	The estimated distance between pipeline surface structures	CC	A.3.b(2)
2.a.(7)(h)	The pipe size	CC	A.3.b(3)
2.a.(7)(i)	The maximum design for pipeline operating pressure and temperature	CC	A.3.b(5)
2.a.(7)(j)	The maximum design pipeline flow rate	CC	A.3.b(6)
2.a.(7)(k)	The number and general location of compressor or pumping stations	CC	A.3.b(7)
2.b.	Time Schedule	CC	A.4
2.b.(1)	Obtaining the certificate of corridor compatibility	CC	A.4.a
2.b.(2)	Obtaining the route permit	CC	A.4.b
2.b.(3)	Completing right of way acquisition	CC	A.4.c
2.b.(4)	Starting construction	CC	A.4.d

CONSOLIDATED APPLICATION CHECKLIST

AUTHORITY	DESCRIPTION		SECTION
2.b.(5)	Completing construction	CC	A.4.e
2.b.(6)	Testing operations	CC	A.4.f
2.b.(7)	Commencing operations	CC	A.4.g
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	CC	Section B Exhibits E.1,F.1,G.1
2.d.	Need for the facility	CC	C.1
2.e.	Description of alternatives	CC	C.2
2.f.	Corridor width	CC	D.1 Exhibit D
2.g.	Study area to enable the Commission to evaluate the factors in the Century Code section 49-22-09;	CC	Section B
2.h.	Discussion of factors in Century Code 49-22-09 to aid Commission's evaluation	RP	B.2
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	RP	B.1
2.j.	Map of criteria that led to route location	RP	B.3 Exhibit I
2.k.	Discuss relative value of each criteria and how the location was selected; how operation will affect criteria	RP	B.4
2.l.	Mitigating measures	RP	B.6
2.m.	Qualifications of each person involved in location study	CC	Section D.5
2.n.	Map identifying criteria that led to the route location and new facilities		Exhibit I
2.o.	81/2 X 11 black and white map suitable for newspaper publication		Provided separately
2.p.	Discussion of present and future natural resource development in the area	RP	B.9.a
2.q.	Map meeting PSC requirements		Exhibits C and D
69-06-06-01	Application for Waiver of Procedures and Time Schedules		Tab B
69-06-08-02	Transmission Facility Corridor and Route Criteria		
1.	Exclusion areas	RP	Section B.4.a
1.a.	Designated or registered national: parks, sites , landmarks, monuments, wilderness	RP	Section B.4.a(1)

CONSOLIDATED APPLICATION CHECKLIST

AUTHORITY	DESCRIPTION		SECTION
1.b.	Designated or registered state: parks, sites, monuments, archeological sites, nature preserves	RP	Section B.4.a(2)
1.c.	County parks and recreational areas, municipal parks, parks owned or administered by other governmental subdivisions	RP	Section B.4.a(3)
1.d.	Areas of critical habitat	RP	Section B.4.a(4)
1.e.	Areas where unique or rare species would be irreversibly damaged	RP	Section B.4.a(5)
1.f.	Area within one thousand two hundred feet of ICBM facility	RP	Section B.4.a(6)
1.g.	Areas within thirty feet of direct line of ICBM launch facilities	RP	Section B.4.a(6)
2.	Avoidance areas	RP	Section B.4.b
2.a.	Designated or registered national: historic districts, wildlife areas, wild, scenic or recreational rivers, wildlife refuges, grasslands	RP	Section B.4.b(1)
2.b	Designated or registered state: wild, scenic, recreational rivers, game refuges, game management areas, forest management lands, grasslands	RP	Section B.4.b(2)
2.c.	Historical resources which are not specifically designated as exclusion or avoidance areas	RP	Section B.4.b(3)
2.d.	Areas which are geologically unstable	RP	Section B.4.b(4)
2.e.	Within five hundred feet of a residence, school, or place of business	RP	Section B.4.b(5)
2.f.	Reservoirs and municipal water supplies	RP	Section B.4.b(6)
2.g.	Water sources for organized rural water districts	RP	Section B.4.b(7)
2.h.	Irrigated land (does not apply to underground transmission facility)	RP	NA
2.i.	Area of recreational significance but not designated exclusion areas	RP	Section B.4.b(8)
3.	Selection criteria. Impact on:	RP	Section B.4.c
3.a.(1)	Agricultural production	RP	Section B.4.c(1)(i)
3.a.(2)	Family farms and ranches	RP	Section B.4.c(1)(ii)
3.a.(3)	Land economically suitable for irrigation	RP	Section B.4.c(1)(iii)
3.a.(4)	Surface drainage patterns and ground water flow patterns	RP	Section B.4.c(1)(iv)
3.b.(1)	Sound sensitive land uses	RP	Section B.4.c(2)

CONSOLIDATED APPLICATION CHECKLIST

AUTHORITY	DESCRIPTION		SECTION
3.b.(2)	Visual effect on adjacent area	RP	Section B.4.c(3)
3.b.(3)	Extractive and storage resources	RP	Section B.4.c(4)
3.b.(4)	Wetlands, woodlands, and wooded areas	RP	Section B.4.c(5),(6)
3.b.(5)	Radio and tv reception and other communication or electronic facilities	RP	Section B.4.c(7)
3.b.(6)	Human health and safety	RP	Section B.4.c(8)
3.b.(7)	Animal health and safety	RP	Section B.4.c(9)
3.b.(8)	Plant life	RP	Section B.4.c(10)
4.	Policy criteria	RP	Section B.4.d
4.a.	Location and design	RP	Section B.4.d(1)
4.b.	Training and utilization of instate labor	RP	Section B.4.d(2)
4.c.	Economies of construction and operation	RP	Section B.4.d(3)
4.d.	Use of citizen coordinating committees	RP	Section B.4.d(4)
4.e.	Commitment of portion of transmitted product for use in state	RP	Section B.4.d(5)
4.f.	Labor relations	RP	Section B.4.d(6)
4.g.	Coordination of facilities	RP	Section B.4.d(7)
4.h.	Monitoring of impacts	RP	Section B.4.d(8)
4.i.	Using existing and proposed rights of way and corridors	RP	Section B.4.d(9)
4.j.	Other existing or proposed transmission facilities	RP	Section B.4.d(10)

DEFINITIONS

ANNUAL CAPACITY
The average sustainable throughput rate of the pipeline over a year. Annual Capacity is calculated assuming historic average annual and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating problems and crude supply rateability. Annual Capacity of a pipeline is typically 90% of Design Capacity.

APPLICANT
Enbridge Pipelines (North Dakota) LLC.

AVOIDANCE AREA
Geographical areas that may not be considered in the routing of a transmission facility or expansion of an existing facility unless the applicant shows that under the circumstances there are no reasonable alternatives.

BAKKEN PIPELINE EXPANSION PROGRAM
A series of independent, standalone, but yet complementary, expansion projects completed by EPND that was designed to respond incrementally to the transportation needs of the Bakken shippers, especially as increased drilling activity comes online and additional transportation take-away capacity is necessary to move Williston Basin production to market.

CENTRAL FLYWAY
An approximate 90-mile-wide corridor, between the Great Plains in the United States and Canada, which serves as a major bird migration route. Approximately 75% of the whooping crane sightings in North Dakota occur within the Central Flyway.

DESIGN CAPACITY
The theoretical capacity of the pipeline for a given type of liquids and their batch sequence. Design Capacity is calculated assuming theoretically ideal operating conditions.

DELIVERY
A volume at a location where the hydrocarbon commodity enters the Enbridge pipeline system.

ENBRIDGE
Enbridge is the term used to collectively describe the various Enbridge companies, affiliates and legal entities, some of which are defined below.

ENBRIDGE ENERGY, LIMITED PARTNERSHIP
Enbridge Energy, Limited Partnership owns and operates the liquid pipeline system known as the Enbridge “Lakehead System”. Together with Enbridge Pipelines Inc. in Canada, these operationally integrated pipeline systems form the longest liquid petroleum pipeline in the world.

DEFINITIONS

ENBRIDGE MAINLINE SYSTEM
A term used to described the U.S. and Canadian portion of a major liquid pipeline systems owned by Enbridge Energy, Limited Partnership and Enbridge Pipelines Inc. respectively.

ENBRIDGE PIPELINES INC.
Enbridge Pipelines Inc. is a wholly owned subsidiary of Enbridge Inc., who owns and operates the Canadian portion of the existing Enbridge Mainline System. These operationally integrated pipeline systems, which interconnect at the U.S./Canadian International Border Line to form the longest liquid petroleum pipeline in the world. Together, these two systems are referred to as the "Enbridge Mainline System."

EXCLUSION AREAS
Geographical areas that should be excluded from consideration for the routing of a transmission facility or the expansion of an existing facility.

FULL TIME EQUIVALENT
The equivalent of one person working full time.

GREENFIELD LAND
Land that has not been previously used for the siting of utilities or pipelines.

INSTRUMENT PIGS
Internal electronic inspection tools that are equipped with computers and travel through the inside of the pipeline examining the pipe's condition, i.e., detecting dents, gouges, corrosion, cracks or other anomalies in the pipe.

LINE 26 REVERSAL PROJECT
The reactivation and flow reversal of Enbridge's Line 26 and placing the line in northbound transportation service to move an incremental 25,000 Bpd of crude oil production from Berthold, North Dakota to the international boundary between the U.S. and Canada.

NECKDOWN
A procedure used to reduce the temporary or extra temporary workspace in the width of construction footprint requirements in wetlands or wooded areas in order to minimize the disturbance area and reduce the removal of trees and shrubs.

NWP 12
A Nationwide Permit Program authorized by the U.S. Army Corps of Engineers that is specially-geared to the construction of utility lines, including pipelines, which do not result in the loss of greater than ½-acre of waters (wetlands and waterbodies) of the United States.

DEFINITIONS

PADD
Petroleum Administration for Defense District – Geographic aggregations of the 50 States and the District of Columbia into five districts by the Petroleum Administration for Defense in 1950. These districts were originally instituted for economic and geographic reasons as Petroleum Administration for War (PAW) Districts, which were established in 1942.

PERSON YEAR OF JOBS
The equivalent of one person working full time for one year.

POLICY CRITERIA
Policy criteria are those factors which are positively affected by the project that may lead the Commission to give preference to an applicant.

PROJECT
The Project referred to in this Application for Certificate of Corridor Compatibility and Route Permit is the Sandpiper Pipeline Project.

RECEIPT
A volume at a location where the hydrocarbon commodity enters the Enbridge Pipeline (North Dakota) LLC pipeline system.

SELECTION CRITERIA
Selection criteria are those environmental resources and land use factors for which the project must have an acceptable minimum amount of impact, as determined by the Commission.

SHIPPER
A customer, who transports volumes on the common carrier pipeline system, including crude oil producers, refiners and/or marketers.

STUDY AREA
A two-mile wide corridor centered on either side of the proposed pipeline route and on areas associated with the facility expansion which have not been previously sited and permitted by the North Dakota Public Service Commission.

SURVEY CORRIDOR
An approximate 250-450 foot wide survey corridor along the proposed route and within the two-mile wide study area used to conduct cultural resource field surveys, biological and wetland/waterbody field surveys, or environmental assessments that may be required on the proposed project. However, EPND has widened its survey corridor in certain locations to address any known environmental and encroachment issues.

DEFINITIONS

SWEET CRUDE
A commodity having a density of less than 0.5% sulfur, as defined in the Enbridge Pipelines (North Dakota) LLC local tariff applying to crude petroleum and natural gas liquids.

WILLISTON BASIN
The Williston Basin spans from Montana, North Dakota, South Dakota and Wyoming, and is the primary geographical source for North Dakota Sweet production.

ACRONYMS

API	American Petroleum Institute
AOPL	Association of Oil Pipelines
BBL	Barrels
BGEPA	Bald and Golden Eagle Protection Act
BLM	U.S. Department of Interior, Bureau of Land Management
BMP	Best Management Practices
BOR	U.S. Department of Interior, Bureau of Reclamation
BPD or bpd	Barrels Per Day
Carlson McCain	Carlson McCain, Inc.
CEII	Critical Energy Infrastructure Information
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
CRP	Conservation Reserve Program
CREP	Conservation Reserve Enhancement Program
EELP	Enbridge Energy, Limited Partnership

ACRONYMS

EPP	Environmental Protection Plan
EPND	Enbridge Pipelines (North Dakota) LLC
ESA	Endangered Species Act
ESFO	Ecological Services Field Office
FERC	Federal Energy Regulatory Commission
FOIA	Freedom of Information Act
FOTH	Foth Engineering
FSA	U.S. Department of Agriculture, Farm Service Agency
GIS	Geographic Information Systems
GRP	Grassland Reserve Program
HCA	High Consequence Area
HP	Horsepower
HDD	Horizontal Directional Drill
HPD	Historic Preservation Division

ACRONYMS

ICA	Interstate Commerce Act
ICBM	Intercontinental Ballistic Missile
ICS	Incident Command System
LWCF	Land and Water Conservation Fund
MAC	Metcalf Archaeological Consultants, Inc.
MBTA	Migratory Bird Treaty Act
MLRA	Major Land Resource Area
MP	Mile Post
NAWS	Northwest Area Water Supply
NDAC	North Dakota Administrative Code
NDCC	North Dakota Century Code
NDDA	North Dakota Department of Agriculture
NDDH	North Dakota Department of Health
NDDTL	North Dakota Department of Trust Lands
NDGF	North Dakota Game and Fish Department

ACRONYMS

NDPA	North Dakot Pipeline Association
NDPDES	North Dakota Pollutant Discharge Elimination System
NDPR	North Dakota Parks and Recreation
ND-PSC or NDPSC	North Dakota Public Service Commission
NDS	North Dakota Sweet
NDSHPO	North Dakota State Historical Preservation Office
NDSLD	North Dakota State Land Department
NDSWC	North Dakota State Water Commission
NHPA	National Historic Preservation Act
NPS	Nominal Pipe Size
NRCS	U.S. Department of Agriculture, National Resource Conservation Service
NRHP	National Register of Historic Places
NRI	National River Inventory
NWI	National Wetland Inventory
NWRS	National Wildlife Refuge System

ACRONYMS

NWP	Nationwide Permit Program
OSROS	Oil Spill Response Organizations
OPS	Office of Pipeline Safety
OSHA	Occupational Safety and Health Administration
PAA	Plains All American Pipeline
PADD II	Petroleum Administration Defense District II (Midwest)
PHMSA	Pipeline and Hazardous Materials Safety Administration
PLOTS	Private Land Open to Sportsmen
PSAPS	Public Safety Answering Points
PSIG or psig	Pounds-Force per Square Inch Gauge
ROW	Right-of-Way
SHPO	State Historic Preservation Office
SHSND	State Historical Society of North Dakota
SWPPP	Stormwater Pollution Prevention Plan

ACRONYMS

UDP	Unanticipated Discoveries Plan
USAF	U.S. Air Force
USDA	U.S. Department of Agriculture
USDOT	U.S. Department of Transportation
USFS	U.S. Forest Service
USFWS	U.S. Department of Interior, Fish and Wildlife Service
USFWS-ES	USFWS North Dakota Ecological Services Field Office
USFWS-NWRS	USFWS National Wildlife Refuge System
USGS	U.S. Geological Survey
USNPS	U.S. National Park Service
VFD	Variable Frequency Drive
WCB	Weed Control Boards
WHPA	Wellhead Protection Area
WMA	Wildlife Management Area
WQC	Water Quality Certification

ACRONYMS

WPA	Waterfowl Production Area
WRB	Water Resource Boards
WRP	Wetland Reserve Program

CROWLEY | FLECK PLLP
ATTORNEYS

Wade C. Mann
400 East Broadway, Suite 600
P.O. Box 2798
Bismarck, ND 58502-2798
701.223.6585
wmann@crowleyfleck.com

October 30, 2013

Hand Delivered

Mr. Darrell Nitschke
Executive Secretary
North Dakota Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, ND 58505-0480

Re: In the Matter of the Application of Enbridge Pipelines (North Dakota) LLC for a Certificate of Site Compatibility and Route Permit for the Sandpiper Pipeline Project
Case No. PU-13-187
Our File No. 31-411-010

Dear Mr. Nitschke:

Please find enclosed for filing the original and ten copies of the following:

1. Consolidated Application of Enbridge Pipelines (North Dakota) LLC for a Waiver or Reduction of Procedures and Time Schedules and for a Corridor Certificate and Route Permit for the Sandpiper Pipeline Project;
2. A check in the amount of $100,000.00 covering the filing fee for the Application; and
3. Application of Enbridge Pipelines (North Dakota) LLC to Protect Confidential Critical Energy Infrastructure Information.

Also enclosed but not to be filed is a sealed envelope marked "CRITICAL ENERGY INFRASTRUCTURE INFORMATION – PRIVATE" containing a CD with the information described in the Application for Protective Order referenced in number 3 above.

A CD containing the Application and a black and white project map for newspaper publication will also be filed this week under separate cover letter.

If you have any questions or need any additional information, please contact me at your earliest convenience. Thank you.

Sincerely,

CROWLEY FLECK PLLP

Wade C. Mann

cc: Mountrail County Auditor
Ward County Auditor
McHenry County Auditor
Pierce County Auditor
Towner County Auditor
Ramsey County Auditor
Nelson County Auditor
Grand Forks County Auditor
Williams County Auditor

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF NORTH DAKOTA

In the Matter of the Application of Enbridge Pipelines (North Dakota) LLC for a Certificate of Site Compatibility and Route Permit for the Sandpiper Pipeline Project Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, Grand Forks and Williams Counties, North Dakota	)	Case No. PU-13-187

CONSOLIDATED APPLICATION OF ENBRIDGE PIPELINES (NORTH DAKOTA) LLC FOR A WAIVER OR REDUCTION OF PROCEDURES AND TIME SCHEDULES AND FOR A CORRIDOR CERTIFICATE AND ROUTE PERMIT

Applicant Enbridge Pipelines (North Dakota) LLC ("EPND") whose address for purposes of this Application is 2505 16th Street SW, Minot, North Dakota, 58701, pursuant to the Energy Conversion and Transmission Facility Siting Act, codified at North Dakota Century Code Chapter 49-22 ("Act"), hereby submits this Consolidated Application For a Waiver or Reduction of Procedures and Time Schedules and For a Corridor Certificate and Route Permit ("Application").

EPND requests that the North Dakota Public Service Commission ("Commission") waive and/or reduce procedures and time schedules required by the Act or in the Commission's regulations set forth in Title 69-06 of the North Dakota Administrative Code, to accomplish the purposes as requested herein. These include, but are not limited to: (1) waive, pursuant to North Dakota Century Code §§ 49-22-07.2, 49-22-13(2), and North Dakota Administrative Code § 69-

06-01-02 and Chapter 69-06-06; provisions of North Dakota Century Code §§ 49-22-08(5), 49-22-08.1(5), 49-22-13, and North Dakota Administrative Code § 69-06-01-02 which require separate filings of such applications, separate notices of such applications, separate hearings on such applications and certain time schedules as set forth in said statutes and rules; (2) allow consolidation of the certificate of corridor compatibility application and route permit application into one application; (3) acknowledge the study area of two miles centered on the pipeline and around the perimeter of the facility expansions not previously sited; and approve a corridor of 250 feet to 450 feet in width, widened beyond 450 feet in certain locations to address any known environmental and encroachment issues or additional temporary workspace requirements as detailed on the Route Maps enclosed with this Consolidated Application; (4) hold one consolidated public hearing on this Application; (5) find that the proposed facilities are of such design, length, location and purpose that they will produce minimal adverse affects; and (6) designate and approve the requested facilities as identified in this Application and issue the appropriate corridor certificate and route permit.

The Commission's application guidelines for waiver of procedures and time schedules require the description of the facility, the need for the facility, the cost of the facility and justification for each provision of the Act for which EPND is requesting a waiver, together with evidence that the project will produce minimal adverse effects or that a demonstrable emergency exists. As demonstrated in this Application, and summarized below, each of EPND's requests for waivers and/or reductions of procedures and time schedules and the issuance of a corridor certificate and route permit are justified as the proposed facilities are of such design, length, location and purpose that they will produce minimal adverse effects, and that the urgent demand

for additional pipeline capacity to deliver crude oil produced in the Williston Basin of North Dakota to markets and refineries in the United States requires construction at the earliest possible date.

DESCRIPTION

EPND is proposing to construct approximately 612 miles of new pipeline and associated facilities, all being located in North Dakota, Minnesota and Wisconsin. The project will be referred to as the Sandpiper Pipeline Project ("Project"). The North Dakota segment of the Project will consist of approximately 299 miles of 24-inch pipe beginning at the existing Beaver Lodge Station near Tioga, North Dakota and passing through Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson and Grand Forks counties. Approximately 139 miles of the 299 miles in North Dakota will follow and run parallel to existing pipelines or utility corridors, and the remaining 160 miles will involve greenfield areas where paralleling existing pipeline or utility corridors is not possible.

The Project also includes the installation of new pump station facilities and tankage at EPND's existing Beaver Lodge, Stanley and Berthold Station sites and the construction of a new greenfield pump station near Lakota, North Dakota. Detailed descriptions of each facility are set forth in the referenced sections of the Application.

NEED

The purpose of the Sandpiper Project is to address the current demand for pipeline export capacity out of the gathering hubs within the Bakken and Three Forks production areas, as well as to provide the foundation for timely future expansions, to meet the transportation needs of this region. The Project will provide the new pipeline export capacity necessary to move current and

forecasted Bakken and Three Forks production volumes from Beaver Lodge Station near Tioga, North Dakota to EPND's affiliated Superior Terminal in Superior, Wisconsin. From Superior, EPND's shippers will have access to Midwest refineries and beyond via EPND's affiliated Enbridge Mainline System and other interconnecting third party pipelines.

In the past seven years, EPND has responded to the market demand by methodically expanding its capabilities to export more than seven times the crude oil volumes originally transported in 2005. With the increasing production volumes coming online in the Bakken and Three Forks Formations of the Williston Basin region, EPND is experiencing a rising demand for additional pipeline export capacity on its North Dakota system. Shippers' current and future transportation requirements are escalating to meet the increasing production profiles of these formations in eastern Montana and western North Dakota. This Project expands the export capacity of EPND's existing North Dakota Pipeline System to address the increased demand.

COST

The total cost of constructing the entire Sandpiper Pipeline Project is estimated at $2.6 billion with the estimated cost of the North Dakota portion of the Project being $1.3 billion.

JUSTIFICATION

The environmental and cultural resource studies and reports which have been commissioned by EPND for this project demonstrate that there will be minimal adverse effects by construction. As a result, EPND hereby submits that there is substantial justification as set forth under the Need section above for the requested waivers and/or reduction of time schedules and procedures as the Sandpiper Pipeline Project will produce minimal adverse effects.

EPND respectfully requests the Commission to grant the requested waivers and/or reduction of procedures and time schedules; and to render an expeditious decision approving the requested corridor certificate and route permit.

Dated this 30th day of October, 2013.

Respectfully submitted,

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

CROWLEY FLECK PLLP
Attorneys for Applicant
400 North Broadway, Suite 600
P.O. Box 2798
Bismarck, North Dakota 58502

By _____
WADE C. MANN (#05871)

STATE OF NORTH DAKOTA)
)
COUNTY OF BURLEIGH)

Wade C. Mann, being first duly sworn on oath, deposes and says that he is the attorney for the applicant herein named, that he has read the above and foregoing application, knows the contents thereof, and that the same is true to the best of this affiant's knowledge, information, and belief.

_____
WADE C. MANN

Subscribed and sworn to before me this 30th day of October, 2013.

(SEAL)

LISA HERBERHOLZ
Notary Public
State of North Dakota
My Commission Expires March 17, 2017

_____
Notary Public
Burleigh County, North Dakota
My Commission Expires:

NORTH DAKOTA PUBLIC SERVICE COMMISSION

APPLICATION OF

NORTH DAKOTA PIPELINE COMPANY LLC

for

CERTIFICATE OF CORRIDOR COMPATIBILITY

DOCKET NO. PU-13-848

SANDPIPER PIPELINE PROJECT

***REVISED* – FEBRUARY 2014**

TABLE OF CONTENTS

SECTION A	DESCRIPTION OF PROPOSED FACILITY	PAGE
A.1	Describe the Type of Facility Addressed in the Application. The Description Shall Include the Purpose of the Facility and the Technology to be Employed	1
A.2	Describe the Type, Source and Final Destination of the Product to be Transmitted by the Proposed Facility	4
A.3	Size and Design	5
A.4	Time Schedule	17

SECTION B	STUDIES	PAGE
B.1	Cultural Resource Investigations	20
B.2	Wetland Assessment	23
B.3	Biological Resources	25
B.4	Other Agency Consultations	29

SECTION C	NEED FOR THE FACILITY	PAGE
C.1	An Analysis of the Need for the Proposed Facility Based on Present and Projected Demand for the Product Transmitted, including the Most Recent System Studies Supporting the Analysis of the Need	36
C.2	Feasible Alternative Methods for Serving the Need for the Proposed Facility	41

TABLE OF CONTENTS

SECTION D	LOCATION	PAGE
D.1	Study Area	55
D.2	Map of Proposed Corridor	55
D.3	Relative Value of Evaluation Criterion	55
D.4	General Mitigation Measures to be Taken	56
D.5	Qualifications of Persons Contributing to the Study	56
D.6	Maps	57

TABLE OF CONTENTS

LIST OF TABLES

		PAGE
TABLE 1	Co-located and Parallel to EPND's Existing North Dakota Pipeline System	6
TABLE 2	Parallel to Third-Party Pipelines and Utility Corridors	7
TABLE 3	Greenfield Pipeline Sections along New Pipeline Route	7
TABLE 4	Distance Between Surface Structures	8
TABLE 5	Pipeline Specifications	8
TABLE 6	Length of Sandpiper by State	9
TABLE 7	Annual Capacity and Design	10
TABLE 8	Cultural Resources Reports on File with NDSHPO Related to the Sandpiper Pipeline Survey Corridor	21
TABLE 9	Cultural Resources Sites Previously Recorded within the Sandpiper Pipeline Survey Corridor	22
TABLE 10	Status and Occurrence of Federally Listed Candidate, or Under Review Species and Designated Critical Habitat	26
TABLE 11	North Dakota's Average Daily Oil Production (bpd) from Bakken Formation	37
TABLE 12	Trucking Requirements	46

TABLE OF CONTENTS

LIST OF TABLES

		PAGE
TABLE 13	Rail Requirements	49
TABLE 14	Comparative Statistics for Petroleum Incident Rates: Onshore Transmission Pipelines vs. Road and Railway (2005-2009)	53

LIST OF FIGURES

		PAGE
FIGURE 1	Overview Map of EPND's North Dakota Pipeline System	1
FIGURE 2	Overview Map of the Sandpiper Pipeline Project	3
FIGURE 3	Overview Map of the "Big Five" Counties, the Largest Producing Areas in the Williston Region	4
FIGURE 4	The Subsurface Bakken and Devonian Three Forks Formations	37
FIGURE 5	Bakken Crude Oil Production	38
FIGURE 6	Bakken Crude Oil Production Forecast	38
FIGURE 7	North Dakota Pipeline Authority's Forecast for Bakken Production through 2029	39
FIGURE 8	Bakken-Three Forks Formations	40

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION A
DESCRIPTION OF PROPOSED FACILITY

A.1. DESCRIBE THE TYPE OF FACILITY ADDRESSED IN THIS APPLICATION. THE DESCRIPTION SHALL INCLUDE THE PURPOSE OF THE FACILITY AND THE TECHNOLOGY TO BE EMPLOYED.

Background Information

In the past seven years, Enbridge Pipelines (North Dakota) LLC[1,2] ("EPND") has responded to the market demand by methodically expanding its capabilities to export more than seven times the crude oil volumes originally transported in 2005. This approach has provided shippers of the Bakken and Three Forks Formation a cost effective and timely transportation solution that links the increasingly prolific petroleum producing Bakken and Three Forks regions to premium refinery and marketing hubs throughout the U.S. Midwest and beyond. Through a series of independent, stand alone, complementary, expansion projects[3], EPND incrementally increased its export capacity from 65,000 barrel per day ("bpd") in 2005 to its current combined pipeline and rail export capacity of 475,000 bpd. (*see* Figure 1 for an overview map of EPND's North Dakota Pipeline System.)

Figure 1

[1] EPND is a wholly owned subsidiary of Enbridge Energy Partners, L.P. (Enbridge Partners), which is a Delaware master limited partnership headquartered at 1100 Louisiana, Suite 3300, Houston, Texas 77002 (ph. 713-821-2000; *www.enbridgepartners.com*).

[2] Due to a name change any reference to Enbridge Pipeline (North Dakota) LLC or EPND in this document should now be considered North Dakota Pipeline Company or NDPL LLC.

[3] In Docket No. PU-05-274, EPND's Phase 1 and 2 Expansion Projects were approved by the North Dakota Public Service Commission (ND-PSC) and placed in service in 2005 and April 2007 respectively.
In Docket Nos. PU- 06-317; PU-06-330; and PU-06-349, EPND's Phase 3, 4 and 5 Expansion Projects were approved by the ND-PSC and was fully placed in service on January 2008.
In Docket No. PU-07-791, EPND's Phase 6 approved by the ND-PSC in July, 2008 and placed in service in January 2010.
In Docket Nos. PU-10-612 and PU-10-613, EPND's Bakken Expansion Program was approved by the ND-PSC in May 5, 2011 and May 17, 2011 respectively, and as amended on September 6, 2011. Such pipeline and associated facilities were placed in service in December 2012.
In Docket No. PU-11-232, EPND's Berthold Station Expansion Project was approved by the ND-PSC in May 30, 2012, and was placed in service on March 2013.

With the increasing production volumes coming online in the Bakken and Three Forks Formations[4] of the Williston Basin region, EPND is experiencing a rising demand for additional pipeline export capacity on its North Dakota system. Shippers' current and future transportation requirements are escalating to meet the increasing production profiles of these formations in eastern Montana and western North Dakota. This growing demand for additional pipeline capacity is largely driven by demand for access to secure and reliable crude oil supplies produced in the Bakken and Three Forks regions by refineries located in the Midwest, upper Great Lakes region and along the East Coast.

Again, EPND is responding to the rising market demand for additional pipeline export capacity through the development of its newest expansion project referred to as the Sandpiper Pipeline Project ("Sandpiper" or "Project"). This Project expands the export capacity of EPND's existing North Dakota Pipeline System between the existing Beaver Lodge Station and a new terminal facility near Clearbrook, Minnesota, and extends EPND's pipeline system to Superior, Wisconsin. As designed, Sandpiper links shippers to premium refinery markets located in the U.S. Midwest, upper Great Lakes region and along the East Coast via the Enbridge Mainline System and other interconnecting third-party pipelines, as more fully described in this application.

A.1.a Type of Facility

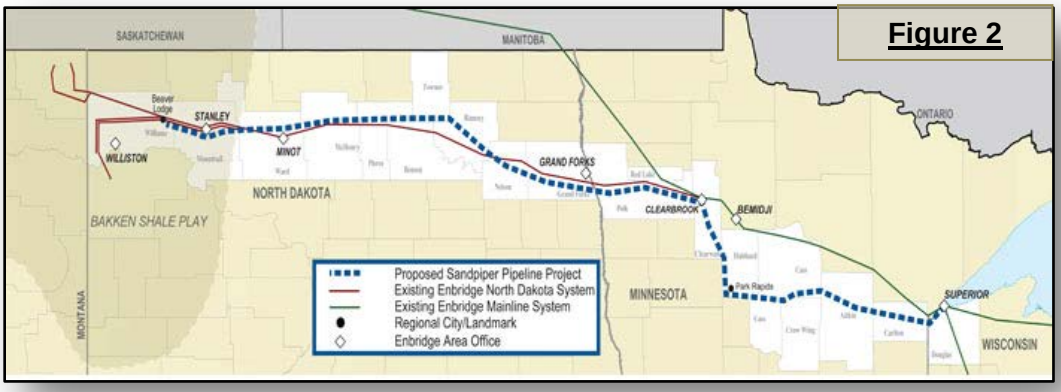
EPND owns and operates a 970-mile existing underground petroleum gathering and mainline pipeline system that extends from eastern Montana through North Dakota to Clearbrook, Minnesota and also extends northward to the U.S.-Canadian International Boundary where EPND's transmission line (Line 26) ties to its Canadian counterpart's pipeline system near the town of Lignite in Burke County, North Dakota. (*see* Exhibit A.1, EPND System Map.)

In this application, EPND plans to construct, own and operate a new interstate common carrier crude oil pipeline, commercially known as the Sandpiper Pipeline. This new pipeline will be operated as an integral part of EPND's existing pipeline system. This new pipeline will consist of approximately ~~612~~616 miles of new 24-inch and 30-inch diameter pipe and associated facilities, all being located in North Dakota, Minnesota and Wisconsin. The Sandpiper Pipeline begins at the existing Beaver Lodge Station near Tioga, North Dakota with a new 24-inch diameter pipeline, providing shippers access to 250,000 bpd of additional pipeline capacity and system flexibility from Beaver Lodge into Berthold, North Dakota, and 225,000 bpd of pipeline export capacity from Berthold to the new pump station and terminal facility near Clearbrook, Minnesota. The new 30-inch diameter pipeline begins at EPND's new Clearbrook Station and Terminal Facility and provides shippers' access to 375,000 bpd of export capacity into EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. (*see* Section A.3 for more information on the facility description and Table 7 for more details on capacity.)

[4] All located within the Williston Basin

Of the total mileage, Sandpiper will consist of ~~299~~300 miles in North Dakota, ~~299~~302 miles in Minnesota, and 14 miles in Wisconsin (*see* Figure 2). Approximately ~~139~~152 miles of the ~~299~~ 300 miles in North Dakota will follow and run parallel to existing pipelines or utility corridors, and the remaining ~~160~~148 miles will involve greenfield areas where paralleling existing pipeline or utility corridors is not possible. The Project also includes the installation of new pump station facilities and tankage at EPND's existing Beaver Lodge, Stanley and Berthold Station sites (*see* Sections A.3.b.(7)(i)–A.3.b.(7)(iii) for more details on new facilities being installed at each station site and any specific new land requirements). Also, the Project includes the construction of a new greenfield pump station near Lakota, North Dakota (*see* Section A.3.b.(7)(iv). Additionally, Sandpiper's project scope in Minnesota requires the installation of a new pump station and terminal facility near EPND's existing Clearbrook Meter Station in Clearbrook, Minnesota.

Figure 2



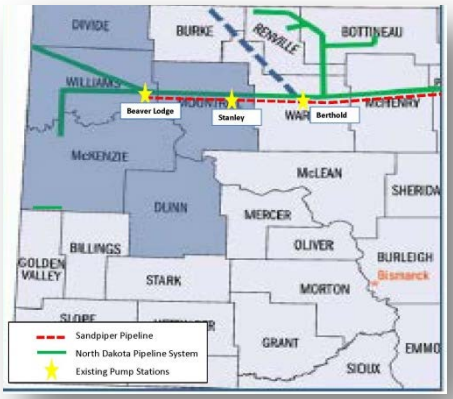
A.1.b Purpose of Proposed Facilities

The purpose of the proposed facilities is to address much of the current demand for pipeline export capacity out of the gathering hubs within the Bakken and Three Forks production areas, as well as to provide the foundation for timely future expansions, to meet the transportation needs of this region. As previously stated, Sandpiper will provide the new pipeline export capacity necessary to move current and forecasted Bakken and Three Forks production volumes from Beaver Lodge Station near Tioga, North Dakota to EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. From Superior, EPND's shippers will have access to refinery markets via EPND's affiliated Enbridge Mainline System and other interconnecting third party pipelines.

The Sandpiper Pipeline Project provides a reliable, efficient, and cost effective solution to meet long-term demand and transportation requirements of EPND's Bakken and Three Forks shippers. It links the prolific producing regions of the Bakken and Three Forks Formation to a variety of premium markets hubs in the Midwest, upper Great Lakes region and the East Coast.

Significantly, Sandpiper is geographically located within the "Big Five" counties[5], which is the largest producing area of the Williston Basin region (*see* Figure 3). This gives shippers serving U.S. refineries a competitive advantage through access to abundant, safe, and long-term stable sources of crude oil supplies to meet their feedstock requirements, further enabling them to meet the demands of the petroleum consuming public for refined products. Having access to secure and reliable sources of crude oil supplies helps to reduce reliance on crude oil imports from countries that are often unstable or unfriendly to U.S. interests, and, thus, helps to move North America towards energy security and independence. Additionally, refineries are able to purchase crude oil from production regions proximate to their respective locations, thereby reducing transit time and cost of shipping crude oil supplies north from the Gulf of Mexico. According to the most recent statistics available from the EIA, the petroleum-using public in the Midwest consumes over 4.42 million bpd of refined petroleum products in 2012, which includes gasoline, diesel, jet fuel, asphalt, heating fuel and petrochemical products.[6]

Figure 3



The total estimated cost of the proposed Sandpiper Pipeline Project is approximately $2.6 billon. The estimated cost for the North Dakota portion of the Project is $1.3 billion.

A.2 DESCRIBE THE TYPE, SOURCE AND FINAL DESTINATION OF THE PRODUCT TO BE TRANSMITTED BY THE PROPOSED FACILITY.

Type

The Project will transport Bakken and Three Forks production of light sweet domestic crude as defined in its Federal Energy Regulatory Commission ("FERC") Tariff on Rules and Regulations.

Source

The primary source of supply for the Sandpiper Pipeline Project is production from the Williston Basin spanning Montana, North Dakota, South Dakota and Wyoming. The primary geographical sources for North Dakota sweet crude production are those

[5] Divide, McKenzie, Williams, Mountrail, Dunn
[6] Source; EIA energy data at http://www.eia.gov/

regions of Montana and North Dakota that comprise the western and central portion of the Williston Basin.

Final Destination

EPND (including the described Project) is an interstate common carrier crude oil pipeline, thus, the final destination of the crude oil volumes will be based on the shippers' month to month nominations. These supply volumes will have the ability to reach a wide number of refineries and marketing hubs through interconnecting facilities at:

- EPND's existing Berthold Station & Rail Terminal Facility for further transportation to market by rail or by interstate common carrier pipeline via EPND's existing North Dakota System (Line 26, Line 82 or Line 81); and
- EPND's existing Clearbrook meter station, located at its affiliated Enbridge Clearbrook Station and Terminal Facility, where barrels are delivered to Minnesota Pipe Line.
- EPND's affiliated Superior Terminal Facility in Douglas County, Wisconsin for further transportation by interstate common carrier pipeline via EPND's affiliated Enbridge Mainline System and other interconnecting third-party pipelines, as described in more detail in Section C.1.

A.3 SIZE AND DESIGN:

A.3.a Electric Facility

Not Applicable**.**

A.3.b The proposed size and design and any alternative size or design that was considered, including:

This new pipeline will consist of approximately ~~612~~616 miles of new 24-inch and 30-inch diameter pipe and associated facilities, all being located in North Dakota, Minnesota and Wisconsin. In North Dakota, EPND plans to install ~~299~~300 miles of new 24-inch diameter pipeline. (*See* Exhibit A.2 for an overview of map of the Project.)

A.3.b.(1) Width of the Right of Way

In North Dakota, EPND plans to install the new 24-inch diameter pipeline parallel to existing pipelines and utility corridors to the extent practicable. The new pipeline route will also include greenfield areas and minor route deviations to avoid specific areas such as encroachments near the existing pipeline, densely populated areas, or special land and/or environmental features identified thus far in the routing process.

Based on the location of the new 24-inch diameter pipeline, the typical construction workspace will be 120 feet in upland areas and 95 feet in wetland areas. To the extent

practicable, EPND plans to co-locate its new 24-inch diameter pipeline within the existing pipeline right-of-way of its North Dakota Pipeline System. Where Sandpiper is co-located with the North Dakota Pipeline System, no new permanent right-of-way will be needed. However, new permanent right-of-way will be required for all other areas along the new pipeline route where Sandpiper parallels third-party pipelines, utility corridors or has greenfield pipeline segments or route deviations.

Described below is the construction workspace and new permanent right-of-way requirements for the new 24-inch diameter pipeline in North Dakota.

Co-located and Parallel to EPND's existing North Dakota Pipeline System

EPND will co-locate the new 24-inch pipeline, between Beaver Lodge Station and Grand Forks, North Dakota, parallel to EPND's Line 81, Line 82 and Line 87 for approximately 62 total miles. Where co-located, the centerline of the new pipeline will be located within EPND's existing pipeline right-of-way and have a 40-foot offset or buffer zone from EPND's existing pipeline, as shown on Exhibits B.1 and B.2. This buffer or offset zone provides for the safe construction, inspection, maintenance and operation of the new pipeline. No new permanent right-of-way will be required where the new pipeline is co-located within EPND's existing pipeline right-of-way. Shown on Table 1 below is a breakdown of the construction workspace requirements for these locations. Also enclosed as Exhibits B.1 and B.2 are the typical configuration drawings, which provide a pictorial overview of the construction footprint described on Table 1.

Table 1
Co-located and Parallel to EPND's Existing North Dakota Pipeline System

	Construction Workspace	
Land Type	**Typical Construction Footprint**	**Extra Temporary Work Space at Crossings**
Upland	120 ft.	Up to 20,000 sq. ft.
Wetland	95 ft.	Up to 20,000 sq. ft.

Parallel to third-party pipelines and small utility corridors:

Between Beaver Lodge Station and Grand Forks, North Dakota, sections of the new pipeline will follow third-party pipelines and small utility corridors for approximately ~~77~~90 total miles. EPND plans to acquire a 50-foot wide new permanent right-of-way, which will provide a 25-foot buffer or offset zone on either side of the newly installed pipe. This buffer or offset zone allows the safe construction, inspection, maintenance and operation of the new pipeline, and protects it from future encroachments. Shown on Table 2 below is a breakdown of the construction workspace and permanent right-of-way requirements

for these locations parallel to third-party pipelines and utility corridors. Also enclosed as Exhibits B.3 and B.4 are the typical configuration drawings, which provide a pictorial overview of the land requirements described on Table 2.

Table 2
Parallel to Third-Party Pipelines and Utility Corridors

	Construction Workspace			Permanent Right-of-Way
Land Type	**Typical Construction Footprint**	**Typical Temporary Work Space**	**Extra Temporary Work Space at Crossings**	**New ROW**
Upland	120 ft.	70 ft.	Up to 20,000 sq. ft.	50 ft.
Wetland	95 ft.	45 ft.	Up to 20,000 sq. ft.	50 ft.

Greenfield Pipeline Areas

The new pipeline route, between Beaver Lodge Station and Grand Forks, North Dakota, includes sections where the new pipeline traverses greenfield areas for approximately 160 total miles. Along these greenfield sections, EPND plans to acquire a 50-foot wide new permanent right-of-way, which provides a 25-foot buffer or offset zone on either side of the newly installed pipe. This buffer or offset zone allows the safe construction, inspection, maintenance and operation of the new pipeline, and protects it from future encroachments. Shown on Table 3 below is a breakdown of the construction workspace and permanent right-of-way requirements for the greenfield pipeline sections along the pipeline route. Also enclosed as Exhibits B.5 and B.6 are the typical configuration drawings, which provide a pictorial overview of the land requirements described on Table 3.

Table 3
Greenfield Pipeline Sections along New Pipeline Route

	Construction Workspace				Permanent Right-of-Way
Land Type	**Typical Construction Footprint**	**Typical Temporary Work Space**		**Extra Temporary Work Space at Crossings**	**New ROW**
		Non-working Side	**Working Side**		
Upland	120 ft.	15 ft.	55 ft.	Up to 20,000 sq. ft.	50 ft.
Wetland	95 ft.	15 ft.	30 ft.	Up to 20,000 sq. ft.	50 ft.

For additional information regarding the right-of-way requirements, *see* Section B.4.d.(9) of the Route Permit Application, which is being filed as part of this combined application.

A.3.b.(2) Estimated Distances Between Surface Structures

Shown on Table 4 below are the mileage distances between the above ground surface structures associated with the Sandpiper Pipeline Project in North Dakota.

Table 4 **Distance Between Surface Structures**		
From	**To**	**Mileage**
Beaver Lodge Station	Stanley Station	28.9
Stanley Station	Berthold Station	28.1
Berthold Station	Lakota Station	172.6
Lakota Station	Clearbrook, MN Station	*146.4

* 68.7 miles of which are located in North Dakota

A.3.b.(3) Pipe Size

Shown on Table 5 are the pipeline specifications for the Project.

Table 5 **Pipeline Specifications**		
Explanation	**Cross Country Pipe:**	**Crossing Pipe**
Diameter	24-inch outside diameter 24" NPS	24-inch outside diameter 24" NPS
Wall thickness	0.375-inch wall thickness minimum	0.438 - 0.500-inch wall thickness minimum
Pipe	X70 Steel pipe manufactured according to American Petroleum Institute (API) Specifications 5L PS2 ERW	X70 Steel pipe manufactured according to American Petroleum Institute (API) Specifications 5L PS2 ERW
Coating	Fusion Bond Epoxy	Fusion Bond Epoxy / ARO
Specified Minimum Pipe Yield Pressure for 24-inch wall thickness (72% of yield)	1480 psig	1480 psig
Applicable Design Codes	49 CFR Part 195 and applicable national technical standards incorporated by reference.	49 CFR Part 195 and applicable national technical standards incorporated by reference.

A.3.b.(4) Approximate Length of Facility

As previously stated, the Sandpiper Pipeline Project will consist of approximately ~~612~~616 miles of new 24-inch and 30-inch diameter pipelines and associated facilities, all being

located in North Dakota, Minnesota and Wisconsin. Table 6 shows the length of the new 24-inch and 30-inch pipeline by state. (*See* overview map in Exhibit A.2.)

Table 6
Length of Sandpiper by State

State	Miles of Pipe	Pipe Diameter	County
North Dakota	~~299~~300	24-inch	Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, Grand Forks
Minnesota	~~299~~300	24-inch and 30-inch	Polk, Red Lake, Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton
Wisconsin	14	30-inch	Douglas

A.3.b.(5) Maximum Design Operating Pressure and Temperature

The design pressure for the 24-inch diameter pipeline is 1480 psig; normal operating pressures are anticipated to be less than 1480 psig. Operating temperatures will range from 41º to 65º F.

A.3.b.(6) Maximum Design Flow Rate

The maximum design flow rate for the new pipeline capacity is:

- 456,000 bpd from Beaver Lodge to Berthold
- 406,000 bpd from Berthold to Clearbrook

For more details, see Table 7 below.

A.3.b.(6)(i) Design and Annual Capacity

Generally, crude oil pipelines are designed at a specified capacity for a known commodity. Most crude oil pipelines transport a variety of liquids. The change in fluid characteristics (density, viscosity, etc.) of the transported liquids will affect the capacity of the pipeline. Liquids can also be batched in a pipeline in a repeatable sequence. Among other factors, the fluid characteristics and batch sequence will affect the capacity of the pipeline.

Two definitions are used to describe pipeline capacity: Design Capacity and Annual Capacity.

Design Capacity is the theoretical capacity of the pipeline and pumping facilities, at its current or proposed design state for given types of liquids and their batch sequence. Design Capacity is calculated assuming theoretically ideal operating conditions.

Annual Capacity is the average sustainable throughput rate over a year. Annual Capacity is calculated assuming historic average annual capacity and operating conditions. These operating conditions include scheduled and unscheduled maintenance, normal operating conditions and crude supply rateability. Annual Capacity of a pipeline is typically 90 percent of Design Capacity.

Table 7
Annual Capacity and Design

Capacity Levels	Explanation	Pipeline Capacity from Beaver Lodge to Berthold	Pipeline Capacity from Berthold to Clearbrook, MN
Ultimate Design Capacity	Maximum economic expansion capacity of individual pipeline. Requires additional pumping horsepower over current design to meet this capacity	456,000	406,000
Ultimate Annual Capacity	Maximum economic expansion capacity of individual pipeline that is sustainable on an average rate per day over a year	410,000	365,000
Initial Design Capacity	Theoretical capacity	278,000	250,000
Initial Annual Capacity (90%)	Average sustainable rate average barrels per day over a year (90% of Design Capacity)	250,000	225,000

A.3.b.(7) The Requirement for and General Location of any New Associated Facilities

General Location of Pipeline: See Exhibit A.2 for general overview map of the Sandpiper Pipeline Project.

A.3.b.(7)(i) General Location of the Proposed Pump Stations and Terminals

Existing Beaver Lodge Pump Station and Terminal

Location
10351 60th Street NW
Tioga, North Dakota 58852

Legal Description
600' x 600' tract and Outlot 2 in SE ¼ of SW ¼ and SW ¼ of SE ¼ Section 32, Township 156 North, Range 95 West, Williams County, North Dakota.

Lot 1 of NE ¼ of the NE ¼ of Section 5, Township 155 North, Range 95 West, Williams County, North Dakota

Sublot 2 of SE ¼ of SW ¼ of Section 32, Township 156 North, Range 95 West, Williams County, North Dakota

New Facilities on Existing Property at Beaver Lodge Station

Existing Property North of CR8
- 1 New 400 HP transfer pump with 450 HP VFD
- Expand existing Electrical Services Building

Existing Property South of CR8
- Connect to existing Tank Fill/Transfer Manifold
- Expand Tank Suction Manifold
- 2 new 750 HP Booster Pumps with 1000 HP Variable Frequency Drives
- 2 New Leak Detection Meters
- New Pump Station Building
- 2 new 3500 HP Mainline Pump Assemblies with 4000 HP Variable Frequency Drives
- 2 New Electrical Services Buildings
- 2 New Electrical Transformers
- 1 New Nominal Pipe Size ("NPS") 24 Pig Launcher
- 1 New 5000 gallon Underground Sump Tank
- Interconnecting Station Pipe & Valves
- New Cold Storage Building
- Firewater pond
- All civil work required to prepare station site for proposed facilities.

Tankage
o 2 new 150,000 BBL Breakout and Storage Tanks

New Facilities on New Land at Beaver Lodge Station

Location
South of County Road 8 (60th Street NW) near 103rd Avenue NW, Tioga, North Dakota

Legal Description
SE ¼ of the NE ¼ of Section 5, Township 155 North, Range 95 West

Facilities
o Firewater System Pump Building
o Electrical Switchyard
o All civil work required to prepare the station site for proposed facilities.

Work by Others
o Electrical Substation

Land Requirements
EPND has purchased 40 acres of land located adjacent to the existing Beaver Lodge Station and Terminal site (*see* Exhibit C.1). The new 40-acre tract of land is located directly south of County Road 8 in Section 5, Township 155 North, Range 95 West, Williams County, North Dakota. The new 40 acres tract of land will be sited and approved as part of this application.

The existing Beaver Lodge Station consists of approximately 98 acres, all of which EPND owns in fee. Of the 98 acres, 29 acres were sited and approved by the North Dakota Public Service Commission ("ND-PSC") in Docket No. PU-06-317 on August 23, 2006. Approximately 69 acres has been previously sited and approved by the ND-PSC on May 18, 2011 in Docket No. PU-10-613.

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals
Maps are enclosed herewith as Exhibit C.1.

A.3.b.(7)(ii) Location of the Proposed Pump Stations and Terminals

Existing Stanley Pump Station and Terminal

Location
6150 Highway 8
Stanley, North Dakota 58784

Legal Description
The existing Stanley Pump Station and Terminal lies on 40.14 acres of land owned by EPND and located in the NW ¼ of the SW ¼ of Section 27, Township 156 North, Range 91 West, Mountrail County, North Dakota

New Facilities on Existing Property at Stanley Station

- New Suction Manifold
- 3 New 1250 HP Injection Pumps with 1500 HP Variable Frequency Drives
- 1 New 4000 Gallon Underground Sump Tank
- 2 New Leak Detection Meters
- 1 New Injection Valve set
- 1 New Electrical Services Building
- 1 New 4160V Arc-resistant Switch Gear
- 1 New Electrical Transformer
- Interconnecting pipe & valves
- Tank Fire Foam Building

Tankage
- 1 New 80,000 BBL Breakout and Storage Tank
- 1 New 55,000 BBL Breakout and Storage Tank

Other Work
- All civil work required to prepare station site for proposed station facilities

Land Requirements
The existing Stanley Station consists of approximately 40 acres, all of which EPND owns in fee. The 40 acres was previously sited and approved the ND- PSC on August 23, 2006 in Docket No. PU-06-317.

Acquire New Land Adjacent to existing Stanley Station

Location
Adjacent to the existing Stanley Station on the east side between Highway 8 and 80th Avenue NW

Legal Description

Outlot 1 of the E ½ of the SW ¼ of Section 27, Township 156 North, Range 91 West, Mountrail County, North Dakota

Land Requirements
EPND has purchased approximately 21 acres of land directly East of Stanley Station for future use. The tract of land is located in Outlot 1 of the E ½ of the SW ¼ of Section 27, Township 156 North, Range 91 West, Mountrail County, North Dakota. The new acreage will be sited and approved as part of this application.

New Facilities on newly acquired land at new Stanley Station site

Firewater Protection System including firewater pond and firewater pump building

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals
Maps are enclosed herewith as Exhibit C.2.

A.3.b.(7)(iii) Location of the Proposed Pump Stations and Terminals:

Existing Berthold Pump Station and Terminal

Location
8501 296th NW
Berthold, North Dakota 58718

Legal Description
Berthold Classic Station Site – NE ¼ of Section 20, Township 156 North, Range 86 West and W ½ of NW ¼ of Section 21, Township 156 North, Range 86 West, Ward County, North Dakota

Berthold West Station Site – NE ¼ of Section 20, Township 156 North, Range 86 West, Less Outlots 1 and 3, less portion described in Book "192 of Deeds", page 308 and Less portion described in Book "161of Deeds", page 629

New Facilities at Berthold West Site

- Common Suction/Fill Manifold
- Relief Manifold
- 2 New Pipeline Stripping Leak Detection Meters
- Connection to Existing Tank Fill Manifold
- Connection to Existing Suction Manifold
- Connection to Existing Tank Suction Manifold
- 2 New 650 HP Booster Pumps with 750 HP Variable Frequency Drives
- 2 New Pipeline Injection Leak Detection Meters
- 2 New Electrical Services Buildings

- o 1 New 4000 Gallon Underground Sump Tank
- o Interconnecting Station Pipe & Valves
- o 1 New NPS 24 Pig Receiver
- o 1 New NPS 24 Pig Launcher
- o 3 new 3500 HP Mainline Pump Assemblies with 4000 HP Variable Frequency Drives
- o 1 New Electrical Transformer
- o Electrical Switchyard
- o 1 New 5000 Gallon Underground Sump Tank
- o All civil work required to prepare station site for proposed station facilities.

Tankage
- o 1 New 300,000 BBL Breakout and Storage Tank

New Facilities at Berthold Classic Site

- o New Maintenance Building
- o All civil work required to prepare station site for proposed station facilities.

Land Requirements
All work will be performed within the existing Berthold Classic and Berthold West Station sites. The Berthold Classic Station site, consisting of 106 acres, was previously sited and approved by the ND-PSC on August 4, 2010 in Docket No. PU-10-130. The Berthold West Station site, consisting of 92 acres, was sited and approved by the ND-PSC on May 30, 2012 in Docket No. PU-11-232.

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals
Maps are enclosed herewith as Exhibit C.3.

A.3.b.(7)(iv) Location of New Greenfield Pump Station and Terminal

New Lakota Pump Station

Location
South of 42nd Street NE between 104th and 105th Avenue NE

Legal Description
The proposed Lakota Station is located in the E ½ of the NW ¼ of Section 4, Township 152 North, Range 60 West, in Nelson County, North Dakota

New Facilities on newly acquired land at new Lakota Station Site

- 1 New NPS 24 Pig Receiver
- 1 New NPS 24 Pig Launcher
- 2 New Leak Detection Meters
- 3 New 3500 HP Mainline Pump Assemblies and 4000 HP Variable Frequency Drives
- 1 New Pump Shelter
- 1 New Electrical Service Building
- 1 Electrical Switchyard
- 1 New Utility and Maintenance Building
- 1 New Storage Building
- Interconnecting Station Pipe & Valves
- New 5000 Gallon Underground Sump Tank
- 1 New Electrical Transformer
- All civil work required to prepare station site for proposed station facilities.

Work by Others
Electrical Substation

New Land Requirements at New Lakota Station Site

EPND has secured an option to purchase approximately 46 acres of land located on the south side of County Road 19, approximately 1 mile south of Lakota, ND. The new 46 acres of land will be sited and approved as part of this application.

Plot Plan, Topographical, and Aerial Maps of Proposed Stations and Terminals
Maps are enclosed herewith as Exhibit C.4.

A.3.b.(8) Alternative Pipeline Design/Size

Based on the crude petroleum forecast and discussions with shippers and producers, EPND determined that the annual capacity as defined below, provides the most efficient and flexible, long-term transportation solution necessary to meet the near-term and future take-away requirements of the Bakken and Three Forks regions.

- 250,000 bpd from Beaver Lodge Station to Berthold Station;
- 225,000 bpd from ex-Berthold to a new station and terminal facility in Clearbrook, Minnesota; and
- 375,000 bpd from ex-Clearbrook to EPND's affiliated Superior Terminal Facility in Superior, Wisconsin.

Such design also enables EPND to further expand its pipeline capacity through the installation of new pumping units should the market demand require additional capacity in the future (*see* Table 7 for ultimate design capacity.)

EPND also examined the efficiencies of sizing this Project with 16-inch or 20-inch diameter pipe to meet the same annual capacity requirements. It was determined that the smaller diameter pipe was less efficient, would require more energy to be expended to meet the same transportation requirements, and would require installation of more pipeline and related facilities in the future to expand its capacity.

Therefore, EPND concluded that the engineering design of the combined 24-inch and 30-inch diameter pipe and related facilities as defined in this Application, provides the most efficient and cost-effective use of added capital costs. As designed, it meets the current and future transportation requirements of the Bakken and Three Forks region, while also meeting the state's policies for energy conservation in the most environmentally responsible manner.

A.4 TIME SCHEDULE:

A.4.a Certificate of Corridor Compatibility

EPND respectfully requests that the ND-PSC issue a Certificate of Corridor Compatibility for the Project by March 2014.

A.4.b Route Permit Application

EPND's Route Permit Application was submitted by EPND in October 2013 concurrent with this consolidated Application for a Certificate of Corridor Compatibility and Route Permit. EPND respectfully requests that the ND-PSC issue a route permit for the Project by March 2014.

A.4.c Completing Right-of-Way Acquisition

EPND has contacted all of its affected landowners for permission to enter their respective properties to perform civil, cultural and biological surveys for the Sandpiper Pipeline Project. To date, EPND has received approval from 96% of its landowners.

EPND has begun its landowner negotiations for acquisition of right-of-way easement rights. As stated earlier, EPND has purchased in fee, certain tracts of land needed for its station facilities at Beaver Lodge and Stanley, and has secured an option agreement for the tract of land needed for the new Lakota Pump Station in Nelson County, North Dakota.

A.4.d Construction Start Date

Proposed commencement of construction is immediately upon receipt of appropriate approvals. EPND plans to first commence its construction work activities on those facilities which have the longest lead time to complete. Civil work activities are scheduled to commence in May 2014. Such work will begin at existing station sites for the construction of new tanks and pumping stations. EPND plans to commence its construction of the new pipeline and its related facilities on or before September/October 2014.

A.4.e Construction Complete

Estimated construction completion date is the First Quarter 2016.

A.4.f Testing Operations

The estimated testing and commissioning of the new pipeline and associated facilities is the First Quarter 2016.

A.4.g Commencing Operations

Estimated in-service date is the First Quarter 2016.

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION B
STUDIES

In North Dakota, the Project involves the construction of approximately ~~299~~300 miles of new 24-inch-diameter pipeline, including the installation of new station facilities to upgrade, and expand three of EPNDs existing station sites at Beaver Lodge, Stanley, and Berthold, as well as the construction of one new greenfield pump station near Lakota, North Dakota (referred to as the "Lakota" Station). The analysis of the Project's merits, with regard to location are discussed throughout the Application, more specifically in Sections C and D of the Application for a Certificate of Corridor Compatibility, and in Section B of the Application for a Route Permit.

EPND defined its study area as a 2-mile-wide corridor centered on the pipeline and on areas associated with facility expansion that have not been previously sited by the ND-PSC (*see* Section D.1 for a more detailed description of environmental survey corridor). The 2-mile wide study area includes land around the new Lakota facility, a new 21 acre parcel located adjacent to the Stanley Station and a new 40-acre parcel located adjacent to the Beaver Lodge station. The existing Berthold Pump Station and Terminal has been previously sited; therefore, the 2-mile wide study area in this location is associated with the proposed pipeline and not the facility boundaries.

EPND consulted with multiple federal, state, and local agencies to identify environmental resources within the 2-mile wide study area and along the proposed route, as well as to determine what, if any, environmental studies or assessments would be required for the Project.

Summaries of these consultations and the field surveys conducted are included in this section of this Certificate of Corridor Compatibility application. Additional details regarding agency consultations and field surveys as they relate to Exclusion Areas, Avoidance Areas, and Selection Criteria, as well as specific impacts and mitigation measures are included in Section B.6 of the Route Permit Application. Documentation of agency consultations is included in Exhibit H.

EPND performed cultural, wetland, and biological surveys based on the proposed pipeline route and environmental survey corridor as described in Section D of this Application. At the time of this filing and the supplemental information filing, EPND has completed approximately 91 ~~97~~ percent of its cultural resource field surveys and approximately 84 percent of its biological resource field surveys[7]. This application discusses field data that has been acquired through ~~September 14~~, November 2013. The remaining field survey work will ~~continue through the 2013 field season with some field survey work being~~ be completed by summer 2014. All applicable permits specified

[7] The original ND-PSC filing on October 30, 2013 presented information based on the proposed pipeline centerline issued on July 22, 2013. The supplemental filing presents updated information based on a proposed pipeline centerline that was issued on December 3, 2013.

on the Table 21 of the Application for a Route Permit, including the related supporting documentation, will be submitted as a supplemental filing to this application.

B.1 CULTURAL RESOURCE INVESTIGATIONS

B.1.a State Historical Society of North Dakota ("State Historic Preservation Office or NDSHPO")

The State Historical Society of North Dakota ("SHSND") is the agency responsible for protecting historic properties in North Dakota. Within the Historic Preservation District ("HDP") of the SHSND, the North Dakota State Historic Preservation Office ("NDSHPO") reviews federally-proposed, licensed and/or funded projects, evaluates cultural resources identified during preconstruction surveys, reviews protection, preservation, and mitigation measures proposed and implements the permitting process. Further, the HPD is responsible for preservation and interpretation of antiquities that may be impacted by non-federal projects within the state. North Dakota Century Code ("NDCC") Chapter 55-03 outlines the state permitting process for cultural resource investigations.

EPND engaged the NDSHPO regarding archaeological site and historic structure investigations for the Project. EPND contacted the NDSHPO in March 2013 to introduce the Project and provide preliminary information. On April 9, 2013, EPND met with the NDSHPO to discuss the use of a statistically-based Geographic Information Systems ("GIS") site predictive model that can be used to provide information to perform field surveys. The NDSHPO communicated at this meeting that they were supportive of EPND's use of this model. The goal of the predictive model is to focus field surveys on areas most likely to contain historic properties, and eliminate or modify survey methods for very low potential sites. EPND also provided information regarding proposed field methods, investigation schedule, and field logistics concerns. Correspondence between the NDSHPO and EPND is included as Exhibit E.2

Archaeological field investigations for the Project commenced in May 2013. In July 2013, EPND met with the NDSHPO to discuss survey progress and the application of the predictive model. EPND also presented plans to target specific areas in the environmental survey corridor.

~~Upon completion,~~ EPND ~~will submit its cultural resource investigation reports to the NDSHPO for its review and concurrence on January 14, 2014, and~~ met with the NDSHPO to discuss the results of its cultural resource investigation on January 16, 2014, and submitted the report to the NDSHPO for its review and concurrence on January 30, 2014. EPND will continue to consult with the agency regarding cultural resources site evaluations and mitigation.

B.1.a.(1) Cultural Resource Investigations

EPND reviewed existing file data maintained by the NDSHPO to determine if any portion of the environmental survey corridor has been surveyed previously for cultural

resources. (S*ee* Section D.1 of this Application for more information on the width of the environmental survey corridor.) Approximately 25 previous cultural resources inventories were completed over the last 30 years, ~~which~~ cover~~ed~~ing approximately one-fourth of the current environmental survey corridor. EPND determined the previous survey coverage was insufficient, and/or the inventories were not adequate according to current standards to cover the Project. However, since 2006, EPND has conducted six cultural resources surveys within or adjacent to the environmental survey corridor, as listed in Table 8.

TABLE 8

Cultural Resources Reports on file with NDSHPO Related to the Sandpiper Pipeline Survey Corridor

Author	Report Title	Date	Manuscript Number
D.Klinner, and J. Morrison/ KLJ	Enbridge Pipelines (North Dakota) LLC, Phase 4 Pipeline Expansion Project Pumping Stations: A Class III Cultural Resource Inventory, Grand Forks, McHenry, Mountrail, and Ramsey Counties, North Dakota	2006	9855
D. Klinner, J. Harty, and M. Shropshire/ KLJ	Beaver Lodge to Berthold Pipeline: A Class III Cultural Resource Inventory, Mountrail, Ward, and Williams Counties, North Dakota	2010	11686
M. Shropshire, D. Klinner, and J. Harty/ KLJ	Testing of Site 32MN844, Addendum to the Beaver Lodge to Berthold Pipeline: Additional Class III Cultural Resource Inventory and Limited Site Testing in Mountrail County, North Dakota	2011	11974
D. Reinhart/ MAC	Enbridge's Beaver Lodge Loop Project, Re-Route and Extra Work Space: A Class III Cultural Resources Inventory in Ward County, North Dakota	2011	12172
M. Kinsey, and E. Stine/ MAC	Enbridge Sanish Pipeline Project, an Addendum for Reroutes Along the Sorti and Dunn Pipeline Project: A Class III Inventory in McKenzie and Williams Counties, North Dakota	2012	13002
M. Kinsey/ MAC	Merjent-Enbridge's Shoo-Flies: A Class III Cultural Resource Inventory to Support the Beaver Lodge Loop Project (SHPO Reference 10-1957) in Mountrail County, North Dakota	2012	13602

Records on file at the NDSHPO indicate there are 16 previously identified archaeological or historic structure sites and five archaeological or historic structure isolates or site leads that intersect the environmental survey corridor, as listed in Table 9. Three previously recorded sites are determined eligible for listing on the National Register of Historic Places ("NRHP"). The remaining sites are determined not eligible for listing or have not been evaluated for eligibility. Information about previously recorded sites for ancillary facilities and off-corridor yards has not been compiled at this time.

TABLE 9

Cultural Resources Sites Previously Recorded within the Sandpiper Pipeline Survey Corridor

County	Site Number/ Name	Site Type	Cultural Affiliation	Eligibility	Date recorded
Grand Forks	32GF0008	Mound, Material Scatter	Pre-Contact	Eligible	1979/ 2000
Grand Forks	32GF3228	Structural - Bridge	Historic Period	Not eligible	2000
Grand Forks	32GFx0148	Isolated Lithic Flake	Pre-contact	Not eligible	1999
Grand Forks	32GFx0308	Isolated Lithic Flake	Pre-contact	Not eligible	2000
McHenry	32MH0200	BNSF Railroad	Historic	Eligible	2006/ 2012
McHenry	32MHx0286	Structural - Barn	Historic Site Lead	Not evaluated	2012
Mountrail	32MN0568	Structural - Shed	Historic Site Lead	Not eligible	2000
Mountrail	32MN0721	Architectural - Farmstead	Historic	Not eligible	2006
Mountrail	32MN0784	Foundation, Material Scatter	Historic	Not evaluated	2008
Mountrail	32MN0844	Stone Features	Pre-Contact	Not evaluated	2010
Mountrail	32MN0845	Stone Features	Pre-Contact	Not evaluated	2010
Mountrail	32MN0846	Foundation	Historic	Not eligible	2010/ 2012
Mountrail	32MN0916	Stone Feature	Pre-Contact	Not evaluated	2011
Mountrail	32MN0926	Cairn	Pre-Contact	Not evaluated	2012
Mountrail	32MN0927	Machinery, Material Scatter	Historic	Not eligible	2012
Mountrail	32MN0929	Cairn	Pre-Contact	Not evaluated	2012
Mountrail	32MNx0583	Isolated Lithic Flake	Pre-Contact	Not eligible	2009
Mountrail	32MNx0839	Isolated Lithic Flake	Pre-Contact	Not eligible	2007
Ward	32WD0089	Linear Trail	Historic	Eligible	1999/ 2002
Ward	32WD1556	Depression, Material Scatter	Historic	Not eligible	2000
Williams	32WI0138	Stone Feature, Material Scatter	Pre-Contact	Not evaluated	1985

ENPD engaged Metcalf Archaeological Consultants, Inc. ("MAC") to conduct on-the-ground Class III cultural resources field inventories for the entire Project. By November 2013 ~~Between May and early August 2013~~, MAC completed archaeological and historic structure field survey inventories for approximately 91 ~~75~~ percent of the environmental survey corridor.

~~EPND will have completed 98 percent of the archaeological site and historic structure inventory survey in 2013.~~ The remaining 9 ~~2~~ percent of the inventory survey will be completed in 2014, including any remaining areas in the environmental survey corridor, ancillary facilities, and off-corridor yards. EPND is currently completing an analysis of the potential for deeply buried archaeological sites and site evaluations as needed. A Cultural Resource Abstract ~~will be~~ has been prepared and is included in the supplemental filing as Exhibit E.1. Per the July 11, 2012 letter between the ND-PSC

and the NDSHPO, EPND will not submit information about the location of cultural sites with this application. For this application and other public filings, only the title page and abstract of cultural resource reports will be submitted as documentation of the cultural resources investigations ~~(see Exhibit E.2)~~. However, the entire report will be submitted to the NDSHPO.

EPND prefers to avoid inventoried archaeological sites and historic structures. In the event EPND is unable to avoid Project impacts to a site through engineering controls, EPND will conduct formal evaluations in consultation with the NDSHPO and seek resolution through mitigation for those sites that meet the criteria for listing on the NRHP.

B.2 WETLAND ASSESSMENT

B.2.a U.S. Army Corps of Engineers ("COE")

EPND consulted with the COE-Omaha District, which has jurisdiction in North Dakota over construction activities affecting "waters of the United States", including wetlands and waterbodies that are crossed by the proposed route.

The COE may authorize construction projects through its Nationwide Permit ("NWP") program, if the project meets the prescribed thresholds and compliance measures. The COE NWP 12 is specifically designed for the construction of utility lines, including pipelines, which do not result in the permanent loss of greater than 0.5-acre of waters of the United States. The COE has indicated they intend to implement NWP 12 as the basis for its analysis and permitting vehicle.

The installation of the pipeline will result in temporary impacts to jurisdictional wetlands and waterbodies. However, those impacts will be less than 0.5 acre of permanent impacts to COE-jurisdictional wetlands or waterbodies as a result of expansion work at Beaver Lodge, Stanley, and Berthold Stations, and the construction of the new Lakota Pump Station.

EPND commissioned Carlson McCain, Inc. ("Carlson McCain") to complete wetland and waterbody delineations in the Project's environmental survey corridor as defined in Section D.1 of this Application. The delineation protocols are in accordance with prescribed federal and/or state methodologies. These surveys collect quantitative, qualitative, and location information that will be submitted to the COE during the permitting process and used for construction planning.

As of December ~~September 14,~~ 2013, Carlson McCain completed field delineations for approximately ~~94~~ 91 percent of the environmental survey corridor. ~~Upon completion of the 2013 field season,~~ EPND ~~will~~ submitted a ~~copy of the~~ wetland and waterbody Request for Jurisdictional Determination ~~delineation report~~ to the COE-Omaha District on January 24, 2013. ~~with a Request for Jurisdictional Determination~~. ~~It is anticipated that~~ The majority of the delineated wetlands were ~~will be~~ identified as isolated basins

with no hydrologic connection to waters of the United States, and thus, considered non-jurisdictional with respect to COE authority. EPND will continue to coordinate with the COE-Omaha District throughout the permitting process.

B.2.a.(1) Wetland Assessment

For a more detailed discussion on the delineated wetlands and waterbodies, estimates of temporary wetland impacts and mitigation measures that will be implemented during construction, please refer to Section B.4.c.(5) of the Application for a Route Permit. ~~EPND plans to submit to the ND PSC, a copy of its final wetland delineation report[8] concurrent with its submittal to the COE-Omaha District.~~ The final wetland delineation survey report is attached herein as Exhibit F.1.

B.2.b U.S. Department of Agriculture, Natural Resource Conservation Service ("NRCS")

The NRCS administers the Wetland Reserve Program ("WRP") and the Grassland Reserve Program ("GRP"). These voluntary programs offer landowners the opportunity to protect, restore, and enhance wetlands and grasslands on their property. In April 2013, EPND submitted a consultation request to the NRCS District Conservationists to determine if the 2-mile wide study area included any lands enrolled in the WRP. In an April ~~29~~ 26, 2013 response, the NRCS state office shared shapefiles of easements currently recorded in North Dakota.

EPND has actively engaged landowners along the pipeline route to determine if their property contains a conservation easement and it has been registered in the WRP or GRP programs. Information gathered from these discussions will be combined with the data provided by NRCS to develop a full list of parcels crossed that contain WRP, GRP, and other conservation easements.

Relevant correspondence with the NRCS is included in Exhibit H.1.

B.2.c North Dakota Game and Fish Department ("NDGF")

EPND initiated consultation with NDGF on April 2, 2013. In a May 1, 2013 response, NDGF commented that various wetlands are located within the 2-mile wide study area based on an evaluation of National Wetland Inventory ("NWI") data. NDGF recommended that 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.

~~[8] As a convenience to ND PSC and its Staff, EPND has created a placeholder designated as Exhibit F.1 for this documentation. Other documentation which EPND plans to submit upon completion is footnoted with an assignment exhibit as its placeholder.~~

NDGF also identified several streams classified as valuable fisheries that would be crossed by the proposed pipeline. NDGF recommended that streams designated as valuable fisheries be crossed by directional boring, if possible, and if that method is not feasible, construction should not occur within the waterway between April 15 and June 1. NDGF further commented that appropriate controls should be implemented to minimize erosion and sedimentation.

EPND is currently evaluating crossing methods for individual waterbodies, and will comply with the conditions or timeframes specified by the NDGF. Additionally, EPND will construct the Project in accordance with its Environmental Protection Plan ("EPP"), which includes measures to minimize erosion and sedimentation at waterbody and wetland crossings (*see* Exhibit J).

A copy of the correspondence with the NDGF is attached herein as Exhibit H.2, and additional information is described in Section B.4.c.(10) and on Table 21 of the Route Permit Application.

B.3 BIOLOGICAL RESOURCES

B.3.a U.S. Fish and Wildlife Service ("USFWS")

The USFWS administers multiple programs that are designed to identify and protect plant and animal species of special status and their habitats. EPND submitted letters to the USFWS North Dakota Ecological Services Field Office ("USFWS-ES") and National Wildlife Refuge System ("USFWS-NWRS") on April 2, 2013. The letters requested information on wetlands and grassland easements, and survey requirements for species listed under the Endangered Species Act ("ESA"), and recommendations on Migratory Bird Treaty Act ("MBTA") and Bald and Golden Eagle Protection Act ("BGEPA") compliance.

The USFWS-NWRS provided the locations of piping plover critical habitat, and wetland and grassland easements on April 4 and 8, 2013, respectively. The 2-mile wide study area crosses five locations of grassland easement properties and several locations of wetland easement properties.

Between the Beaver Lodge Station and Berthold Station the 2-mile wide study area crosses four of the five locations of grassland easement properties. EPND retains easement rights for its existing pipeline that pre-date those of the USFWS-NWRS wetland or grassland easement program along this portion of the Project route. After EPND communicated this to the USFWS-NWRS, they requested a copy of EPND's right-of-way agreements for this portion of the pipeline route. EPND provided the ROW agreements to USFWS on November 7, 2013.

The fifth grassland easement location within the 2-mile wide study area is located at approximate MP 105.1 in McHenry County. EPND planned the pipeline route to

minimize the lineal distance necessary to cross this grassland easement, and developed a route where the corridor crosses at a section corner. This route would require crossing approximately 100 feet of the grassland easement. In addition, EPND plans to avoid surface disturbance on the grassland easement by boring underneath the property and USFWS-NWRS has indicated that this is an acceptable mitigation technique.

Several locations of wetland easement properties are crossed by the 2-mile wide study area. EPND coordinated with the USFWS-NWRS between July and November to further evaluate the location of specific wetland basins within those easement properties for route planning purposes. In late October and early November 2013, the USFWS-NWRS provided detailed location information of individual wetlands located on easement properties along the 2-mile-wide study corridor. EPND used this information to adjust the pipeline route location to avoid wetlands located on USFWS-NWRS wetland easement properties. EPND is currently working with USFWS-NWRS on crossing methods and/or avoidance measures at locations where wetland basin features may be unavoidable.

EPND's early communications with the USFWS-ES included letters introducing the Project and submittals of field survey protocols with accompanying requests for comments and concurrence on the protocols. However, consultation and project-specific communications with the USFWS-ES regarding ESA compliance were put on hold in April 2013 prior to receiving concurrence on the protocols. At that time, the lead USFWS-ES Region for the project, Mountain Prairie Region (Region 6), indicated the need for a lead federal agency to be identified prior to conducting a formal Section 7 consultation; therefore, data presented within this application and supplemental reports are based on informal information exchanges between EPND and USFWS-ES or publicly available datasets. ~~EPND anticipates that USFWS-ES will be in a position to consult on the Project in December 2013.~~

In November 2013, EPND met with the COE-St. Paul District and Midwest Region (Region 3) and Mountain Prairie Region (Region 6) USFWS-ES officials to discuss the Project. USFWS-ES officials indicated Region 3 would take the lead and be the point-of-contact for USFWS-ES on the Project. The COE will fulfil requirements of Section 7. EPND has since resubmitted field survey protocols and met with USFWS-ES to discuss field survey results and ESA, MBTA and BGEPA compliance strategies and timelines. EPND will submit copies of correspondence received from USFWS-ES in a supplemental filing to ND-PSC upon receipt.

The following describes EPND's assessment of and approach to compliance with the ESA, MBTA and BGEPA.

Eight federally listed, proposed, and candidate~~, or under review~~ species have been documented in the counties crossed by the Project (*see* Table 10). This information is based on research that was conducted by reviewing the USFWS-ES county specific lists of federally-listed, proposed, and candidate species on their website and by evaluating via desktop analysis. ~~The Dakota skipper and~~ Sprague's pipit ~~are~~ is currently a candidate species, and the Dakota skipper and northern long-eared bat ~~is under review~~ have been proposed for listing by USFWS-ES ~~for possible inclusion as a listed species~~. While no legal requirement exists to protect candidate or ~~under review~~ proposed species, ~~both~~ these species may be listed as threatened or endangered prior to the completion of construction of the Project; therefore, EPND is evaluating them as though they are currently listed species.

A desktop analysis was also conducted with respect to USFWS-designated critical habitat, a specific geographic area that is essential to the conservation of a threatened or endangered species that may require special management and protection. Designated critical habitat for the piping plover (a threatened species) occurs in five of the nine counties crossed by the Project in North Dakota. The USFWS also proposed the designation of critical habitat for the Dakota skipper in one of the counties crossed by the Project.

~~In conjunction with the wetland delineation field survey,~~ EPND conducted desktop assessment using aerial imagery and a field-based ~~a~~ habitat assessment survey for piping plover during the 2013 field season~~. I~~ in Williams, Mountrail, Ward, McHenry, and Pierce counties~~, survey crews recorded wetland features that are potentially suitable piping plover habitat through preliminary desktop analysis and examination of aerial imagery.~~ Results of the habitat assessment are ~~will be~~ documented in a 2013 Piping Plover Habitat Assessment Report[9], which is included herein as Exhibit G.1 ~~will be submitted to the ND PSC following completion~~. EPND will also use the data presented in the report to evaluate potential impacts and to develop appropriate conservation measures as necessary in future discussions with the USFWS.

[9] ~~As a convenience, EPND has created a place holder designated as Exhibit G.1 for this documentation.~~

TABLE 10
Status and Occurrence of Federally Listed, Proposed, or Candidate~~, or Under Review~~ Species and ~~Designated~~ Critical Habitat

Species	Status	County								
		Williams	Mountrail	Ward	McHenry	Pierce	Towner	Ramsey	Nelson	Grand Forks
Interior Least Tern	Endangered	X	X							
Pallid Sturgeon	Endangered	X	X							
Gray Wolf	Endangered	X	X	X						
Whooping Crane	Endangered	X	X	X	X	X	X	X	X	X
Piping Plover	Threatened	X	X	X	X	X				
Dakota Skipper	~~Candidate~~ Proposed - Threatened		X	X	X					
Sprague's Pipit	Candidate	X	X	X	X	X	X	X		
Northern Long-eared Bat	~~Under Review~~ Proposed - Endangered	X	X	X	X	X	X	X	X	X

Species	Designated Critical Habitat	County								
		Williams	Mountrail	Ward	McHenry	Pierce	Towner	Ramsey	Nelson	Grand Forks
Piping Plover	Threatened	X	X	X	X	X				
Dakota Skipper	Proposed				X					

Sources: http://ecos.fws.gov; and http://www.fws.gov/endangered/improving_ESA/FY13-18_ESA_Listing_workplan.pdf

Untilled, native prairie ~~and non-native grasslands are~~ is the preferred habitat for the Dakota skipper. ~~and~~ The Sprague's pipit has broader habitat preferences and may occur in either native or non-native and tilled or untilled grasslands ~~as these areas provide foraging, sheltering, breeding and dispersal habitat~~. EPND completed a field survey of grassland areas to evaluate the potential for suitable habitat for Dakota skippers and Sprague's pipit. In preparation for the field survey, a desktop assessment of the environmental survey corridor was completed to identify grasslands using high-resolution aerial photography in counties where Dakota skippers and Sprague's pipit are known to occur. Potential habitats identified in the desktop assessment were then surveyed in the field to confirm the suitability ~~for successful~~ of habitat. Results of the habitat assessment are ~~will be~~ documented in a 2013 Grassland ~~and Native Prairie~~ Habitat Assessment Report[10] ~~, which will be submitted to ND PSC following completion~~ which is included herein as Exhibit G.2. EPND will use the data presented in the report to evaluate potential impacts and to develop appropriate conservation measures as necessary in future discussions with the USFWS.

EPND will also use the data presented in the Grassland ~~and Native Prairie~~ Habitat Assessment Report described above to develop a plan for addressing the Project's effects on migratory birds. In consultation with ~~state and federal agencies~~ the USFWS-ES, EPND will develop appropriate conservation measures to avoid, minimize, or mitigate for potential impacts on migratory birds.

EPND will also conduct aerial surveys of eagle nests along the route in ~~February and~~ mid-March 2014 to determine if eagle nests occur in the construction right-of-way or outside of the construction right-of-way but within the disturbance distance for eagles. ENPD will develop appropriate conservation measures to avoid potential impacts on eagles in consultation with ~~appropriate state and federal agencies~~ the USFWS-ES.

In general, potential impacts to wildlife include temporary displacement due to construction activities and temporary loss of habitat in native and planted grassland areas. These effects are not likely to cause long-term declines in populations in the area. EPND analyzed the potential for project-related impacts under the ESA. EPND assessed the effects for each federally listed, proposed, and candidate ~~and under review~~ species by evaluating historic and present occurrences, availability of potential habitat within the 2-mile wide study area, the species' natural history, and results of desktop and field-based habitat assessments and surveys. Using USFWS terminology, EPND evaluated each species and characterized the direct, indirect, and cumulative effects of the proposed activities on each species based on past pipeline projects and USFWS interactions on those projects. Potential determination outcomes that may be reached for federally listed species under the ESA include:

- No effect;
- May affect, but is not likely to adversely affect; or

[10] ~~As a convenience, EPND has created a place holder designated as Exhibit G.2 for this documentation.~~

- May affect, and is likely to adversely affect.

Additional details on each of the listed species are included in Section B.4.a.(4) of the Route Permit (*see* Exhibit H.3). Correspondence is included herein as Exhibit H.4. EPND will file copies of any relevant correspondence with the USFWS as they are received.

B.3.b North Dakota Game and Fish Department ("NDGF")

EPND initiated consultation with the NDGF on April 2, 2013 requesting any information the NDGF may have with respect to wildlife species of concern and their habitats that may be affected by the Project. NDGF confirmed that North Dakota did not have state-protected species, and no survey requirements exist for North Dakota species of concern. However, NDGF also recommended avoiding disturbance to native prairie and woody vegetation, and requested that disturbed areas should be reclaimed to pre-project conditions.

NDGF further noted that wildlife management areas ("WMA") exist within or adjacent to the 2-mile wide study area. EPND identified four WMAs within the 2-mile wide study area including: Palermo in Mountrail County, Sand Hill in McHenry County, Horseshoe Lake in Pierce County, and Crawford in Grand Forks County. However, none of the WMAs are directly crossed by the route. EPND has confirmed with NDGF that further consultation is not necessary and no permits are required.

A copy of the correspondence with the NDGF is attached herein as Exhibit H.2.

B.3.c North Dakota Parks and Recreation Department ("NDPR")

EPND initiated consultation with the NDPR on April 2, 2013 requesting any information the NDPR may have with respect to rare plants or animals or significant ecological communities that may be affected by the Project. In an April 10, 2013 response letter, the NDPR provided a report derived from the Natural Heritage Biological Conservation Database that identified historical occurrences of plant or animal species of concern, and other significant ecological communities known to occur within a 2-mile-wide study area.

The report identified several plants, animal and significant ecological communities located within or adjacent to the 2-mile wide study area. The NDPR also sent GIS shapefile data of the locations in a subsequent email, allowing EPND to precisely evaluate the location of each biological resource as it relates to the proposed centerline of the pipeline.

EPND determined that one NDPR-identified resource occurs within the environment survey corridor: a northern wet-mesic tallgrass prairie. The construction right-of-way crosses an outside edge of the prairie. The results of EPND's evaluation are discussed in further detail in Section B.4.c.(10) of the Route Permit Application. Based on on-

going discussions with NDPR, the mitigation measures for this prairie location will include revegetating the construction right-of-way and workspace with an NDPR-recommended prairie seed mix.

The NDPR deferred detailed comments regarding animal species to the USFWS (*see* Section B.3.a) and the NDGF (*see* Section B.3.b). The NDPR also recommended constructing the Project with minimal impacts, implementing measures to protect critical habitats, and revegetating any disturbed areas with species native to the area.

NDPR further confirmed that the Project will not affect state park lands but was in the vicinity of five lands managed by NDPR's Land and Water Conservation Fund ("LWCF"), and along the Sheyenne River Valley Scenic Byway. An updated mapset was provided by NDPR that showed more precise locational information of the five LWCF lands. Two of the five LWCF projects are outside of the 2-mile-wide study corridor. While the remaining three LWCF projects are within the 2-mile-wide study corridor they are located at the outer reaches and outside of the environmental survey corridor all together. The three LWCF projects include project 38-00191: Berthold Walther Park and project 38-01164: Berthold Playground both within the City of Berthold, and project 38-00806: Deering Multi-Purpose Court within the City of Deering. ~~None of the managed LWCF lands are in the immediate vicinity of the Project and~~ No impacts are anticipated.

A copy of the correspondence with the NDPR is included herein as Exhibit H.4.

B.4 OTHER AGENCY CONSULTATIONS

Other agencies that EPND has consulted include the following:

B.4.a North Dakota Department of Agriculture ("NDDA")

EPND initiated consultation with NDDA on April 22, 2013. To date, EPND has not received a reply. EPND will submit any responses from NDDA in a supplemental filing. The formal consultation letter sent to the NDDA is included in Exhibit H.5.

B.4.b North Dakota Department of Health ("NDDH")

The NDDH administers regulatory programs governing the state's interest in air and water quality. EPND performed a desktop review of waterbodies crossed in North Dakota which may have special designations. These include waterbodies considered "impaired" with respect to Section 303(d) of the federal Clean Water Act and "Class I or IA" waterbodies (defined in North Dakota Administrative Code Section 33-16.02.1-09), which are protected for special uses such as fish propagation, drinking water, and recreation.

Through a desktop review, EPND identified nine impaired waterbodies, and four Class I or IA waters within the 2-mile wide study area. EPND initiated consultation with NDDH

on August 13, 2013 to confirm the results of its desktop review, and requested NDDH provide recommendations or identify special requirements necessary to construct in these areas. In a response from the NDDH dated August 22, 2013, the NDDH confirmed EPND's assessment of 303(d) waters and stream classifications within the 2-mile wide study area. The NDDH did not provide recommendations; EPND will continue to consult with the NDDH.

The NDDH also identified two Nonpoint Source Pollution watershed projects (the Red River Riparian Project and the Turtle River Riparian Project) and recommended EPND contact each watershed project. EPND sent a consultation letter on September 23, 2013 to each Nonpoint Source Pollution contact to introduce the Project and inquire about specific concerns the watershed projects may have. The Red River Riparian Project responded on October 10, 2013 confirming that Sandpiper would not have an impact on past or present river restoration projects.

The Grand Forks County Soil Conservation District responded on November 14, 2013 regarding the Turtle River Riparian Project. The letter stated there are no special requirements for pipeline construction in the Turtle River watershed. The Grand Forks County Soil Conservation District also described a partnership in which they are involved with other federal and state agencies and non-governmental organizations, called the Grand Forks Prairie Partners Project.

NDDH also manages the state's Source Water Protection Program that seeks to prevent contamination of public water supplies. EPND consulted with NDDH to identify wellhead protection areas ("WHPAs"). WHPAs were identified for Cities of Deering and Grand Forks~~, which the new pipeline will cross in that area~~. The proposed route does not cross the WHPA for the City of Deering, but does cross the WHPA for the City of Grand Forks. EPND ~~has been and will~~ continues to work with the City of Grand Forks ~~in the routing of its new pipeline to~~ addressing its concerns and solicit recommendations as it relates~~d~~ to protect~~ing~~ion of the municipal water supplies, as more fully described in Section B.2.e and Section B.4.b of the Application for a Route Permit.

Additional discussion regarding NDDH permits related to water quality is included in Section B.4.c.1.(iv) of the Route Permit. Correspondence with the NDDH is included in Exhibit H.6.

B.4.b.(1) North Dakota Pollutant Discharge Elimination System Program ("NDPDES")

Water Quality-Construction Stormwater

EPND will obtain coverage under construction stormwater General Permit NDR10-0000 (Authorization to Discharge under the NDPDES) for ground disturbing activities associated with the construction of the Project. A Project-specific Stormwater Pollution Prevention Plan ("SWPPP") will be prepared in accordance with NDPDES permit requirements and will be implemented to manage run-off in a manner that minimizes the

potential for sediment and waste products discharge outside of the construction right-of-way. An environmental inspector will be on-site for the duration of construction activities to monitor the effectiveness of sediment and erosion control measures.

Water Quality-Construction Site Trench Dewatering and Hydrostatic Test Discharges

EPND will apply for coverage under NDPDES General Permit NDG07-0000 (Authorization to Discharge under the NDPDES) for temporary discharges associated with construction dewatering and hydrostatic test water discharges. Site dewatering will be required where stormwater collects or groundwater seeps into trenches and must be removed.

Discharges of trench dewatering will be monitored by the environmental inspector, and water quality samples will be collected, analyzed, and reported as required by provisions in the General Permit. Pursuant to industry safety standards, each new pipeline segment and new facility tankage will be hydrostatically tested to verify the integrity of the welds and the pipe prior to being placed into service. EPND will obtain coverage under NDG07-0000 prior to discharge of hydrostatic test water.

Water Quality Certification

Pursuant to the Clean Water Act, Section 401, EPND is required to obtain a Water Quality Certification ("WQC") from the NDDH. EPND will pursue coverage under the COE's NWP 12, and will receive WQC in conjunction with the issuance of the COE permit.

EPND will provide a copy of the NDDH permits required to start construction activities to the ND-PSC in a supplemental filing.

B.4.b.(2) Air Quality

The NDDH administers the state's air quality protection programs. Pursuant to North Dakota Administrative Code Section 33-15-14, EPND will apply for the required permits for construction and operation of the new stationary emission sources, including new storage tanks and associated equipment for the Beaver Lodge, Stanley, and Berthold Terminals. The permits will address net potential emissions from the facilities. EPND's design plans incorporate control measures that will reduce total emission from the facilities and meet compliance standards.

After the facilities have been constructed and appropriate testing has occurred, EPND will notify the NDDH ~~to acquire Operating Permits~~. within 15 days after completing the project to allow for an inspection by the NDDH. Once the Permits to Construct requirements are verified, the NDDH will issue Permits to Operate.

B.4.c North Dakota Department of Trust Lands ("NDDTL")

The primary responsibility of the NDDTL is to manage educational trust funds and assets under the Board of University and School Lands' control. The Department also manages several funds and mineral acres in addition to the trust assets.

On April 5, 2013, EPND contacted the NDDTL to introduce the Project and inquire about specific survey requirements. The NDDTL noted that the right-of-way application process requires identifying the proposed tracts to be surveyed and information on the surveyors. (For more details on NDDTL, *see* Section B.4.b.(2)(ii) of the Application for a Route Permit.)

Exhibit H.7 provides correspondence with NDDTL.

B.4.d North Dakota State Water Commission ("NDSWC")

The primary responsibility of the NDSWC is to provide management of North Dakota's water resources, including state sovereign lands (*i.e.*, navigable waters) and water appropriations. In its desktop review, EPND identified the Red River of the North as the only state sovereign land crossed by the Project. EPND submitted a consultation letter to the NDSWC on July 9, 2013 to confirm this finding. On October 25, 2013, NDSWC responded identifying the Souris River as a sovereign land as well as the Red River of the North. ~~While a response has not been received, based on EPND's experience in North Dakota,~~ An "Application for Authorization to Construct a Project within Islands and Beds of Navigable Streams and Waters" will be submitted for the Red and Souris Rivers prior to construction.

The NDSWC also indicated that floodplains are mapped in some parts of the 2-mile-wide study area in Ward, McHenry, Towner, Ramsey, Nelson, and Grand Forks counties; however, floodplains are unmapped in Pierce, Mountrail, and Williams counties. The NDSWC directed EPND to work closely with County Floodplain Administrators and contact information was provided. EPND is working with the County Floodplain Administrators and will continue to throughout the permitting process.

In the letter, the NDSWC confirmed there are no sole-source aquifers in North Dakota. They also noted that the NDSWC maintains a network of observation and monitoring water wells throughout the state. The NDSWC directed EPND to contact the Water Appropriations Division of the NDSWC if such water wells may be affected or accidentally damaged.

EPND will also submit an "Application for a Temporary Water Permit" to appropriate surface or groundwater that will be used for horizontal directional drilling, direct bores, dust suppression, and hydrostatic testing of new pipe and facility infrastructure.

EPND will provide the ND-PSC with copies of these permits prior to commencing activities associated thereto. Correspondence with the NDSWC is included in Exhibit H.8.

B.4.e U.S. Department of Agriculture, North Dakota Farm Service Agency ("FSA")

The U.S. Department of Agriculture, Farm Service Agency ("FSA") administers the Conservation Reserve Program ("CRP") and Conservation Reserve Enhancement Program ("CREP"). These voluntary conservation programs provide compensation to landowners for placing tillable lands into non-agricultural conservation programs. FSA also addresses concerns relating to designated prime farmland.

EPND submitted consultation requests to the nine county-level, as well as state, FSA offices on April 22, 2013 requesting identification of lands with FSA-administered programs that are crossed by the Project. Grand Forks and Towner County FSA officials responded on April 24, 2013, stating they forwarded the consultation request to the FSA State Office in Fargo.

In a May 13, 2013 response, the state FSA noted they located 10 County CRP shapefiles; however, they have elected to withhold disclosing this information to EPND, pursuant to 5 U.S.C. 552(b)(3) of the Freedom of Information Act.

EPND has actively engaged landowners along the pipeline route to determine if their property is enrolled in FSA-administered conservation programs. Information gathered from these discussions will be combined with any future data provided by FSA to develop a list of parcels crossed containing CRP, CREP, and other conservation easements.

Additional discussion regarding CRP lands and impacts to prime farmland is provided in Sections B.4.c.(1)(i) of the Route Permit Application. Relevant correspondence with the FSA is included in Exhibit H.9. Additional correspondence or response letters from FSA will be filed with the ND-PSC as a supplement filing.

B.4.f U.S. Department of Interior, Bureau of Land Management ("BLM")

Based on a desktop review of publicly available information, no BLM-managed land is located within the Project's 2-mile wide study area. EPND submitted a consultation letter on June 27, 2013 to the BLM to introduce the Project and confirm no BLM-managed land is crossed by Sandpiper. To date, a formal response has not been received. However, informal discussions have confirmed that no BLM-managed land is present in the 2-mile wide study area. Exhibit H.10 includes the formal consultation letter sent to the BLM.

B.4.g U.S. Department of Interior, Bureau of Reclamation ("BOR")

EPND initiated consultation with BOR on August 13, 2013 to determine if any BOR-administered lands were located within the Project's 2-mile wide study area. In an August 20, 2013 response BOR confirmed no administered lands were located within the 2-mile wide study area. BOR also noted in the response the 2-mile wide study area traverses the service area of North Dakota's Northwest Area Water Supply ("NAWS") project being constructed by the NDSWC. NAWS is a water supply project piping water from Lake Sakakawea to Minot and other cities farther north.

The Project would cross two completed sections of this water pipeline near Berthold (MP 91.1) and north of Minot (MP ~~48.9~~ 49.0). The remaining portions of the NAWS project to be constructed are north of the Sandpiper route and would not be impacted. EPND sent a follow-up consultation letter on September 24, 2013 to NDSWC to request additional information on NAWS and inquire about specific concerns NDSWC may have (*see* Exhibit H.8).

Correspondence received from BOR is included as Exhibit H.11.

B.4.h North Dakota County Water Resource Boards

Each county in North Dakota has a Water Resource Board ("WRB"), which manages county-level drainage issues. County-level WRBs frequently work in tandem with NDSWC on issues pertaining to drainage and filling of wetlands.

Nine WRBs are crossed by the Project route. EPND initiated consultation with each of the nine WRBs in July 2013. To date the Williams County and Grand Forks WRBs have responded.

The Williams County WRB responded on July 7, 2013 indicating the Williams County Commissioners and County Road Superintendent be contacted for further concerns related to crossing of legal drains and ditches. EPND will continue to consult with the County Commissioners.

The Grand Forks WRB responded requesting more detailed maps to assist in identifying the locations of county-regulated drainage features. EPND provided an updated mapset

on August 13, 2013. On September 9, 2013 Grand Forks WRB provided detailed county-level maps showing the locations of legal drains, dams and channels in Grand Forks County.

Exhibit H.12 includes correspondence from the Williams and Grand Forks counties WRBs.

B.4.i North Dakota County Weed Control Boards

Each county in North Dakota has a County Weed Control Board ("WCB"), which develops and maintains county-level lists of noxious weeds and implements noxious weed control.

EPND submitted consultation letters in July 2013 to nine county WCB officers. The consultation letter requested each county board to confirm the County's list of noxious and invasive weeds and identify known locations of noxious and invasive species within the Project's 2-mile wide study area. EPND also requested recommendations on county-specific guidance for weed control, pesticide use, and non-chemical treatment options.

To date, the Nelson County, Ramsey County, McHenry County, and Towner County WCBs have responded.

On August 9, 2013, the Nelson County WCB responded with a list of known locations of noxious and invasive weeds. The Nelson County WCB also forwarded the consultation letter to the Nelson County Highway Department for additional information. To date, a response from the Nelson County Highway Department has not been received.

On July 23, 2013, the Ramsey County WCB responded via telephone with a list of known noxious and invasive weeds. Locational information provided indicated a scattering of pockets of noxious and invasive weeds throughout the county with no real concentrations that could be identified.

On August 20, 2013, the McHenry County WCB responded with additional questions related to EPND's request. On August 29, 2013, EPND provided an updated mapset for the WCB to mark up and send back to EPND. The McHenry County WCB responded again on September 26, 2013 by stating there are a variety of weeds located throughout the county, and provided a weed identification booklet, and Weed Control Guide, and the North Dakota Noxious Weed Law and Regulation Book.

On October 18, 2013, the Towner County WCB phoned EPND in response to the consultation letter stating that there are no specific concentrations of weeds that can be identified in the 2-mile-wide study area.

Exhibit H.13 includes correspondence from the Ramsey, Nelson, McHenry and Towner County WCBs. Subsequent WCB correspondence will be included in a supplemental filing as it is received.

B.4.j U.S. National Park Service ("USNPS")

Based on a desktop review of publicly available information, no USNPS-managed land, trails, or National River Inventory ("NRI") river segments are located within the Project's 2-mile wide study area. EPND submitted a consultation letter on August 12, 2013 to two offices of the USNPS (i.e., the Midwest Regional Office for NRI, and the office that manages the North Country National Scenic Trail) to introduce the Project and confirm no land, trails, or NRI river segments are crossed by Sandpiper. A formal response was received from the superintendent of the North Country National Scenic Trail. Exhibit H.14 includes the formal consultation letter sent to the USNPS.

B.4.k U.S. Department of Defense

In August 2013, EPND initiated contact with the U.S. Department of Defense, specifically, the U.S. Air Force ("USAF") Cable Affairs office to determine if the Sandpiper route would be within 1200 feet of the geographic center of an intercontinental ballistic missile ("ICBM") launch or launch control facility, or if the Sandpiper route would be within 30 feet on either side of a direct line between an ICBM or launch control facility. The USAF Cable Affairs office confirmed that the Sandpiper route does not pose any concerns with the ICBM or launch control facility. Sandpiper will cross a cable associated with a facility, but there is adequate clearance and the crossing angle meets the USAF's specifications. In addition, there are no areas of the Sandpiper route that encroach on restricted easement areas surrounding the missile sites. Exhibit H.15 includes correspondence from the USAF Cable Affairs office.

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION C
NEED FOR FACILITY

C.1 AN ANALYSIS OF THE NEED FOR THE PROPOSED FACILITY BASED ON PRESENT AND PROJECTED DEMAND FOR THE PRODUCT TRANSMITTED, INCLUDING THE MOST RECENT SYSTEM STUDIES SUPPORTING THE ANALYSIS OF THE NEED.

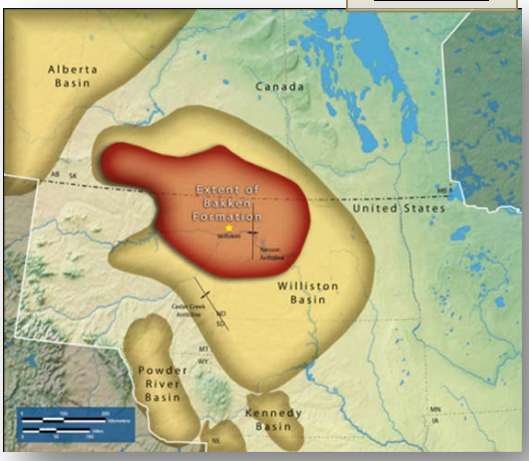
C.1.a Planned Use and Purpose

As the demand for the crude oil production from the Williston Basin increases so does the demand for additional pipeline export capacity on EPND's North Dakota pipeline system. As previously stated, EPND has been responding to these market demands with the execution of numerous phased-in expansion projects since 2005, and has increased its overall export capacity more than seven fold in the last seven years. The Sandpiper Pipeline Project is the next phase of EPND's capacity expansion efforts to meet the market demands of the Bakken and Three Forks shippers, as more fully described below.

As production activity rises in the Bakken and Three Forks Formations, so has the demand for EPND to increase its pipeline takeaway capacity. This Project expands EPND's existing North Dakota Pipeline System from Beaver Lodge Station near Tioga, North Dakota to a new station and terminal facility in Clearbrook, Minnesota, and extends its pipeline system from Clearbrook to its affiliated Superior Terminal Facility in Superior, Wisconsin. As designed, the new pipeline adds additional pipeline capacity and further system flexibility of 250,000 bpd to EPND's existing pipeline system between Beaver Lodge and Berthold, 225,000 bpd of new export capacity ex-Berthold to Clearbrook, Minnesota, and 375,000 bpd of new export capacity ex-Clearbrook into Superior, Wisconsin. The Project will be operated as an integral part of EPND's pipeline system. This Project provides the critical pipeline infrastructure necessary to accommodate the current and future transportation requirements of the Williston Basin region for access to premium marketing hubs across the U.S. Midwest and beyond.

Supply: The Williston Basin spans parts of western North Dakota, eastern Montana and parts of Saskatchewan and Manitoba. The subsurface Bakken and Devonian Three Forks formations (*see* Figure 4), are the direct or indirect source for most of the crude oil currently produced in the Williston Basin. Since the Bakken formation is currently the largest contributor to the total crude oil production in the Williston Basin, the oil industry refers to all of the crude oil production in the Williston Basin as "Bakken crude oil".

Figure 4



Producers in this region have experienced unprecedented success with the recent improvements in drilling technology to extract crude oil from tight and dense formations. The active drilling rig count in North Dakota has risen from 50 in September 2009 to 188 in September 2013, which is over a 300 percent increase. North Dakota is the second largest crude oil producing state in the country, with only Texas producing more on-shore crude oil on a daily basis, according to the North Dakota Petroleum Council.

As seen in Table 11, North Dakota's daily average oil production in the Bakken Formation has grown significantly from 137,644 bpd in January 2008 to 911,242 bpd in August, 2013, rising more than 100 percent on an annual basis and more than 500 percent during the overall time period. (*see* quarterly *The Pipeline Publication* reports posted on the North Dakota Pipeline Authority's website at www.pipeline.nd.gov.) The production volumes are expected to continue to rise in this region as drilling activities continue to increase.

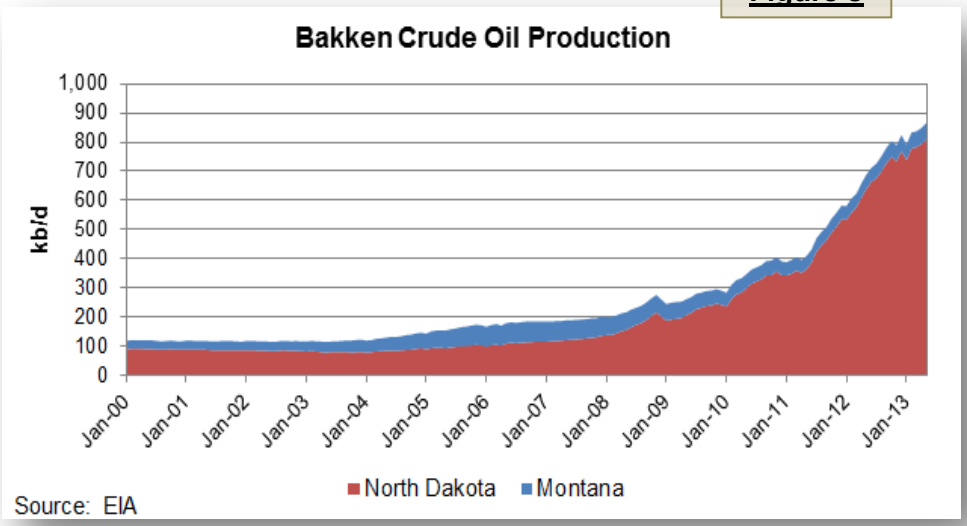
Table 11

North Dakota's Average Daily Oil Production (bpd)
From Bakken Formation

Year	Jan	Feb	March	April	May	June
2013	737,787	779,050	782,999	793,852	811,262	821,598
2012	546,047	558,584	577,491	609,394	643,123	664,618
2011	342,089	349,063	360,279	351,183	364,134	385,799
2010	236,114	261,179	277,418	288,435	298,060	314,477
2009	187,821	192,272	195,798	196,701	206,078	215,074
2008	137,644	137,837	143,776	150,694	156,365	166,190
Year	**July**	**Aug**	**Sept**	**Oct**	**Nov**	**Dec**
2013	875,736	911,242				
2012	674,067	701,409	729,336	749,212	733,078	768,885
2011	424,975	446,100	464,122	487,724	510,391	535,048
2010	321,042	328,883	342,094	342,247	356,505	344,064
2009	227,879	232,367	238,173	240,042	245,854	242,107
2008	172,939	177,740	188,246	203,773	215,717	202,347

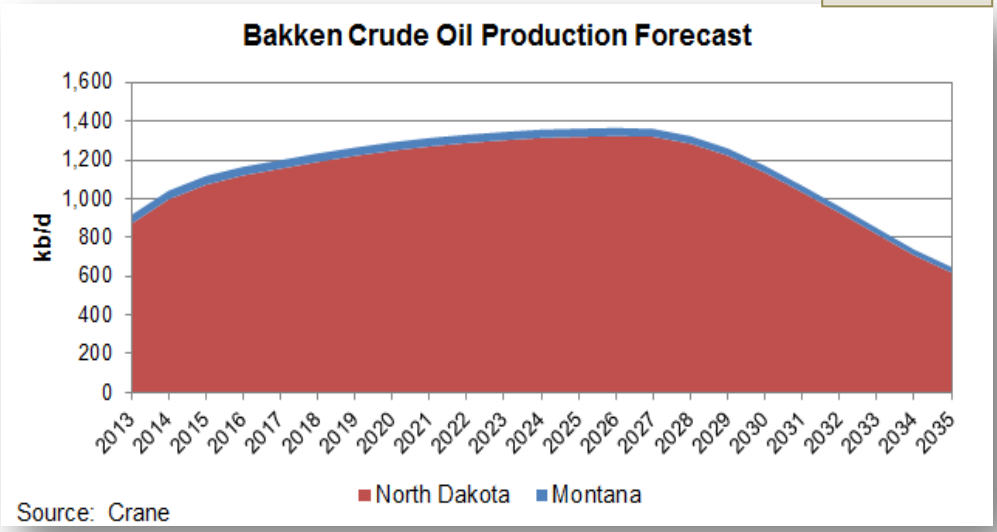
Forecast: The Bakken crude oil production has been, and continues to rapidly rise in the Williston Basin, as seen in Figure 5. The Williston Basin now ranks as one of the largest producing areas in the world.

Figure 5



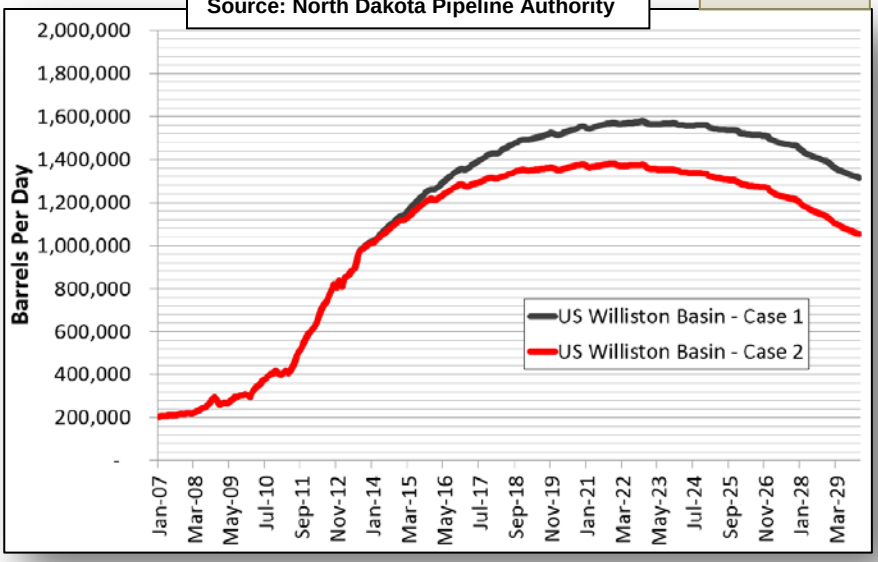
Bakken crude oil production forecasts project continued increase at a rapid growth rate before moderating. Forecast studies support that the production growth will be steady through the 2023 to 2025 timeframe, as shown in Figure Nos. 6 and 7. Moreover, peak production of Bakken crude is forecast to peak at 1.33 to 1.35 million bpd in 2026, before beginning to decline as seen in Figure 6 to 1.10 million bpd in 2029 according to a forecast study generated by Crane Energy LLC.

Figure 6



Consistent with the supply forecast in the Crane Report, the North Dakota Pipeline Authority also predicts continued growth in Bakken production over the next 8 to 10 years and then a gradual decline over the following 10 years, but still maintaining production levels above 1 million bpd as seen in Figure 7. [11]

Figure 7



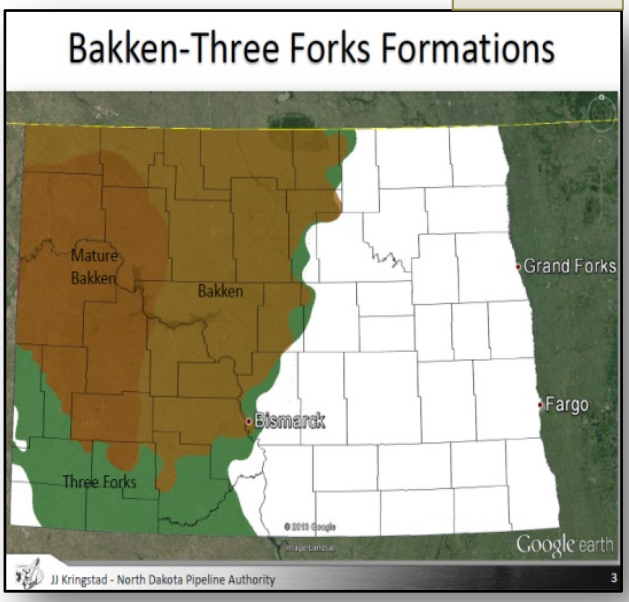
Generally, forecast studies[12] show that the total U.S. Williston Basin Bakken and Three Forks production (eastern Montana combined with North Dakota) is expected to exceed 1 million bpd by 2015. Forecasts of peak year production range from a low of 1.3 million bpd to a high of 2 million bpd from 2022 to 2026. [13]

Based on these supply forecasts, existing long-haul pipeline capacity will not be sufficient to accommodate this growth by 2017, even if similar planned expansion projects are built.[14] Rail capacity exists to move these incremental volumes but pipeline transportation is more economic, safer and less environmentally harmful. For example, transportation cost analysis indicates that pipeline transport is roughly 60 percent of the cost of rail transport. Moreover, pipeline transportation incurs far lower labor and energy costs and greenhouse gas emissions than other competing transportation modes, and only pipeline transport avoids the need to return an empty shipping container back to the point of origination (rail alternatives are discussed in more detail in Section C.2.c).

[11] Information source can be found at http://ndpipelines.files.wordpress.com/2012/04/ndpa-edt-10-14-2013.pdf
[12] Source: Crane, Bentek, Goldman Sachs, & WoodMac
[13] Id. Footnote 7.
[14] NDPA House Energy and Natural Resources Committee Presentation on January 11, 2013at https://www.dmr.nd.gov/pipeline/.

Reserves: Additionally, a new assessment of oil and gas reserves in the Bakken region by the U.S. Geological Survey[15] concludes that industry could have access to almost double the early supply forecasted, especially considering the rapid increase in the reserve estimates coming mainly from the Three Forks Formation. The government estimates that Three Forks holds about 3.73 billion barrels of recoverable crude oil, compared with 3.65 billion barrels for the Bakken Shale. When combining the Three Forks and the Bakken together, USGS now believes the region holds approximately 7.4 billion barrels of undiscovered, technically recoverable crude oil. This finding almost doubles the initial assessment the agency made back in 2008. (Figure 8 shows the location of the Bakken and Three Forks Formation in the Williston Basin.)

Figure 8



Therefore, the Project is needed and in the public interest as it will provide the timely addition of new pipeline export capacity necessary to link the increasing Bakken production to refining centers in the Midwest and beyond. This new long-haul pipeline provides a timely, cost effective and long-term transportation solution, thereby serving the public's interest in improved access to an abundant, secure, and reliable crude oil supply to satisfy consumers' demand for refined products.[16]

C.1.b Future North Dakota System Expansion(s)

EPND's long-term planning to better serve its shippers' increasing pipeline capacity requirements is an ongoing effort requiring EPND to work closely with its shippers and assess various forecasts of production activity.

At this time, EPND has no other expansion projects being developed other than the Project described herein. Upon completion of this Project, EPND will have 580,000 bpd of pipeline export capacity, linking the Bakken and Three Forks production volumes to

[15] Cited from Energy Wire (Nathanial Gronewold, E&E reporter) – 5-1-2013, Prosperous play's new oil estimates could influence pipeline plans
[16] Refer to Williston Basin Crude Oil Transportation Options Table at http://northdakotapipelines.com/oil-transportation-table/.

premium markets throughout the U.S. Midwest and beyond via EPND's affiliated Enbridge Mainline System and other interconnecting third-party pipeline companies. The design of the Project allows for future expandability up to 406,000 bpd from Berthold, North Dakota to Clearbrook, Minnesota and 711,000 bpd from Clearbrook to Superior, Wisconsin, through the addition of pumping stations should future growth of Bakken crude production and demand for additional pipeline capacity require such expansions. Currently, no active expansion plans are being considered for the Project. EPND and its customers continuously assess demand and supply patterns and various other pipeline infrastructure development projects to determine if and when future expansions or changes are needed to meet market demand.

C.2 FEASIBLE ALTERNATIVE METHODS FOR SERVING THE NEED FOR THE PROPOSED FACILITY

In order to review reasonable alternatives in lieu of constructing the Sandpiper Pipeline Project, it is important to first recap the scope of the Project against each alternative that needs to be compared.

Sandpiper Pipeline Project

The Project is a new ~~612~~616-mile, 24-inch and 30-inch diameter crude oil pipeline that expands the export capacity of EPND's North Dakota Pipeline System from Beaver Lodge Station near Tioga, North Dakota into Clearbrook, Minnesota, and extends EPND's pipeline system from Clearbrook into Superior, Wisconsin. This Project provides the additional export capacity required by the market to meet the transportation requirements of upstream producers and the refined product needs of the public served by the refineries that are supplied either directly or indirectly by the Project. Other aspects of the Project were considered in the comparative analysis, including:

- Ability to utilize and follow existing pipeline and utility corridors;
- Ability to install station facilities on existing, previously disturbed station sites;
- Ability to integrate new pipeline at Clearbrook for secondary back-up delivery service to Minnesota Pipeline, and receipt of up to 150,000 bpd from EPND's existing Line 81, for the ultimate delivery of 375,000 bpd to Superior; and
- Ability to interconnect new pipeline facilities at the Superior Terminal with other petroleum pipelines east and south of Superior to maximize potential markets served and flexibility for shippers.

Using the above factors, EPND has performed a reasonable and defensible alternative analysis that involves consideration of environmental, engineering and economic factors in a multi-disciplinary and iterative fashion. Thus, discussed below are potential alternatives to the Project that EPND considered.

C.2.a No Action Alternative

In light of the overall increase in Williston Basin production and the requirement of production shippers to have additional export capacity for market access and for U.S. refinery shippers to have access to secure and reliable sources of crude oil supplies to meet the demands of the petroleum consuming public for refined products, a "no action" alternative is unacceptable to EPND and its shippers.

Alternative transportation options to the Project are limited and would result in more impacts than the proposed pipeline expansion project. The only other alternatives for shippers delivering into the North Dakota pipeline system would be to (1) reduce production, if transport options out of North Dakota are capacity constrained; (2) truck or rail all or portions of the increased Bakken production to refineries outside North Dakota with the attendant problems noted in Sections C.2.b and C.2.c below; or (3) transport crude on non-Enbridge pipelines that are expected to be operating at capacity, and thus, would require new pipe or facilities to be constructed. While pipeline expansions have been proposed or are under consideration by other companies, no project can provide the same transportation solution for incremental export capacity to the same premium refineries and marketing hubs as the Project. The facts regarding publicly announced pipeline projects described in Sections C.2.a.(1), C.2.a.(2), and C.2.a.(3) below were considered as part of EPND's comparative analysis.

C.2.a.(1) Plains Bakken North Pipeline Project

- **a discussion of the design and the geographical area affected**

On November 3, 2010, Plains All American Pipeline LP ("PAA") announced its plans to reverse its Wascana pipeline system and build a new pipeline, Bakken North, to provide additional takeaway capacity for growing Bakken crude production.

The Bakken North pipeline, consisting of approximately 79 miles of new 12-inch diameter pipeline, extends from Trenton, North Dakota to the southern terminus of Plains' Wascana system approximately 2.5 miles north of the town of Outlook in Sheridan County, Montana. The new pipeline will have an initial design capacity of 48,000 bpd, with a maximum capacity of up to 75,000 bpd. PAA plans to reverse the flow of its Wascana System in order to provide further transportation service to Regina, Saskatchewan. At Regina, PAA connects to third-party carriers providing access to Cushing, Okla. and Petroleum Administration Defense District (PADD II) delivery points.

Public information about the project can be found on its website at http://www.paalp.com. The website also provides links to news releases.

- **an estimate of the in-service date**

No in service date is available. ND-PSC filings show construction completed in late 2012.

- **a discussion of the method of operation**

As an interstate common carrier crude oil pipeline, Bakken North will be required to operate and maintain the new pipeline in accordance with extensive federal and state regulations, specifically 49 CFR Parts 194 and 195 of the USDOT's PHMSA Rules and Regulations, and any applicable national technical standards.

- **its costs**

In the public announcement, PAA estimates the project cost (to the 75,000 bpd capacity) at $160-200 million.

- **its economic life**

Current information is not available to EPND.

- **its reliability**

EPND assumes that the new pipeline will be constructed, operated and maintained in accordance with all applicable federal/state rules and regulations and industry standards as an interstate common carrier crude oil pipeline

C.2.a.(2) High Prairie Pipeline Project

- **a discussion of the design and the geographical area affected**

Based on the press release issued on March 12, 2012, the High Prairie Pipeline Project will consist of approximately 450 miles of new 16-inch diameter pipeline, beginning north of Alexander, North Dakota in McKenzie County and ending near Clearbrook, Minnesota in Clearwater County. High Prairie is also proposing to construct two laterals: a 17-mile lateral originating at Johnsons Corner, North Dakota in McKenzie County and connecting with the High Prairie Pipeline, and an 8-mile lateral beginning near Robinson Lake, North Dakota in Mountrail County and connecting with the High Prairie Pipeline. The new pipeline will have an initial design capacity of 150,000 bpd and will interconnect with the Enbridge Mainline system at or near Clearbrook, Minnesota for further transportation to marketing centers.

Public information about the project can be found on its website at http://www.sbpipeline.com. The website also provides links to news releases.

- **an estimate of the in-service date**

The in-service date has been publicly stated as fourth quarter of 2013. However, EPND is not aware of any construction activities being undertaken at this time.

- **a discussion of the method of operation**

As an interstate common carrier crude oil pipeline, High Prairie will be required to operate and maintain the new pipeline in accordance with extensive federal and state regulations, specifically 49 CFR Parts 194 and 195 of the USDOT's PHMSA Rules and Regulations, and any applicable national technical standards.

- **its costs**

The estimated cost is $650 million.

- **its economic life**

Current information is not available to EPND.

- **its reliability**

EPND assumes that the new pipeline will be constructed, operated and maintained in accordance with all applicable federal/state rules and regulations and industry standards as an interstate common carrier crude oil pipeline.

C.2.a.(3) Koch Pipeline Company Dakota Express Pipeline

- **a discussion of the design and the geographical area affected**

The Dakota Express Pipeline ("Dakota Express) is a proposed pipeline project with a capacity of 250,000 bpd. The proposed pipeline will transport Bakken crude oil from western North Dakota to Hartford, Illinois and Patoka, Illinois. Koch Pipeline Company also intends to explore a connection at Patoka, Illinois, to the Eastern Gulf Crude Access Pipeline, which would be capable of delivering Bakken crude oil to eastern U.S. Gulf Coast refineries. The new pipeline will be constructed, owned and operated by Koch Pipeline Company. In July 2013, Koch announced a 45-day nonbinding open season to gauge interest from potential shippers in the proposed project.

Public information about the project can be found on its website at http://www.kochpipeline.com. The website also provides links to news releases.

- **an estimate of the in-service date**

According to recent news releases, Koch Pipeline Company states an in-service date in 2016.

- **a discussion of the method of operation**

As an interstate common carrier crude oil pipeline, Dakota Express will be required to operate and maintain the new pipeline in accordance with extensive federal and state regulations, specifically 49 CFR Parts 194 and 195 of the USDOT's PHMSA Rules and Regulations, and any applicable national technical standards.

- **its costs**

Current cost information is not available to EPND.

- **its economic life**

Current information is not available to EPND.

- **its reliability**

EPND assumes that the new pipeline will be constructed, operated and maintained in accordance with all applicable federal/state rules and regulations and industry standards as an interstate common carrier crude oil pipeline.

C.2.b Trucking Alternative

Currently, there are certain volumes of crude oil that are transported by truck, due to the lack of pipeline take-away capacity in certain producing regions in North Dakota. As demonstrated herein, the trucking alternative significantly overburdens public roadway capacity, especially considering that trucks require round-trip routing. Also, the reliability of this alternative in northern climates is compromised by periodic restrictions in truck traffic due to winter storms and spring road restrictions or other weather related or capacity availability restrictions. While trucks are a vital part of the crude gathering and distribution network, pipelines are a safer and more economical alternative for transporting this volume of crude oil for short or long distances.

Additionally, sufficient tank trailer truck capacity does not exist to transport the same barrels of crude oil per day from Beaver Lodge to Superior, Wisconsin as this Project. However, should the truck capacity issue be resolved, EPND or its shippers would need to expand truck loading/unloading facilities at EPND's existing Beaver Lodge and Berthold Stations to allow receipt of such volumes into EPND's pipeline system, and also add similar trucking facilities at the new Clearbrook Terminal in Clearbrook, Minnesota and at EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. The potential in-service date of additional trucking, road and off-loading capacity is not known.

- **a discussion of the design and the geographical area affected**

For the purpose of this analysis, EPND assumes that trucking companies will optimize the use of its trucking fleet to transport the same crude oil volumes as this Project. EPND further assumes that the trucking company will divide its transportation requirements into

three individual truck hauls that will make round-trips between specified locations; two beginning at the Beaver Lodge Station near Tioga, North Dakota and ending at Berthold, North Dakota or Superior, Wisconsin and a third that begins at Clearbrook, Minnesota and ends at Superior. To achieve maximum optimization of its trucking operations, EPND also assumes that a fleet of trucks would be scheduled to run round-trip deliveries between the following three locations:

- Leaving Beaver Lodge Station near Tioga, North Dakota to deliver 25,000 bpd at Berthold, North Dakota; returning empty from Berthold back to Beaver Lodge;
- Leaving Beaver Lodge to deliver 225,000 bpd at Superior, Wisconsin; returning empty from Superior back to Beaver Lodge; and
- Leaving Clearbrook, Minnesota to deliver up to 150,000 bpd at Superior Wisconsin; returning empty from Superior back to Clearbrook.

In order to transport the same incremental volumes of 25,000 bpd of crude oil from Beaver Lodge to Berthold, 225,000 bpd from Beaver Lodge to Superior, and up to 150,000 bpd from Clearbrook to Superior as proposed by EPND, a fleet of 4,354 trucks (77+3377+900=4,354)[17]would be required as detailed on Table No. 12:

Table No. 12
Trucking Requirements

Explanation	Beaver Lodge to Berthold	Beaver Lodge to Superior	Clearbrook to Superior
Crude oil volumes	25,000 bpd	225,000 bpd	Up to 150,000 bpd
Per Truck Capacity	200 barrels	200 barrels	200 barrels
Number of trucks required	25,000/200 = 125	225,000/200= 1125	150,000/200= 750
Mileage per trip – each way	61 miles	560 miles	190 miles
Days/trip – one way	0.25	1.25	0.5
No of drivers required for round trip	1	1	1
Number of trucks in transit, full	32 *(125 x 0.25=32)*	1407 *(1125 x 1.25= 1407)*	375 *(750 x 0.5= 375)*
Number of trucks returning empty	32 *(125 x 0.25=32)*	1407 *(1125 x 1.25= 1407)*	375 *(750 x 0.5= 375)*
Number of trucks loading/unloading – assume 20 %	13 (32+32) x 0.20%= 13)	563 (1125+1125) x.20%= 563)	150 (375+375) x 20%= 150)
Total trucks	77 *(32+32+13=77)*	3377 *(1147+1407+563=3377)*	900 *(375+375+150=900)*

[17] ignoring scheduled/unscheduled down time

In total, approximately 4,354 trucks (*see* Table 12, Total trucks: 77+3,377+900= 4,354) would be required to transport the same volumes as this Project. Of that total, EPND assumes that 3,628 trucks would be making round trips on the state highways each day, while the remaining 726 trucks would be stationary at designated locations for loading and unloading of the crude oil volumes. Under that same assumption, EPND calculates that this Project will reduce the burden on state highways between Beaver Lodge Station near Tioga, North Dakota and Superior, Wisconsin by 3,444,488 truck-miles per day. In North Dakota, the burden on its state highways is reduced by 1,668,068 truck-miles per day.

In order to facilitate this operation, significant truck loading and/or offloading terminal facilities would have to be constructed at EPND's existing Beaver Lodge Station and Berthold Station in North Dakota, while also installing the same significant trucking loading and/or offloading terminal facilities at EPND's new station and terminal facility at Clearbrook, Minnesota, and EPND's affiliated Superior Terminal Facility in Superior, Wisconsin. In addition, it is likely that substantial upgrades and on-going maintenance would be required (at public expense) to the connecting roadways along the entire route.

- **an estimate of the in-service date**

EPND does not have an estimate of the time required to acquire the trucking fleet described above, how long it would take to attract and train the associated drivers, nor how extensive the roadway upgrade program would be.

- **a discussion of the method of operation**

This operation would be highly labor-intensive, with a significant workforce required at both terminal locations, to allow for the constant loading and offloading requirements. EPND estimates that this option would require a significant driver pool of approximately 4,354 truck drivers to maintain the constant movement of the entire truck fleet.

- **its costs**

EPND is not aware of any trucking operation capable of transporting on a scale equivalent to this Project that it can provide reliable cost comparisons. However, the trucking costs for this alternative could be anticipated to be in the hundreds of millions of dollars per year range (ignoring the costs of maintaining and replacing vehicles over the economic life of the project, fuel, additional overhead costs such as general administration, and necessary public and private infrastructure).

For example, the base capital investment needed to order a fleet of 4,354 trucks to transport the same volumes as this Project (*see* Table 12) is estimated to be $870,800,000, assuming each trucking rig would cost approximately $200,000. Annual wages are estimated to be approximately $384,588,820 which assumes 4,354 drivers are on the road 365 days per year at the rate of $242 per day per driver. This means the initial capital investment for the first year of operation would be $1.255 billion for just the fleet of trucks and its drivers. EPND assumes that the initial capital cost of $870,800,000 must be accrued at least five (5) more times over the life of the project, assuming the economic life of the truck will not exceed 5 years.

- **its economic life**

With mileage that the trucks would incur in steady service, EPND estimates that the economic life of a truck would not exceed 4 to 5 years. The truck loading and offloading terminals would have an estimated economic life of 25 years. EPND does not have an assessment of the impact that this amount of incremental truck traffic would have on the various roadways.

- **its reliability**

This operation would be inherently much less reliable than the Sandpiper Pipeline Project, as truck traffic is affected by weather conditions, mechanical failure, manpower (driver shortages), road maintenance or closures. Furthermore, according to the National Transportation Safety Board, trucks have a significantly higher rate of accidents affecting driver and public safety than compared to pipelines (*see* Table 14). Trucking cannot compete with pipelines for volumes over long distances given the physical limitations of trucks and unloading facilities that are required to sustain operations of this nature. Therefore, this alternative was not considered further.

C.2.c Rail Alternative

The use of rail transportation in the Bakken region has increased. This shift in transportation mode is primarily driven by the lack of pipeline take-away capacity to the more attractive markets providing a higher net back to producers. Due to this rise in demand for rail service, sufficient rail tanker car capacity does not exist to transport the same barrels of crude oil per day from Beaver Lodge to Superior, Wisconsin as this Project. (*see* Table 13.)

This alternative would require (by EPND or its shippers) the construction of new or expanded rail car loading and/or off-loading facilities at EPND's existing Beaver Lodge and Berthold Stations for the receipt and delivery of such volumes to/from third-party rail transportation providers, and also add similar rail loading and off-loading facilities at the new Clearbrook Terminal in Clearbrook, Minnesota and at EPND's affiliated Superior Terminal Facility in Superior, Wisconsin for the same purpose. Simply, the size of the rail fleet and its ancillary facilities would require significant land acquisition and conversion of its use from agricultural to industrial. Moreover, construction of new lateral above-ground rail service lines would be required and would pose additional risk and impact to landowners and the public. While rail tanker cars are a vital part of the short-haul distribution network for crude oil, pipelines are a safer and more economic transportation alternative. The potential in-service date of additional truck-to-rail, rail tanker car, rail line, and off-loading capacity is not known.

- **a discussion of the design and the geographical area affected**

For the purpose of this analysis, EPND assumes rail transportation providers will optimize the use of their rail fleet to transport the same crude oil volumes as the Project. EPND also assumes that the rail service provider will use long-haul unit or manifest trains with deliveries at intermediate stops between Beaver Lodge Station and Superior, Wisconsin.

EPND further assumes that numerous unit and manifest trains will be needed to make the following deliveries equivalent to this Project.

- Leaving Beaver Lodge Station near Tioga, North Dakota with a rail fleet capacity of 250,000 bpd, and the ability to offload deliveries of 25,000 bpd of crude oil supplies at Berthold, North Dakota; no guarantee that empty rail tank cars would return to Beaver Lodge for reloading;
- Leaving Berthold with a rail fleet capacity of 225,000 bpd and the ability to offload entire capacity of rail fleet at Superior, Wisconsin; no guarantee that empty rail fleet would return to Beaver Lodge for reloading; and
- Leaving Clearbrook, Minnesota with a rail fleet capacity up to 150,000 bpd, and the ability to offload entire capacity of rail fleet at Superior, Wisconsin; no guarantee that empty rail fleet would return to Clearbrook for reloading.

In order to meet the rail transportation requirements described above, EPND assumes a rail fleet of 2,052 tank cars[18] would be needed as detailed on Table 13.

Table 13
Rail Requirements

Explanation	Beaver Lodge to Berthold	Beaver Lodge to Superior	Clearbrook to Superior
Crude oil volumes	25,000 bpd	225,000 bpd	Up to 150,000 bpd
Per railcar Capacity	600 barrels	600 barrels	600 barrels
Number of railcars required	25,000/600 = 42	225,000/600= 375	150,000/600= 250
Mileage per trip – each way	61 miles	560 miles	190 miles
Days/trip – one way	1	1.5	1
Number of railcars in transit, full	42 *(42 x 1=42)*	563 *(375 x 1.5=563)*	250 *(250 x 1=250)*
Number of railcars returning empty	42 *(42 x 1=42)*	563 *(375 x 1.5=563)*	250 *(250 x 1=250)*
Number of railcars loading/unloading – assume 20 %	17 (42+42) x 0.20%= 17)	225 (563+563) x 0.20%= 225)	100 (250+250) x 0.20%= 100)
Total railcars	101 *(42+42+17=101)*	1351 *(563+563+225=1351)*	600 *(250+250+100=600)*

[18] ignoring scheduled/unscheduled down time

Approximately 2,052 rail cars (*see* Table 13, Total rail cars: 101+1351+600= 2,052) would be required to transport the same volumes as this Project. Of that total, 1701 rail cars have to be in route each day, making the roundtrip between Beaver Lodge, North Dakota and Berthold, North Dakota (84 rail cars); Beaver Lodge to Superior, Wisconsin (1126 rail cars); and Clearbrook, Minnesota and Superior, Wisconsin (500 rail cars). The remaining 342 rail cars represent the total number of rail cars that EPND assumes would be stationary at the rail facilities while loading/off-loading of the crude oil volumes. In order to facilitate this operation, significant spur lines, rail sidings, and terminal facilities would have to be constructed at Beaver Lodge Station near Tioga, North Dakota, Berthold Station at Berthold, North Dakota, new station and terminal facility at Clearbrook, Minnesota and at existing Superior terminal at Superior, Wisconsin. In North Dakota alone, EPND assumes that approximately 500 acres of agricultural land would be converted to industrial use in order to build a new rail terminal facility at Beaver Lodge Station, and expand the existing rail facility at Berthold. In addition, substantial upgrades and on-going maintenance would be required to the connecting railways.

- **an estimate of the in-service date**

As stated previously, rail deliveries have become more significant due to lack of pipeline capacity to move production to the more attractive markets as compared to the ability for rail to reach market centers that provide a higher net back to producers. In 2012, rail delivered 0.2 percent of the total crude oil processed by PADD II refineries. For the U.S. as a whole, crude oil deliveries by rail comprised 0.6 percent of the total deliveries in 2012, which is up five-fold from the 2011 rail deliveries.

The current demand for crude-by-rail transportation has created 100% utilization of the tank car construction industry.[19] Crude shipments by rail are continuing to increase, creating a supply shortage of new tank cars. According to data from the Freight Transportation Research Associates, available through the Bloomberg service, tank car manufacturers have a backlog order of roughly 47,000 tank cars. The timeline to process an order and receive delivery of such tank cars is now estimated at 15-18 months.[20] Therefore, EPND concluded crude-by-rail transportation is not a viable option, since the timeline necessary to manufacture 2052 new tank cars would far exceed the in-service date for this Project. EPND does not have an estimate of the time required to construct the necessary upgrades associated with the railway infrastructure.

- **a discussion of the method of operation**

This operation would be highly labor-intensive, with a significant workforce required at EPND's existing Beaver Lodge and Berthold Stations and at the new Clearbrook and Terminal Facility in Clearbrook, Minnesota, and the existing Superior Station and Terminal facility in Superior, Wisconsin to allow for the constant loading and offloading requirements and rail car operation.

- **its costs**

[19] Wall Street Journal, Oil Boom Heats Up the Rail, July 18, 2013
[20] http://wire.kapitall.com/investment-idea/tank-car-manufacturers-to-benefit-from-crude-by-rail.

EPND is not aware of any rail operation on the same scale of this Project that could provide guidance on estimating the capital costs required for rail service of this magnitude. EPND also is unsure if rail carriers have or would provide a joint rail tariff(s) for the service contemplated. The rail costs for this alternative could be anticipated to be in the hundreds of millions of dollars per year range (without considering the costs of new rolling stock and infrastructure facilities necessary). For example, the base capital investment needed to order a fleet of 2,052 tank cars is estimated to range between $285,228,000 to $293,436,000. This estimate is based on the latest specific new-build prices that range from $139,000 to $143,000 for a 25,500 gallon/600 barrel coiled/insulted tank car.[21] This cost estimate does not include land costs, new rail infrastructure, railway maintenance, labor costs, fuel, or other associated expenses.

- **its economic life**

With mileage that the cars would incur in steady service, the applicant estimates that the economic life of a rail car would not exceed 10 to 15 years. The rail loading and offloading terminals would have an estimated economic life of 25 years.

- **its reliability**

This operation would be inherently much less reliable than the Project. The entire operation would be subject to weather-related delays, delays caused by scheduling conflicting rail traffic, and a significant mechanical/maintenance requirement based on the number of rail cars involved in this operation.

The transporting of crude oil by rail has increased due to the urgent need for additional pipeline infrastructure and transportation capacity.[22] Transportation cost analysis indicate that pipeline transport is roughly 60 percent of the cost of rail, and risk of rail accidents is approximately 9 times higher than that of a pipeline.[23] Rail accidents result in fires and/or explosions about 2 times more frequently per barrel of oil transported per mile.[24]

C.2.d Alternative EPND Pipeline Route

The preference for route selection was to co-locate and run parallel to existing pipelines and utility corridors to the extent practicable. The goal in selecting the proposed route was the ability to utilize existing pipeline right-of-way, station sites, associated station facilities and power access to the extent possible, and to minimize environmental impacts, reduce overall construction costs, and ensure the constructability of the potential route alignment.

While route variants were minimized to the extent practicable, a number of considerations were evaluated when determining whether a deviation from EPND's existing North Dakota pipeline system was prudent. The considerations that EPND

[21] http://www.rbnenergy.com/i-can-see-for-miles-and-miles-and-miles-and-miles-tank-cars, Page 2.
[22] 2012 Annual CAPP Long-Term Outlook Report, Page iii.
[23] *See* RITA, Bureau of Transportation Statistics, Table 2-3: Transportation Accidents by Mode at http://www.bts.gov/publications/national_transportation_statistics/html/table_02_03.html
[24] Source: Allegro Energy Group as posted on the Association of Oil Pipelines website, comparison was based on calculated rates per ton-mile.

used as its criteria for route variances included, but were not limited, to the following: poor waterbody crossing points or alignments, road bore staging areas located within wetlands, improvement of road crossing angles, landowner concerns, congested utility corridors and/or facility encroachments, and avoidance of environmentally sensitive areas when feasible.

After evaluating the route selection for this Project, EPND determined that certain route variants will be necessary to address the following issues: 1) encroachments near the existing pipeline; 2) densely populated areas; 3) communities' concerns in routing; or 4) to avoid special land or environmental features. These route variants are discussed in Section B.2.e of the Route Permit Application.

C.2.e A summary of the conclusions reached with respect to the alternative and the reason for its rejection

Based on the forecast of demand and supply for crude oil discussed in Section C.1 (Needs Summary), EPND determined and shippers have supported the need to construct the Project, as described herein, to meet the increasing demand for additional pipeline capacity in the Williston Basin region.

EPND has evaluated the various alternative transportation options which are limited to rail, truck and pipelines. Based on factors considered for each alternative, it was determined that:

- "*No Action*" was not acceptable to EPND and its shippers because additional pipeline capacity is needed to meet its shippers' current and future transportation requirements.
- *Alternative Pipelines*: Based on the supporting forecast studies discussed in Section C of this Application, EPND determined that Sandpiper and other potential pipeline projects are not competing for the same production volumes, and are needed to meet the market demand for additional pipeline export capacity. Moreover, based on the table data from the "U.S. Williston Basin Crude Oil Export Options [table] dated June 19, 2013,"[25] the total existing and planned pipeline export capacity anticipated to be available in 2015 is 1.083 million bpd. This also aligns with and complements other forecast reports discussed herein that show production exceeding 1.0 million bpd in 2015, as well. Not constructing the Project would result in limited pipeline capacity, which would require new and increasing production volumes to be apportioned among the existing pipelines, or transported to market by other modes of transportation, such as truck or rail, which are more costly to producers based on the current pricing at key marketing hubs.

  Pipelines still remain the safest and most cost-effective modes of transporting crude oil to market. According to EIA data, over the last 10 years, pipelines have

[25] Source: North Dakota Pipeline Authority's website at https://www.dmr.nd.gov/pipeline/

made 99.4 percent of the total crude oil deliveries to PADD II refineries. In 2012, pipelines delivered 98.5 percent of the total crude oil processed by PADD II refineries.

Table 14 shows the accident rates of other modes of transportation in comparison to a crude oil pipeline. According to the Manhattan Institute,[26] road and rail have higher rates of serious incidents and injuries than pipelines, even though more road and rail incidents go unreported. Crude oil pipelines transport 94% more billion ton-miles[27] of shipments than are transported by road and 96% more billion ton-miles of shipments than are transported by rail but have the lowest incident rate. Road transport has the highest rate of incidents, with 19.95 per billion ton-miles per year followed by rail, with 2.08 per billion ton-miles per year. Hazardous liquid pipelines were the safest, with 0.58 serious incidents per billion ton-miles.

- *Truck and Rail*: Alternative modes of transportation, such as trucking and rail options discussed in Sections C.2.b and C.2.c above, are cost-prohibitive or impose higher public and environmental costs than the Project described herein.

Table 14

Comparative Statistics for Petroleum Incident Rates Onshore Transmission Pipelines vs. Road and Railway (2005 – 2009)[3]

Mode	Avg. Billions Ton-Miles Shipment Per Year	Avg. Incidents Per Year	Incidents Per Billion Ton-Miles
Road*	34.8	695.2	19.95
Railway*	23.9	49.6	2.08
Hazardous Liquid Pipeline	584.1	339.6	0.58
Natural Gas Pipeline	338.5	299.2	0.89

*Only incidents involving and ton-mileage carrying those products carried by pipeline (petroleum products, liquid natural gas, etc.) are counted for road and railway

Sources: Ton-Mileage values are based on Tables 1-50 (for Natural Gas Pipeline) and 1-61 (all others) of the Department of Transportation, Research and Innovative Technology Administration, Bureau of Transportation Statistics "National Transportation Statistics", available at http://www.rita.dot.gov/bts/sites/rita.dot.gov.bts/files/publications/national_transportation_statistics/index.html, accessed April 2013. Incident and release volume data for Road and Railway were extracted from the Office of Hazardous Materials Safety "Incident Reports Database Search" at https://hazmatonline.phmsa.dot.gov/IncidentReportsSearch/, accessed April 2013. HL Pipeline release volumes were extracted from the Pipeline and Hazardous Material Safety Administration "Hazardous Liquid Accident Data - 2002 to 2009" file available at http://phmsa.dot.gov/portal/site/PHMSA/menuitem.ebdc7a8a7e39f2e55cf2031050248a0c/?vgnextoid=fdd2dfa122a1d110VgnVCM1000009ed07898RCRD&vgnextchannel=3430fb649a2dc110VgnVCM1000009ed07898RCRD&vgnextfmt=print, accessed April 2013.

Therefore,
EPND has concluded that this Project provides a cost effective and efficient method that:

- provides a long-term transportation solution for moving Bakken and Three Forks production to premium U.S. refineries and marketing hubs;

[26] Manhattan Institute. Pipelines Are Safest for Transportation of Oil and Gas. Issue Brief No. 23. June 2013. http://www.manhattan-institute.org/html/ib_23.htm
[27] A unit of freight transportation measurement equivalent to a ton of freight transported one mile.

- increases the pipeline capacity of EPND's North Dakota pipeline system from Beaver Lodge to Superior, Wisconsin to meet the current and future transportation requirements of its shippers;
- helps reduce the current reliance on long-haul truck deliveries and rail export options; and
- helps reduce the transportation costs borne by Williston Basin producers who would otherwise be forced to resort to non-pipeline transport options, allowing their savings to be immediately re-directed toward the development of the oil and gas resources in the State, resulting in additional economic benefits to North Dakota.

As proposed, this Project minimizes environmental and landowner impacts to the extent practicable and, when integrated with the existing EPND System, provides the safest, most efficient and cost effective alternative to bridge the gap between the growing demand for crude oil supplies in the Midwest and the increased and reliable domestic supplies from North Dakota and Montana.

APPLICATION FOR CORRIDOR CERTIFICATE
SECTION D
LOCATION

D.1 STUDY AREA

EPND defined its study area as a 2-mile wide corridor[28] centered on the proposed pipeline route. Section 69.06.04.01.e of the North Dakota Administrative Code ("NDAC") would typically require a 6-mile wide study area based on the Project length. However, EPND is requesting that the ND-PSC reduce the width of the corridor to 2 miles, centered on the proposed pipeline. Based on the factors subject to the ND-PSC's consideration for the evaluation and designation of sites, corridors and routes for this Project, EPND has determined that a 2-mile wide study area is sufficient to allow the ND-PSC to comply with the requirements under NDCC Chapter 49-22-09. A discussion of the factors subject to the ND-PSC's evaluation for this Project are addressed in Section B.2 of the Application for a Route Permit.

EPND conducted a desktop analysis consisting of mapping, GIS, and internet research, and then completed agency consultations over the 2-mile wide study area (*see* Section B of the Route Permit Application). In addition, cultural resource, biological and wetland/waterbody field surveys were conducted, generally on an approximately 250 to 450-foot wide environmental survey corridor, along the proposed route within the 2-mile wide study area. However, EPND has widened its environmental survey corridor beyond 450 feet in certain locations to address any known environmental and encroachment issues or additional temporary workspace requirements (*see* route maps enclosed herein as Exhibit D).

D.2 MAP OF PROPOSED CORRIDOR

Maps showing the location of exclusion and avoidance areas in the area of the corridor are attached as Exhibit I.1 and I.2.

D.3 RELATIVE VALUE OF EVALUATION CRITERION

This Application is a Consolidated Application for a Corridor Certificate and Route Permit. The relative value of evaluation criterion is discussed in Sections B.4, B.5, and B.6 of the Route Permit portion of this Application.

[28] As seen in Case Nos. PU-11-232 and PU-11-606, the ND-PSC found that a study area less than 6 miles is sufficient to allow it to evaluate the factors address in Chapter 49-22-09 of the NDCC (The factors to be considered in evaluating applications and designation of sites, corridors and routes are discussed in Section B.2 of the Application for a Route Permit.

D.4 GENERAL MITIGATIVE MEASURES TO BE TAKEN

The general mitigation measures that EPND will employ in the construction of this Project are discussed in detailed in Section B.6 of the Application for a Route Permit.

D.5 QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

D.5.a Sara Ploetz

Environmental Analyst II, Enbridge Major Projects (US)

Degree: B.A., Environmental Studies, University of Minnesota-Duluth, Duluth, Minnesota

Experience: 7 years of experience in environmental and regulatory permitting and construction oversight compliance

~~D.5.b Gayle Konik~~

~~Manager, Enbridge Major Projects (US)~~

~~Degree: B.A., Anthropology, Co-Major Environmental Studies, Wayne State University, Detroit, Michigan~~

~~Experience: 20+ years of experience in environmental and regulatory permitting and construction oversight compliance~~

D.5.c Angela Ronayne, P.E.

Senior Analyst, Merjent, Inc.

Degree: B.S., Civil Engineering, University of Minnesota, Twin Cities.
Experience: 15 years of experience in pipeline environmental and regulatory compliance

Other Training and Licenses: Professional Engineer – Minnesota

D.5.d Bill Regan

Senior Analyst, Merjent, Inc.

Degree: B.S., Biology, University of Minnesota, Twin Cities

Experience: 20+ years of experience in environmental and regulatory permitting, oversight, and compliance.

D.5.e April Brehm

Senior Analyst, Merjent, Inc.

Degree: B.A., Environmental Policy and Planning, Alaska Pacific University, Anchorage, Alaska

Experience: 12 years of experience in environmental and regulatory permitting, oversight, and compliance

D.6 MAPS

D.6.a Map of Evaluation Criteria within Study Area

EPND encloses herewith as Exhibit C, station plot plans, topographical maps and aerial maps for the station facilities proposed herein. Also, enclosed herewith as Exhibit D are the route maps showing the location of the new proposed ~~299~~300-mile transmission line. County maps of the Project are enclosed herewith as part of Exhibit D.

D.6.b Map and GIS Requirements

In accordance with NDAC Section 69-06-05.01(2)(q), EPND is filing, under a separate cover, a CD which contains the GIS data required by ND-PSC for its proposed Sandpiper Pipeline route, as described in this Application. This CD contains detailed design information and aerial imagery which shows the exact location of this Project and other existing energy infrastructure located within a close proximity of this new pipeline. EPND operates an interstate common carrier pipeline which is considered critical energy infrastructure, as it plays an important role in the distribution of vital energy supplies to the refinery markets in the Midwest and beyond. Such detailed information would be of great benefit to anyone with a desire to disrupt the economy through an attack on this infrastructure, and thus, constitutes the treatment of Critical Energy Infrastructure Information (CEII) under the USA Patriot Act of 2001 and other federal guidelines. Accordingly, distribution of detailed maps must be controlled and not released within the public domain without good cause shown.

In a separate filing, EPND is submitting the CD as Privileged and Confidential Information to be treated as CEII data, and, therefore, exempt from the public domain by a requested Protective Order so issued by the ND-PSC.

NORTH DAKOTA PUBLIC SERVICE COMMISSION

APPLICATION OF

NORTH DAKOTA PIPELINE COMPANY LLC

for

ROUTE PERMIT

DOCKET NO. PU-13-848

SANDPIPER PIPELINE PROJECT

***REVISED* – FEBRUARY 2014**

TABLE OF CONTENTS

SECTION A	DESCRIPTION OF PROPOSED FACILITY	PAGE
A.1	Type of Facility	1
A.2	Product	1
A.3	Size and Design	1
A.4	Time Schedule	1

SECTION B	LOCATION	PAGE
B.1	Applicant's Policies and Commitments to Limit Environmental Impact	2
B.2	Discuss the Factors Listed in Section 49-22-09 NDCC to Aid the Commission's Evaluation of the Proposed Pipeline Route	3
B.3	Identify and Map Criteria Leading to Proposed Pipeline Route Location within Corridor	16
B.4	Relative Value and Effects Upon Each Criterion Including Location, Construction, and Operation of the Facility	17
B.5	The Criteria to be Evaluated Shall Include at a Minimum All of the Following, which are within the Designated Corridor	62
B.6	Mitigation Measures	62
B.7	Qualifications of Persons Contributing to the Study	69
B.8	Maps	69
B.9	Other Matters	70

TABLE OF CONTENTS

LIST OF TABLES

		PAGE
TABLE 1	Local Economic Benefits Generated from Project	12
TABLE 2	Federal, State and County Agency Concerns	16
TABLE 3	North Dakota Public Service Commission Exclusion Areas – Transmission Facility Siting	18
TABLE 4	Status and Occurrence of Federally Listed Candidate, or Under Review Species and Designated Critical Habitat	20
TABLE 5	North Dakota Public Service Commission Avoidance Areas – Transmission Facility Siting	26
TABLE 6	Public Water Systems/Wellhead Protection Areas Along the Pipeline Route	32
TABLE 7	Sandpiper Pipeline Project Selection Criteria Considered	33
TABLE 8	Soil Characteristics in the Pipeline Survey Corridor	36
TABLE 9	Topsoil Depths and Slope Class in the Pipeline Survey Corridor	37
TABLE 10	Topsoil Depths on Prime Agricultural Land in the Sandpiper Pipeline Survey Corridor	37
TABLE 11	Major Crop or Land Feature Acreages by County	38
TABLE 12	List of Pump Stations and Nearest Sensitive Areas (NSA)	44

TABLE OF CONTENTS

LIST OF TABLES

		PAGE
TABLE 13	Oil or Gas Wells Near the Pipeline	46
TABLE 14	Wetlands Crossed by the Sandpiper Pipeline Project Route	47
TABLE 15	County Listed Additional Noxious and Invasive Weeds	56
TABLE 16	Co-located and Parallel to EPND's Existing North Dakota Pipeline System	60
TABLE 17	Parallel to Foreign Pipelines and Utility Corridors	60
TABLE 18	Greenfield Pipeline Sections along the New Pipeline Route	61
TABLE 19	U.S. Highways Crossed by the Sandpiper Pipeline Project	63
TABLE 20	Railways Crossed by the Sandpiper Pipeline Project	64
TABLE 21	Status of Environmental Permits and Authorizations	83

TABLE OF CONTENTS

LIST OF FIGURES

		PAGE
FIGURE 1	Beaver Lodge Station Land Use Map Williams County, North Dakota	8
FIGURE 2	Stanley Station Land Use Map Mountrail County, North Dakota	9
FIGURE 3	Lakota Station Land Use Map Nelson County, North Dakota	10
FIGURE 4	Typical Pipeline Construction Sequence	71

APPLICATION FOR ROUTE PERMIT
SECTION A
DESCRIPTION OF PROPOSED FACILITY

A.1 TYPE OF FACILITY

This is a Consolidated Application for a Certificate of Corridor Compatibility and Route Permit. These matters are discussed in Section A.1 of the Certificate of Corridor Compatibility portion of this Application.

A.2 PRODUCT

This is a Consolidated Application for a Certificate of Corridor Compatibility and Route Permit. These matters are discussed in Section A.2 of the Certificate of Corridor Compatibility portion of this Application.

A.3 SIZE AND DESIGN

This is a Consolidated Application for a Certificate of Corridor Compatibility and Route Permit. These matters are discussed in Section A.3 of the Certificate of Corridor Compatibility portion of this Application.

A.4 TIME SCHEDULE

This is a Consolidated Application for a Certificate of Corridor Compatibility and Route Permit. These matters are discussed in Section A.4 of the Certificate of Corridor Compatibility portion of this Application.

APPLICATION FOR ROUTE PERMIT
SECTION B
LOCATION

B.1 APPLICANT'S POLICIES AND COMMITMENTS TO LIMIT ENVIRONMENTAL IMPACT

Enbridge Pipelines (North Dakota) LLC ("EPND")[1] is committed to environmental protection and stewardship. EPND's Environmental Policy states that protection of the environment is an integral element in the conduct of company business. EPND recognizes that pollution prevention, biodiversity and resource conservation are key to a sustainable environment, and effectively integrates these concepts into its business decision-making. All employees are responsible for operating in an environmentally responsible manner.

Environmental protection goals will govern the entire Sandpiper Pipeline Project ("Project" or "Sandpiper"), from planning and construction through restoration and operation. EPND's internal environmental staff is dedicated to monitoring compliance with various federal and state environmental regulations, permits, and company policy. EPND's determination of the proposed route is driven by its commitment to limit environmental impacts, mitigate impact on municipalities and landowners, avoid sensitive resource areas to extent practicable, and reduce its footprint. In addition EPND is committed to conserving energy and using engineering controls to reduce our environmental impacts during construction and operations.

Co-locating and paralleling existing rights-of-way affords opportunities to confine the Projects construction right-of-way to areas of previous ground disturbance and clearing. Of the total ~~299~~300miles, approximately 62 miles of the new 24-inch diameter pipeline will be co-located with the EPND's existing Line 81, or Line 82, and Line 87 pipelines, thus, no new right-of-way will be required in those areas. An additional ~~77~~90 miles will be co-located with third party utilities.

EPND is committed to early and regular communication with municipalities, landowners and federal, state and county agencies to gather data regarding sensitive environmental resources that can be taken into account during the routing process.

[1] Due to a name change any reference to Enbridge Pipeline (North Dakota) LLC or EPND in this document should now be considered North Dakota Pipeline Company or NDPL LLC.

EPND along with other Enbridge affiliates has set a voluntary goal to work toward a neutral footprint for new projects. The goal attempts to limit Enbridge's environmental footprint to 2009 levels despite the fact that continue to expand operations. Enbridge intends to achieve this by conserving an acre of wilderness land for every acre we permanently impact, planting a tree for every merchantable tree that must be removed to build new facilities, and generating one kWh of renewable energy for every kWh of energy that pipeline operations consumes. Enbridge intends to fulfill its commitment as soon as practicably possible, but no later than five years after the in-service date of the projects making the impacts. Enbridge will work with key land-trust organizations within the United States which work for the direct protection of biodiversity through the purchase, donation or establishment of conservation easements on ecologically significant land. Enbridge's conservation efforts will not always take place in the right-of-way or impacted area for new projects.

Energy conservation is a major objective for EPND as energy/power costs represent the largest single recurring expense in pipeline operation. Managing energy costs, including conservation of energy usage, is a high priority in EPND's operations. EPND's energy conservation goal is to minimize power/energy unit costs through the implementation of internal programs directed at continuous improvement of energy utilization efficiency.

For new pump installations, EPND purchases high efficiency pumps and motors at a premium initial cost in an effort to conserve long range energy requirements. Specifically, a high polish is used on the pump impeller, and motors are custom designed for high efficiency.

The installation of variable frequency induction ("VFD") motor drives is a program that has been in place for approximately 18 years. VFDs allow the pipeline operator to vary the pump rotation speed thereby controlling the pressure produced to match the desired flow rate. This eliminates the need to dissipate or waste pressure (energy) with pressure control valves. Ideally, under constant operating conditions, the pump would deliver constant pressures eliminating the need for pressure dissipation. Therefore, operating conditions play a key role in designing the pumping stations for optimum efficiency. VFDs will be specified to control the operating speed of the new mainline pumps at EPND's Beaver Lodge, Berthold, and Lakota Station sites and additional injection pumps at Stanley Station.

B.2 DISCUSS THE FACTORS LISTED IN SECTION 49-22-09 NDCC TO AID THE COMMISSION'S EVALUATION OF THE PROPOSED PIPELINE ROUTE

B.2.a Available Research and Investigations Relating to the Effects of the Location, Construction, and Operation of the Proposed Facility on Public Health and Welfare, Natural Resources, and the Environment

A detailed discussion of the effects of the location, construction, and operation of the proposed pipeline on public health and welfare, natural resources, and the environment is included in Section B.4. Research and investigation relating to these effects have been identified through cultural resource reviews, wetland delineation surveys, and protected species and sensitive habitat area reviews. Field surveys are ongoing and final reports ~~will be filed~~ for the 2013 field season are included as exhibits in this supplemental filing with ND-PSC.

At the time of ~~this~~ the original filing on October 30, 2013, EPND completed approximately ~~97~~ 91 percent of cultural resource surveys and 84 percent of its wetland field surveys. This supplemental application discusses field data that has been acquired through ~~September 14,~~ December 2013. ~~The remaining field survey work will continue through the 2013 field season with a small percentage of~~ The remaining survey work ~~being~~ will be completed ~~by the~~ in Spring and Summer of 2014 because an updated proposed pipeline centerline was issued on December 3, 2013, which resulted in some areas where additional survey is necessary. All applicable permits specified on Table 21 of the Application for a Route Permit, including the related supporting documentation, will be submitted as a supplemental filing.

B.2.b The Effects of New Energy Conversion and Transmission Technologies and Systems Designed to Minimize Adverse Environmental Effects

As described in EPND's Environmental Protection Plan ("EPP" provided as Exhibit J), current construction techniques and mitigation measures will be employed to minimize the effect of construction on environmental resources. These measures are also discussed in Section B.6 of this application. As a result, the Project does not include new energy conversion or transmission technologies that are expressly designed to minimize adverse environmental effects.

B.2.c The Potential for Beneficial Uses of Waste Energy from a Proposed Energy Conversion Facility

The Project does not involve new energy conversion facilities; no usable waste energy will result from the Project.

B.2.d Adverse Direct and Indirect Environmental Effects, Which Cannot be Avoided Should the Proposed Site or Route be Designated

Unavoidable adverse direct and indirect environmental effects may include short-term or temporary effects on vegetation, wildlife, agricultural operations, transportation, and noise

levels as described in Section B.4. EPND will implement mitigation measures to minimize these impacts as described in Section B.6 and in EPND's EPP (see Exhibit J).

B.2.e Alternatives to the Proposed Site, Corridor or Route, Which are Developed During the Hearing Process and Which Minimize Adverse Effects

EPND's practice is to co-locate with new and existing pipelines, existing utility corridors, or existing railroad right-of-way to the extent practicable. The route described herein was selected to maximize co-location with these existing rights-of-way by conducting surveys and researching publically available information to identify a route that achieves Project objectives, is technologically and economically feasible to construct, and minimizes impacts on landowners and the environment. Route alternatives and variants were developed to mitigate safety concerns, avoid congested utility corridors and/or facility encroachments, avoid population centers, improve road crossing angles or poor waterbody crossing points or alignments, or avoid environmentally sensitive areas. Route alternatives were minimized to the extent practicable. Several shorter route variants were evaluated and incorporated into the final route design.

The following generally describes the proposed route and alternatives that were considered:

From existing Beaver Lodge Station to existing Minot Station (Mile Post 0 to Mile Post 80)

- **Co-located with existing pipelines and utility corridors**

Between EPND's Beaver Lodge and Berthold Station (Mileposts ["MPs"] 0 – 57), the Project is generally co-located with EPND's existing Line 87 (and/or Line 82) pipeline(s). In this segment of the Project, the route generally avoids populated areas and municipalities. However, east of Berthold Station (approximate MPs ~~57.0~~ 56.6-57.4), many rural towns have grown and encroached on both Line 82[2] and on Line 81[3], over time. Today, an additional 16 rural towns or communities are located within 1 mile of Line 81. In an effort to avoid sensitive environmental resources and reduce impacts to these rural communities, EPND shifted the route approximately 12 miles to the north and co-located it with other utility corridors or linear features (e.g., roads) where feasible, effectively avoiding most rural communities.

[2] Line 82 begins at EPND's existing Beaver Lodge Station near Tioga, North Dakota and ends at Minot, North Dakota.
[3] Line 81 begins at Minot, North Dakota and ends at Clearbrook, Minnesota.

- **Route Alternatives**

A route alternative around the City of Stanley was considered in the early stages of project planning and routing processes. Discussions with local and county officials during the Beaver Lodge Loop Project (BLLP Line) revealed concerns about the pipeline route following the existing EPND system. As a result, EPND filed a route alternative and received approval from this Commission in PU-11-613 to install its new BLLP Line (referred to as Line 87) south of the City to address their concerns. Since that time, the pipeline corridor along Line 87 has become more congested with third-party pipelines and utility corridors as development has moved south of the City. For that reason, EPND has developed an alternative route that is located further south of its Line 87, which avoids congested utility corridors, population centers, and commercial development.

From the existing Minot Station to North Dakota/Minnesota state line near Grand Forks (Mile Post 80_ to Mile Post ~~299~~300)

- **Co-located with existing pipelines and utility corridors**

In early pre-project planning, EPND considered co-locating the Sandpiper pipeline with its existing Line 81 east of Minot. Line 81 was built in 1962 and generally runs west to east across the state of North Dakota, starting at the Minot Station and terminating near Crookston, Minnesota. While the route starts out following the Line 81 corridor several route deviations were identified as preferable and have been incorporated into the proposed route in order to accommodate requests from municipalities and environmental issues as described below.

- **Route Alternatives**

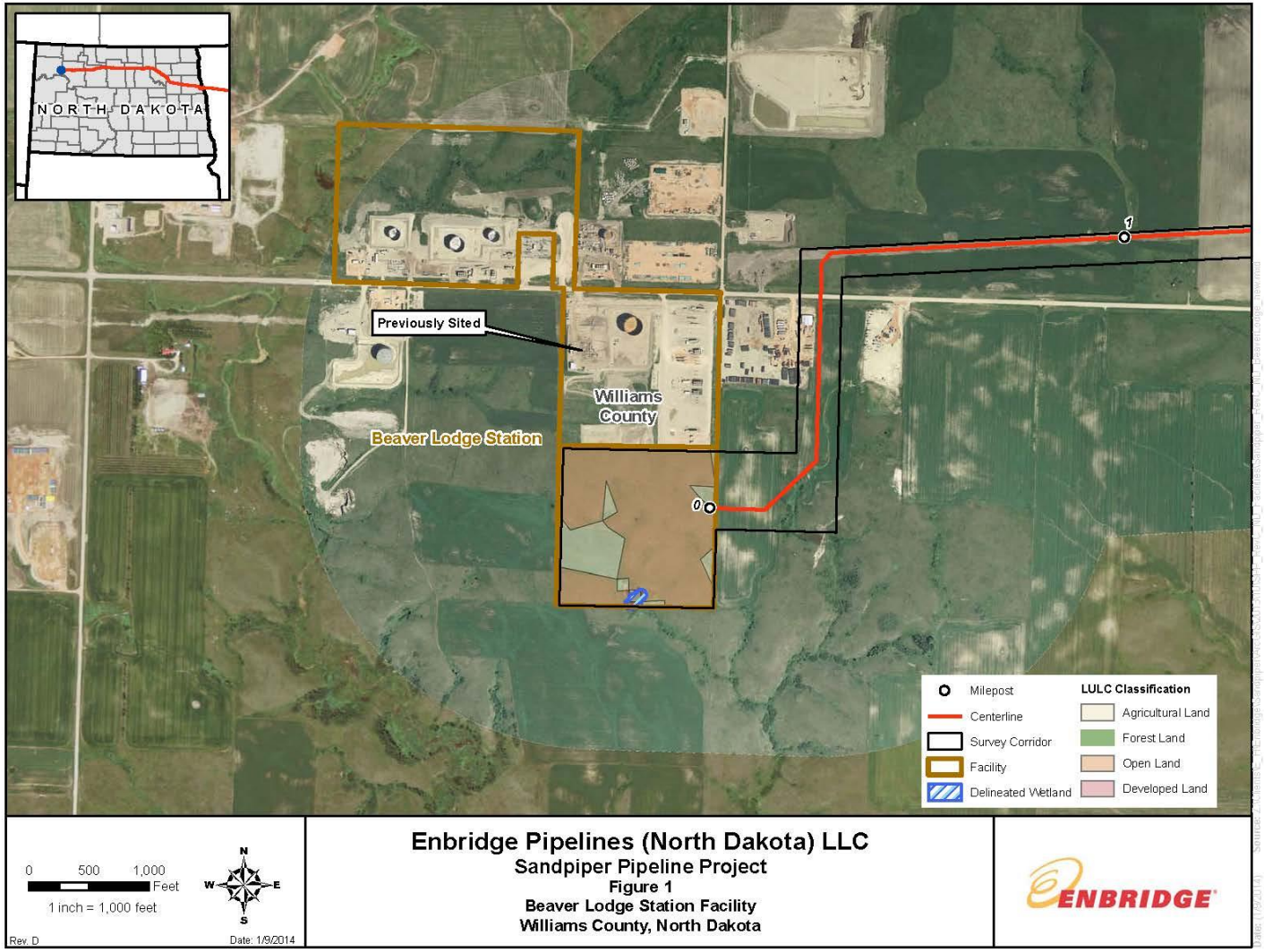
In the Devil's Lake area in Benson and Ramsey counties, Line 81 is located in proximity to numerous sensitive wildlife resources, including federal Waterfowl Production Areas ("WPA") and state Wildlife Management Areas ("WMAs"). Line 81 also crosses several rural municipalities in this segment and passes the City of Devil's Lake approximately 2 miles to the north. Line 81 is generally co-located with railroads and roads, and consequently travels through or near several rural communities.

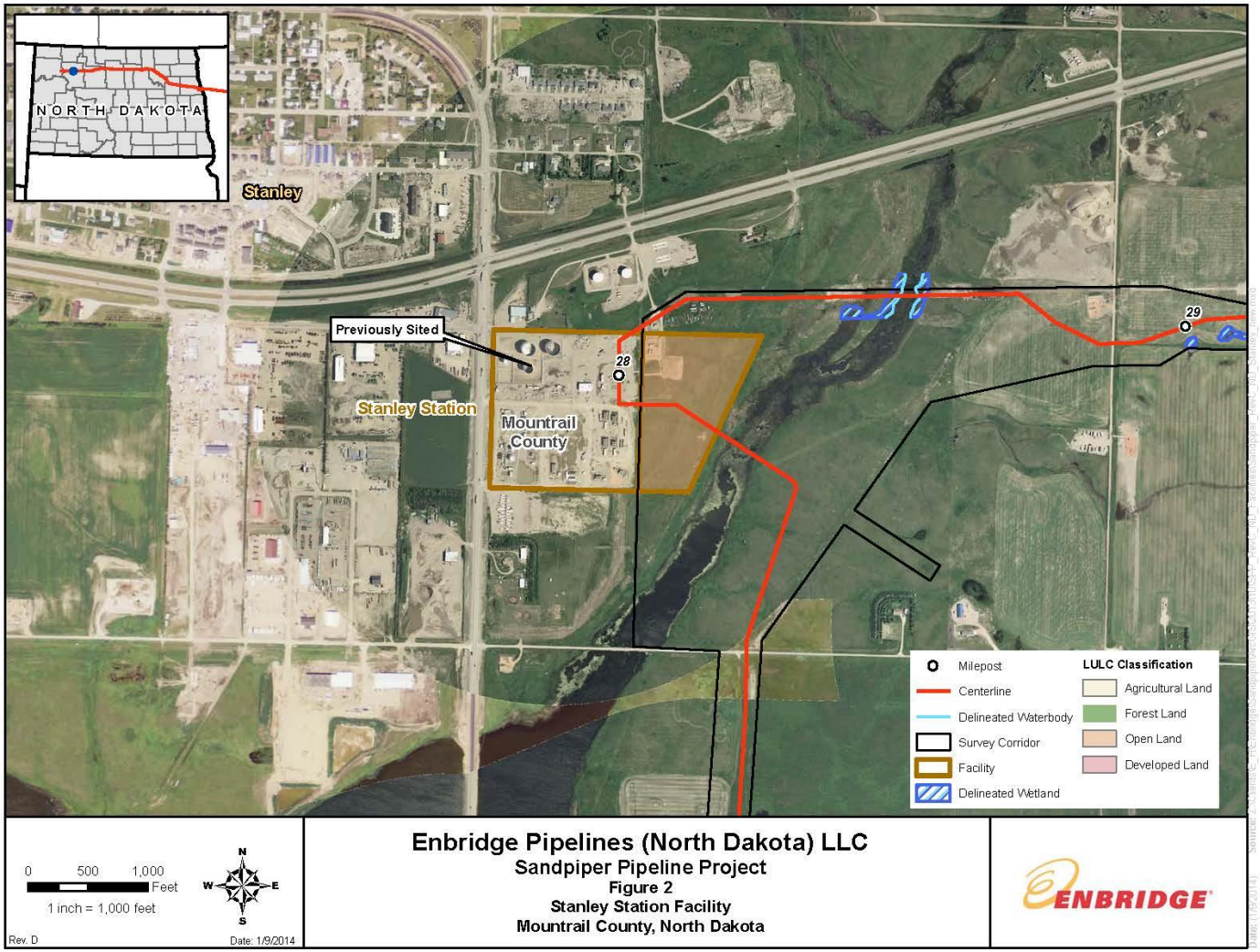
During discussions with Grand Forks city officials, EPND was made aware that Sandpiper's preliminary routing traversed land that was identified in city planning documents for other land uses within the next 10 years. As a result, EPND selected an alternative route that arrives approximately 2 miles west of the City of Grand Forks and then veers south, approximately 3 miles beyond city limits.

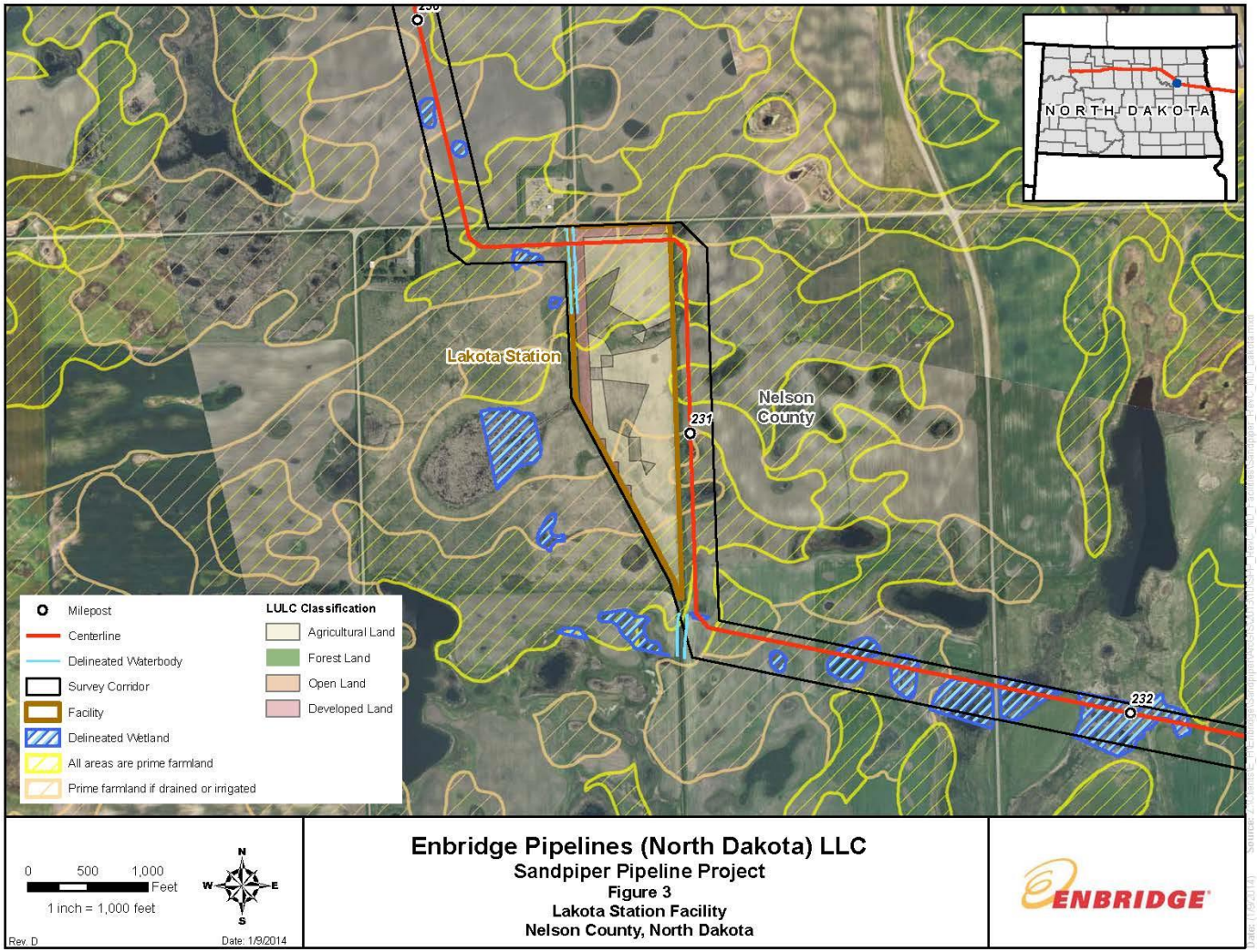
B.2.f Irreversible and Irretrievable Commitments of Natural Resources Should the Proposed Site, Corridor or Route be Designated

EPND's practice is to co-locate new pipelines within an existing pipeline, utility, road or railroad corridor where practicable to do so. Where co-location is possible, minimal irreversible or irretrievable commitments of natural resources would result from construction of the pipeline portion of the Project because land use along the operational right-of-way will be returned to prior use following construction. In some locations where co-location is not possible, the Project will result in creating a new open corridor in wooded areas where the permanent right-of-way will need to be maintained in an herbaceous state free of trees. Approximately ~~7.6~~ 7.5 acres (or 0.3 percent of the total route) of wooded areas along the pipeline would be converted to open land.

As described in EPND's Certificate of Corridor Compatibility in Section A.3.b.(7)(i) and Section A.3.b.(7)(ii), this Project will acquire and develop new land adjacent to the existing Beaver Lodge and Stanley stations. These areas are referred to as Beaver Lodge Station Expansion Area and the Stanley Station Expansion Area. The Project would result in an irreversible commitment of natural resources where existing stations would be expanded and construction of the new Lakota Station would occur. Collectively, approximately ~~106.5~~ 101.0 acres of land acquired at the Beaver Lodge, Stanley and the new Lakota Station locations would be converted from agricultural, open space, and/or herbaceous rangeland ~~and/or wetlands~~ to industrial. Figures 1, 2, and 3 show the land uses that would be impacted by these stations.


NORTH DAKOTA
Previously Sited
Williams County
Beaver Lodge Station
0
1
Milepost
Centerline
Survey Corridor
Facility
Delineated Wetland
LULC Classification
Agricultural Land
Forest Land
Open Land
Developed Land
0 500 1,000 Feet
1 inch = 1,000 feet
N
W
E
S
Rev. D
Date: 1/9/2014
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Figure 1
Beaver Lodge Station Facility
Williams County, North Dakota


NORTH DAKOTA
Stanley
Previously Sited
Stanley Station
Mountrail County
28
29
Milepost
Centerline
Delineated Waterbody
Survey Corridor
Facility
Delineated Wetland
LULC Classification
Agricultural Land
Forest Land
Open Land
Developed Land
0 500 1,000 Feet
1 inch = 1,000 feet
N
W
E
S
Rev. D
Date: 1/9/2014
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Figure 2
Stanley Station Facility
Mountrail County, North Dakota


NORTH DAKOTA
Lakota Station
Nelson County
231
232
Milepost
Centerline
Delineated Waterbody
Survey Corridor
Facility
Delineated Wetland
All areas are prime farmland
Prime farmland if drained or irrigated
LULC Classification
Agricultural Land
Forest Land
Open Land
Developed Land
0 500 1,000 Feet
1 inch = 1,000 feet
N
W
E
S
Rev. D
Date: 1/9/2014
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Figure 3
Lakota Station Facility
Nelson County, North Dakota

B.2.g The Direct and Indirect Economic Impacts of the Proposed Facility

Crude oil and natural gas are North Dakota's leading mineral products, and North Dakota is the second largest producer of crude oil in the country. The proposed Project would boost the state's economy and allow the state to capitalize on tax revenue gathered from production and extraction taxes.

Based on economic modeling by the Federal Bureau of Economic Analysis[4] and consultation with EPND's economic expert, EPND anticipates that the Project will have beneficial impacts on the local economy both during and after construction in North Dakota (*see* Table 1). This activity will be concentrated in the nine counties crossed by the Sandpiper Project. EPND estimates that approximately 10,827 person-years (the equivalent of one person working full-time for one year) of temporary construction jobs will be created for the duration of construction. Depending on the availability of local skilled workers, the general pipeline contractor typically draws workers for projects of this type from North Dakota and surrounding states.

The total economic benefit of the Project is estimated at $1.5 billion during construction. Table 1 (below) summarizes the local economic benefits generated by this Project. Unemployment in the area would be temporarily reduced and payroll taxes would temporarily rise. Local businesses would also benefit from the temporary demand for goods and services generated by the workforce's need for food, lodging and supplies.

EPND expects to purchase some of the materials necessary for construction of the Project locally, including consumables, fuel, equipment, and miscellaneous construction-related materials.

EPND estimates that the total cost of the Project will be approximately $2.6 billion. The estimated cost for the North Dakota portion of the Project is $1.3 billion. Based on the anticipated cost of the Project in North Dakota and current tax schedules, EPND estimates it could pay as much as approximately $8.5 million in additional annual property taxes in North Dakota beginning in 2016 (maximum estimated taxes are $12.3 million occurring in 2026), subject to assessments by local government units.

Operations are expected to begin in 2016, with the Project yielding another 1,441 person-years of jobs and generating another $350 million in economic impact. Typical operations from 2017 to 2025 are estimated to lead to 2,340 full-time-equivalent jobs and create an additional $550 million per year in economic impact.

[4] Regional Input-Output Modeling System (http://www.bea.gov/regional/rims/) as developed and maintained by the United States Department of Commerce, Bureau of Economic Analysis

Table 1				
Local Economic Benefits generated from Project				
Component	**Estimated Total Project Costs ***	**Estimated Tax Benefits* 1/**	**No. of Temporary or Permanent Jobs Created**	**Total Economic Benefits***
During construction work of proposed facilities as described in Section A of Corridor Certificate	$2.6 B	$3.1 M	10,827 person-years[5]	$1.5 B
During Operation of the Sandpiper Project				
2016		$8.5 M	1,441 person years	$350 M
2017 - 2025		$9.5 - $12.2 M	2,340 full-time equivalent[6]	$550 M

[5] The term "person-years" is defined as the equivalent of one person working full-time for one year.
[6] Full time equivalent job is defined is the equivalent of one person working full-time (typical 40-hour work week).

B.2.g.(1) The Sandpiper Pipeline Project has Significant Economic Benefits

The Project has significant economic benefits, including:

- New capital investment in the United States energy infrastructure to help meet the current and future generations' energy needs;
- Increased access by North American refineries to long-term, reliable and economical supplies of crude oil produced in the United States;
- Increased pipeline capacity to transport growing volumes of North American crude oil to fulfill a larger portion of the country's domestic energy needs, thus reducing reliance on imports from less stable areas of the world;
- Increased flexibility for shippers to the U.S. Midwest and beyond, benefiting regional refineries and consumers;
- Provides employment opportunities for independent construction workers and new business to specialized consulting firms and contractors hired to assist in the design, survey, environmental assessment and Project planning processes;
- Local and regional economic boost from the purchase of local products and materials during construction and into operation as workers use local hotels, restaurants, and services; and
- Long-term economic activity from ongoing pipeline operation

B.2.g.(2) EPND is solely a transportation company

EPND owns and operates an interstate common carrier crude oil pipeline, and is solely a transportation company. EPND does not own any production wells upstream of its pipeline system nor does EPND own any refineries downstream of its pipeline system. EPND does not determine markets or destinations for the crude oil transported. EPND is a transportation service provider for hire that strictly moves a commodity from a point of receipt or entry into its pipeline system to a point of delivery where the shipper-owned commodity exits its pipeline system for receipt by a third-party pursuant to a shipper's monthly nominations. EPND's interstate common carrier transportation tariff and rates are filed and approved pursuant to the rules and regulations of the Federal Energy Regulatory Commission ("FERC") under the Interstate Commerce Act. Such tariffs and rates are published and on file with FERC.

EPND's interstate pipeline transportation business, including the facilities described in this Project, is to provide transportation service to shippers tendering commodities for transportation. Thus, EPND relies on forecasts and reports as described in Section C of the Application for a Certificate of Corridor Compatibility.

B.2.h Existing Plans of the State, Local Government, and Private Entities for Other Developments at or in the Vicinity of the Proposed Site, Corridor, or Route

EPND met with the City of Grand Forks officials and discussed a route north and south of the city. This meeting was held to identify the City's current and future growth plans that could be incompatible with additional pipeline development. City officials identified one future arterial development corridor and current residential development that Sandpiper has rerouted around to avoid these developments.

Development plans south of the City of Stanley were identified during the Beaver Lodge Loop Project, thus, the Sandpiper Pipeline Project was routed further south of its existing Line 87 to avoid congested utility corridors, population centers, and commercial development.

B.2.i The Effect of the Proposed Site or Route on Existing Scenic Areas, Historic Sites and Structures, and Paleontological or Archaeological Sites

EPND conducted a desktop review for scenic areas, historic sites and structures, and archaeological and paleontological sites.

No designated scenic outlooks or viewing areas were identified within the 2-mile wide study area. The 2-mile wide study area and proposed pipeline traverse a landscape consisting primarily of grasslands and agricultural fields where the line of sight is broken by rolling hills and the occasional wooded draw or shelterbelt.

North Dakota has 56 historic sites across the state; however, none of these sites are located within the 2-mile wide study area. EPND is conducting cultural resources inventory surveys to locate previously recorded archaeological and historic architecture sites, and identify unrecorded sites within a generally 250-450-foot environmental survey corridor, ancillary facilities, and off-corridor yards. Section B.4.b.(3) discusses cultural resources further.

No recorded paleontological sites exist along the Project route. Paleontological resources are embedded in deposits of the Jurassic period and found primarily in the southwestern portion of the state. The bedrock of the region where Sandpiper is located is covered with quaternary glacial till, which only rarely contains fossilized material dating to the Quaternary Period.

EPND has prepared an Unanticipated Discoveries Plan ("UDP") (Exhibit K), which describes the actions taken in the unlikely event that previously unrecorded paleontological

or cultural resource sites are discovered during construction activities, specifically calling for work to stop until the correct authority or agency can be contacted, and the find can be properly evaluated.

As requested by the North Dakota State Historic Preservation Office ("NDSHPO"), to protect sensitive resources, EPND will not submit information about the specific locations of cultural sites or historic properties with this application. For all public filings, only the title page and abstract of cultural resources reports will be submitted as documentation of the studies having occurred. NDSHPO review and comment letters related to survey reports will also be submitted.

B.2.j The Effect of the Proposed Route on Areas which are Unique because of Biological Wealth or Because they are Habitats for Rare and Endangered Species

Eight federally listed, proposed, or ~~and~~ candidate species under the Endangered Species Act ("ESA") have records of occurrence in the counties through which the Project crosses ~~are located within the 2-mile wide study area~~. The occurrence of these species was identified by researching U.S. Fish and Wildlife Service ("USFWS") county-specific lists of federally listed, proposed, and candidate species on the USFWS website and by evaluating, via desktop analysis, the availability of potential habitat within the 2-mile wide study area. EPND conducted a field survey within a generally 250-450-foot environmental survey corridor. A more detailed discussion is provided in Section B.4.a.

B.2.k Problems Raised by Federal Agencies, Other State Agencies, and Local Entities

EPND consulted with several federal, state, and local agencies to identify potential environmental resources in the 2-mile wide study area that may be affected. Resource issues raised by agencies included threatened and endangered species, wetland protection, erosion control, and restoration and reseeding procedures. These consultations are described in Section B of EPND's Application for a Certificate of Corridor Compatibility, and a summary is presented in Table 2 of this Application. As a result of these consultations, EPND has made route adjustments to avoid or minimize impacts to sensitive environmental resources and developed mitigation measures where avoidance is not practicable.

TABLE 2
Federal, State and County Agency Concerns

Agency	Details of Concern
ND Game and Fish Department	• Minimize disturbances of native prairie and wooded draws • Protection of wetlands and streams crossed
ND Parks and Recreation Department	• Minimize impacts on critical habitats and rare species within the Project and construction area • Revegetate disturbed prairie area with native species
ND State Historic Preservation Office	• Safeguard the disclosure of cultural resource location information
U. S. Army Corps of Engineers	• Cumulative impacts on wetlands • NWI inventory data confirmation in the form of field surveys
U.S. Fish and Wildlife Service	• Avoid impacts to federally-listed threatened and endangered species • Avoid impacts to wetland and grassland easement features

Further discussion of agency consultations and concerns is found in Section B of the Application for a Certificate of Corridor Compatibility, and discussions of proposed avoidance and mitigation measures are found in Section B.6 of this application and in EPND's EPP (Exhibit J).

B.3 IDENTIFY AND MAP CRITERIA LEADING TO PROPOSED PIPELINE ROUTE LOCATION WITHIN CORRIDOR

This section presents EPND's inventory of environmental and land use information consistent with North Dakota Administrative Code (North Dakota Rules) Chapter 69-06-08-02 for evaluating siting criteria, including areas referred to as exclusion and avoidance areas, and the Project's compatibility with selection and policy criteria. Project components evaluated here include the proposed pipeline, the Beaver Lodge Expansion Area, the Stanley Station Expansion Area, and the new Lakota Station.

The existing Beaver Lodge, Stanley and Berthold Stations and Terminals have not been included in this assessment. These existing stations sites have been previously approved and permitted by this Commission as follows:

- The Beaver Lodge Station, consisting of 29 acres, was originally sited and approved by the ND-PSC on August 23, 2006 in Docket No. PU-06-317; and ND-PSC sited and approved an additional 69 acres on May 18, 2011 in Docket No. PU-10-613.
- Stanley Station was original sited and approved by the ND-PSC on August 23, 2006 in Docket No. PU-06-317.

- The Berthold Station (Classic), consisting of 106 acres, was originally sited and approved by the ND-PSC on August 4, 2010 in Docket No.PU-10-130. An additional 92 acres at Berthold (Berthold West) was sited and approved by the ND-PSC on May 30, 2012 in Docket No. PU-11-232.

Detailed discussions of siting criteria, including descriptions, potential impacts, and mitigation measures where appropriate are provided in Sections B.4 and B.6 of this Application for the new Lakota Station and expansion of both the existing Beaver Lodge and Stanley Pump Stations. Route alternatives and variants adopted to avoid identified criteria were discussed in Section B.2.e. Siting criteria identified within the 2-mile wide study area or along the proposed route are shown on route maps enclosed as Exhibits I.1, I.2 and I.3.

B.4 RELATIVE VALUE AND EFFECTS UPON EACH CRITERION INCLUDING LOCATION, CONSTRUCTION, AND OPERATION OF THE FACILITY

In accordance with North Dakota Rules Section 69-06-08-02, the proposed pipeline route has been chosen after consideration of its impact on humans and the environment.

B.4.a Exclusion Areas (North Dakota Rules Section 69-06-08-02.1)

The ND-PSC has identified certain sensitive or otherwise important environmental features that must be considered during the selection of a route for transmission facilities. These features have been classified as “Exclusion Areas”. As defined in North Dakota Rules Chapter 69-06-08-02.1, “Exclusion Areas” are areas that are to be excluded from consideration for energy conversion sites and transmission facility routes. Table 3 lists each Exclusion Area and indicates whether the route crosses that siting criteria

TABLE 3
North Dakota Public Service Commission Exclusion Areas – Transmission Facility Siting

Exclusion Area	Located within the environmental survey corridor	Crossed By Route	Administering Agency
National Parks	No	No	National Park Service ("USNPS")
National Memorial Parks	No	No	USNPS
National Historic Sites and Landmarks	No	No	USNPS
National Natural Landmarks	No	No	USNPS
National Wilderness Areas	No	No	USNPS and U.S. Forest Service ("USFS")
National Monuments	No	No	USNPS and State Historical Society
State Parks	No	No	State Park Service
State Historic Sites	No	No	State Historical Board
State Monuments	No	No	State Historical Board
State Historical Markers	No	No	State Historical Society
State Archaeological Sites	No	No	State Historical Board
State Nature Preserves	No	No	State Park Service
County Parks and Recreation Areas, Municipal Parks, and Parks under other Governmental Jurisdiction	No	No	Various
Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species	No	No	USFWS
Areas Where Animal or Plant Species Unique or Rare to the State Would be Irreversibly Damaged	No	No	Various
Intercontinental Ballistic Missile Launch or Launch Control Facilities	Yes	Yes	U.S. Department of Defense

Exhibit I.1 contains maps depicting Exclusion Areas located within the 2-mile-wide study area and the environmental survey corridor, which is generally defined as approximately 250-450 foot wide environmental survey corridor, along the proposed pipeline route within the 2-mile wide study area. EPND has also widened its environmental survey corridor beyond 450 feet in certain locations to address any known environmental and encroachment issues or additional temporary workspace requirements. Additional

discussion regarding the environmental survey corridor is provided in Section D of the Application for a Certificate of Corridor Compatibility.

B.4.a.(1) Designated or Registered National: Parks; Memorial Parks; Historic Sites and Landmarks; Natural Landmarks; Monuments; and Wilderness Areas

No designated or registered national parks, memorial parks, historic sites or landmarks, national landmarks, monuments, or wilderness areas are crossed by the environmental survey corridor or the route.

B.4.a.(2) Designated or Registered State: Parks; Historic Sites; Monuments; Historical Markers; Archaeological Sites; and Nature Preserves

No designated or registered state parks, historic sites, monuments, historical markers, archaeological sites, or nature preserves are crossed by the environmental survey corridor or the route.

B.4.a.(3) County Parks and Recreation Areas, Municipal Parks, and Parks under other Governmental Jurisdiction

No county parks or recreation areas, municipal parks, or parks under other governmental jurisdiction are crossed by the environmental survey corridor or the route.

B.4.a.(4) Areas Critical to the Life Stages of Threatened or Endangered Animal or Plant Species

Eight federally listed, proposed, or candidate~~, or under review~~ species have been identified in the nine counties crossed by the Project (see Table 4). Designated critical habitat for the piping plover occurs in five of the nine counties crossed by the Project. ~~The Dakota skipper and~~ Sprague's pipit ~~are~~ is currently a candidate species, and the Dakota skipper and northern long-eared bat ~~is under review~~ are proposed for listing by USFWS to become ~~a listed species~~ federally threatened and endangered, respectively. The USFWS also proposed the designation of critical habitat for the Dakota skipper in one of the counties crossed by the Project. While no legal requirement exists to protect candidate species, ~~or under review~~ proposed species, or proposed critical habitat, these ~~all~~ three ~~of these~~ species may be listed ~~as threatened or endangered~~ and the critical habitat designated prior to the completion of construction of the Project; thus, EPND is evaluating them as though they are currently listed species and designated critical habitat.

TABLE 4
Status and Occurrence of Federally Listed, Proposed, or Candidate~~, or Under Review~~ Species and ~~Designated~~ Critical Habitat

Species	Status	County								
		Williams	Mountrail	Ward	McHenry	Pierce	Towner	Ramsey	Nelson	Grand Forks
Interior Least Tern	Endangered	X	X							
Pallid Sturgeon	Endangered	X	X							
Gray Wolf	Endangered	X	X	X						
Whooping Crane	Endangered	X	X	X	X	X	X	X	X	X
Piping Plover	Threatened	X	X	X	X	X				
Dakota Skipper	~~Candidate~~ **Proposed - Threatened**		X	X	X					
Sprague's Pipit	Candidate	X	X	X	X	X	X	X		
Northern Long-eared Bat	~~Under Review~~ Proposed - Endangered	X	X	X	X	X	X	X	X	X
Species	**Designated Critical Habitat**	**County**								
		Williams	**Mountrail**	**Ward**	**McHenry**	**Pierce**	**Towner**	**Ramsey**	**Nelson**	**Grand Forks**
Piping Plover	Threatened	X	X	X	X	X				
Dakota Skipper	Proposed				X					

Sources: http://ecos.fws.gov; and http://www.fws.gov/endangered/improving_ESA/FY13-18_ESA_Listing_workplan.pdf

As discussed in the Application for a Certificate for Corridor Compatibility, during initial discussions with the USFWS, they indicated the need for a lead federal agency to be identified prior to ~~conducting~~ commencing informal Section 7 consultation and communicating about the Project. USFWS resumed consultation discussions with EPND in November, 2013 after the Corps of Engineers ("COE") became involved in the Project. USFWS and EPND are currently discussing protected species survey protocols, results of the field surveys and the Section 7 consultation process.

EPND analyzed the potential for Project-related impacts under the ESA, while recognizing that ultimately the USFWS and the COE will make the final effects determination. The data presented in the following discussions is based on ~~informal~~ preliminary information exchanges between EPND and USFWS or publicly available datasets. ~~EPND anticipates that USFWS will be in a position to consult on the Project in December 2013.~~

EPND assessed the effects for each federally listed, proposed, and candidate ~~and under review~~ species in the 2-mile wide study area by evaluating historic and present occurrences, availability of potential habitat within the 2-mile wide study area, the species' natural history, and results of desktop and field-based habitat assessments and surveys. Following USFWS terminology, EPND characterized the direct, indirect, and cumulative effects of the proposed activities on each species based on experience from past pipeline projects and USFWS interactions on those projects. Potential determination ~~outcomes~~ reached for federally listed species under the ESA include:

- No effect;
- May affect, but is not likely to adversely affect; or
- May affect, and is likely to adversely affect.

Interior Least Tern and the Pallid Sturgeon

Suitable habitat for the interior least tern (*Sterna antillarum*) and the pallid sturgeon (*Scaphirhynchus albus*) is limited to the Missouri River system. As the Project does not cross, nor is it near, the Missouri River, EPND believes the COE and USFWS will conclude that the proposed Project will have *no effect* on the interior least tern or the pallid sturgeon.

Gray Wolf

Gray wolves (*Canis lupus*) were historically found throughout much of North America, including the Upper Great Plains; however, human activities have restricted their present range to the northern forests of Minnesota, Wisconsin, and Michigan as well as the Northern Rocky Mountains of Idaho, Montana, and Wyoming. They now only occur as occasional visitors in North Dakota.

These individuals are highly mobile and any individual that did happen to stray close to the 2-mile wide study area would most likely retreat from the area upon hearing or seeing any construction activity. Due to the fragmented nature of the small amount of forested area, restricted numbers in the state and the mobile nature of this species, it is reasonable to expect that the COE and USFWS will conclude that the proposed Project *may affect, but is not likely to adversely affect* this species.

Whooping Crane

The primary nesting area for the whooping crane (*Grus ~~A~~a americana*) west of the Mississippi River is in Canada's Wood Buffalo National Park. The primary wintering area for whooping cranes is in Aransas National Wildlife Refuge in Texas. In the spring and fall, the cranes migrate primarily along the Central Flyway, an approximate 90-mile-wide corridor that serves as a major bird migration route. During the migration, cranes make numerous stops, roosting in large shallow marshes, and feeding and loafing in harvested grain fields. Approximately 75 percent of the whooping crane state sightings in North Dakota occur within the Central Flyway. The primary threats to whooping cranes are power lines, illegal hunting, and habitat loss.

In North Dakota, the western portion of the proposed pipeline route is located within the Central Flyway. The Project environmental survey corridor is adjacent to large wetlands that may serve as possible roost areas during migration.

Construction activities may cause migratory cranes to divert from the area, but ~~is~~ are not likely to result in any fatalities. USFWS typically recommends that construction be stopped if whooping cranes are sighted within 1 mile of construction activities and not resume until the birds have left the area. As such, if a whooping crane is sighted by the contractor(s) or environmental inspector(s) within the construction corridor or if USFWS notifies EPND of a whooping crane sighting, construction activities within 1 mile of the sighting will be stopped until the birds have left the area. Any sightings by the contractor(s) or environmental inspector(s) within the construction corridor will be immediately reported to USFWS and NDGF.

Following these guidelines, it is reasonable to expect that the COE and USFWS will conclude that the proposed Project *may affect, but is not likely to adversely affect* whooping cranes.

Piping Plover

Piping plovers (*Charadrius melodus*) are shore birds that may nest along the Missouri and Yellowstone River systems and in large wetlands. According to USFWS, prairie freshwater and alkali wetlands and surrounding shoreline may provide primary courtship, nesting, foraging, sheltering, brood-rearing, and dispersal habitat for the piping plover. In particular, piping plovers typically use wetlands that are a minimum of 3 hectares ~~ranging from 7 to 6,000 acres~~ in size.

Based on known occurrence information from the USFWS website, the piping plover has been recorded in Williams, Mountrail, Ward, McHenry, and Pierce counties. ~~In conjunction with the wetland delineation field survey,~~ EPND conducted a desktop assessment using aerial imagery and a field-based habitat assessment ~~survey~~ for piping plover during the 2013 field season. ~~Survey crews recorded wetland features that are or may contain potentially suitable piping plover habitat as identified through the desktop analysis and examination of aerial imagery performed prior to the field assessment.~~

Results of the habitat assessment ~~will be~~ are documented in a 2013 Piping Plover Habitat Assessment Report, which ~~will be submitted to the ND PSC in a supplemental filing after completion of the 2013 surveys~~ is included as Exhibit G.1. EPND will also use the data presented in the report to evaluate potential construction related impacts and to develop appropriate conservation measures as necessary in future discussions with the USFWS.

If appropriate conservation measures are employed, it is reasonable to expect that the COE and USFWS will conclude that the proposed Project *may affect, but is not likely to adversely affect* piping plovers.

The USFWS has designated critical habitat for the piping plover in Williams, Mountrail, Ward, McHenry, and Pierce counties. The pipeline route is within approximately 0.16 miles (845 feet) from an area of piping plover designated critical habitat near MP ~~32.2~~ 32.0 in Mountrail County. ~~Construction activities may cause piping plovers to temporarily divert from the area upon hearing or seeing construction equipment, but this will not harm individual birds.~~ If piping plover individuals are documented in this unit of critical habitat during construction, EPND will consult with the USFWS and implement conservation measures to ensure that the birds are not disturbed. Based on previous communications with USFWS, EPND understands their concern surrounding potential impacts during operations. However, ~~due to an~~ the probability of a release occurring near ~~unlikely release on~~ this unit of piping plover critical habitat during operations is exceptionally unlikely. EPND's integrity program, including its plan for release prevention, detection, and

response plans, further decrease the risk of a release at this location (see Section B.9.d.(9)). Because the potential for a release during operations is extremely unlikely, this potential impact is ~~negligible~~ discountable. It is reasonable that the COE and USFWS will conclude a *may affect, not likely to adversely affect* determination for piping plover critical habitat under the ESA.

Dakota Skipper

The USFWS proposed to list the Dakota skipper (*Hesperia dacotae*) as threatened under the ESA on October 24, 2013; a listing is tentatively planned for fall of 2014. Until the species is listed, it is not afforded any protections under the ESA. However, EPND is assessing the potential impacts of the Project on the Dakota skipper.

The Dakota skipper ~~(*Hesperia dacotae*)~~ is ~~currently listed as a candidate~~ butterfly species in North Dakota and has been documented in Mountrail, Ward, and McHenry counties. Larvae of the Dakota skipper feed on grasses, favoring little bluestem. Adults emerge in mid-June, feeding on the nectar of flowering native forbs; harebell, wood lily, and purple coneflower are common components of their diet.

Native untilled prairie ~~and non-native grasslands are~~ is the preferred habitat for the Dakota skipper as ~~these areas~~ this habitat provides foraging, sheltering, breeding and dispersal habitat. EPND completed a field survey of grassland areas to evaluate the potential for suitable habitat for Dakota skippers. In preparation for field survey, a desktop assessment of the environmental survey corridor was completed to identify grasslands using high-resolution aerial photography in counties where Dakota skippers are known to occur. Potential habitats identified in the desktop assessment were then surveyed in the field to confirm the suitability for successful habitat.

Results of the habitat assessment ~~will be~~ are documented in a 2013 Grassland ~~and Native Prairie~~ Habitat Assessment Report, which ~~will be submitted~~ is included as Exhibit G.2 ~~to NDPSC in a supplemental filing after completing 2013 surveys~~.

Potential impacts to the Dakota skipper may include temporary displacement due to construction activities and temporary loss of ground cover in native ~~and planted grassland~~ prairie areas. These effects are not likely to cause long-term declines in populations in the area. EPND will use the data presented in the habitat report to evaluate potential impacts, determine if surveys for individuals are necessary in 2014, and to develop appropriate conservation measures, as necessary in future discussions with USFWS.

Sprague's Pipit

The Sprague's pipit (*Anthus spragueii*) is currently ~~listed as~~ a candidate bird species in Williams, Mountrail, Ward, McHenry, Pierce, Towner, and Ramsey counties. Sprague's pipits' habitats are large patches of grassland; the species is endemic to mixed-grass prairie in the northern Great Plains of North America. While the birds prefer native grassland, non-native planted grasslands and cultivated lands will be used, though it is uncommon. The birds are short- to medium-distance migrants, with the range stretching from breeding grounds in southern Canada and northern U.S. to wintering grounds in southern U.S and northern Mexico. ~~Sprague's pipits' diets primarily include arthropods with some vegetable matter during breeding. Nests are built on the ground in grasslands with native grasses, and entrances to the nests can be up to 15 centimeters in length.~~

EPND completed a field survey of grassland areas to evaluate the potential for suitable habitat for Sprague's pipit. A desktop assessment of the 2-mile wide study area was also completed to identify grasslands using high-resolution aerial photography in counties where Sprague's pipits are known to occur.

Results of the habitat assessment ~~will be~~ <u>are</u> documented in a 2013 Grassland ~~and Native Prairie~~ Habitat Assessment Report, which ~~will be submitted~~ <u>is included</u> as Exhibit G.2 ~~to NDPSC in a supplemental filing after completing 2013 surveys~~.

Potential impacts to the Sprague's pipit may include temporary displacement due to construction activities and temporary loss of ground cover in native and planted grassland areas. These effects are not likely to cause long-term declines in populations in the area. EPND will use the data presented in the habitat report to evaluate potential impacts, determine if surveys for individuals are necessary in 2014, and to develop appropriate conservation measures, as necessary in future discussions with the USFWS.

Northern Long-eared Bat

The USFWS proposed to list the northern long-eared bat (*Northern myotis*) as endangered under the ESA on October 2, 2013; a listing is tentatively planned for fall of 2014. Until the species is listed, it is not afforded any protections under the ESA. However, EPND is assessing the potential impacts of the Project on the northern long-eared bat.

The northern long-eared bat uses a variety of sizes and species of trees for roosting during the summer, roosting both under bark and in crevices. Northern long-eared bats may also roost during the summer in manmade structures such as abandoned barns and sheds. Although intact interior forests (such as old growth) are used by the species for summer

roosting, it does not appear to select intact interior forests over road corridors or stands where the largest trees have been harvested. However, some studies have shown that northern long-eared bats may select stands with larger diameter trees. Because of its use of a variety of types of roosts during the summer, the species' summer habitat may not be limiting. The species is non-migratory and hibernates in caves and mines during the winter.

EPND is assessing the potential for suitable habitat initially through desktop analysis of forested areas along the Project route. Because the vast majority of the route in North Dakota is grasslands, the impact on northern long-eared bats in the state will not be substantial. Potential impacts to individual bats may occur if clearing or construction occurs when the species is occupying its summer habitat. Bats may be disturbed due to noise or human presence or may be killed or injured if the tree that they are occupying is felled. Potential mitigation measures may include clearing trees or constructing while the species is in hibernation. These effects are not likely to cause long-term declines in populations in the area. EPND will use the data from the desktop analysis to inform surveys, evaluate potential impacts and develop appropriate conservation measures, as necessary, based on future discussions with USFWS.

B.4.a.(5) Areas Where Animal or Plant Species Unique or Rare to this State Would be Irreversibly Damaged

No areas where animal or plant species unique or rare in the state would be crossed by the environmental survey corridor or the route and be irreversibly damaged.

B.4.a.(6) Intercontinental Ballistic Missile Launch or Launch Control Facilities as Exclusion Areas

The environmental survey corridor and route cross or is in close proximity to two cables that are associated with an intercontinental ballistic missile launch and launch control facility. EPND has documentation from the U.S. Air Force that this will not interfere with their operations. The U.S. Air Force stated that no areas of the route will encroach on restricted easement areas surrounding the ICBM sites, and that they do not see a conflict with the route proximity to the cable system. This criterion is not depicted on the exclusion maps for purposes of confidentiality.

B.4.b Avoidance Areas (North Dakota Rules Section 69-06-08-02.2)

As defined in North Dakota Rules Chapter 69-06-08-02.2, "Avoidance Areas" are areas not to be considered in the routing of a transmission facility unless it is shown that, under the circumstances, there are no reasonable alternatives. Table 5 lists each Avoidance Area and indicates whether the route crosses that siting criteria or whether such sitting criteria is located within the environmental survey corridor.

TABLE 5
North Dakota Public Service Commission Avoidance Areas – Transmission Facility Siting

Avoidance Area	Located within Environmental Survey Corridor	Crossed By Route	Administering Agency
National Historic Districts	No	No	State Historic Society
National Wildlife Areas	No	No	USFWS
National Wild, Scenic, or Recreational Rivers	No	No	Heritage Conservation Recreation Service, State Outdoor Recreation Agency
National Wildlife Refuges	No	No	USFWS
National Grasslands	No	No	USFS
State Wild, Scenic or Recreational Rivers	No	No	State of North Dakota Legislative Assembly
State Game Refuges	No	No	North Dakota Game and Fish Department
State Game Management and Management Areas	Yes	~~No~~ Yes	North Dakota Game and Fish Department
State Forests	No	No	State Forest Service
State Forest Management Lands	No	No	State Forest Service
State Grasslands	No	No	State Park Service
Historical Resources which are not specifically designated as Exclusion or Avoidance Areas	~~No~~ Yes	Yes	State and County Historical Society
Areas which are Geologically Unstable	No	No	State Geological Survey
Within 500 Feet of a Residences, School, or Place of Business	~~No~~ Yes	Yes	Landowner
Reservoirs	No	No	U.S. Army Corps of Engineers and State Water Commission

TABLE 5 North Dakota Public Service Commission Avoidance Areas – Transmission Facility Siting			
Avoidance Area	Located within Environmental Survey Corridor	Crossed By Route	Administering Agency
Municipal Water Supplies	Yes	Yes	State Water Commission
Water Sources for Organized Rural Water Districts	No	No	State Water Commission
Irrigated Land	No	No	State Water Commission
Areas of Recreational Significance	No	No	Various

Exhibit I. 2 contains maps depicting Avoidance Areas located within the 2-mile wide study area, environmental survey corridor (which is generally 250-450 wide), and the centerline route. Additional discussion regarding the environmental survey corridor is provided in Section D of the Application for a Certificate of Corridor Compatibility.

B.4.b.(1) Designated or Registered National: Historic Districts; Wildlife Areas; Wild, Scenic, or Recreational Rivers; Wildlife Refuges; or Grasslands

No designated or registered national historic districts; ~~wildlife areas;~~ wild, scenic, or recreational rivers; wildlife refuges; or grasslands are crossed by the route. EPND identified a USFWS-Waterfowl Production Area ("WPA"), which intersects the environmental survey corridor at approximate MP 156 (*see* Sheet No. 31 of Exhibit I.2 – Avoidance Area Maps). The WPA is located on the north side of a section line, whereas construction will occur on the south side of a section line. EPND confirmed that the northern extent of construction work would be bounded by the southern edge of the section line in this area. Thus, the WPA will not be affected by the Project.

B.4.b.(2) Designated or Registered State: Wild, Scenic, or Recreational Rivers; Game Refuges; Game Management and Management Areas; Forests; Forest Management Lands; or Grasslands

~~EPND identified a USFWS-Waterfowl Protection Area ("WPA"), which intersects the environmental survey corridor at approximate MP 156 (*see* Sheet No. 31 of Exhibit I.2).~~

~~The WPA is located on the north side of a county road, whereas construction will occur on the south side of a county road. Thus, the WPA will not be affected by the Project.~~

No designated or registered state wild, scenic, or recreational rivers; game refuges;; forests; forest management lands; or grasslands are crossed by the route.

North Dakota state wildlife management areas, school trust land, and private land open to sportsmen (PLOTS) were identified within the 2-mile wide study area and are discussed in the following subsections.

B.4.b.(2)(i) Wildlife Management Areas ("WMAs")

Four WMAs were identified within the 2-mile wide study area including: Palermo in Mountrail County, Sand Hill in McHenry County, Horseshoe Lake in Pierce County, and Crawford in Grand Forks County. However, none of the WMAs are crossed by the environmental survey corridor or the route. NDGF confirmed that no further consultation is necessary and no permits are required as discussed in Section B.3.b of the Application for a Certificate of Corridor Compatibility.

B.4.b.(2)(ii) School Trust Land

EPND identified ~~49~~ 50 parcels of North Dakota School Trust Lands within the 2-mile wide study area. Of the ~~49~~ 50 parcels, EPND identified 11 parcels that are located within the environmental survey corridor, ~~but not~~ and are crossed by the proposed pipeline route, (see Exhibit I.2, Sheet Nos. 30 and 57). Construction efforts on school trust lands will be temporary, and parcels affected by the Project will be restored to preconstruction conditions after construction is completed as discussed in Section B.6. EPND's Land Department is coordinating with the North Dakota Department of Trust Lands to confirm that the construction and operation of a pipeline will not preclude the continued use of the land for the school trust lands' purpose.

B.4.b.(2)(iii) Private Land Open to Sportsmen ("PLOTS")

EPND identified 31 PLOTS parcels within the 2-mile wide study area with 5 of the 31 parcels being located within the defined environmental survey corridor, ~~but not~~ and 3 are crossed by the pipeline (see Sheet Nos. 21 and 50).Construction effects on PLOTS lands will be temporary. Parcels affected by the Project will be restored to pre-construction conditions after construction has been completed as discussed in Section B.6.

B.4.b.(3) Historical Resources not Specifically Designated as Exclusion or Avoidance Areas

EPND began conducting cultural resource surveys within the 250-450 foot environmental survey corridor in May 2013. ~~As of September 14,~~ Through November 2013, archaeological and historic structure inventories have occurred over approximately ~~87~~ 91 percent of the route requiring survey to identify previous historical resources that have not been identified. EPND ~~will~~ reported findings to the NDSHPO in January 2014. ~~And the Commission upon completion of the 2013 field season.~~

Numerous cultural resource survey inventories have been completed along portions of the Sandpiper 2-mile wide study area over the last 30 years, including six inventories that were completed by EPND since 2006. Details on these inventories as well as previously identified archaeological and historic site structures are included in Section B.1.a.(1) of the Application for a Certificate of Corridor Compatibility.

For portions of the route lacking sufficient survey coverage from previous projects, EPND initiated Class III inventory surveys along the environmental survey corridor with professional cultural resource contractor Metcalf Archaeological Consultants ("MAC"). EPND directed MAC to apply standard methodologies and utilize the guidelines provided by

the NDSHPO in 2012. The primary focus of the 2013 Class III inventory survey was the identification of resources and an initial assessment of their boundaries and research potential. EPND directed MAC to classify resources according to the criteria utilized by federal agencies when evaluating eligibility for listing on the NRHP. Standard field survey methods included pedestrian survey along the entire environmental survey corridor and subsurface shovel testing at specific locations determined by ground surface visibility and other factors.

In order to maximize resources and minimize inefficiency, EPND used the latest GIS technology and landscape modeling tools to design the Class III field survey. Foth Engineering ("Foth") prepared a statistically-based GIS predictive model that assisted the design of the field survey for the Project. The predictive model resulted in a classification system to identify high, moderate, and low sensitivity potential for containing archaeological sites and historic structures that may be eligible for the NRHP. EPND determined survey targets for each of the three zones, which included 100 percent of the moderate and high sensitivity zones and at least 10 percent of the low sensitivity zones. Periodically, Foth reviewed MAC's completed survey data and provided additional model outputs to reflect the supplemented datasets. EPND will utilize this information during archaeological site and historic structure studies throughout the Project into construction.

During the surveys, MAC identified approximately 100 archaeological sites, historic structure sites, isolates, and site leads. EPND ~~will continue field surveys through the fall of 2013, and~~ will complete the surveys on any outstanding parcels in 2014. Additional studies may involve the formal evaluation of some archaeological sites and historic structures for their eligibility for listing on the NRHP.

During this process, EPND identified a cemetery close to the route at approximately MP ~~118.6~~ 118.8. Although not specifically listed as a specific exclusion or avoidance area, EPND adjusted the route to avoid this historical resource.

EPND prefers to avoid inventoried archaeological sites and historic structures. In the event that EPND is unable to avoid project impacts to a site through engineering controls, EPND will conduct formal evaluations in consultation with the NDSHPO and seek resolution through mitigation for those sites that meet the criteria for listing on the NRHP.

EPND ~~will~~ prepared a technical report~~s~~ for the Project's cultural resources studies and has submitted it ~~them~~ to the NDSHPO for their review and comment. EPND will use the data presented in the report to evaluate potential impacts and to develop appropriate avoidance or mitigation measures as necessary in future discussions with the SHPO. In order to

protect these sensitive resources EPND will not submit information about the location of historic properties with this application, unless specifically requested by the Commission. For this application and any other public filings, only the title page and abstract of cultural resources technical reports ~~will be~~ are submitted as documentation of the surveys and evaluations, see Exhibit E.1. NDSHPO review and comment letters for technical reports will be submitted as supplemental filings to this application.

B.4.b.(4) Areas which are Geologically Unstable

No areas of geological instability are crossed by the environmental survey corridor or the route.

B.4.b.(5) Within Five Hundred Feet [152.4 Meters] of a Residence, School, or Place of Business

EPND has identified ~~43~~38 inhabited structures within 500 feet of the new pipeline. Of that total, ~~37~~ 33 are residences and ~~6~~5 are businesses. No schools are located within 500 feet of the new pipeline. EPND ~~is working to~~ has secured the waivers that are needed and ~~plans to~~ has ~~submit them in a supplemental filing prior to the hearings~~ included them as Exhibit L.

No residences or other occupied structures will be razed due to construction. Future residential development will not be precluded following construction of the pipeline, except as required by state and/or local setback ordinances and easement restrictions. Construction could temporarily restrict access to residences along the pipeline route. EPND will either limit the time such restrictions are in place or will make arrangements to accommodate the landowner's needs.

During construction, residences in close proximity to construction activities will be exposed to short-term increases in construction-related noise and dust. Some minor dust production is unavoidable in any construction project; however, if excessive, the construction right-of-way and access roads near residential areas will be watered down to control dust during construction. After construction is complete, measures to stabilize and revegetate the right-of-way will prevent further dust production.

The heavy construction equipment needed to install the pipeline will generate unavoidable short-term increases in ambient noise levels. Increases in ambient noise levels due to equipment operation will be limited to the period of construction and will generally be limited to daylight hours. Disturbance of these areas will be temporary and short-term; long-term incremental impacts will be minimal.

B.4.b.(6) Reservoirs and Municipal Water Supplies

The environmental survey corridor crosses a Wellhead Protection Area ("WHPA") at approximately MP ~~91.5~~ 91.7 near the City of Deering. EPND ~~adjusted~~ was able to adjust the route to avoid crossing the WHPA with the pipeline, thus discussion regarding this matter was not pursued with city officials.

The environmental survey corridor and the route cross two locations where the City of Grand Forks has a defined WHPA, and a summary is provided in Table 6.

TABLE 6
Public Water Systems/Wellhead Protection Areas Along the Pipeline Route

Wellhead Protection Area	Water Source	Mileposts	Community served	Susceptibility to Contamination
City of Grand Forks	Surface Water (Elm Coulee & Cole Creek)	~~296.11 – 297.66~~ 297.0 – 298.2	City of Grand Forks	Moderately Susceptible
City of Grand Forks	Surface Water (Red River)	~~298.92 – 299.66~~ 299.5 – 299.7	City of Grand Forks	Moderately Susceptible

EPND has been in active discussion with the City of Grand Forks regarding the routing of the Sandpiper Project and has adjusted its route to accommodate known concerns. EPND will continue to work with the City of Grand Forks to address concerns and solicit recommendations related to protecting these municipal water supplies.

Construction and staging areas within the WHPAs would be confined to the smallest necessary area and clearly marked. Parking of equipment and storage of materials would be confined to designated areas. EPND's contractor would be required to adhere to the conditions detailed in its EPP regarding release prevention and response (see Exhibit J). The EPP also provides additional protective measures that would be implemented near sensitive water resources. An environmental inspector would conduct on-site monitoring during construction to ensure that public water supply areas are protected as planned.

EPND also identified where Sandpiper may cross a portion of the constructed and operational Northwest Area Water Supply project, a water supply project piping water from Lake Sakakawea to Minot and other northern cities. Another water supply project, the Western Area Water Supply project may also be crossed where it has already been constructed or where pipelines may be planned. EPND will continue to work with the State Water Commission to address concerns and solicit recommendations related to protecting these projects.

B.4.b.(7) Water Sources for Organized Rural Water Districts

No water sources for organized rural water districts are crossed by the environmental survey corridor or the route.

B.4.b.(8) Areas of Recreational Significance which are not Designated as Exclusion Areas

No areas of recreational significance are crossed by the environmental survey corridor or the route which are not designated as exclusion areas.

B.4.C Selection Criteria (North Dakota Rules Section 69-06-08-02.3)

The State of North Dakota Rules' specify several selection criteria to be considered in designating a pipeline corridor or route. Specifically, ND-PSC considers whether adverse effects from the location, construction, and maintenance of the facility as they relate to these criteria, will be at an acceptable minimum, or whether these effects will be managed and maintained at an acceptable minimum. Table 7 identifies the selection criteria that were considered for the Project. Potential impacts and measures to minimize these impacts, as they relate to each of the selection criteria, are discussed in the following subsections.

TABLE 7
Sandpiper Pipeline Project
Selection Criteria Considered

SELECTION CRITERIA	CROSSED BY ROUTE
Agricultural Production	Yes
Family Farms and Ranches	Yes
Land Suitable for Irrigation	Yes
Surface Drainage and Groundwater Flow Patterns	Yes
Sound Sensitive Areas	Yes
Visual Effects	Yes
Extractive and Storage Resources	Yes
Wetlands	Yes
Woodlands and Wooded Areas	Yes

TABLE 7 Sandpiper Pipeline Project Selection Criteria Considered	
SELECTION CRITERIA	**CROSSED BY ROUTE**
Communication or Electric Control Facilities	Yes
Human Health and Safety	Yes
Animal Health and Safety	Yes
Plant Life	Yes

B.4.c.(1) Impact Upon Agriculture

B.4.c.(1)(i) Agricultural Production

Agriculture is the predominant land use, comprising approximately 62.8 percent of the 2-mile wide study area. Agricultural land use includes pasture land and crop land. Some agricultural land is actively enrolled in various voluntary conservation programs administered by the:

- U.S. Department of Agriculture ("USDA") Natural Resource Conservation Service ("NRCS");
- USDA Farm Service Agency ("FSA"); and
- USFWS.

The owners of these parcels receive compensation in return for placing tillable lands into non-agriculture conservation programs. EPND continues to work to identify lands enrolled in USDA and USFWS programs along the route, including the Conservation Reserve Program ("CRP"), Conservation Reserve Enhancement Program ("CREP"), Grassland Reserve Program ("GRP"), Wetland Reserve Program ("WRP"), and the grassland and wetland easement programs.

CRP and CREP Lands

The USDA FSA administers the CRP and CREP. To date, EPND has not identified lands crossed by the route that are enrolled in these programs. For landowner privacy reasons, the USDA FSA has elected to withhold disclosing this land information to EPND (see discussion in Section B.4.e of the Application for a Certificate of Corridor Compatibility).

EPND continues to actively engage landowners along the route to determine if their land is enrolled in these programs.

GRP and WRP Lands

The USDA NRCS administers the GRP and WRP. USDA NRCS shared parcel information for lands currently enrolled in the WRP (see discussion in Section B.2.b of the Application for a Certificate of Corridor Compatibility). EPND has made minor route variations to avoid these lands for their recognized conservation value. No data was provided for lands enrolled in GRP. Although parcel information was obtained from NRCS enrolled in WRP, the data does not include lands in transition into these programs, therefore, EPND continues to actively engage landowners along the route to determine if lands are enrolled in these programs.

USFWS Grassland and Wetland Easements

The USFWS holds multiple wetland and grassland conservation easements on private land within the 2-mile wide study area and crossed by the route. The Project is generally co-located with EPND's existing Line 82 pipeline between Beaver Lodge and Berthold Stations. In these areas, EPND currently holds existing pipeline right-of-way easements, which were acquired prior to the USFWS wetland and grassland easement programs. EPND plans to exercise its easement rights along this portion of the route.

For portions of the route not located along Line 82 and 81 east of ~~Minot~~ Berthold, EPND routed the pipeline to avoid USFWS-owned lands entirely, and ~~wetland~~ and a grassland ~~conservation~~ easement~~s where practicable~~ at MP 105.1 by boring underneath the easement. Upon receiving detailed wetland locations on wetland easement properties from USFWS in October and November 2013, EPND adjusted the pipeline route to avoid wetlands. EPND ~~is currently~~ continue~~sing~~ to work with USFWS on crossing methods and/or avoidance measures at locations where features within the easement may be unavoidable.

Maps showing the proposed pipeline route in relation to USFWS easements are included as Exhibit I.3

Crop Production

Generally, land suitable for cultivation within the 2-mile wide study area, regardless of whether it is actually cultivated or not, is designated as "prime farmland" or "farmland that is of statewide or local importance." The USDA NRCS has defined prime farmland and farmland that is of statewide or local importance as land that has the best combination of

physical and chemical characteristics for producing food, feed, fiber, and oilseed crops. These designations include cultivated land, pasture, woodland, and other land that is either used for food or fiber crops or are available for these uses. Urbanized land and open water are generally excluded from prime farmland and farmland that is of statewide or local importance.

Prime farmland and farmland that is of statewide or local importance typically contains few or no rocks; is not subject to excessive erosion; is relatively permeable to air and water; and is not subject to prolonged periods of flooding during the growing season. Soils that do not meet these criteria may be considered prime or important farmland if the limiting factor is mitigated (e.g., artificial drainage). NRCS defines the specific criteria for determining prime farmland. State and local government agencies define the criteria for determining farmland that is of statewide or local importance.

Prime farmland (including areas of prime farmland, if drained) and farmland that is of statewide or local importance occurs within the proposed 2-mile wide study area and along the proposed pipeline route. Approximately ~~64~~ 48 percent of the 2-mile wide study area contains prime farmland or farmland that is of statewide or local importance.

A number of factors used to designate prime farmland and farmland that is of statewide or local importance would not be affected by the Project. For example, rainfall and the length of the growing season would not change.

Tables 8, 9, and 10 list the soil characteristics, depth, and slope along the pipeline route. Approximately ~~42.5~~ 44.9 percent of the soils crossed by the pipeline route are NRCS-classified prime farmland, provided there is sufficient artificial drainage to remove excess surface water.

TABLE 8
Soil Characteristics in the Pipeline Survey Corridor [a]

Total Acres within Survey Corridor	Prime Farmland[a]	Hydric Soils	Compact. Prone	Highly Erodible		Stony/ Rocky	Shallow to Bedrock[b]
				Water	Wind		
	Acres (percent)						
~~12,488.7~~ 12,794.1	~~42.5~~ 44.9	~~93.2~~ 93.8	~~30.5~~ 15.5	14.3	~~60.1~~ 18.2	N/A	0.3

[a] Prime farmland includes soils that are designated as prime farmland or prime farmland if drained or irrigated. "Farmlands of Statewide or Local Importance" were not included in this estimate.

[b] The value above includes soils which had a depth to a restrictive layer (e.g., bedrock, cemented layers, heavy clay, and frozen layers) of 60 inches or less.

TABLE 9
Topsoil Depths and Slope Class in the Pipeline Survey Corridor [a]

	Topsoil Depth (inches)				Slope Class (percent)				
	0-6	~~>6-12~~ 0 - 12	~~>12-18~~ 0 - 18	~~>18~~ 0 - >18	0-5	>5-8	>8-15	>15-30	>30
Total Acres	Acres (percent)				Acres (percent)				
~~12,488.7~~ 12,794.1	~~21.3~~ 22.2	~~72.8~~ 72.4	4.7	0.3	~~87~~ 86.1	~~7~~ 6.7	~~1~~ 5.0	~~4~~ 1.5	~~1~~ 0.8

TABLE 10
Topsoil Depths on Prime Agricultural Land in the Sandpiper Pipeline Survey Corridor [a]

	Topsoil Depth (inches)			
	0-6	~~>6-12~~ 0 - 12	~~>12-18~~ 0 - 18	~~>18~~ 0 - >18
Total Acres	Acres (percent)			
~~6429.7~~ 6,714.4	~~3~~ 3.4	~~93~~ 93.4	~~3~~ 2.9	~~1~~ 0.3

Crop production will be temporarily disrupted in cases where the construction period overlaps with the growing season. Landowners will be compensated for crop loss or reduced yields caused by construction of the pipeline. Deep tillage or other measures will be implemented as necessary to mitigate effects of soil compaction.

Table 11 presents the major crops farmed in each county crossed by the Sandpiper route.

TABLE 11

Major Crop or Land Feature Acreages by County

County	Grassland	Durum Wheat	Spring Wheat	Hay (Alfalfa)	Other Major* Crop Types
Williams	475,832	409,876	54,838	28,249	Lentils, Peas, Winter Wheat, Barley
Mountrail	557,843	133,759	144,223	27,167	Canola, Flaxseed, Peas, Winter Wheat
Ward	384,265	33,754	301,631	<20,000	Canola, Winter Wheat, Flaxseed, Soybeans, Sunflower, Barley, Corn, Alfalfa
McHenry	526,130	<20,000	153,282	77,179	Corn, Soybeans, Canola, Sunflower
Pierce	199,785	<20,000	114,451	37,064.1	Soybeans, Corn, Canola, Barley
Towner	109,445	<20,000	179,826.8	<20,000	Canola, Soybeans, Barley
Ramsey	126,865	<20,000	121,224	<20,000	Soybeans, Canola, Corn, Barley, Dry Beans
Nelson	111,924	<20,000	102,471	<20,000	Soybeans, Corn, Canola, Dry Beans, Barley
Grand Forks	52,390	<20,000	163,537	82,928	Soybeans, Corn, Dry Beans, Sugar beets

*Major Crops are defined as crop acreages greater than 20,000 Acres. Major Crop Types are listed in order greatest to least

Source: USDA, 2012

The effects of construction on agriculture would be minor and short term. The primary impact would be the loss of standing crops within the construction work area for the growing seasons during which Project-related activities occur. It is possible for construction to result in soil compaction; mixing of topsoil and subsoil, including introduction of rocks into the topsoil from the subsoil; erosion; the introduction of weeds; and damage to irrigation and

drainage systems. These impacts may lower soil productivity and reduce crop yields following construction.

Impacts to agricultural production during construction would be mitigated by the following measures including, but not limited to:

- bury the pipeline deeper than typical tillage depths to allow continued use of the land for agriculture after construction;
- clean heavy equipment that is capable of transporting weed propagules or soil pests prior to use on the Project;
- prohibit construction during periods of prolonged or heavy rainfall to minimize the potential for soil compaction;
- alleviate soil compaction caused by construction by deep tilling or chisel plowing soils (or alternative methods approved by the landowner or land management agency) where compaction has been shown to have been caused by construction;
- strip the existing amount of topsoil, up to a maximum depth of 12 inches, from the full width of the right-of-way (subsoil storage area, trench line, and travel lane) to maintain topsoil integrity and minimize impacts on soil productivity (where there is less than 12 inches of topsoil, strip the existing amount or to the bottom of the plow layer, whichever is deepest);
- store topsoil and subsoil in a manner that prevents mixing, and return topsoil to its original horizon during backfilling;
- implement temporary erosion best management practices to minimize the potential for soil loss due to wind or water erosion during construction;
- compensate landowners for crop loss and other associated damages for the year of construction;
- coordinate with landowners to assess crop productivity following construction and provide compensation where crop yields show decline;
- coordinate the interruption of irrigation and drainage systems with each landowner and compensate the landowner for damages and lost production that result from interruption of irrigation and/or drainage systems;
- repair, replace, or compensate landowners where irrigation and/or drainage systems are removed from service by construction; and
- compensate landowners for a permanent easement on their property.

Following construction, EPND will restore the right-of-way to its pre-construction contours to the extent reasonably practicable and stabilize the ground until the next growing season.

Planting and harvesting would be allowed to continue over the operational right-of-way; fields are expected to return to normal yields within 1 to 2 years following construction.

Long-term impacts on prime farmland and farmland that is of statewide or local importance would be minor. Following construction, the work area would be restored to its pre-construction condition and stabilized. Permanent impacts on agricultural production would be limited to the expansion of the Beaver Lodge Station and the new Lakota aboveground station. Approximately ~~69.4~~ 51.8 acres of land would be permanently removed from agricultural production.

B.4.c.(1)(ii) Family Farms and Ranches

The effects of construction on family farms and ranches within the 2-mile wide study area would be minor and short term. The primary impact on family farms would be the loss of standing crops within the work area for the growing seasons during which Project-related activities occur, as well as potential diminished yields for 1 to 2 years following construction. EPND proposes to implement mitigation measures to minimize these potential impacts as described in the EPP (Appendix J).

Herbaceous rangeland suitable for livestock grazing comprises approximately 21.2 percent of the 2-mile wide study area. The primary impact on family ranches would be temporary prohibition of livestock grazing in the construction right-of-way and workspace areas and restrictions on livestock movement across the construction right-of-way and workspace areas during construction. Given the narrow, linear nature of the Project and the alignment of the pipeline along property boundaries, livestock grazing reductions and livestock movement restrictions would be minor.

Long-term or permanent impacts on family farms and ranches are not anticipated. The Project will result in changes of land ownership for the small expansion at Beaver Lodge and Stanley Stations and the new Lakota Station, where EPND will acquire land in fee to expand or build new station facilities. Following construction, the work area would be restored and farming and ranching would be allowed to continue over the operational right-of-way. Landowners would be compensated for temporary loss of land use. Grazing activities would return to normal after revegetation.

B.4.c.(1)(iii) Lands Suitable for Irrigation

As discussed in B.4.c (1) (i), agriculture is the predominant land use within the 2-mile wide study area.

EPND has not received information from any landowner along the route (where the land use is not currently agriculture) stating they believe their land could be suitable for irrigation, or that they plan to improve their land for an irrigated crop or install an irrigation system.

B.4.c.(1)(iv) Surface Drainage and Groundwater Flow Patterns

Surface Water

There are a total of 117 ~~93~~ waterbody crossings of which ~~eight~~ nine are perennial waterbodies, and 81 ~~74~~ are intermittent waterbodies~~, and 11 are undefined according to the National Hydrography Dataset~~. No state or federally designated wild or scenic rivers are crossed by the pipeline route. Waterbodies crossed by the Project centerline are listed in updated Exhibit F.2.

EPND is presently working with applicable permitting agencies to determine the best crossing methodology for each of the waterbodies. Construction methods to be utilized for waterbody crossings are detailed in the Project's EPP (Exhibit J).

Temporary, incremental increases in sediment load can be expected downstream of waterbody crossings during the excavation and backfilling phases of construction. Additionally, some incremental increase in surface run-off sedimentation may be expected to occur at each of the crossings due to the close proximity of exposed soils. No significant or long-term increase in sedimentation is expected from construction of the waterbody crossings.

EPND will obtain applicable permits for waterbody crossings. One or more environmental inspector(s) will be retained to monitor compliance with applicable permit requirements and specifications required by EPND's EPP (see Exhibit J).

Surface Water Runoff

Potential construction-related effects on surface waters are primarily related to sedimentation from uncontrolled erosion of disturbed areas. Much of the pipeline route is level or only gently sloping, which limits the potential for runoff effects. Because the right-of-way will be restored to preconstruction conditions to the extent reasonably practicable, area runoff following construction will generally reflect surrounding land use and pre-existing conditions.

EPND will obtain authorization under a general permit for Storm Water Discharges Associated with Construction Activity from NDDH (North Dakota Pollutant Discharge Elimination System ("NDPDES") Permit No. NDR-10-0000). EPND's EPP (see Exhibit J),

which was developed in part to meet requirements of this permit, describes best management practices ("BMPs") EPND will implement to minimize offsite erosion from site stormwater runoff.

Discharges to Surface Waters

During construction, point source wastewater discharge will be generated from hydrostatically testing the new pipeline prior to placing it in service. Discharges will also occur as needed for trench dewatering during construction. NDDH has developed a General Permit (NDPDES Permit No. NDG-070000), which authorizes the discharge of waters related to temporary dewatering and hydrostatic testing. EPND will obtain authorization for construction-related discharges and will conduct trench dewatering and hydrostatic test water discharges in a manner consistent with the NDPDES General Permit.

Testing and discharge is anticipated to be consistent with past practices and experience. Discharges of hydrostatic test water typically are controlled discharges directly to the ground surface or occasionally into Waters of the State. Specific discharge point(s) for hydrostatic test water for the pipeline have not been determined at this time. In most cases, it is anticipated that this water will be acquired from a river crossed by the pipeline route and discharged back to the original source.

Groundwater

Aquifers underlying the 2-mile wide study area are comprised of both bedrock and overlying unconsolidated deposits. Unconsolidated glacial aquifers occur above the bedrock, and are typically comprised of sand and gravel deposits, and include alluvial outwash, beach-ridge, valley train, and ice-contact stratified drift sediments. Such deposits may occur as surficial phreatic aquifers or as buried aquifers, which are typically confined as a result of the overlying sediments deposited during subsequent glaciations. The uppermost water table aquifer tends to be a subdued replica of land surface topography, with recharge occurring in upland areas and discharge occurring to surface waters.

Unconsolidated deposits constitute the most productive aquifers in North Dakota. These tend to be linear in shape with tributary branches that somewhat resemble surface water drainages. Significant bedrock aquifers include the Tertiary Fort Union Group (western half of North Dakota), the Cretaceous Hell Creek Formation and Fox Hills Sandstone (western two-thirds of the state), and the Cretaceous Dakota Sandstone (underlies most of the state).

Ground disturbance associated with pipeline construction is generally limited to 6 feet or less below the ground surface. Most construction activity would occur above surficial

aquifers. Construction activities, such as trenching, blasting, drilling, dewatering, and backfilling, which encounter shallow aquifers, could cause minor fluctuations in groundwater levels and/or increased turbidity within the aquifer adjacent to the activity. EPND will avoid direct impact to any of the water wells located within the vicinity of the construction right-of-way. If the functionality of a well is impacted, EPND will implement mitigation by installing an additional well(s) that will restore the impacted well's functionality.

Dewatering activities, if necessary, are not expected to have a significant effect on regional groundwater flow patterns. Shallow aquifers would quickly reestablish equilibrium if disturbed, and turbidity levels would rapidly subside. Consequently, the effects of construction would be minor and short term. Impacts on deeper aquifers are not anticipated given their depth and separation from surficial materials. Moreover, deeper aquifers are commonly confined and hydraulically insulated from overlying formations.

A potential source of adverse impacts on groundwater is the introduction of contaminants resulting from accidental releases of construction-related chemicals, fuels, or hydraulic fluid. If a release of petroleum-based liquids occurs, deeper aquifers are not as likely to be impacted owing to their depth and hydraulic separation from the surface. EPND's EPP (see Exhibit J) describes preventative measures EPND will implement to prevent accidental discharges of fuels or other hazardous substances, including specific storage and handling requirements. The EPP also describes response, containment, reporting, and cleanup procedures. With the implementation of these protection measures, contamination of groundwater due to construction activities is not anticipated.

Water Use

Sandpiper will not significantly affect water use patterns. Following construction, drains, swales, creeks and rivers will be restored to preconstruction conditions to the extent practicable to minimize disruption of water resources.

The Project will require temporary appropriations of water (typically surface water) for use in the hydrostatic testing of the newly installed pipeline. Additionally, some temporary trench dewatering may be required, particularly during road bores. No significant effect on existing and future water uses is anticipated.

Discharge of water used to hydrostatically test the new pipeline is not expected to have an impact on the environment or receiving waters. The discharge is regulated by the NDDH under a NDPDES general permit issued for discharge, temporary trench dewatering and hydrostatic testing activities (Permit No. NDG-07-0000). Water appropriated for hydrostatic

testing will be subject to regulation by the North Dakota State Water Commission ("NDSWC") and appropriation will be conducted within acceptable limits and parameters.

B.4.c.(2) Impact Upon Sound-Sensitive Land Uses

The 2-mile wide study area and environmental survey corridor are located in a predominately rural setting characterized by an inherently low ambient noise level. Most of the noise generated in any given area is due to human activity: mainly vehicle traffic, train traffic, and agricultural machinery. Lesser amounts of noise can be attributed to natural causes, such as wind, birds, and insects. The effects of noise on people, livestock, and wildlife is strongly influenced by the level and timing of the noise.

The heavy equipment needed to construct the pipeline is expected to generate between 80 and 90 decibels within 50 feet of the equipment. Noise-sensitive receptors close to construction would be exposed to temporary increases in noise. People living, working or otherwise occupying areas near the work area may be temporarily impacted, and livestock and wildlife may relocate to adjacent areas. The effects of noise would be diminished where the Project is adjacent to existing railroad and roads because these areas already experience increased noise levels from train and car/truck traffic (estimated between 60 and 95 decibels when cars, trucks, and/or trains are traveling on roads/railroads at higher speeds). Nighttime noise levels would normally be unaffected by construction, as most construction is typically restricted to daylight hours.

EPND plans to perform pre- and post-construction noise surveys at its existing Beaver Lodge, Stanley, and Berthold Pump Stations, as well as at the new Lakota Pump Station. Table 12 presents summary information pertaining to the pump stations.

TABLE 12
List of Pump Stations and Nearest Sensitive Areas (NSA)

Name of Pump Station	County	Distance to Nearest NSA	Noise Study Planned
Beaver Lodge	Williams	3,750 feet – residence	Yes
Stanley	Mountrail	1,000 feet – residence	Yes
Berthold	Ward	3,000 feet – residence	Yes
Lakota	Nelson	1500 feet - residence	Yes

B.4.c.(3) Impact Upon Visual Effect on the Adjacent Area

Temporary visual effects would exist during active construction at which time heavy equipment, open trenches, and spoil piles would change the colors and textures of the landscape. The duration of visual impacts would be short term as the reestablishment of vegetation on grasslands and agricultural land following construction would occur relatively quickly. The majority of the Project will result in below ground installation of pipeline, which will not be visible and will not permanently affect the gently rolling vista. Permanent impacts on visual resources would include additional structures built in association with Beaver Lodge Station Expansion Area, Stanley Station Expansion Area,, and the new Lakota Pump Station . Beaver Lodge and Stanley Stations are already in existence, and located in rural agricultural areas where the additional structures would have a negligible visual effect on adjacent areas. The new Lakota Pump Station will be located approximately ~~1.5~~ one mile~~s~~ outside of the community of Lakota in a rural agricultural area. ~~where few people will see it.~~ Visual impacts associated with this new facility will consist of the conversion of agricultural land to industrial use.

B.4.c.(4) Impact Upon Extractive and Storage Resources

A review of the Project 2-mile wide study area identified three types of actively extracted mineral resources at various locations within the 2-mile wide study area: oil and gas, sand and gravel, and lignite. None of these extractive resources would be affected by the proposed Project. Although these resources may exist within the 2-mile wide study area, no active mines for these resources were identified within the 2-mile wide study area. Additionally, no gas storage resources were identified within the proposed 2-mile wide study area.

B.4.c.(4)(i) Oil and gas

Known oil and gas reserves in North Dakota are associated with the structural Williston Basin in the western half of the state. The Williston Basin is roughly circular and deepest at its center, with strata becoming shallower and thinner moving radially towards its margins. The Williston Basin covers approximately 300,000 square miles over parts of North Dakota, South Dakota, Montana, and the adjacent Canadian provinces of Saskatchewan and Manitoba.

Approximately 180 miles of the westernmost portion of the pipeline route will pass over the Bakken Formation, a thin but widespread unit within the central and deeper portions of the Williston Basin. Approximately 145 oil and/or gas wells are located within the 2-mile wide study area. Of these, four wells are within the environmental survey corridor. Table 13

provides the approximate MPs and distance from the proposed centerline where these wells can be found.

TABLE 13
Oil or Gas Wells Near the Pipeline

Approximate MP	Distance from Centerline (feet)
~~15.4~~ 15.2	55
~~29.7~~ 29.8	199
59.2	~~115~~ 98
85.6	~~44~~ 3

Typically, the pipeline trench would be less than 6 feet deep to account for the pipe and adequate cover. Because oil and gas is generally produced from depths in excess of 1,000 feet, construction of the pipeline would not be expected to affect the ability of the wells to produce petroleum and/or natural gas. Rather, any construction-related damage that could occur would be limited to surface or near-surface components of the wells and gathering systems, which could temporarily disrupt production until repairs are made. To minimize the potential for impacting surface and near-surface components, EPND would:

- avoid direct impact to the 4 wells located within the environmental survey corridor; and
- identify any associated underground gathering lines along the proposed route and take appropriate precautions to protect the integrity of such facilities.

B.4.c.(4)(ii) Gravel and Sand Resources

U.S. Geological Survey [“USGS”] 1:24,000 topographic coverage maps and recent aerial photographic coverage were reviewed to identify potential sand and gravel pits within the 2-mile wide study area along the Project route. A total of 56 pits were identified. There are 13 active pits that have been identified by aerial photographs within the 2-mile wide study area. The Project is not expected to result in any short- or long-term impacts on any of the active sand/gravel pits within the 2-mile wide study area.

B.4.c.(4)(iii) Lignite

A review of maps of lignite deposits found the presence of lignite within the 2-mile wide study area from approximately MP ~~3.5~~ 3.4 to MP ~~5~~ 4.4. However, the deposit lies outside of the environmental survey corridor.

B.4.c.(5) Impact Upon Wetlands

EPND ~~is~~ conducted ~~ing~~ field assessments of wetlands and waterbodies within the environmental survey corridor. ~~Following completion of the assessments,~~ Results of the delineations are ~~will be~~ summarized and submitted as a supplemental filing and is included in Exhibit F.1. According to the USGS land use classification, wetlands and waterbodies comprise approximately ~~5.5~~ 5.2 percent of the land along the pipeline route. Table 14 presents the miles of wetlands crossed by the route in each county.

TABLE 14
Wetlands Crossed by the Sandpiper Pipeline Project Route

County	Approximate Distance (miles)
Grand Forks	~~2.52~~ 2.48
McHenry	~~8.38~~ 7.46
Mountrail	~~3.75~~ 3.78
Nelson	~~5.27~~ 4.26
Pierce	~~6.05~~ 5.37
Ramsey	~~2.80~~ 2.01
Towner	~~6.34~~ 5.71
Ward	~~3.44~~ 3.37
Williams	~~0.0~~ 0.03
Total	**~~38.60~~ 34.48**

EPND will implement the measures identified in its EPP (see Exhibit J) to minimize adverse effects on wetlands during construction and restore wetlands following construction; therefore, effects on wetlands are expected to be short-term and minor. During trenching, water quality of inundated wetlands will be temporarily affected due to the suspension of sediments and organic matter. Project construction will result in temporary disturbance to some of the existing vegetation along the pipeline route and within the construction right-of-way.

EPND commissioned Carlson McCain, Inc. ("Carlson McCain") to complete a wetland and waterbody assessment based on the pipeline route in May 2013. Carlson McCain classified the wetlands per the wetland survey protocols presented in Exhibit F.1, which are based on the Cowardin Classification System, a comprehensive system that provides uniformity to the classification of wetlands and deepwater habitats throughout the United States. Carlson McCain completed field delineations along ~~94~~ 98 percent of the pipeline route through ~~September 14,~~ November 2013. ~~Upon completion,~~ EPND ~~will~~ provided the ~~final~~ wetland delineation report to the ND-PSC as a supplemental filing.

EPND will obtain the necessary permit for wetland crossings. Work in wetlands will be conducted in accordance with applicable permit conditions and the measures specified in the EPP (Exhibit J).

During construction in unsaturated wetlands, topsoil will be segregated from the trench line to preserve natural sources of seed and rootstock. During trenching, water quality of inundated wetlands adjacent to the construction area could be temporarily affected due to the suspension of sediments and organic matter. Silt fence or similar appropriate measures will be installed as needed to minimize this effect. Although wetland vegetation will be cleared for pipeline construction, these areas will be allowed to revegetate to their preconstruction structure and function. After the trench is backfilled, the topsoil will be replaced to facilitate the natural revegetation process in unsaturated wetlands.

Unsaturated wetlands may be revegetated with a temporary cover crop if specified by permitting agencies. No fertilizer, lime, or mulch would be applied in wetlands. The long-term operation and maintenance of the pipeline will not have adverse effects on wetland function or value.

To minimize impacts to wetlands along the pipeline route, EPND is planning to reduce its construction right-of-way width to 95 feet in wetlands (see EPP in Exhibit J). Actual temporary disturbance to wetlands will be determined upon completion of the wetland delineation surveys.

B.4.c.(6) Impact Upon Woodlands and Wooded Areas

USGS National Land Cover Data Set (~~2001~~ 2006) identified a small amount of wooded areas within the 2-mile wide study area. Approximately ~~7.6~~ 7.5 acres or ~~0.2~~ 0.3 percent of the total construction impact is considered to be temporary as vegetation will be allowed to return to its original land use. No wooded areas will be permanently impacted by above ground facility construction.

Temporary impacts may consist of clearing of woody vegetation within the construction right-of-way and areas of additional temporary workspace as required. It is anticipated that re-growth of trees to mature conditions could take up to 50 years, depending on the species. Permanent impacts would be limited to the EPND's operational right-of-way, which would be cleared to facilitate aerial patrol of the pipeline. EPND is also proposing to implement additional mitigation to minimize impacts on wooded areas as outlined in the EPP (Exhibit J). Irreversible and irretrievable commitments of natural resources are discussed in B.2.f.

B.4.c.(7) Impact Upon Radio and Television Reception, and Other Communication of Electronic Control Facilities

A desktop review of the Project 2-mile wide study area did not identify radio, television, or other communication or control facilities within the proposed corridor or route. Thus, no effects on radio or television reception, or other communication or electronic control facilities are expected.

B.4.c.(8) Impact on Human Health and Human Safety

Presently, EPND owns and operates a 970-mile existing underground petroleum gathering and mainline pipeline system that extends from eastern Montana through North Dakota to Clearbrook, Minnesota and to the international boundary between the U.S. and Canada. EPND has successfully completed and placed into operation a number of expansion projects since 2006, and is experienced in managing construction and operating pipeline systems that protect the public's health and safety.

EPND will design, construct, test, operate, and maintain the described Project in accordance with all applicable laws and standards. The U.S. Department of Transportation's ("USDOT") pipeline standards are published in Parts 194 and 195 of Title 49 of the Code of Federal Regulations. The regulations are intended to ensure adequate protection of the public and to prevent accidents and failures. Part 195 specifically addresses petroleum pipeline safety issues. It specifies material selection and qualification; minimum design requirements; and protection from internal, external, and atmospheric corrosion. Part 194 prescribes emergency planning to prepare for prompt shutdown, containment and cleanup to minimize the effects of a pipeline release, should one occur. Also, EPND plans to install release detection devices at every mainline valve located on the new 24-inch and 30-inch pipeline.

B.4.c.(8)(i) Air Permitting Requirements

As discussed in Section B.4.b.(2) of the Certificate of Corridor Compatibility, EPND will be required to obtain air pollution control Permits to Construct from the North Dakota Department of Health ("NDDH") for construction of new floating roof storage tanks and associated equipment at its Beaver Lodge and Stanley Terminals.

The Beaver Lodge, Stanley, and Berthold Terminals currently operate under air pollution control minor source Permits to Operate. As a condition of the Permit to Construct, EPND will notify NDDH within 15 days after completing the Project to allow for an inspection by NDDH. Once the Permit to Construct requirements are verified, the NDDH will issue revised Permits to Operate that will incorporate the new equipment constructed at each terminal.

Air permitting will not be required for the new pump station at Lakota.

B.4.c.(8)(ii) Causes and Prevention of Accidents on Pipelines

The major causes of pipeline releases in the U.S. are excavation damage, corrosion (both internal and external), pipe or weld failure, incorrect operations, or natural causes.

To prevent these categories of failures, the following standards will be implemented.

- EPND will construct and maintain Sandpiper to meet or exceed industry and governmental requirements and standards.
- Specifically, the steel pipe will meet USDOT, Pipeline and Hazardous Material Safety Administration ("PHMSA") federal codes under 49 CFR Part 195, and follow standards issued by the American Society of Mechanical Engineers, National Association for Corrosion Engineers and American Petroleum Institute ("API").
- All pipe is inspected and integrity-tested at the factory and transported per the highest technical standards.
- All of the pipe will be manufactured with fusion-bonded epoxy coating to protect against corrosion.
- The actual installation of the pipeline and all construction and testing records will be subject to regulatory inspection, including by PHMSA inspectors.
- PHMSA also conducts regularly scheduled field inspections of the pipeline facilities to ensure compliance with federal regulatory requirements, including the integrity testing of the pipeline through the use of internal inspection devices.

Once installed, the pipeline will be subjected to thorough testing to verify its integrity and compliance with specifications. Such testing will include checking coating integrity, using X-ray to examine 100 percent of field welds (over and above the 10 percent required by regulations), internally inspecting the entire length of each line by using an in-line inspection tool known as a caliper pig, and hydrostatically testing the line to qualify the maximum allowable operating pressure. Sandpiper will only be placed into service after all construction standards and requirements are met and confirmed.

Sandpiper will be maintained and inspected according to PHMSA regulations, industry codes and prudent pipeline operating techniques. All of EPND's mainline liquids pipelines are externally coated to resist corrosion, internally inspected at regular intervals using in-line inspection technology, and equipped with a cathodic-protection system to prevent external corrosion. EPND's cathodic protection system and internal inspection program were implemented prior to these techniques becoming a regulatory standard.

EPND's pipeline system is aerially patrolled and inspected biweekly to survey for abnormal conditions or dangerous activities, e.g., unauthorized excavation along the pipelines' routes. EPND also conducts extensive public education and outreach programs that exceed industry (API Recommended Practice 1162) and federal (49 CFR 195.440) requirements concerning public awareness of pipelines and pipeline-safety matters. All EPND lines are marked with signage and warnings, per federal regulations, at road and highway crossings, railroad crossings, navigable rivers, and other locations to alert the public to the presence of underground lines and to provide information, contact numbers, and emergency data.

Pipeline workers and contractors performing critical tasks are qualified under OSHA safety standards and PHMSA "operator qualification" rules and are subjected to federal drug and alcohol testing requirements. EPND meets, and often exceeds, these requirements so that human error in construction and operation is avoided.

B.4.c.(8)(iii) Baseline Transportation Accident Rates

Releases from interstate liquid petroleum pipelines, including the station facilities described in this Project, must be reported to PHMSA as required by 49 C.F.R. Part 195, Subpart B. Currently, federal regulations require reporting of all petroleum releases greater than 5 gallons (if other threshold reporting criteria are met).

Pipelines operate more safely than any other mode of oil transportation. Table 14 (*see* Certificate of Corridor Compatibility) shows the accident rates of other modes of transportation in comparison to a hazardous liquid pipeline. According to the Manhattan

Institute,[1] road and rail have higher rates of serious incidents and injuries than pipelines, even though more road and rail incidents go unreported. Hazardous liquid pipelines transport 94% more billion ton-miles[2] of shipments than are transported by road and 96% more billion ton-miles of shipments than are transported by rail but have the lowest incident rate. Road transport has the highest rate of incidents, with 19.95 per billion ton-miles per year followed by rail, with 2.08 per billion ton-miles per year. Hazardous liquid pipelines were the safest, with 0.58 serious incidents per billion ton-miles. (For more details, *see* Table 14 of the Application for a Certificate of Corridor Compatibility.)

B.4.c.(8)(iv) Crude Oil Pipeline Accident Rates

An analysis of the historical record shows that the liquid petroleum pipeline industry's safety performance has improved significantly over the last 20 years. These improvements correlate with advancements in technology as well as increased environmental awareness. Over the last 20 years the number of significant[7] incidents has decreased by nearly 25% from an industry average of 162 in the first five years (1993 - 97) to the recent five year (2008 – 12) running average of 121 incidents nationwide.[8] According to data on PHMSA's website, the median size of a release has also greatly decreased. The annual volume of oil released from pipeline systems has fallen by about 30%, based on five year running averages.[9]

B.4.c.(8)(v) EPND Pipeline Incidents and Public Safety

According to available records or knowledge of EPND staff, there have been no deaths or major injuries of landowners or members of the public as a direct result of a pipeline release on the EPND's North Dakota Pipeline System since the system began operations in 1965 (previously named Portal Pipeline Company).

---

[1] Manhattan Institute. Pipelines Are Safest for Transportation of Oil and Gas. Issue Brief No. 23. June 2013. http://www.manhattan-institute.org/html/ib_23.htm

[2] A unit of freight transportation measurement equivalent to a ton of freight transported one mile.

[7] PHMSA defines Significant Incidents as those incidents reported by pipeline operators when any of the following specifically defined consequences occur: 1) fatality or injury requiring in-patient hospitalization; 2) $50,000 or more in total costs, measured in 1984 dollars; 3) highly volatile liquid releases of 5 barrels or more or other liquid releases of 50 barrels or more, or 4) liquid releases resulting in an unintentional fire or explosion.

[8] http://primis.phmsa.dot.gov/comm/reports/safety/PSI.html

[9] Comparison of the past 20 years of significant release incidents utilizing five year averages (1993-1997 and 2008-2012) http://primis.phmsa.dot.gov/comm/reports/safety/PSI.html

B.4.c.(9) Impact Upon Animal Health and Safety

B.4.c.(9)(i) Domestic Animals and Wildlife

Construction-related effects on domestic animals and wildlife will result primarily from activity in the 2-mile wide study area during construction. The clearing of herbaceous and woody vegetation will temporarily reduce cover, nesting, and foraging habitat for some wildlife species. Clearing may also result in the loss of some members of small, slower moving species. However, most will move into adjacent undisturbed habitats until construction and restoration are complete. Overall habitat availability is not expected to change in the long term.

Pipeline trenching activities and associated spoil piles may result in a short-term barrier to movement of some wildlife species (typically 2 to 4 weeks at any one area). Except for short-term interruptions during construction, existing public roads, farm lanes, and livestock crossings will be kept open, providing crossing access. Shelter belts and trees will be protected to the extent practicable in a manner compatible with the safe operation, maintenance, and inspection of the pipeline. Mitigation measures will be implemented to avoid or minimize potential adverse impacts on animal health and safety as described in EPND's EPP (see Exhibit J).

B.4.c.(9)(ii) Migratory Birds

Migratory birds are federally protected by the Migratory Bird Treaty Act ("MBTA"). Native prairie and non-native grasslands provide courtship, nesting, foraging, sheltering, brood-rearing, and dispersal habitat for many species of migratory birds. EPND conducted field surveys in July and August 2013 of grassland habitat for migratory birds. Potential impacts to migratory birds may include temporary displacement due to construction activities and temporary loss of groundcover in native and planted grassland areas. These effects are not likely to cause long-term declines in populations in the area.

In consultation with relevant state and federal agencies EPND will develop conservation measures to avoid, minimize, or mitigate for potential impacts on migratory birds. Possible conservation measures that EPND may implement include narrowing the right-of-way in sensitive habitats, restoration of habitats that are impacted during construction, developing a Migratory Bird Conservation Plan, and pre-clearing selected forested or scrub-shrub habitat in the construction right-of-way prior to the migratory bird breeding season. If construction occurs during the migratory bird breeding season and pre-clearing is not possible throughout the Project route, EPND may mitigate or provide environmental

stewardship funds for migratory bird habitat that is within the construction right-of-way in non-cleared areas, in lieu of mitigating for individual birds that may be disturbed during construction in these areas.

EPND has found that resources spent on pre-construction surveys, buffering of the nests, and implementing construction skips around these buffers is significant, yet the conservation benefit that is realized is insignificant in that the nests that are protected are typically of common birds. In comparison, mitigation or environmental stewardship funds can be used by conservation organizations to preserve habitat of imperiled migratory birds in perpetuity or to conduct key research focused on conservation of rare species. Thus, the conservation benefit of these funds far exceeds the conservation benefit of pre-construction surveys, buffers, and construction skips. If EPND chooses to mitigate for habitat in lieu of mitigation for birds that may be disturbed, EPND will determine the mitigation cost by tailoring past methods for determining mitigation costs for habitat to this Project.

B.4.c.(9)(iii) Eagles

Bald and golden eagles are protected by both the MBTA and the Bald and Golden Eagle Protection Act ("BGEPA"). Under BGEPA, adults, juveniles, fledglings, chicks and eggs are protected from harm which includes prohibitions on disturbance. In addition, both active and inactive eagle nests are protected. EPND has confirmed golden eagles are not known to nest in the project area.

EPND will conduct aerial surveys by helicopter of eagle nests along the route in February or March, 2014. On-the-ground observations ~~will~~ may be conducted at specific locations if nests are observed during the aerial survey within the bald eagle disturbance distance of pipeline construction. If eagle nests are documented in the construction right-of-way or outside of the construction right-of-way but within the disturbance distance for eagles, EPND will implement avoidance measures. EPND will buffer active nests and avoid construction activities within the buffer until after the nest has fledged. In the unlikely circumstance that a nest is found within the construction area, EPND will micro-route around the nest. By implementing these avoidance measures during construction, EPND will achieve compliance with BGEPA.

B.4.c.(10) Impact Upon Plant Life

B.4.c.(10)(i) Vegetation

As discussed in Section B.3 in the Application for a Certificate of Corridor Compatibility, EPND consulted with the North Dakota Game and Fish ("NDGF") and the North Dakota

Parks and Recreation Department ("NDPR") to obtain known locations of state unique or protected species within the 2-mile wide study area. Only one location was noted that is crossed by the route, a northern wet-mesic tallgrass prairie identified by the NDPR at approximate MP 250 ~~249~~. The construction corridor crosses an outside edge of this prairie. Based on ongoing discussions with NDPR, the mitigation measures for this prairie location will include revegetating the construction workspace with an NDPR-recommended prairie seed mix.

As discussed in Section B.4.c.(1), the 2-mile wide study area is comprised predominantly of agricultural land (i.e., cropland and pasture) and grasslands (i.e., herbaceous rangeland). Approximately ~~0.4~~ 0.3 percent of the area affected by the construction right-of-way will involve wooded forest land, consisting of upland forests and forested wetlands. The construction right-of-way will also affect wetlands (approximately ~~9.0~~ 4.1 percent) and commercial land (approximately ~~7.0~~ 0.6 percent). The wetlands are comprised of emergent marshes and scrub-shrub wetlands, and the open lands consist of maintained right-of-ways and fallow fields. There are several different types of crops that may be encountered on the Project route such as wheat, corn, canola, barley, soybeans, peas, flaxseed, sunflower, dry beans, and sugar beets.

The primary impact on vegetation will result from construction-related removal or disturbance of vegetation on the right-of-way. Vegetation will also be removed from areas where additional temporary workspace is required (e.g., road and waterbody crossings). EPND will clear the right-of-way only to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the pipeline.

In areas that require permanent revegetation, EPND will specify appropriate seed mixes, application rates, and seeding dates, taking into account recommendations of appropriate state and federal agencies and landowner requests. Additional mitigation is discussed in the EPP in Exhibit J.

During construction, vegetation will be removed from within the construction right-of-way and temporary workspace areas. In general, clearing of herbaceous vegetation during construction is anticipated to have a short-term impact to plant life.

In nonagricultural areas, trees and shrubs cleared from additional temporary workspace will be allowed to reestablish after construction, and the implementation of revegetation measures will take into account recommendations from applicable regulatory agencies and arrangements with landowners. Overall, significant change in plant life is not anticipated.

B.4.c.(10)(ii) Invasive and Noxious Weeds

The state of North Dakota has 11 state-listed noxious and invasive weeds ("Invasive Species"). The species listed are Russian knapweed (*Acroptilon repens*), absinth wormwood (*Artemisia absinthium*), musk thistle (*Carduus nutans*), diffuse knapweed (*Centaurea diffusa*), yellow starthistle (*Centaurea solstitialis*), spotted knapweed (*Centaurea maculosa*), Canadian thistle (*Cirsium arvense*), field bindweed (*Convolvulus arvensis*), leafy spurge (*Euphorbia esula*), dalmatian toadflax (*Linaria dalmatica*), purple loosestrife (*Lythrum salicaria*), and saltcedar (*Tamarix chinensis*). The previously listed state invasive species are controlled and regulated under North Dakota Statute 4.1-47-01.

Each county in North Dakota has a County Weed Board which consists of a regulation committee to manage noxious and invasive weeds. Each county board is responsible for the addition of county-specific Invasive Species to the state-listed species. Table 15 contains county-listed noxious and invasive weeds for the counties crossed by the Project.

TABLE 15
County Listed Additional Noxious and Invasive Weeds

County	Listed Species Common Name	Listed Species Scientific Name
Williams	None	None
Mountrail	Common Tansy Houndstounge	*Tanacetum vulgare* *Cynoglossum officinale*
Ward	False chamomile Houndstounge	*Matricaria perforata* *Cynoglossum officinale*
McHenry	None	None
Pierce	None	None
Towner	None	None
Ramsey	Annual sowthistle False chamomile Common milkweed	*Sonchus oleraceus* *Matricaria perforata* *Asclepias syriaca*
Nelson	Perennial sowthistle	*Sonchus arvensis*
Grand Forks	Kochia	*Kochia scoparia*

Each county weed board is responsible for implementation of noxious weed control programs and providing control of noxious weeds along county and township roads, including county highways. EPND sent courtesy notifications to each County Weed Board describing the Project and requesting any guidance regarding the known locations of noxious and invasive weeds pertaining to that county. The Nelson County Weed Board provided a response concerning the locations of known invasive species. Responses are pending from the other eight counties.

B.4.d Policy Criteria (North Dakota Rules Chapter 69-06-08-02.4)

ND-PSC may give preference to an applicant that will maximize benefits resulting from the adoption of policies and practices of ND-PSC. These policies, and the extent to which the Project aligns with or reinforces these policies, are described below.

B.4.d.(1) Location and Design

EPND has designed the described Project to take advantage of its existing facilities to the extent practicable. No designated Exclusion Areas are crossed by the route. Mitigation measures will be implemented to avoid or minimize potential adverse impacts on Avoidance Areas that would be crossed.

The Project is designed and will be operated in a manner that meets or exceeds state and federal engineering, safety and operational design standards.

B.4.d.(2) Training and Utilization of Available Labor in this State for the General and Specialized Skills Required

During construction of the proposed facility, skilled and unskilled labor, both local and non-local workers will be employed by EPND or by the General Contractor selected to construct the Project. Applicable environmental training and instructions will be given to each construction worker to ensure environmental compliance is met during construction work activities.

B.4.d.(3) Economies of Construction and Operation

EPND's Project presents an opportunity to meet the immediate and future transportation requirements of its shippers in the most timely and efficient manner through the use of existing and new pipeline facilities. By design, this Project provides additional pipeline capacity and system flexibility of 250,000 bpd between EPND's existing Beaver Lodge and Berthold Stations, adds an incremental 225,000 bpd of export pipeline capacity to its existing North Dakota pipeline system from Berthold to Clearbrook, Minnesota, and expands its pipeline system from Clearbrook to Superior, Wisconsin. EPND will be able to use existing station sites for the majority of its station facilities. New land will be required and purchased in fee immediately adjacent to its existing Beaver Lodge and Berthold Station sites, and will be used to accommodate the installation of new station facilities for this Project. Also new land will be acquired in fee for its new Lakota Pump Station in Nelson County, North Dakota and for its new station and terminal facility in Clearbrook,

Minnesota. (For more details on the station facility requirements for this Project, see Section A.3.b.(7) of the Application for a Certificate of Corridor Compatibility.)

B.4.d.(4) Use of Citizen Coordinating Committees

No citizen coordinating committee is anticipated as a result of the Project.

B.4.d.(5) Commitment of a Portion of the Transmitted Product for Use in this State

EPND does not own any of the crude oil in its system, and does not determine the destinations for the products transported by its system. The nature of EPND's business is to provide transportation service to its customers as an interstate common carrier crude oil pipeline, and to receive a fee for that service pursuant to tariffs authorized by the Federal Energy Regulatory Commission under the Interstate Commerce Act. However, EPND does currently serve, and will continue to serve through this Project, three local refineries that provide refined products to the residents of North Dakota and Minnesota: the Tesoro Mandan refinery (North Dakota); and Flint Hills and St. Paul refineries (Minnesota).

B.4.d.(6) Labor Relations

The Project will have no anticipated effect on labor relations within North Dakota.

B.4.d.(7) Coordination of Facilities

The Project has been designed to take advantage of its existing facilities to the maximum extent practicable and site new facilities to minimize human and environmental impacts to the greatest extent possible.

B.4.d.(8) Monitoring of Impacts

EPND believes that construction-related impacts will be adequately mitigated throughout the Project route by the use of best management practices, good construction techniques, and environmental inspection. Therefore, long-term monitoring of impacts directly related to the Project is not anticipated. Following the installation of the pipeline, a thorough inspection will be performed to ensure restoration efforts have been successful.

B.4.d.(8)(i) Environmental Training

EPND will communicate the environmental requirements to Project personnel, and implement the following procedures to ensure that environmental compliance is maintained at the construction site:

- require environmental training for all Project personnel (both contractor and EPND) prior to construction;
- require Project personnel visiting the work site to receive environmental training;
- require everyone who attends training to sign an acknowledgement form and receive, as a proof-of-training, a copy of the training booklet and a hardhat sticker; and
- require all personnel to display a hardhat sticker when on a job site or dismiss personnel from the job site until the person obtains a hardhat sticker through completion of training.

B.4.d.8(ii) Environmental Monitoring

Environmental monitoring and inspection will be conducted during and immediately following construction. Contract specifications will incorporate environmental protection and mitigation measures, and contractors will be expected to implement these measures in the field.

B.4.d.(9) Utilization of Existing and Proposed Rights-of-Way and Corridors

Co-located and Parallel to EPND's existing North Dakota Pipeline System

EPND will co-locate the new 24-inch pipeline, between Beaver Lodge Station and Grand Forks, North Dakota, parallel to EPND's Line 81, Line 82 and Line 87 for approximately 62 total miles. Where co-located, the centerline of the new pipeline will be located within EPND's existing pipeline right-of-way and have a 40-foot offset or buffer zone from EPND's existing pipeline, as shown on Exhibits B.1 and B.2. This buffer or offset zone provides for the safe construction, inspection, maintenance and operation of the new pipeline. No new permanent right-of-way will be required where the new pipeline is co-located within EPND's existing pipeline right-of-way. Shown on Table 1 below is a breakdown of the construction workspace requirements for these locations. Also enclosed as Exhibits B.1 and B.2 are the typical configuration drawings, which provide a pictorial overview of the construction footprint described on Table 16.

Table 16 Co-located and Parallel to EPND's Existing North Dakota Pipeline System		
	Construction Workspace	
Land Type	Typical Construction Footprint	Extra Temporary Work Space at Crossings
Upland	120 ft.	Up to 20,000 sq. ft.
Wetland	95 ft.	Up to 20,000 sq. ft.

Parallel to third-party pipelines and small utility corridors:

Between Beaver Lodge Station and Grand Forks, North Dakota, there will be sections of the new pipeline that will follow third-party pipelines and small utility corridors for approximately 77 total miles. EPND plans to acquire a 50-foot wide new permanent right-of-way, which will provide a 25-foot buffer or offset zone on either side of the newly installed pipe. This buffer or offset zone allows the safe construction, inspection, maintenance and operation of the new pipeline, and protects it from future encroachments. Shown on Table 17 below is a breakdown of the construction workspace and permanent right-of-way requirements for these locations parallel to foreign pipelines and utility corridors. Also enclosed as Exhibits B.3 and B.4 are the typical configuration drawings, which provide a pictorial overview of the land requirements described on Table 17.

Table 17 Parallel to Foreign Pipelines and Utility Corridors				
	Construction Workspace			Permanent Right-of-Way
Land Type	Typical Construction Footprint	Typical Temporary Work Space	Extra Temporary Work Space at Crossings	New ROW
Upland	120 ft.	70 ft.	Up to 20,000 sq. ft.	50 ft.
Wetland	95 ft.	45 ft.	Up to 20,000 sq. ft.	50 ft.

Greenfield Pipeline Areas

The new pipeline route, between Beaver Lodge Station and Grand Forks, North Dakota, includes sections where the new pipeline traverses greenfield areas for approximately 160 total miles. Along these greenfield sections, EPND plans to acquire a 50-foot wide new permanent right-of-way, which provides a 25-foot buffer or offset zone on either side of the newly installed pipe. This buffer or offset zone allows the safe construction, inspection, maintenance and operation of the new pipeline, and protects it from future encroachments. Shown on Table 18 below is a breakdown of the construction workspace and permanent right-of-way requirements for the greenfield pipeline sections along the pipeline route. Also enclosed as Exhibits B.5 and B.6 are the typical configuration drawings, which provide a pictorial overview of the land requirements described on Table 18.

Table 18
Greenfield Pipeline Sections along New Pipeline Route

	Construction Workspace				Permanent Right-of-Way
Land Type	Typical Construction Footprint	Typical Temporary Work Space		Extra Temporary Work Space at Crossings	New ROW
		Non-working Side	Working Side		
Upland	120 ft.	15 ft.	55 ft.	Up to 20,000 sq. ft.	50 ft.
Wetland	95 ft.	15 ft.	30 ft.	Up to 20,000 sq. ft.	50 ft.

B.4.d.(10) Other Existing and Proposed Transmission Facilities

The new pipeline and related station facilities will be operated as an integral part of EPND's existing North Dakota Pipeline System. As such, this Project will benefit from the use of EPND's existing Beaver Lodge, Stanley and Berthold Station sites for the installation of certain new station facilities that are required for this Project. Other benefits will be the operational flexibility shared through the connectivity between EPND's existing North Dakota Pipeline System and this Project, which enables EPND to utilize the capacity of the new pipeline during routine maintenance activities on its Line 81 or vice versa.

B.5 THE CRITERIA TO BE EVALUATED SHALL INCLUDE AT A MINIMUM ALL OF THE FOLLOWING, WHICH ARE WITHIN THE DESIGNATED CORRIDOR:

Complete descriptions, potential impacts, and mitigation measures relevant to the following six criteria are provided in section B.4 in conjunction with the descriptions of potential impacts.

- Exclusion Areas;
- Avoidance Areas;
- Selection Criteria;
- Policy Criteria;
- Design and Construction Limitations; and
- Economic Considerations.

B.6 MITIGATION MEASURES

B.6.a Measures to Preserve the Human Environment

EPND has developed an Environmental Protection Plan ("EPP") as its mitigation measures to minimize impacts from this Project (*see* Exhibit J). This plan provides a detailed description of the guidelines and mitigation measures that will be implemented during construction, and includes the following components:

- General Mitigation Measures
- Temporary Erosion and Sediment Control Measures
- Stream and River Crossings
- Wetland Crossings
- Highway, Road, and Rail Crossings
- Construction Dewatering
- Water Appropriation
- Revegetation and Monitoring
- Winter Construction
- Waste Management
- Spill Prevention, Containment, and Control Measures
- Drilling Fluid Response, Containment, and Notification Procedures

To further ensure compliance with permits, plans, obligations, and commitments, EPND will have full-time environmental inspector to monitor construction and compliance.

EPND will require its construction contractor to clean up any personal litter, bottles, and paper deposited by right-of-way preparation and construction crews on a daily basis. Waste and scrap that is the product of pipeline construction will be removed and disposed of in accordance with applicable regulations before construction is completed.

To the extent practicable, EPND will minimize noise and dust resulting from construction near residential areas.

The pipeline route crosses 297 roads, including ~~27~~ 20 private or commercial roads, ~~274~~ 271 county and city roads, no state roads, and 6 federal roads. The pipeline also crosses 16 railroads. 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 and bored. Open cutting a road will temporarily close it to traffic; however, the road network throughout the 2-mile wide study area is sufficient that suitable alternative routes are readily available.

U.S highway and railroad crossings for the route are summarized in Table 19 and Table 20, respectively. All road and rail crossings will be bored unless the applicable permitting agency specifically permits EPND to open cut the road.

TABLE 19
U.S. Highways Crossed by the Sandpiper Pipeline Project

County	Roadway Name	Milepost
Williams	—	—
Mountrail	—	—
Ward	U.S. Highway 2	~~57.3~~ 57.4
	U.S. Highway 52	~~67.4~~ 67.5
	U.S. Highway 83	~~79.7~~ 79.8
McHenry	—	—
Pierce	—	—
Towner	U.S. Highway 281	~~178.9~~ 179.4
Ramsey	—	—
Nelson	U.S. Highway 2	227.9
Grand Forks	Interstate 29	~~294.2~~ 295.1

TABLE 20 Railways Crossed by the Sandpiper Pipeline Project		
County	Railway Name	Milepost
Williams	—	—
Mountrail	—	—
Ward	Burlington Northern Railway	~~54.5~~ 55.0
	Burlington Northern Railway	~~57.0~~ 57.1
	Soo Line Railroad	~~67.5~~ 67.6
	Burlington Northern Railway: abandoned	81.9
McHenry	Burlington Northern Railway: abandoned	91.3
	Burlington Northern Railway: abandoned	~~118.1~~ 118.3
Pierce	Burlington Northern Railway	~~138.6~~ 138.7
	Burlington Northern Railway	~~157.9~~ 158.3
Towner	Great Burlington Railroad	~~178.9~~ 179.4
Ramsey	Burlington Northern Railway	~~195.3~~ 195.8
	Soo Line Railroad	~~216.7~~ 217.3
Nelson	Burlington Northern Railway	~~226.6~~ 227.2
Grand Forks	Burlington Northern Railway	~~260.3~~ 261.2
	Burlington Northern Railway	~~263.0~~ 263.9
	Burlington Northern Railway	~~268.8~~ 269.6
	Burlington Northern Railway	~~292.7~~ 293.6

EPND 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. (For more information on protecting the human environment, see Section B.4.c.(8) of this Application)

B.6.b Measures to Protect Terrain and Geological Resources

EPND will, to the extent practicable, restore the area affected by pipeline construction to the natural conditions that existed immediately before construction of the pipeline. Restoration will be compatible with the safe operation, maintenance, and inspection of the pipeline.

To the extent practicable, EPND will restore the construction area to pre-construction contours. Measures such as slope breakers, erosion control blankets and revegetation will be employed to maintain the stability of slopes along the right-of-way.

Fuel and all other hazardous materials will be stored in accordance with the requirements of EPND's EPP (see Exhibit J). The EPP also describes response, containment, and cleanup measures.

B.6.c Measures to Protect Soils

Pipeline construction activities such as clearing, grading, trench excavation, and backfilling, as well as the movement of construction equipment along the right-of-way may result in impacts on soil resources. 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.

EPND will minimize or avoid these impacts on soils by implementing the mitigation measures described in the project's EPP (see Exhibit J). The EPP will be included in contract documents and enforced as such throughout 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.

EPND will retain environmental inspectors to monitor the contractor's compliance with applicable requirements to protect soil resources during construction of the Project.

EPND is developing a Contaminated ~~Soils~~ Sites Management Plan that will be utilized to address issues from prior contamination if encountered during construction and set forth proper containment and handling protocols. EPND will provide the Contaminated ~~Soils~~ Sites Management Plan to the ND-PSC as a supplemental filing prior to construction.

B.6.d Measures to Protect Vegetation and Wildlife

EPND will clear the right-of-way to the extent necessary to assure suitable access for construction, safe operation, and maintenance of the pipeline. Clearing of herbaceous vegetation during construction is anticipated to result in a short-term impact. Active revegetation measures and rapid colonization by annual and perennial herbaceous species in the disturbed areas will restore most vegetative cover within the first growing season.

In areas that require permanent revegetation, EPND 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 additional temporary workspace will be allowed to revegetate after construction depending on arrangements with the landowner. Consequently, significant changes in cover types are not anticipated. Revegetation will allow wildlife species to return to the 2-mile wide study area after construction is completed.

Temporary revegetation measures may also be required to quickly establish ground cover to minimize the potential for soil erosion and noxious weeds to establish. A temporary seed mix will be applied in these situations. The Project's EPP (see Exhibit J) contains more details regarding temporary revegetation.

After completion of waterbody crossings, EPND will revegetate disturbed stream banks in accordance with the EPP and requirements of applicable state or federal permits. When constructing in wetland areas without standing water, up to 1 foot of topsoil (organic layer) will be stripped from the trench line and stockpiled separately from trench spoil to preserve the native seed stock. In standing water wetlands, soil segregation is not typically practical; however, the contractor will attempt to segregate as much of the top layer as possible based on site/saturation conditions.

At stream approaches, the contractor will leave a 20-foot buffer (typically from the Ordinary High Water Mark) of undisturbed herbaceous vegetation on all stream banks during initial clearing, except where grading is needed for bridge installation, or where restricted by applicable regulations and/or permit conditions (such as impaired waterways).

EPND will take appropriate precautions to protect livestock and crops affected by construction. Operation of the 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 EPND to the extent practicable in a manner compatible with the safe operation, maintenance, and inspection of the pipeline.

B.6.e Measures to Protect Land Use

EPND 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. EPND will retain one or more environmental inspectors to monitor compliance with environmental conditions of county permits.

EPND will repair surface drains and drainage tiles disturbed during right-of-way preparation, construction, and maintenance activities. EPND will repair private roads and farm lanes damaged when moving equipment or when obtaining access to the right-of-way. EPND will repair or replace fences and gates removed or damaged as a result of right-of-way 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. Across undeveloped section lines, EPND will install 72 inches of cover.

Shelter belts and trees will be protected by EPND to the extent practicable in a manner compatible with the safe operation, maintenance, and inspection of the pipeline.

B.6.f Measures to Protect Water Resources

EPND will obtain applicable permits for crossing wetlands and waterbodies and for water appropriations related to hydrostatic testing and trench dewatering. Environmental inspectors will monitor compliance with applicable waterbody and wetland protection requirements during construction of the facilities.

EPND's EPP (see Exhibit J) describes additional mitigation measures, and contains illustrations of how sediment control devices are typically installed at waterbody crossings. Additionally, EPND will maintain a vegetative buffer until the actual crossing of the waterbody takes place. Temporary sediment control measures, such as silt fence installed at each crossing, will minimize the introduction of sediment into waterbodies during construction and minimize the movement of spoil and sediment from surface runoff during and after construction. Permanent erosion control measures, such as vegetation and installation of slope breakers, will effectively stabilize riparian zones. EPND will stabilize stream banks disturbed during construction using methods as directed by applicable state and/or federal permits.

For open-cut crossings, "hard plugs" of soil prevent the flow of water from the waterbody into the adjacent trench and the migration of sediment from the adjacent trench into the waterbody. After the pipe is installed, the trench will be backfilled in such a manner to restore the natural contours of the waterbody to the extent practicable. EPND is presently working with its Engineering Department and applicable permitting agencies to determine the best crossing methodology for each of the waterbodies. Construction methods to be utilized for waterbody crossings are detailed in the Project's EPP (Exhibit J).

Wetland crossings will be conducted in accordance with applicable regulatory requirements. If construction mats or timbers are placed in wetlands to support equipment, they will be removed after construction is completed. In order to maintain surface water hydrology within wetlands, preconstruction contours will be restored and no crown will be left over the trench. If there is a potential for a wetland to be drained by trenching, trench plugs will be installed as needed at the edge of a wetland. In unsaturated wetlands, topsoil will be replaced to facilitate the natural revegetation process.

EPND's EPP (see Exhibit J) specifies several measures to protect wetlands and waterbodies from becoming polluted with fuels or other hazardous materials during construction. This plan prohibits the storage of fuel or other hazardous materials within 100 feet of a wetland or waterbody. The EPP also specifies that equipment must be refueled at least 100 feet from waterbodies unless, due to site-specific conditions, there is no practical alternative. In that case, the contractor must implement site-specific protective measures and containment procedures described in the EPP. Contractors will be required to provide trained personnel, appropriate equipment and materials to contain and clean up releases of fuel, lubricating oil, or hydraulic fluid that result from equipment failure when working in or near wetlands or surface waterbodies.

Water appropriations for hydrostatic testing will be conducted in accordance with applicable permits. EPND will conduct trench dewatering and hydrostatic test discharges in a manner consistent with the NDPDES General Permit NDG-070000. EPND's EPP (see Exhibit J) describes best management practices that will be implemented to minimize off-site erosion from surface water runoff, and protect water and soil resources within the 2-mile wide study area.

Much of the concerns associated with the quality of the water being discharged are addressed by the fact that no additives to the water are permitted unless written approval is received from EPND and applicable permits authorize such additives. Environmental Inspectors will monitor permit compliance. Where appropriate, water will be discharged into

an energy dissipation and/or filtering device to remove sediment and to reduce the erosive energy of the discharge.

B.6.g Measures to Protect Cultural Resources

EPND is conducting Class III inventory surveys throughout the 2-mile wide study area and considering impacts to cultural resources 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, EPND will consult with the NDSHPO to mitigate adverse effects and implement appropriate treatment plans

As discussed in Section B.2.i, EPND will not submit information about the specific location of cultural sites or historic properties with this application. In addition, a Unanticipated Discovery Plan ("UPD") was developed (Exhibit K) for use during all Project construction activities that describes actions that will be taken in the event a previously unrecorded cultural resource site is discovered during construction activities.

EPND has prepared its UDP, which describes the actions 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 correct authority or agency can be contacted, and the find can be properly evaluated.

B.7 QUALIFICATIONS OF PERSONS CONTRIBUTING TO THE STUDY

See Section D.6 of the Application for Certificate of Corridor Compatibility.

B.8 MAPS

See Section D.7 of the Application for Certificate of Corridor Compatibility

B.9 OTHER MATTERS

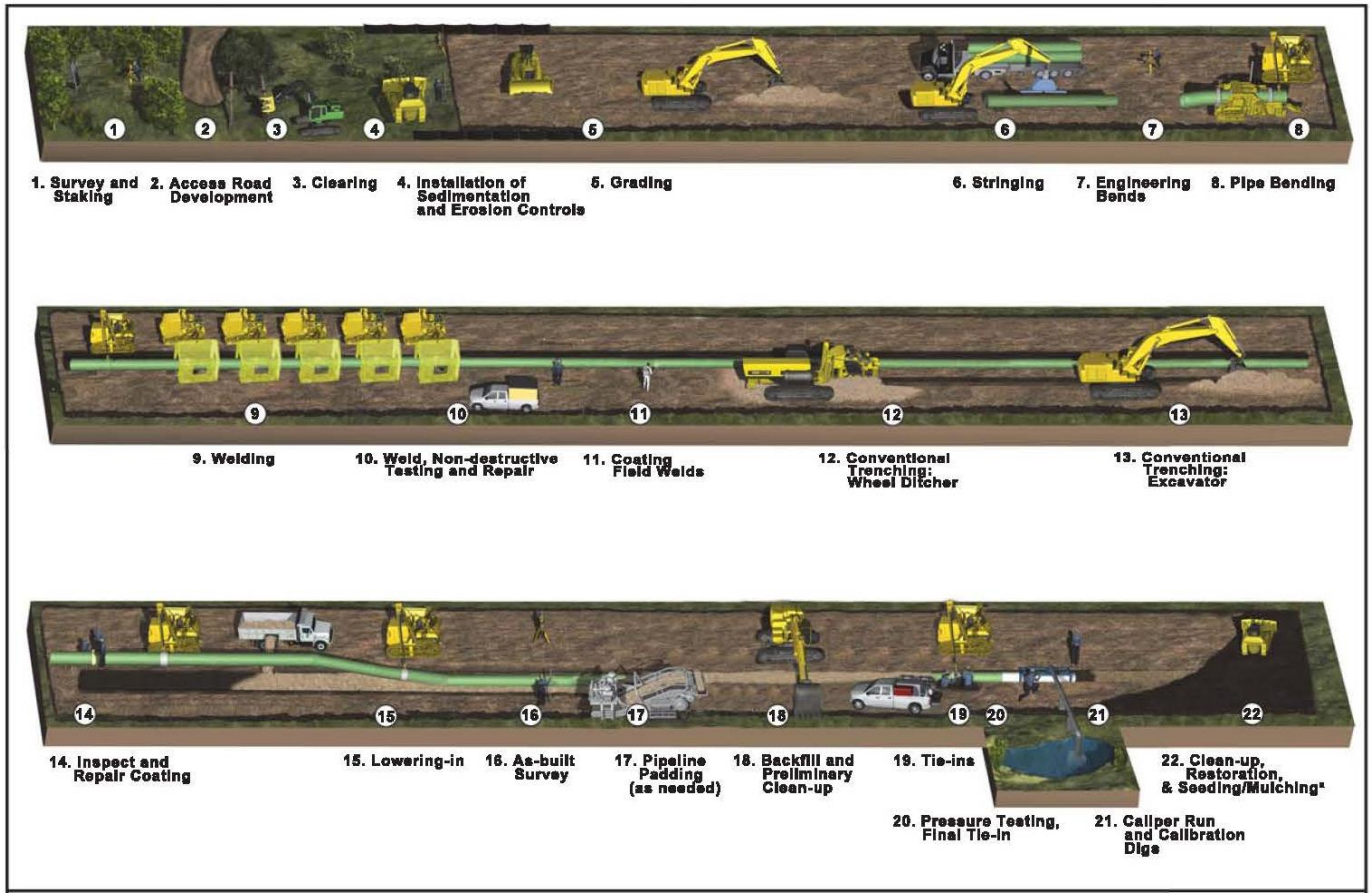
The information provided below is in accordance with North Dakota Century Code, Sections 49-22-08.1 (1)e, (1)f, and (1)g.

B.9.a Present and Future Resource Development

EPND's discussion of present and future resource development in the area is focused on our existing knowledge. Current coal, oil and gas, and sand and gravel operations have been identified, and EPND confirmed they are not conflicting with the route location. No future resource development operations have been identified. (For more details relating to impacts to natural resources, see Sections B.4.c(4)(i), B.4.c(4)(ii), and B.4.c(4)(iii).

B.9.b Right-of-Way Preparation, Construction and Reclamation Procedures

Standard pipeline construction proceeds in the manner of an outdoor assembly line composed of specific activities that make up the linear construction sequence. These operations collectively include survey and staking of the right-of-way, clearing and grading, topsoil stripping, pipe stringing and bending, welding and coating, trenching, lowering-in and backfilling, hydrostatic testing, cleanup, and restoration and revegetation. Figure 4 shows the typical steps of cross-country pipeline construction.


1. Survey and Staking
2. Access Road Development
3. Clearing
4. Installation of Sedimentation and Erosion Controls
5. Grading
6. Stringing
7. Engineering Bends
8. Pipe Bending
9. Welding
10. Weld, Non-destructive Testing and Repair
11. Coating Field Welds
12. Conventional Trenching: Wheel Ditcher
13. Conventional Trenching: Excavator
14. Inspect and Repair Coating
15. Lowering-in
16. As-built Survey
17. Pipeline Padding (as needed)
18. Backfill and Preliminary Clean-up
19. Tie-ins
20. Pressure Testing, Final Tie-In
21. Caliper Run and Calibration Digs
22. Clean-up, Restoration, & Seeding/Mulching*
merjent
Figure 4 Typical Pipeline Construction Sequence
* Additional clean-up and reclamation may take place in subsequent seasons
* BMPs temporarily removed during ditch & replaced after backfill

B.9.b.(1) Survey and Staking

First, the right-of-way is surveyed, staked, and prepared for clearing. The right-of-way is then cleared and graded to the extent necessary to provide construction access and safe movement of equipment and personnel during construction. Silt fence and other erosion control measures are installed, and sensitive areas are marked for avoidance. Appropriate safety measures are implemented before excavation begins, including notification through the North Dakota One-Call system, to ensure foreign utilities and adjacent pipelines are properly marked. Pipe, valves, and fittings are transported to the right-of-way by truck and placed along the right-of-way.

B.9.b.(2) Clearing and Grading

EPND will clear the 120-foot-wide construction right-of-way and additional temporary workspaces. The clearing crew will typically mow, chip, mulch and/or haul off all non-merchantable timber. Burning of non-merchantable wood may be allowed if the contractor has obtained the necessary permits and approvals. All merchantable timber will be property of the EPND unless other arrangements are made with the landowner.

Following clearing, grading of the ground surface may be done to provide a relatively smooth working surface and a safe working area. Typically, a vegetative buffer will be left relatively undisturbed at waterbody crossings, except where grading is needed for bridge installation, until just prior to pipeline installation across the waterbody.

Following grading, temporary bridges will be installed at waterbodies, except for drainage ditches, intermittent waterbodies, and other non-fisheries water, along the pipeline route to provide temporary access for equipment traveling along the construction right-of-way. In addition, temporary erosion control measures will be installed in accordance with EPND's EPP (see Exhibit J).

B.9.b.(3) Topsoil Stripping

Topsoil will be stripped and segregated in agricultural areas, cropland, hayfields, pasture, residential areas, and other areas as requested by the landowner along the pipeline route in accordance with EPND's EPP (see Exhibit J). In unsaturated wetlands, a maximum of 12-inches of surficial soils will also be stripped from the trench areas. Topsoil will be stripped to a maximum depth of 12-inches in cultivated lands.

B.9.b.(4) Stringing and Bending

After individual pipe sections are strung out along the right-of-way they are bent to conform to the contours of the trench and terrain. This operation typically involves specially designed stringing trucks to deliver pipe from pipe yards to the right-of-way. Small portable cranes and/or side-boom tractors are used to unload the stringing trucks and place pipe along the right-of-way. A mechanical pipe-bending machine will bend individual joints of pipe to the desired angle to accommodate natural ground contours or pipeline alignment. In certain areas, prefabricated fittings will be used where field bending is not practicable.

B.9.b.(5) Welding and Coating

The pipe segments are lined up, clamped, welded, and field coated, and the welds are inspected. EPND will inspect the welds, both visually and radiographically. The pipe is typically delivered with a factory coating of fusion-bonded epoxy or similar material to prevent corrosion. EPND will apply coating at welded joints and will electronically inspect the pipe coating before the pipe is lowered into the trench. Trenching may occur before or after the pipe has been welded.

B.9.b.(6) Trenching

Backhoes and/or ditching machines will be used to excavate trenches in accordance with the USDOT's regulations in 49 CFR Part 195.

Where trench dewatering is needed, water will be discharged directly to well vegetated upland areas. Where vegetation is sparse or absent, or in environmentally sensitive areas (e.g., adjacent to waterbodies or wetlands), straw bale dewatering structures or suitable filtering alternatives will be used to minimize siltation in adjacent waterbodies.

B.9.b.(7) Lowering In, Padding, and Backfilling

The prepared pipe is lowered into the trench and, where applicable, tied-in to existing facilities. During backfilling, subsoil is replaced first and then the topsoil is replaced. Precautions, such as padding the trench with soil to prevent damage to the pipeline, are taken during backfilling to protect the pipe from rock damage. Directly above the pipeline, an excess of soil or "crown" will be placed to allow for future settling. Construction debris, including wooden supports, welding rods, containers, brush, trees, or refuse of any kind, will not be permitted in the backfill.

B.9.b.(8) Hydrostatic Testing

The pipeline is hydrostatically tested to ensure its integrity prior to the line being filled with crude oil and placed into service. The testing process will involve filling a segment of the pipeline with water and maintaining a prescribed pressure for a specified amount of time.

The length of individual test segments will be determined by topography and water availability. Water withdrawals used to fill and test the pipelines will be consistent with state regulations and EPND's EPP (see Exhibit J). EPND will obtain hydrostatic test water from major waterbodies crossed by the pipeline and/or municipal sources along the pipeline route. The test water will be discharged through energy dissipation devices to the ground surface or to a nearby waterbody. These discharges will be done in accordance with EPND's EPP (see Exhibit J) and permits issued by the state agencies.

B.9.b.(9) Cleanup and Restoration

The right-of-way is restored, as nearly as practicable, to preconstruction conditions. Restoration includes implementing temporary and permanent stabilization measures such as slope breakers, mulching, and seeding. Fences that are removed to install the pipeline will be reconstructed across the right-of-way. Disturbed areas will be revegetated in accordance with EPND's EPP (Exhibit J), other permit requirements, and site-specific landowner requests.

B.9.c Landowner Issues

B.9.c.(1) Procedures for Landowner Relations

EPND engaged experienced land agents to support land acquisition efforts for the described Project. EPND mailed Project introduction letters to all landowners on the centerline of the approximate ~~299~~300-mile segment and adjacent properties (See Exhibit O). The letters provided a brief Project description, notification that a land agent would be contacting them to request survey permission, Project contact information (toll free phone number, mailing address, email and website) and were accompanied by a brochure outlining the survey process. The landowners have also been personally contacted and made aware of the Project. EPND's land agents received more than 95 percent survey permission to perform civil and environmental survey work activities. In addition to the proposed Project information that has been provided and discussed with landowners during the personal visits, EPND is committed to giving landowners complete information about the Project and keeping them informed throughout construction. EPND has purchased new land at the Beaver Lodge Station and Stanley Station and secured an option agreement to

purchase the land needed for the new proposed facilities at Lakota. EPND's land agents will conduct in person meetings with each landowner to explain the easement purchase process and provide written information. EPND's land agents will provide affected landowners with information regarding the temporary and permanent easement area, including the associated compensation package.

B.9.c.(2) Public Outreach and Landowner Communications

EPND developed a public consultation plan specific to the Sandpiper Project and its route. This plan underscores the importance and value of communication with landowners and communities during planning, permitting and construction of the Sandpiper Pipeline Project. Enbridge has identified and reached out to: affected landowners, elected and public officials at all levels of government (federal to township), emergency responders, business and environmental groups, community groups, other interested parties and the public. We provide opportunities for people to both learn about the Project and provide input during each Project phase. Enbridge's outreach activities include, but are not limited to, Project introductory letters to elected officials and potential landowners along the planned Project route (See Exhibit O), listening sessions and open houses in communities along the Project right-of-way, and one-on-one meetings and group presentations.

In order to ensure a strong public consultation plan, EPND reviewed the issues and concerns in communities along the Project route and received information through said meetings, open houses, and listening sessions. The information was then relayed to the Project team for their consideration and to improve the route selection process. EPND developed several avenues for stakeholders to obtain information on the Project and to contact Project personnel. This includes a Project fact sheet which was developed and included in the introductory mailing to public officials and landowners. The fact sheet has been updated throughout the Project cycle. Web content was posted to Enbridge's project pages specific to the Sandpiper Pipeline Project. This site has been updated consistently as the Project continues with the latest in routing information, fact sheets, and copies of the displays presented to the public during the open houses. A Project toll-free phone number, e-mail address and USPS address have also been established, allowing stakeholders to have ready access as they seek information about the Project. EPND strives to be accessible to the stakeholders affected by the Sandpiper Pipeline Project and, therefore, has been available at several community events, trade shows, and has presented to several civic organizations with information on the Sandpiper Pipeline Project, pipeline safety, construction, and community involvement.

Enbridge hosted listening Sessions in Stanley, Minot, and Grand Forks in May, 2013. Two listening sessions were held in each city. While the first session of each evening was comprised of randomly-chosen members of the general public, EPND recruited landowners for the second session. The goal of each listening session was to facilitate a conversation on energy and community related issues, gain an unbiased level of knowledge about Enbridge in the communities, and provide information about the Project early.

EPND hosted eight open houses August 19-22, 2013 along the proposed route, four of which were focused on North Dakota citizens, at Minot, Stanley, Devils Lake, and East Grand Forks, Minnesota. Open House locations were selected using suggestions from elected officials and county commissioners offered during meetings held earlier in the year. Similar to the Project introductory letters, EPND mailed all elected and government officials, landowners on the centerline and adjacent landowners an invitation to the North Dakota-based open houses. To further publicize the open houses, the company also purchased ads in and sent a news release to local and regional newspapers and posted open house event details on the Sandpiper website. The open houses were conducted in a trade show-style, "come-and-go" format to allow for one-on-one dialogue, relationship building and information exchange tailored to address stakeholders' individual information needs and concerns. Collectively, the open houses attracted more than 500 attendees in North Dakota, Minnesota, and Wisconsin, including landowners, elected officials, media, general public and community leaders. For those unable to attend, EPND posted all information presented, including fact sheets and open house displays, on the Project website.

B.9.d Operations and Safety

B.9.d.(1) Pipeline Operation and Control

The EPND pipeline control center is located in Estevan, Saskatchewan, Canada.

The control center is manned by pipeline operators 24 hours a day. A computerized pipeline control system allows these operators to remotely monitor and control the pipeline and related facilities. The control center also serves as an emergency center to receive calls from employees, the public or public officials reporting unusual conditions or pipeline failures.

The computerized pipeline control system has been designed to control the pipeline within pre-established minimum and maximum operating pressures. Both the computer system and operating practices include procedures for abnormal operating conditions, including

emergency shutdown and isolation of the pipeline and notification procedures in the event of suspected emergencies.

EPND has developed a Control Room Management Plan based on the United States Code of Federal Regulations. EPND has also revised and enhanced its procedures pertaining to decision making, handling pipeline startups and shutdowns, release detection system alarms, communication protocols, and suspected column separations. EPND has enhanced its organizational structures to better support pipeline operators and to manage span of control and workloads.

B.9.d.(2) Communications Capabilities

A Frame Relay Wide Area Network ("WAN") provides the primary communications exchange for pipeline monitoring and control. A dial-up back-up system or satellite system is used during primary communication failures. Communications to monitor and control remote valves utilize frame relay land line connection, spread spectrum radios, or cellular based radios to connect to the WAN. EPND supplements communications with the use of cellular phones, as needed, to facilitate personnel communications during operation, maintenance, or emergency activities.

Land lines are used to exchange the necessary computerized data for pipeline monitoring and control. EPND uses cellular phones to facilitate personnel communications during operation, maintenance, or emergency activities.

B.9.d.(3) Protection of the Pipe from Damage

EPND has an aggressive program in educating excavators and the public about the presence of the pipeline and preventing damage to the pipeline from excavating equipment. As in all other states where EPND and affiliates have existing facilities, EPND has joined and supports the North Dakota One-Call system.

The pipeline is protected from corrosion in a number of ways. The pipe is covered with a modern, fusion-bonded protective coating. All buried or submerged metallic structures (pipeline systems) are under a cathodic protection system, as required by Pipeline Safety Regulations. The cathodic protection system induces a very mild electrical current to prevent corrosion of the steel pipe and related structures.

Additionally, all of EPND's operations, including its standards for quality of the oil it can accept for shipment are regulated through EPND's tariff by the FERC under the Interstate Commerce Act of 1887. The tariff requires a shipper to deliver crude oil to EPND with

certain quality standards and includes safety and quality standards designed to protect the integrity of the pipeline and the safety of the public and environment. EPND verifies that the oil entering its system meets those standards, and a shipper is required to provide EPND with a certificate that sets out the specifications of the oil it submits to EPND. One of the many quality standards set in the tariff, is that crude oil on the EPND system can contain no more than 0.5 percent, by volume, of sediment or water. Other quality control aspects of the tariff relate to temperature, viscosity, density, and various physical characteristics of the oil. Additionally, EPND always has the ability to reject a shipment or remove a shipper's oil if it does not meet EPND's standards or if it poses a risk to EPND's facilities.

B.9.d.(4) Inspections

EPND conducts routine inspections of the pipelines and facilities to determine that the system is operating properly and in compliance with 49 CFR Part 145.

The cathodic protection system is monitored by taking pipe/structure-to-soil and line current readings (where possible) each calendar year (not to exceed a 15-month interval). Additionally, each rectifier and anode groundbed used to impose cathodic protection on the pipeline is inspected to ensure proper operation. Repairs and adjustments to the cathodic protection system are either made during the annual survey or during later maintenance activities. At least six times per year, each critical cathodic protection interference bond to foreign structures is inspected and corrective measures are implemented, as needed.

EPND also periodically evaluates the effectiveness of its cathodic protection system by conducting supplemental close interval surveys (e.g., close interval pipe to soil, etc.) of the system. Although not required by regulation, this method allows EPND to assess overall effectiveness of the pipeline protection system.

The North Dakota Pipeline System, including aerial observation of stations and surrounding areas, is patrolled by air at least 26 times per year to inspect surface conditions of land on or adjacent to the pipeline right-of-way. Line walking inspection of the right-of-way is sometimes used to supplement aerial inspections in congested areas. This inspection also assists in identifying unknown construction or other unsafe activity on the pipeline right-of-way.

Isolating valves are checked at least twice per year to ensure proper operation. In the event of a release, it is important for valves to close properly to isolate the section of pipeline and minimize product release. Other components of the pipeline, such as tanks and pump stations, are also routinely inspected.

EPND periodically inspects the transmission segments of its pipeline system, in accordance with the integrity management standards of 49 C.F.R. Part 195. These inspections are conducted by a combination of hydrostatic testing, direct assessment and internal integrity inspections with the use of electronic inspection tools commonly called "smart pigs." These devices travel through the inside of the pipeline and use on-board sensors and computers to look for and examine any unusual conditions (dents, gouges, corrosion, or cracks) in the pipe. Results of the inspection are then analyzed, and if a feature is found, the pipeline is inspected to verify preliminary findings and repair as required.

EPND implemented an Integrity Management Program (IMP) as required by federal pipeline regulations that requires, among many things, pipelines located in certain higher consequence areas to be internally inspected at prescribed intervals.

All overpressure safety devices capable of limiting, regulating, controlling and/or relieving operating pressures are inspected and tested to ensure the device is in good mechanical condition and functioning properly.

Inspectors from the Pipeline Hazardous Materials Safety Administration ("PHMSA") (and their agents from MNOPS for the Minnesota portion of the system) periodically inspect the EPND's compliance with applicable government regulations. Inspections of the EPND's written procedures, records, and facilities are also periodically conducted by EPND and these agencies.

B.9.d.(5) Maintenance

EPND has a comprehensive preventative maintenance program that meets and, in many cases exceeds, minimum federal safety standards set forth in 49 CFR Part 195. When facilities are added or replaced, there are comprehensive standards for their design and installation in both EPND procedure manuals and contract specifications. Repair pipe is pre-tested and other components used to repair the pipeline meet national standards and regulatory requirements. Other procedures, such as welding procedures, movement of the pipe, coating repair, corrosion control, and tank maintenance, are all guided by written procedures, which have been reviewed by the PHMSA inspectors. Accordingly, as EPND adds new facilities to its system, it ensures that they are incorporated into the ongoing preventative maintenance program.

B.9.d.(6) Training of Personnel

EPND has established a comprehensive orientation, technical, safety, emergency, and on-the-job training program that is in compliance with the Operator Qualification rules issued

under 49 CFR Part 195. As personnel progress in pipeline operation and maintenance positions, they receive hundreds of hours of formal and on-the-job training. Demonstrations of competence are shown through a variety of measures that include review of job performance, periodic pipeline control system simulators, emergency exercises, welding certification tests, and other functions required to maintain safe pipeline operation and maintenance.

B.9.d.(7) Public Awareness Program

EPND conducts a comprehensive Public Awareness Program to provide important pipeline safety information to those who live and work near our pipelines. Annually, we mail public awareness information to affected members of the public (those who work and live in the vicinity of the pipeline), schools, excavators, farmers, local public officials and emergency responders. Key messages include how to recognize and respond to a pipeline emergency and how to prevent third-party damage to pipelines. Enbridge participates in pipeline safety awareness meetings facilitated by the North Dakota Pipeline Association (NDPA) in each of our areas of operation. These meetings provide critical safety information to emergency response and public officials. Enbridge also participates in county-wide One-Call educational presentations for excavators in conjunction with the North Dakota One-Call Board. All excavators working within our counties of operation are invited to attend. Schools within 1,200 feet of our pipeline are provided with additional pipeline safety information via mail and online and are visited a minimum of once every three years. EPND has also been active at the local, county, and state level in emergency response planning and joint training/exercises to prepare all responders for potential emergency response.

EPND offers a free online Emergency Responder Education Program. The content is based on “Pipeline Emergencies,” an industry-leading pipeline emergency response training program developed by the National Association of State Fire Marshals. The program also includes information specific to EPND pipelines and the products transported on our systems. Through the course, emergency responders will learn the basics of gas and liquids pipeline operations, the potential hazards associated with the products transported by EPND, pipeline emergency response tactics, and how to apply the information to real-life situations.

EPND has trained Emergency Response Ambassadors in each geographical area to provide additional face-to-face training and information to PSAPS (Public Safety Answering Points) and emergency responders with the primary focus being those within a 5 minute response time of the pipeline.

The pipeline route is marked at all public roads and railway crossings (at a minimum) to increase the public's awareness of the underground pipeline. Additional markings are posted at valves, other pipeline facilities, and stations along the pipeline route.

B.9.d.(8) Emergency Preparedness

EPND's operating and maintenance practices are aimed at preventing emergencies. However, it is imperative that EPND is prepared to respond to an emergency. Enbridge has emergency response plans in place to work promptly and effectively with local emergency responders utilizing the Incident Command System (ICS) and Unified Command. EPND employees also conduct extensive training with oil release response techniques and equipment. EPND employees train with local emergency responders at all equipment deployment exercises.

EPND is prepared to respond to an emergency with extensive site-specific emergency response readiness utilizing control point and high quiescence mapping and tactical response plans for areas of concern. There are response trailers located at key points along the pipeline which include personal protective equipment and air quality monitors, containment and absorbent booms and skimmers, vacuum trucks and heavy equipment. Along with trained EPND response employees, there are maintenance crews and a vast network of contract equipment and emergency resource personnel trained in emergency response, including contracted Oil Spill Response Organizations ("OSROS"), staged all along our system.

In addition to preventative activities described above, EPND's Integrated Contingency Plan has been prepared in compliance with PHMSA rules under 49 CFR Part 194. The Integrated Contingency Plan has been submitted and approved by PHMSA and includes pre-planning, equipment staging, notifications, training requirements and emergency response procedures. Oil recovery techniques and equipment direction is found in the Enbridge Oil Spill Tactics Guide.

B.9.d.(9) Release Response

The introduction of contaminants into groundwater due to accidental release of construction related chemicals, fuels, or hydraulic fluid during construction could have an adverse effect on groundwater quality, most notably near shallow water wells. Release-related impacts from pipeline construction are primarily associated with fuel storage, equipment refueling, and equipment maintenance. EPND's EPP (see Exhibit J) outlines measures that will be implemented to prevent accidental releases of fuels and other hazardous substances. The EPP also describes response, containment, and cleanup procedures. By implementing the

protective measures set forth in the EPP, long-term contamination due to construction activities is not anticipated.

As part of the pipeline operation, which is regulated by the USDOT-OPS, EPND will implement an ongoing inspection program to monitor the integrity of the pipeline system. Monitoring activities include regular inspection of the cathodic protection system, which addresses the possible corrosion potential for a steel pipe installed below grade. In addition, EPND will use computerized inspection tools that travel through the inside of the pipeline to check pipe integrity. EPND also performs regular aerial flyovers to inspect the pipeline right-of-way. As required by federal law, EPND will maintain an Emergency Response Plan to address pre-planning, equipment staging, notifications, and release containment procedures to be implemented in the event of a pipeline release.

B.9.d.(9)(i) Protection from Fuel Releases

EPND has developed procedures to minimize the potential for accidental releases of petroleum or other substances during construction, and has included them in the EPP (see Exhibit J). Water resources will be protected from fuel releases by prohibiting the storage of fuel within 100 feet of a wetland or surface waterbody. Refueling and overnight parking of equipment will not be allowed within this zone unless, due to site-specific conditions, there is no practical alternative. Contractors will be required to provide adequately trained personnel, and proper equipment and materials to contain and clean up releases of fuel, lubricating oil or hydraulic fluid that result from equipment failure.

B.9.d.(10) Status of Required Permits

As discussed herein, EPND is working with various federal, state, and local agencies to secure the appropriate permits required for the Project in North Dakota. Table 21 shows EPND's current status in obtaining permits.

TABLE 21
Status of Environmental Permits and Authorizations

Permit/Authorization	Status of Permit/Authorization
FEDERAL	
1. COE-Omaha District – Request for Jurisdictional Determination and Application for Nationwide Permit (NWP) 12 Section 404 Permit	Anticipated submittal: ~~February 2014~~ January 2014 Anticipated issuance: October 2014
2. NDSHPO – NHPA Section 106 Compliance	Anticipated submittal: January 2014 (submittal of 2013 field reports) September 2014 (submittal of 2014 field reports) Anticipated issuance: October 2014
3. USFWS – Endangered Species Act Section 7 Compliance[1]	Anticipated submittal: February 2014 Anticipated issuance: ~~October 2014~~ January 2015
4. USFWS – Wetland and Grassland Easements[2]	Consultation ongoing
STATE	
1. ND-PSC – Certificate for Corridor Compatibility	Anticipated submittal: October 2013 Anticipated issuance: March 2014
2. ND-PSC – Route Permit	Anticipated submittal: October 2013 Anticipated issuance: March 2014
3. NDDH – Air Quality Permits to Construct (Berthold, Stanley, and Beaver Lodge~~, and Lakota Stations~~)	Anticipated submittal: ~~April 2014~~ January & February 2014 Anticipated issuance: ~~July 2014~~ April 2014
4. NDDH – Air Quality Permits to Operate (Berthold, Stanley, and Beaver Lodge~~, and Lakota~~ Stations)	Anticipated submittal: ~~November 2013~~ n/a[3] Anticipated issuance: April 2014
5. NDDH – Construction Stormwater and Temporary Dewatering General Permit (NDR10-0000) SWPPP – facilities	Anticipated submittal: April 2014 Anticipated issuance: May 2014
6. NDDH – Construction Stormwater and Temporary Dewatering General Permit (NDR10-0000) and SWPPP – mainline	Anticipated submittal: October 2014 Anticipated issuance: November 2014
7. NDDH – Permit(s) to discharge hydrostatic test water (General Permit NDG-070000)	Anticipated submittal: October 2014 Anticipated issuance: November 2014
8. NDSWC –Temporary Water Permit/Water Withdrawal Permit(s)	Anticipated submittal: October 2014 Anticipated issuance: November 2014
79. NDSWC – Sovereign Lands Permit	Anticipated submittal: June 2014 Anticipated issuance: October 2014
10. NDSLD – License to Cross School Trust Lands	Anticipated submittal: March 2014 Anticipated issuance: ~~June~~ July 2014
11. NDGF – Wetland, Stream, and Wildlife Review	Initial consultation has been completed. EPND will continue to coordinate with NDGF, as needed.

TABLE 21

Status of Environmental Permits and Authorizations

Permit/Authorization	Status of Permit/Authorization
12. NDPR – National Heritage Inventory Review	Initial consultation has been completed. EPND will continue to coordinate with NDPR, as needed.
13. County Floodplain Administrators	Anticipated submittal: March 2014 Anticipated issuance: May 2014
Local	
13. County Floodplain Administrators	Anticipated submittal: March 2014 Anticipated issuance: May 2014

[1] Formal consultation with USFWS is anticipated to be concurrent with the processing of COE NWP 12 application.

[2] EPND will continue to coordinate with USFWS regarding these easements to identify potential avoidance/mitigation measures, or special construction techniques across these areas.

[3] A formal application is not submitted for a permit to operate. After startup, the NDDH conducts a site visit to verify all conditions of the permit to construct have been satisfied. The NDDH issues a permit to operate after the permit to construct conditions have been verified.

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit A	**Overview Maps**	
Exhibit A.1	Enbridge Pipelines (North Dakota) LLC System Map	
Exhibit A.2	Sandpiper Pipeline Project Overview Map	
Exhibit B	**ROW Construction Details**	
Exhibit C	**Station Maps**	
Exhibit C.1	Beaver Lodge Station Aerial, Topographic and Plot Plans	
Exhibit C.2	Stanley Station Aerial, Topographic and Plot Plans	
Exhibit C.3	Berthold Station Aerial, Topographic and Plot Plans	
Exhibit C.4	Lakota Station Aerial, Topographic and Plot Plan	
Exhibit D	**Route Maps**	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit E	**Cultural Resource Investigations**	See Binder 2 of 2
Exhibit E.1	Cultural Resources Abstract	
Exhibit E.2	State Historical Society of North Dakota Consultation	
Exhibit F	**Wetland and Waterbody Assessments**	
Exhibit F.1	Wetland Delineation Survey	
Exhibit F.2	Stream and Waterbody Crossings Table	
Exhibit G	**Habitat Assessments**	
Exhibit G.1	Piping Plover Habitat Assessment Report	
Exhibit G.2	Grassland Habitat Assessment Report	
Exhibit H	**Agency Consultations**	
Exhibit H.1	U.S. Department of Agriculture, Natural Resource Conservation Service Correspondence	
Exhibit H.2	North Dakota Game and Fish Department Correspondence	
Exhibit H.3	U.S. Department of Interior, Fish and Wildlife Service Correspondence	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit H.4	North Dakota Parks and Recreation Correspondence	See Binder 2 of 2
Exhibit H.5	North Dakota Department of Agriculture Correspondence	
Exhibit H.6	North Dakota Department of Health Correspondence	
Exhibit H.7	North Dakota Department of Trust Lands Correspondence	
Exhibit H.8	North Dakota State Water Commission Correspondence	
Exhibit H.9	U.S. Department of Agriculture, North Dakota Farm Service Agency Correspondence	
Exhibit H.10	U.S. Department of Interior, Bureau of Land Management Correspondence	
Exhibit H.11	U.S. Department of Interior, Bureau of Reclamation Correspondence	
Exhibit H.12	North Dakota County Water Resource Boards Correspondence	
Exhibit H.13	North Dakota County Weed Boards Correspondence	
Exhibit H.14	U.S. National Park Service	
Exhibit H.15	U.S. Department of Defense, U.S. Air Force Cable Affairs	

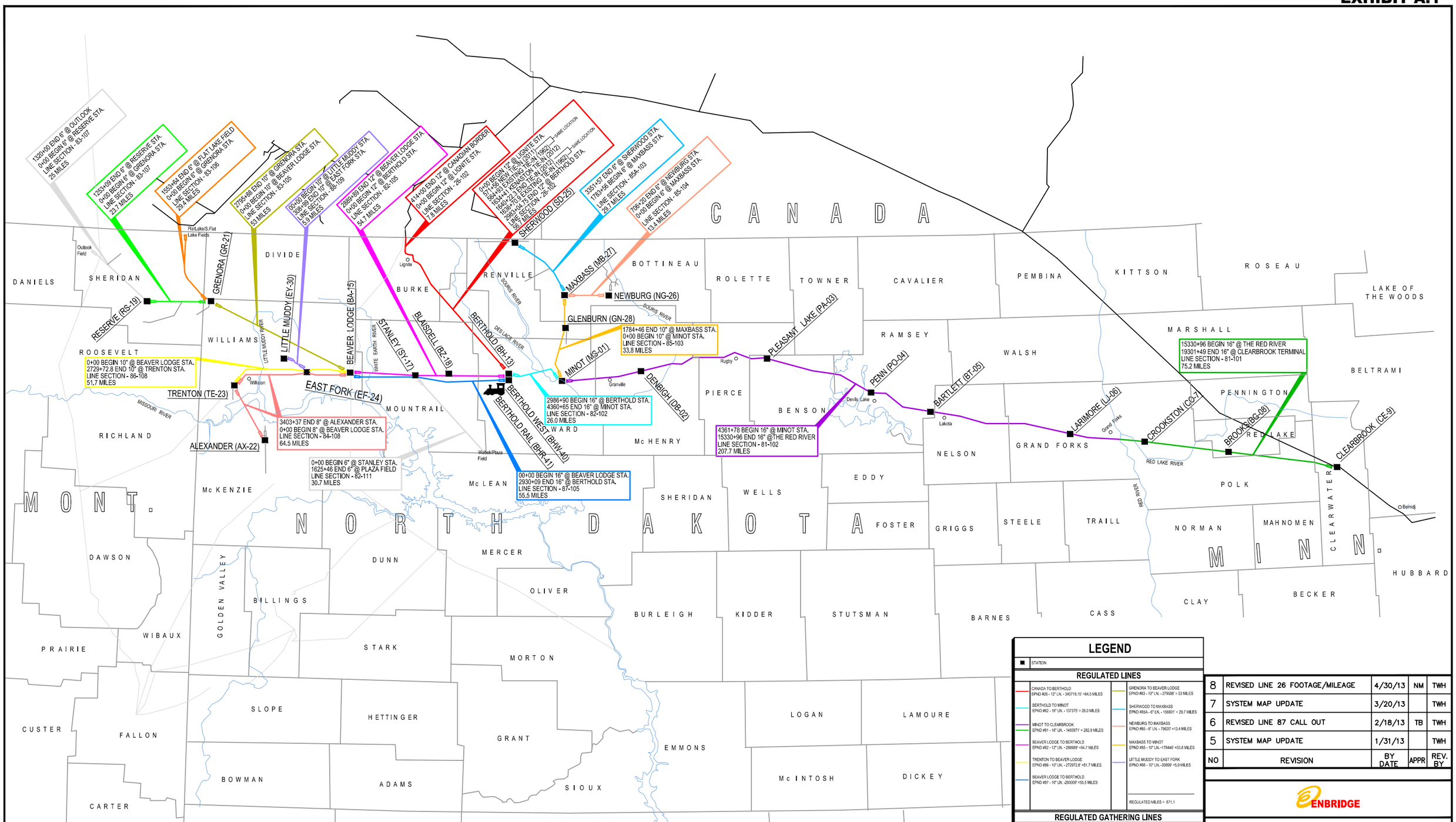
SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit I	**Routing Selection Criteria Maps**	See Binder 2 of 2
Exhibit I.1	Exclusion Areas	
Exhibit I.2	Avoidance Areas	
Exhibit I.3	Other Criteria Considered	
Exhibit J	**Environmental Protection Plan**	
Exhibit K	**Unanticipated Discoveries Plan**	
Exhibit L	**Waivers for Inhabited Businesses, Schools, Residences within 500 feet of the Centerline**	
Exhibit M	**Contaminated Sites Management Plan**	
Exhibit N	**Enbridge Pipelines (North Dakota) LLC 10-Year Plan**	
Exhibit O	**Public Official and Landowner Correspondence**	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

Exhibit A	Overview Maps
Exhibit A.1	Enbridge Pipelines (North Dakota) LLC System Map
Exhibit A.2	Sandpiper Pipeline Project Overview Map

EXHIBIT A.1



LEGEND

STATION

REGULATED LINES

- CANADA TO BERTHOLD — EPND #26 - 12" LN. - 340719.15' =64.5 MILES
- BERTHOLD TO MINOT — EPND #62 - 16" LN. - 137375' = 26.0 MILES
- MINOT TO CLEARBROOK — EPND #81 - 16" LN. - 1493971' = 282.9 MILES
- BEAVER LODGE TO BERTHOLD — EPND #82 - 12" LN. - 286989' =54.7 MILES
- TRENTON TO BEAVER LODGE — EPND #86 - 10" LN. - 272972.8' =51.7 MILES
- BEAVER LODGE TO BERTHOLD — EPND #87 - 16" LN. -293009' =55.5 MILES
- GRENORA TO BEAVER LODGE — EPND #83 - 10" LN. - 279588' = 53 MILES
- SHERWOOD TO MAXBASS — EPND #85A - 6" LN. - 156801' = 29.7 MILES
- NEWBURG TO MAXBASS — EPND #85 - 6" LN. - 70620' =13.4 MILES
- MAXBASS TO MINOT — EPND #85 - 10" LN. -178446' =33.8 MILES
- LITTLE MUDDY TO EAST FORK — EPND #88 - 10" LN. -30899' =5.9 MILES

REGULATED MILES = 671.1

REGULATED GATHERING LINES

- RESERVE TO GRENORA — EPND #83 - 6" LN. - 125309' =23.7 MILES
- FLAT LAKE TO GRENORA — EPND #83 - 6" LN. - 155364' = 29.4 MILES
- ALEXANDER TO TRENTON — EPND #84 - 8" LN. - 63254' =12 MILES
- TRENTON TO BEAVER LODGE — EPND #84 - 8" LN. - 276936' =52.5 MILES

REGULATED GATHERING MILES = 117.6

INACTIVE LINES

- INACTIVE — OUTLOOK TO RESERVE — EPND #83 - 6" LN. - 132000' =25 MILES
- INACTIVE — WABEK/PLAZA FIELD TO STANLEY — EPND - 6" LN. -162546' =30.8 MILES

INACTIVE MILES = 55.8

NO	REVISION	BY DATE	APPR	REV. BY
8	REVISED LINE 26 FOOTAGE/MILEAGE	4/30/13	NM	TWH
7	SYSTEM MAP UPDATE	3/20/13		TWH
6	REVISED LINE 87 CALL OUT	2/18/13	TB	TWH
5	SYSTEM MAP UPDATE	1/31/13		TWH

ENBRIDGE

MN, ND, MT SYSTEM

SYSTEM MAP

LINE SECTION INFORMATION

PROJECT:					
SCALE:	NO SCALE	DATE:	3/20/2003	DRAWN:	GJH
CHECK:	G. HARROM	APPR:	G. HARROM	DATE:	3/20/2003

DWG. NO. B-0-0.5-10002-8-300

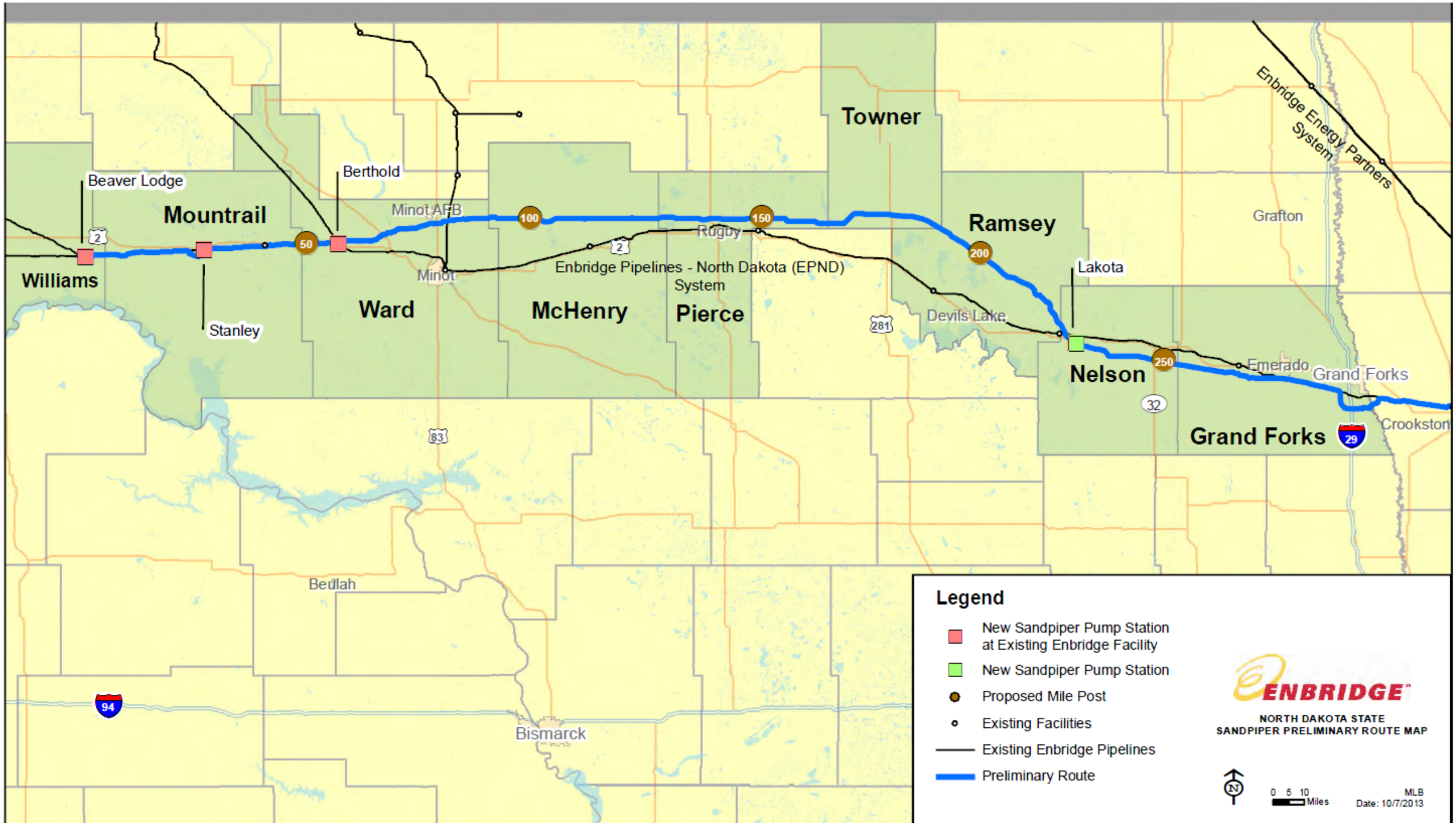
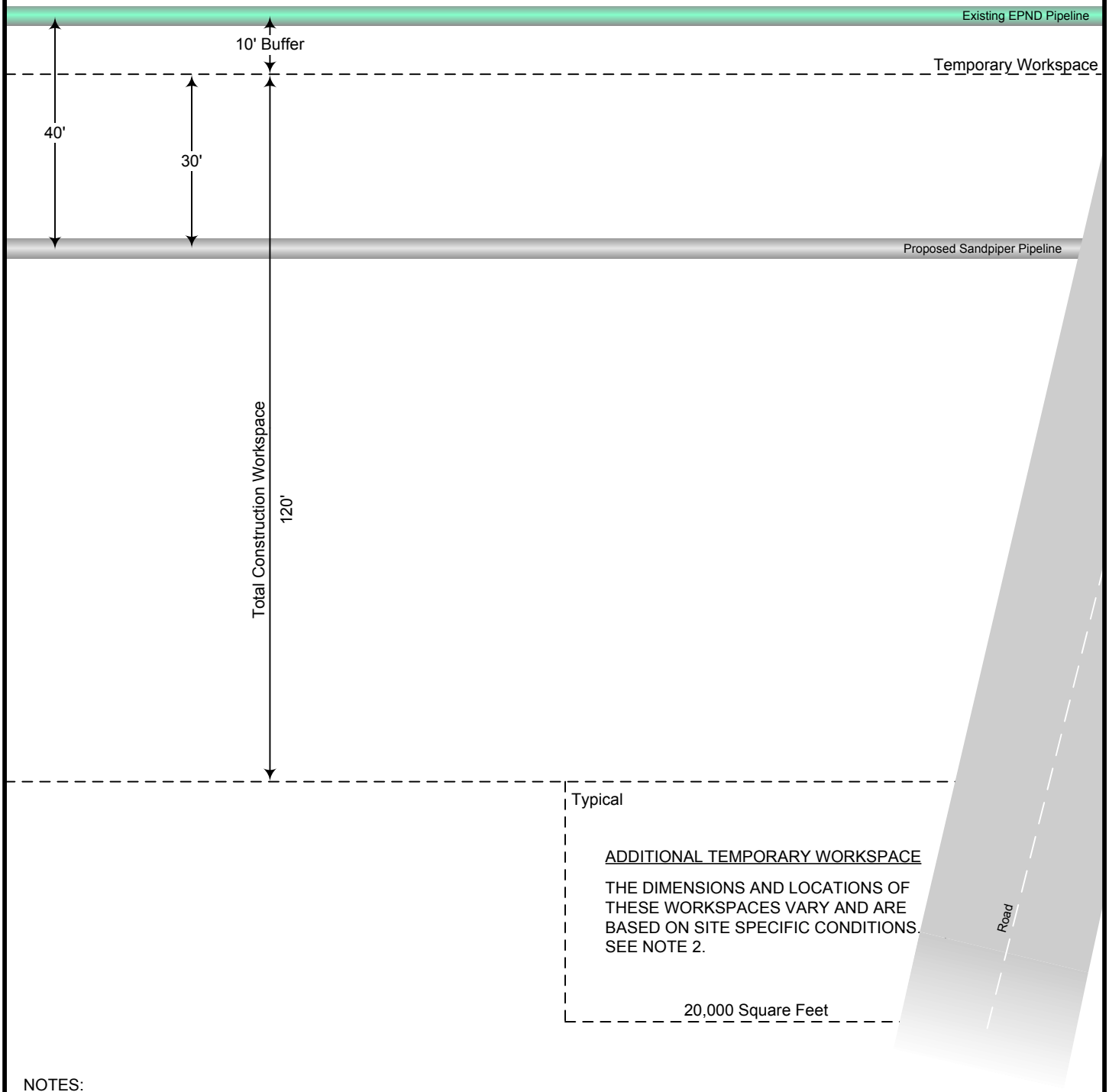

Towner
Ramsey
Grafton
Enbridge Energy Partners System
Beaver Lodge
Berthold
Mountrail
Minot AFB
Rugby
Williams
Minot
Ward
McHenry
Pierce
Enbridge Pipelines - North Dakota (EPND) System
Lakota
Devils Lake
Stanley
Nelson
Emerado
Grand Forks
Crookston
Beulah
Bismarck
2
50
100
150
200
250
281
83
94
29
32
Legend
New Sandpiper Pump Station at Existing Enbridge Facility
New Sandpiper Pump Station
Proposed Mile Post
Existing Facilities
Existing Enbridge Pipelines
Preliminary Route
ENBRIDGE
NORTH DAKOTA STATE
SANDPIPER PRELIMINARY ROUTE MAP
N
0 5 10
Miles
MLB
Date: 10/7/2013

EXHIBIT B

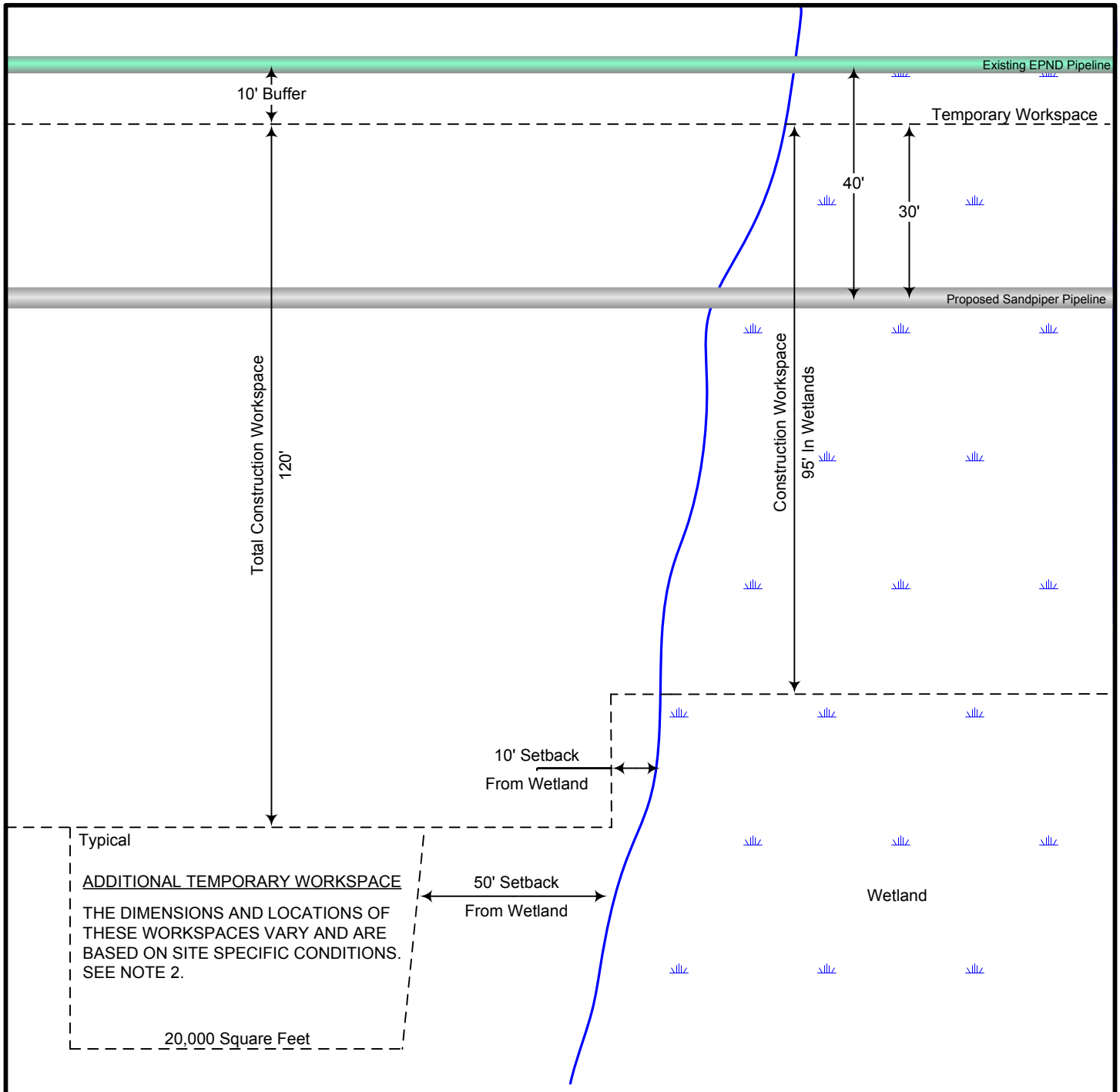


NOTES:

1. IN UPLAND AREAS, EPND WILL TYPICALLY UTILIZE A 120-FOOT-WIDE CONSTRUCTION WORKSPACE TO INSTALL THE PIPELINE AND WILL HAVE A 40-FOOT OFFSET FROM EXISTING EPND PIPELINE.

2. ADDITIONAL TEMPORARY WORKSPACE MAY BE REQUIRED AT CIVIL AND ENVIRONMENTAL CROSSINGS OF UP TO 20,000 SQUARE FEET ON EACH SIDE OF THE CROSSING. THESE ADDITIONAL TEMPORARY WORKSPACES ARE GENERALLY USED AT ROAD, RAILROAD, WATERBODY, WETLAND CROSSING, AND UTILITY CROSSINGS. ADDITIONAL TEMPORARY WORKSPACE REQUIREMENTS WILL VARY PENDING TYPE OF CROSSING AND ANY SPECIAL CONDITIONS OR ENVIRONMENTAL FEATURES.

ENBRIDGE	Exhibit B.1 Co-located in EPND Right-of-Way Configuration In Upland Areas	Enbridge Pipelines (North Dakota) LLC Sandpiper Pipeline Project Drawn by: merjent 10/23/2013



NOTES:

1. IN WETLAND AREAS, EPND WILL TYPICALLY UTILIZE A 95-FOOT-WIDE CONSTRUCTION WORKSPACE TO INSTALL THE PIPELINE AND WILL HAVE A 40-FOOT OFFSET FROM EXISTING EPND PIPELINE.

2. ADDITIONAL TEMPORARY WORKSPACE MAY BE REQUIRED AT CIVIL AND ENVIRONMENTAL CROSSINGS OF UP TO 20,000 SQUARE FEET ON EACH SIDE OF THE CROSSING. THESE ADDITIONAL TEMPORARY WORKSPACES ARE GENERALLY USED AT ROAD, RAILROAD, WATERBODY, WETLAND CROSSING, AND UTILITY CROSSINGS. ADDITIONAL TEMPORARY WORKSPACE REQUIREMENTS WILL VARY PENDING TYPE OF CROSSING AND ANY SPECIAL CONDITIONS OR ENVIRONMENTAL FEATURES.

ENBRIDGE

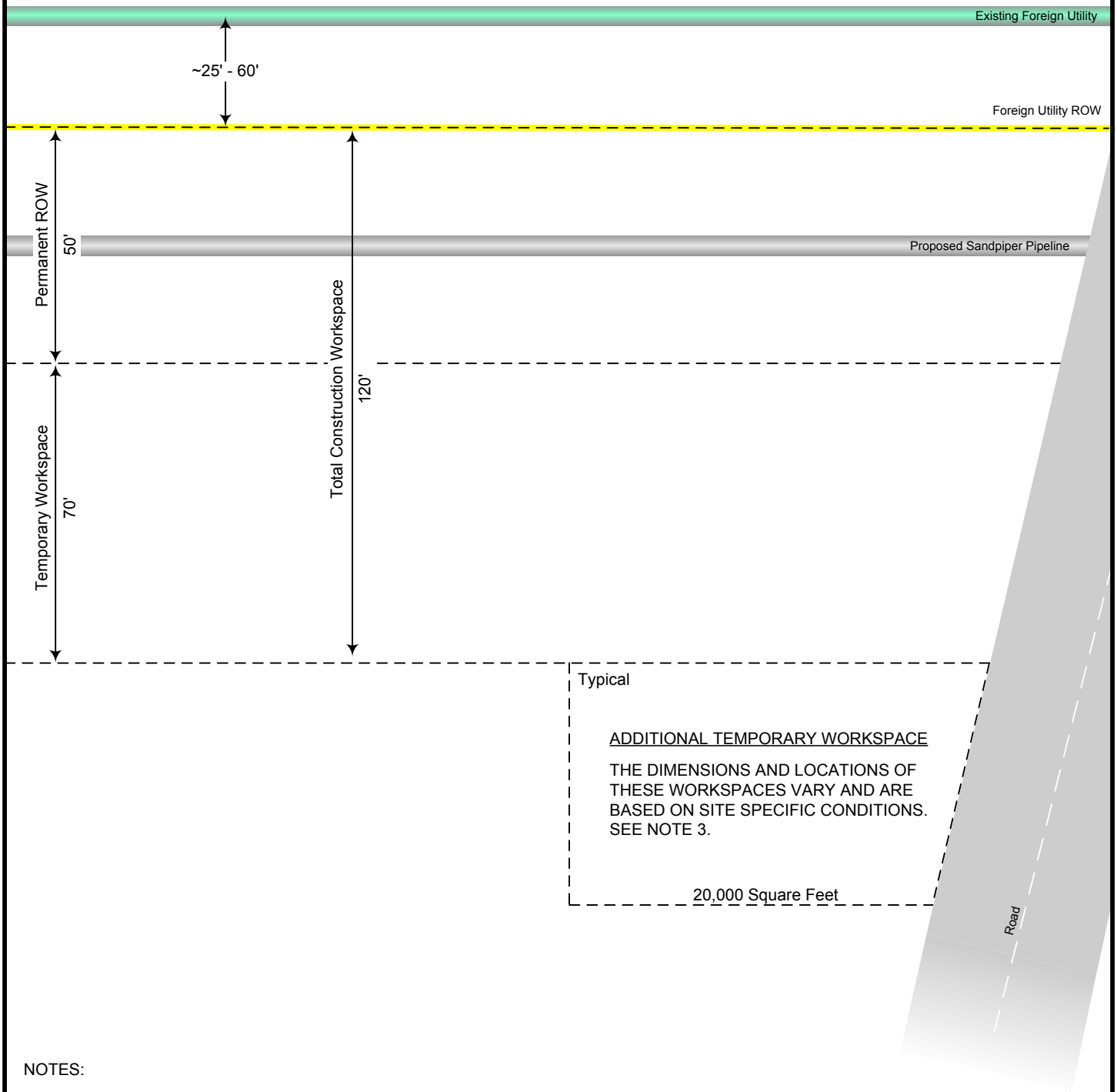
Exhibit B.2
Co-located in EPND Right-of-Way Configuration In Wetland Areas

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Drawn by: merjent

10/23/2013



NOTES:

1. A NEW PERMANENT 50-FOOT PIPELINE RIGHT-OF-WAY WILL BE CENTERED ON THE NEW PIPELINE.
2. IN UPLAND AREAS, EPND WILL TYPICALLY UTILIZE A 70-FOOT-WIDE TEMPORARY WORKSPACE ADJACENT TO NEW RIGHT-OF-WAY TO INSTALL THE PIPELINE.
3. ADDITIONAL TEMPORARY WORKSPACE MAY BE REQUIRED AT CIVIL AND ENVIRONMENTAL CROSSINGS OF UP TO 20,000 SQUARE FEET ON EACH SIDE OF THE CROSSING. THESE ADDITIONAL TEMPORARY WORKSPACES ARE GENERALLY USED AT ROAD, RAILROAD, WATERBODY, WETLAND CROSSING, AND UTILITY CROSSINGS. ADDITIONAL TEMPORARY WORKSPACE REQUIREMENTS WILL VARY PENDING TYPE OF CROSSING AND ANY SPECIAL CONDITIONS OR ENVIRONMENTAL FEATURES.

ENBRIDGE

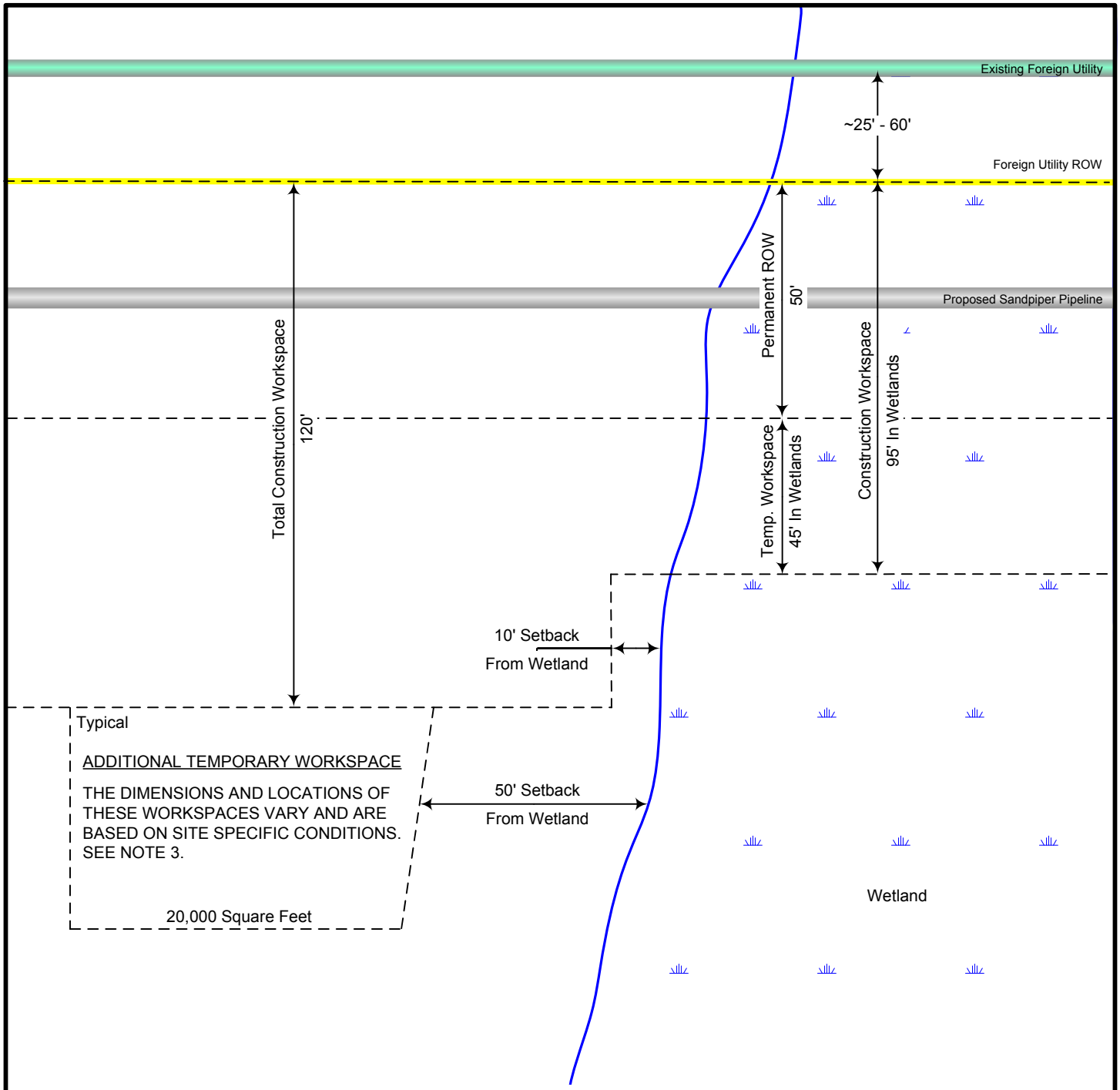
Exhibit B.3
Parallel to Foreign Utility Right-of-Way Configuration In Upland Areas

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Drawn by: merjent

10/23/2013



NOTES:

1. A NEW PERMANENT 50 FOOT PIPELINE RIGHT-OF-WAY WILL BE CENTERED ON THE NEW PIPELINE.
2. IN WETLAND AREAS, EPND WILL TYPICALLY UTILIZE A 45-FOOT-WIDE TEMPORARY WORKSPACE ADJACENT TO NEW RIGHT-OF-WAY TO INSTALL THE PIPELINE.
3. ADDITIONAL TEMPORARY WORKSPACE MAY BE REQUIRED AT CIVIL AND ENVIRONMENTAL CROSSINGS OF UP TO 20,000 SQUARE FEET ON EACH SIDE OF THE CROSSING. THESE ADDITIONAL TEMPORARY WORKSPACES ARE GENERALLY USED AT ROAD, RAILROAD, WATERBODY, WETLAND CROSSING, AND UTILITY CROSSINGS. ADDITIONAL TEMPORARY WORKSPACE REQUIREMENTS WILL VARY PENDING TYPE OF CROSSING AND ANY SPECIAL CONDITIONS OR ENVIRONMENTAL FEATURES.

ENBRIDGE

Exhibit B.4

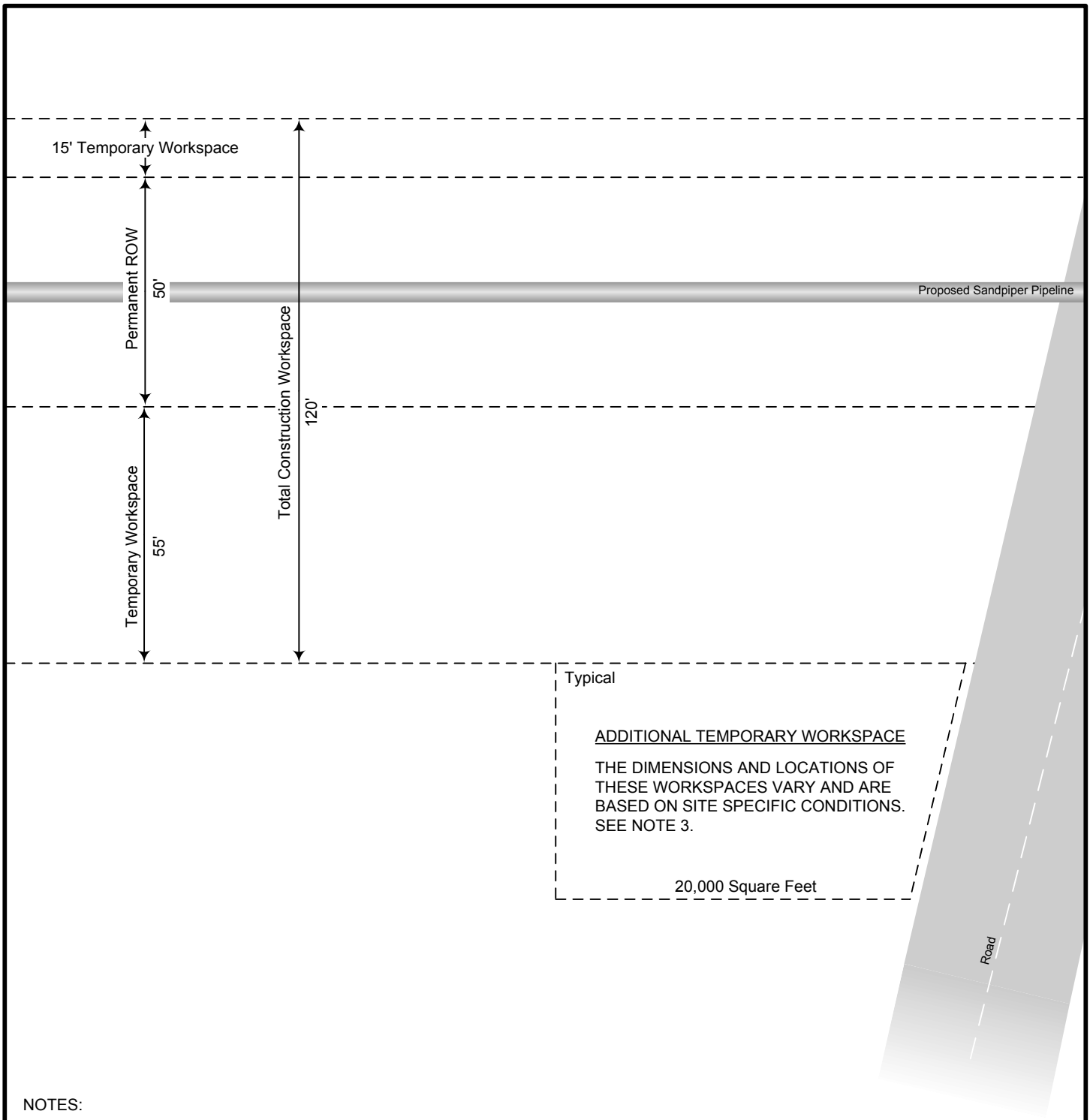
Parallel to Foreign Utility Right-of-Way Configuration In Wetland Areas

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Drawn by: Merjent

10/23/2013



NOTES:

1. A NEW PERMANENT 50-FOOT PIPELINE RIGHT-OF-WAY WILL BE CENTERED ON THE NEW PIPELINE.
2. IN UPLAND AREAS, EPND WILL TYPICALLY UTILIZE A 55-FOOT-WIDE TEMPORARY WORKSPACE ON THE WORKING SIDE AND A 15-FOOT-WIDE TEMPORARY WORKSPACE ON THE NON-WORKING SIDE ADJACENT TO NEW RIGHT-OF-WAY TO INSTALL THE PIPELINE.
3. ADDITIONAL TEMPORARY WORKSPACE MAY BE REQUIRED AT CIVIL AND ENVIRONMENTAL CROSSINGS OF UP TO 20,000 SQUARE FEET ON EACH SIDE OF THE CROSSING. THESE ADDITIONAL TEMPORARY WORKSPACES ARE GENERALLY USED AT ROAD, RAILROAD, WATERBODY, WETLAND CROSSING, AND UTILITY CROSSINGS.

ENBRIDGE

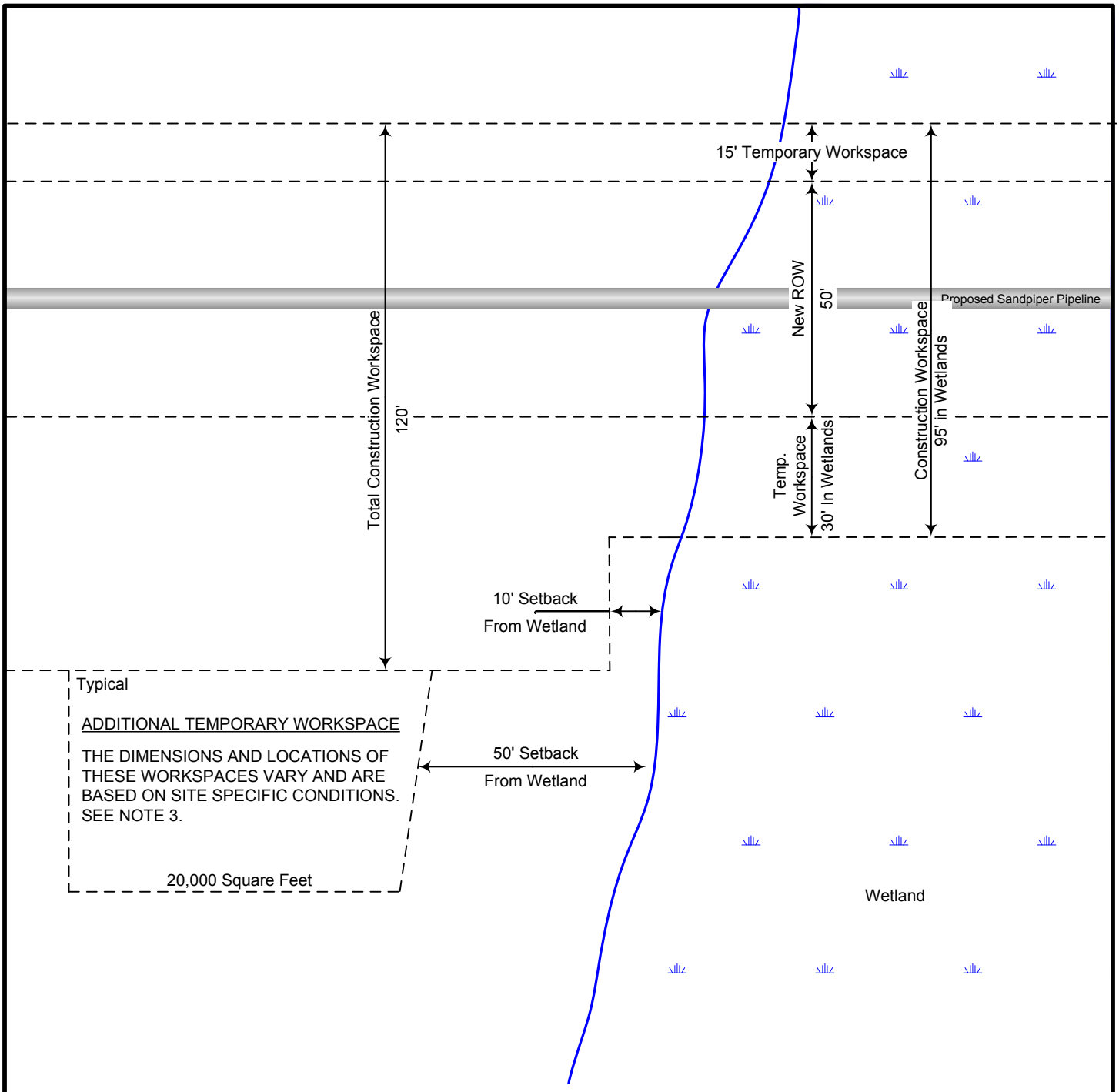
Exhibit B.5
Greenfield Right-of-Way Configuration In Upland Areas

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Drawn by: Inerjent

10/23/2013



NOTES:

1. A NEW PERMANENT 50-FOOT PIPELINE RIGHT-OF-WAY WILL BE CENTERED ON THE NEW PIPELINE.
2. IN WETLAND AREAS, EPND WILL TYPICALLY UTILIZE A 30-FOOT-WIDE TEMPORARY WORKSPACE ON THE WORKING SIDE AND A 15-FOOT-WIDE TEMPORARY WORKSPACE ON THE NON-WORKING SIDE ADJACENT TO NEW RIGHT-OF-WAY TO INSTALL THE PIPELINE.
3. ADDITIONAL TEMPORARY WORKSPACE MAY BE REQUIRED AT CIVIL AND ENVIRONMENTAL CROSSINGS OF UP TO 20,000 SQUARE FEET ON EACH SIDE OF THE CROSSING. THESE ADDITIONAL TEMPORARY WORKSPACES ARE GENERALLY USED AT ROAD, RAILROAD, WATERBODY, WETLAND CROSSING, AND UTILITY CROSSINGS. ADDITIONAL TEMPORARY WORKSPACE REQUIREMENTS WILL VARY PENDING TYPE OF CROSSING AND ANY SPECIAL CONDITIONS OR ENVIRONMENTAL FEATURES.

ENBRIDGE

Exhibit B.6
Greenfield Right-of-Way Configuration In Wetland Areas

Enbridge Pipelines (North Dakota) LLC

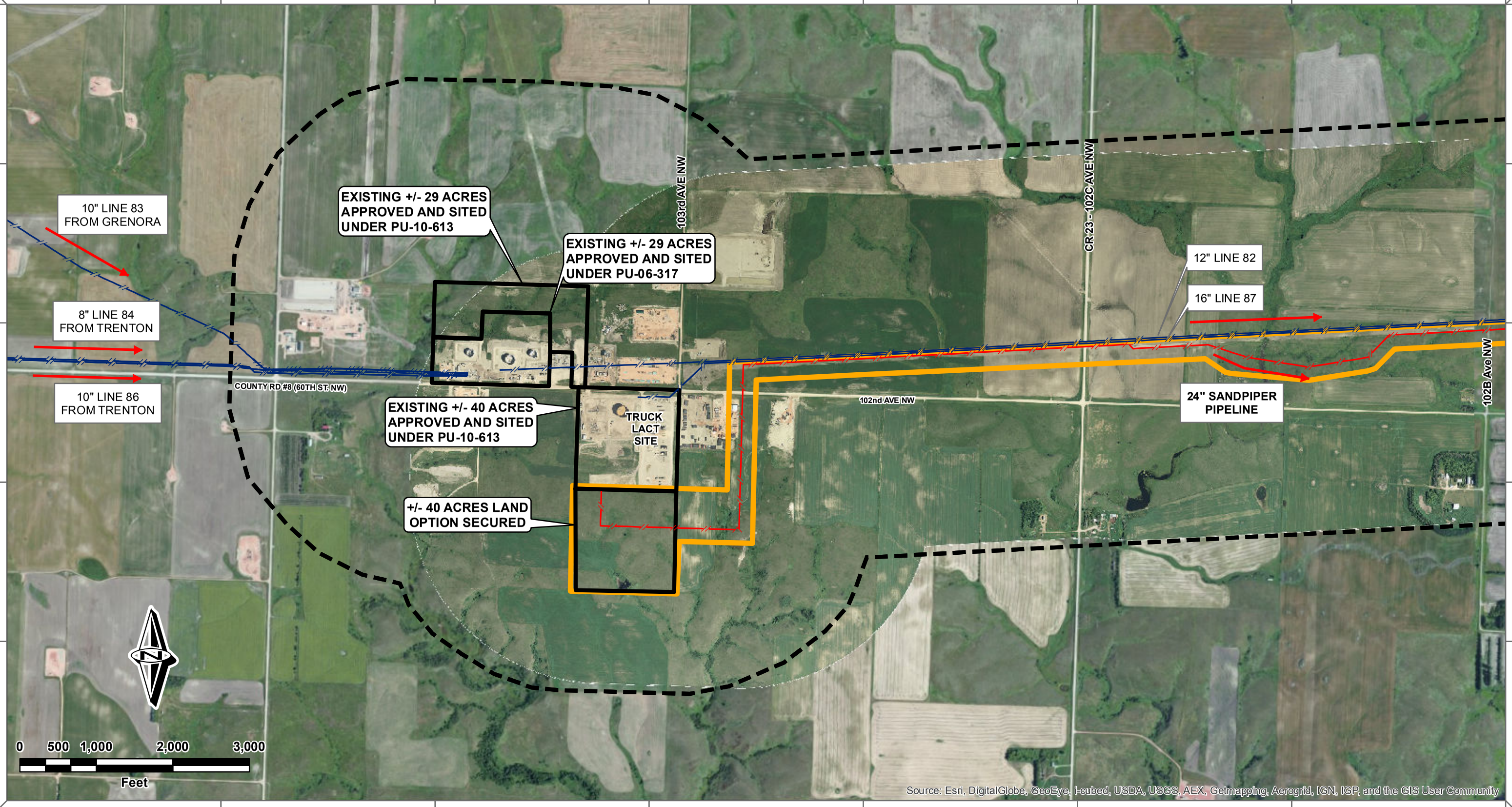
Sandpiper Pipeline Project

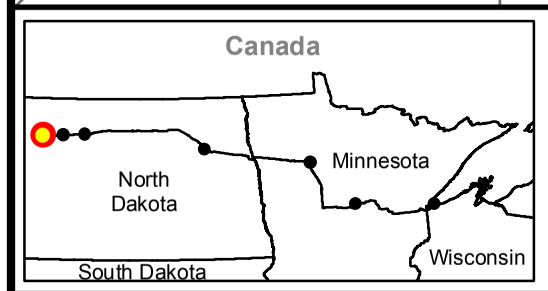
Drawn by: Merjent

10/23/2013

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

Exhibit C	Station Maps
Exhibit C.1	Beaver Lodge Station • Aerial Map • Topographic Map • Plot Plans
Exhibit C.2	Stanley Station • Aerial Map • Topographic Map • Plot Plans
Exhibit C.3	Berthold Station • Aerial Map • Topographic Map • Plot Plans
Exhibit C.4	Lakota Station • Aerial Map • Topographic Map • Plot Plan





PROPOSED PIPELINES

Sandpiper (old)

EXISTING PIPELINES

Enbridge

Environmental Survey Area

Environmental Study Area

Property Boundary

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	SHF	LLF	10/15/13	5	REISSUED FOR PERMIT
AW	SHF	LLF	10/09/13	4	REISSUED FOR PERMIT
AW	SHF	LLF	09/20/13	3	REISSUED FOR PERMIT
AW	SHF	LLF	08/23/13	2	REISSUED FOR PERMIT
AW	SHF	LLF	08/16/13	1	REISSUED FOR PERMIT
AW	SHF	LLF	07/16/13	0	ISSUED FOR PERMIT

PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

SANDPIPER PIPELINE PROJECT

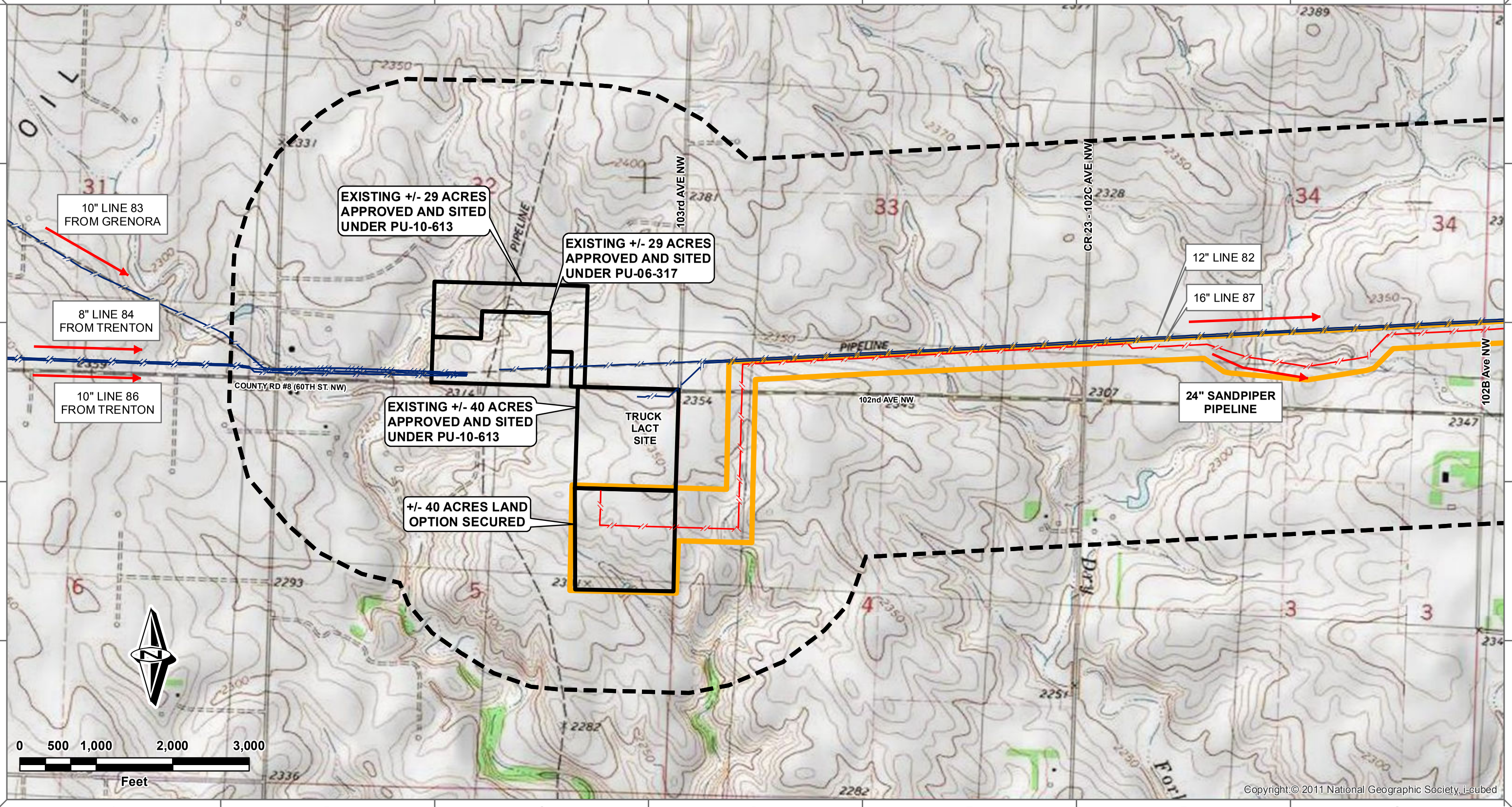
BEAVER LODGE STATION

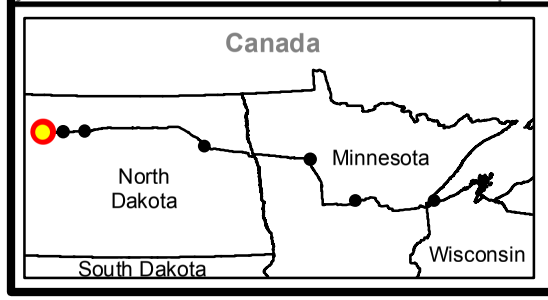
T156N R95W S32 & T155N R95W S5,
WILLIAMS COUNTY, ND

DRAWN:	AW	CHECKED:	SHF
DATE:	10/15/13	SCALE:	AS SHOWN

2930-BA-PSC-00010

EXHIBIT C.1





PROPOSED PIPELINES
Sandpiper (old)

EXISTING PIPELINES
Enbridge

Environmental Survey Area
Environmental Study Area
Property Boundary

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	SHF	LLF	10/15/13	5	REISSUED FOR PERMIT
AW	SHF	LLF	10/09/13	4	REISSUED FOR PERMIT
AW	SHF	LLF	09/20/13	3	REISSUED FOR PERMIT
AW	SHF	LLF	08/23/13	2	REISSUED FOR PERMIT
AW	SHF	LLF	08/16/13	1	REISSUED FOR PERMIT
AW	SHF	LLF	07/16/13	0	ISSUED FOR PERMIT

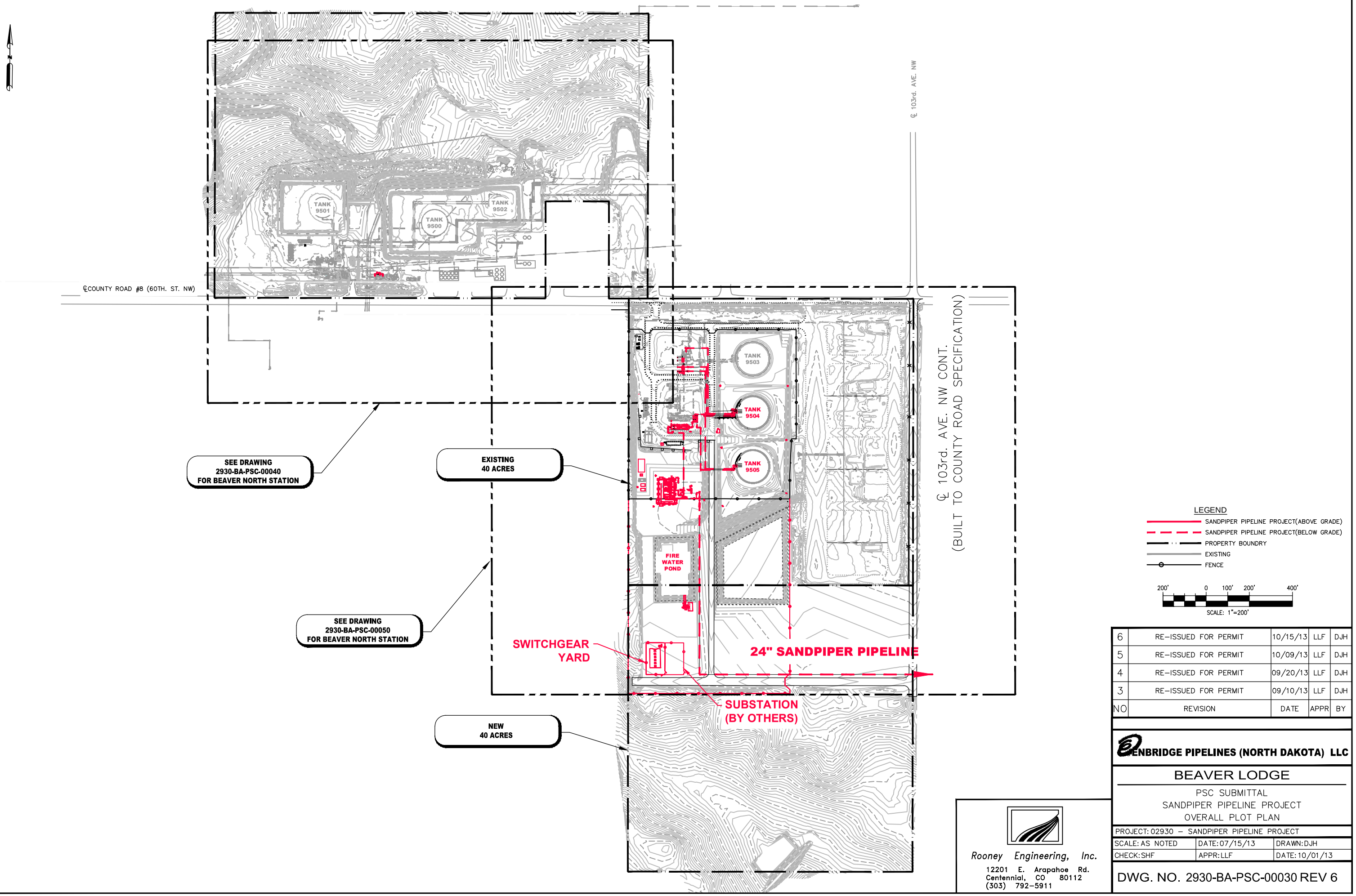
PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

SANDPIPER PIPELINE PROJECT
BEAVER LODGE STATION
T156N R95W S32 & T155N R95W S5,
WILLIAMS COUNTY, ND

DRAWN:	AW	CHECKED:	SHF
DATE:	10/15/13	SCALE:	AS SHOWN

2930-BA-PSC-00020



LEGEND

- SANDPIPER PIPELINE PROJECT(ABOVE GRADE)
- SANDPIPER PIPELINE PROJECT(BELOW GRADE)
- PROPERTY BOUNDRY
- EXISTING
- FENCE

200' 0 100' 200' 400'

SCALE: 1"=200'

NO	REVISION	DATE	APPR	BY
6	RE-ISSUED FOR PERMIT	10/15/13	LLF	DJH
5	RE-ISSUED FOR PERMIT	10/09/13	LLF	DJH
4	RE-ISSUED FOR PERMIT	09/20/13	LLF	DJH
3	RE-ISSUED FOR PERMIT	09/10/13	LLF	DJH

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

BEAVER LODGE

PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT
OVERALL PLOT PLAN

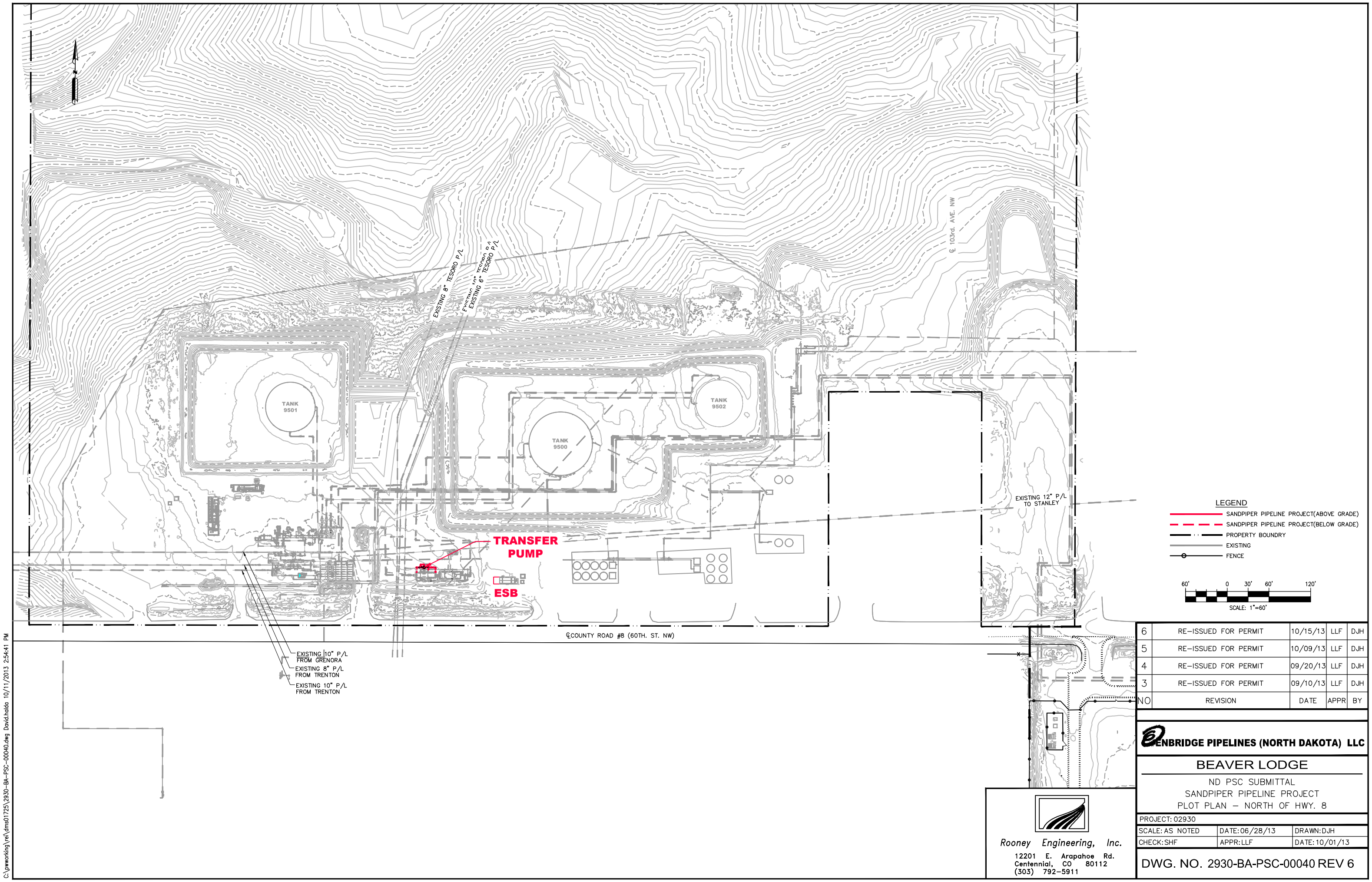
PROJECT: 02930 – SANDPIPER PIPELINE PROJECT

SCALE: AS NOTED	DATE: 07/15/13	DRAWN: DJH
CHECK: SHF	APPR: LLF	DATE: 10/01/13

DWG. NO. 2930-BA-PSC-00030 REV 6

Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

C:\pwworking\ver\dms01725\2930-BA-PSC-00030.dwg David.haldo 10/11/2013 1:53:42 PM



LEGEND

- SANDPIPER PIPELINE PROJECT(ABOVE GRADE)
- SANDPIPER PIPELINE PROJECT(BELOW GRADE)
- PROPERTY BOUNDRY
- EXISTING
- FENCE

60' 0 30' 60' 120'

SCALE: 1"=60'

NO	REVISION	DATE	APPR	BY
6	RE-ISSUED FOR PERMIT	10/15/13	LLF	DJH
5	RE-ISSUED FOR PERMIT	10/09/13	LLF	DJH
4	RE-ISSUED FOR PERMIT	09/20/13	LLF	DJH
3	RE-ISSUED FOR PERMIT	09/10/13	LLF	DJH

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

BEAVER LODGE

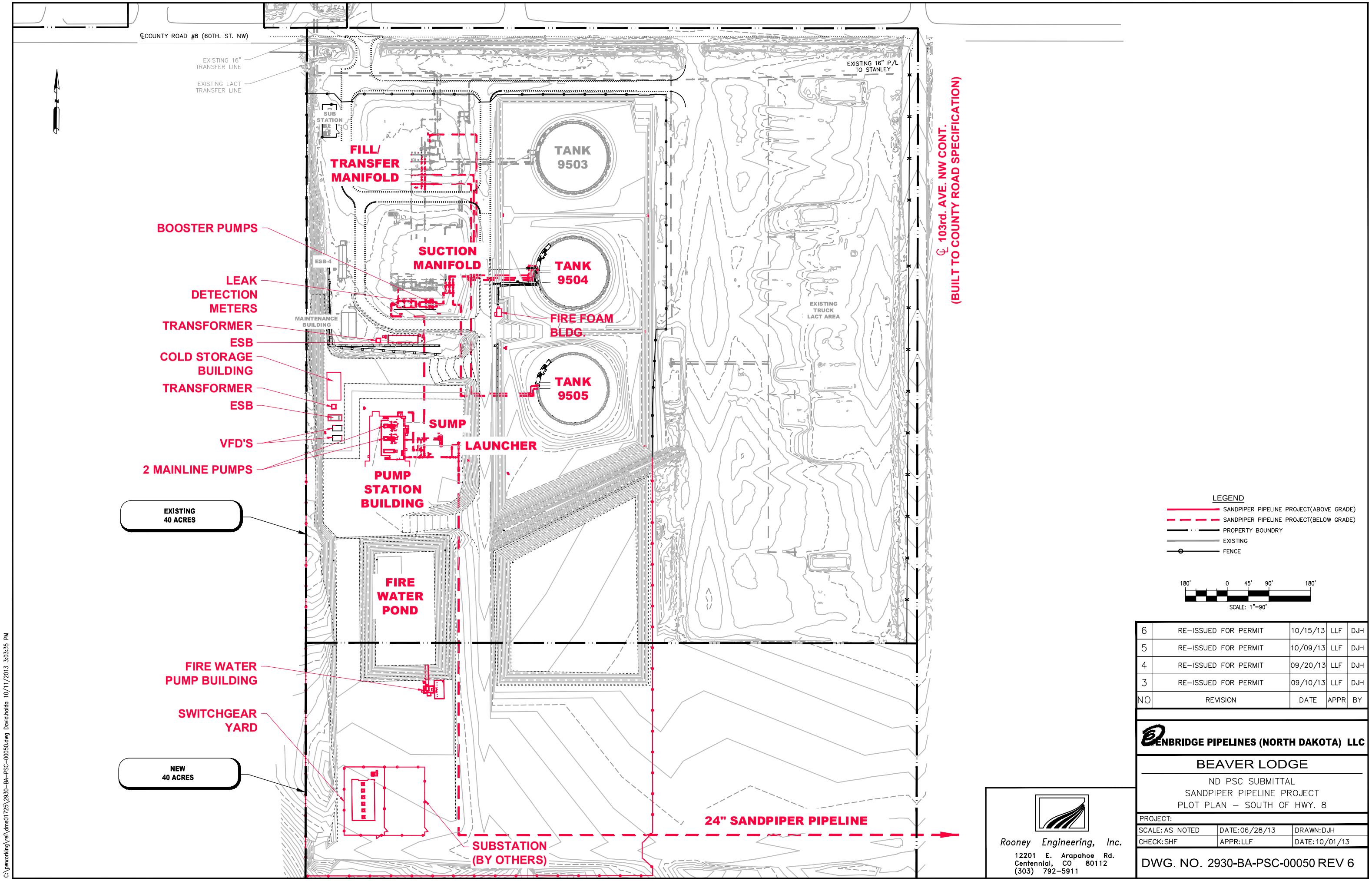
ND PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT
PLOT PLAN – NORTH OF HWY. 8

Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

PROJECT: 02930		
SCALE: AS NOTED	DATE: 06/28/13	DRAWN: DJH
CHECK: SHF	APPR: LLF	DATE: 10/01/13

DWG. NO. 2930-BA-PSC-00040 REV 6

C:\pwworking\ver\dms01725\2930-BA-PSC-00040.dwg Davidhalda 10/11/2013 2:54:41 PM



LEGEND

- SANDPIPER PIPELINE PROJECT(ABOVE GRADE)
- SANDPIPER PIPELINE PROJECT(BELOW GRADE)
- PROPERTY BOUNDRY
- EXISTING
- FENCE

180' 0 45' 90' 180'

SCALE: 1"=90'

NO	REVISION	DATE	APPR	BY
6	RE-ISSUED FOR PERMIT	10/15/13	LLF	DJH
5	RE-ISSUED FOR PERMIT	10/09/13	LLF	DJH
4	RE-ISSUED FOR PERMIT	09/20/13	LLF	DJH
3	RE-ISSUED FOR PERMIT	09/10/13	LLF	DJH

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

BEAVER LODGE

ND PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT
PLOT PLAN – SOUTH OF HWY. 8

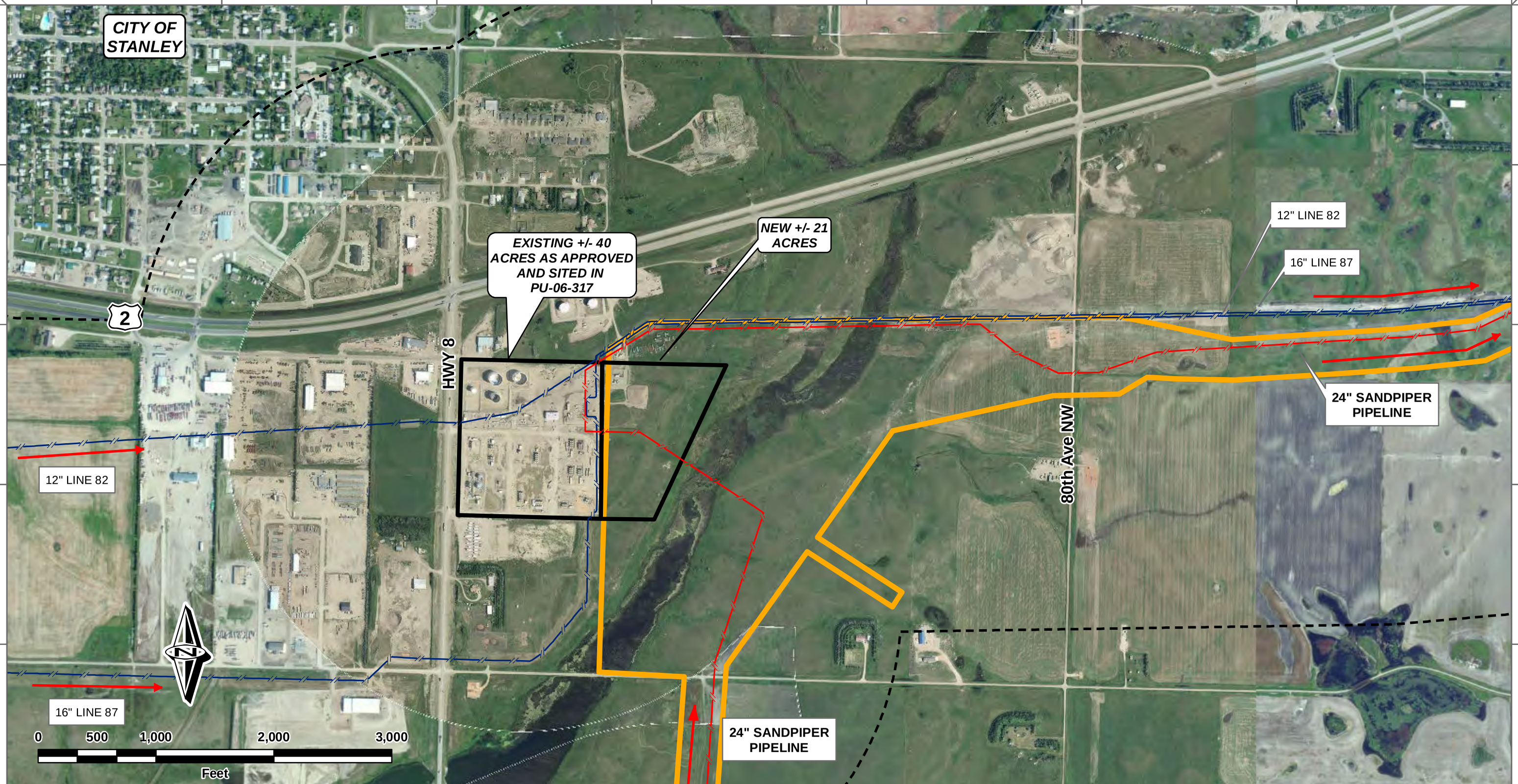
PROJECT:

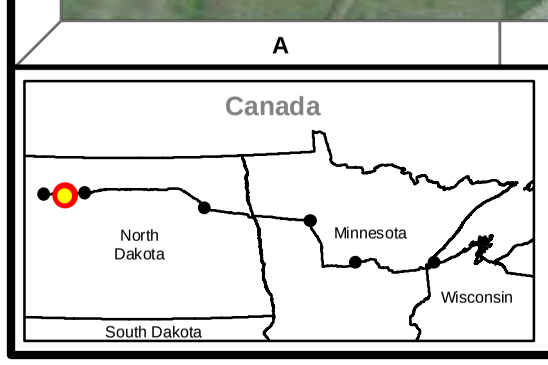
SCALE: AS NOTED	DATE: 06/28/13	DRAWN: DJH
CHECK: SHF	APPR: LLF	DATE: 10/01/13

DWG. NO. 2930-BA-PSC-00050 REV 6

Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

C:\pwworking\ver\dms01725\2930-BA-PSC-00050.dwg David.halda 10/11/2013 3:03:35 PM





PROPOSED PIPELINES
Sandpiper

EXISTING PIPELINES
Enbridge Pipelines

Environmental Survey Area
Environmental Study Area
Property Boundary

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	AAS	LLF	10/15/13	5	REISSUED FOR PERMIT
AW	AAS	LLF	10/09/13	4	REISSUED FOR PERMIT
AW	AAS	LLF	09/20/13	3	REISSUED FOR PERMIT
AW	AAS	LLF	08/23/13	2	REISSUED FOR PERMIT
AW	AAS	LLF	08/16/13	1	REISSUED FOR PERMIT
AW	AAS	LLF	07/16/13	0	ISSUED FOR PERMIT

PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

SANDPIPER PIPELINE PROJECT
STANLEY STATION
T156N, R91W, SECTION 27, MOUNTRAIL COUNTY, ND

DRAWN:	AW	CHECKED:	SF
DATE:	10/15/13	SCALE:	AS SHOWN

2930-SY-PSC-00010

EXHIBIT C.2

CITY OF STANLEY

EXISTING +/- 40 ACRES AS APPROVED AND SITED IN PU-06-317

NEW +/- 21 ACRES

HWY 8

80th Ave NW

12" LINE 82

16" LINE 87

24" SANDPIPER PIPELINE

12" LINE 82

16" LINE 87

24" SANDPIPER PIPELINE

0 500 1,000 2,000 3,000

Feet

Copyright:© 2011 National Geographic Society, i-cubed

Canada

North Dakota

Minnesota

Wisconsin

South Dakota

PROPOSED PIPELINES

Sandpiper

EXISTING PIPELINES

Enbridge Pipelines

Environmental Survey Area

Environmental Study Area

Property Boundary

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	AAS	LLF	10/15/13	5	REISSUED FOR PERMIT
AW	AAS	LLF	10/09/13	4	REISSUED FOR PERMIT
AW	AAS	LLF	09/20/13	3	REISSUED FOR PERMIT
AW	AAS	LLF	08/23/13	2	REISSUED FOR PERMIT
AW	AAS	LLF	08/16/13	1	REISSUED FOR PERMIT
AW	AAS	LLF	07/16/13	0	ISSUED FOR PERMIT

PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

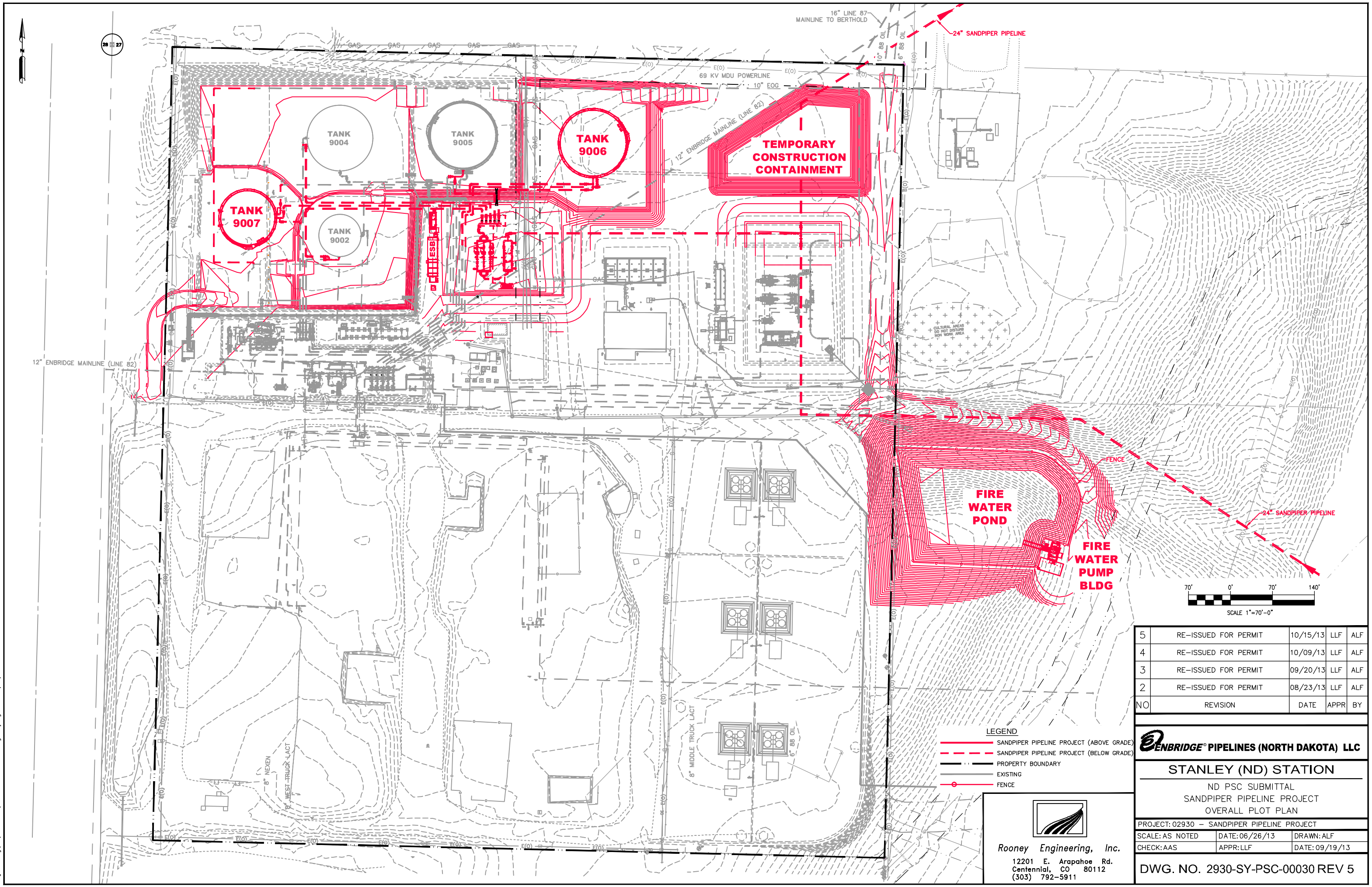
SANDPIPER PIPELINE PROJECT

STANLEY STATION

T156N, R91W, SECTION 27, MOUNTRAIL COUNTY, ND

DRAWN:	AW	CHECKED:	SF
DATE:	10/15/13	SCALE:	AS SHOWN

2930-SY-PSC-00020



LEGEND

- SANDPIPER PIPELINE PROJECT (ABOVE GRADE)
- SANDPIPER PIPELINE PROJECT (BELOW GRADE)
- PROPERTY BOUNDARY
- EXISTING
- FENCE

NO	REVISION	DATE	APPR	BY
5	RE-ISSUED FOR PERMIT	10/15/13	LLF	ALF
4	RE-ISSUED FOR PERMIT	10/09/13	LLF	ALF
3	RE-ISSUED FOR PERMIT	09/20/13	LLF	ALF
2	RE-ISSUED FOR PERMIT	08/23/13	LLF	ALF

Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

ENBRIDGE® PIPELINES (NORTH DAKOTA) LLC

STANLEY (ND) STATION

ND PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT
OVERALL PLOT PLAN

PROJECT: 02930 – SANDPIPER PIPELINE PROJECT		
SCALE: AS NOTED	DATE: 06/26/13	DRAWN: ALF
CHECK: AAS	APPR: LLF	DATE: 09/19/13

DWG. NO. 2930-SY-PSC-00030 REV 5

C:\pwworking\enl\dms01889\2930-SY-PSC-00030.dwg Tony.fagerness 10/14/2013 6:26:49 AM

TANK 9004
80,000 BBL
(110'-0" DIA.)

TANK 9005
80,000 BBL
(110'-0" DIA.)

TANK 9006
80,000 BBL
(110'-0" DIA.)

TANK 9007
55,000 BBL
(91'-0" DIA.)

TANK 9002
30,000 BBL
(70'-0" DIA.)

69 KV MDU POWERLINE

10" EOG

24" SANDPIPER PIPELINE

12" LINE 82 MAINLINE TO BERTHOLD

16" LINE 87 MAINLINE TO BERTHOLD

TEMPORARY CONSTRUCTION CONTAINMENT

FIRE FOAM BLDG

ESB

SUCTION MANIFOLD

INJECTION PUMPS

LD METERS

SUMP TANK

TRANSFORMER

INJECTION VALVE

COLD STORAGE BLDG (100'X40')

MAINLINE PUMPS (LINE 87)

SUMP TANK 902

LD METERS (LINE 87)

INJECTION PUMPS (LINE 82)

METER RUN (LINE 82)

ESB1

ESB3

ESB2

SUCTION MANIFOLD (LINE 82/87)

INJECTION PUMPS (LINE 87)

SHED

SWITCHGEAR

ELECTRICAL SUBSTATION

MAINTENANCE BUILDING

ESB4

LAB

12" LINE 82 MAINLINE FROM BEAVER LODGE

SUMP TANK 101

MAINLINE PUMPS (LINE 82)

FILL MANIFOLD

PLAZA-WABEK TRAP

6" PLAZA-WABEK PIPELINE (PURGED)
10" 88 OIL

8" EAST TRUCK LACT

8" PLAINS

8" WEST TRUCK LACT

8" MIDDLE TRUCK LACT

6" 88 OIL

16" LINE 87 MAINLINE FROM BEAVER LODGE

24" SANDPIPER PIPELINE

40' 0' 40' 80'

SCALE 1"=40'-0"

LEGEND

- SANDPIPER PIPELINE PROJECT (ABOVE GRADE)
- SANDPIPER PIPELINE PROJECT (BELOW GRADE)
- PROPERTY BOUNDARY
- EXISTING
- FENCE

NO	REVISION	DATE	APPR	BY
5	RE-ISSUED FOR PERMIT	10/15/13	LLF	ALF
4	RE-ISSUED FOR PERMIT	10/09/13	LLF	ALF
3	RE-ISSUED FOR PERMIT	09/20/13	LLF	ALF
2	RE-ISSUED FOR PERMIT	08/23/13	LLF	ALF

Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

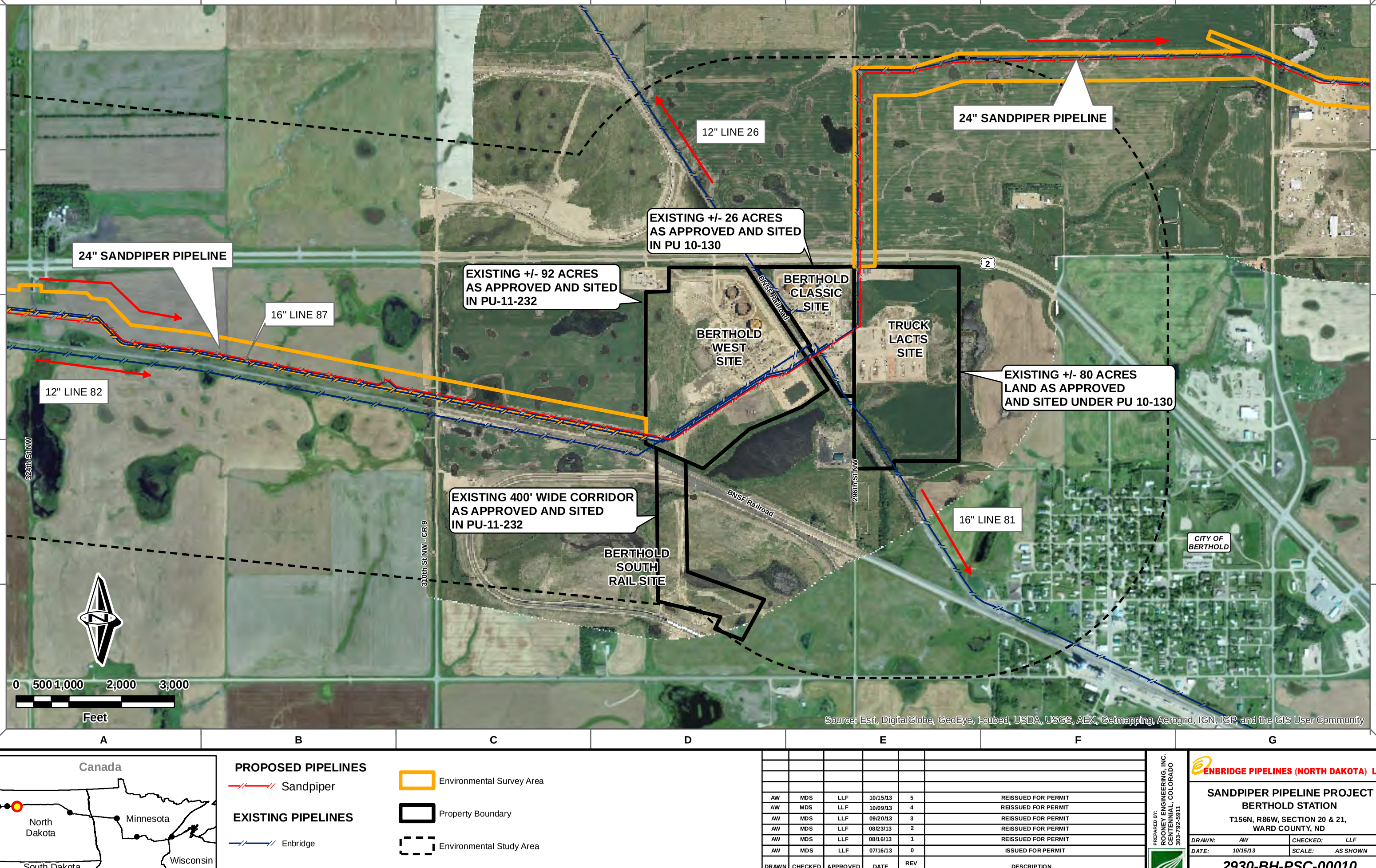
STANLEY (ND) STATION

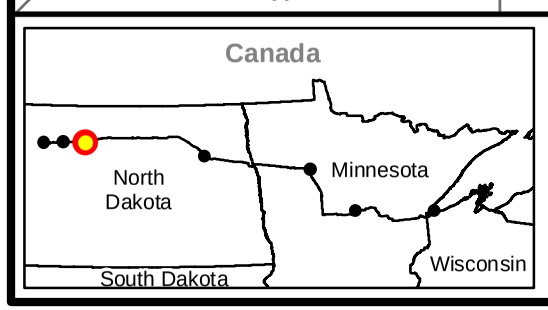
ND PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT
PLOT PLAN – EXISTING SITE

PROJECT: 02930 – SANDPIPER PIPELINE PROJECT		
SCALE: AS NOTED	DATE: 06/26/13	DRAWN: ALF
CHECK: AAS	APPR: LLF	DATE: 09/19/13

DWG. NO. 2930-SY-PSC-00040 REV 5

C:\pwworking\ver\dms01889\2930-SY-PSC-00040.dwg Tony.fagerness 10/14/2013 6:35:50 AM





PROPOSED PIPELINES

Sandpiper

EXISTING PIPELINES

Enbridge

Environmental Survey Area

Property Boundary

Environmental Study Area

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	MDS	LLF	10/15/13	5	REISSUED FOR PERMIT
AW	MDS	LLF	10/09/13	4	REISSUED FOR PERMIT
AW	MDS	LLF	09/20/13	3	REISSUED FOR PERMIT
AW	MDS	LLF	08/23/13	2	REISSUED FOR PERMIT
AW	MDS	LLF	08/16/13	1	REISSUED FOR PERMIT
AW	MDS	LLF	07/16/13	0	ISSUED FOR PERMIT

PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

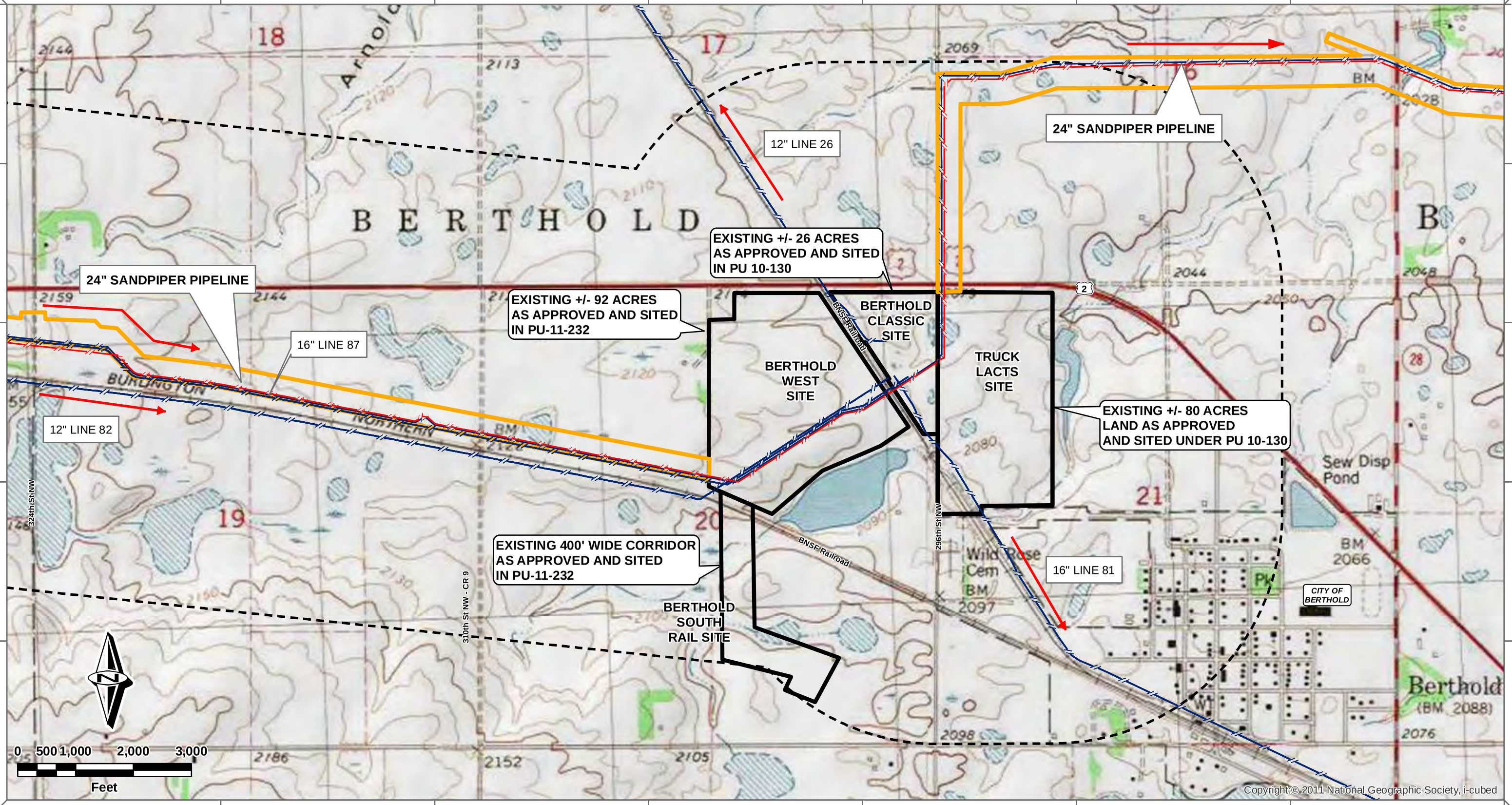
SANDPIPER PIPELINE PROJECT
BERTHOLD STATION

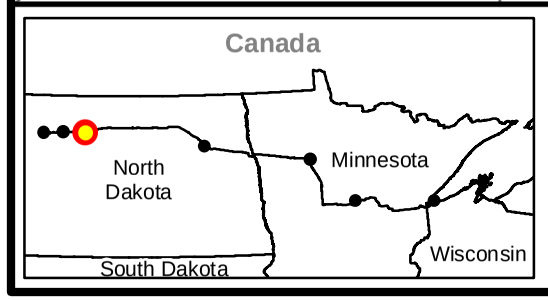
T156N, R86W, SECTION 20 & 21,
WARD COUNTY, ND

DRAWN:	AW	CHECKED:	LLF
DATE:	10/15/13	SCALE:	AS SHOWN

2930-BH-PSC-00010

EXHIBIT C.3





PROPOSED PIPELINES

Sandpiper

EXISTING PIPELINES

Enbridge

Environmental Survey Area

Property Boundary

Environmental Study Area

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	MDS	LLF	10/15/13	5	REISSUED FOR PERMIT
AW	MDS	LLF	10/09/13	4	REISSUED FOR PERMIT
AW	MDS	LLF	09/20/13	3	REISSUED FOR PERMIT
AW	MDS	LLF	08/23/13	2	REISSUED FOR PERMIT
AW	MDS	LLF	08/16/13	1	REISSUED FOR PERMIT
AW	MDS	LLF	07/16/13	0	ISSUED FOR PERMIT

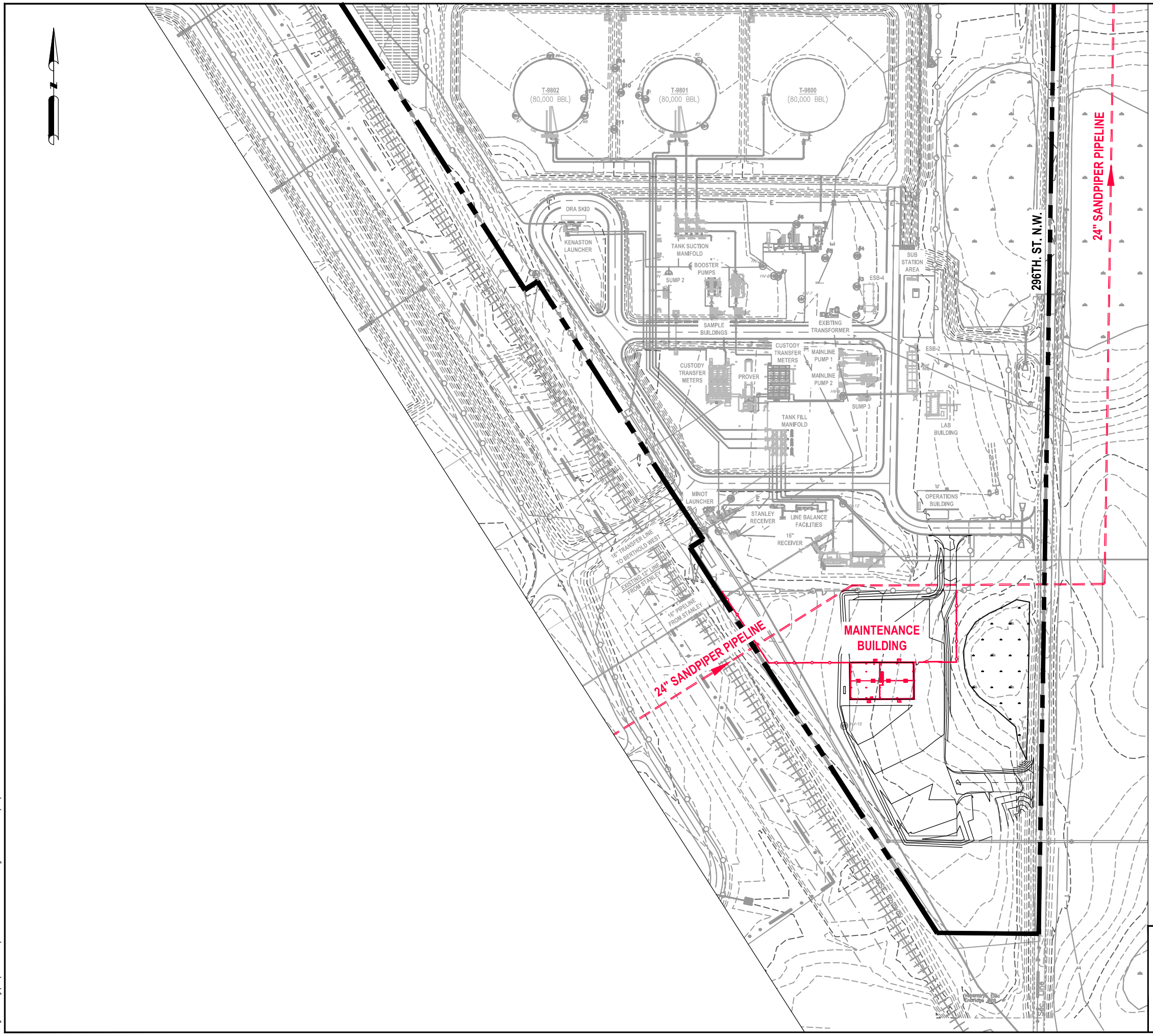
PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

SANDPIPER PIPELINE PROJECT
BERTHOLD STATION
T156N, R86W, SECTION 20 & 21,
WARD COUNTY, ND

DRAWN:	AW	CHECKED:	LLF
DATE:	10/15/13	SCALE:	AS SHOWN

2930-BH-PSC-00020



NO	REVISION	DATE	APPR	BY
5	RE-ISSUED FOR PERMIT	10/15/13	LLF	CDO
4	RE-ISSUED FOR PERMIT	10/09/13	LLF	CDO
3	RE-ISSUED FOR PERMIT	09/20/13	LLF	CDO
2	RE-ISSUED FOR PERMIT	08/23/13	LLF	CDO

Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

ENBRIDGE® PIPELINES (NORTH DAKOTA) LLC

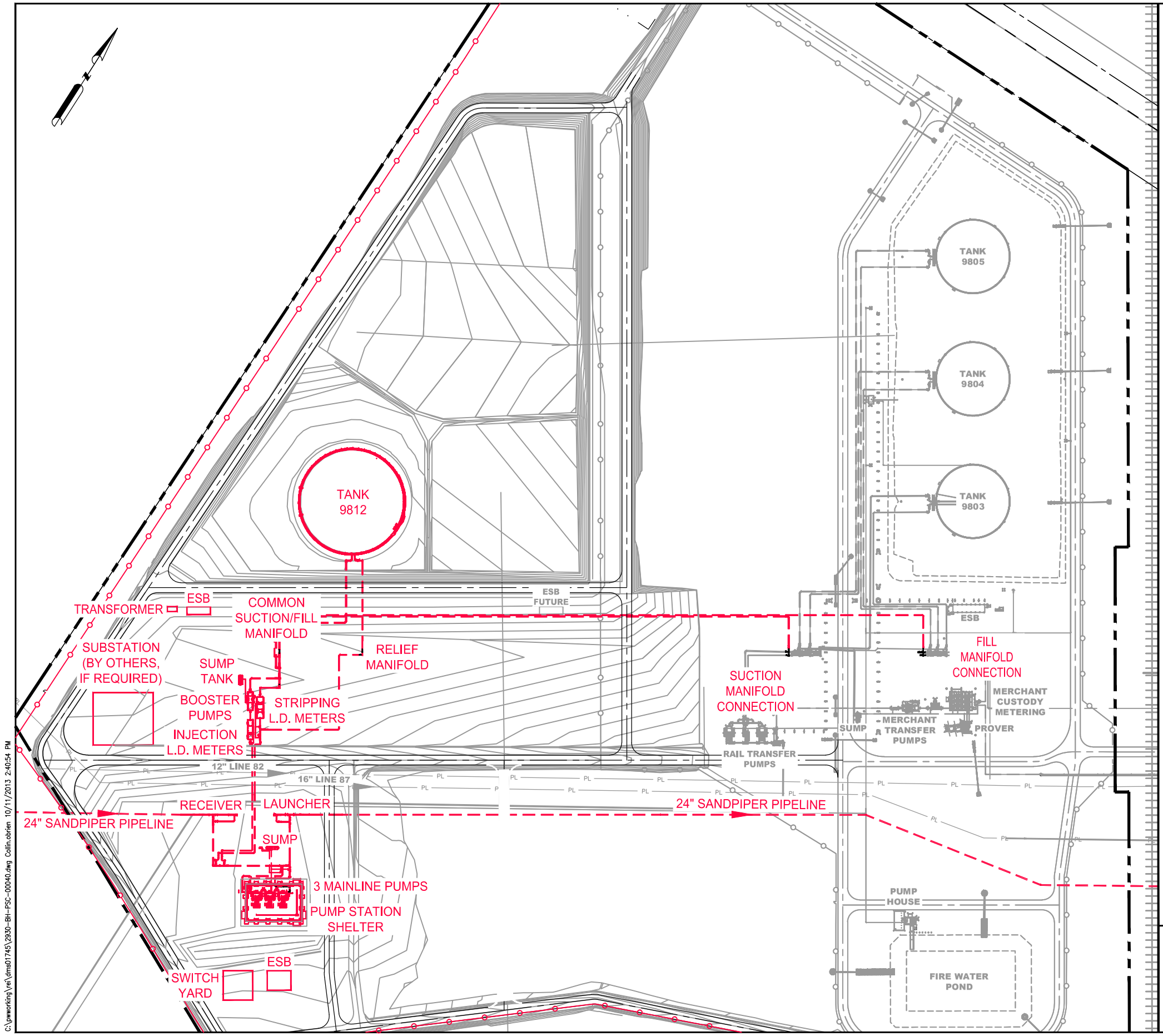
BERTHOLD (ND) STATION

ND PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT US
PLOT PLAN – CLASSIC SITE

PROJECT: 02930 – SANDPIPER PIPELINE PROJECT		
SCALE: AS NOTED	DATE: 06/28/13	DRAWN: CDO
CHECK: MDS	APPR: LLF	DATE: 08/16/13

DWG. NO. 2930-BH-PSC-00030 REV 5

C:\pwworking\ver\dms017451\2930-BH-PSC-00030.dwg Collin.obrien 10/14/2013 9:11:31 AM



LEGEND

- SANDPIPER PIPELINE PROJECT (ABOVE GRADE)
- SANDPIPER PIPELINE PROJECT (BELOW GRADE)
- PROPERTY BOUNDARY LINE
- EXISTING
- FENCE

100' 0' 100' 200'

SCALE 1"=100'-0"

NO	REVISION	DATE	APPR	BY
5	REISSUED FOR PERMIT	10/15/13	LLF	CDO
4	RE-ISSUED FOR PERMIT	10/09/13	LLF	CDO
3	RE-ISSUED FOR PERMIT	09/20/13	LLF	CDO
2	RE-ISSUED FOR PERMIT	08/23/13	LLF	CDO

Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

ENBRIDGE® PIPELINES (NORTH DAKOTA) LLC

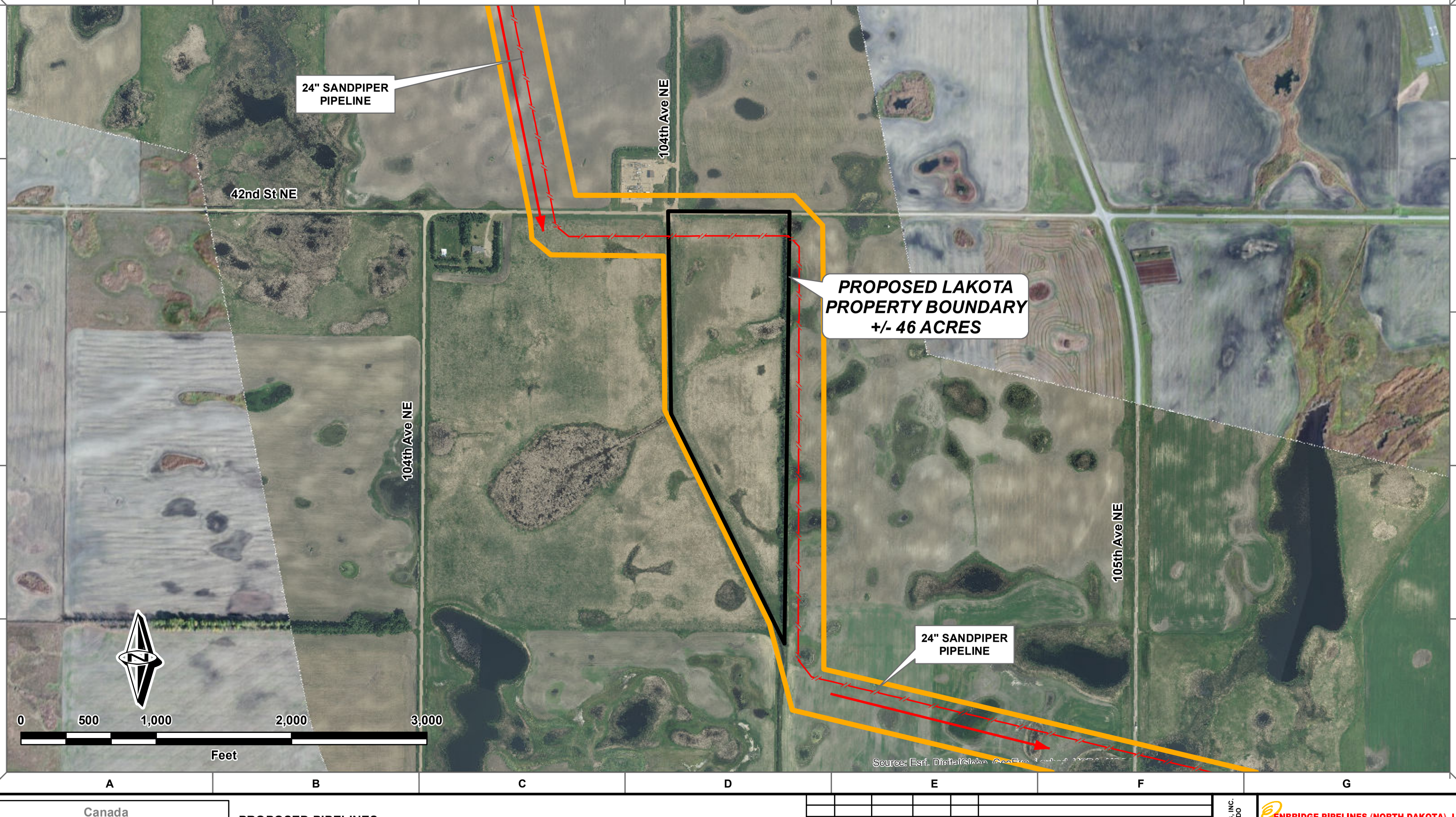
BERTHOLD (ND) STATION

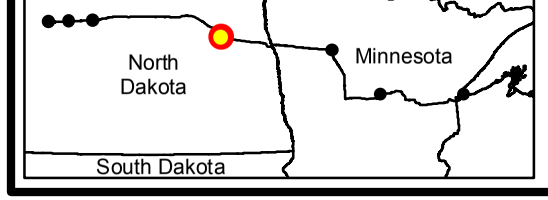
ND PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT US
PLOT PLAN – WEST SITE

PROJECT: 02930 – SANDPIPER PIPELINE PROJECT		
SCALE: AS NOTED	DATE: 08/14/13	DRAWN: CDO
CHECK: MDS	APPR: LLF	DATE: 08/16/13

DWG. NO. 2930-BH-PSC-00040 REV 5

C:\pwworking\rel\dms017451\2930-BH-PSC-00040.dwg Collin.obrien 10/11/2013 2:40:54 PM





PROPOSED PIPELINES

Sandpiper

Environmental Survey Area

Property Boundary

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	JPB	JRW	10/15/13	4	REISSUED FOR PERMITS
AW	JPB	JRW	10/09/13	3	REISSUED FOR PERMITS
AW	JPB	JRW	09/20/13	2	REISSUED FOR PERMITS
AW	JPB	JRW	08/23/13	1	REISSUED FOR PERMITS
AW	JPB	JRW	07/31/13	0	ISSUED FOR PERMITS

PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

SANDPIPER PIPELINE PROJECT

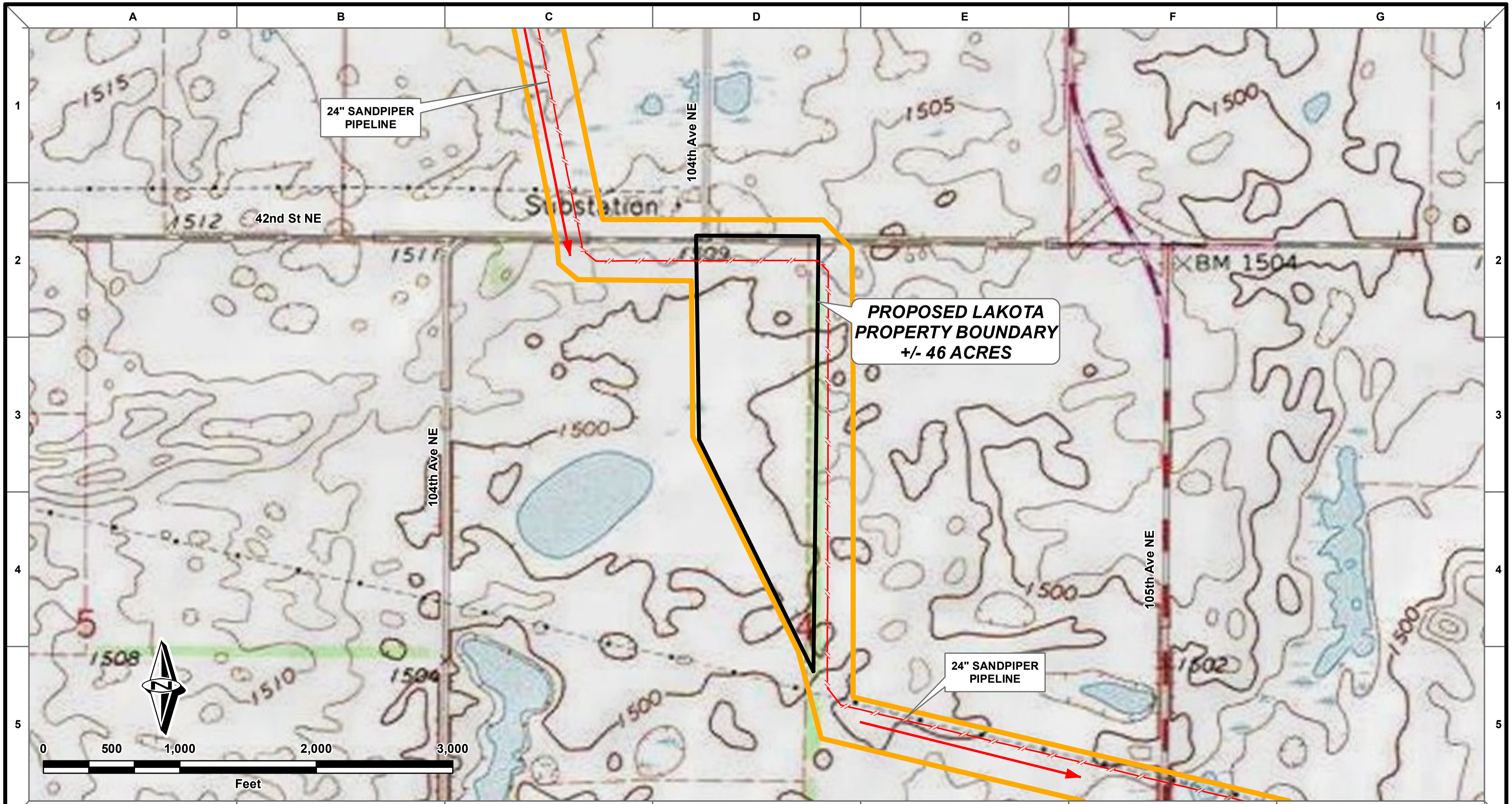
LAKOTA STATION

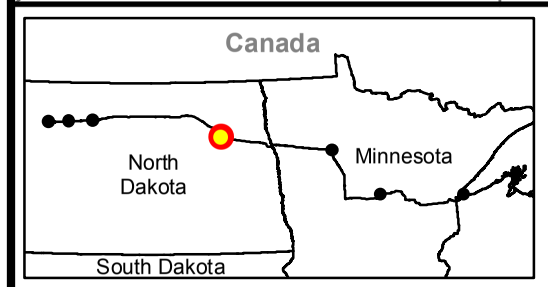
T152N, R60W, SECTION 4, NELSON COUNTY, ND

DRAWN:	AW	CHECKED:	JPB
DATE:	10/15/13	SCALE:	AS SHOWN

2930-LKS-PSC-00010

EXHIBIT C.4





PROPOSED PIPELINES

Sandpiper

Environmental Survey Area

Property Boundary

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
AW	JPB	JRW	10/15/13	4	REISSUED FOR PERMITS
AW	JPB	JRW	10/09/13	3	REISSUED FOR PERMITS
AW	JPB	JRW	09/20/13	2	REISSUED FOR PERMITS
AW	JPB	JRW	08/23/13	1	REISSUED FOR PERMITS
AW	JPB	JRW	07/31/13	0	ISSUED FOR PERMITS

PREPARED BY:
ROONEY ENGINEERING, INC.
CENTENNIAL, COLORADO
303-792-5911

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC

SANDPIPER PIPELINE PROJECT

LAKOTA STATION

T152N, R60W, SECTION 4, NELSON COUNTY, ND

DRAWN:	AW	CHECKED:	JPB
DATE:	10/15/13	SCALE:	AS SHOWN

2930-LKS-PSC-00020

EXISTING SUBSTATION

DRAINAGE DITCH

104th AVE

42nd St NE

DRAINAGE DITCH

SUBSTATION (BY OTHERS)

SWITCHYARD (BY ENBRIDGE)

MAINTENANCE BUILDING

STORAGE BUILDING

24" SANDPIPER PIPELINE FROM BERTHOLD

SECONDARY CONTAINMENT BERM

LEAK DETECTION METERS

ESB

VFD 'S

MAINLINE PUMPS

RECEIVER

LAUNCHER

SUMP

PUMP SHELTER

24" SANDPIPER PIPELINE TO CLEARBROOK

LEGEND

- SANDPIPER PIPELINE PROJECT (ABOVE GRADE)
- SANDPIPER PIPELINE PROJECT (BELOW GRADE)
- PROPERTY BOUNDARY
- EXISTING
- CHAINLINK FENCELINE

50' 0' 50' 100'

SCALE: 1"=50'

NO	REVISION	DATE	APPR	BY
3	REISSUED FOR PERMITS	10/09/13	JRW	NAR
2	REISSUED FOR PERMITS	09/20/13	JRW	JRH
1	REISSUED FOR PERMITS	08/23/13	JRW	JRH
0	ISSUED FOR PERMITS	07/31/13	JRW	JRH

ENBRIDGE® PIPELINES (NORTH DAKOTA) LLC

LAKOTA (ND) STATION

ND PSC SUBMITTAL
SANDPIPER PIPELINE PROJECT
PLOT PLAN

PROJECT: 02930 – SANDPIPER PIPELINE PROJECT		
SCALE: AS NOTED	DATE: 06/26/13	DRAWN: JRH
CHECK: JPB	APPR: JRW	DATE: 10/09/13

DWG. NO. 2930-LKS-PSC-00030 REV 3

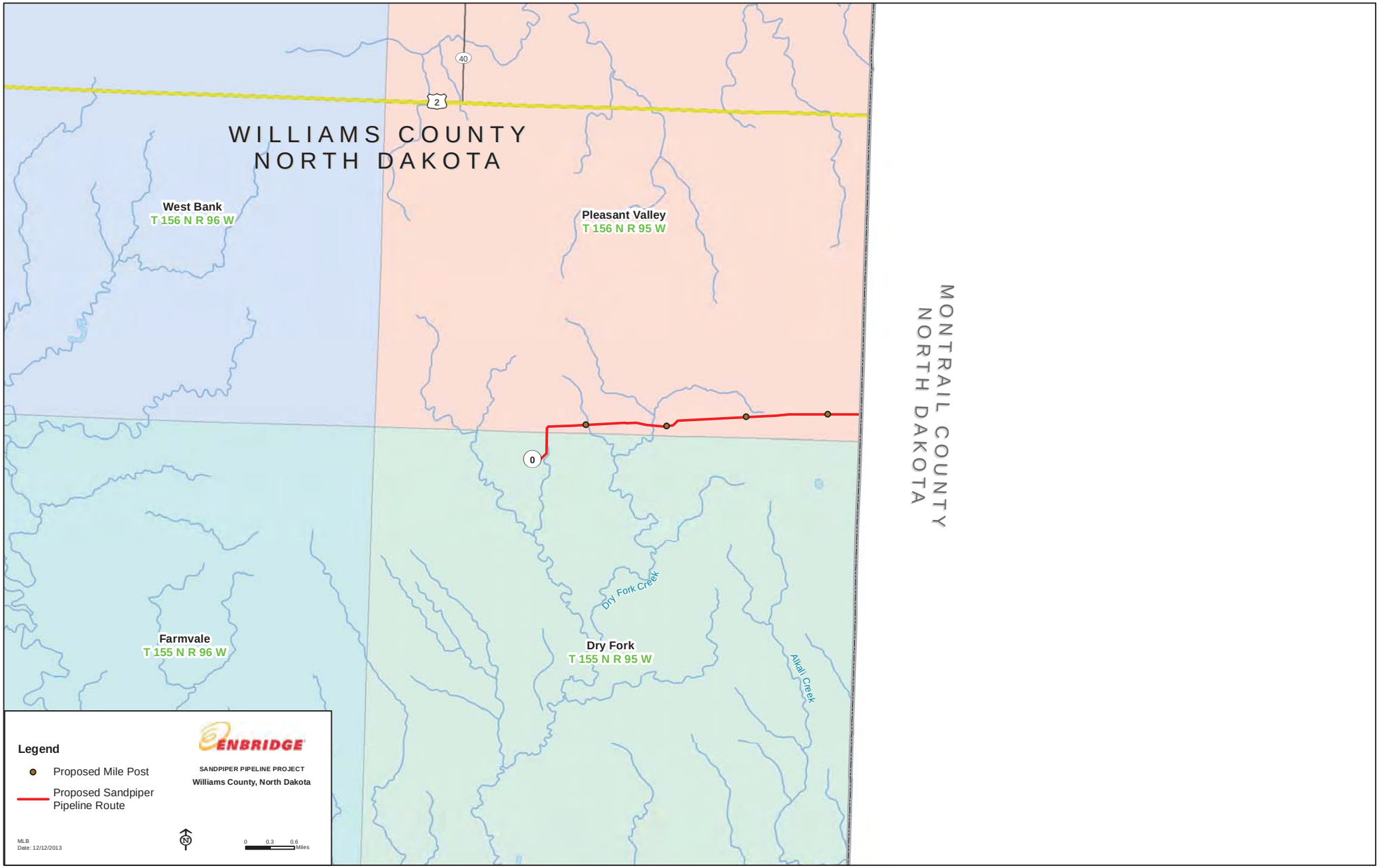
Rooney Engineering, Inc.
12201 E. Arapahoe Rd.
Centennial, CO 80112
(303) 792-5911

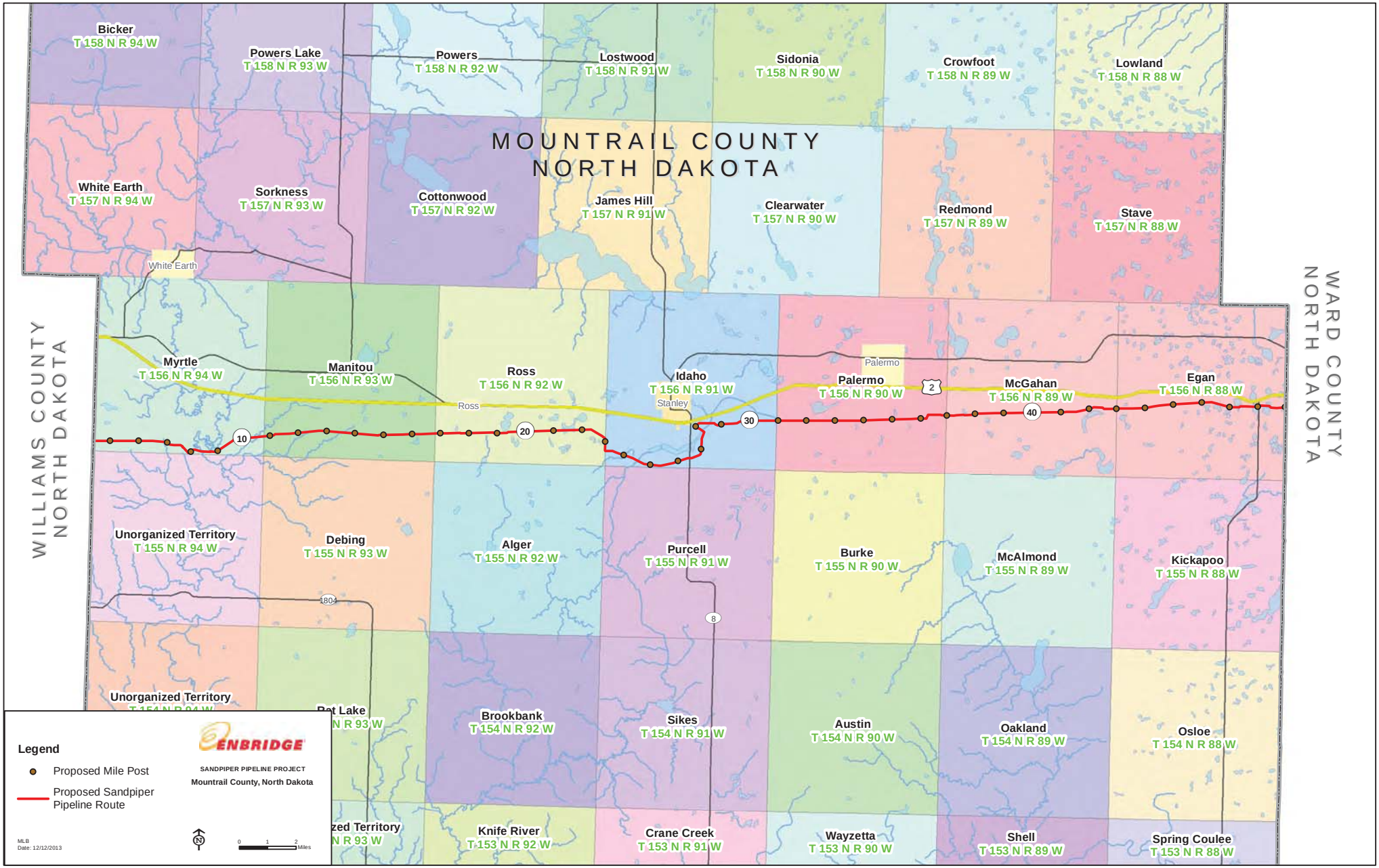
C:\pwworking\rei\dms017651\2930-LKS-PSC-00030.dwg Nicholas.reichard 10/9/2013 12:13:36 PM

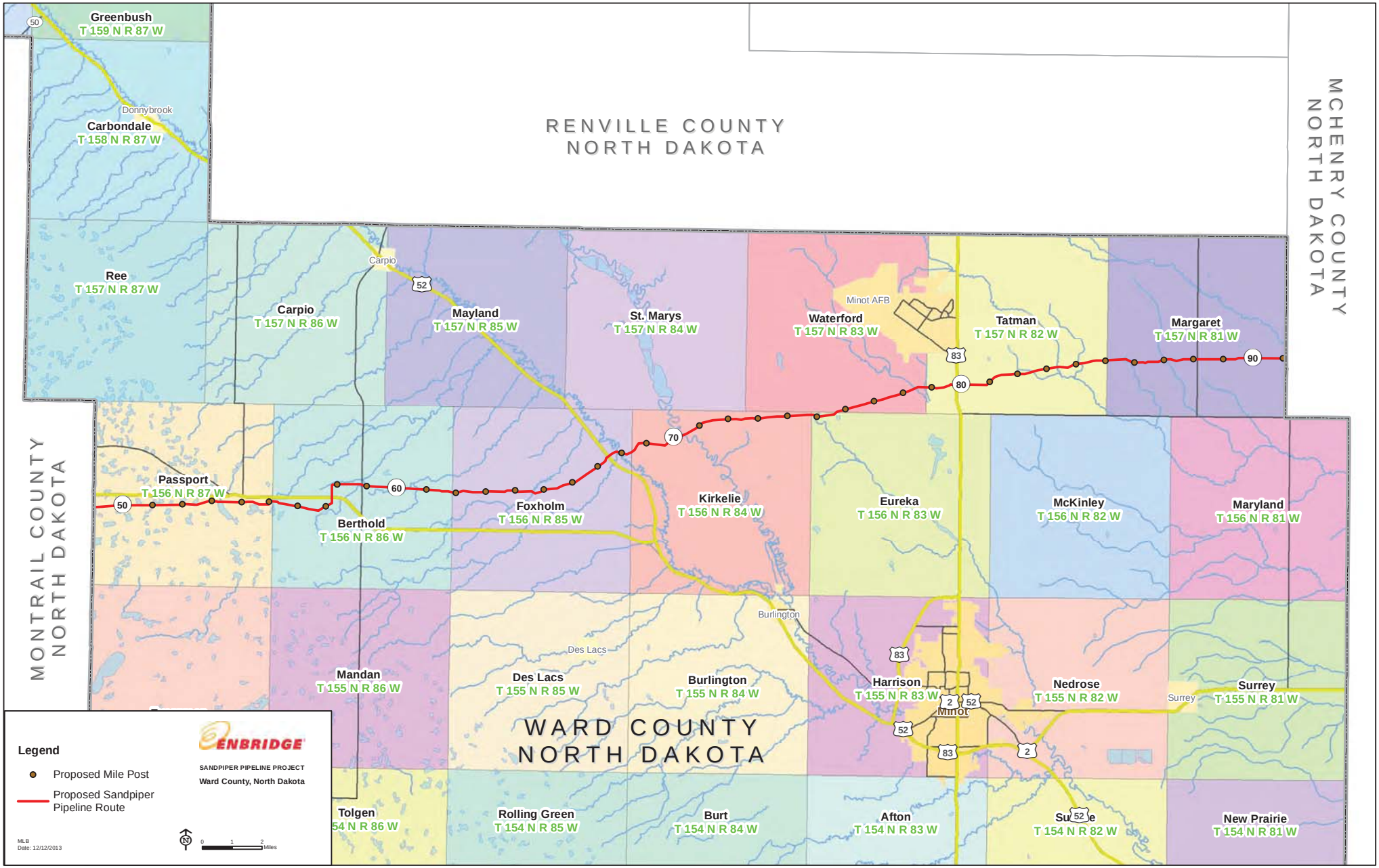
Exhibit D

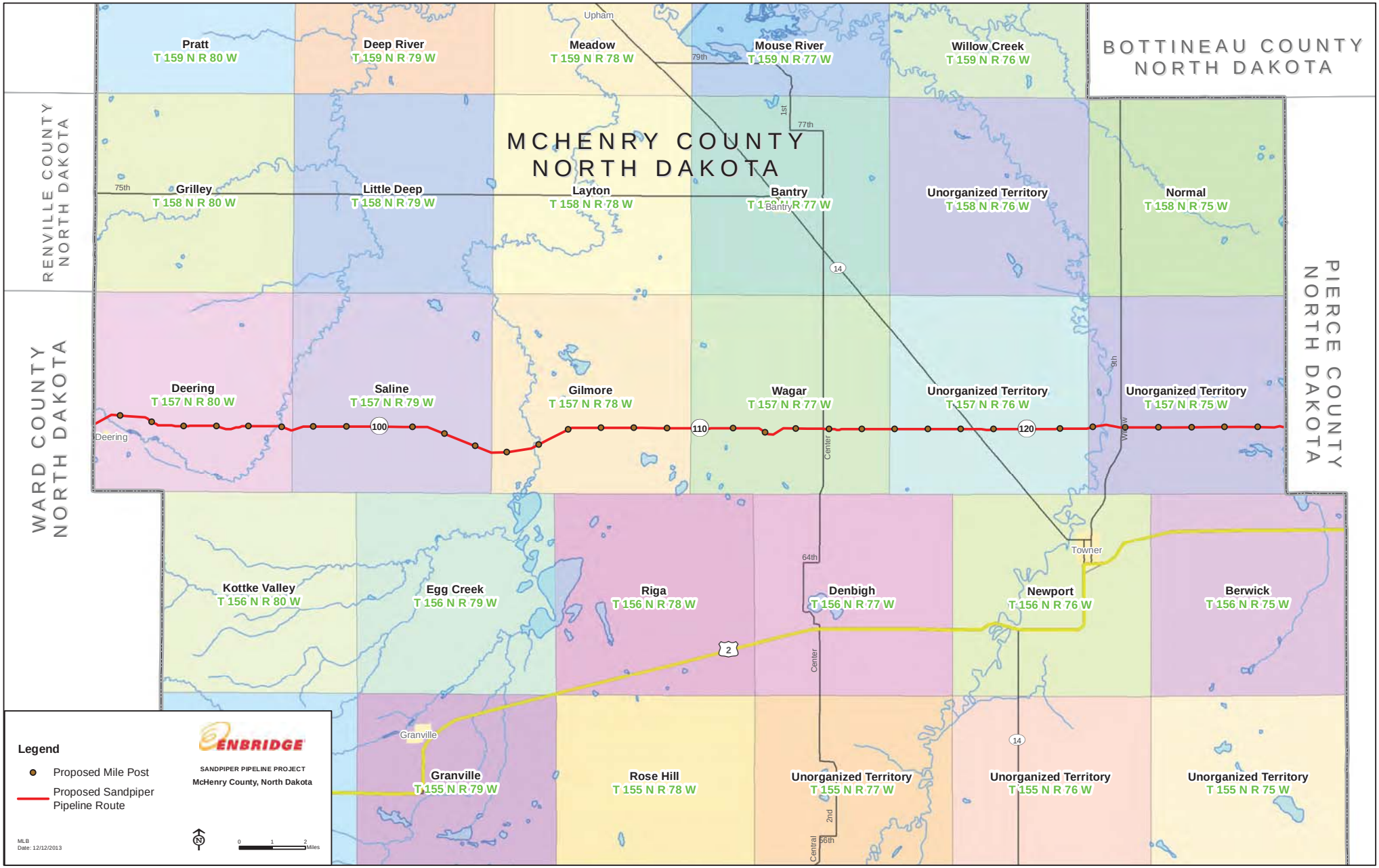
CANADA
Towner
Ramsey
Nelson
Grand Forks
Ward
McHenry
Pierce
Mountrail
Williams
Beaver Lodge
Berthold
Minot AFB
Minot
Rugby
Devils Lake
Lakota
Grafton
Emerado
Grand Forks
Stanley
Beulah
Bismarck
Enbridge Pipelines - North Dakota (EPND) System
Enbridge Energy Partners System
0
50
100
150
200
250
300
2
281
32
83
94
29
Legend
New Sandpiper Pump Station at Existing Enbridge Facility
New Sandpiper Pump Station
Proposed Mile Post
Existing Facilities
Existing Enbridge Pipelines
Preliminary Route
ENBRIDGE
NORTH DAKOTA STATE
SANDPIPER PRELIMINARY ROUTE MAP
N
0 5 10
Miles
MLB
Date: 12/12/2013

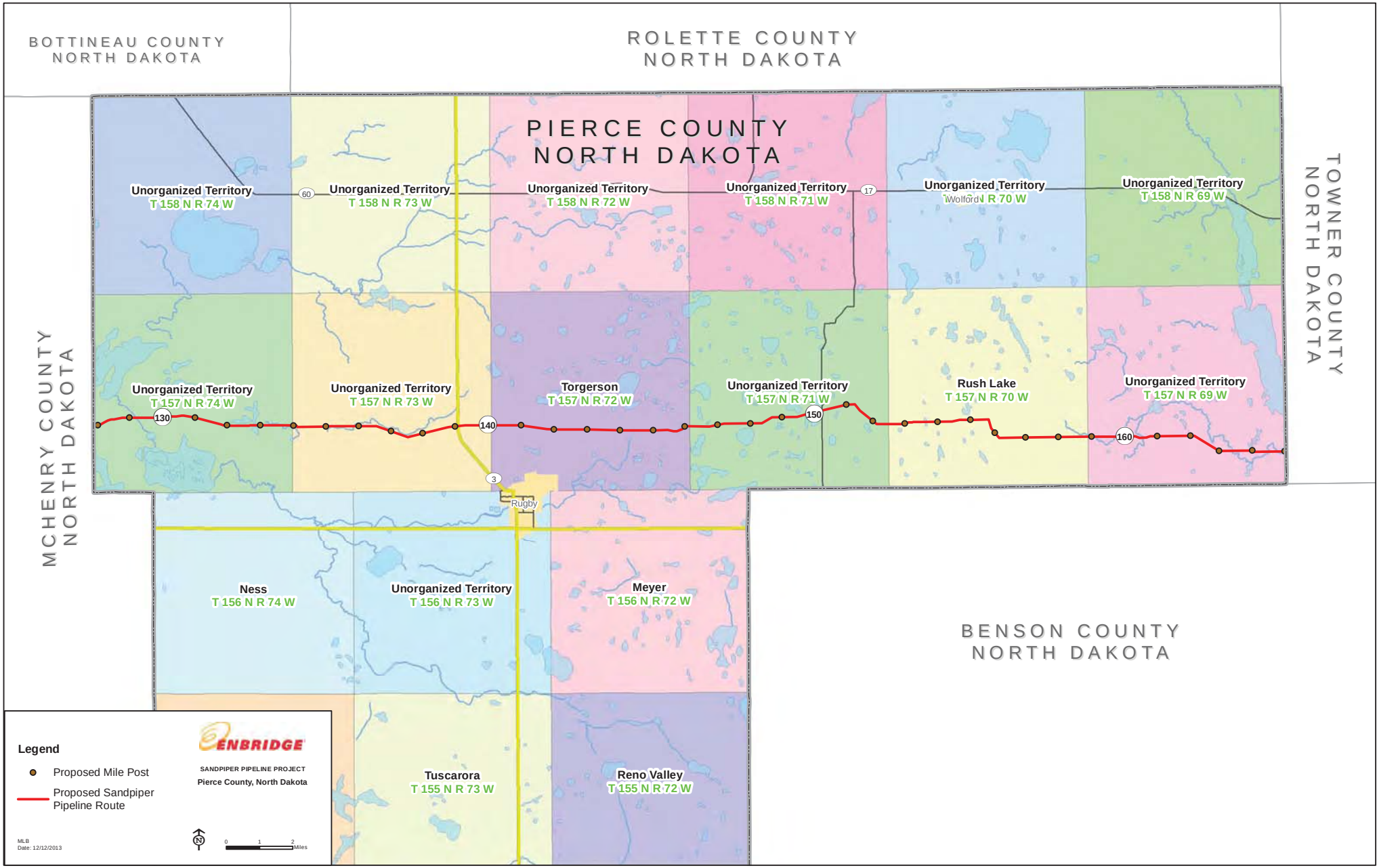
County Maps

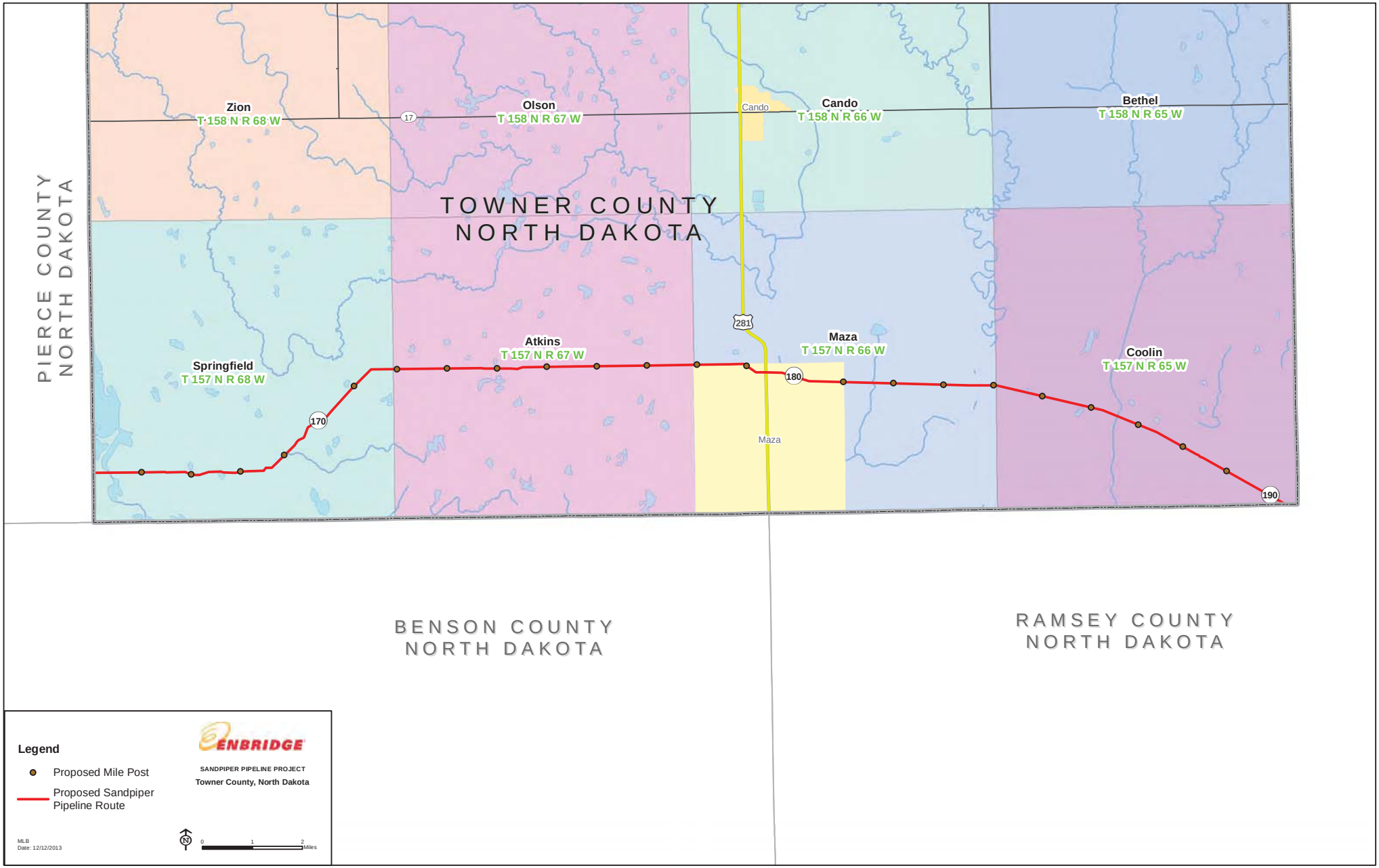

WILLIAMS COUNTY
NORTH DAKOTA
MONTRAIL COUNTY
NORTH DAKOTA
West Bank
T 156 N R 96 W
Pleasant Valley
T 156 N R 95 W
Farmvale
T 155 N R 96 W
Dry Fork
T 155 N R 95 W
Dry Fork Creek
Alkali Creek
40
2
0
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Williams County, North Dakota
MLB
Date: 12/12/2013
0 0.3 0.6 Miles

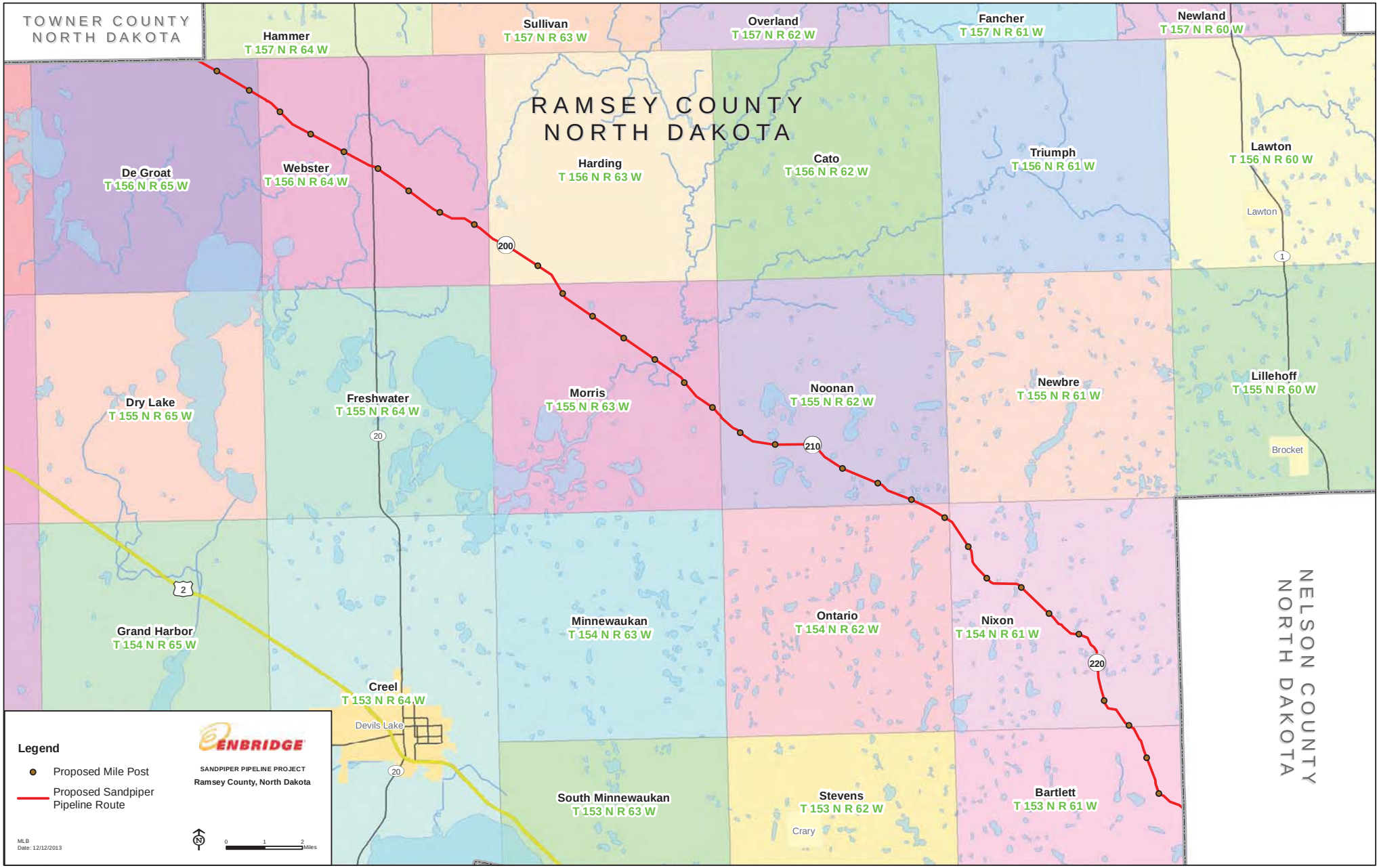

MOUNTRAIL COUNTY
NORTH DAKOTA
WILLIAMS COUNTY
NORTH DAKOTA
WARD COUNTY
NORTH DAKOTA
Bicker
T 158 N R 94 W
Powers Lake
T 158 N R 93 W
Powers
T 158 N R 92 W
Lostwood
T 158 N R 91 W
Sidonia
T 158 N R 90 W
Crowfoot
T 158 N R 89 W
Lowland
T 158 N R 88 W
White Earth
T 157 N R 94 W
Sorkness
T 157 N R 93 W
Cottonwood
T 157 N R 92 W
James Hill
T 157 N R 91 W
Clearwater
T 157 N R 90 W
Redmond
T 157 N R 89 W
Stave
T 157 N R 88 W
White Earth
Myrtle
T 156 N R 94 W
Manitou
T 156 N R 93 W
Ross
T 156 N R 92 W
Idaho
T 156 N R 91 W
Stanley
Palermo
Palermo
T 156 N R 90 W
McGahan
T 156 N R 89 W
Egan
T 156 N R 88 W
Ross
10
20
30
2
40
Unorganized Territory
T 155 N R 94 W
Debing
T 155 N R 93 W
Alger
T 155 N R 92 W
Purcell
T 155 N R 91 W
Burke
T 155 N R 90 W
McAlmond
T 155 N R 89 W
Kickapoo
T 155 N R 88 W
1804
8
Unorganized Territory
Pat Lake
N R 93 W
Brookbank
T 154 N R 92 W
Sikes
T 154 N R 91 W
Austin
T 154 N R 90 W
Oakland
T 154 N R 89 W
Osloe
T 154 N R 88 W
zed Territory
N R 93 W
Knife River
T 153 N R 92 W
Crane Creek
T 153 N R 91 W
Wayzetta
T 153 N R 90 W
Shell
T 153 N R 89 W
Spring Coulee
T 153 N R 88 W
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Mountrail County, North Dakota
MLB
Date: 12/12/2013
0 1 2 Miles

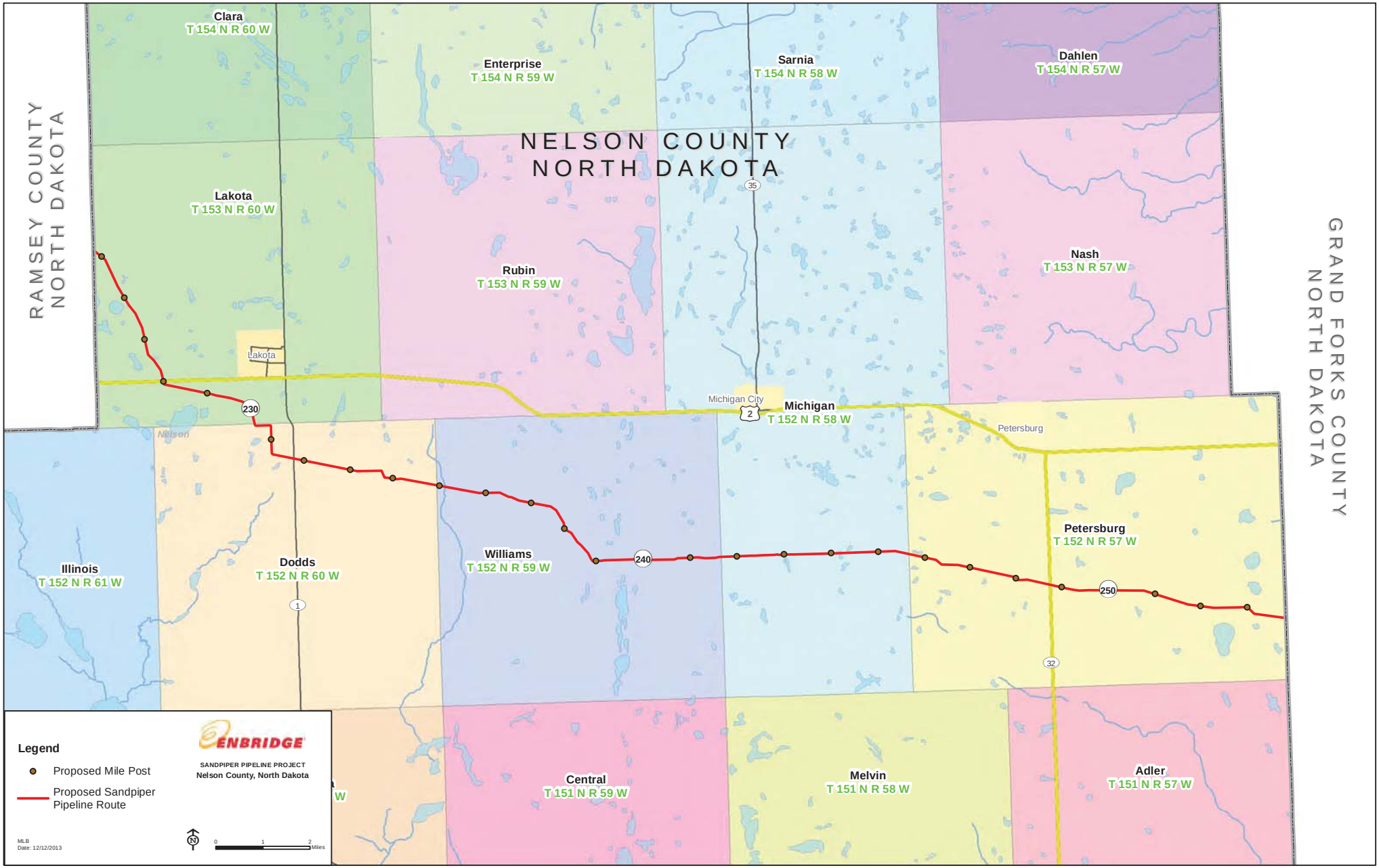

Greenbush
T 159 N R 87 W
Donnybrook
Carbondale
T 158 N R 87 W
RENVILLE COUNTY
NORTH DAKOTA
MCHENRY COUNTY
NORTH DAKOTA
Carpio
Ree
T 157 N R 87 W
Carpio
T 157 N R 86 W
Mayland
T 157 N R 85 W
St. Marys
T 157 N R 84 W
Minot AFB
Waterford
T 157 N R 83 W
Tatman
T 157 N R 82 W
Margaret
T 157 N R 81 W
MONTRAIL COUNTY
NORTH DAKOTA
Passport
T 156 N R 87 W
Berthold
T 156 N R 86 W
Foxholm
T 156 N R 85 W
Kirkelie
T 156 N R 84 W
Eureka
T 156 N R 83 W
McKinley
T 156 N R 82 W
Maryland
T 156 N R 81 W
Burlington
Des Lacs
Mandan
T 155 N R 86 W
Des Lacs
T 155 N R 85 W
Burlington
T 155 N R 84 W
Harrison
T 155 N R 83 W
Minot
Nedrose
T 155 N R 82 W
Surrey
Surrey
T 155 N R 81 W
WARD COUNTY
NORTH DAKOTA
Tolgen
54 N R 86 W
Rolling Green
T 154 N R 85 W
Burt
T 154 N R 84 W
Afton
T 154 N R 83 W
Su e
T 154 N R 82 W
New Prairie
T 154 N R 81 W
Legend
Proposed Mile Post
Proposed Sandpiper
Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Ward County, North Dakota
MLB
Date: 12/12/2013
0 1 2
Miles

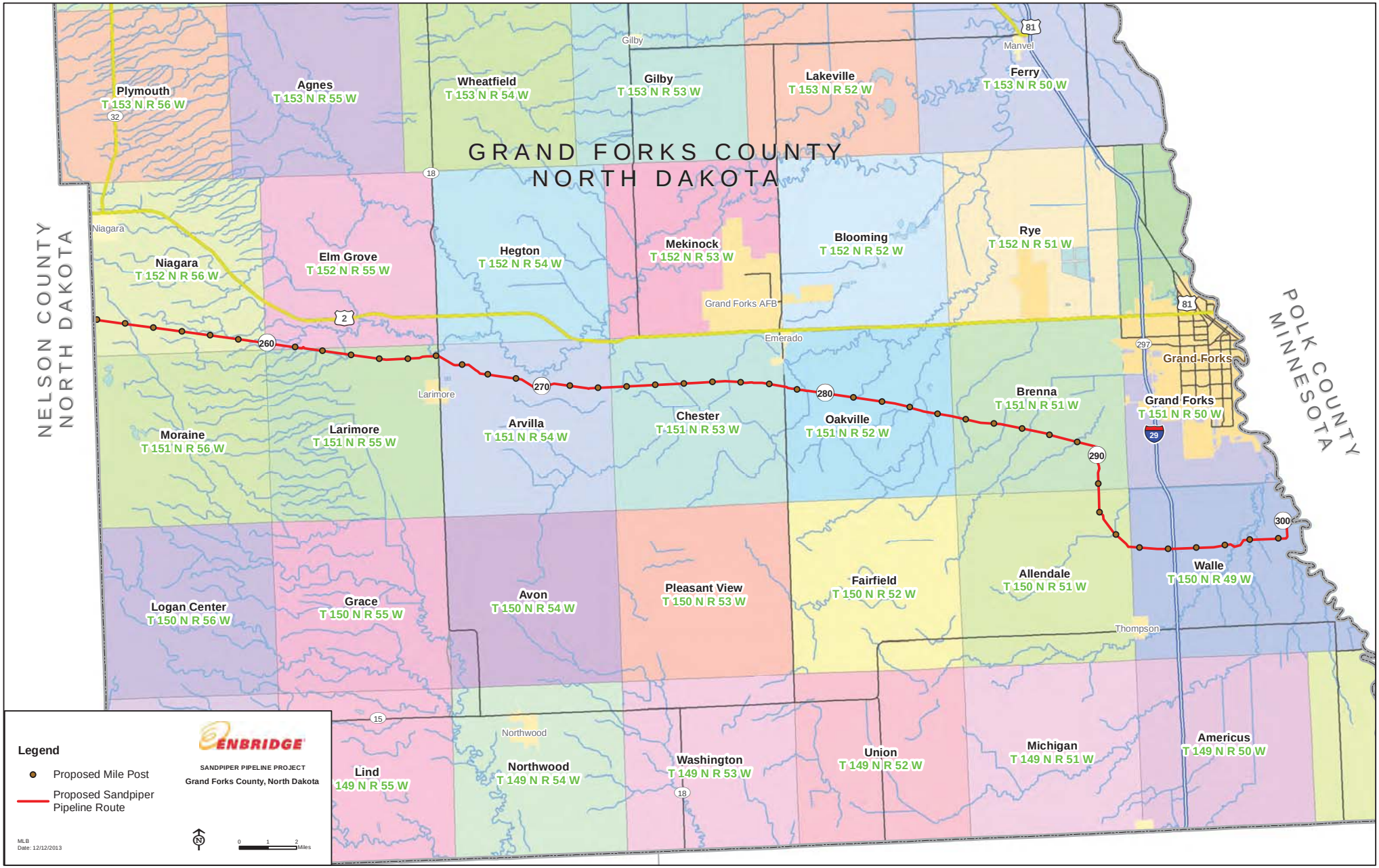

BOTTINEAU COUNTY
NORTH DAKOTA
RENVILLE COUNTY
NORTH DAKOTA
WARD COUNTY
NORTH DAKOTA
PIERCE COUNTY
NORTH DAKOTA
MCHENRY COUNTY
NORTH DAKOTA
Pratt
T 159 N R 80 W
Deep River
T 159 N R 79 W
Meadow
T 159 N R 78 W
Mouse River
T 159 N R 77 W
Willow Creek
T 159 N R 76 W
Grilley
T 158 N R 80 W
Little Deep
T 158 N R 79 W
Layton
T 158 N R 78 W
Bantry
T 158 N R 77 W
Unorganized Territory
T 158 N R 76 W
Normal
T 158 N R 75 W
Deering
T 157 N R 80 W
Saline
T 157 N R 79 W
Gilmore
T 157 N R 78 W
Wagar
T 157 N R 77 W
Unorganized Territory
T 157 N R 76 W
Unorganized Territory
T 157 N R 75 W
Kottke Valley
T 156 N R 80 W
Egg Creek
T 156 N R 79 W
Riga
T 156 N R 78 W
Denbigh
T 156 N R 77 W
Newport
T 156 N R 76 W
Berwick
T 156 N R 75 W
Granville
T 155 N R 79 W
Rose Hill
T 155 N R 78 W
Unorganized Territory
T 155 N R 77 W
Unorganized Territory
T 155 N R 76 W
Unorganized Territory
T 155 N R 75 W
Upham
79th
1st
77th
75th
Bantry
14
Deering
100
110
120
Center
9th
Willow
Towner
64th
2
Granville
2nd
56th
Central
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
McHenry County, North Dakota
MLB
Date: 12/12/2013
0 1 2 Miles


BOTTINEAU COUNTY
NORTH DAKOTA
ROLETTE COUNTY
NORTH DAKOTA
PIERCE COUNTY
NORTH DAKOTA
TOWNER COUNTY
NORTH DAKOTA
MCHENRY COUNTY
NORTH DAKOTA
BENSON COUNTY
NORTH DAKOTA
Unorganized Territory
T 158 N R 74 W
Unorganized Territory
T 158 N R 73 W
Unorganized Territory
T 158 N R 72 W
Unorganized Territory
T 158 N R 71 W
Unorganized Territory
T 158 N R 70 W
Unorganized Territory
T 158 N R 69 W
Unorganized Territory
T 157 N R 74 W
Unorganized Territory
T 157 N R 73 W
Torgerson
T 157 N R 72 W
Unorganized Territory
T 157 N R 71 W
Rush Lake
T 157 N R 70 W
Unorganized Territory
T 157 N R 69 W
Ness
T 156 N R 74 W
Unorganized Territory
T 156 N R 73 W
Meyer
T 156 N R 72 W
Tuscarora
T 155 N R 73 W
Reno Valley
T 155 N R 72 W
Rugby
60
17
130
140
150
160
3
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Pierce County, North Dakota
MLB
Date: 12/12/2013
0
1
2
Miles

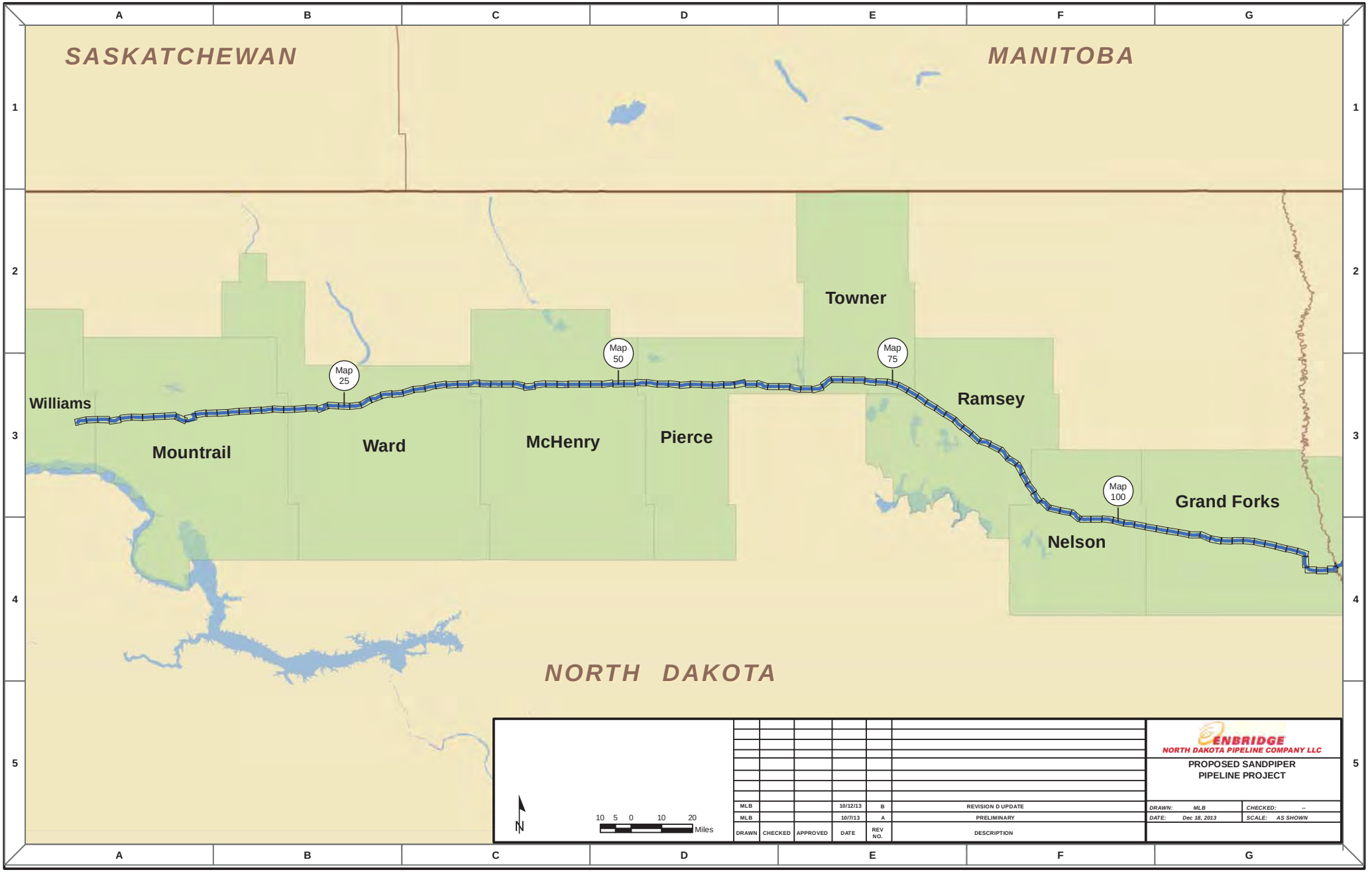

PIERCE COUNTY
NORTH DAKOTA
TOWNER COUNTY
NORTH DAKOTA
Zion
T 158 N R 68 W
Olson
T 158 N R 67 W
Cando
T 158 N R 66 W
Bethel
T 158 N R 65 W
Cando
17
281
180
190
170
Springfield
T 157 N R 68 W
Atkins
T 157 N R 67 W
Maza
T 157 N R 66 W
Coolin
T 157 N R 65 W
Maza
BENSON COUNTY
NORTH DAKOTA
RAMSEY COUNTY
NORTH DAKOTA
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Towner County, North Dakota
MLB
Date: 12/12/2013
N
0
1
2
Miles


TOWNER COUNTY
NORTH DAKOTA
Hammer
T 157 N R 64 W
Sullivan
T 157 N R 63 W
Overland
T 157 N R 62 W
Fancher
T 157 N R 61 W
Newland
T 157 N R 60 W
RAMSEY COUNTY
NORTH DAKOTA
De Groat
T 156 N R 65 W
Webster
T 156 N R 64 W
Harding
T 156 N R 63 W
Cato
T 156 N R 62 W
Triumph
T 156 N R 61 W
Lawton
T 156 N R 60 W
Lawton
200
1
Dry Lake
T 155 N R 65 W
Freshwater
T 155 N R 64 W
Morris
T 155 N R 63 W
Noonan
T 155 N R 62 W
Newbre
T 155 N R 61 W
Lillehoff
T 155 N R 60 W
20
210
Brocket
2
Grand Harbor
T 154 N R 65 W
Minnewaukan
T 154 N R 63 W
Ontario
T 154 N R 62 W
Nixon
T 154 N R 61 W
220
Creel
T 153 N R 64 W
Devils Lake
20
South Minnewaukan
T 153 N R 63 W
Stevens
T 153 N R 62 W
Crary
Bartlett
T 153 N R 61 W
NELSON COUNTY
NORTH DAKOTA
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Ramsey County, North Dakota
MLB
Date: 12/12/2013
0
1
2
Miles


RAMSEY COUNTY
NORTH DAKOTA
NELSON COUNTY
NORTH DAKOTA
GRAND FORKS COUNTY
NORTH DAKOTA
Clara
T 154 N R 60 W
Enterprise
T 154 N R 59 W
Sarnia
T 154 N R 58 W
Dahlen
T 154 N R 57 W
Lakota
T 153 N R 60 W
Rubin
T 153 N R 59 W
Nash
T 153 N R 57 W
Lakota
Michigan City
Michigan
T 152 N R 58 W
Petersburg
Nelson
Illinois
T 152 N R 61 W
Dodds
T 152 N R 60 W
Williams
T 152 N R 59 W
Petersburg
T 152 N R 57 W
Central
T 151 N R 59 W
Melvin
T 151 N R 58 W
Adler
T 151 N R 57 W
35
230
2
240
250
1
32
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Nelson County, North Dakota
MLB
Date: 12/12/2013
0
1
2
Miles


GRAND FORKS COUNTY
NORTH DAKOTA
NELSON COUNTY
NORTH DAKOTA
POLK COUNTY
MINNESOTA
Plymouth
T 153 N R 56 W
Agnes
T 153 N R 55 W
Wheatfield
T 153 N R 54 W
Gilby
T 153 N R 53 W
Lakeville
T 153 N R 52 W
Ferry
T 153 N R 50 W
Niagara
T 152 N R 56 W
Elm Grove
T 152 N R 55 W
Hegton
T 152 N R 54 W
Mekinock
T 152 N R 53 W
Blooming
T 152 N R 52 W
Rye
T 152 N R 51 W
Moraine
T 151 N R 56 W
Larimore
T 151 N R 55 W
Arvilla
T 151 N R 54 W
Chester
T 151 N R 53 W
Oakville
T 151 N R 52 W
Brenna
T 151 N R 51 W
Grand Forks
T 151 N R 50 W
Logan Center
T 150 N R 56 W
Grace
T 150 N R 55 W
Avon
T 150 N R 54 W
Pleasant View
T 150 N R 53 W
Fairfield
T 150 N R 52 W
Allendale
T 150 N R 51 W
Walle
T 150 N R 49 W
Lind
149 N R 55 W
Northwood
T 149 N R 54 W
Washington
T 149 N R 53 W
Union
T 149 N R 52 W
Michigan
T 149 N R 51 W
Americus
T 149 N R 50 W
Gilby
Manvel
Niagara
Grand Forks AFB
Emerado
Grand-Forks
Larimore
Thompson
Northwood
Legend
Proposed Mile Post
Proposed Sandpiper Pipeline Route
ENBRIDGE
SANDPIPER PIPELINE PROJECT
Grand Forks County, North Dakota
MLB
Date: 12/12/2013
0 1 2 Miles

Route Maps

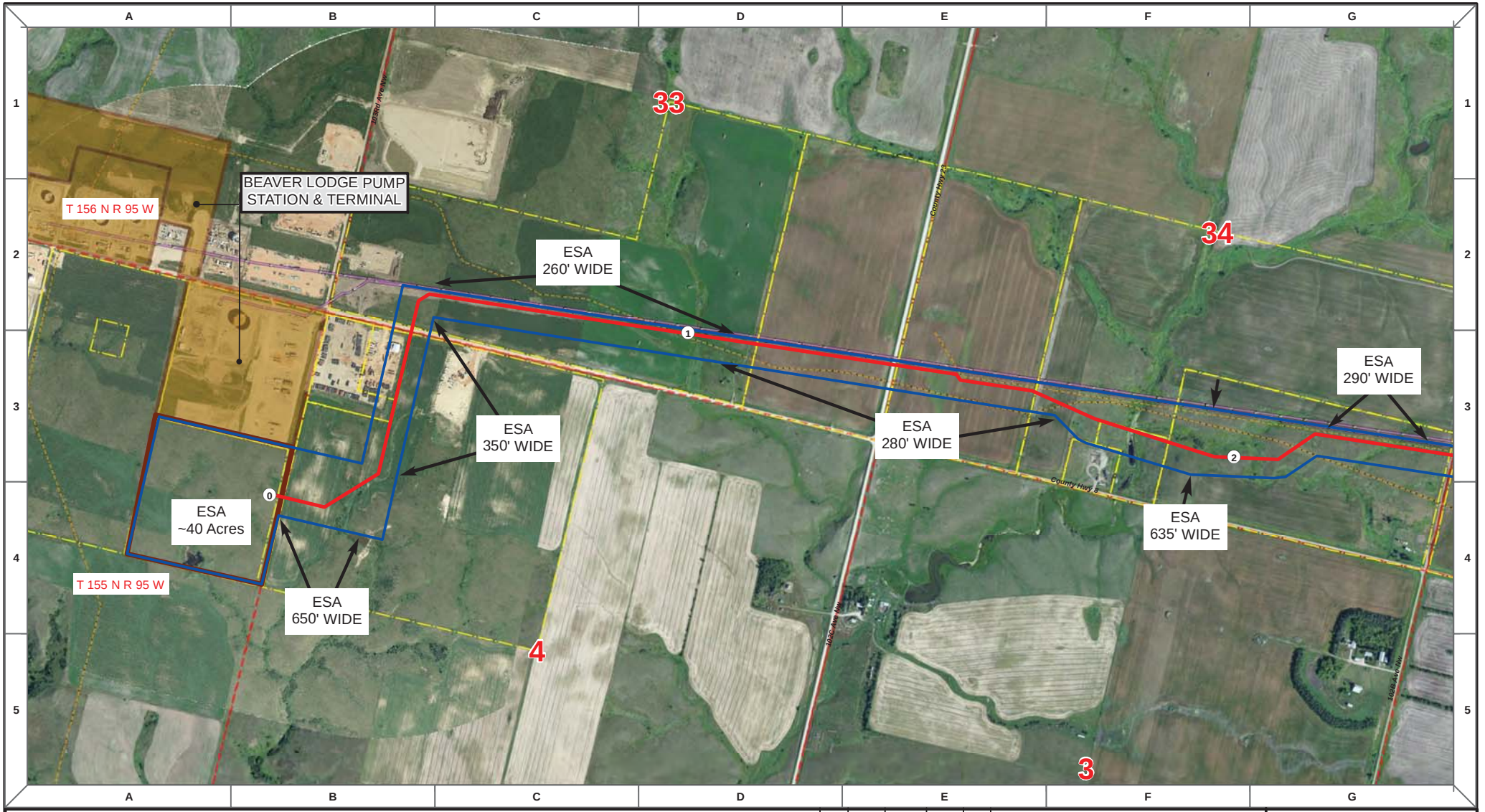


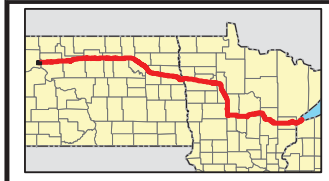
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			10/12/13	B	REVISION D UPDATE
MLB			10/7/13	A	PRELIMINARY

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

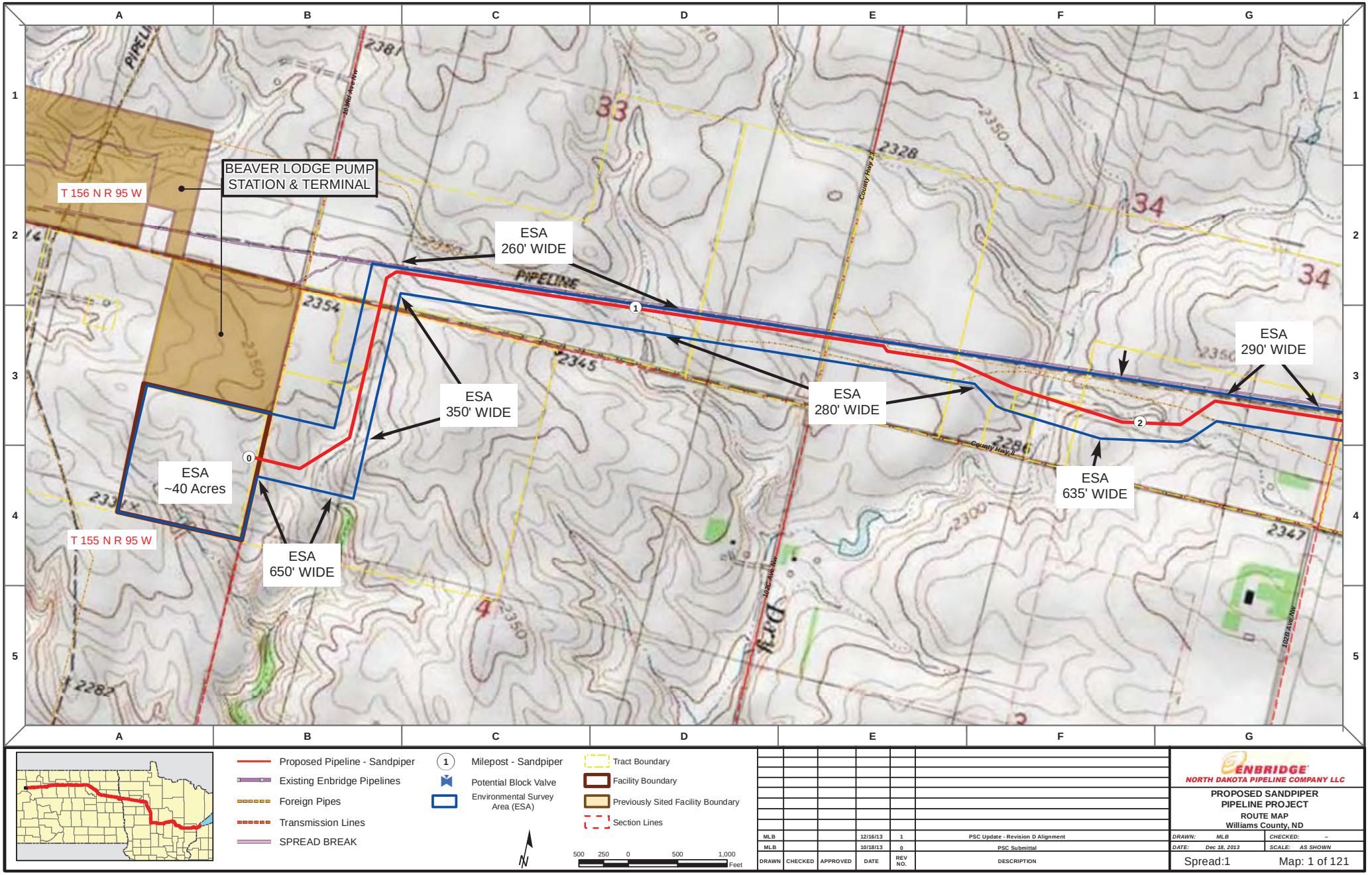
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Williams County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 1 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

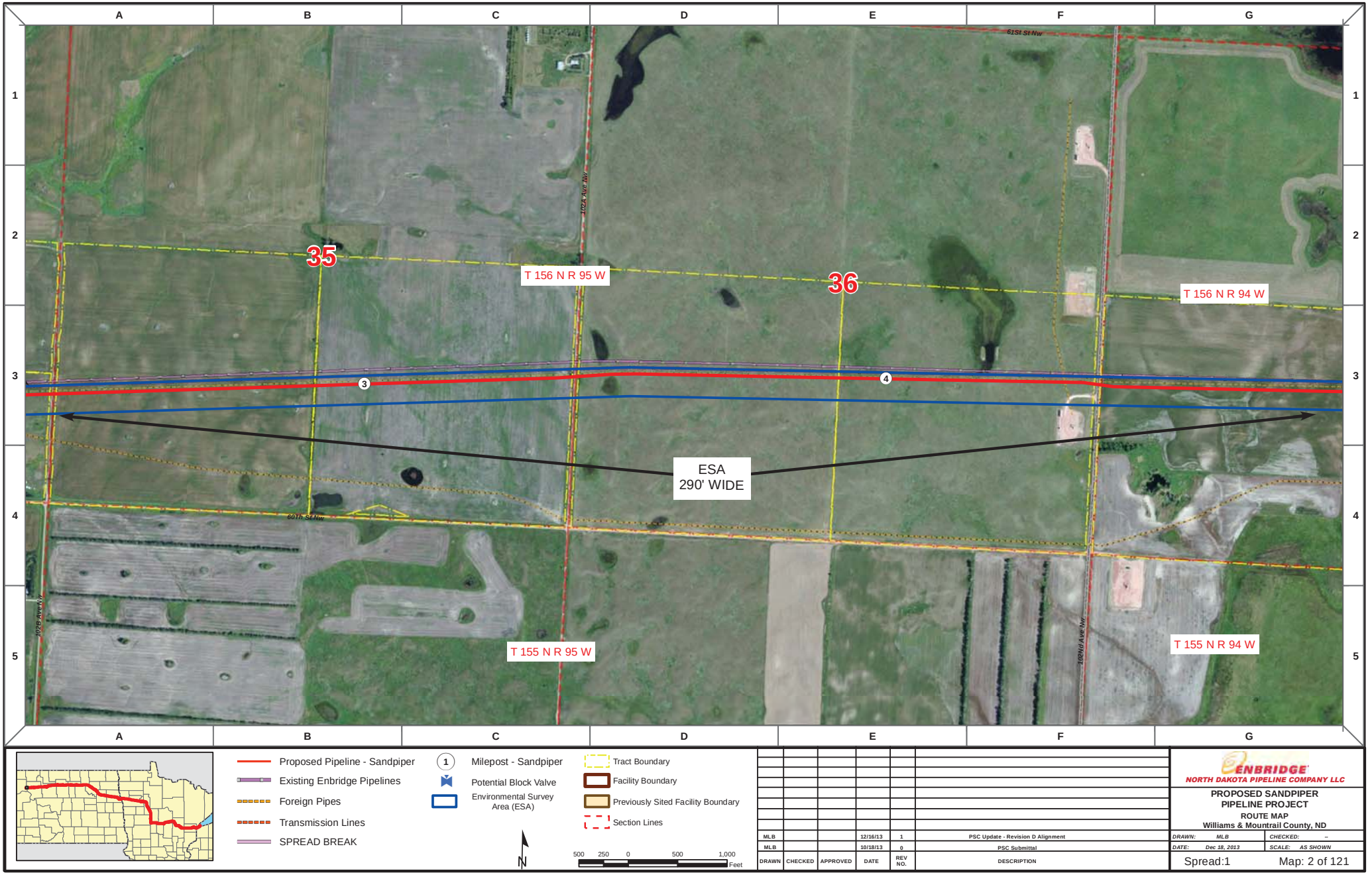
ROUTE MAP

Williams County, ND

DRAWN: MLB | CHECKED: --

DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 1 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

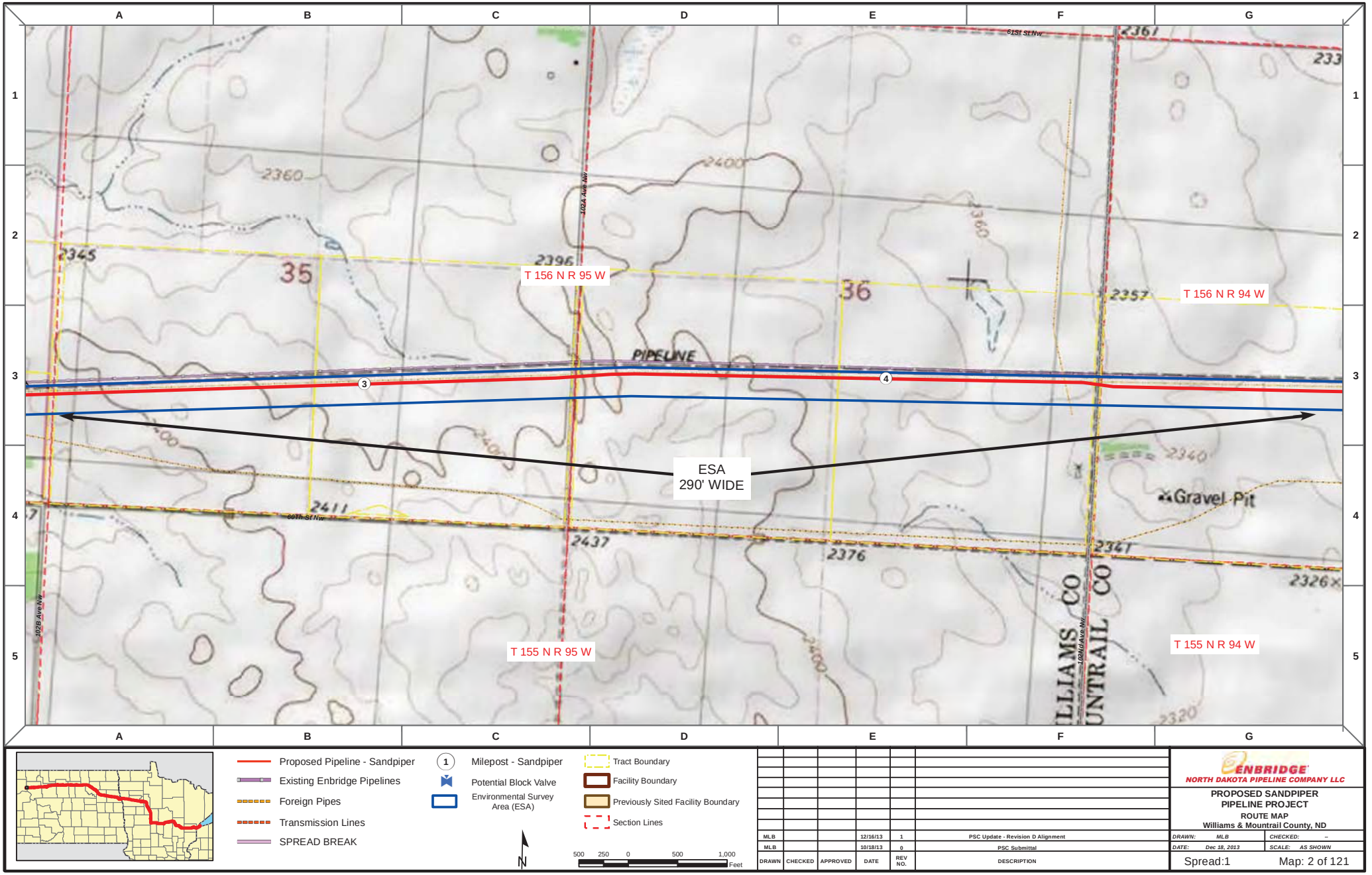
ROUTE MAP

Williams & Mountrail County, ND

DRAWN: MLB | CHECKED: --

DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 2 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

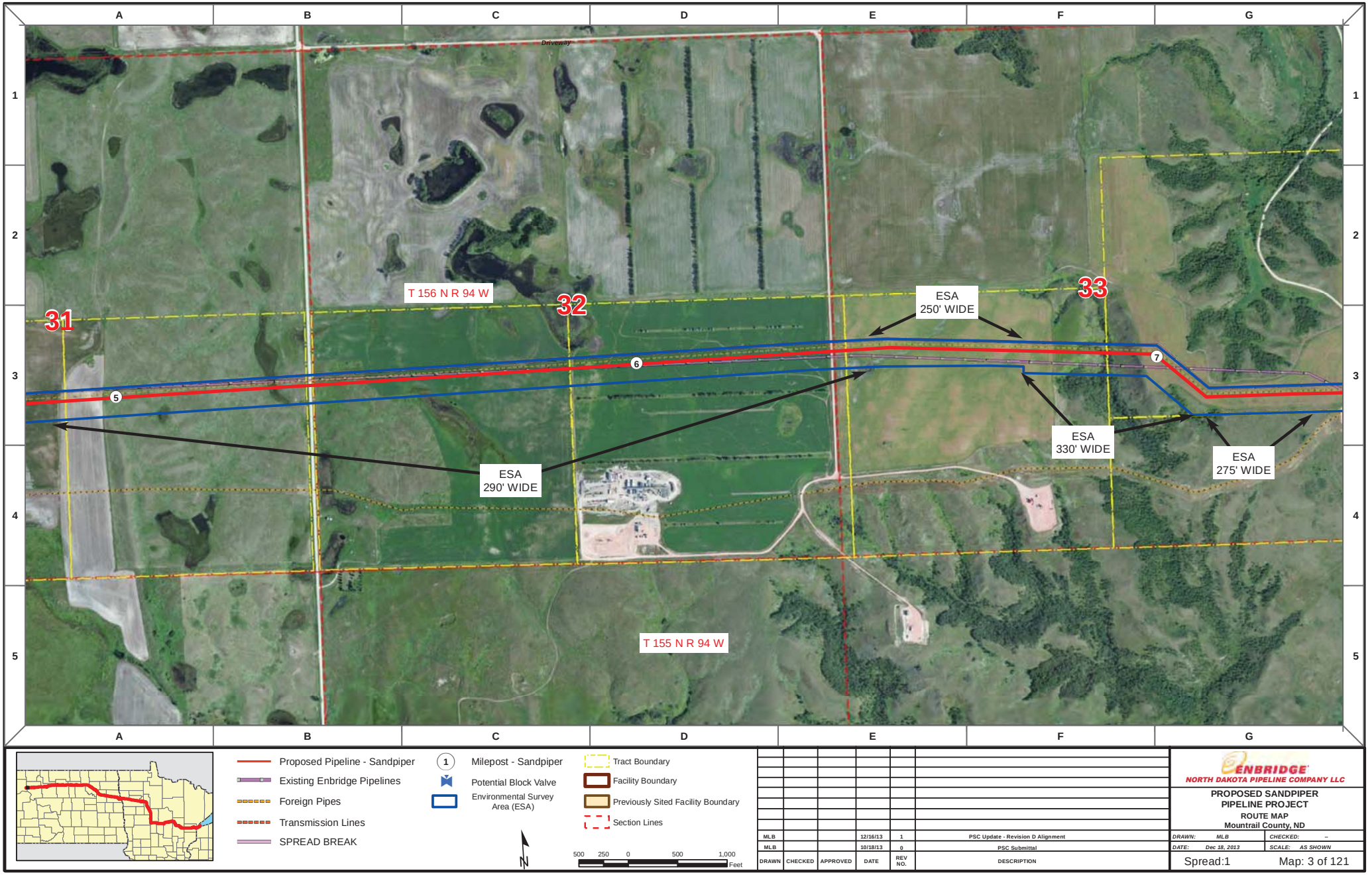
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Williams & Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 2 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

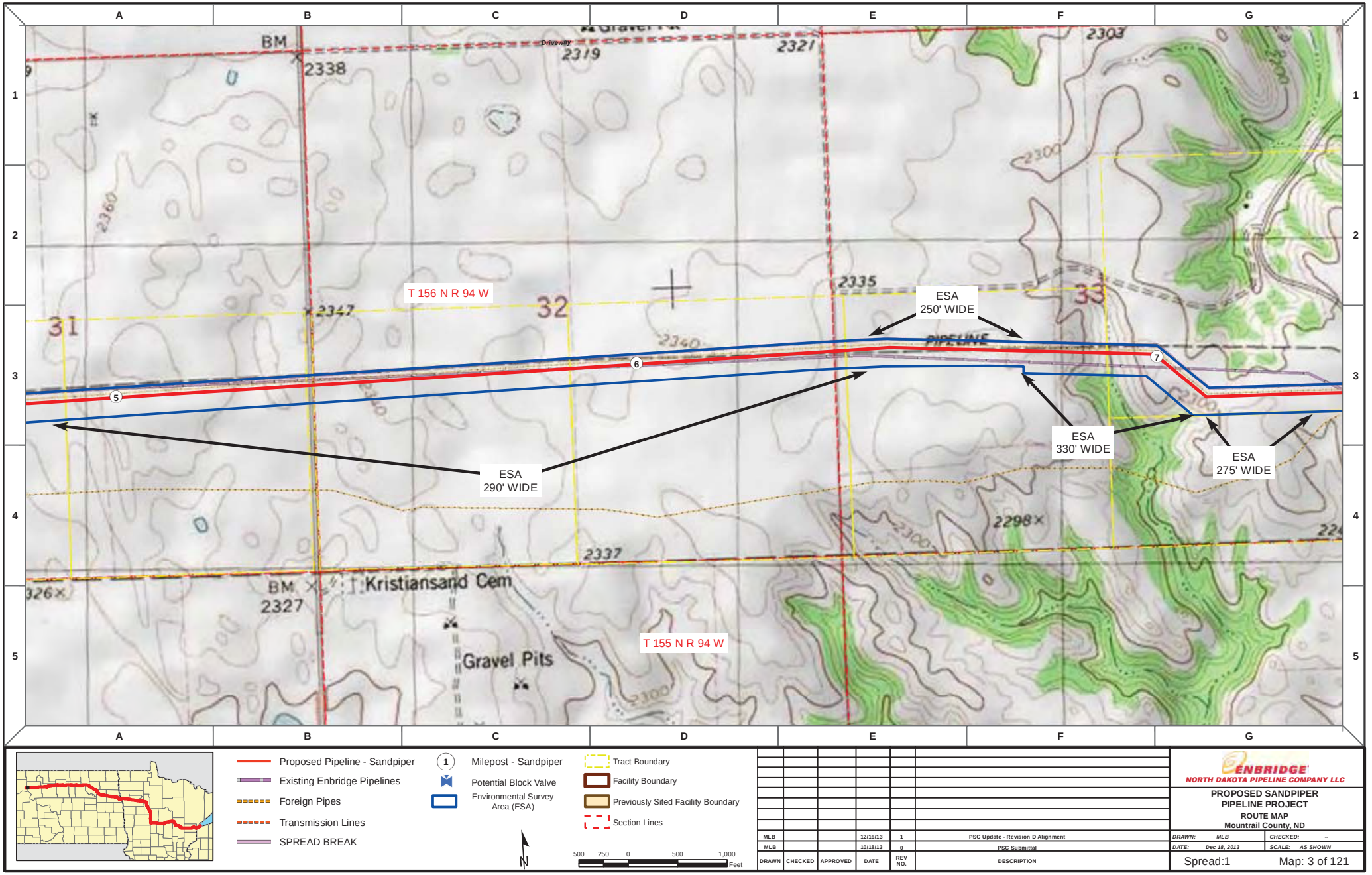
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 3 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

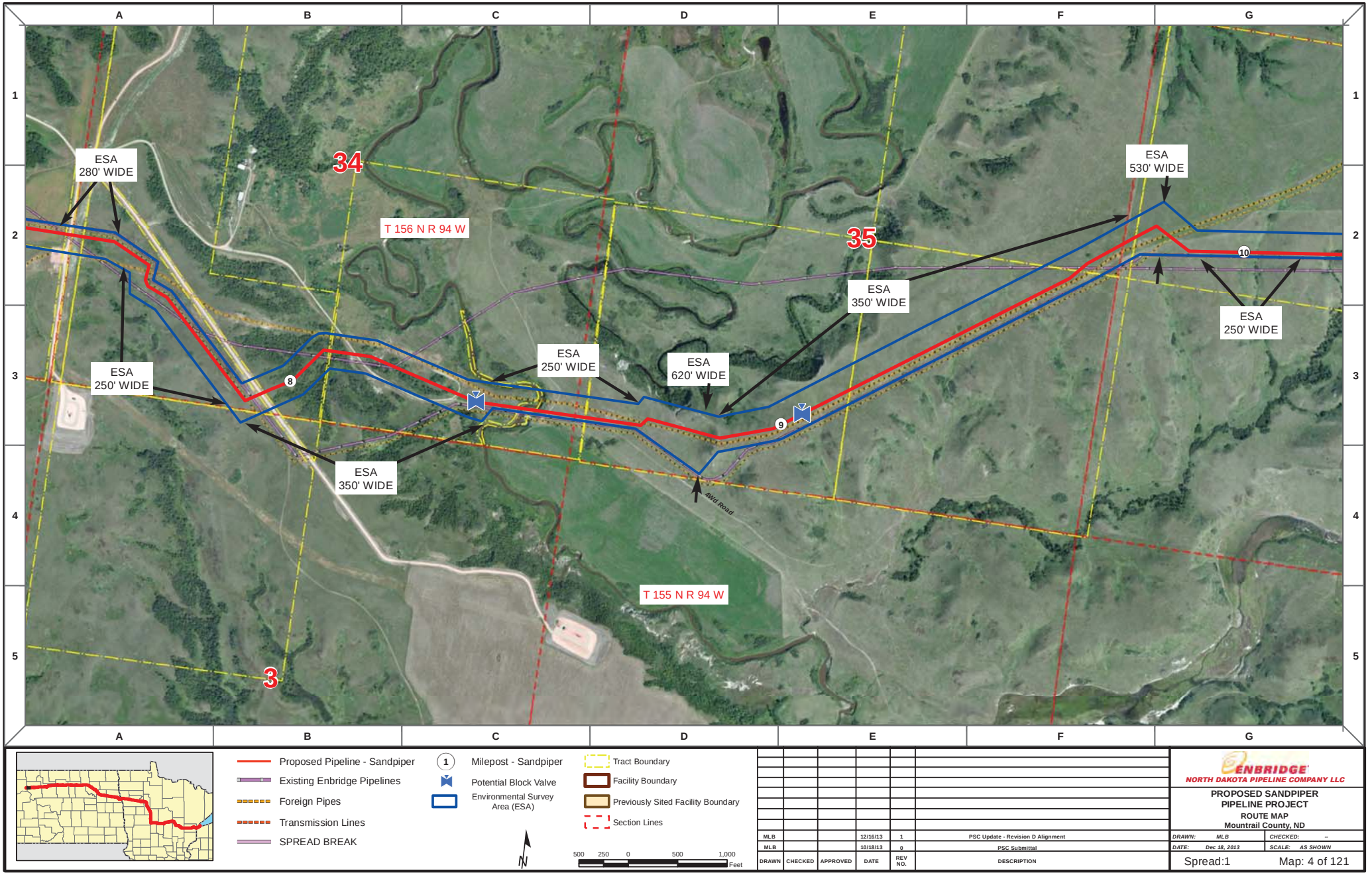
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 3 of 121



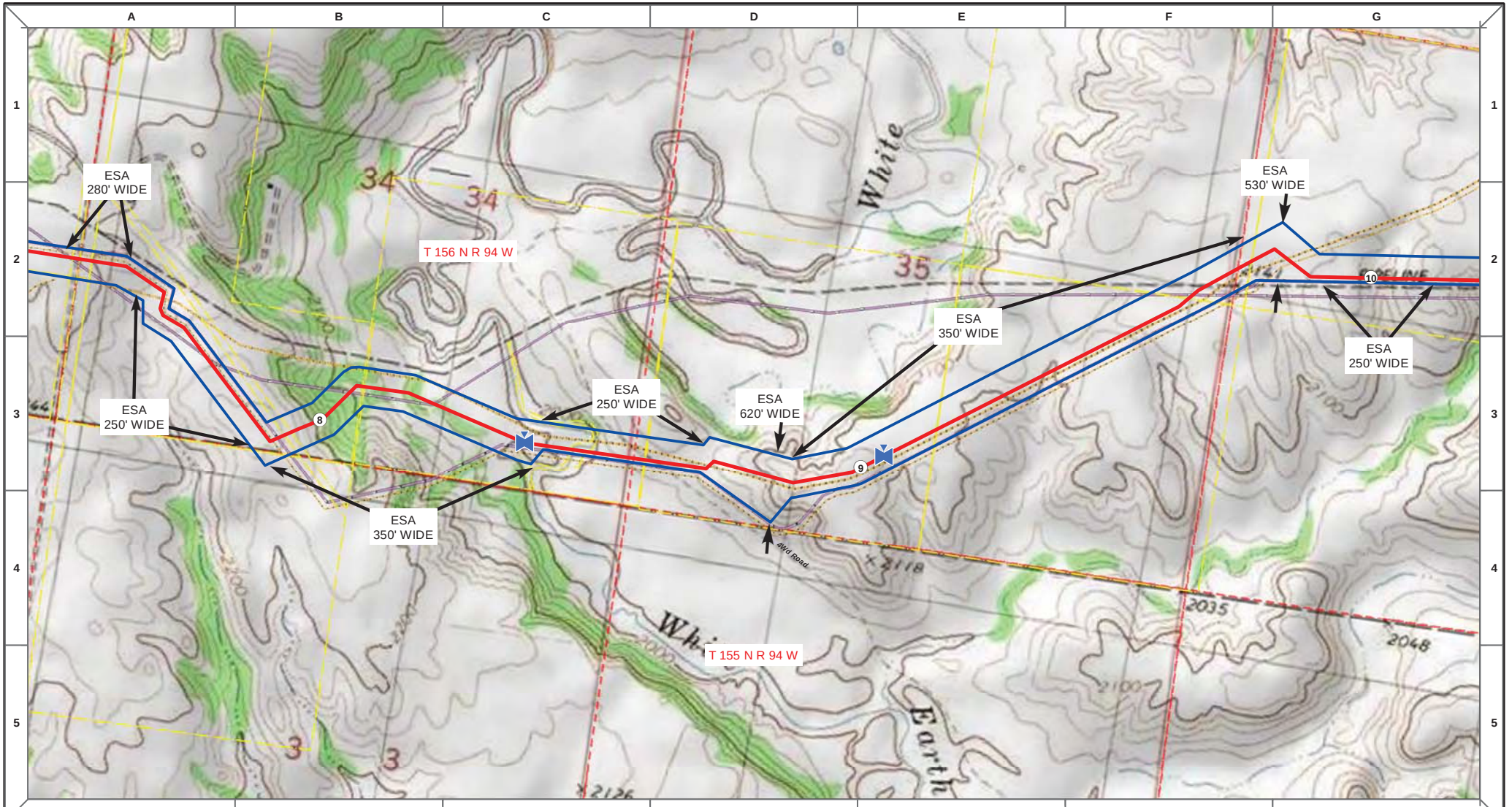
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

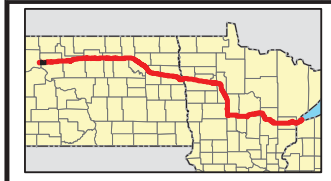
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 4 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

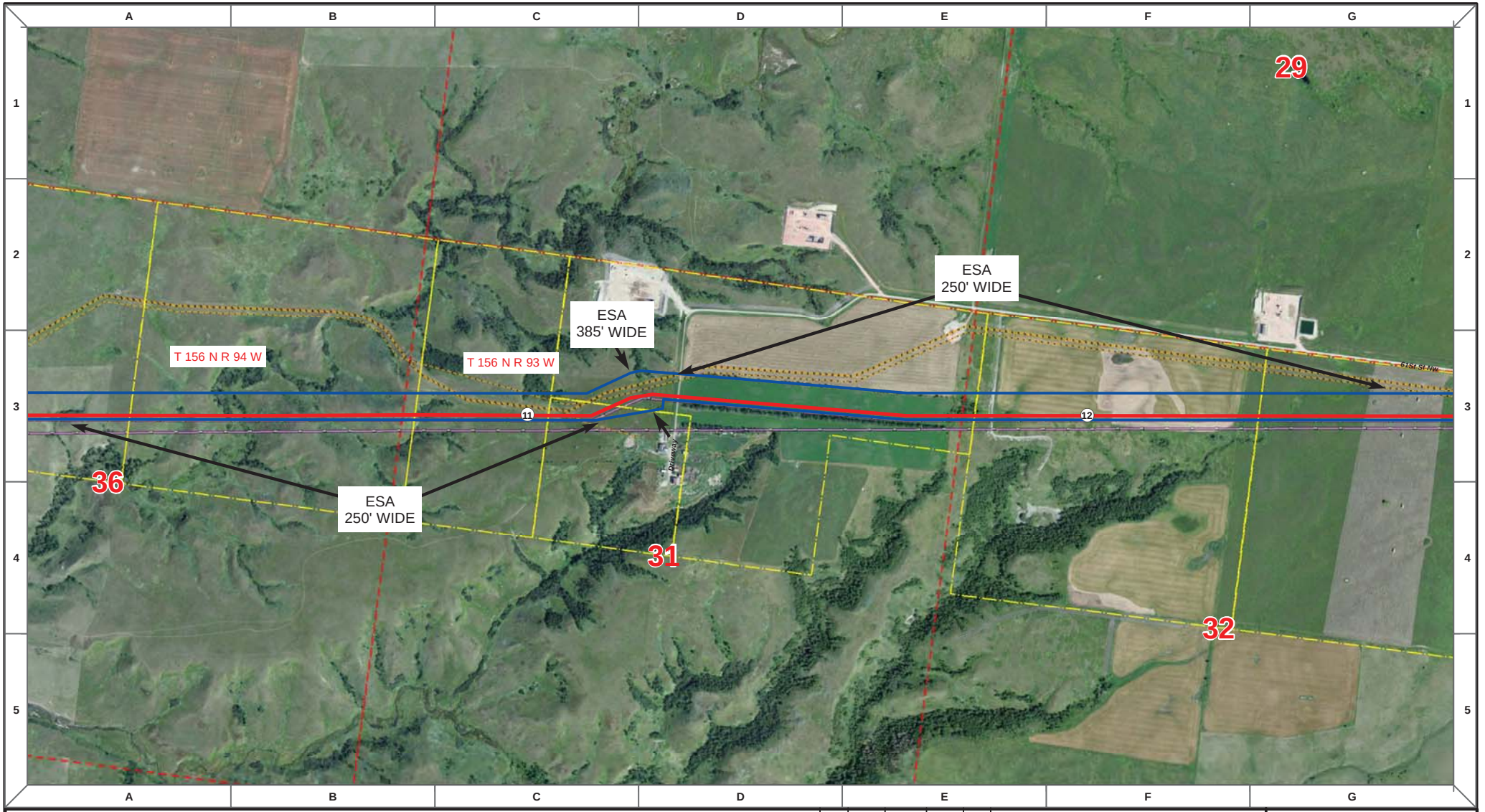
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

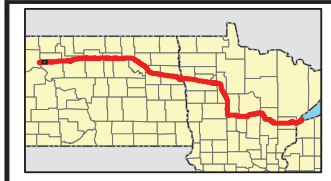
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 4 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

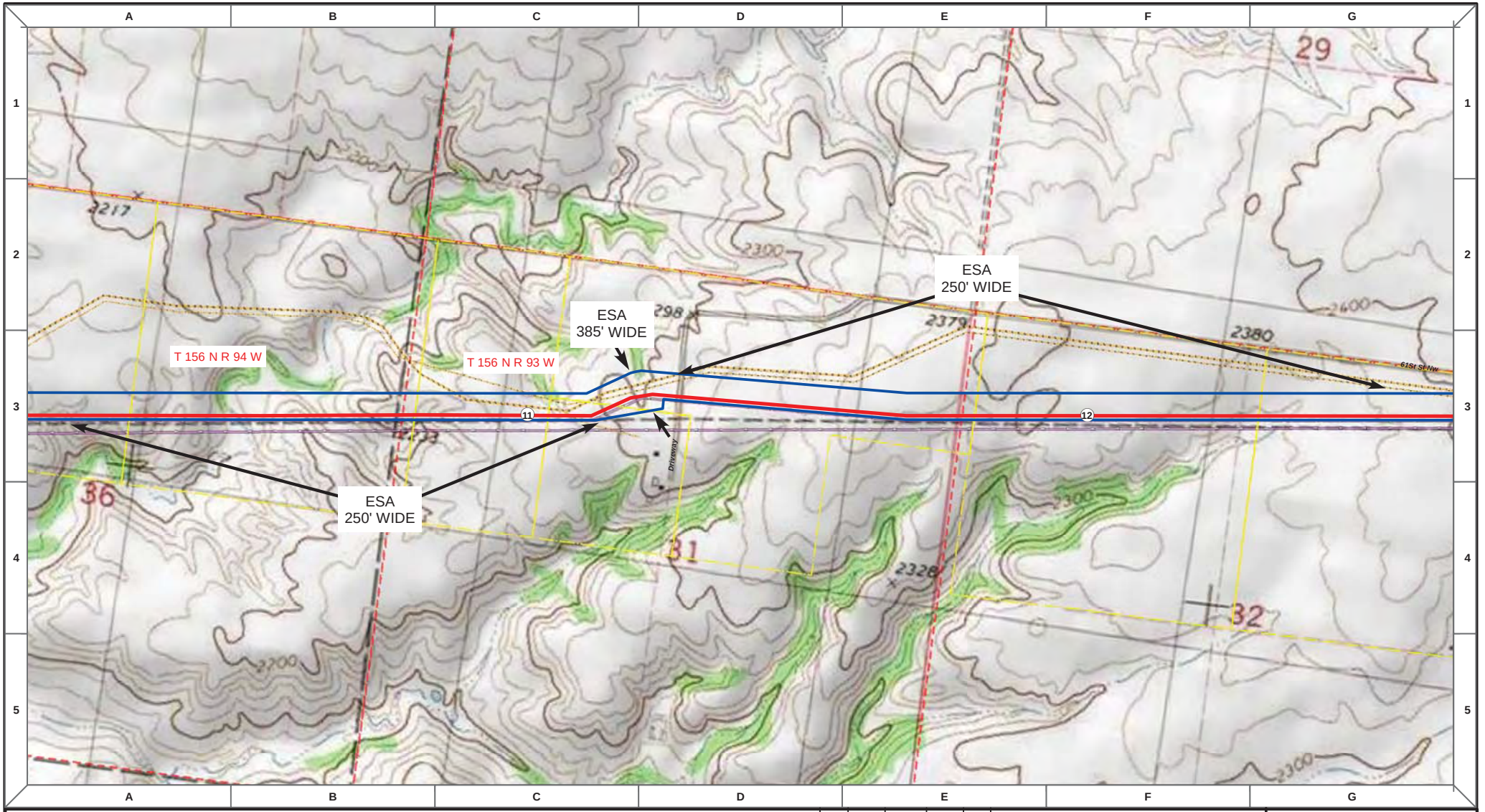
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

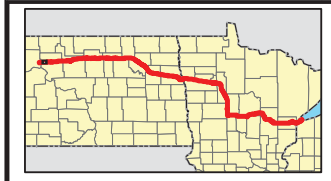
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 5 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

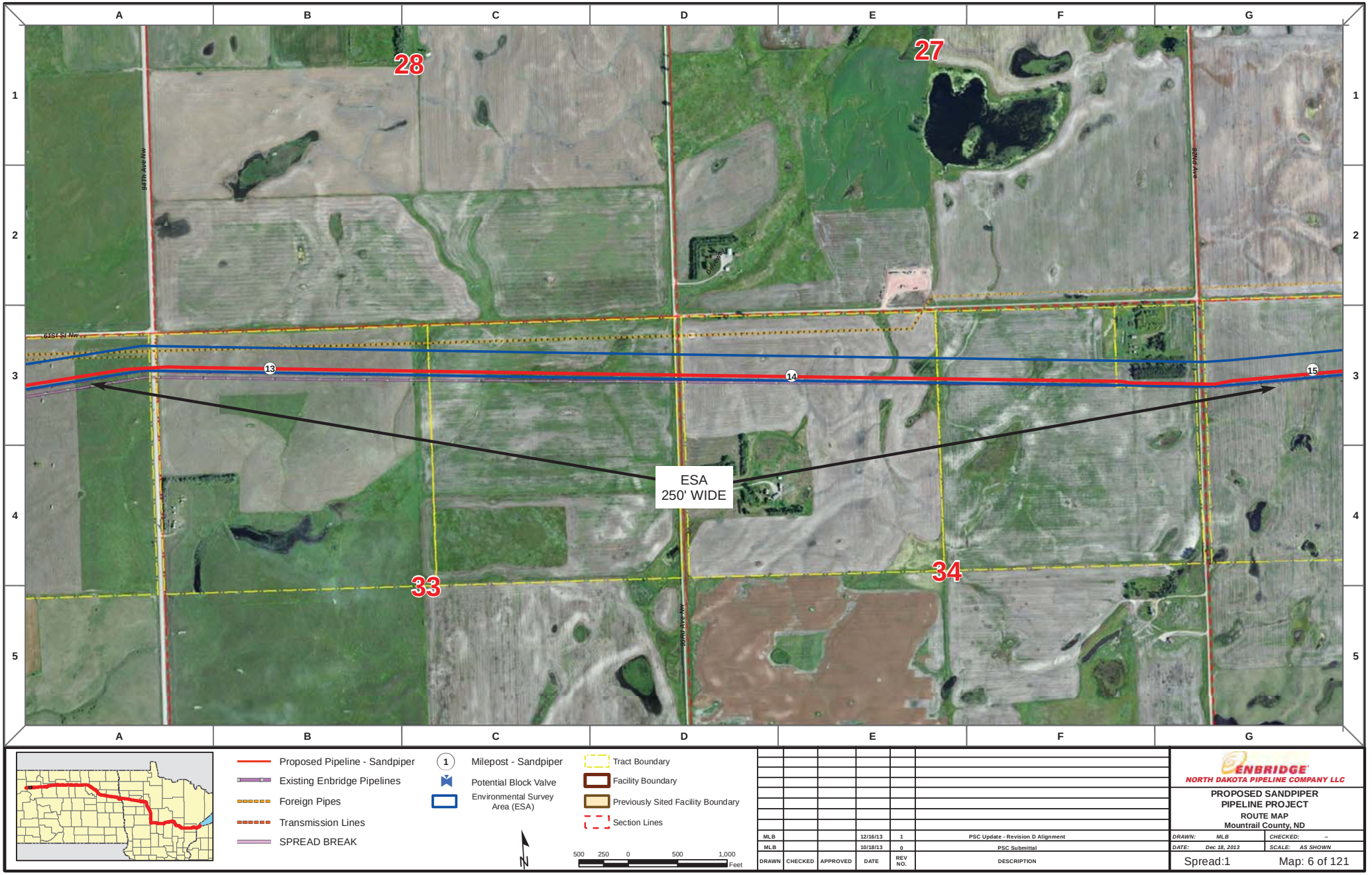
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 5 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

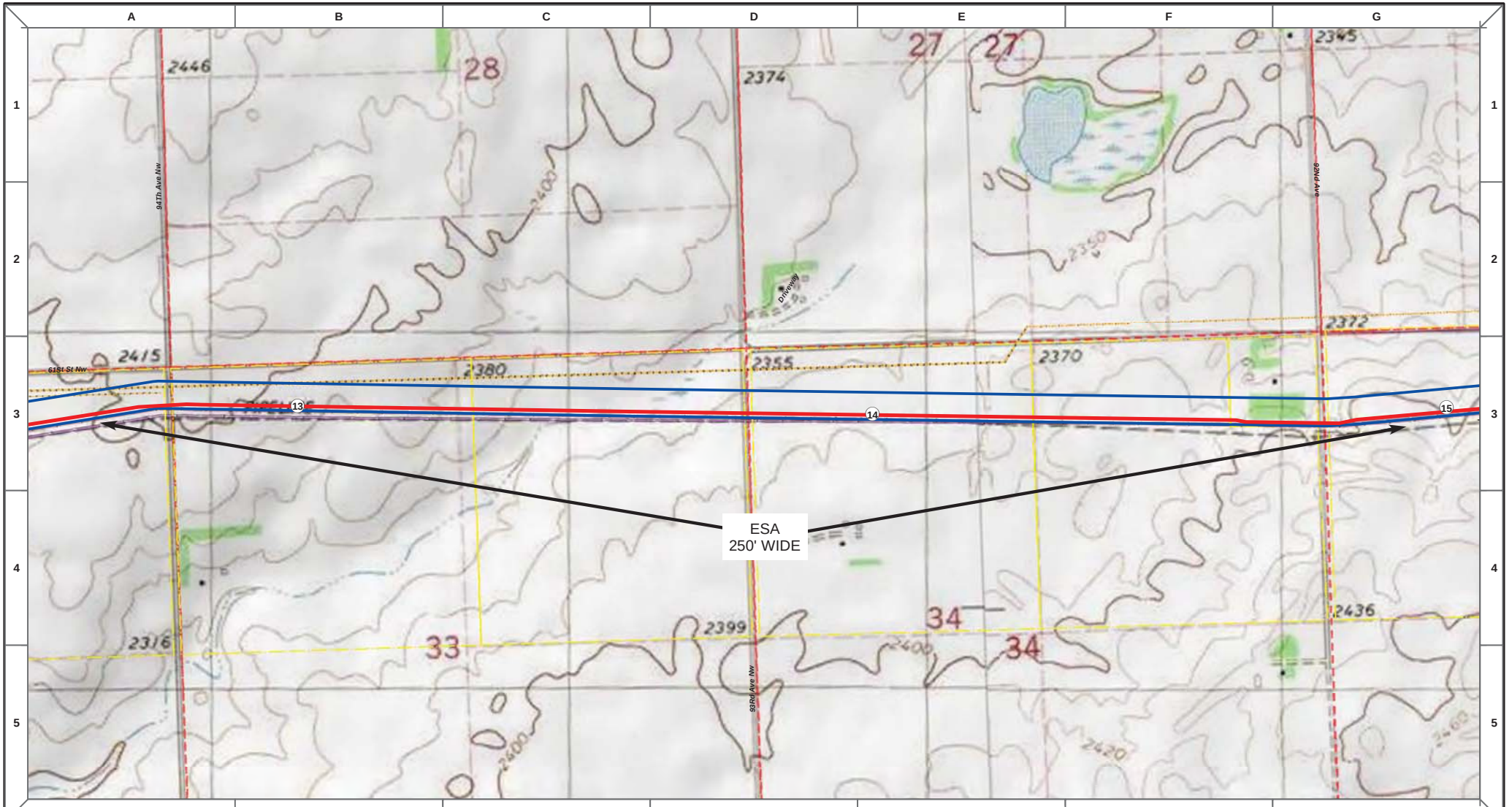
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

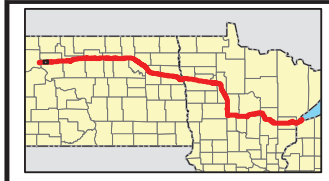
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 6 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

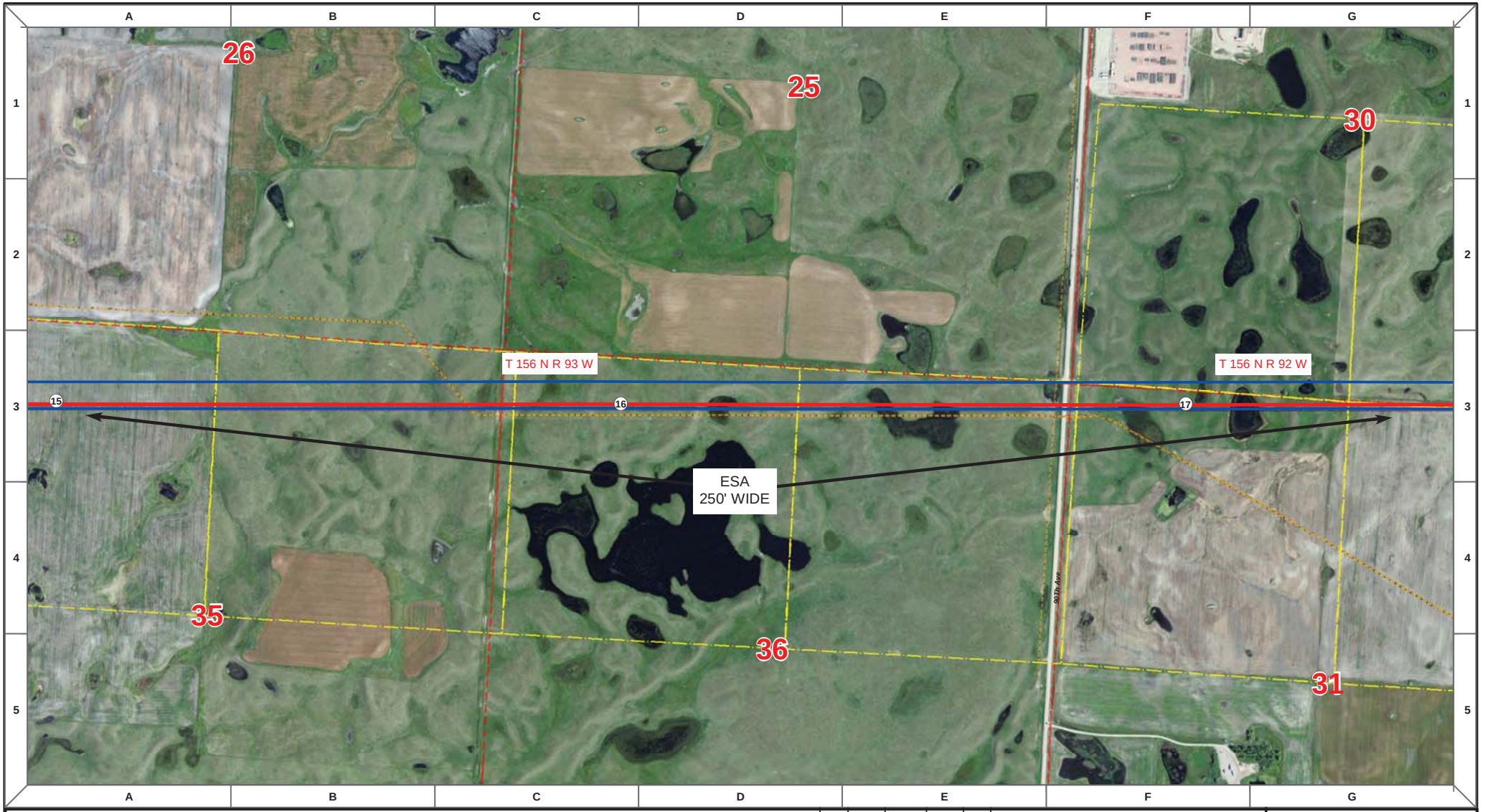
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

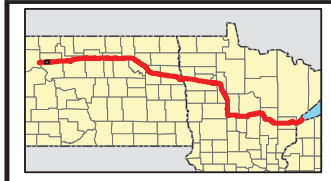
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 6 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

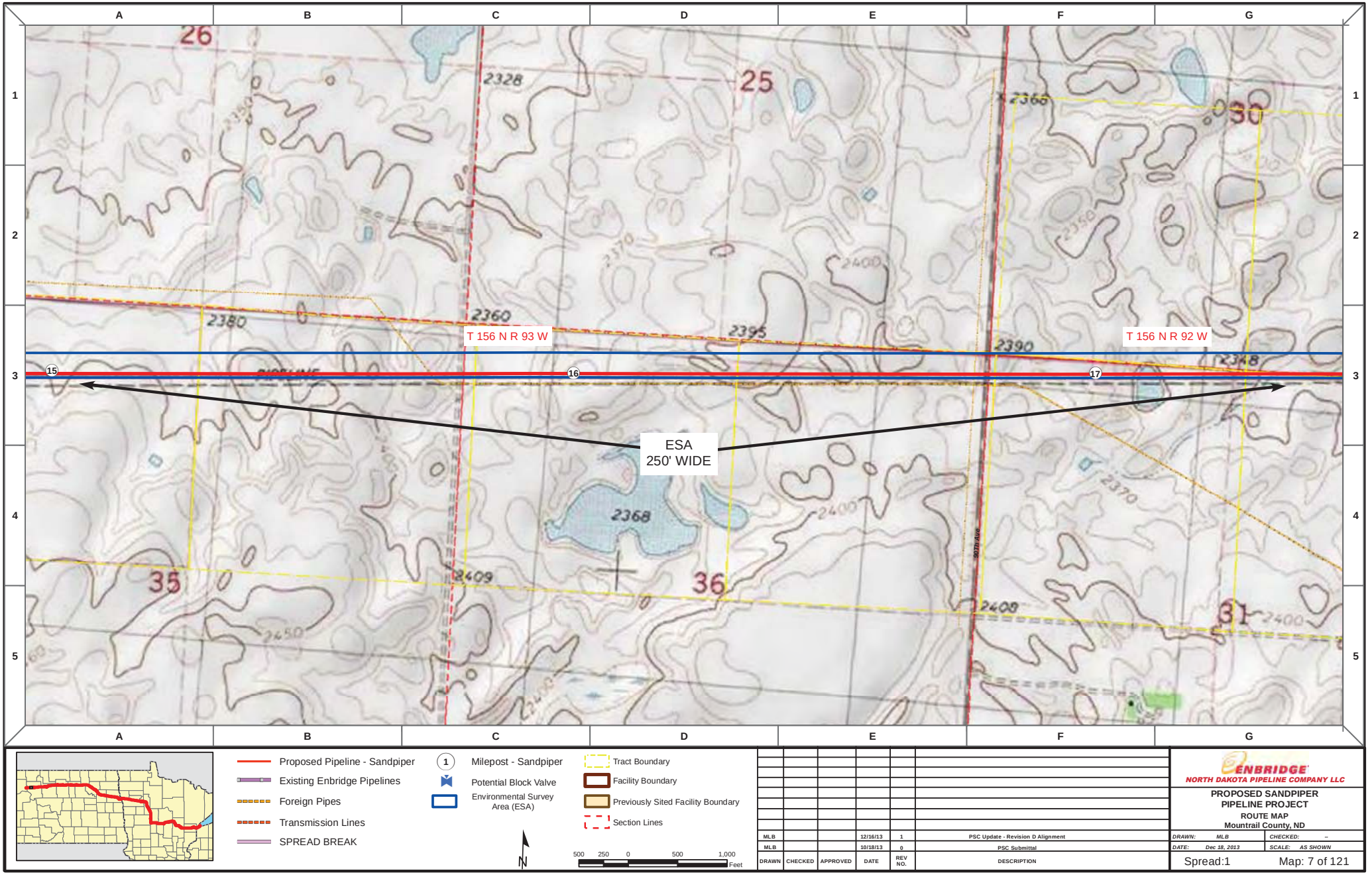
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 7 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

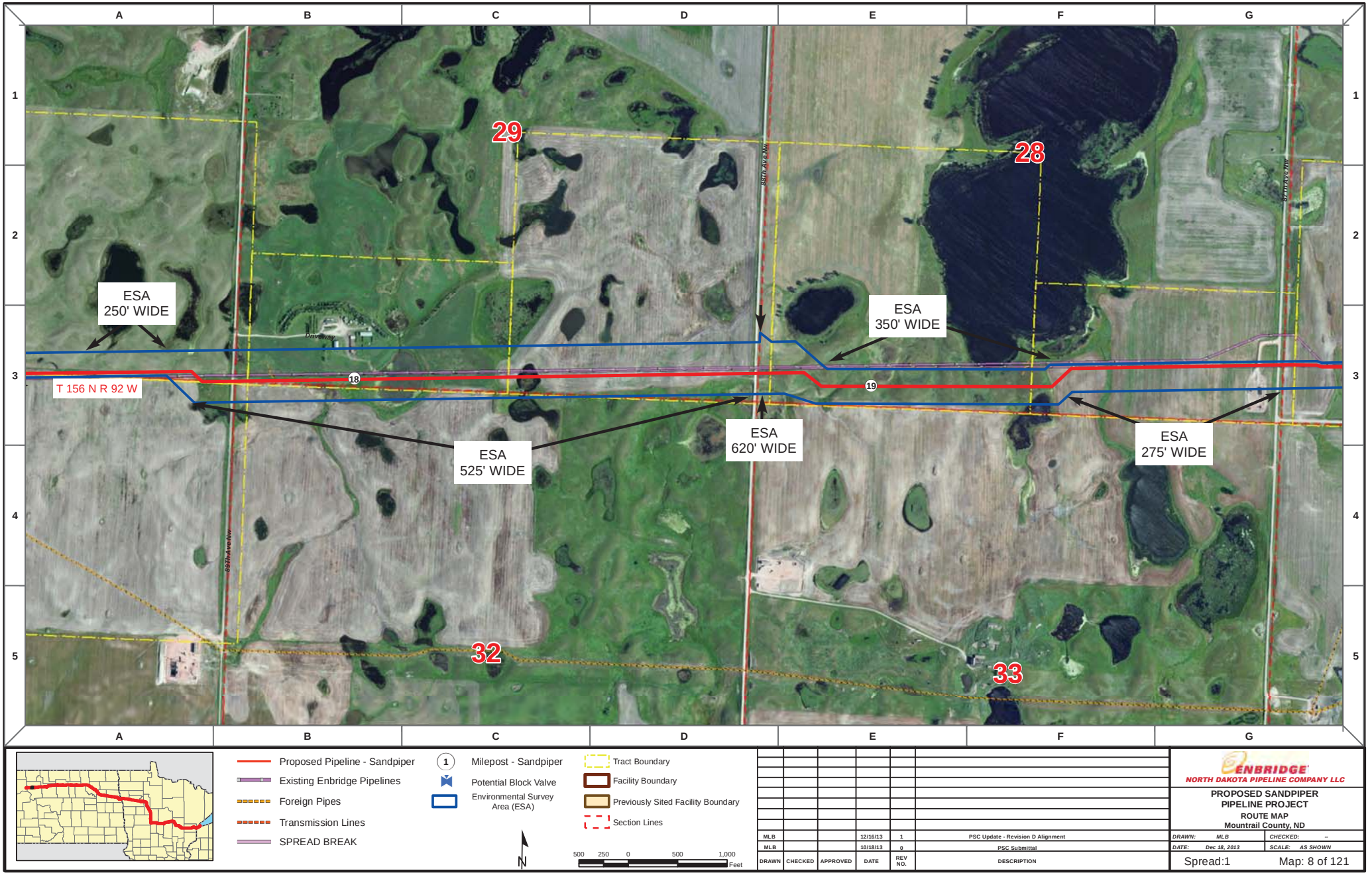
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

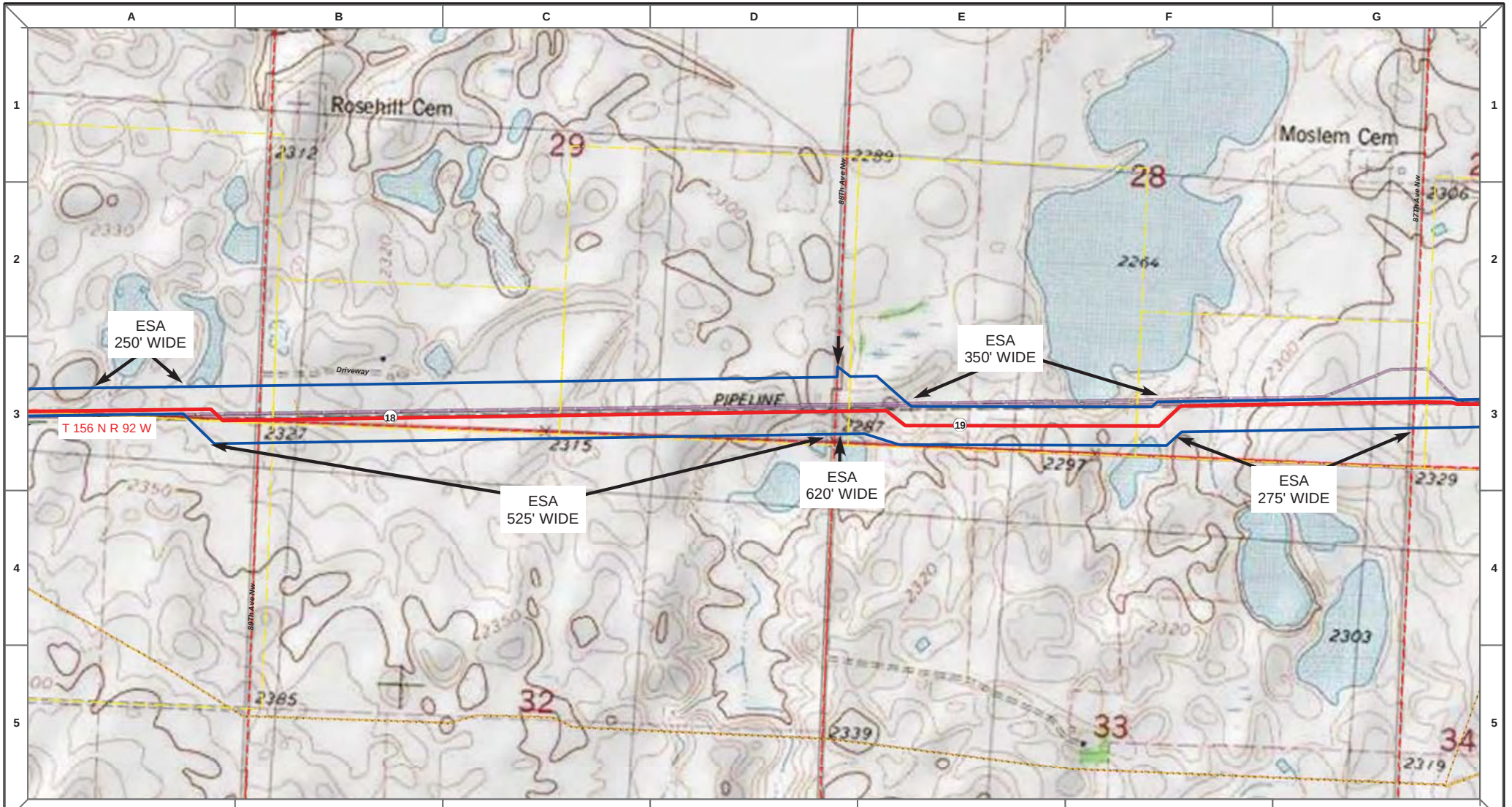
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

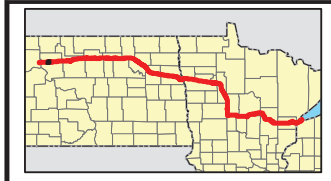
PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 7 of 121


A
B
C
D
E
F
G
1
2
3
4
5
29
28
32
33
ESA
250' WIDE
ESA
350' WIDE
ESA
525' WIDE
ESA
620' WIDE
ESA
275' WIDE
T 156 N R 92 W
18
19
Driveway
Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK
Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)
Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines
N
500 250 0 500 1,000
Feet
MLB 12/16/13 1 PSC Update - Revision D Alignment
MLB 10/18/13 0 PSC Submittal
DRAWN CHECKED APPROVED DATE REV NO. DESCRIPTION
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC
PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND
DRAWN: MLB
CHECKED: --
DATE: Dec 18, 2013
SCALE: AS SHOWN
Spread:1
Map: 8 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

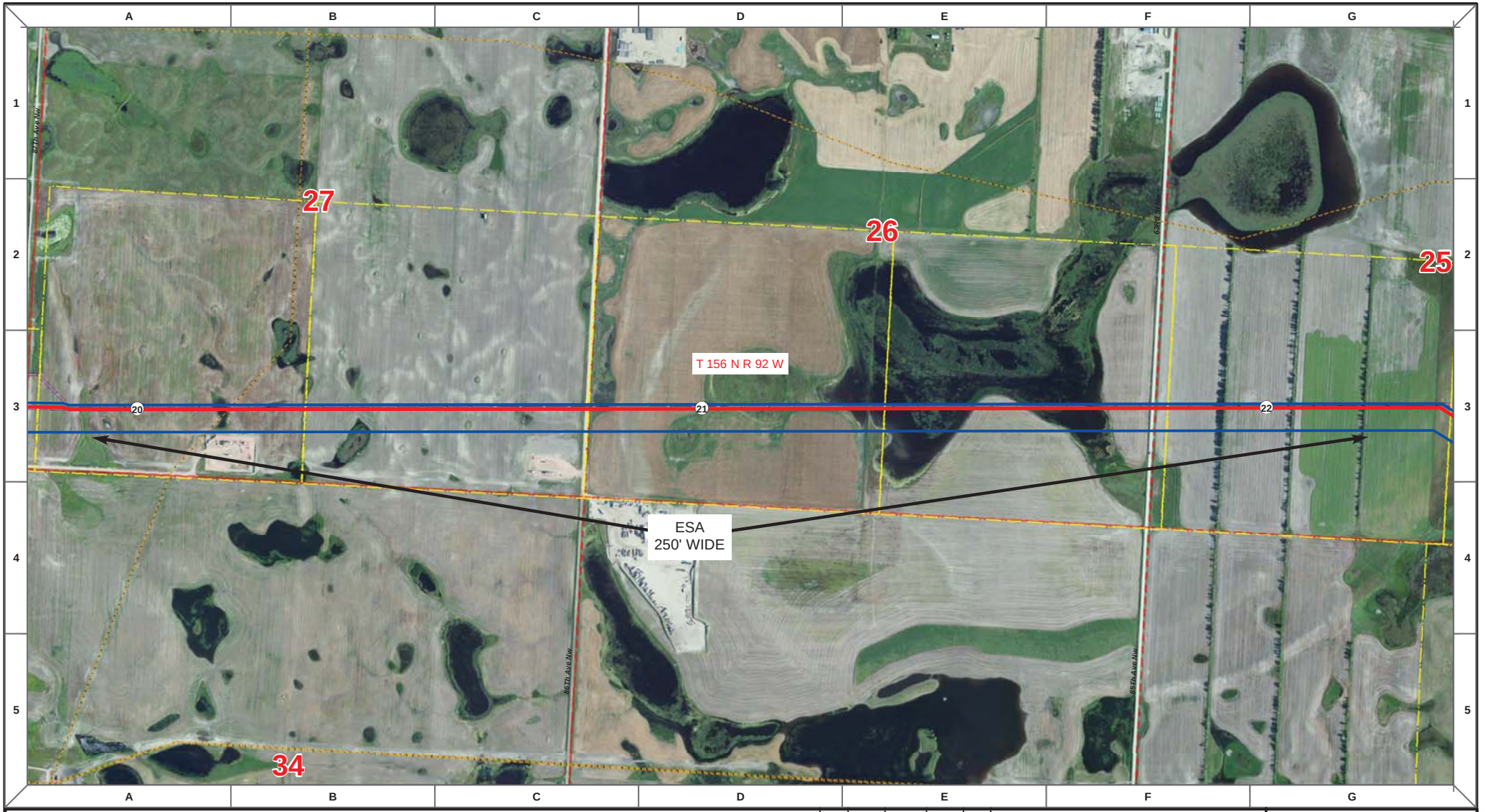
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

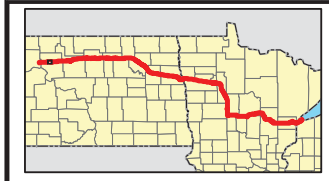
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 8 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

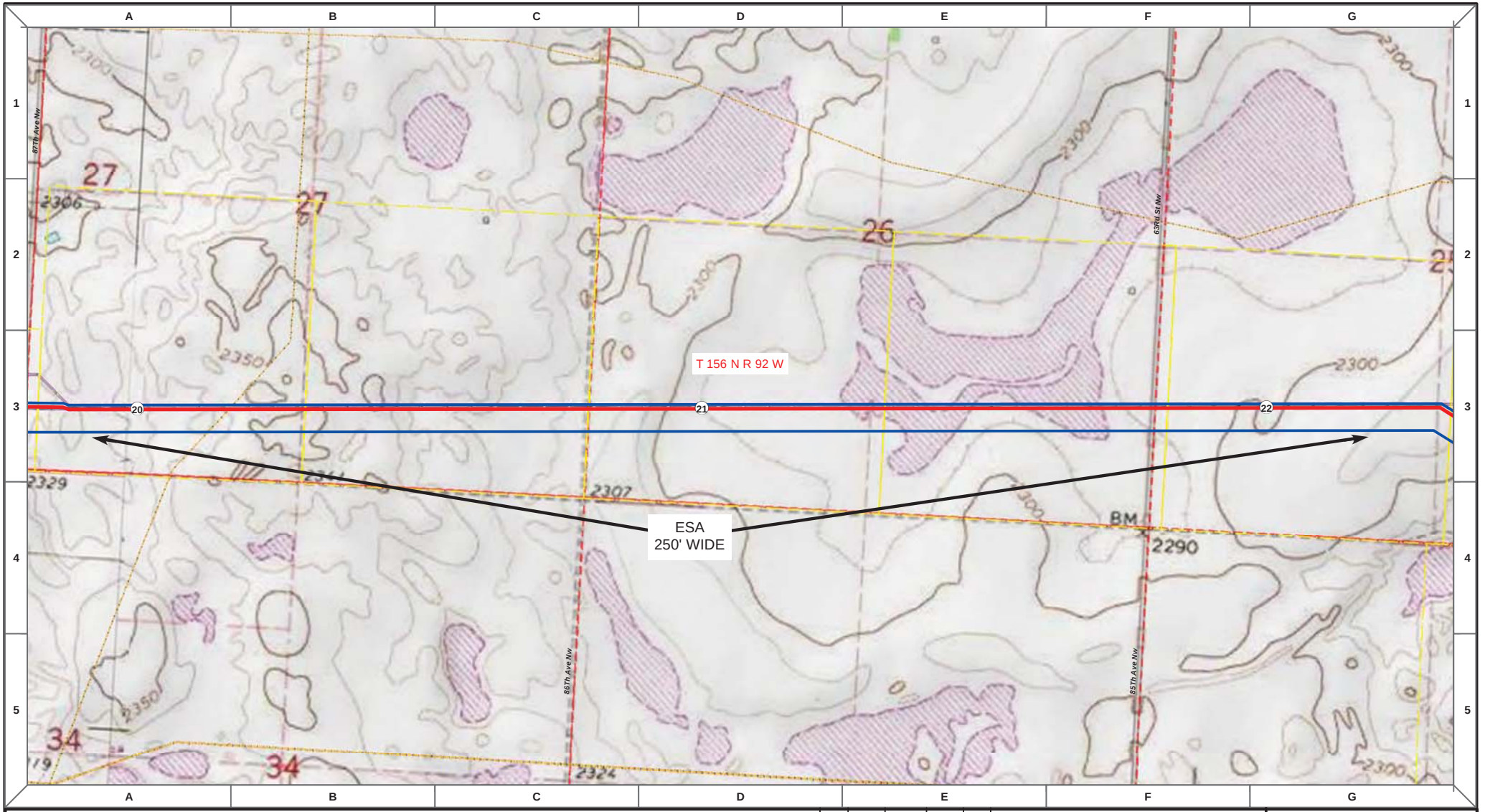
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

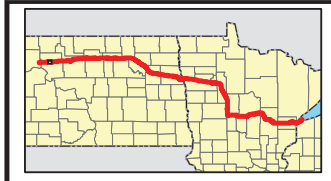
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 9 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

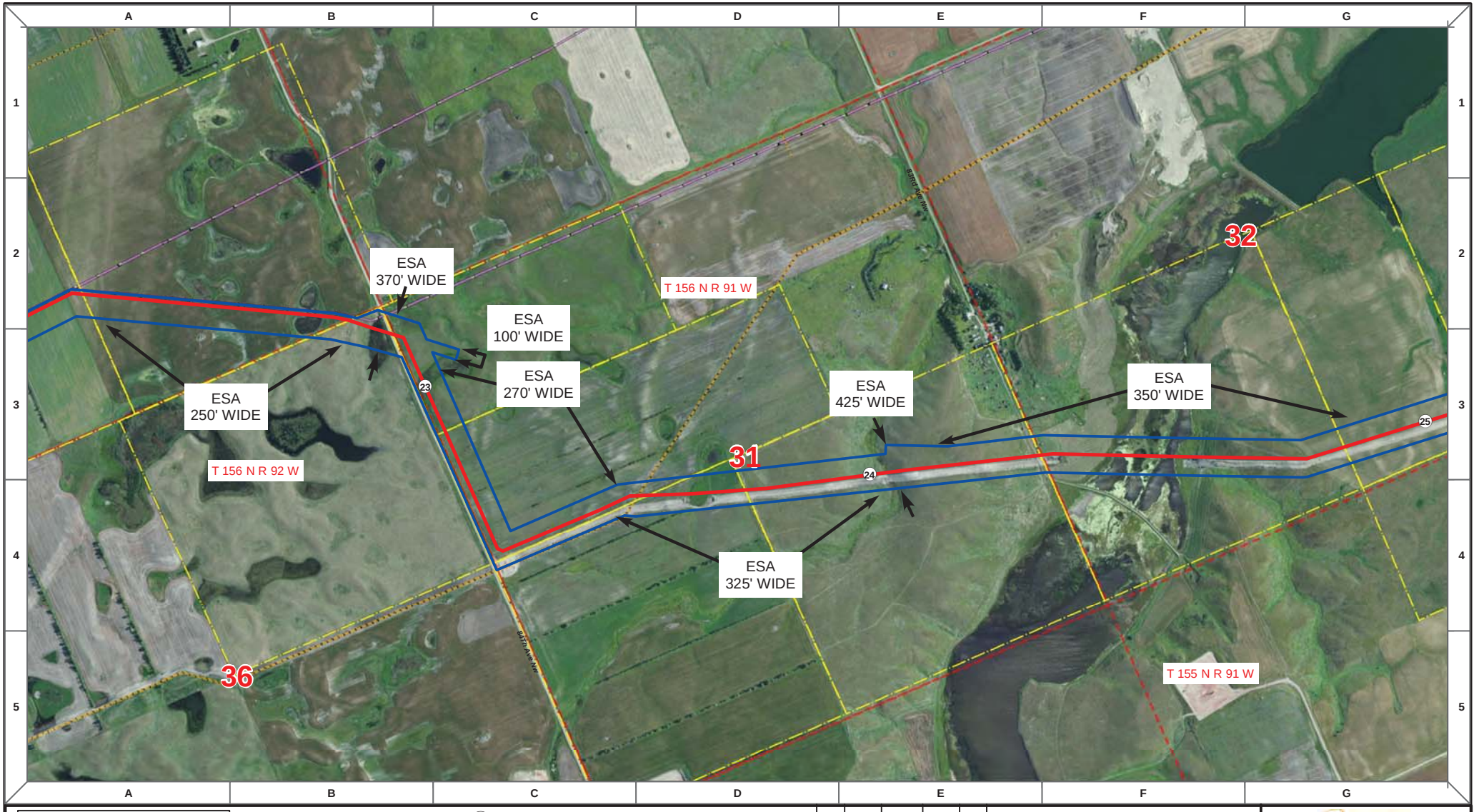
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 9 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

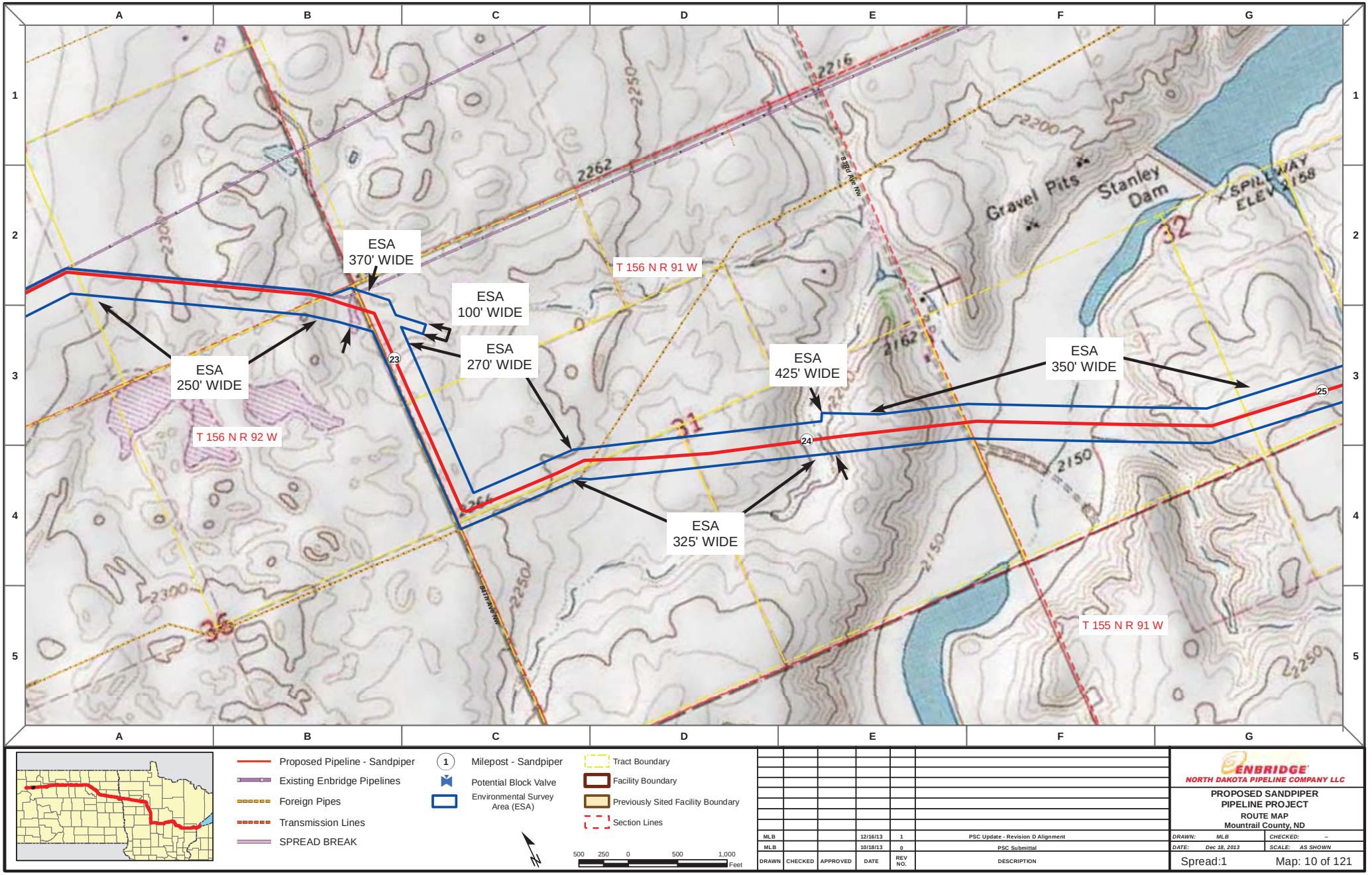
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 10 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

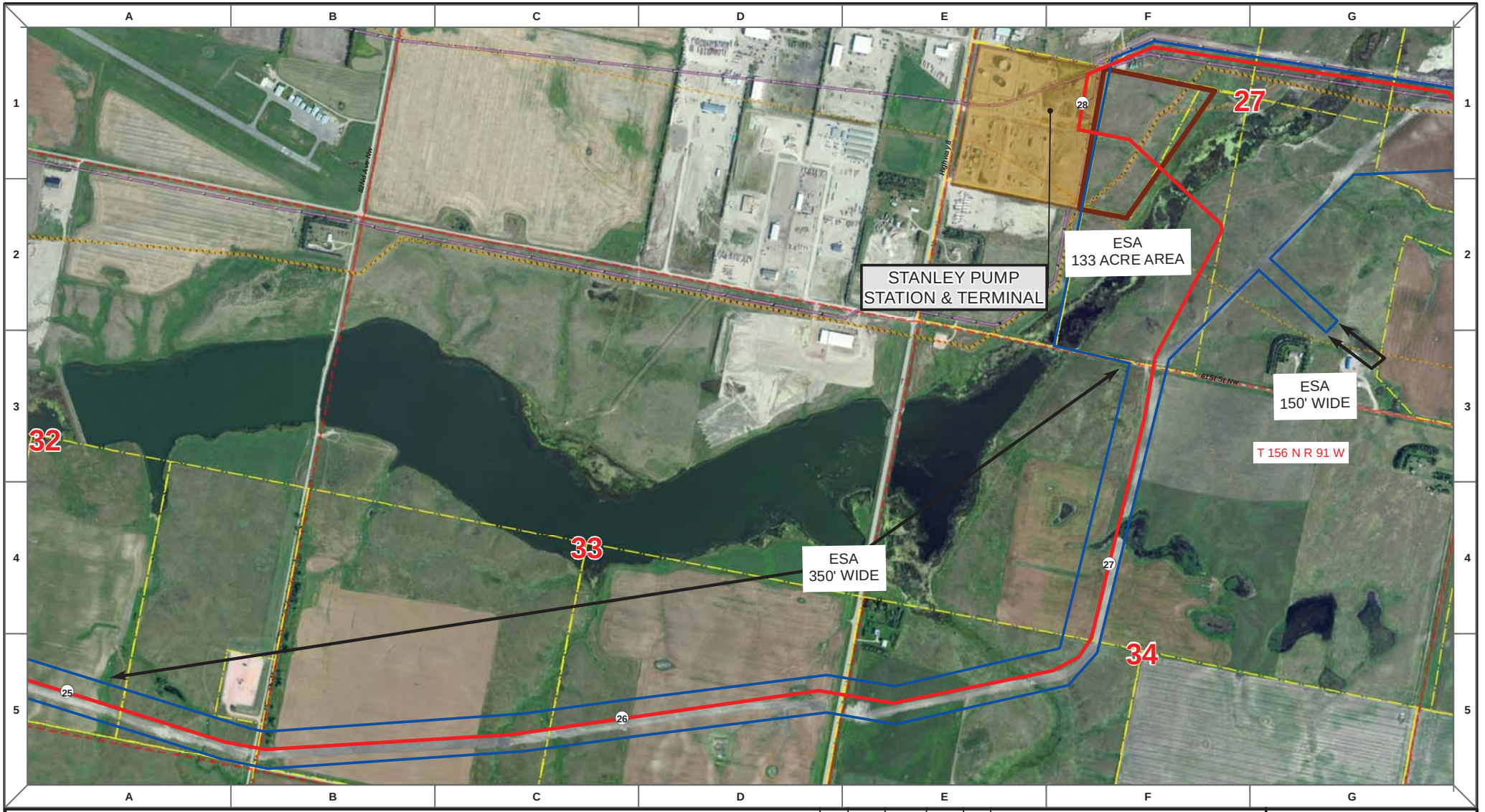
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

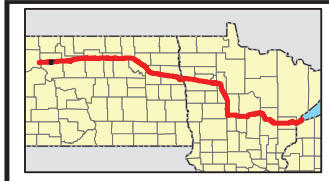
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 10 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

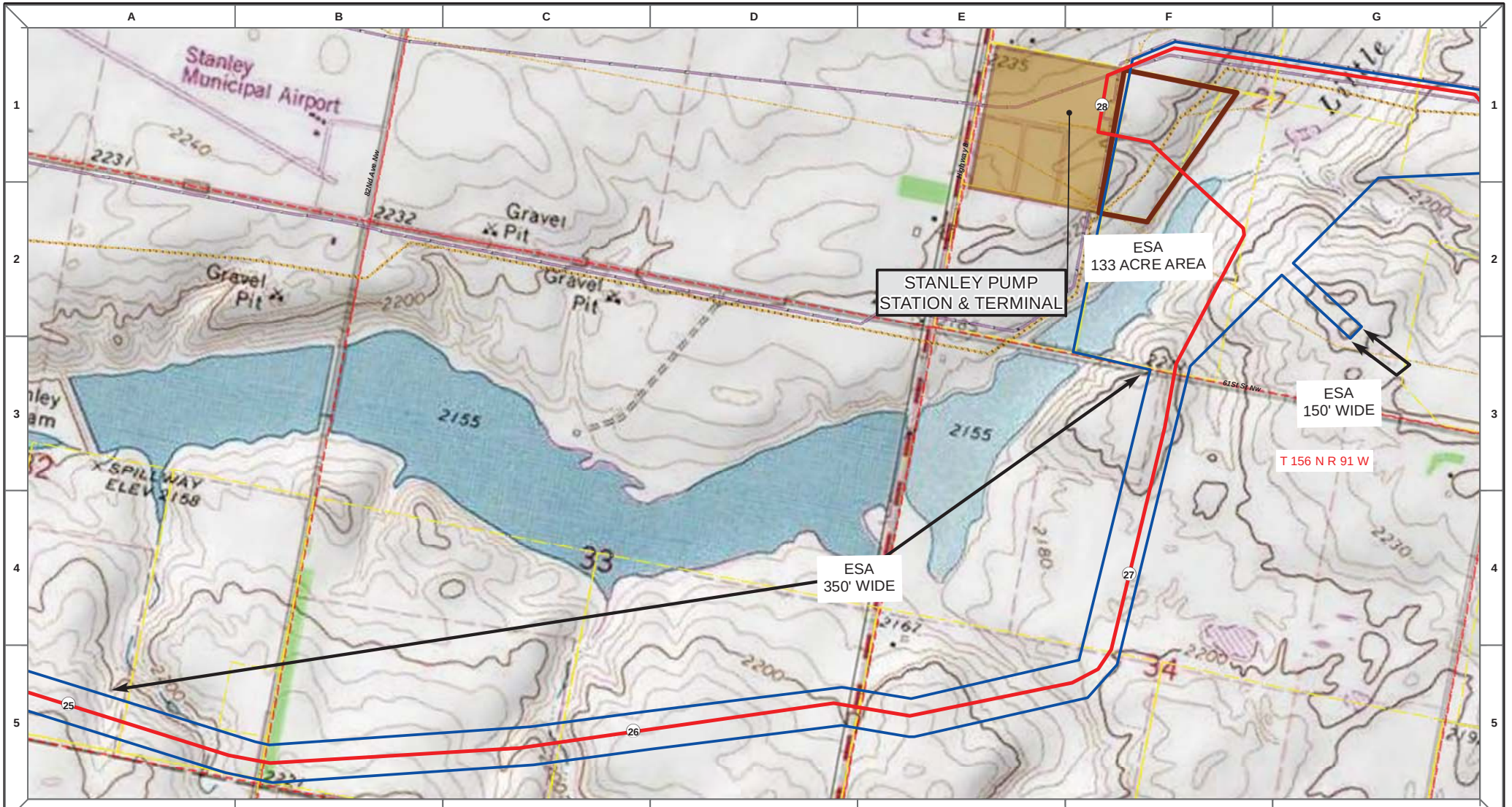
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

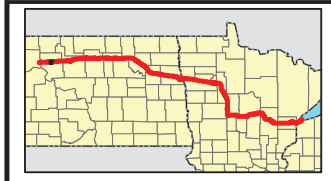
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 11 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

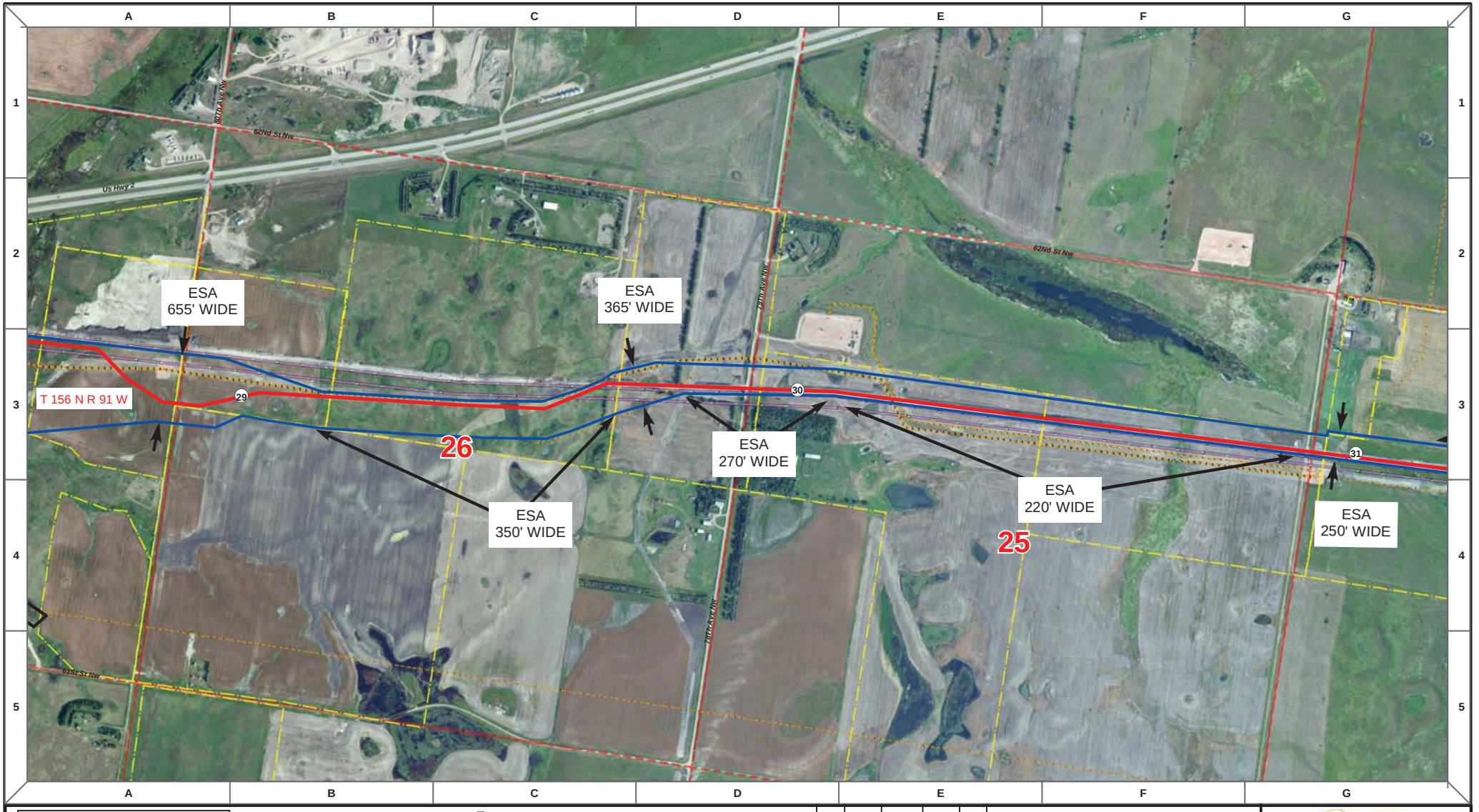
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

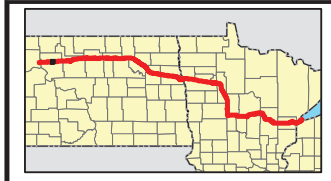
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 11 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

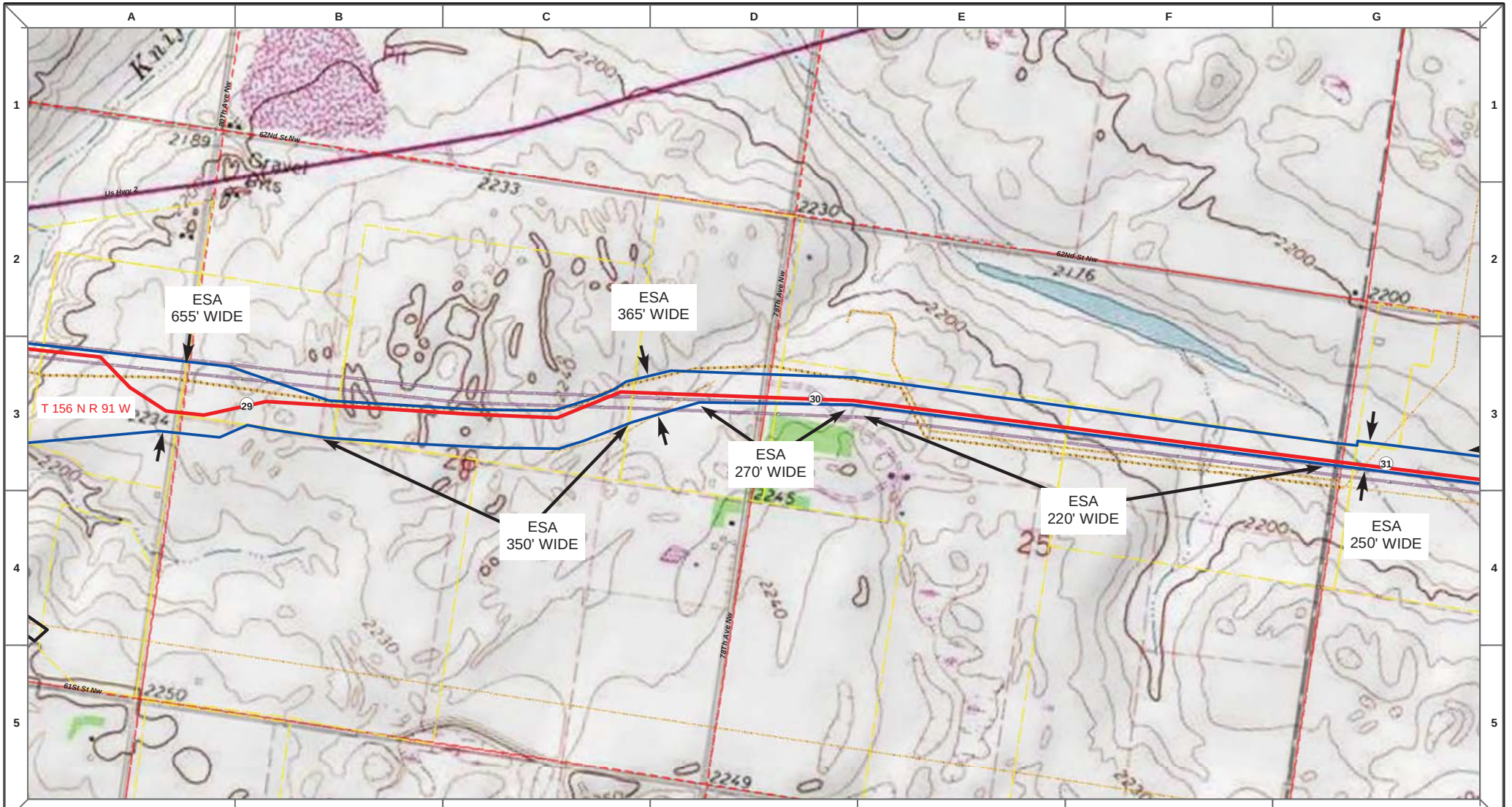
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

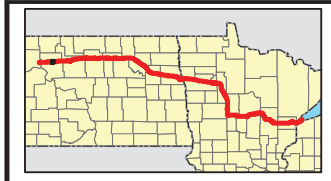
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 12 of 121





- Proposed Pipeline - Sandpiper
- Existing Enbridge Pipelines
- Foreign Pipes
- Transmission Lines
- SPREAD BREAK
- (1) Milepost - Sandpiper
- Potential Block Valve
- Environmental Survey Area (ESA)
- Tract Boundary
- Facility Boundary
- Previously Sited Facility Boundary
- Section Lines

N

500 250 0 500 1,000 Feet

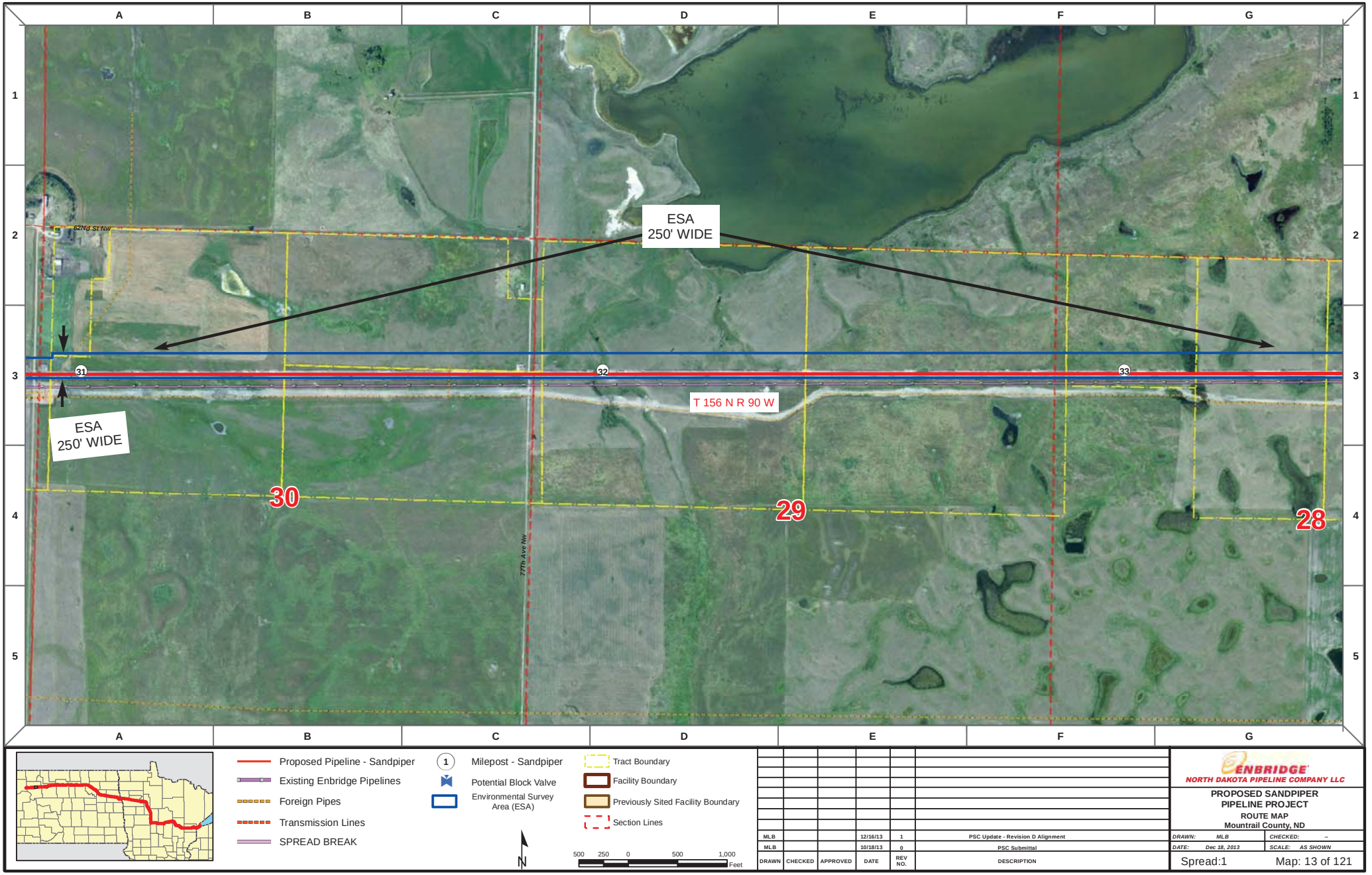
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 12 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

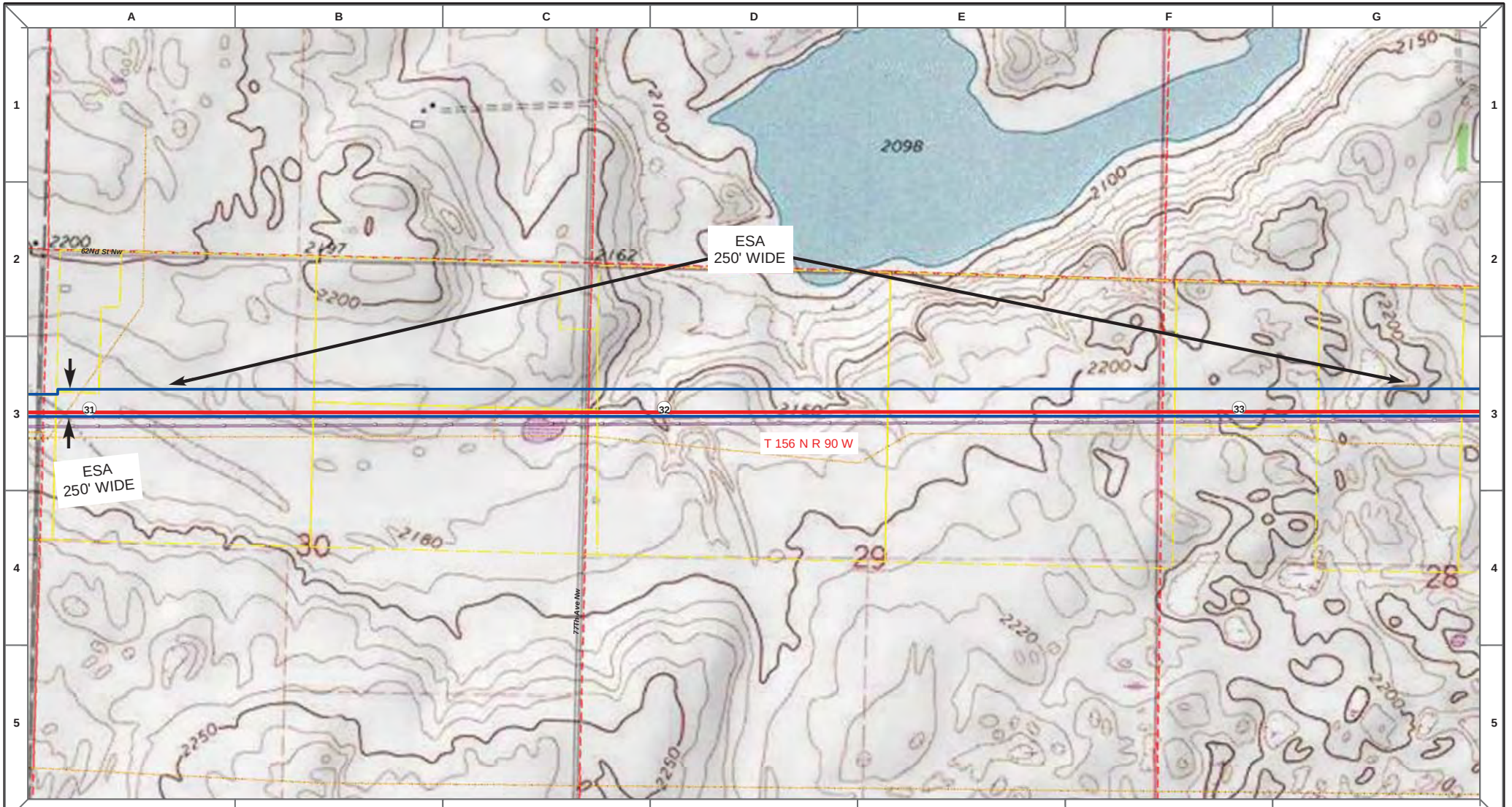
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

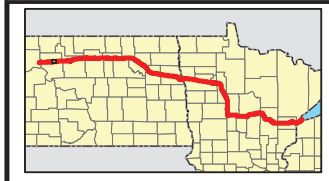
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 13 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

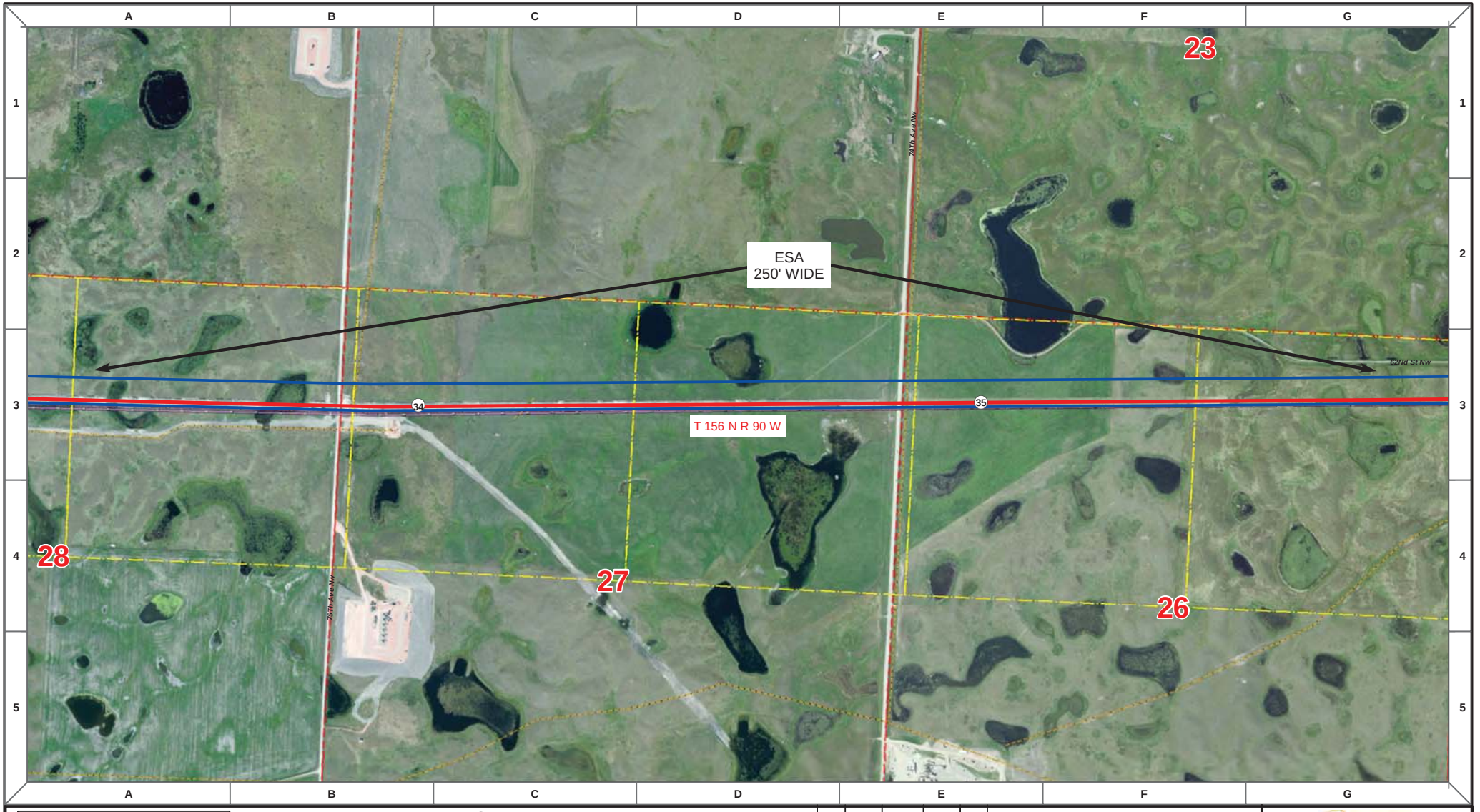
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

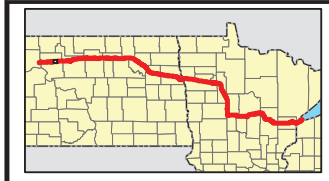
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 13 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

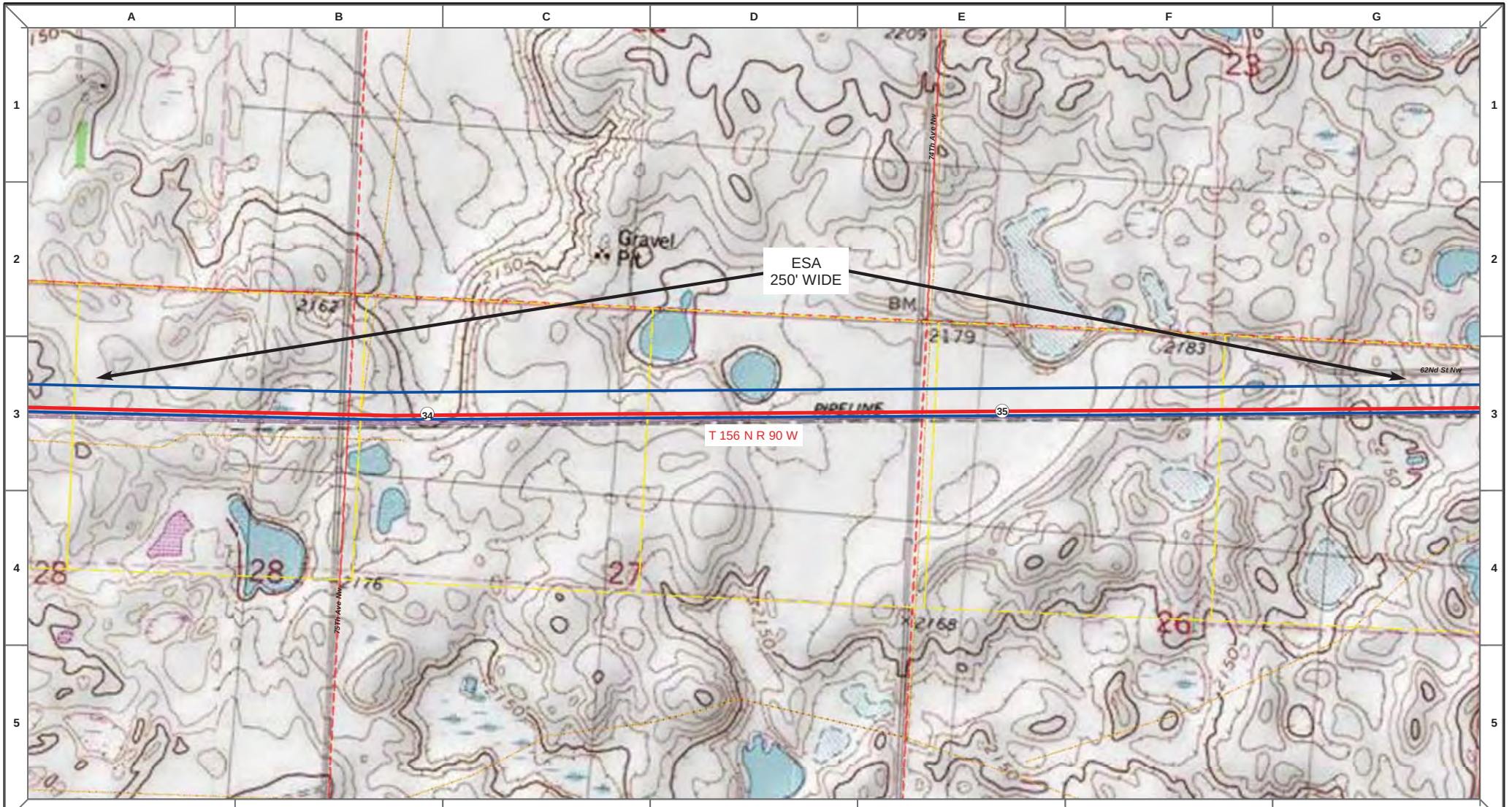
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 14 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

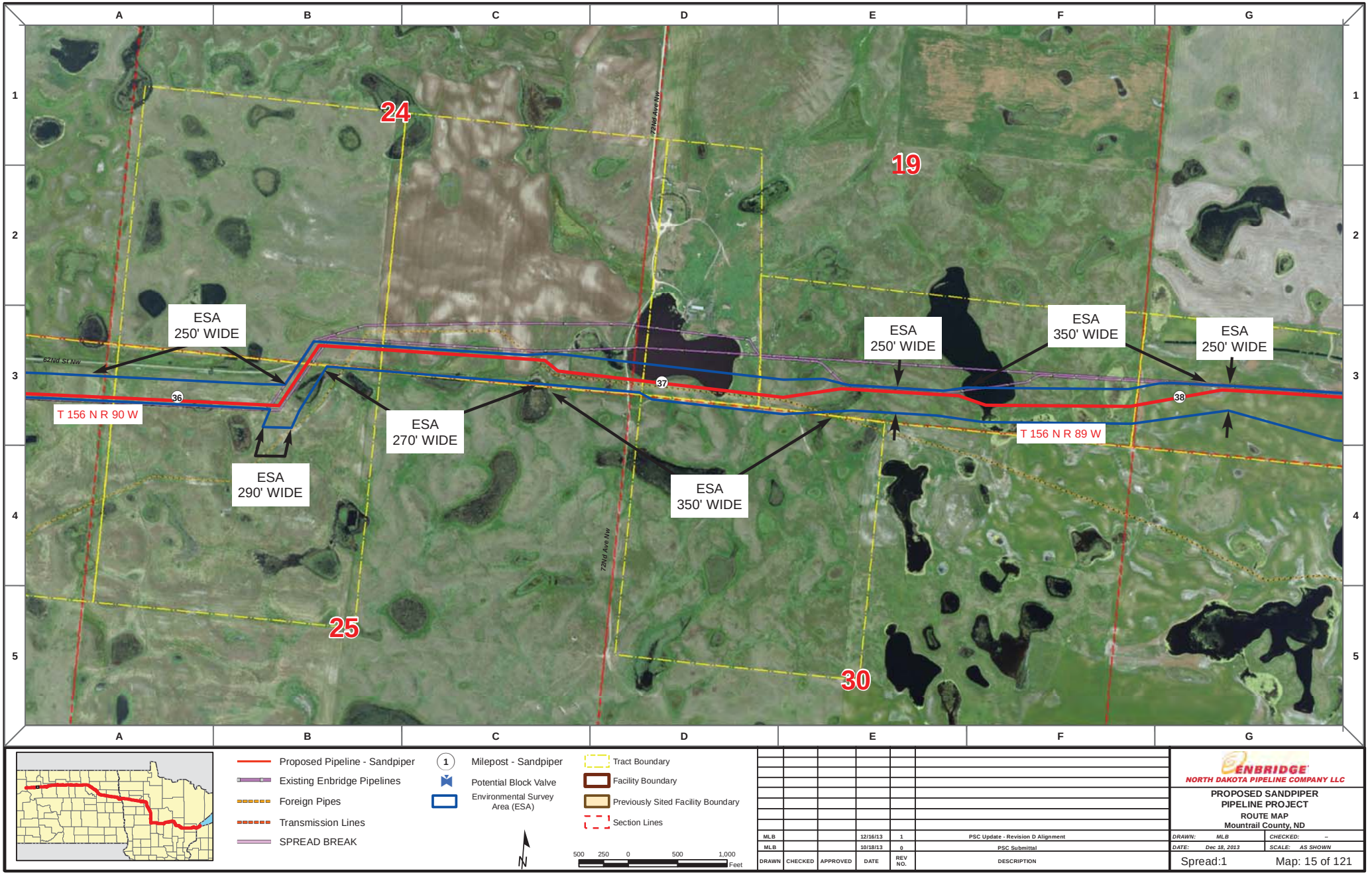
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 14 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

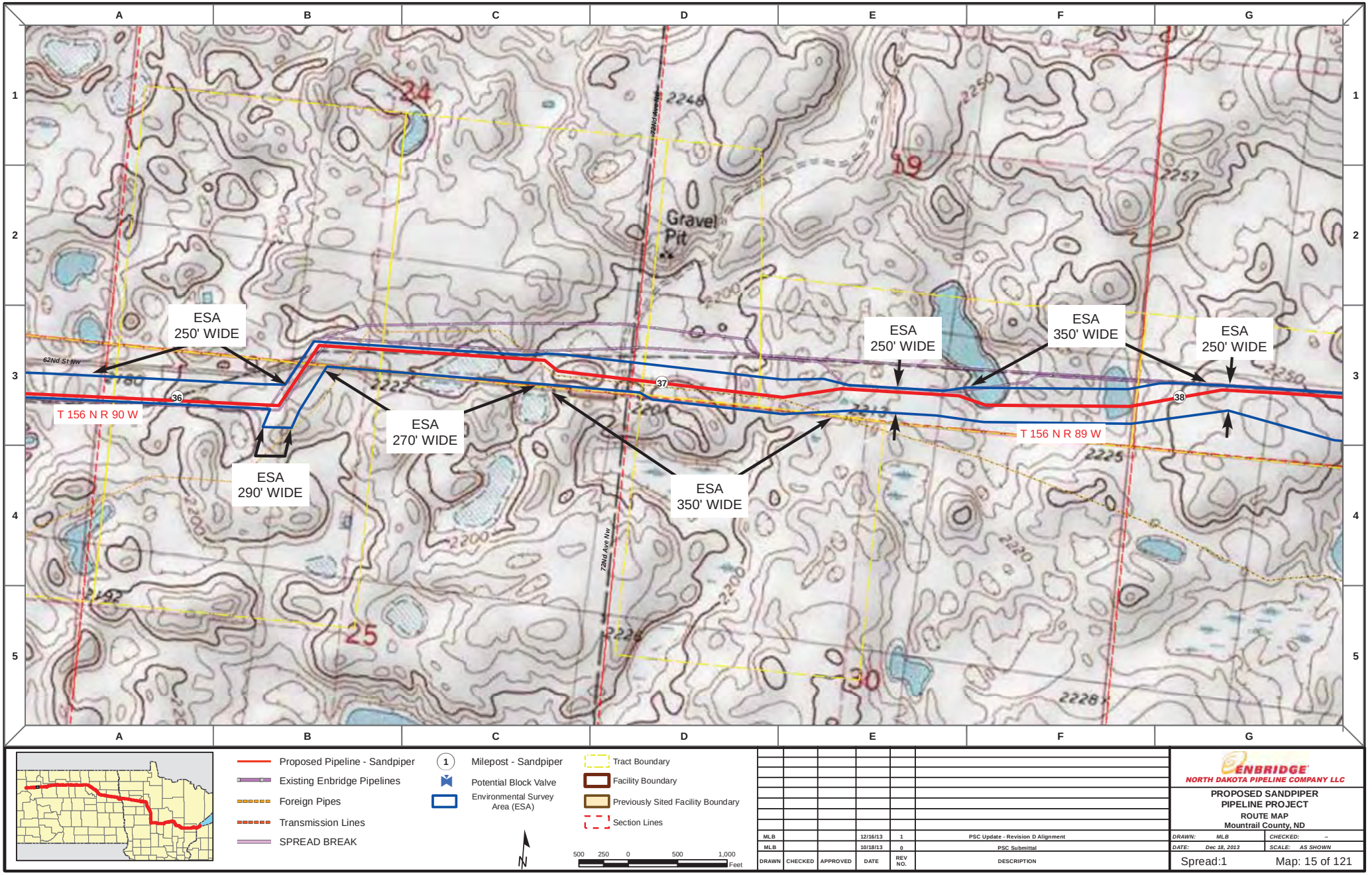
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 15 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

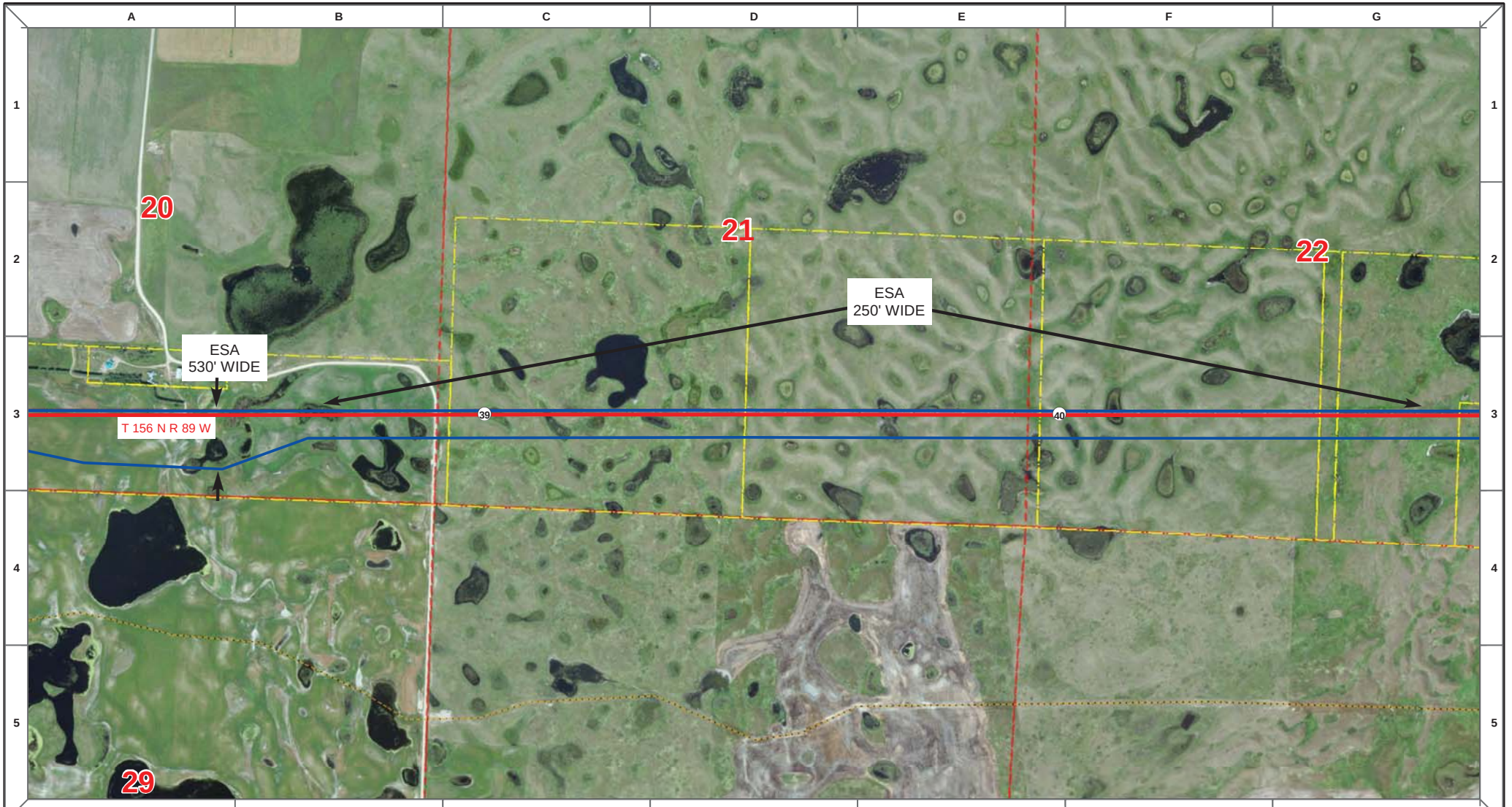
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

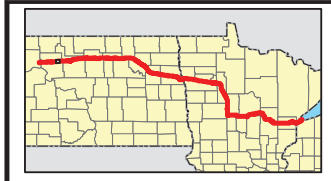
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 15 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

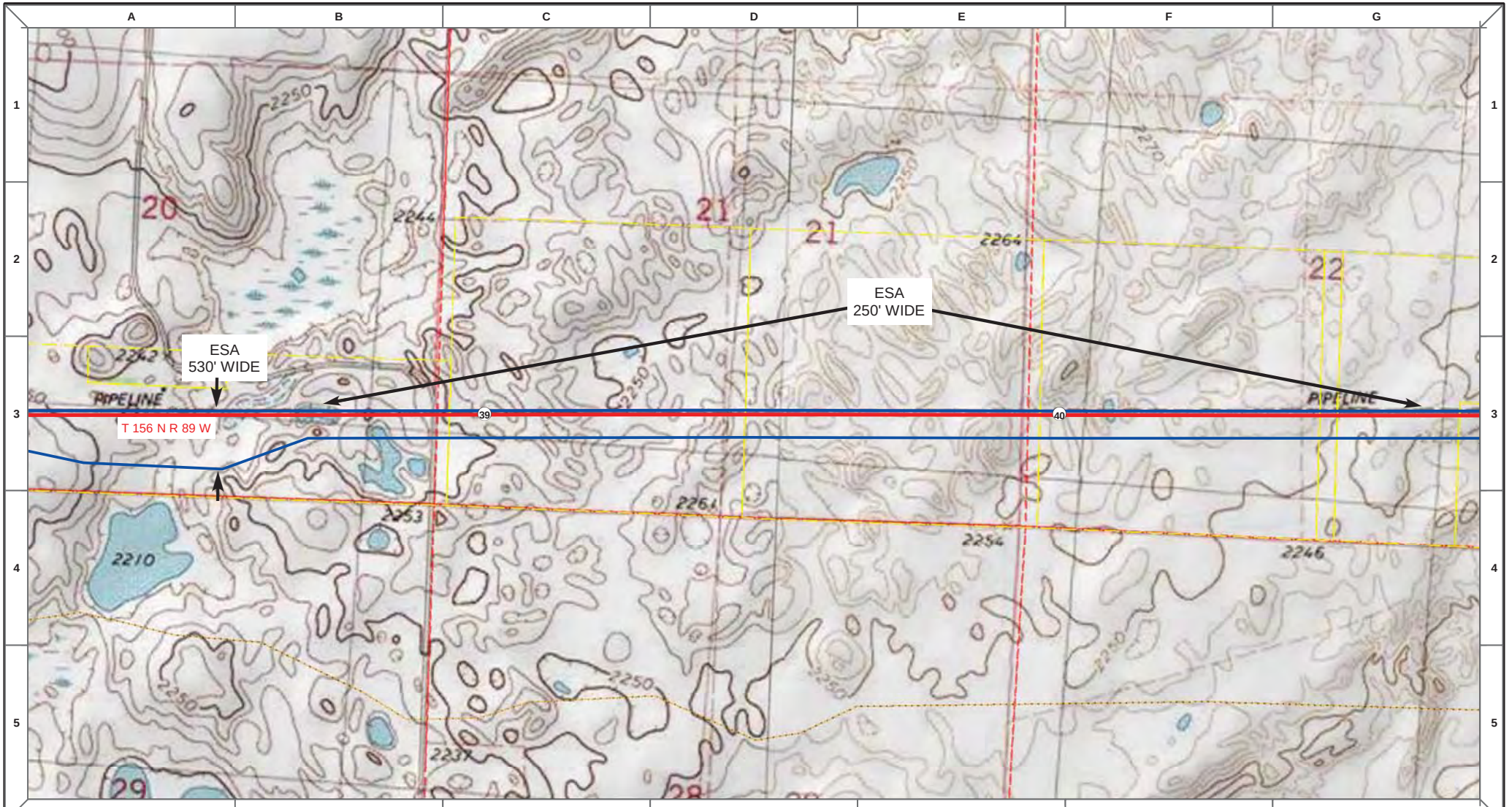
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

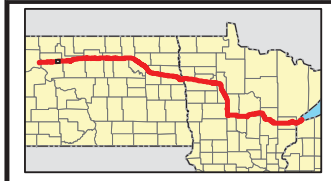
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 16 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

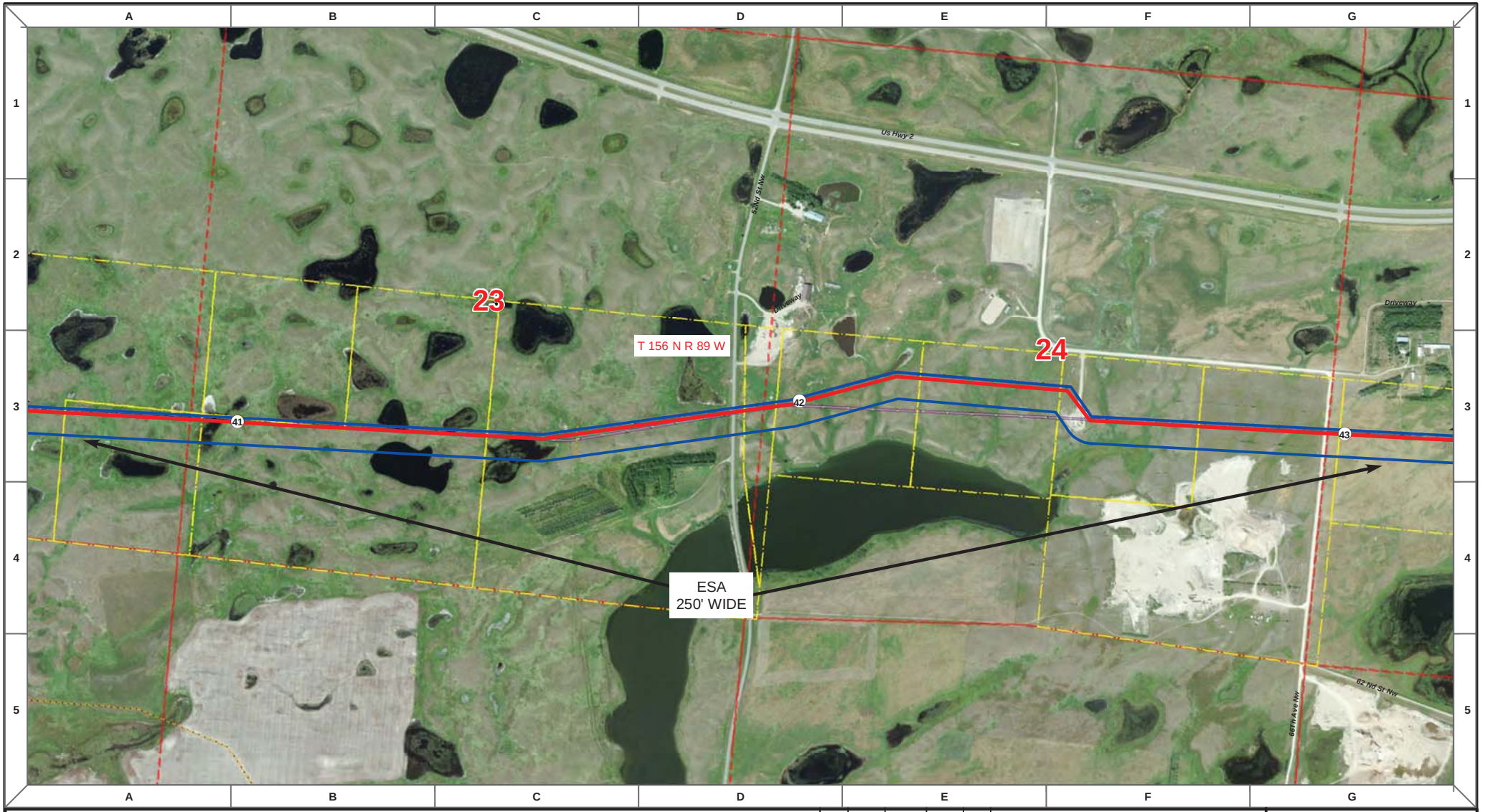
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

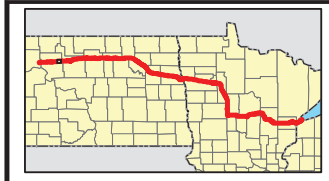
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 16 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

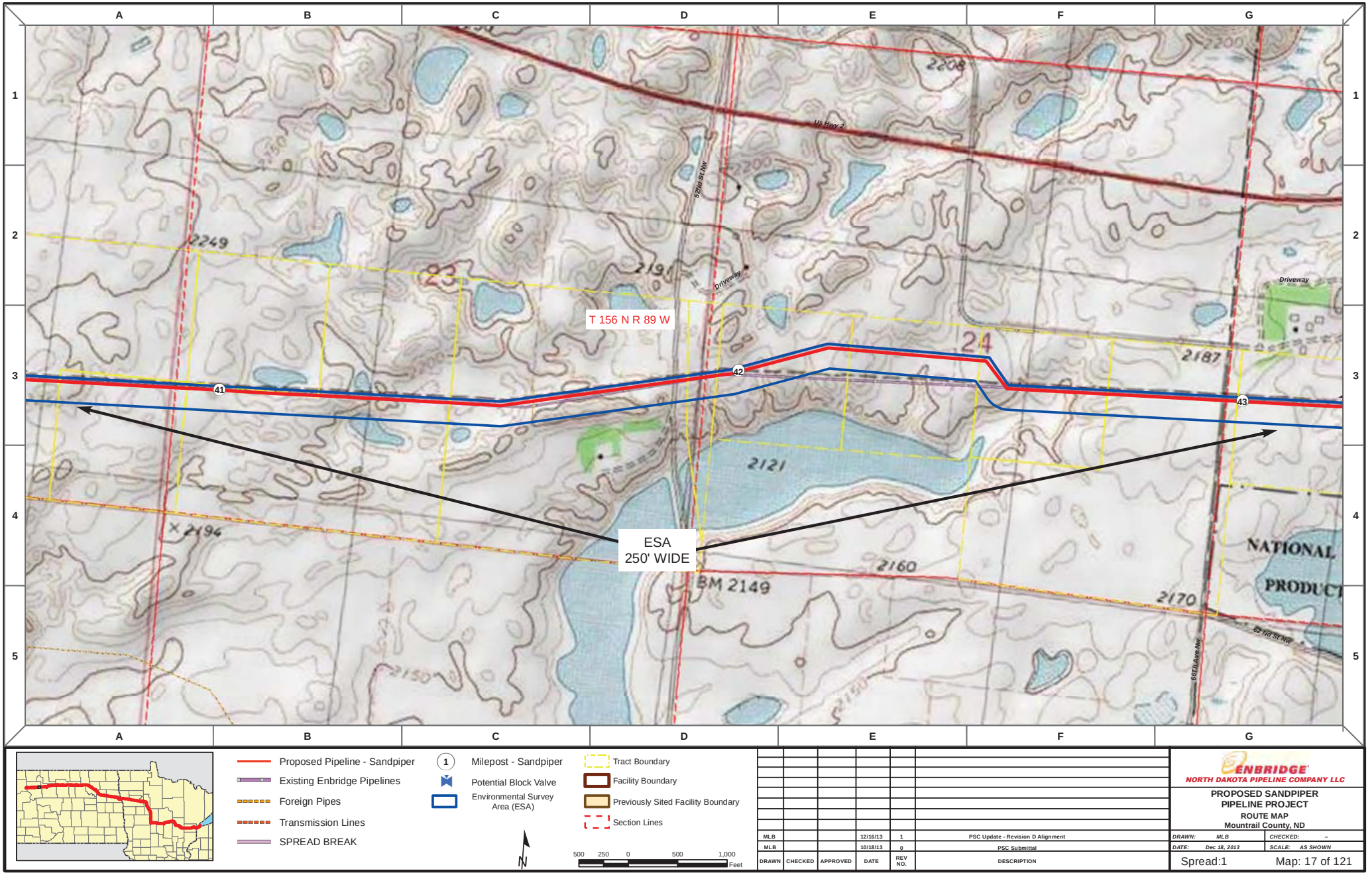
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 17 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

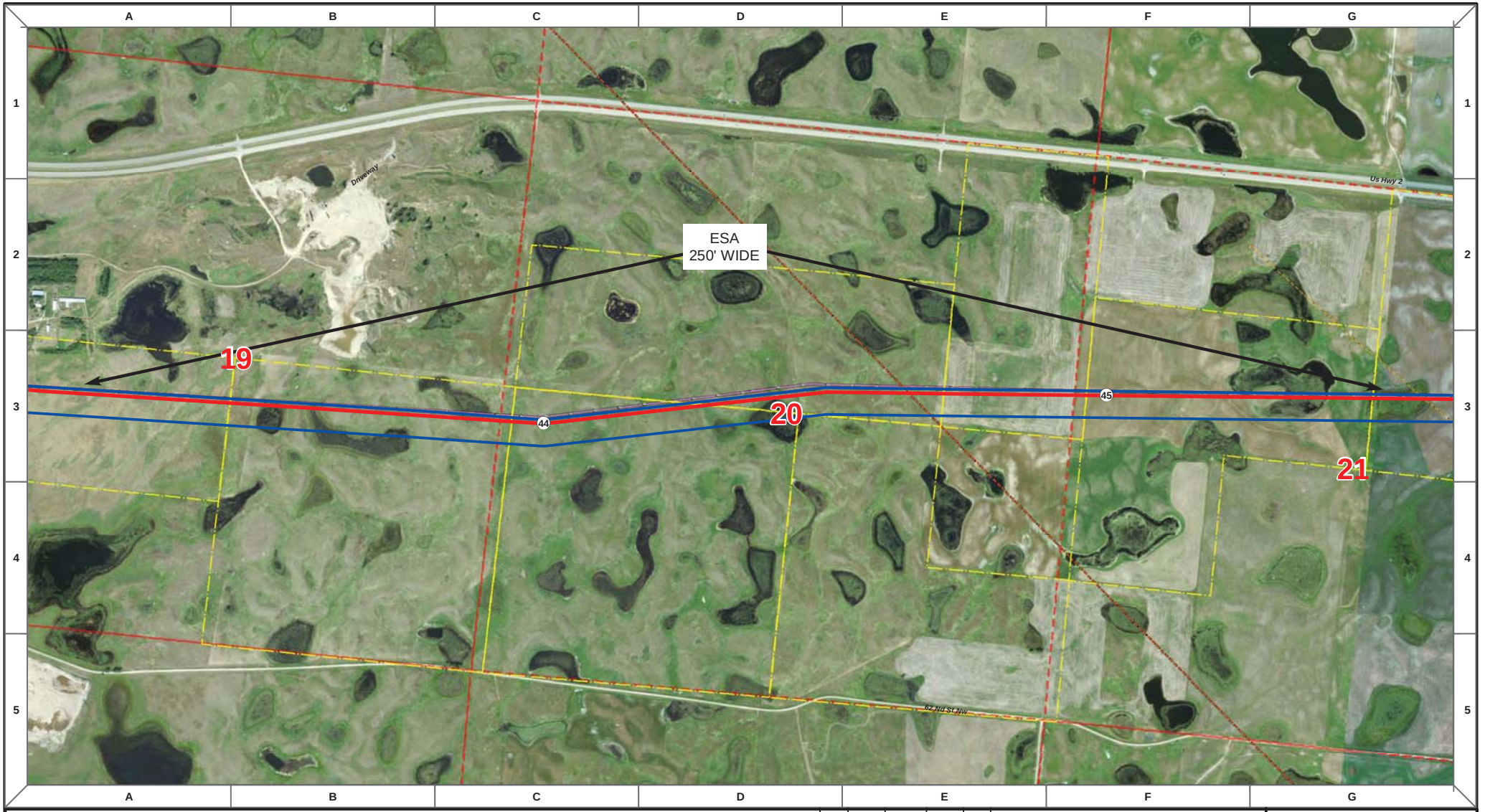
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

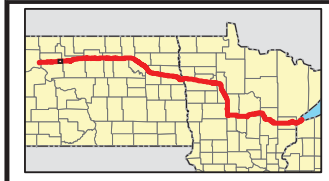
PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 17 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

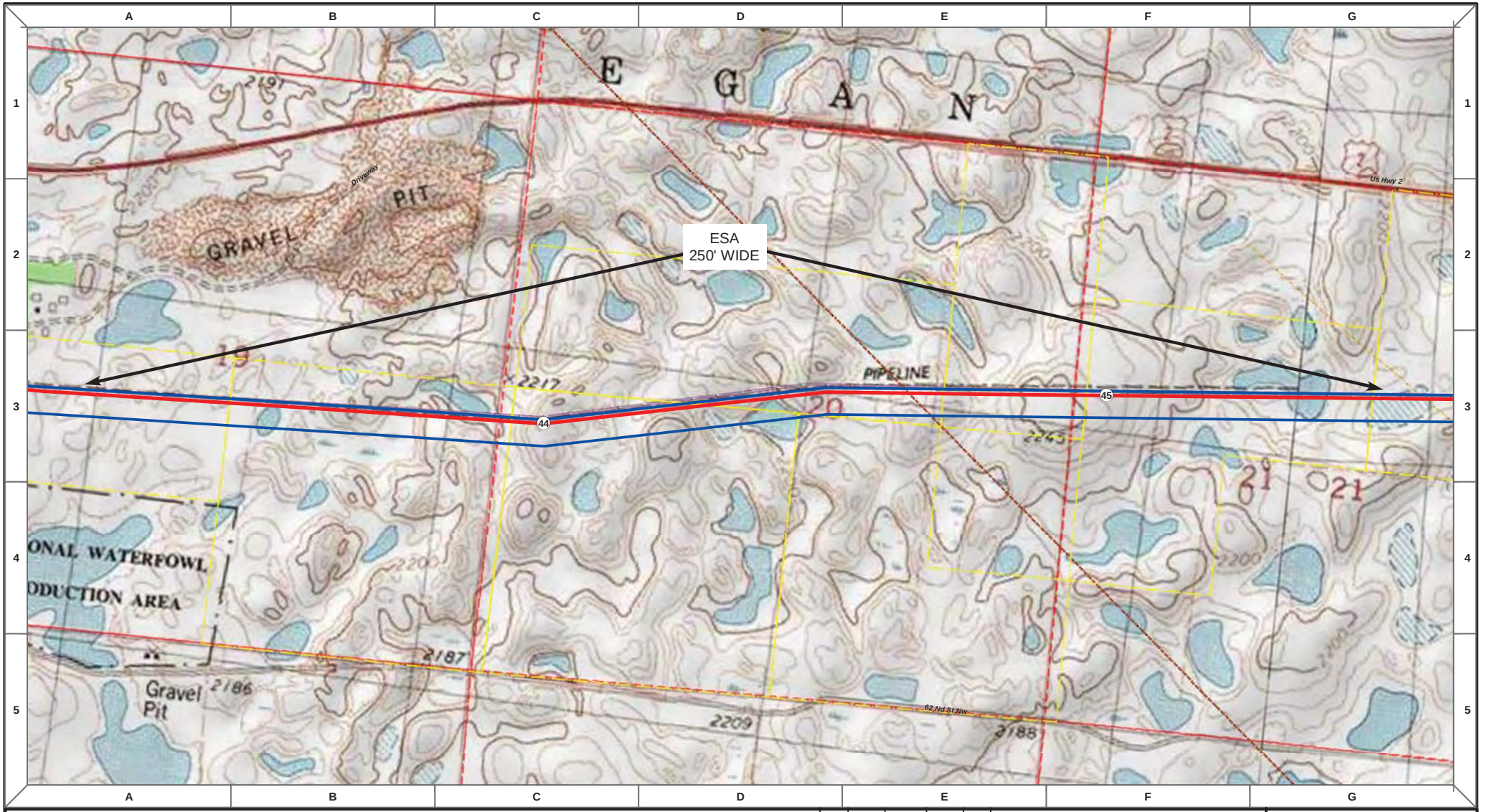
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

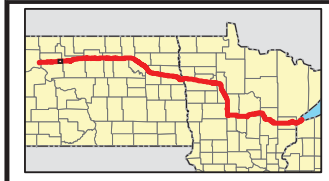
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 18 of 121





- Proposed Pipeline - Sandpiper
- Existing Enbridge Pipelines
- Foreign Pipes
- Transmission Lines
- SPREAD BREAK
- (1) Milepost - Sandpiper
- Potential Block Valve
- Environmental Survey Area (ESA)
- Tract Boundary
- Facility Boundary
- Previously Sited Facility Boundary
- Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

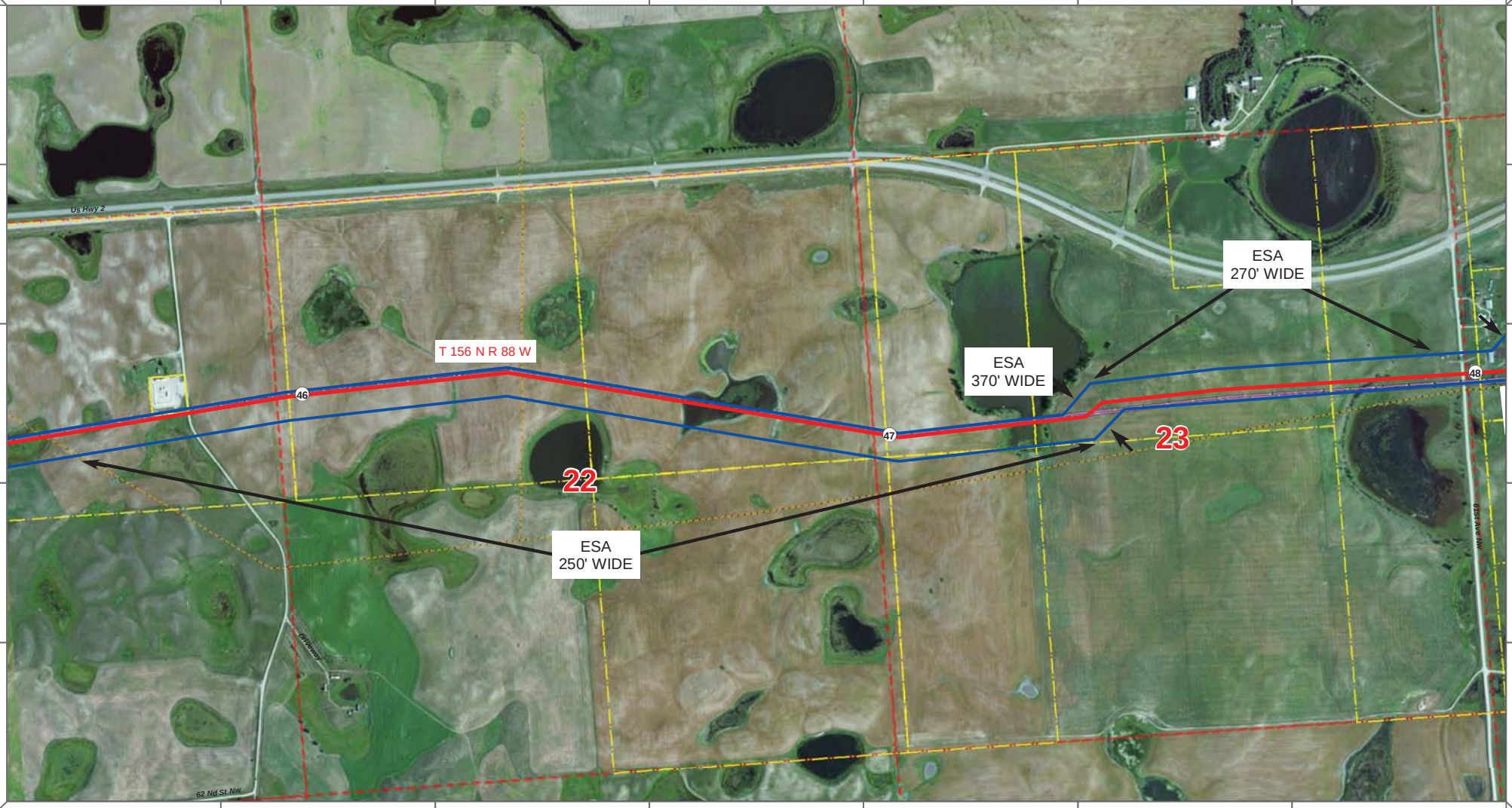
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

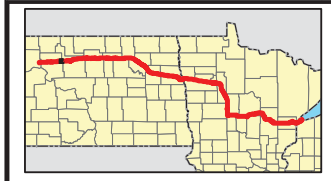
PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 18 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

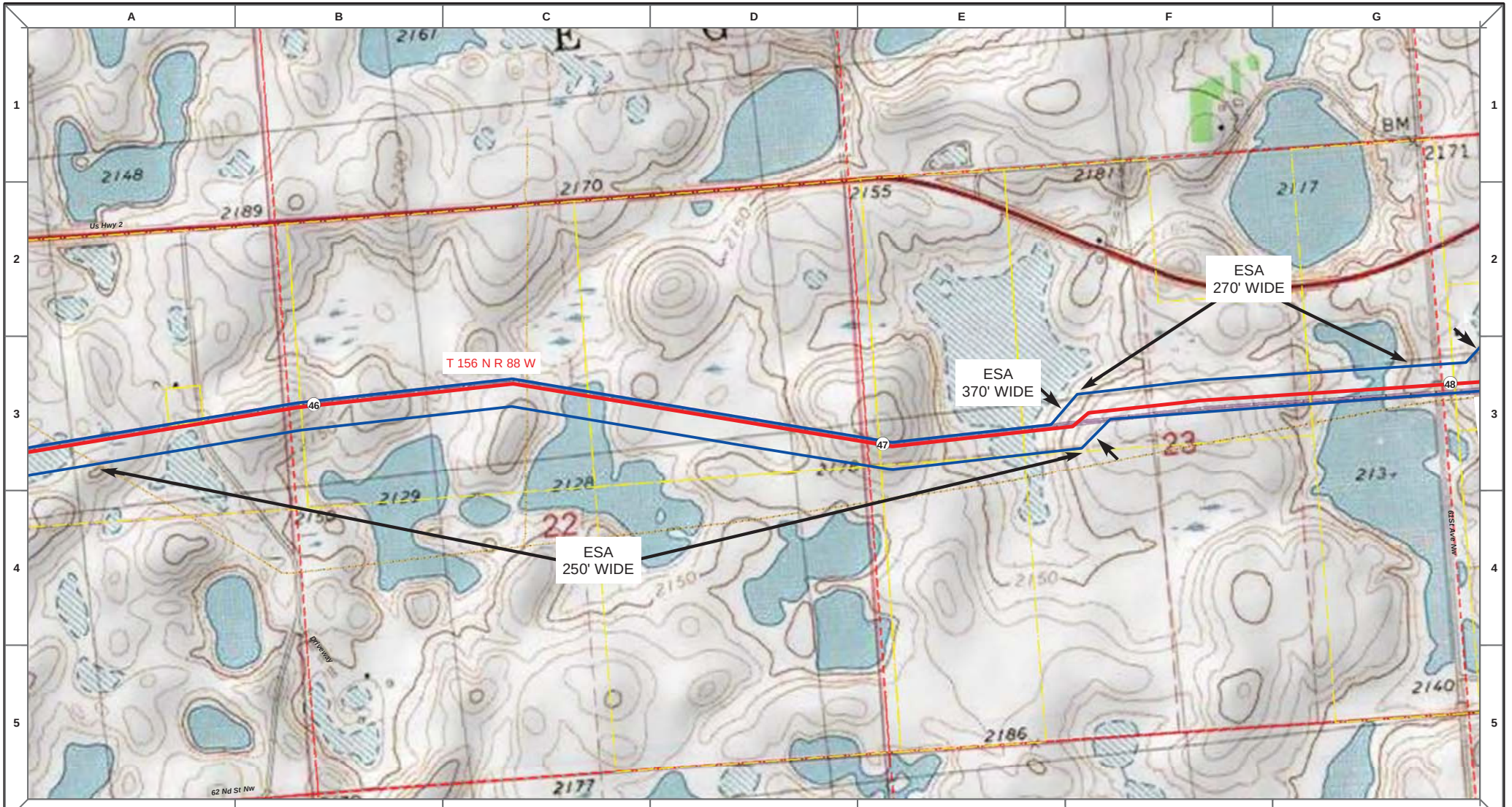
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

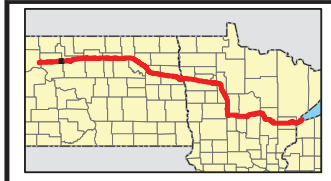
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 19 of 121





- Proposed Pipeline - Sandpiper
- Existing Enbridge Pipelines
- Foreign Pipes
- Transmission Lines
- SPREAD BREAK
- (1) Milepost - Sandpiper
- Potential Block Valve
- Environmental Survey Area (ESA)
- Tract Boundary
- Facility Boundary
- Previously Sited Facility Boundary
- Section Lines

N

500 250 0 500 1,000 Feet

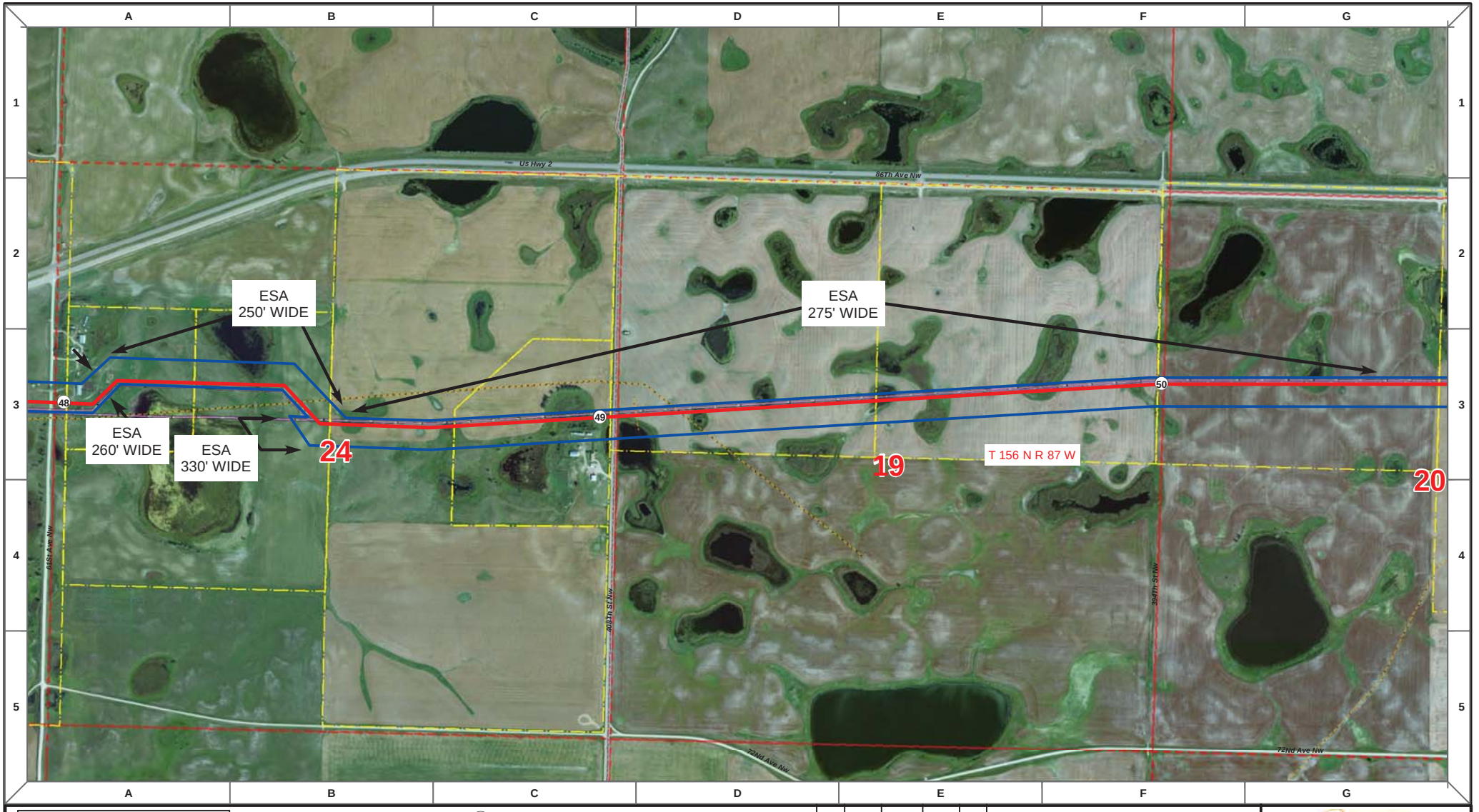
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

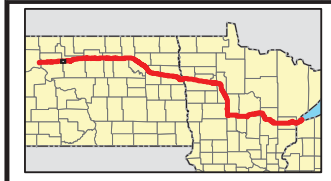
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 19 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

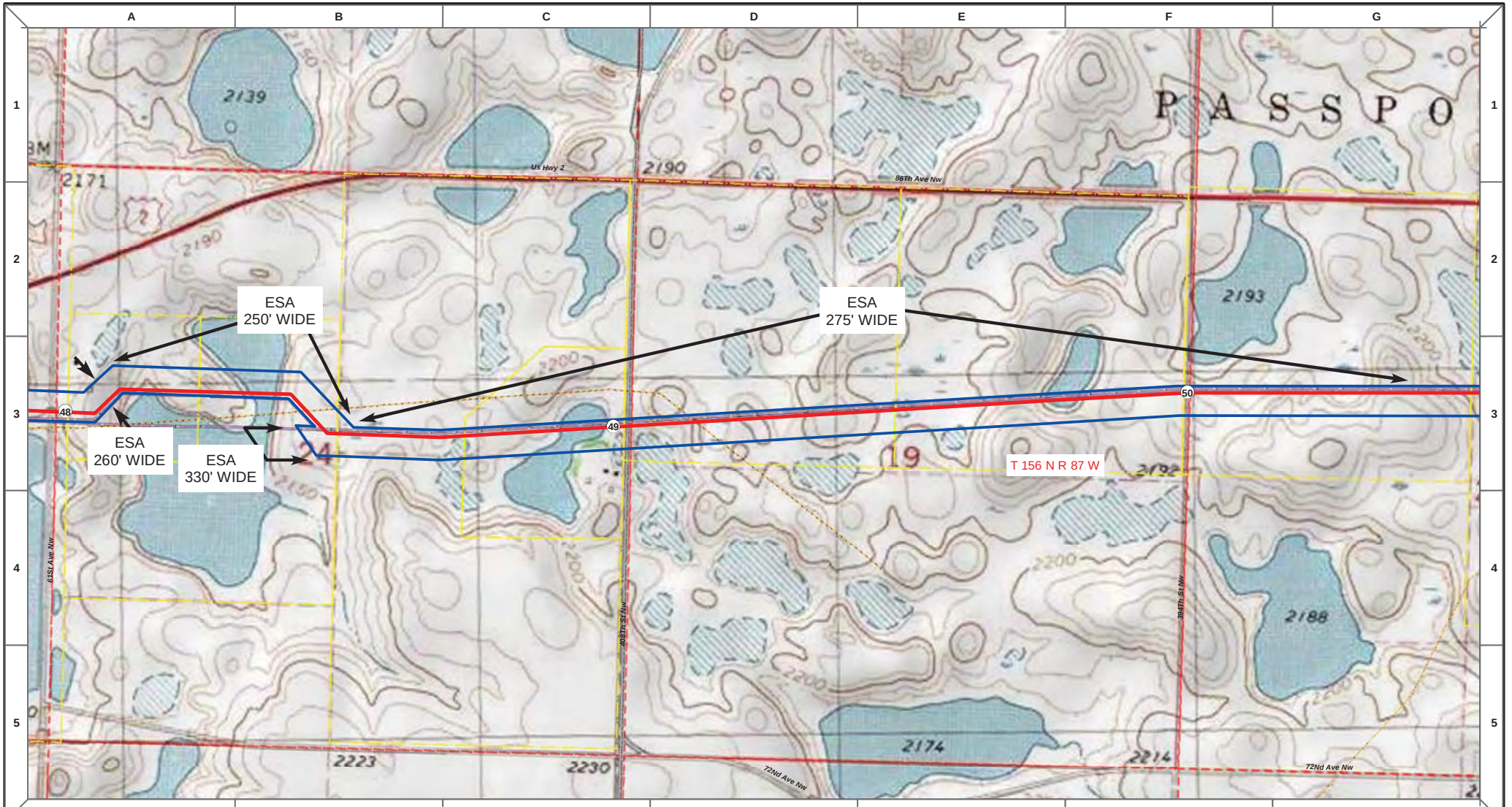
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail & Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 20 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

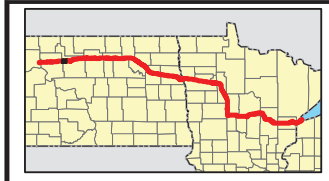
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Mountrail & Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 20 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

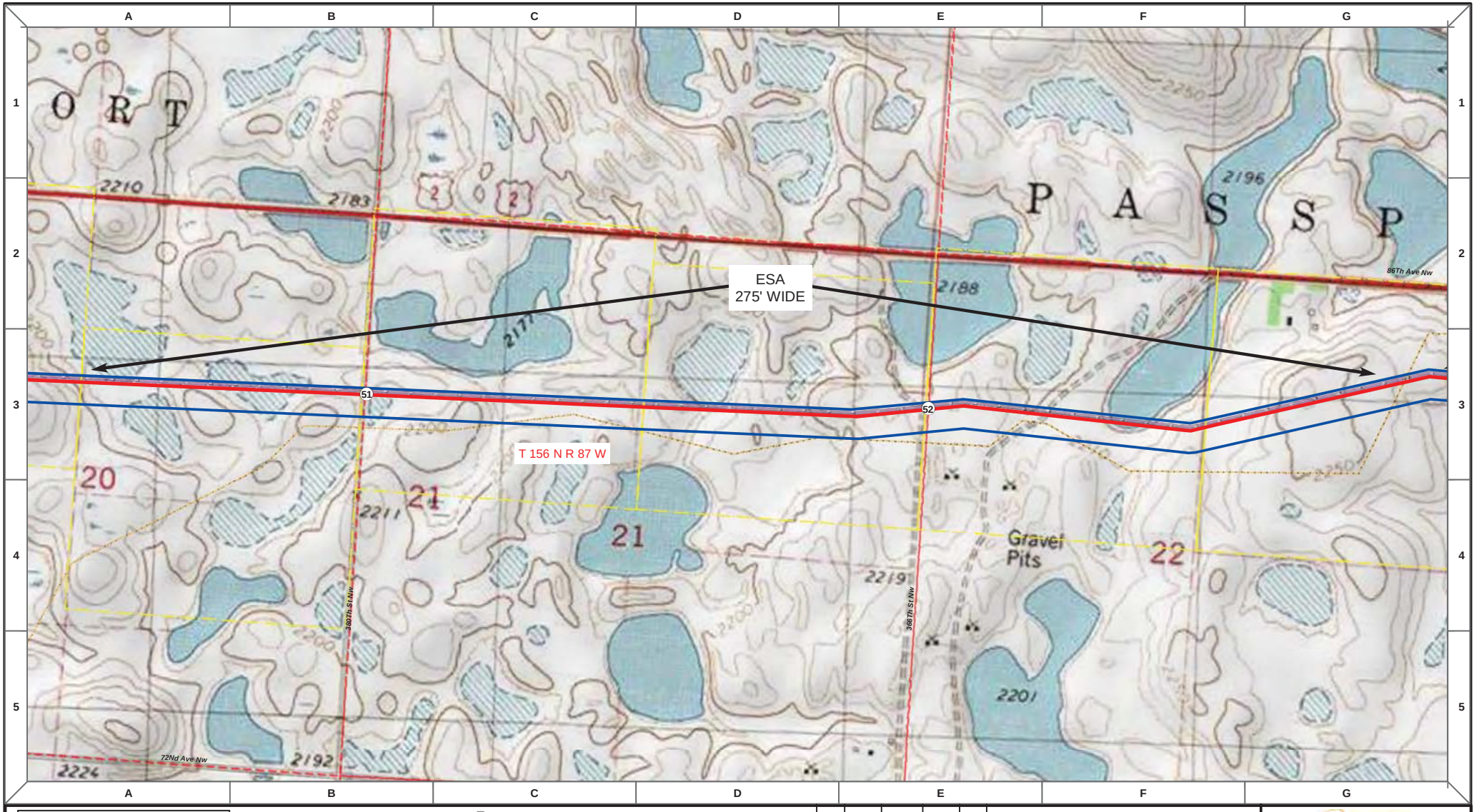
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 21 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

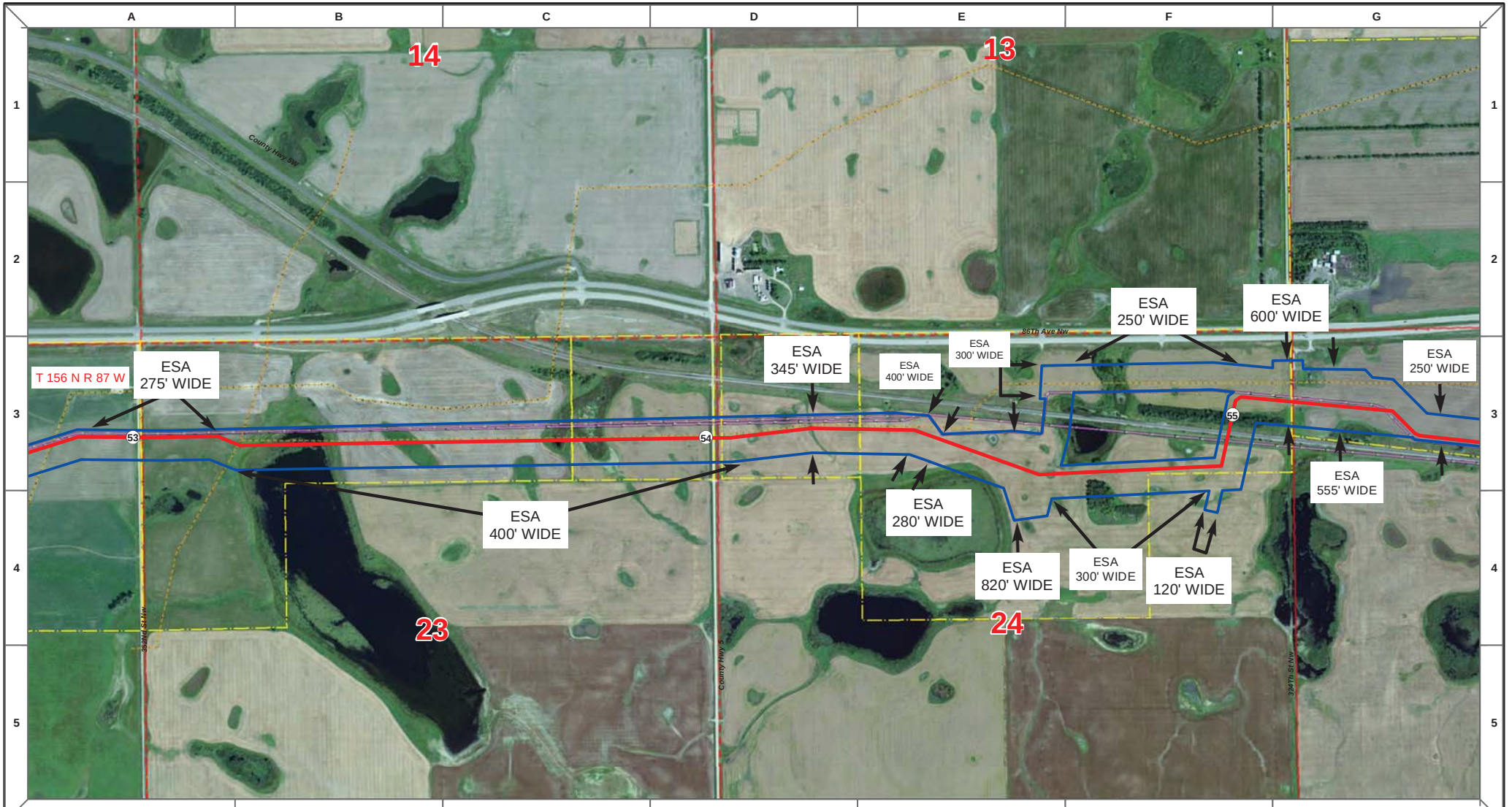
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

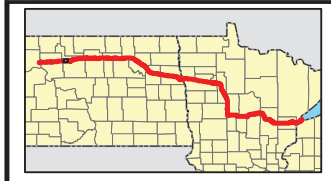
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 21 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

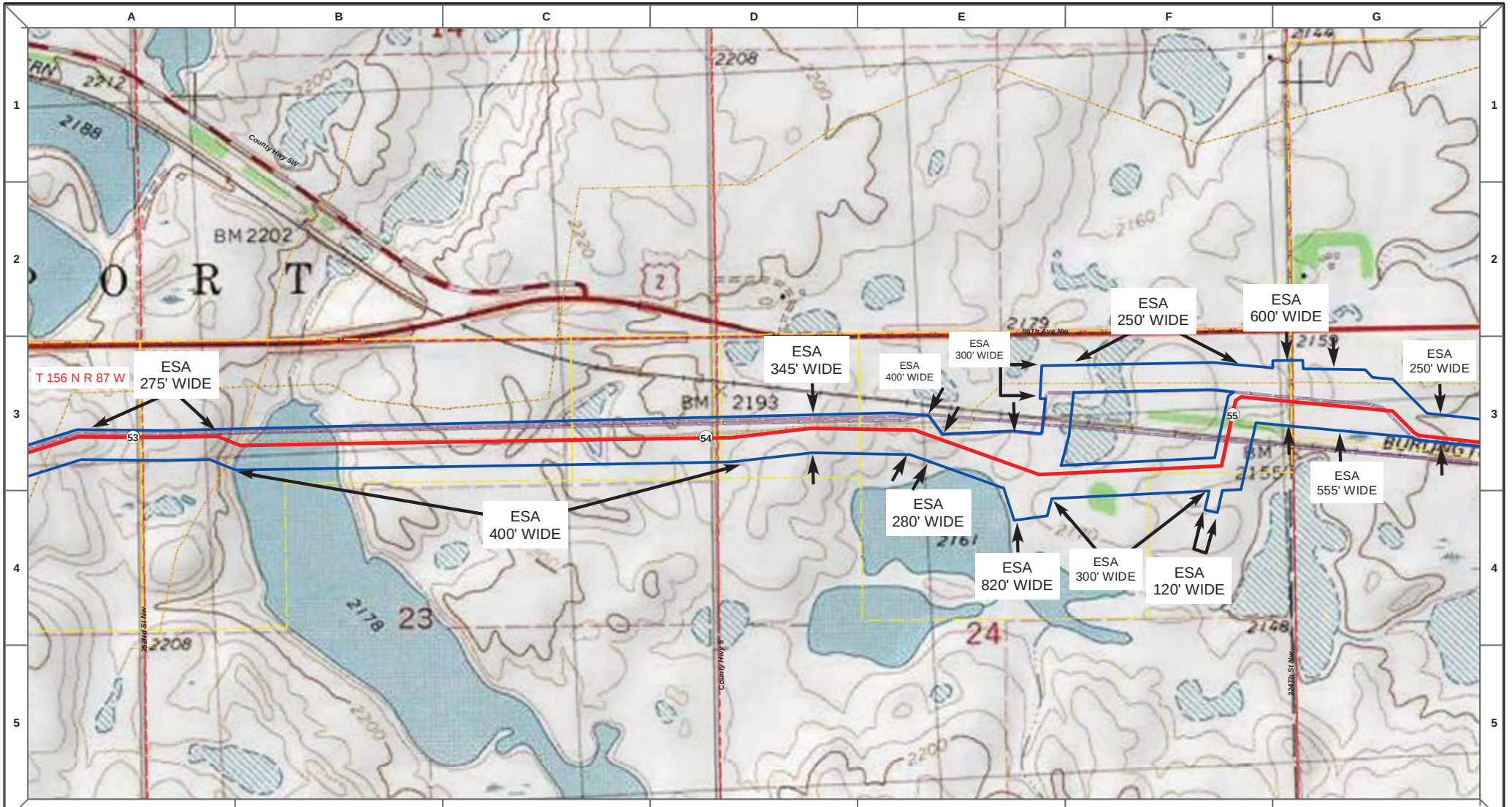
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

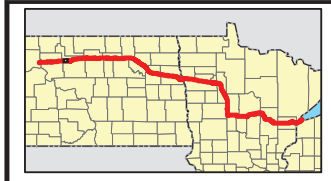
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 22 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

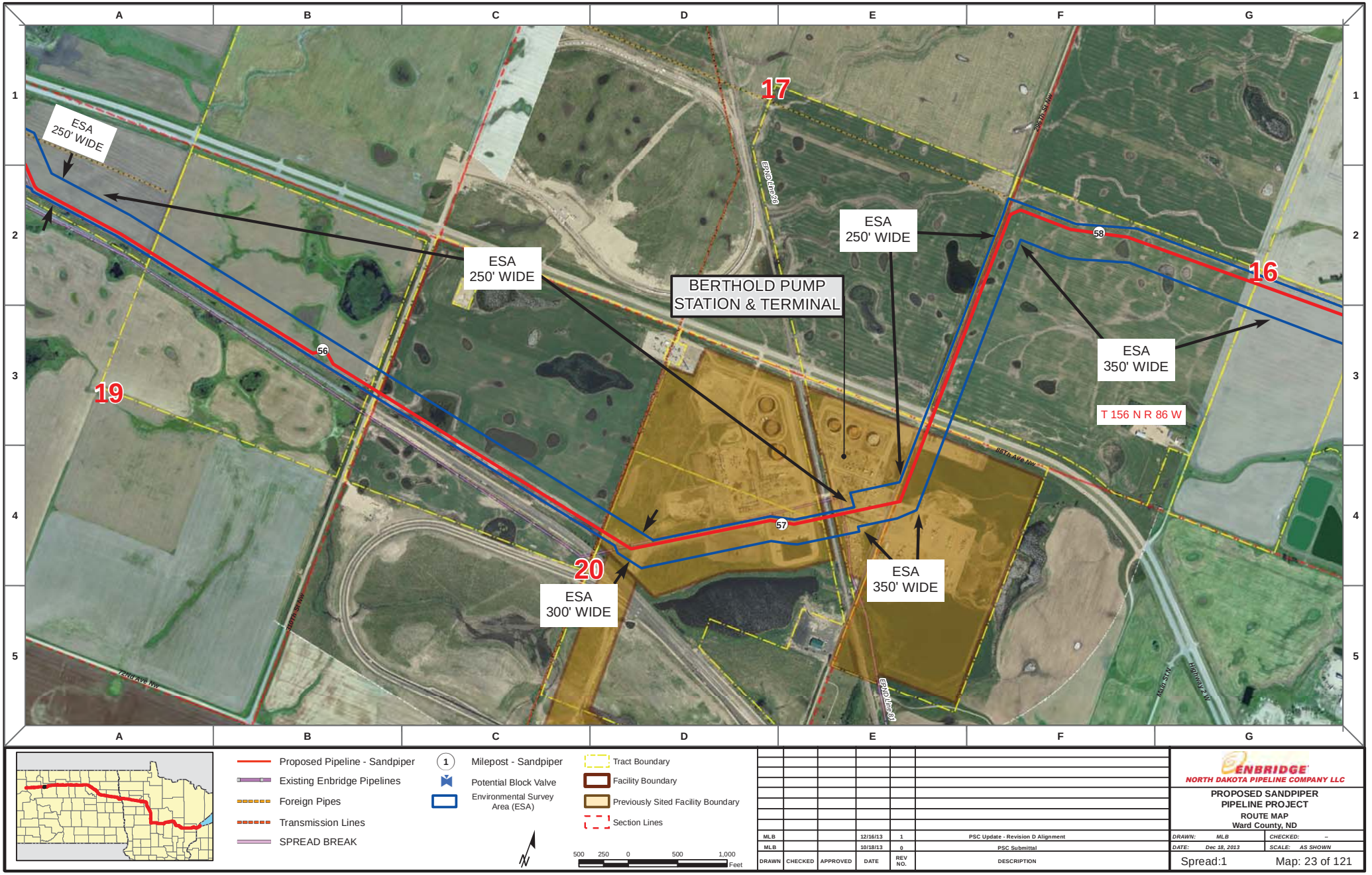
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

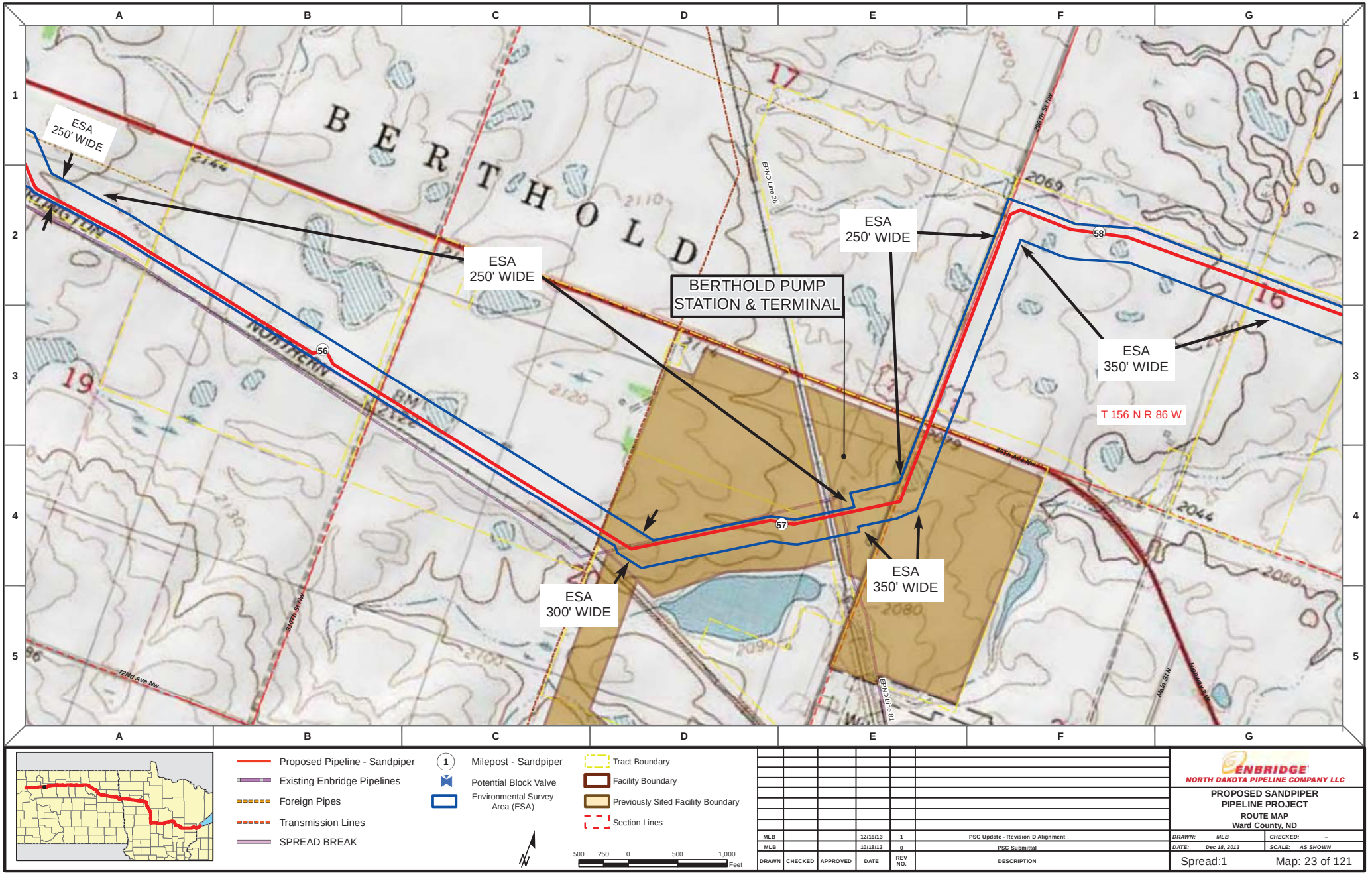
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 22 of 121


A
B
C
D
E
F
G
1
2
3
4
5
17
16
19
20
56
57
58
ESA
250' WIDE
ESA
250' WIDE
ESA
250' WIDE
BERTHOLD PUMP
STATION & TERMINAL
ESA
350' WIDE
T 156 N R 86 W
ESA
350' WIDE
ESA
300' WIDE
END Line 69
END Line 69
86th Ave NW
200th St NW
172nd Ave NW
Highway 2 W
Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK
Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)
Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines
500 250 0 500 1,000
Feet
MLB 12/16/13 1 PSC Update - Revision D Alignment
MLB 10/18/13 0 PSC Submittal
DRAWN CHECKED APPROVED DATE REV NO. DESCRIPTION
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC
PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Ward County, ND
DRAWN: MLB
CHECKED: --
DATE: Dec 18, 2013
SCALE: AS SHOWN
Spread:1
Map: 23 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

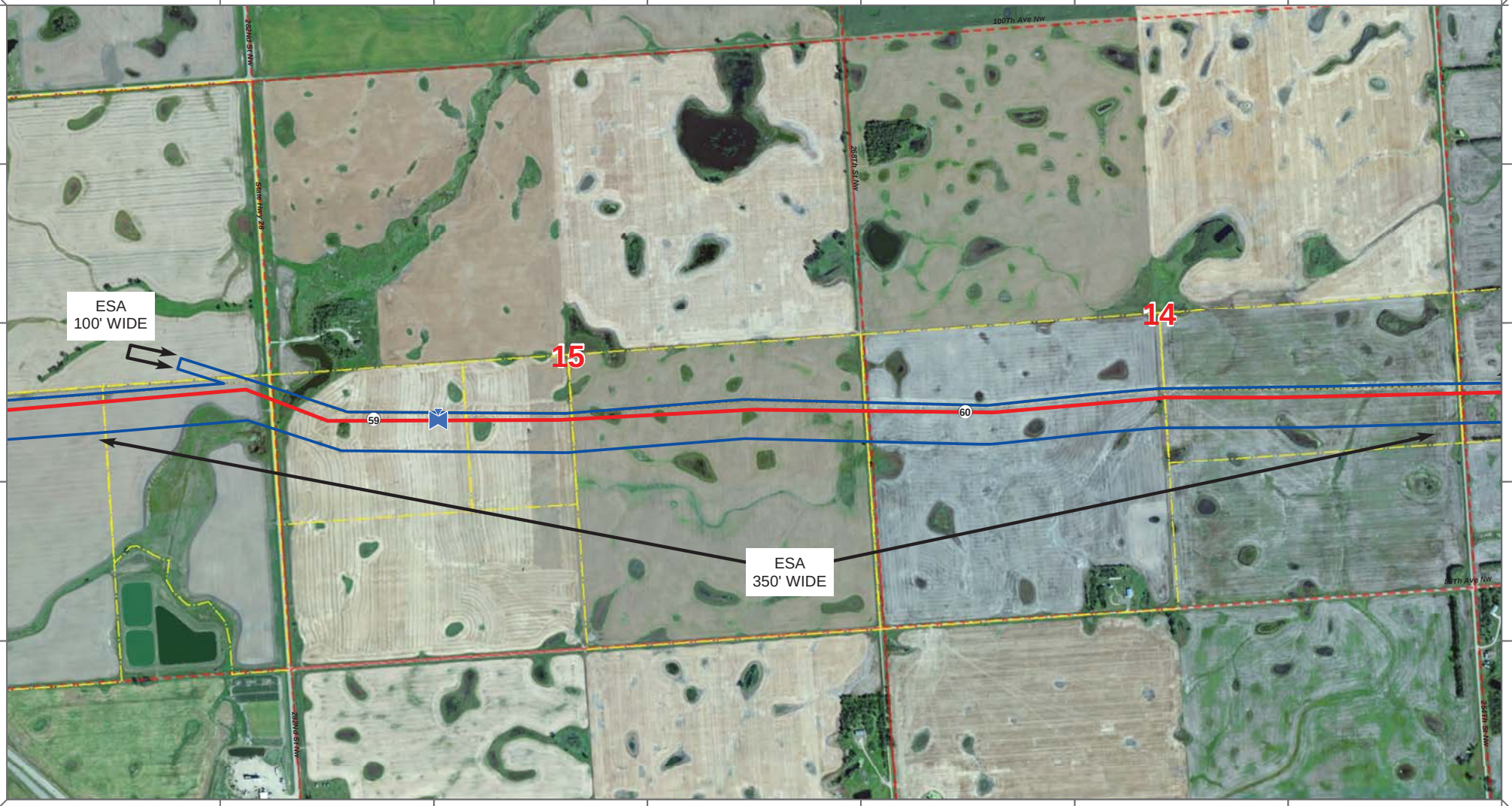
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

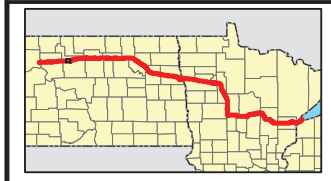
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 23 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

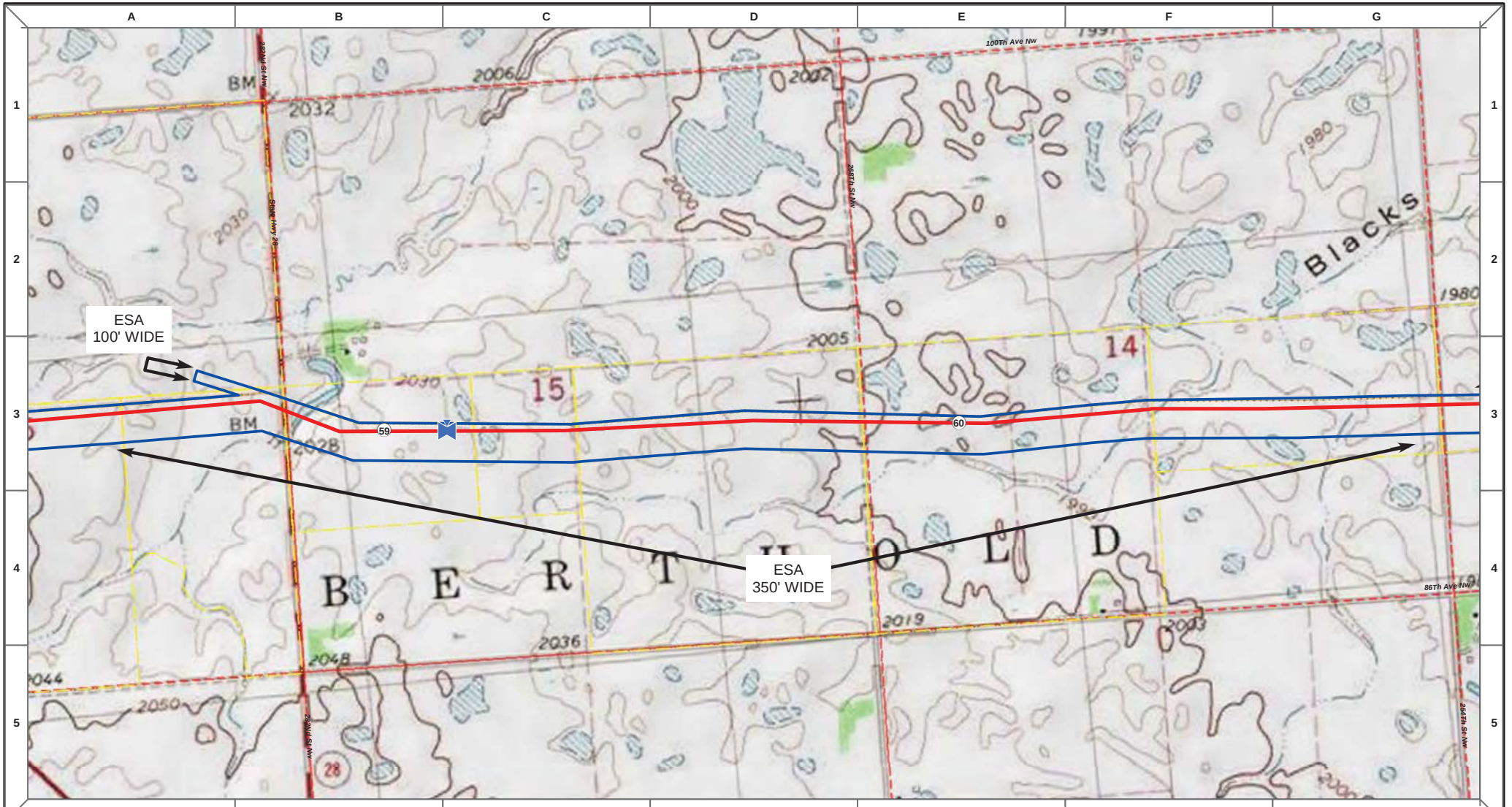
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

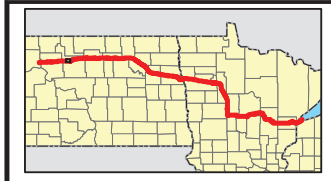
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 24 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

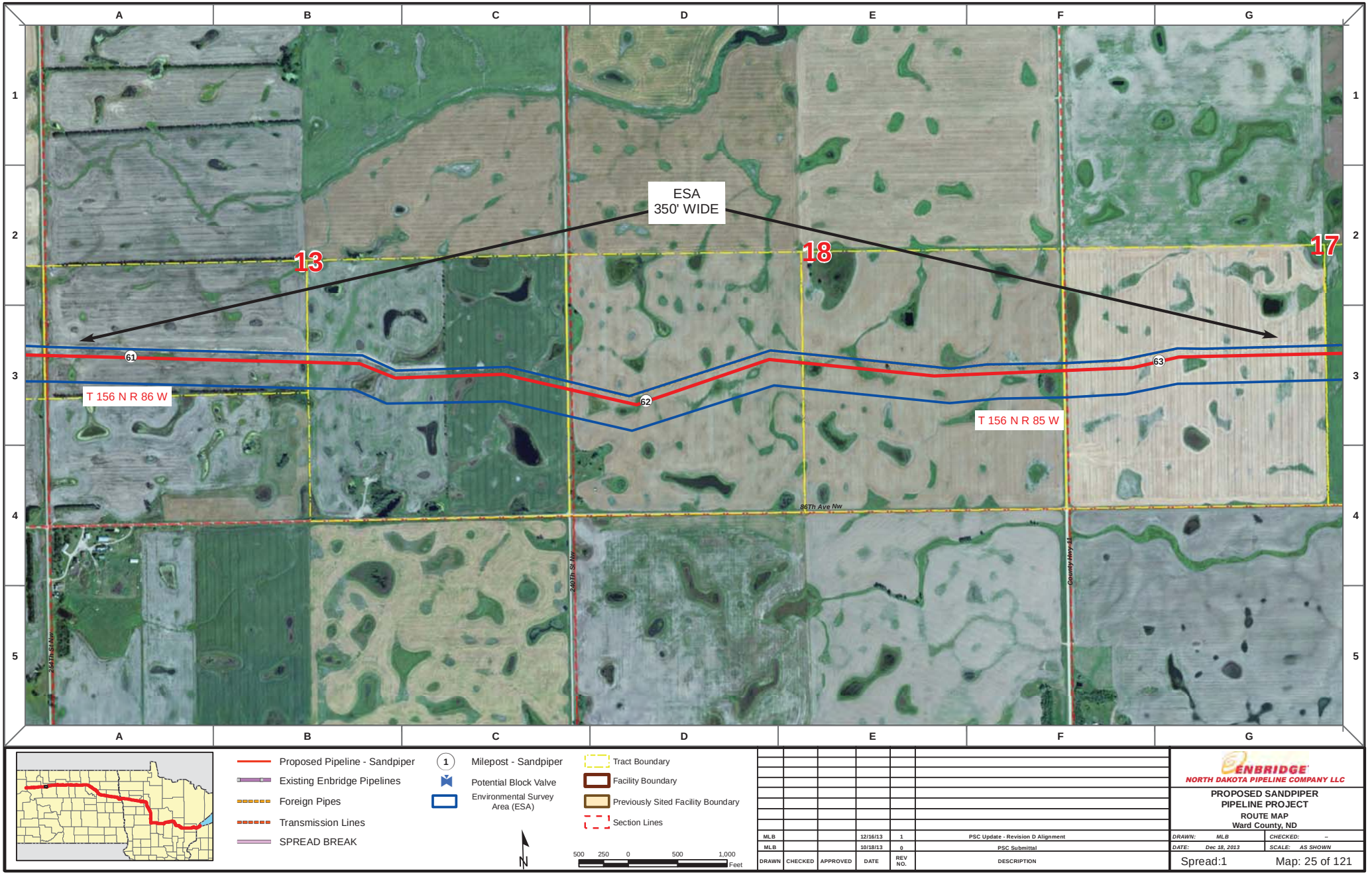
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 24 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

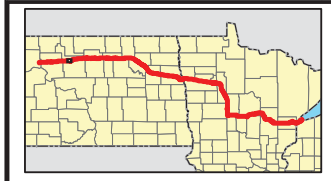
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 25 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

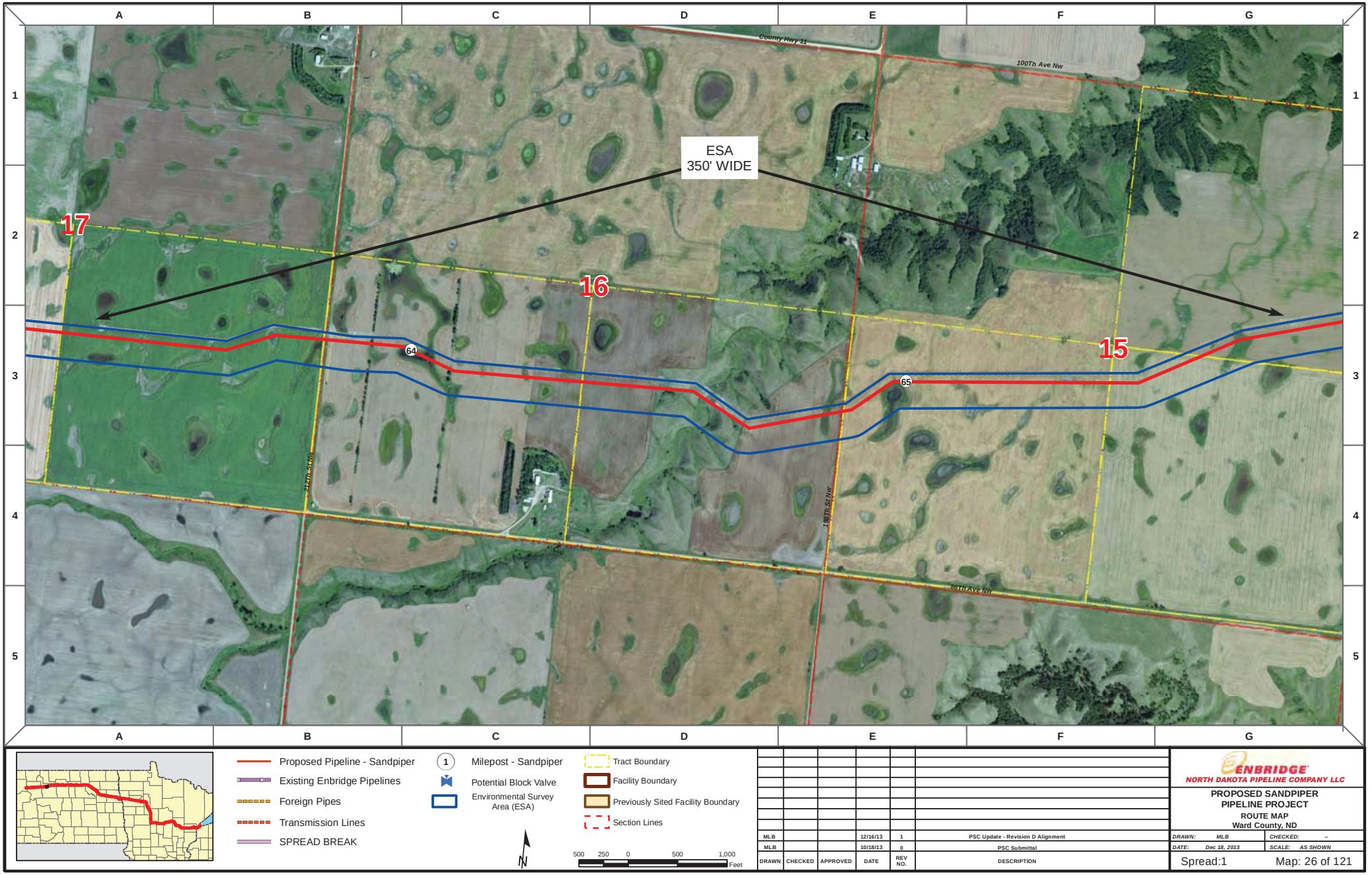
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 25 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

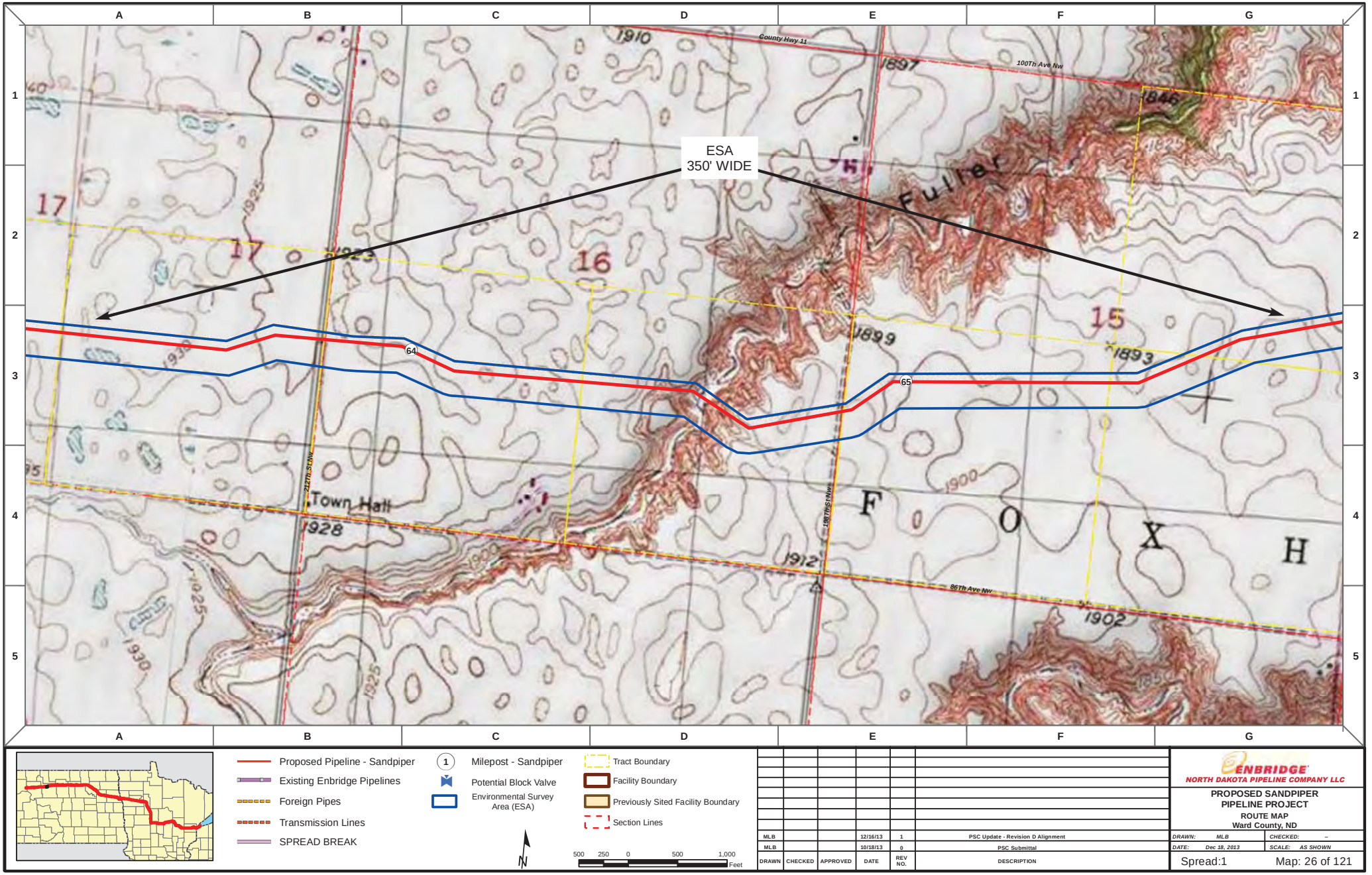
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 26 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

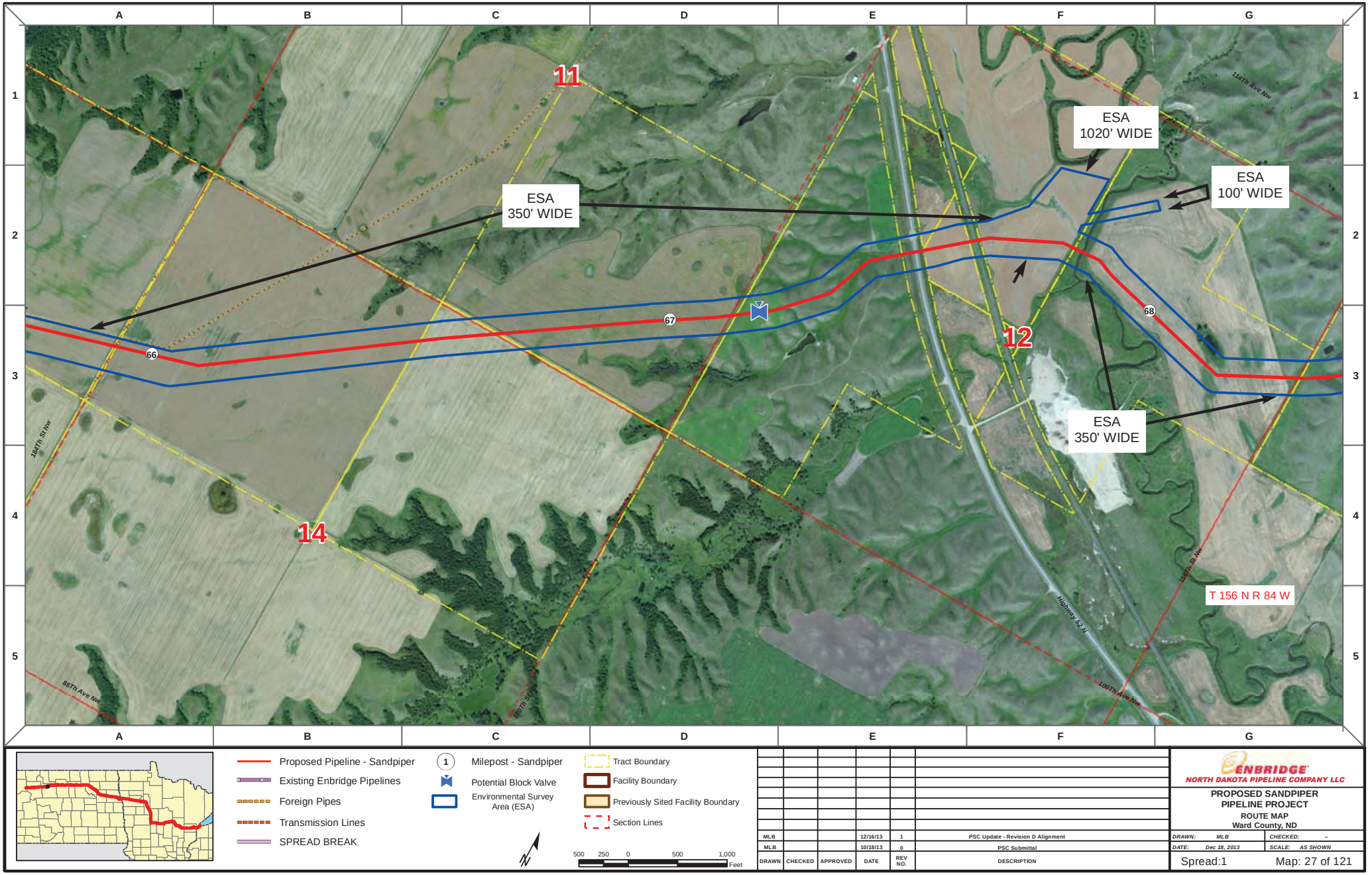
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 26 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

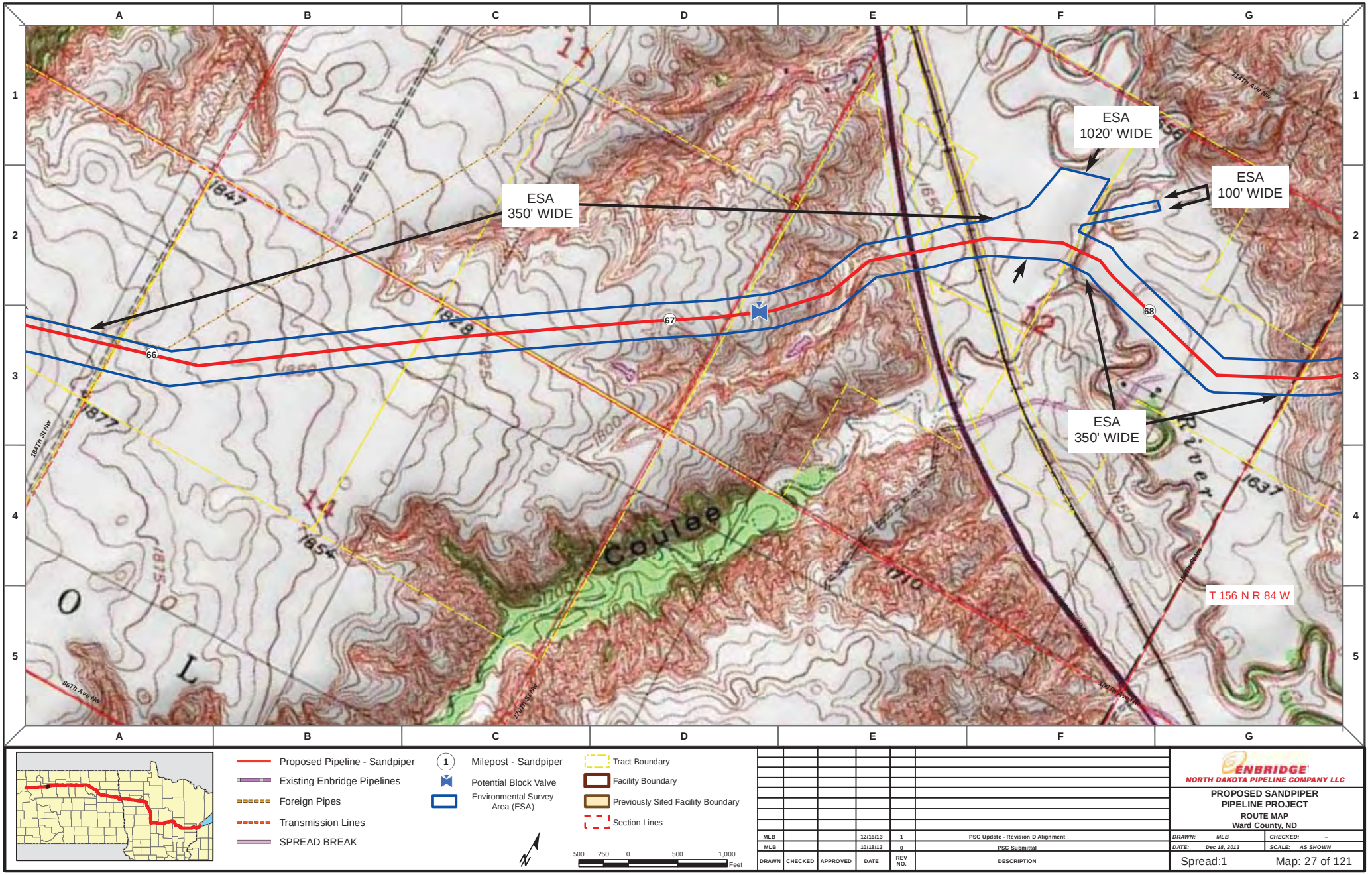
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 27 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

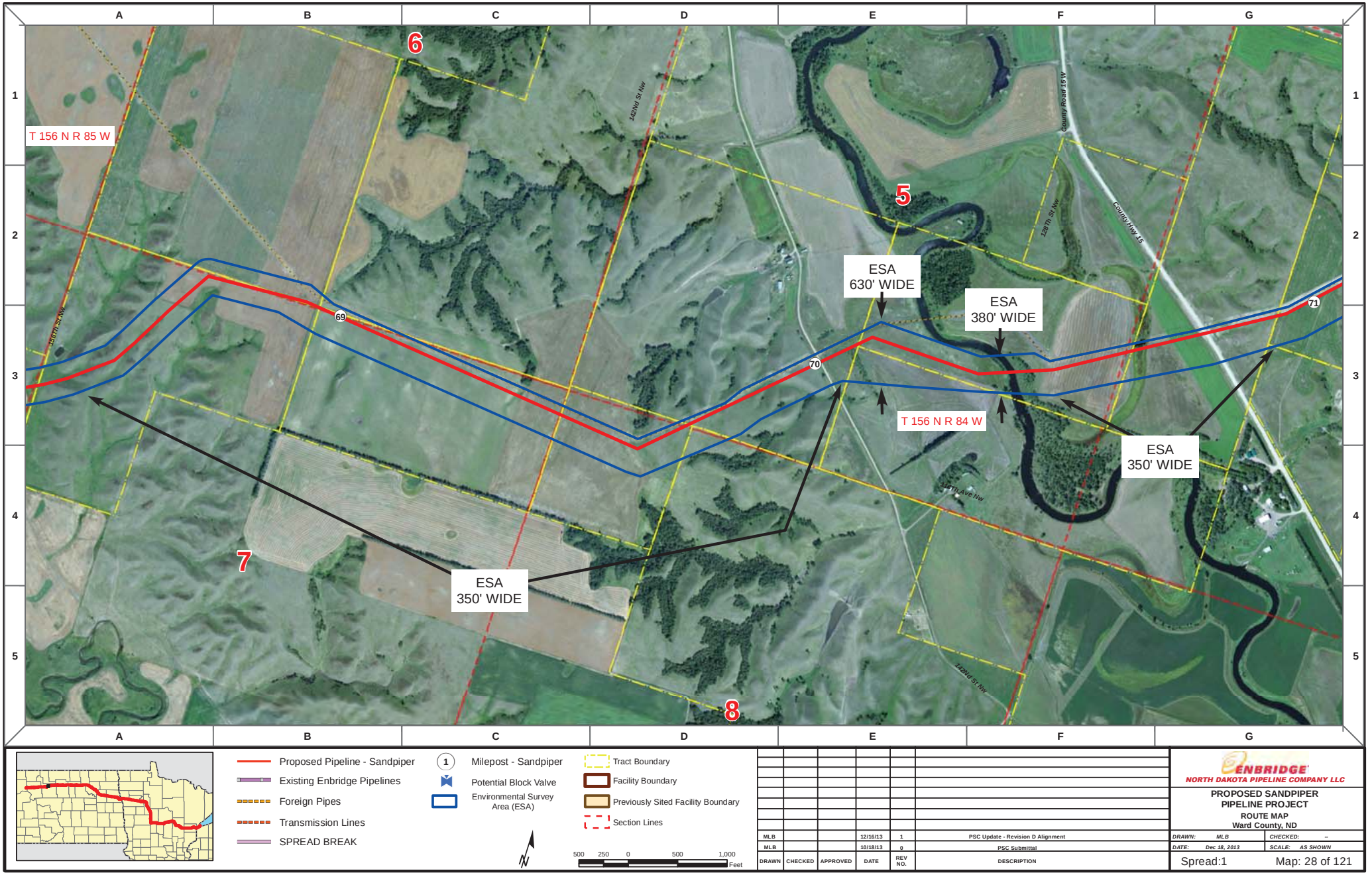
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 27 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

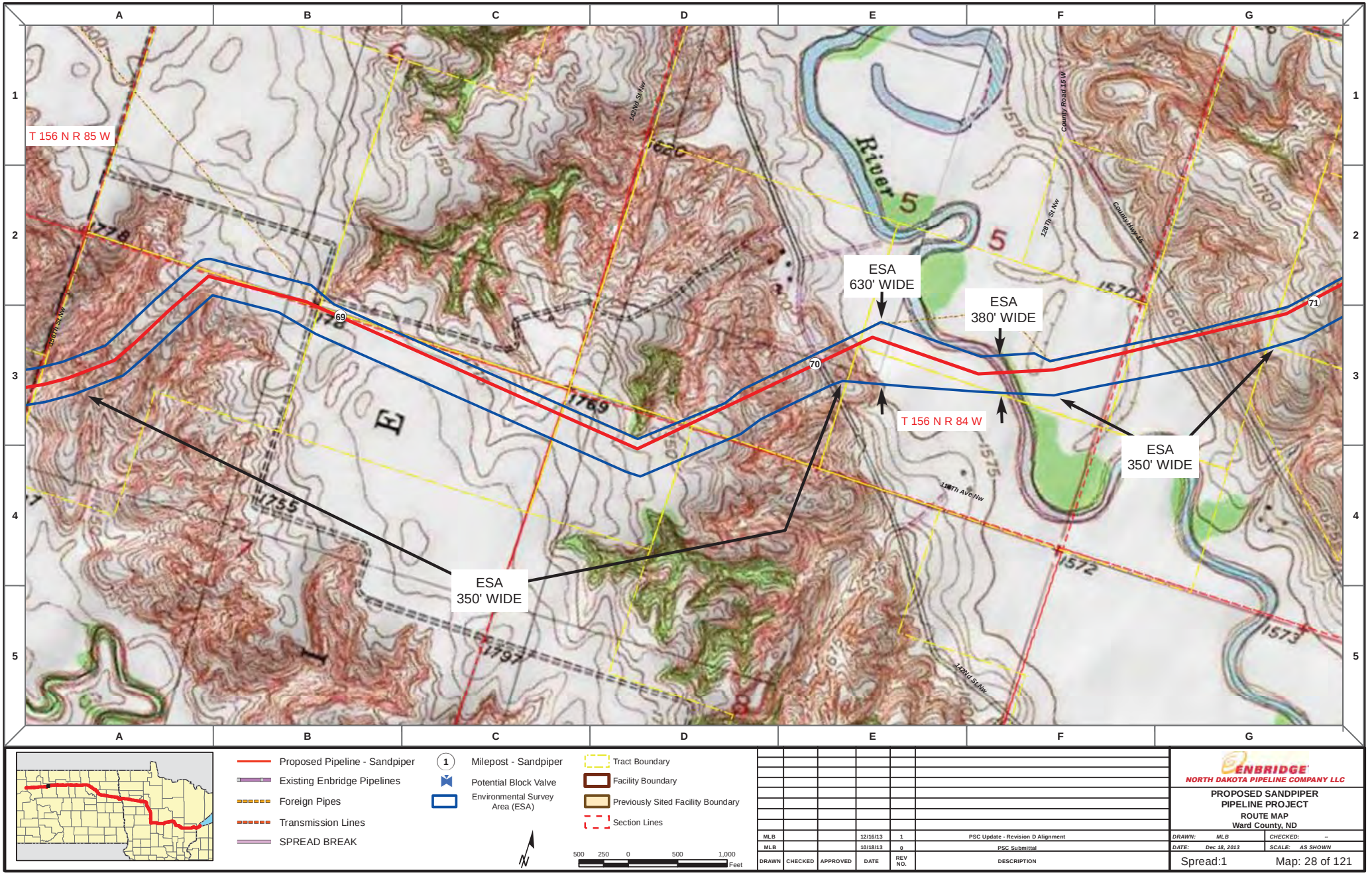
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 28 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

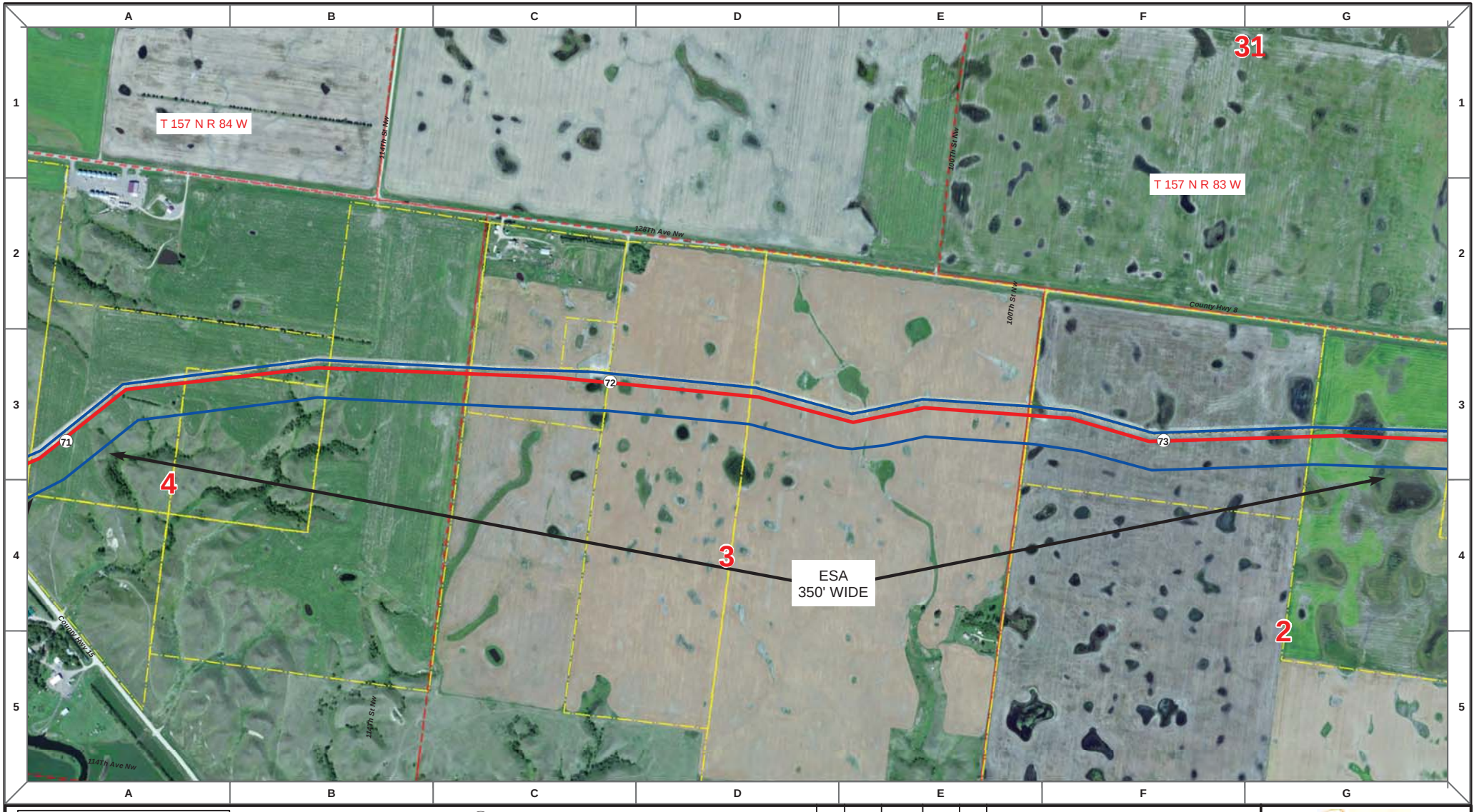
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

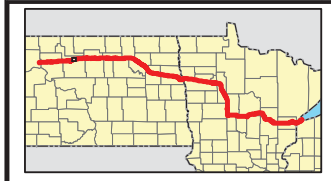
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 28 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

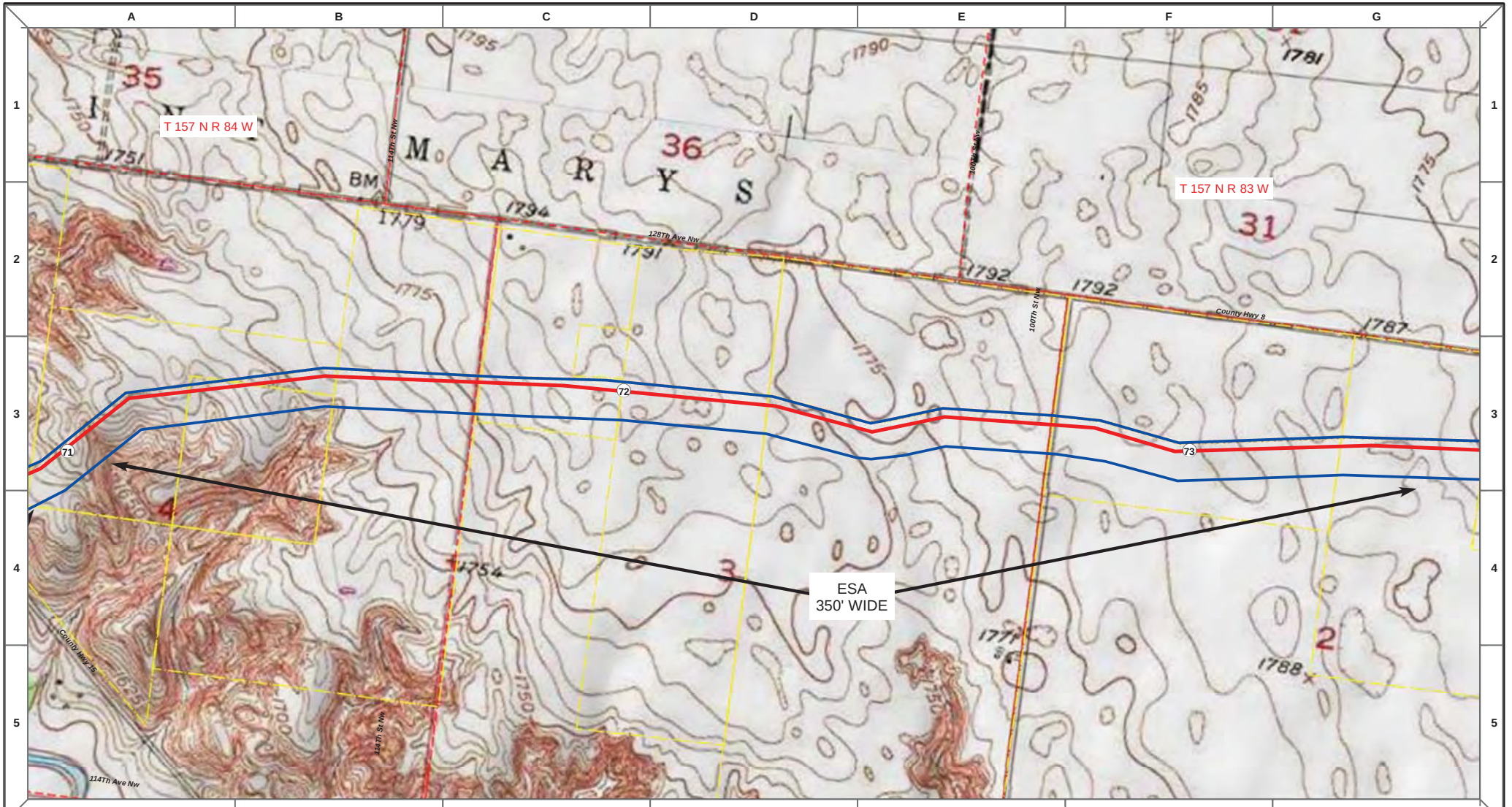
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 29 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

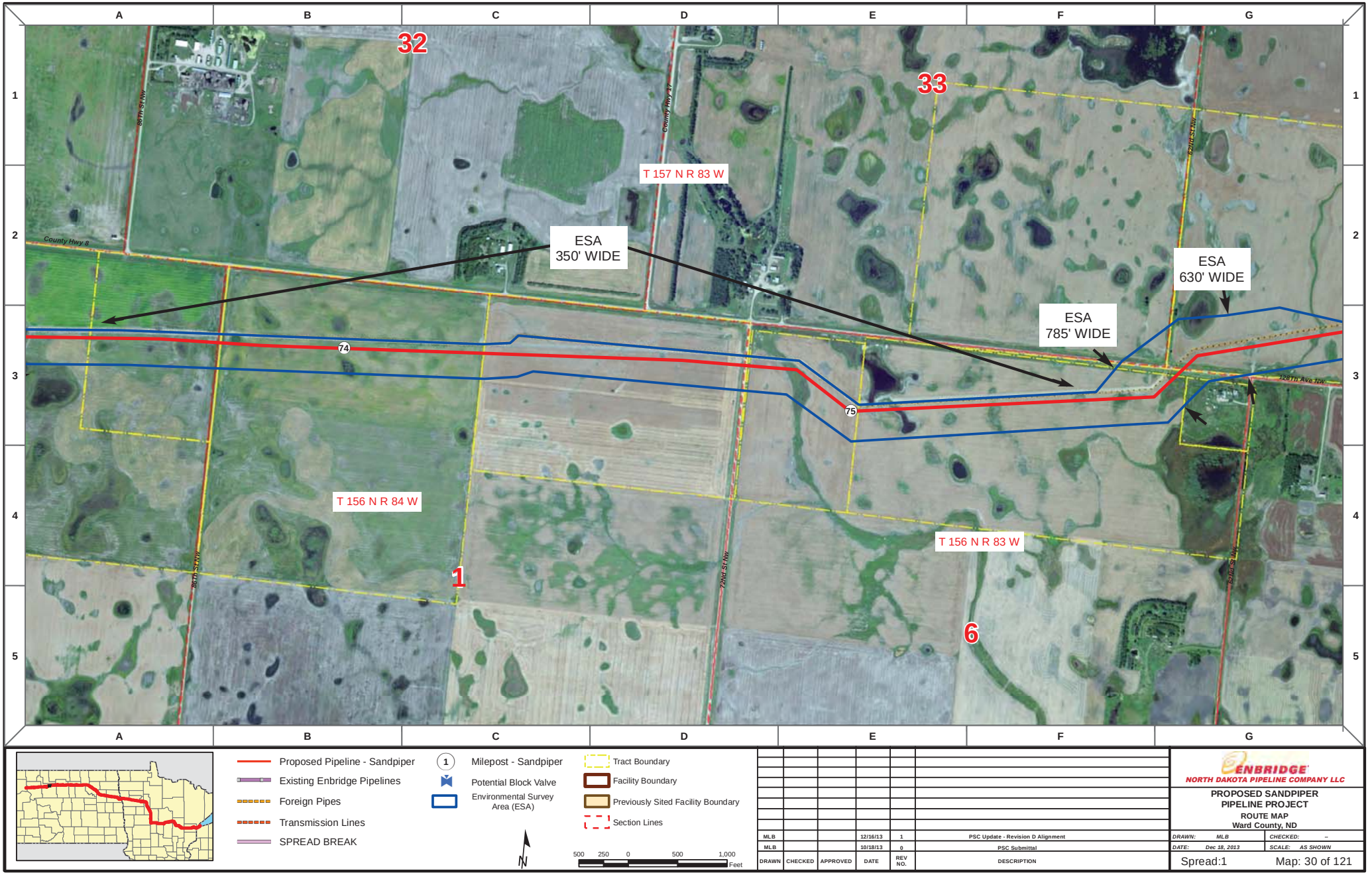
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 29 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

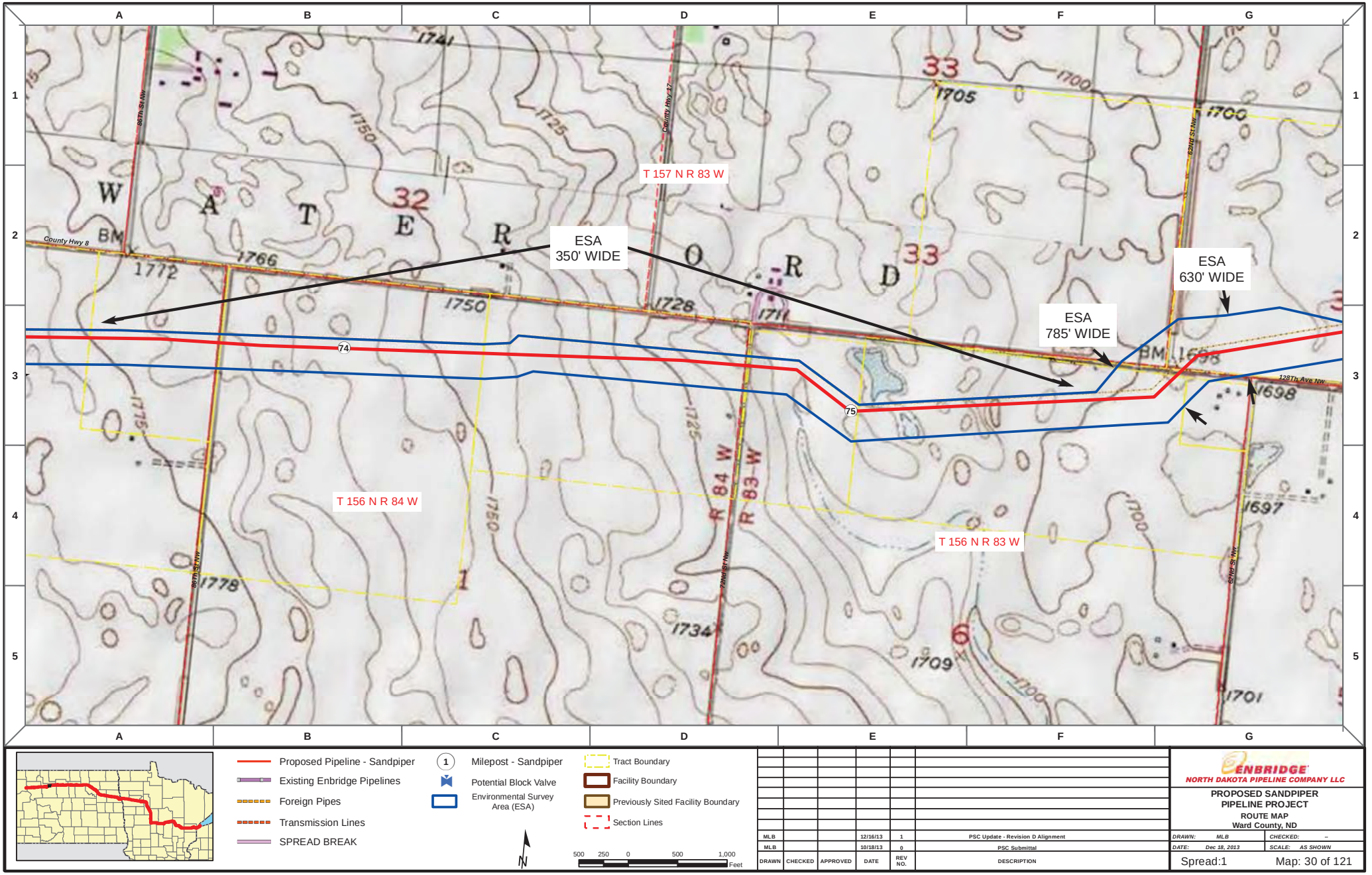
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 30 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

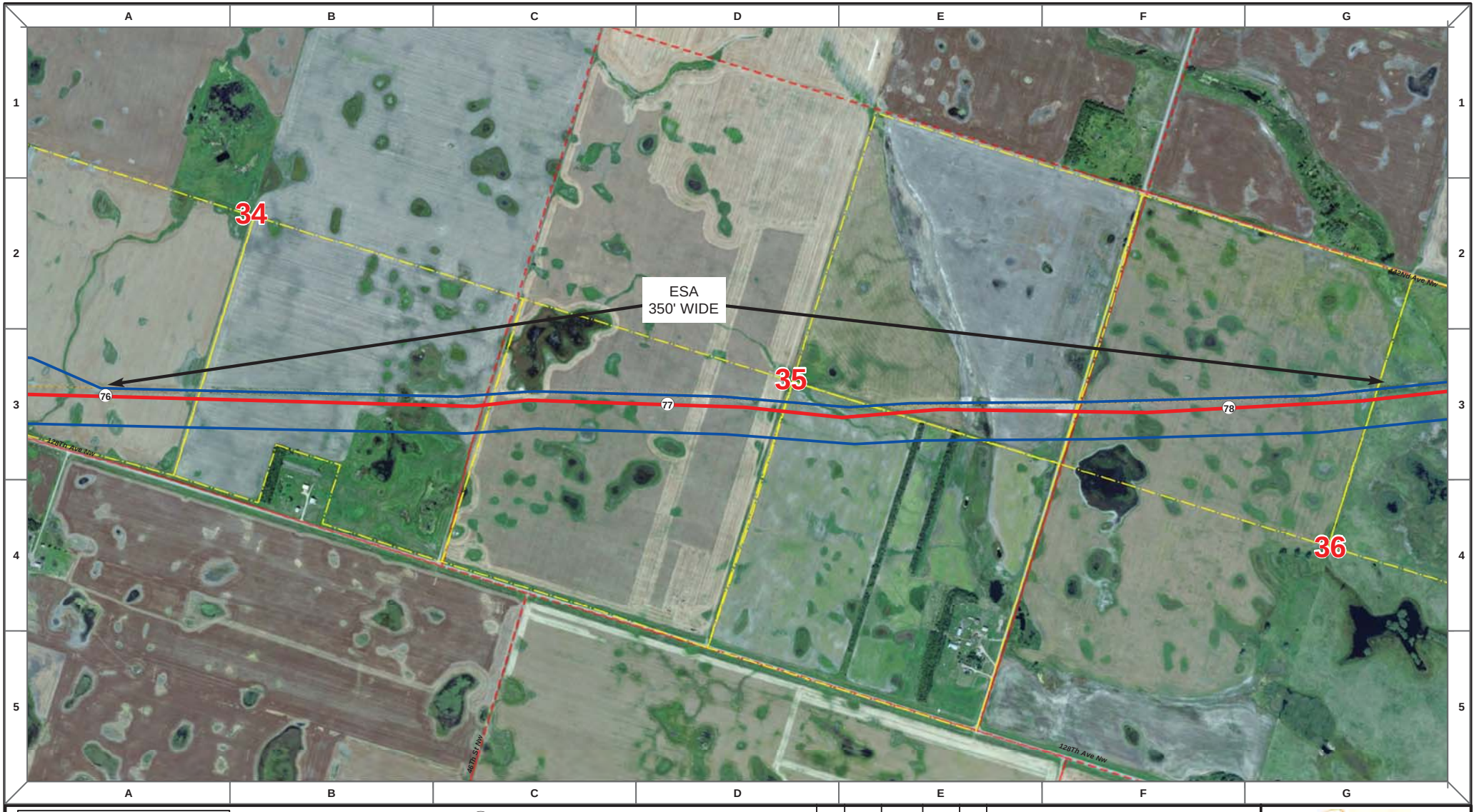
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

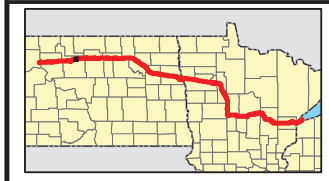
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1 Map: 30 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

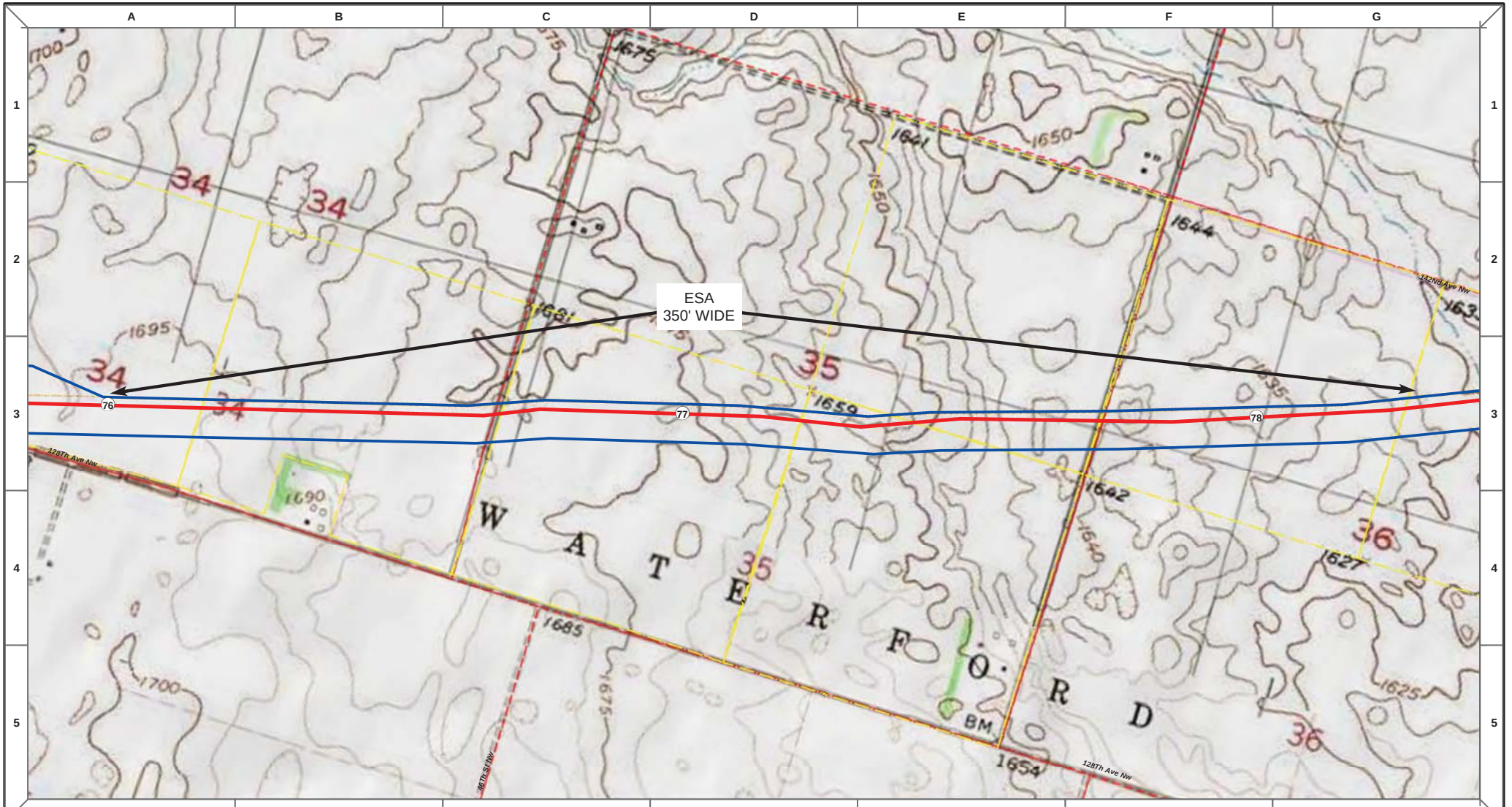
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 31 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

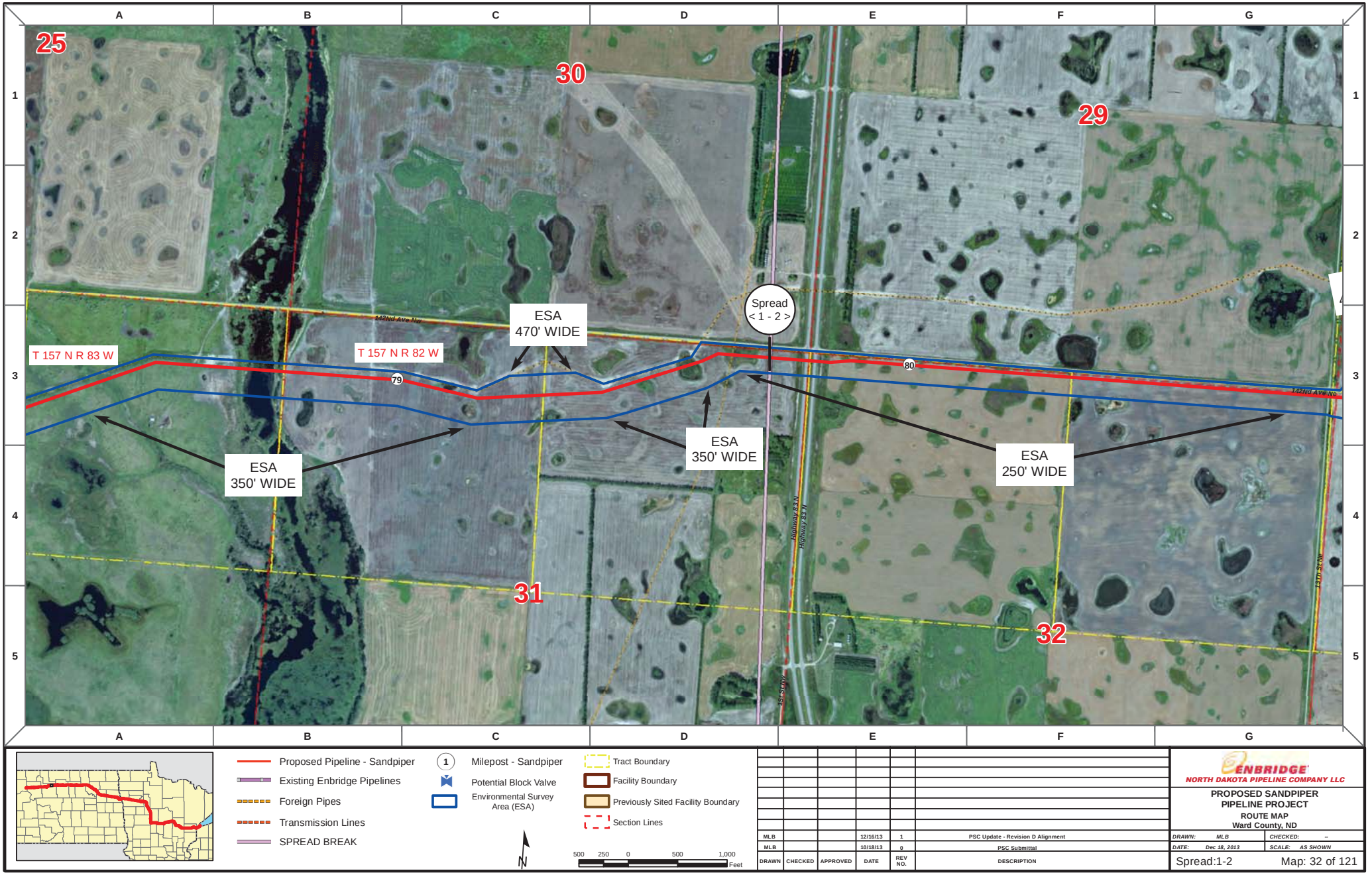
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1 Map: 31 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

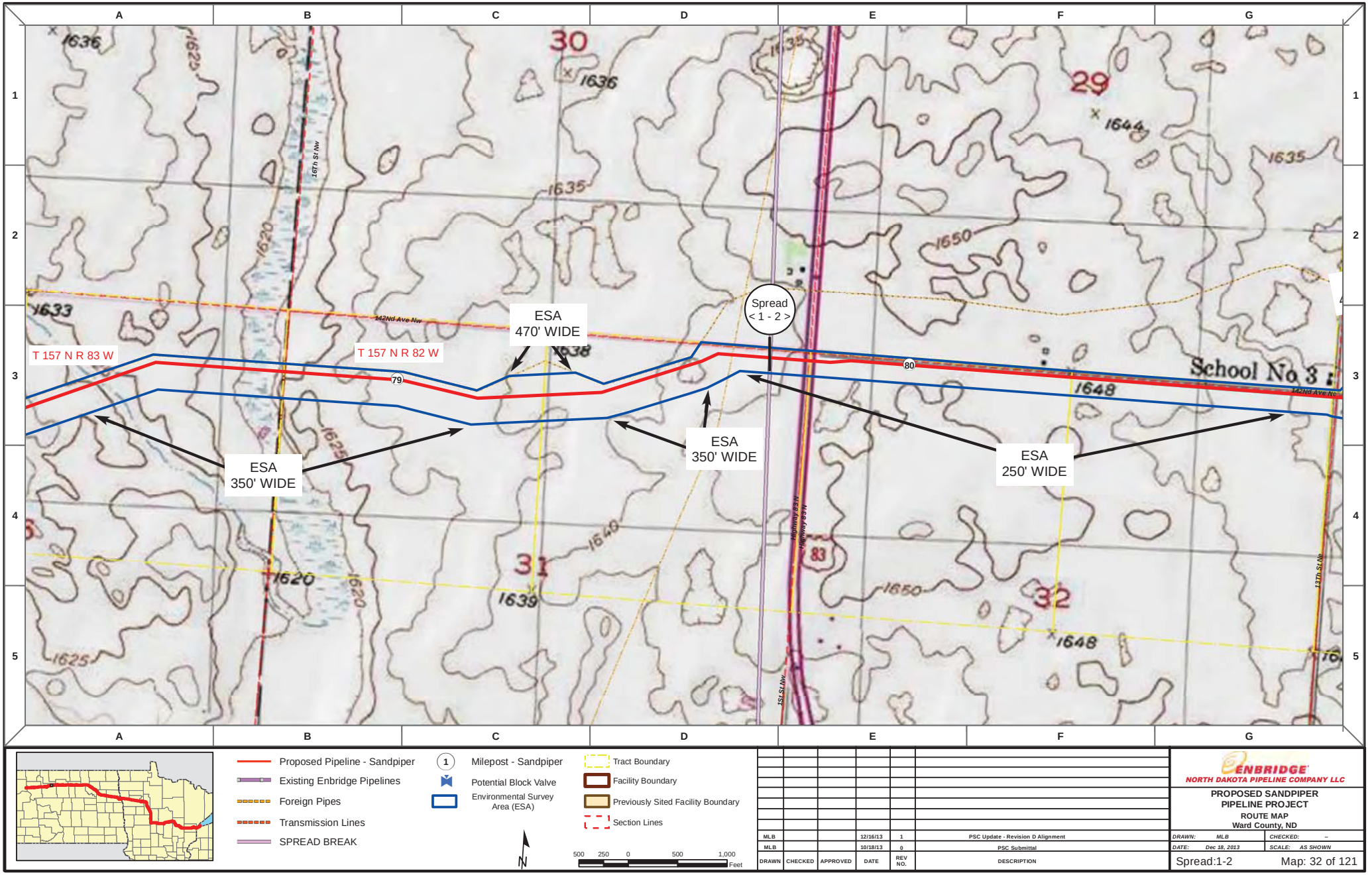
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:1-2 Map: 32 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

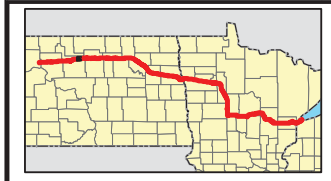
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:1-2 Map: 32 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000
Feet

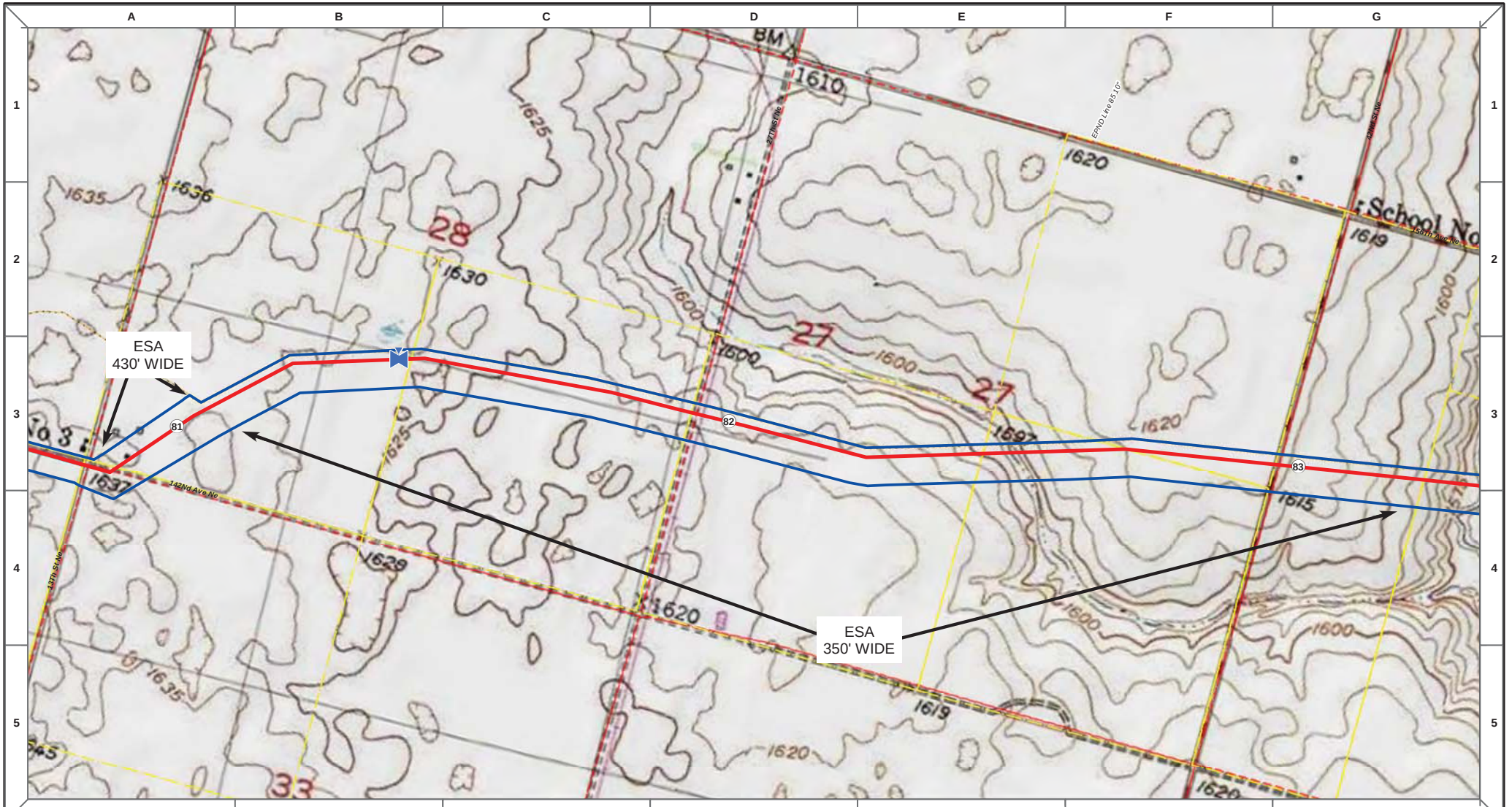
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 33 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

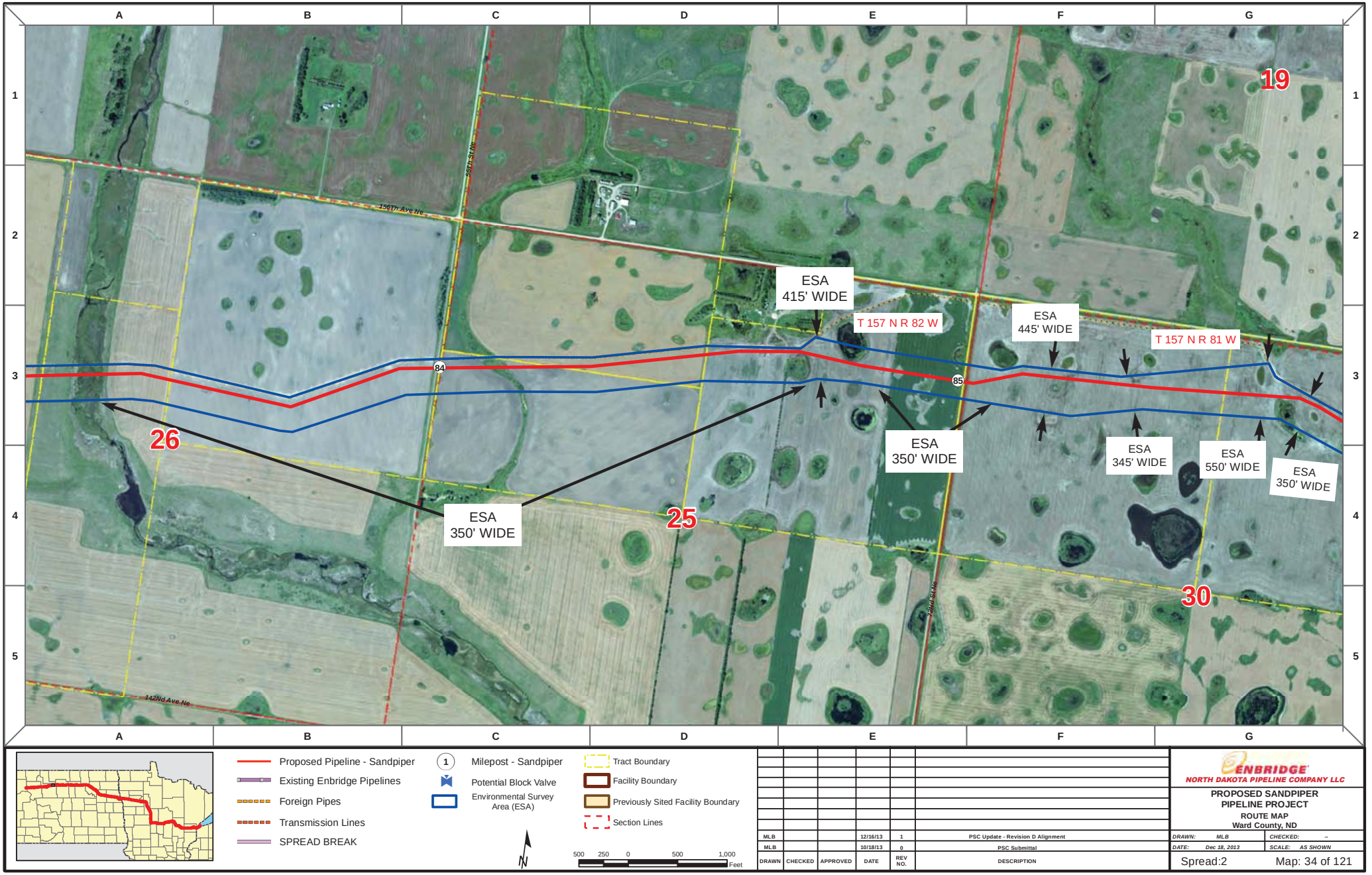
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 33 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

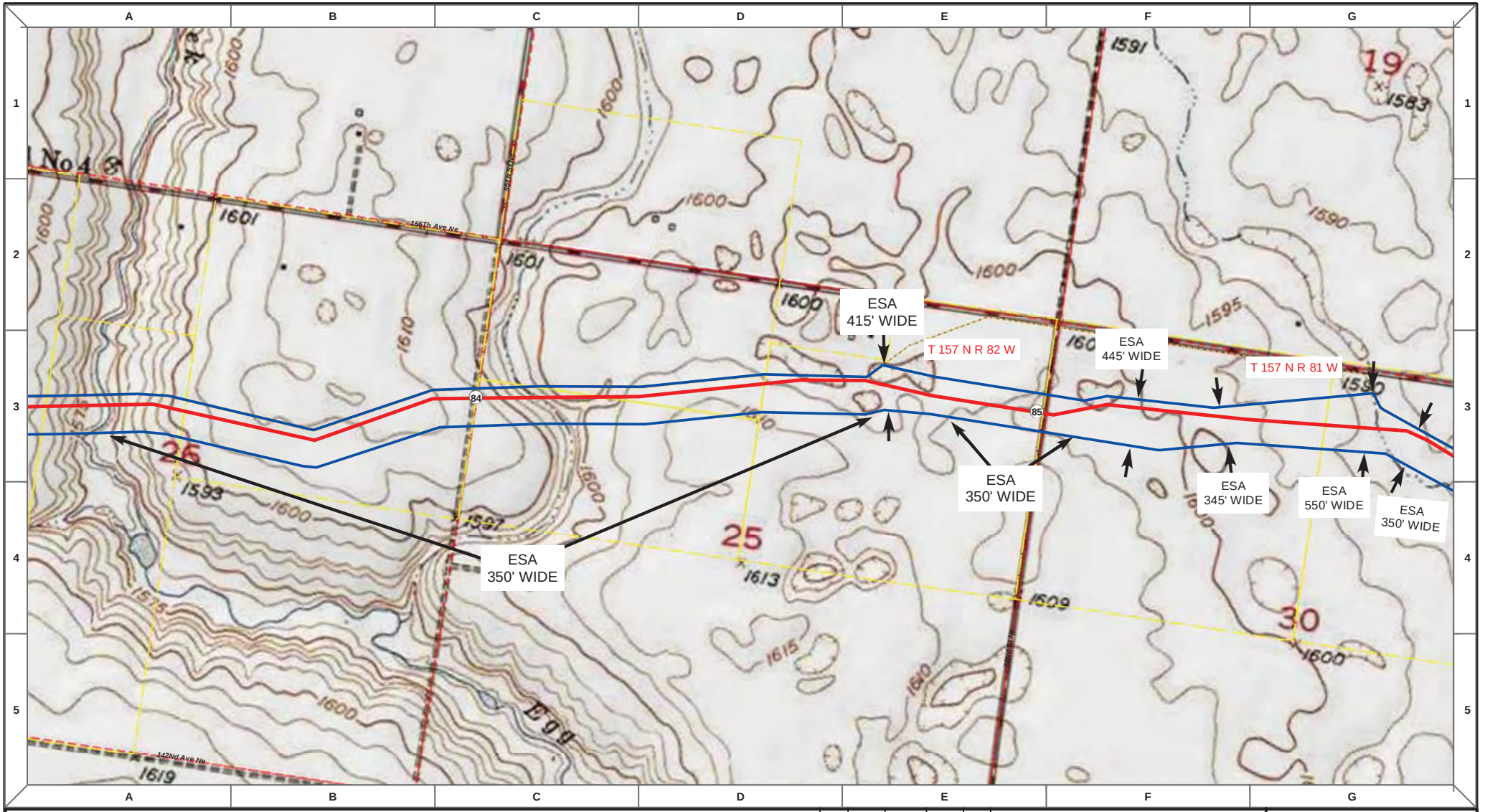
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

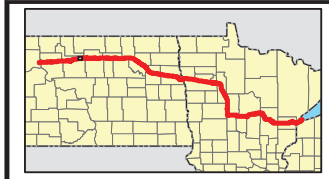
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 34 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

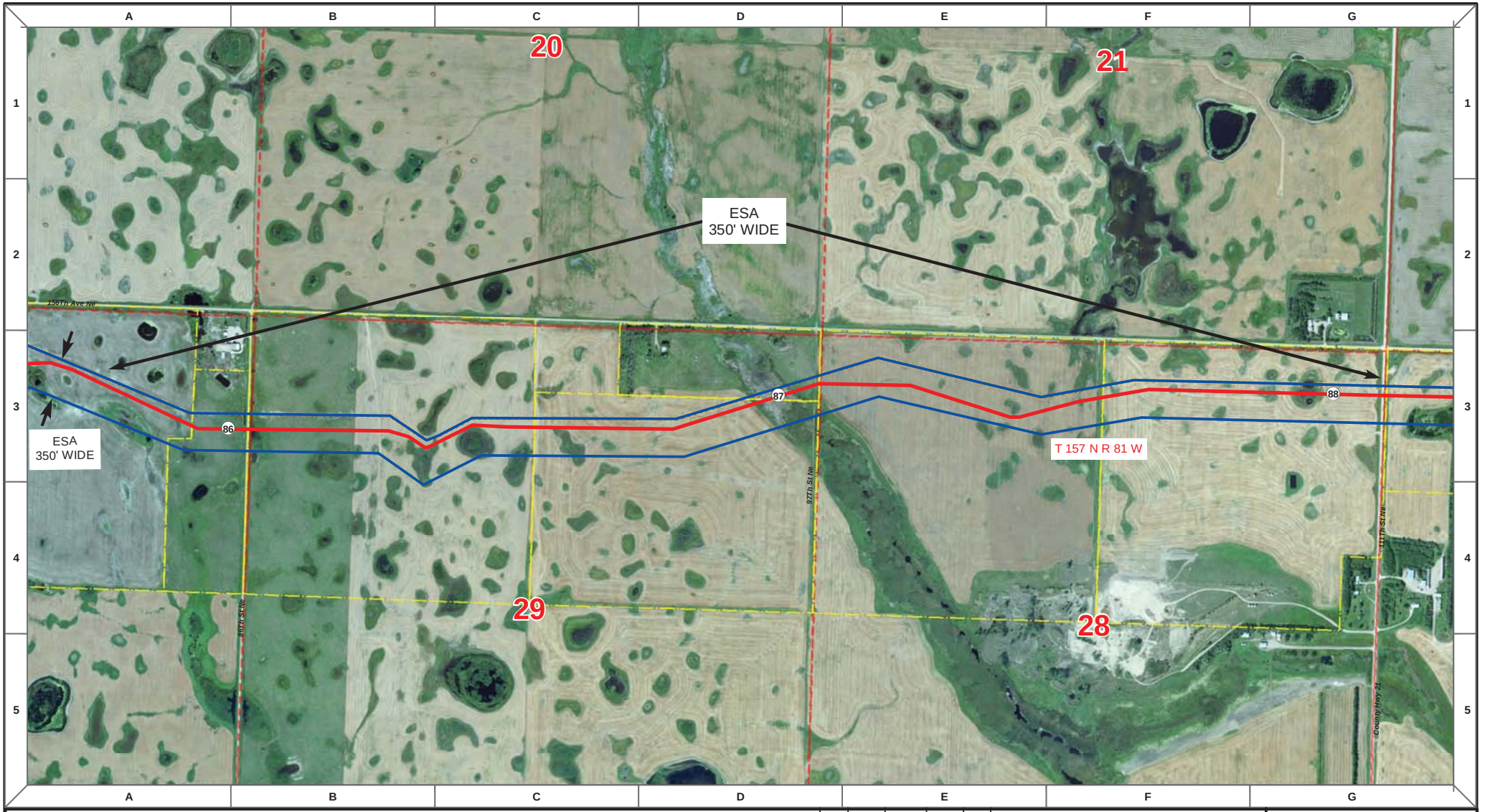
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

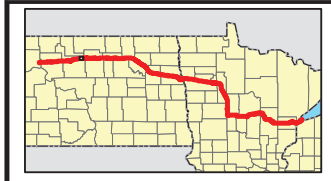
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 34 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

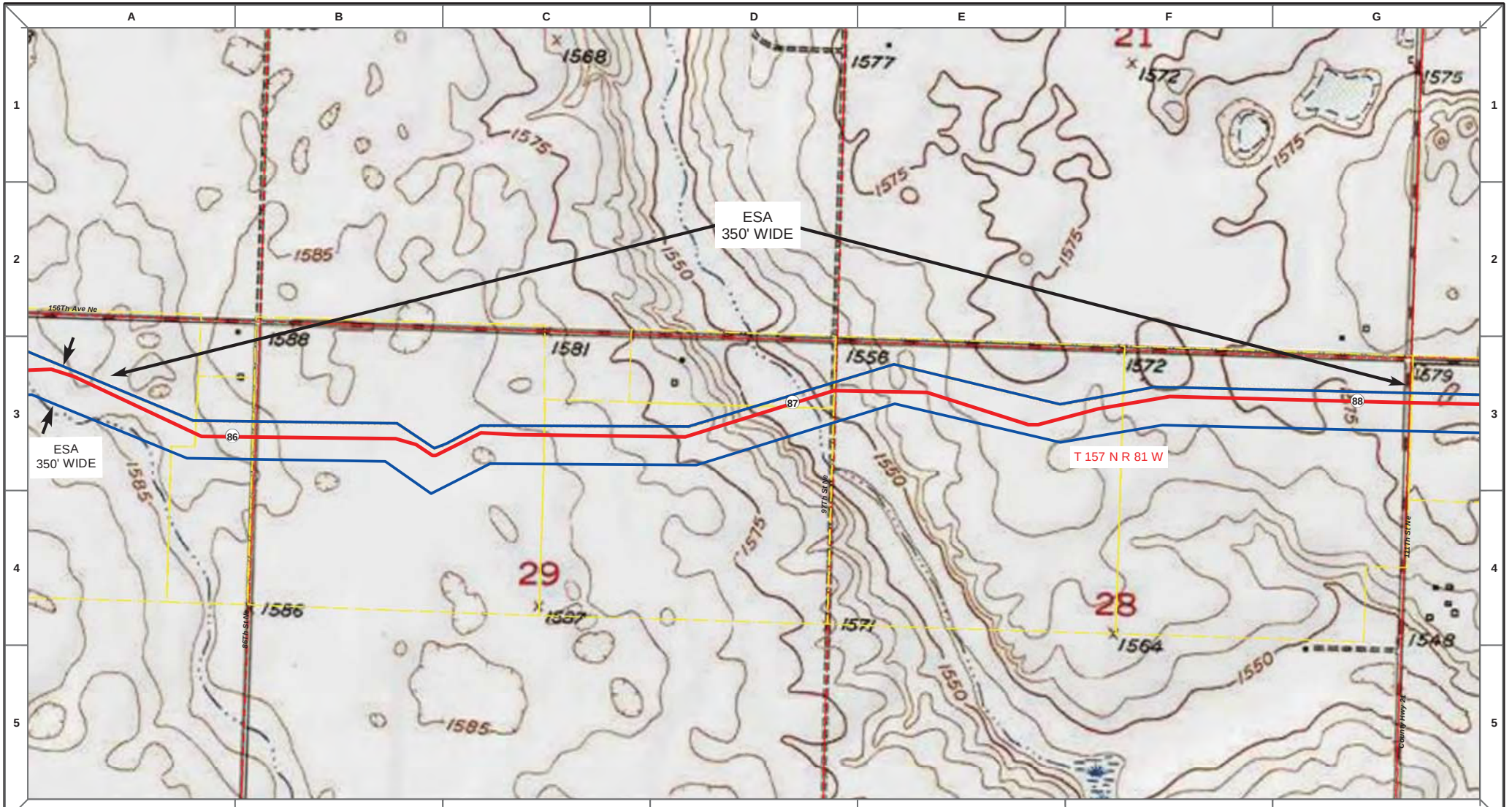
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

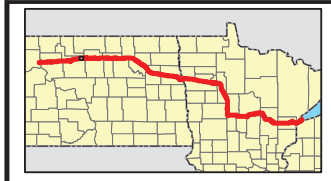
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 35 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

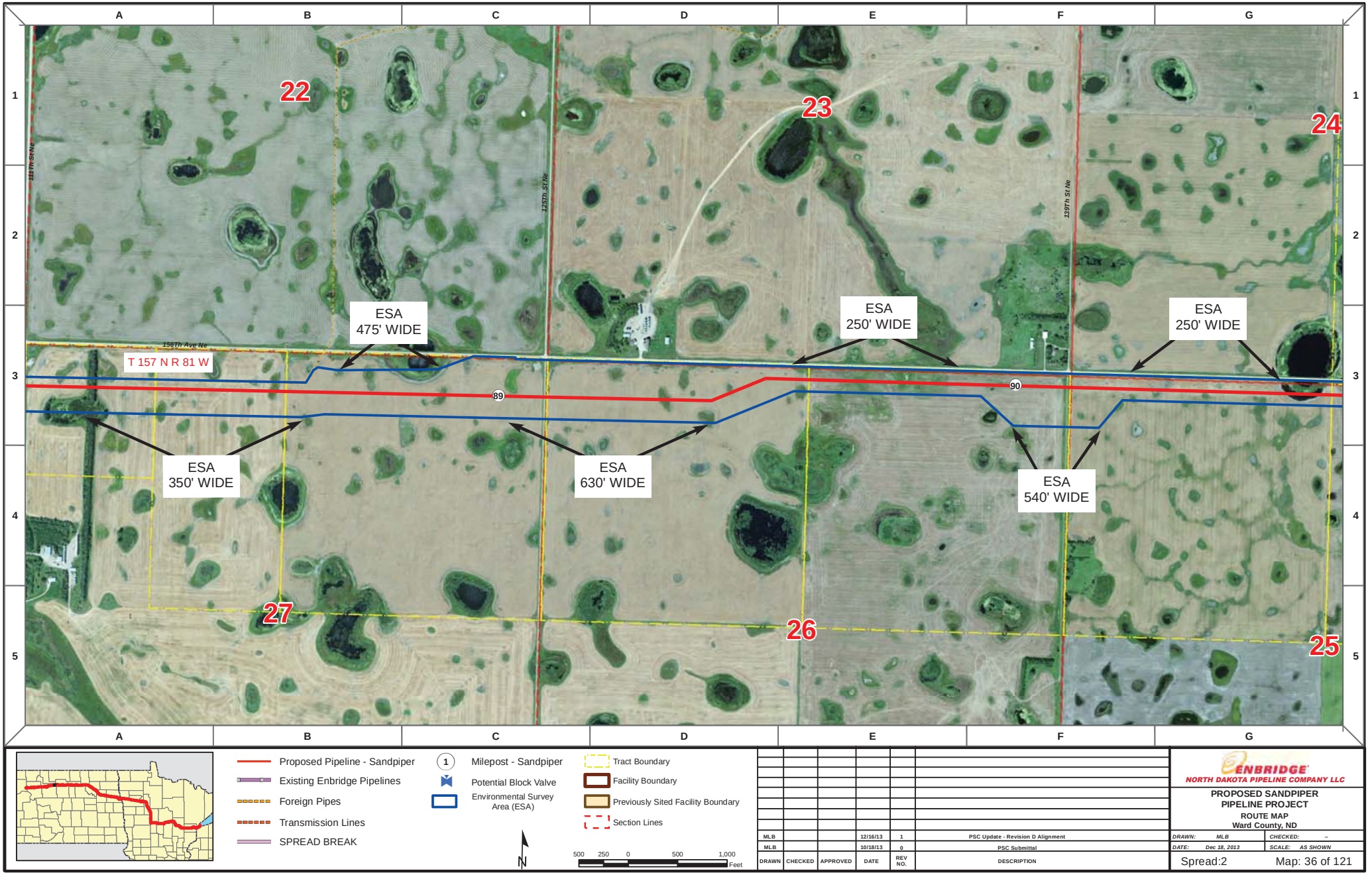
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 35 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

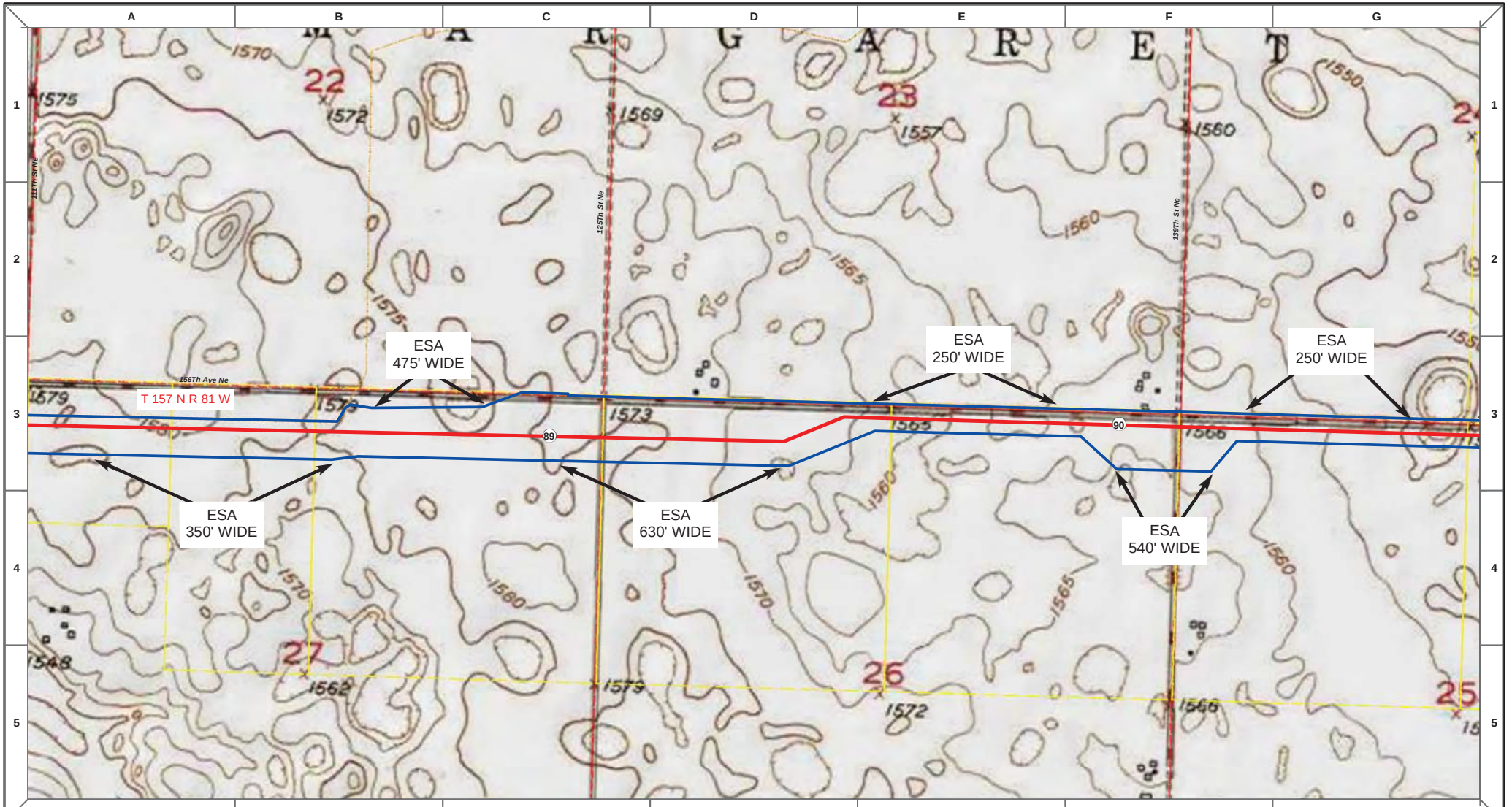
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Ward County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 36 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 36 of 121

Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

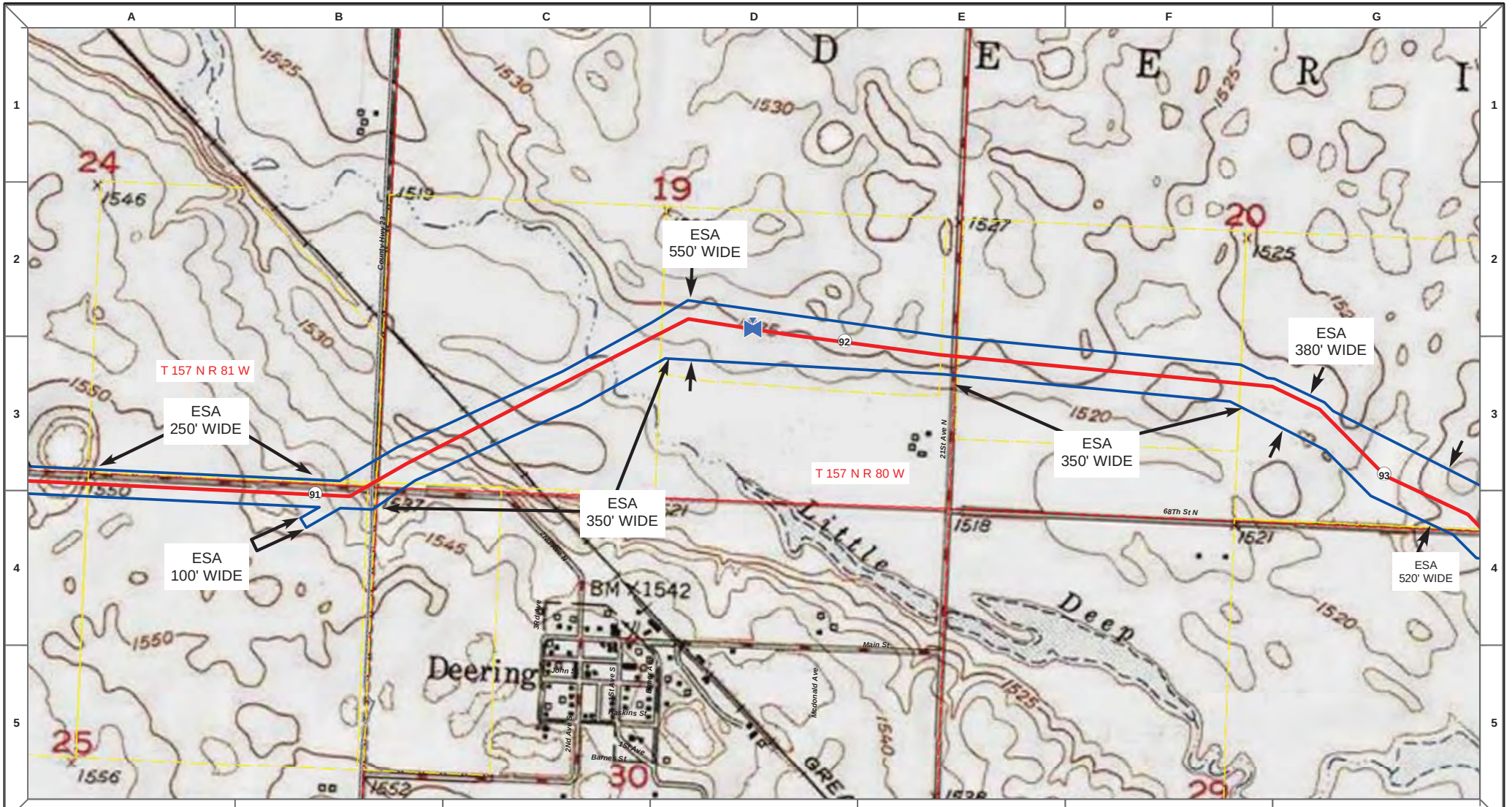
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward & McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 37 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

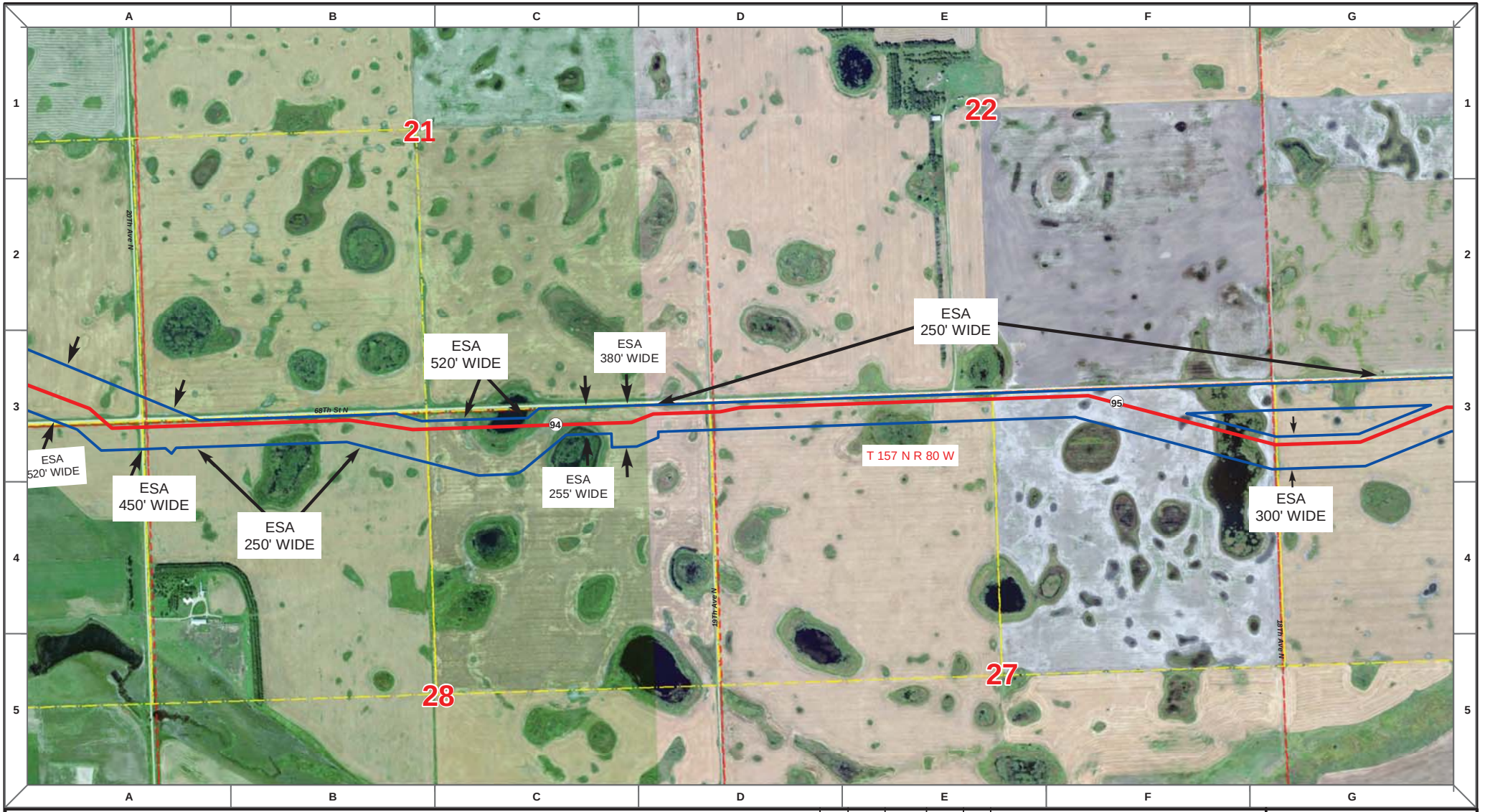
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

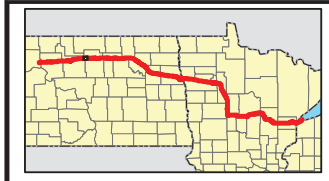
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ward & McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 37 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

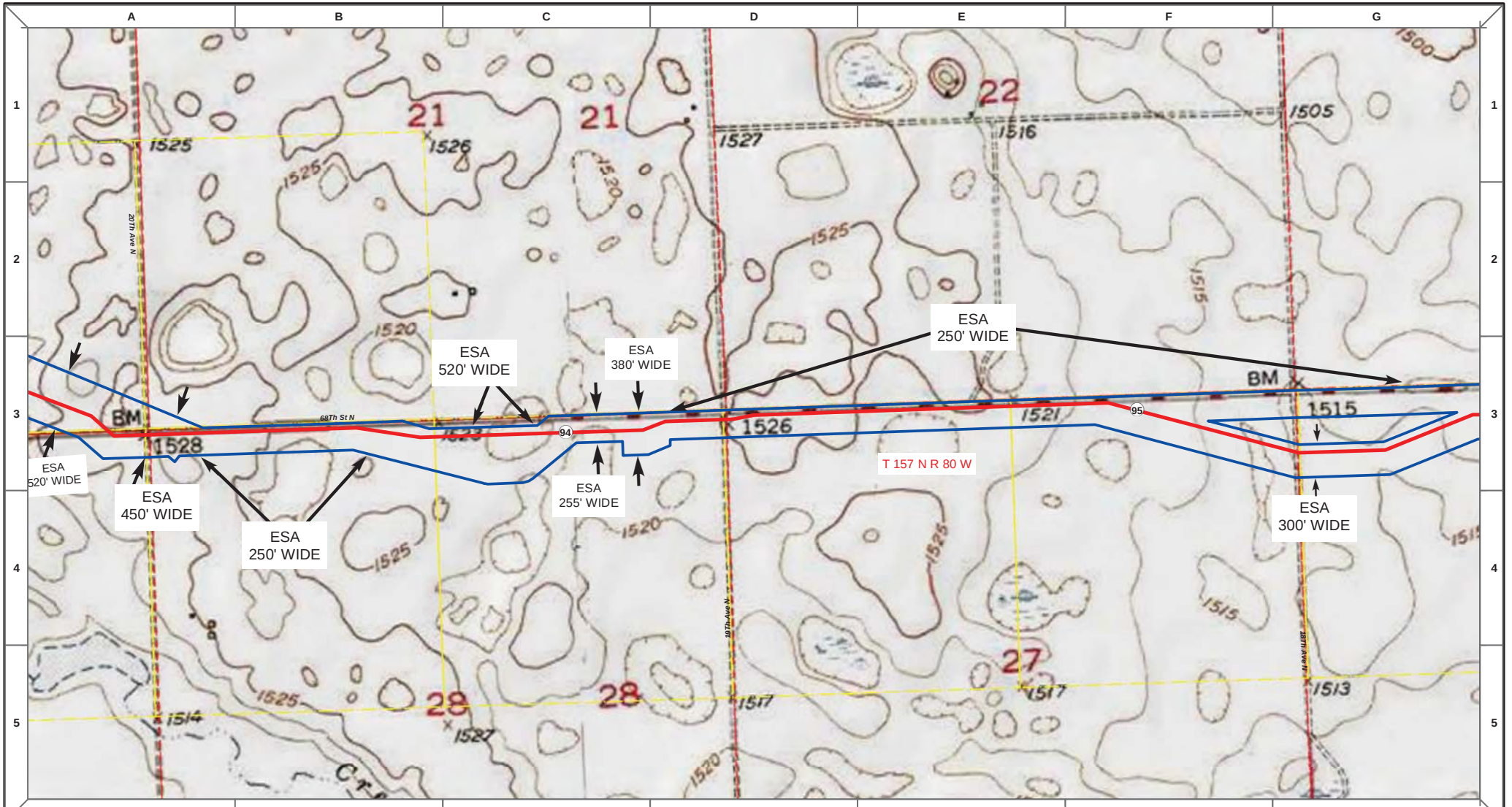
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

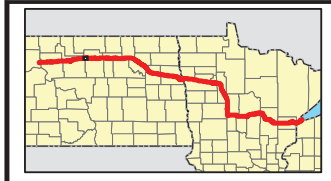
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 38 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

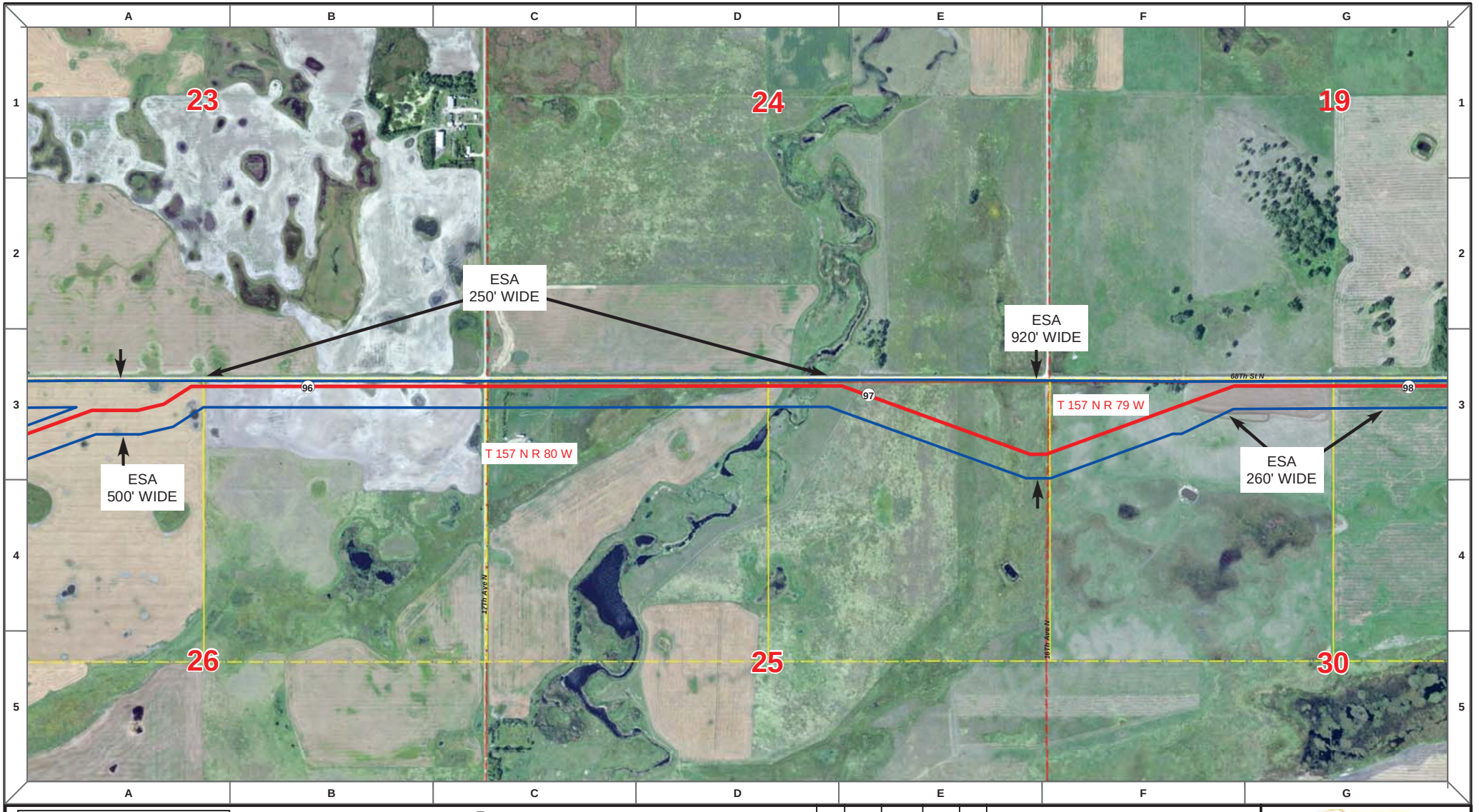
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

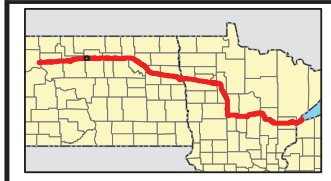
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 38 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

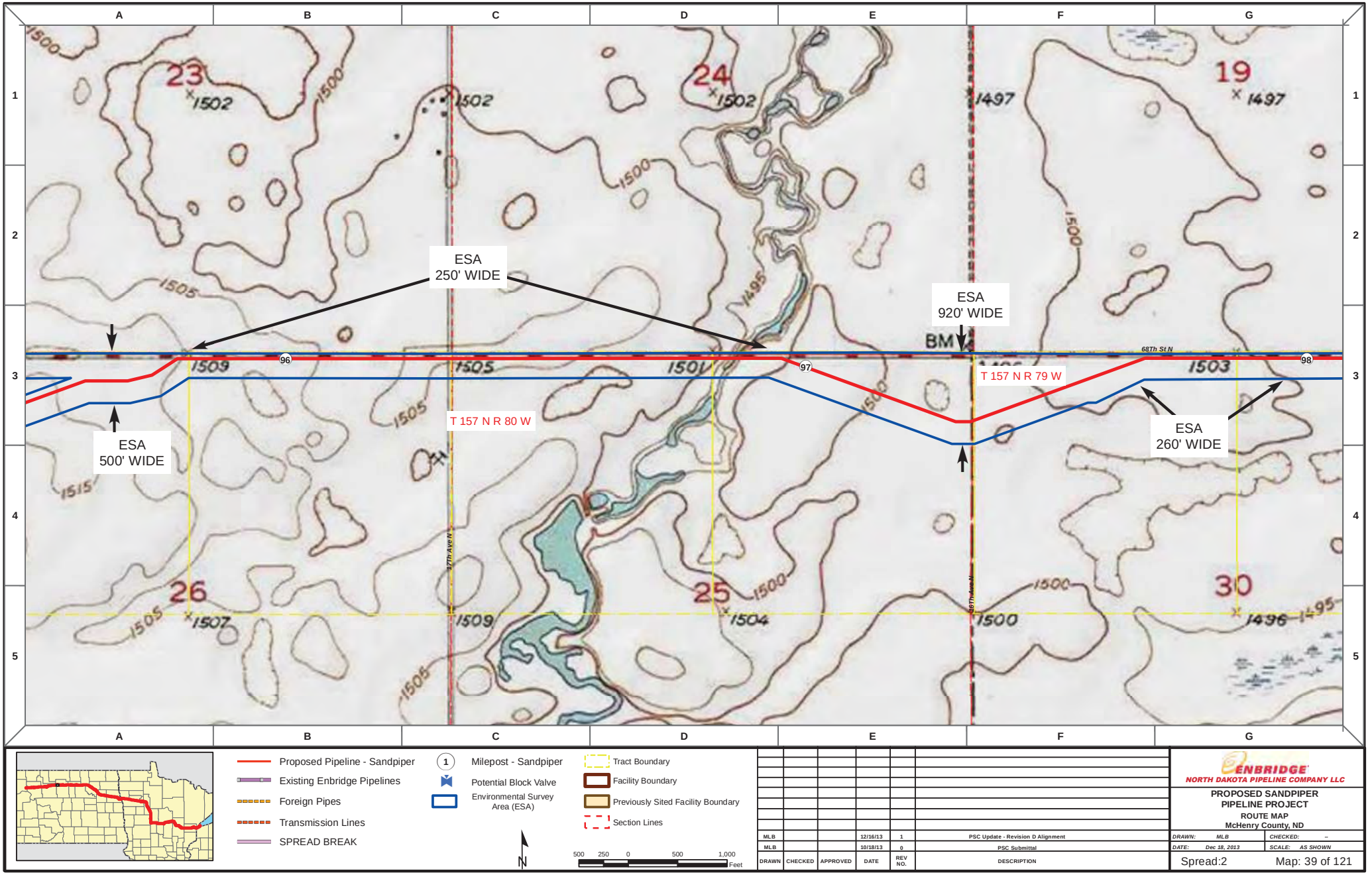
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 39 of 121



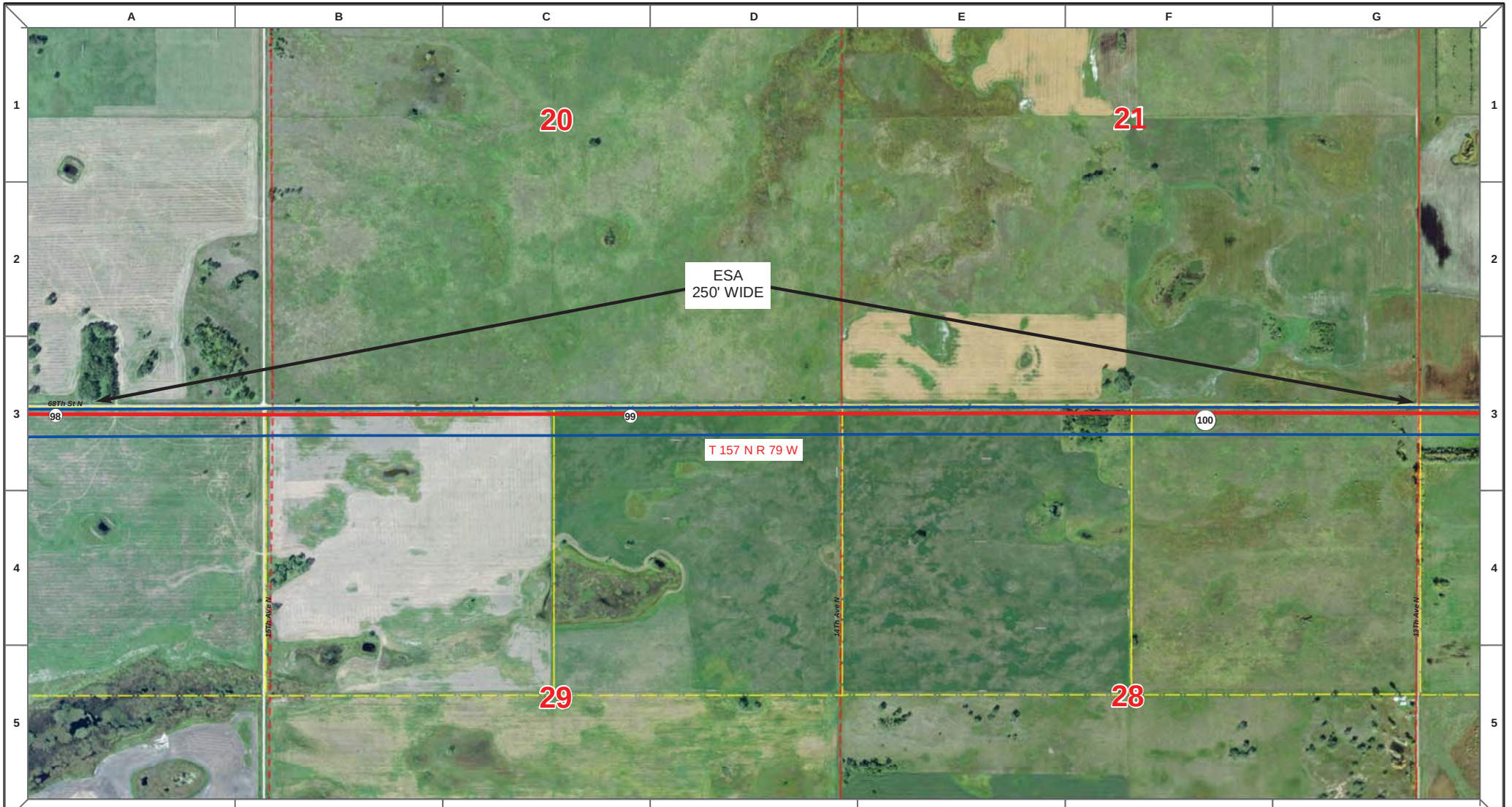
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

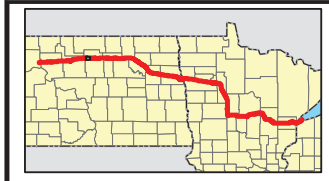
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 39 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

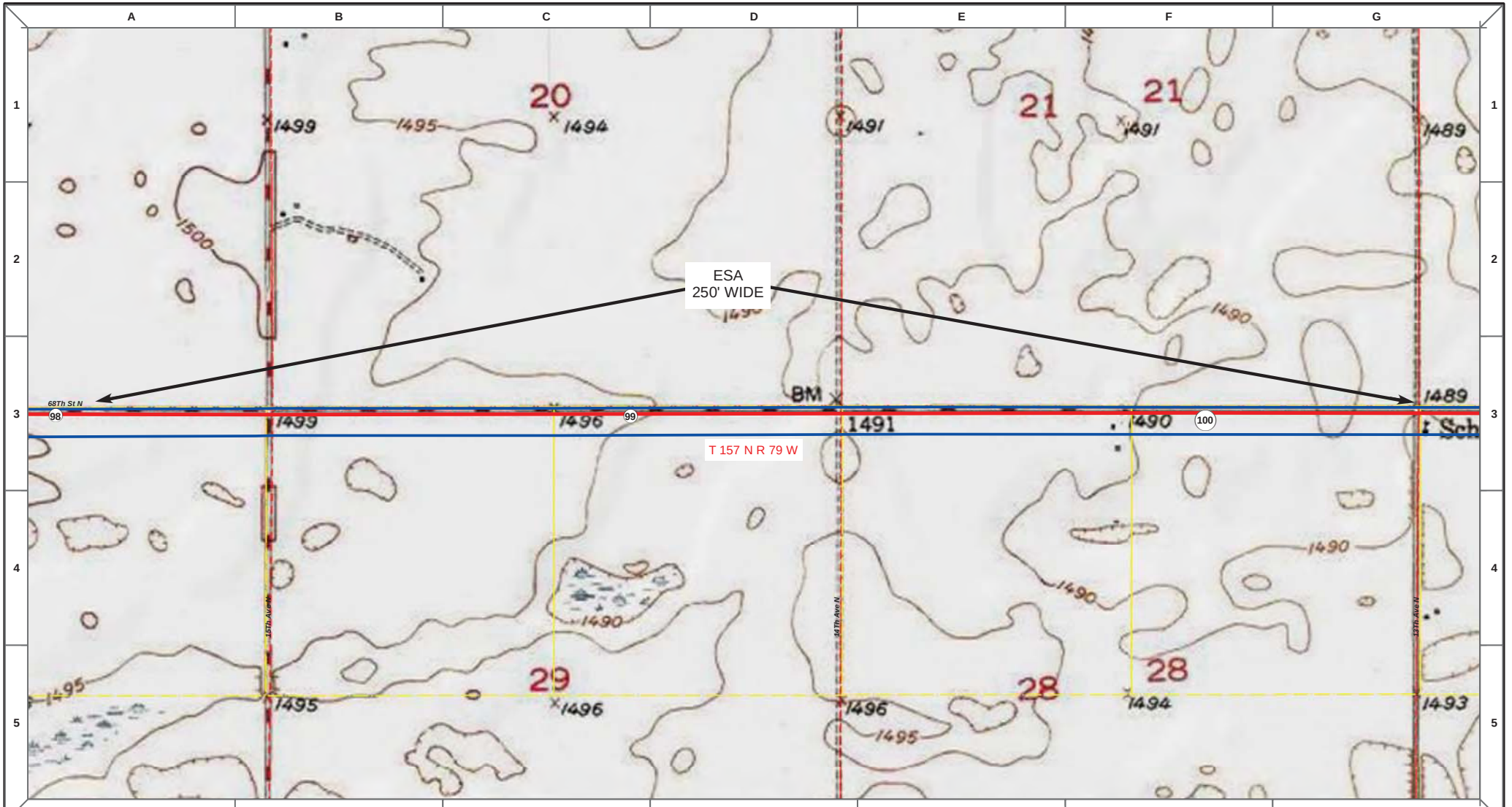
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

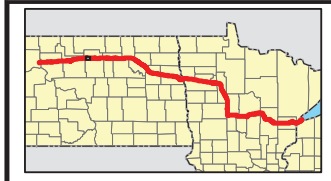
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 40 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

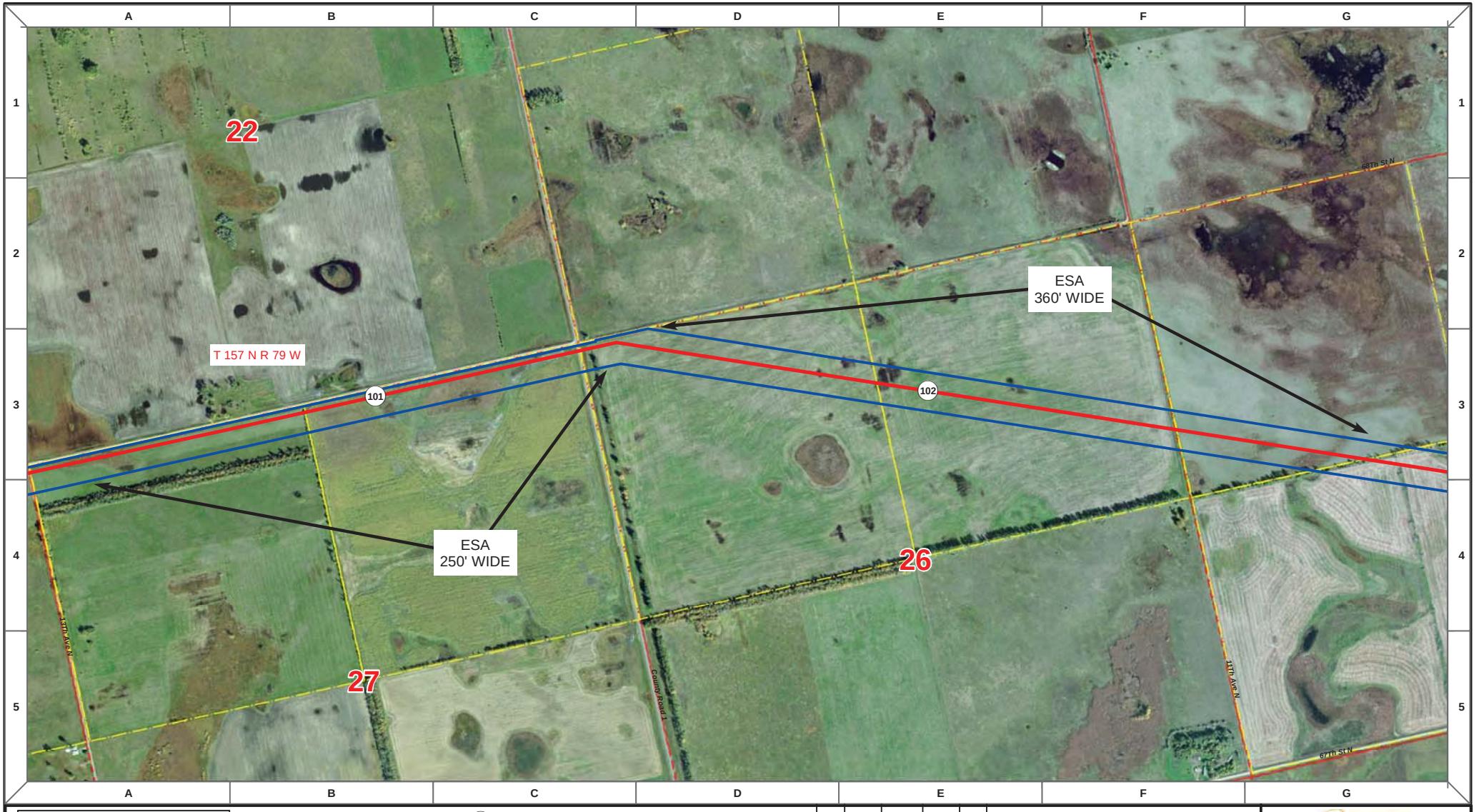
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

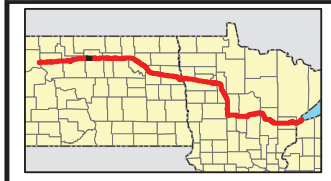
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 40 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

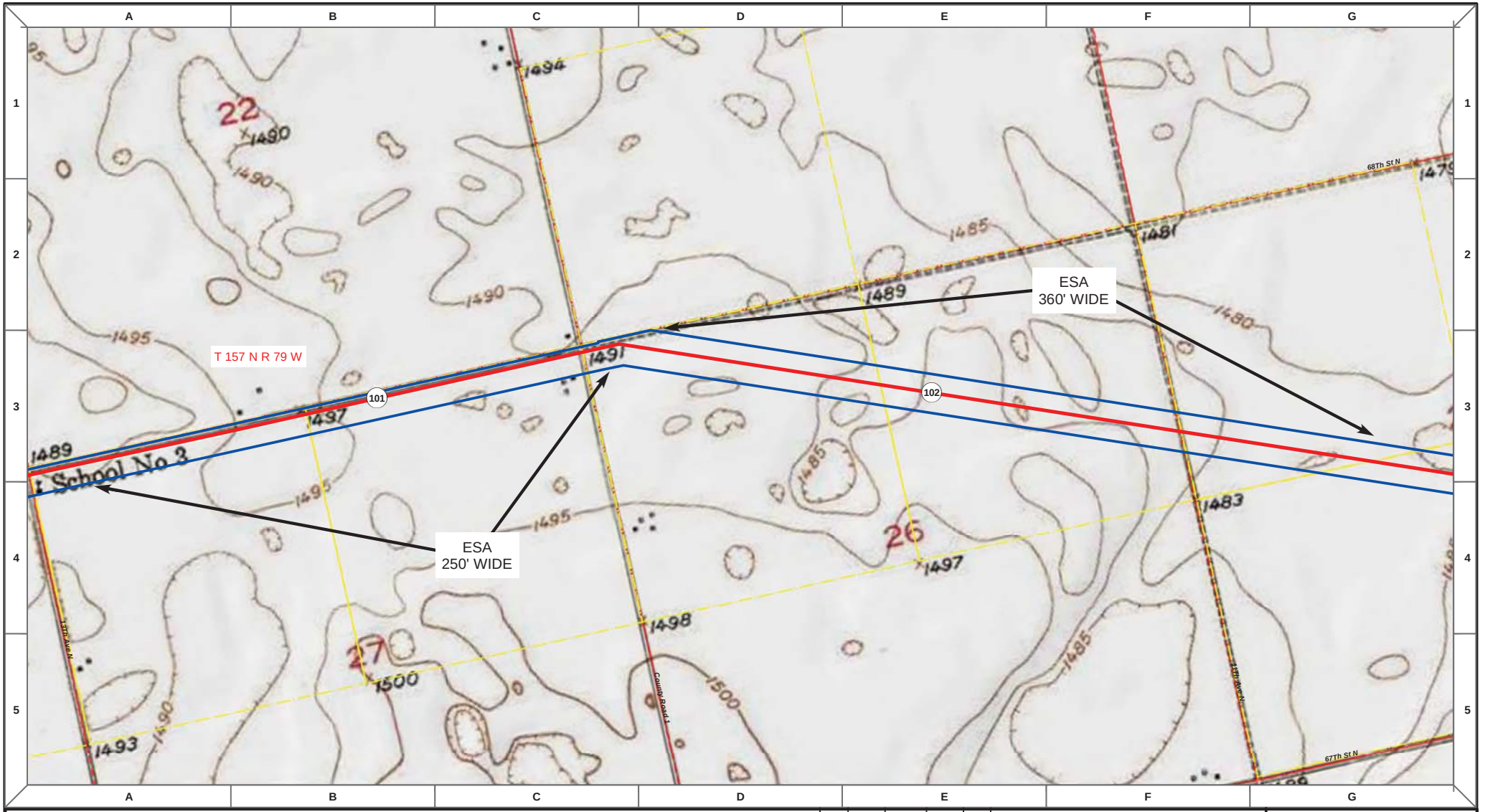
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

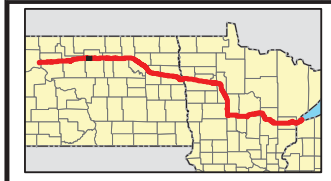
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 41 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

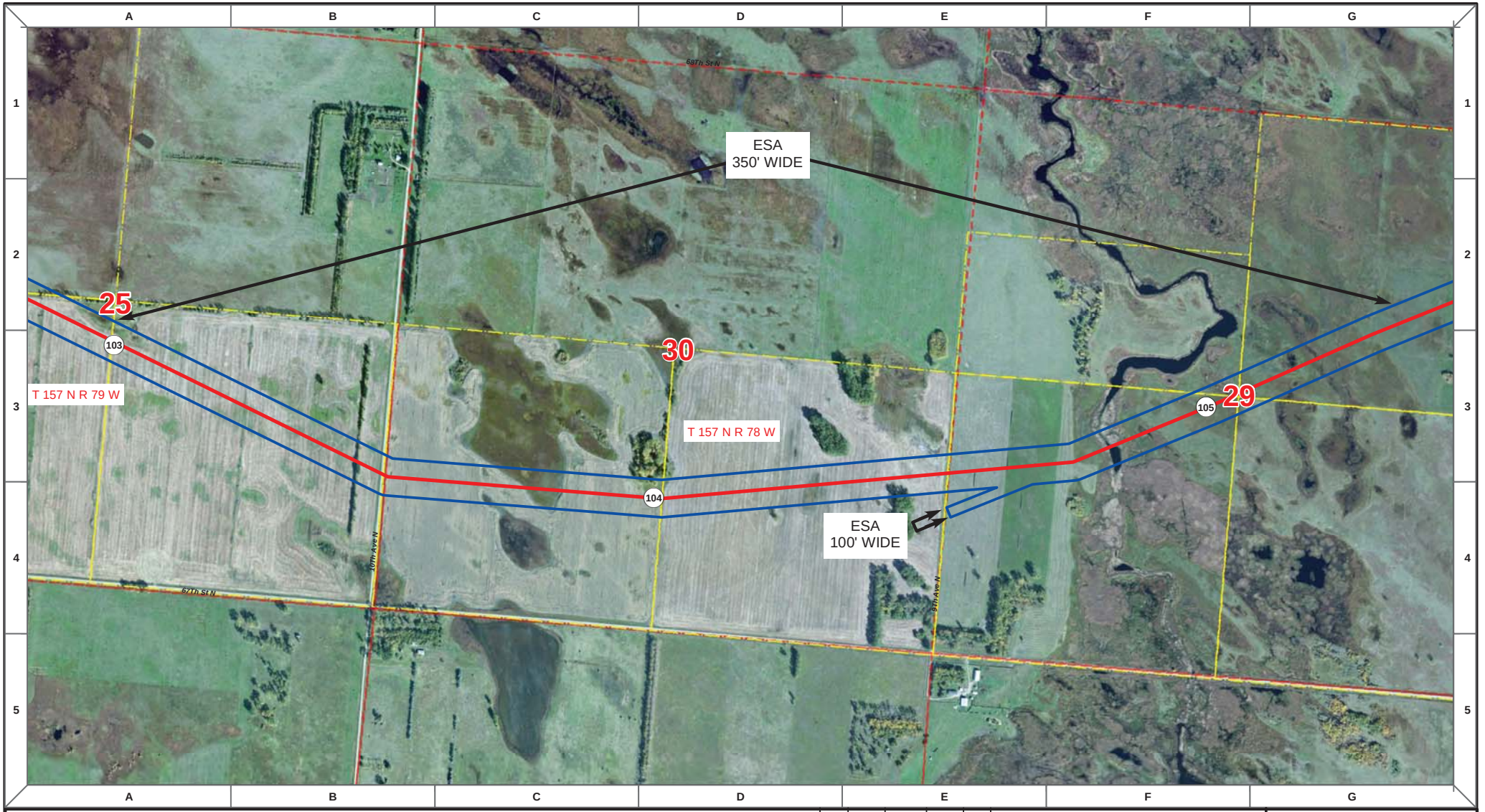
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

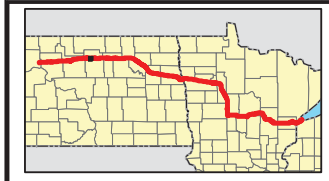
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 41 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

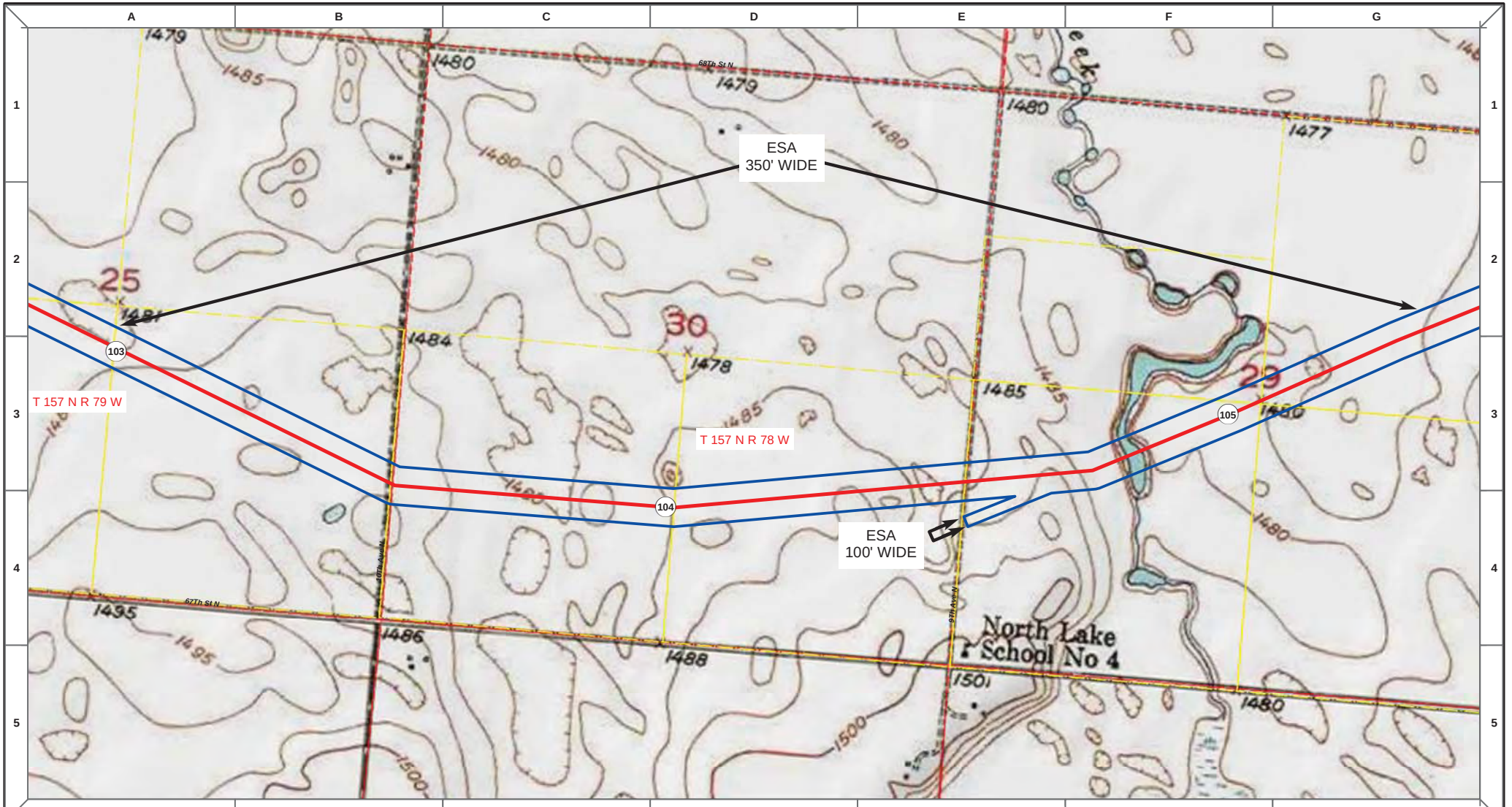
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

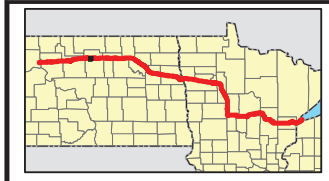
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 42 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

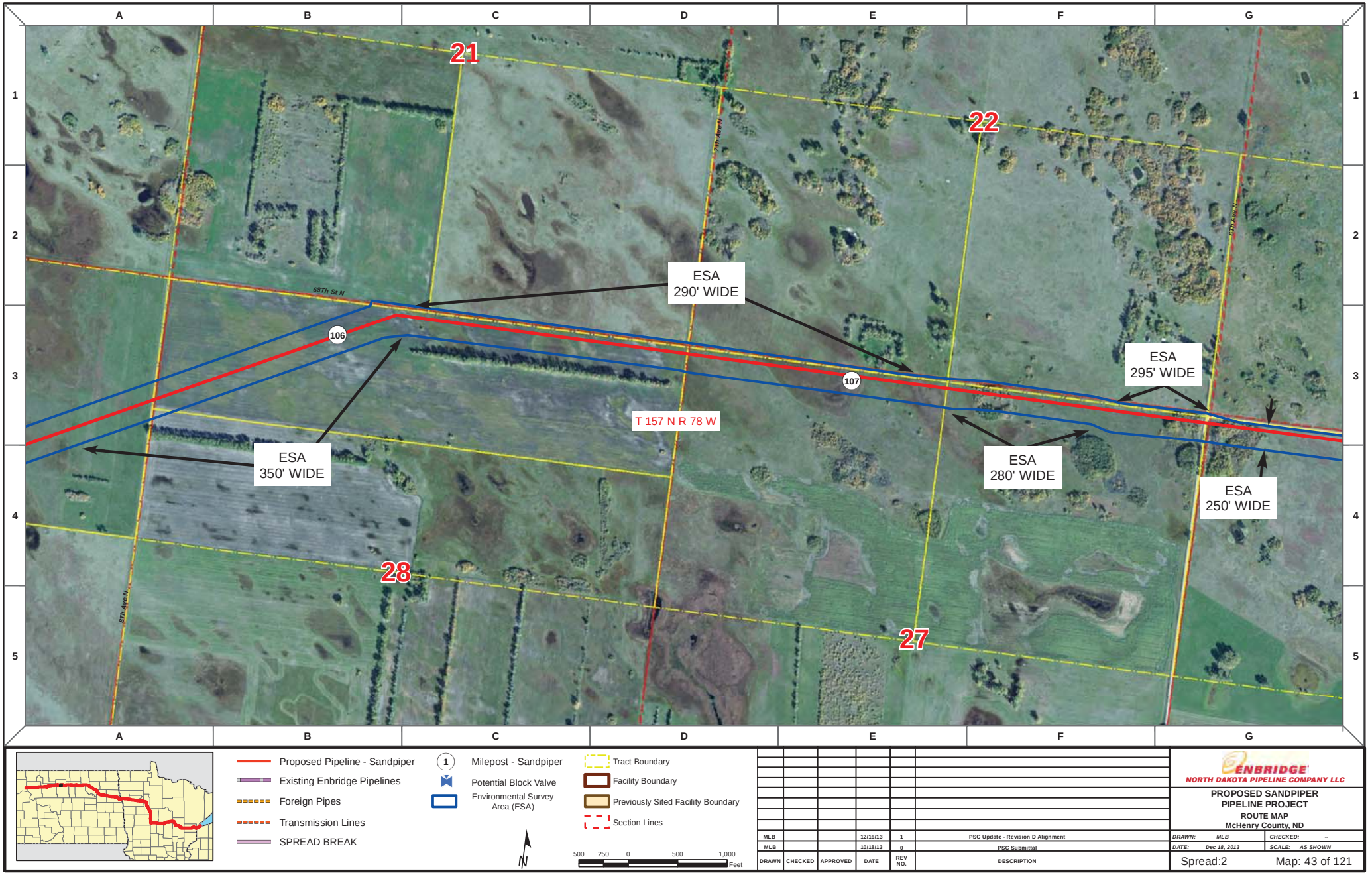
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 42 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

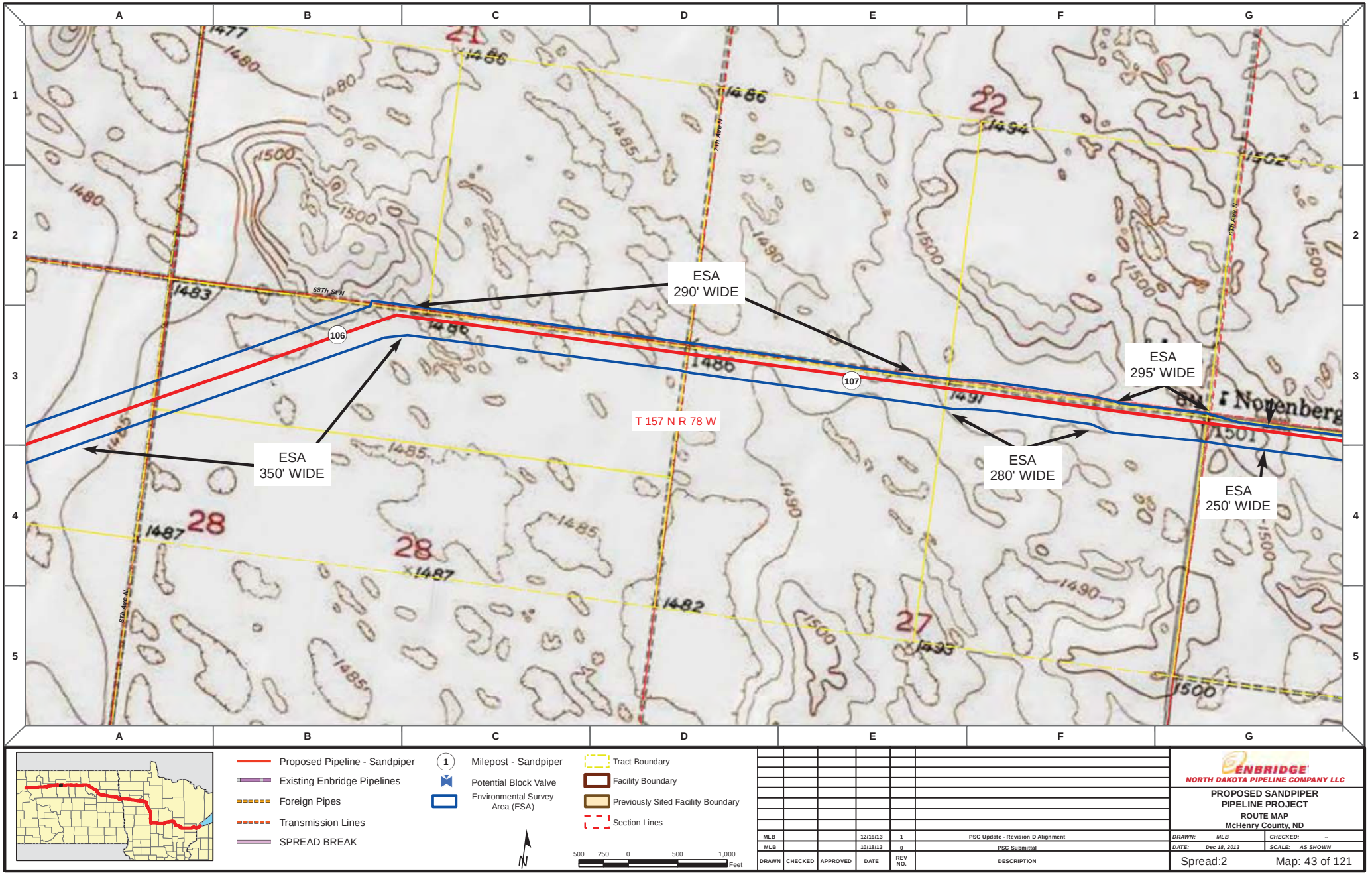
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 43 of 121



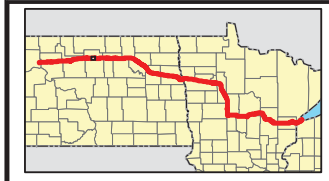
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 43 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

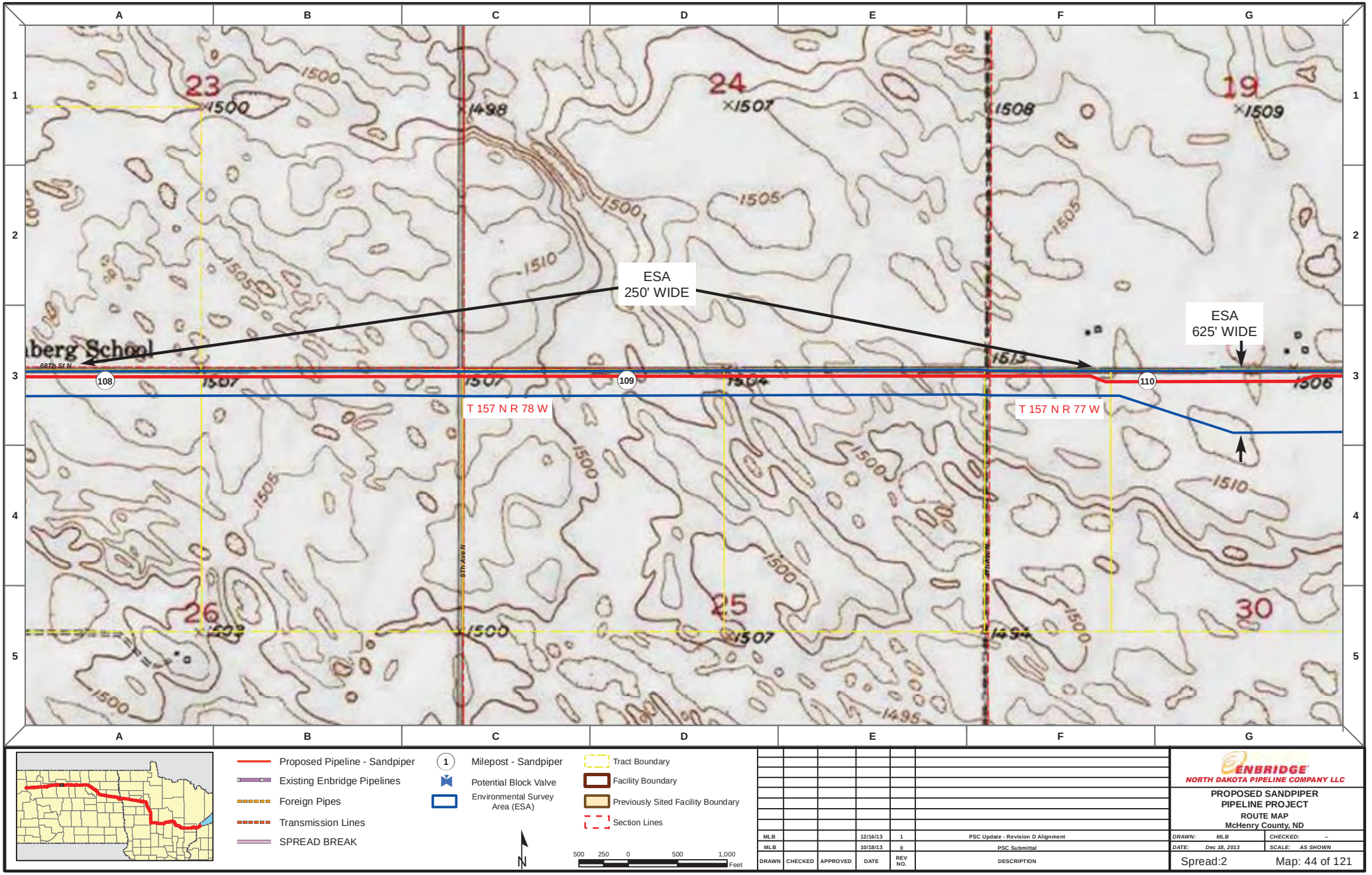
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 44 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

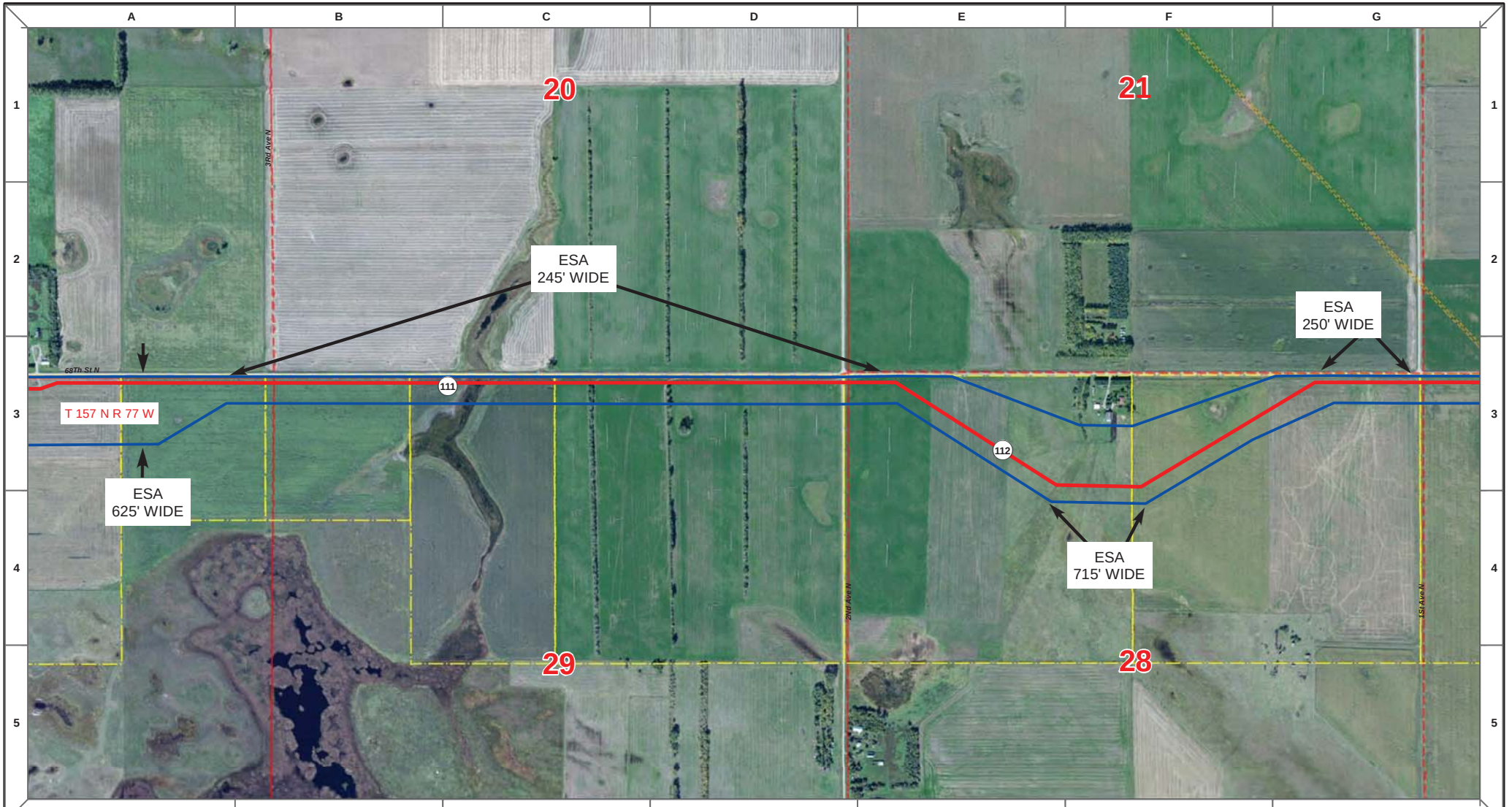
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

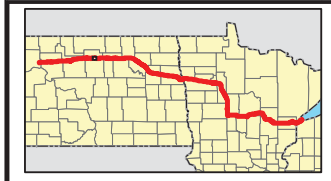
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 44 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

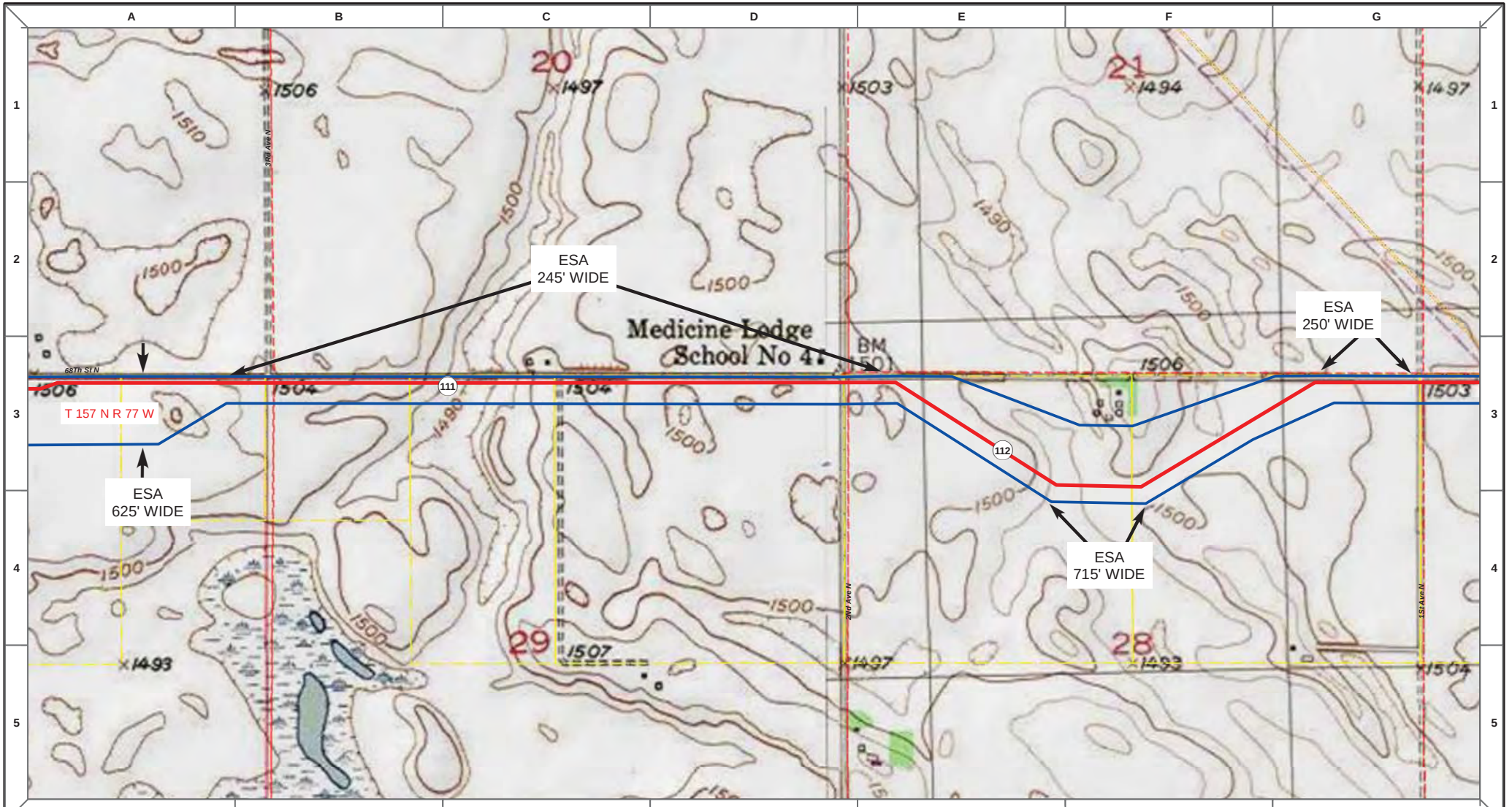
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 45 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

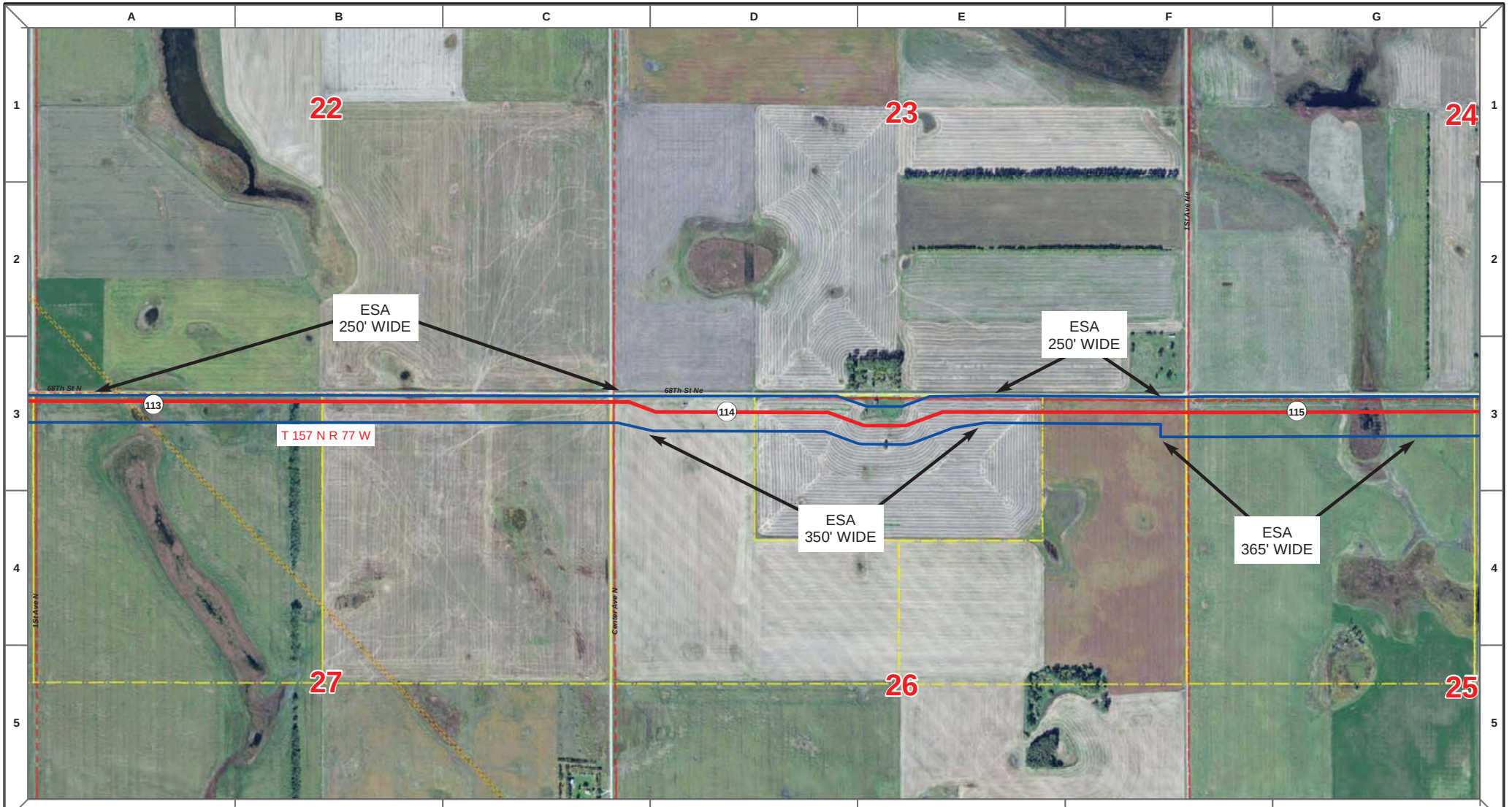
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

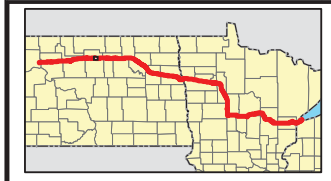
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 45 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

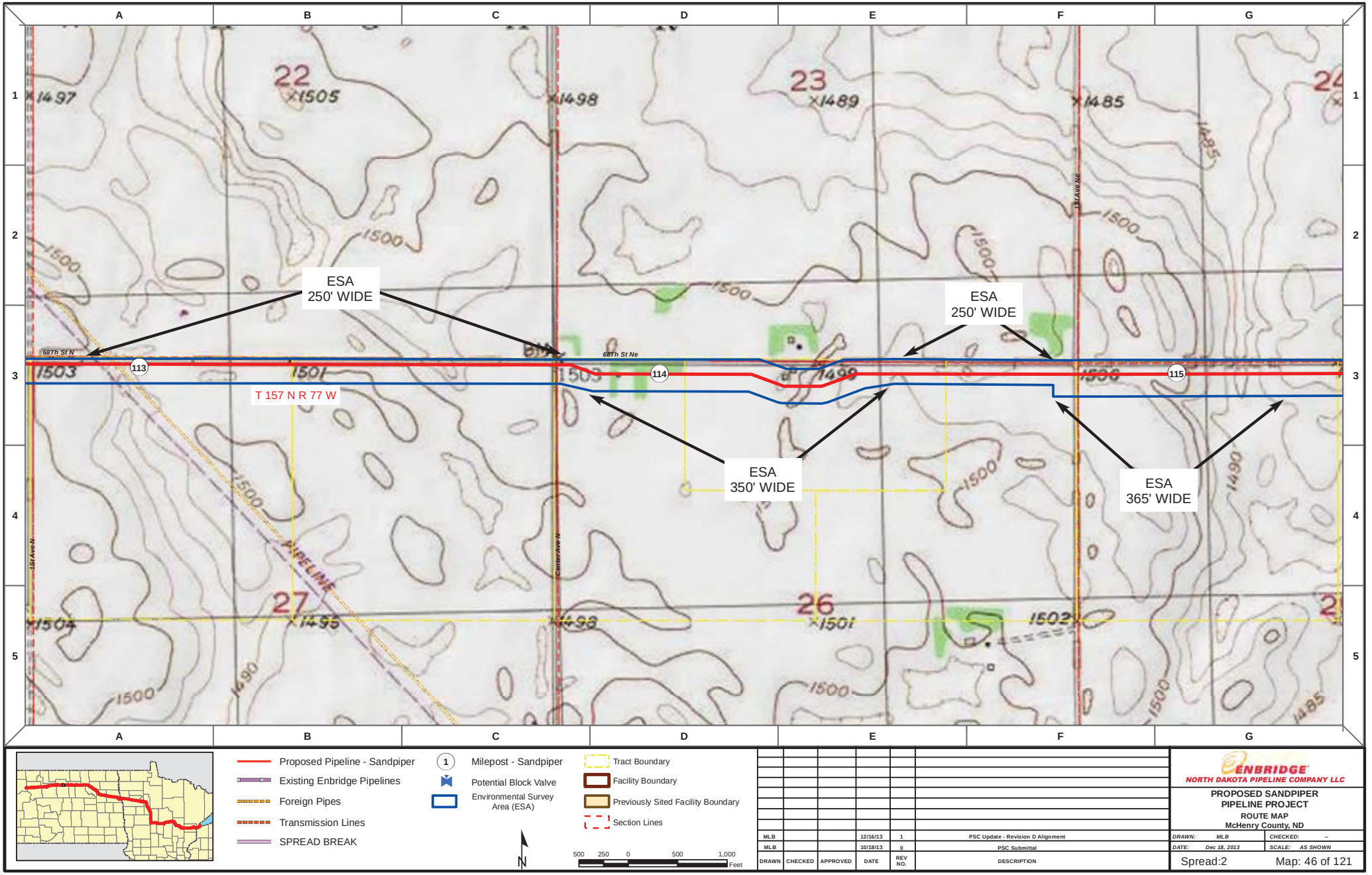
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 46 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

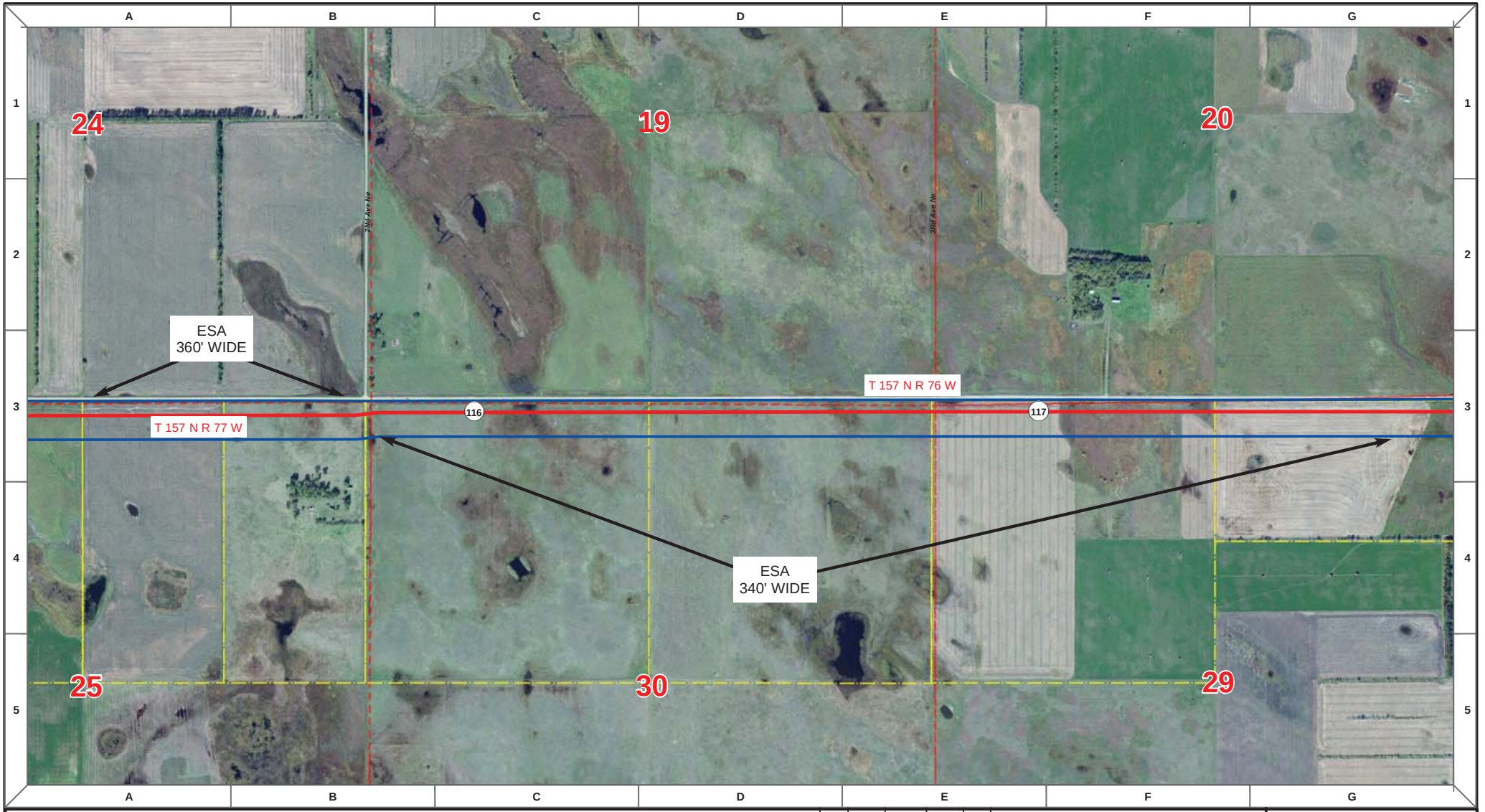
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

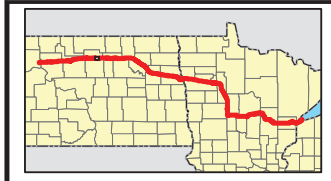
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 46 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

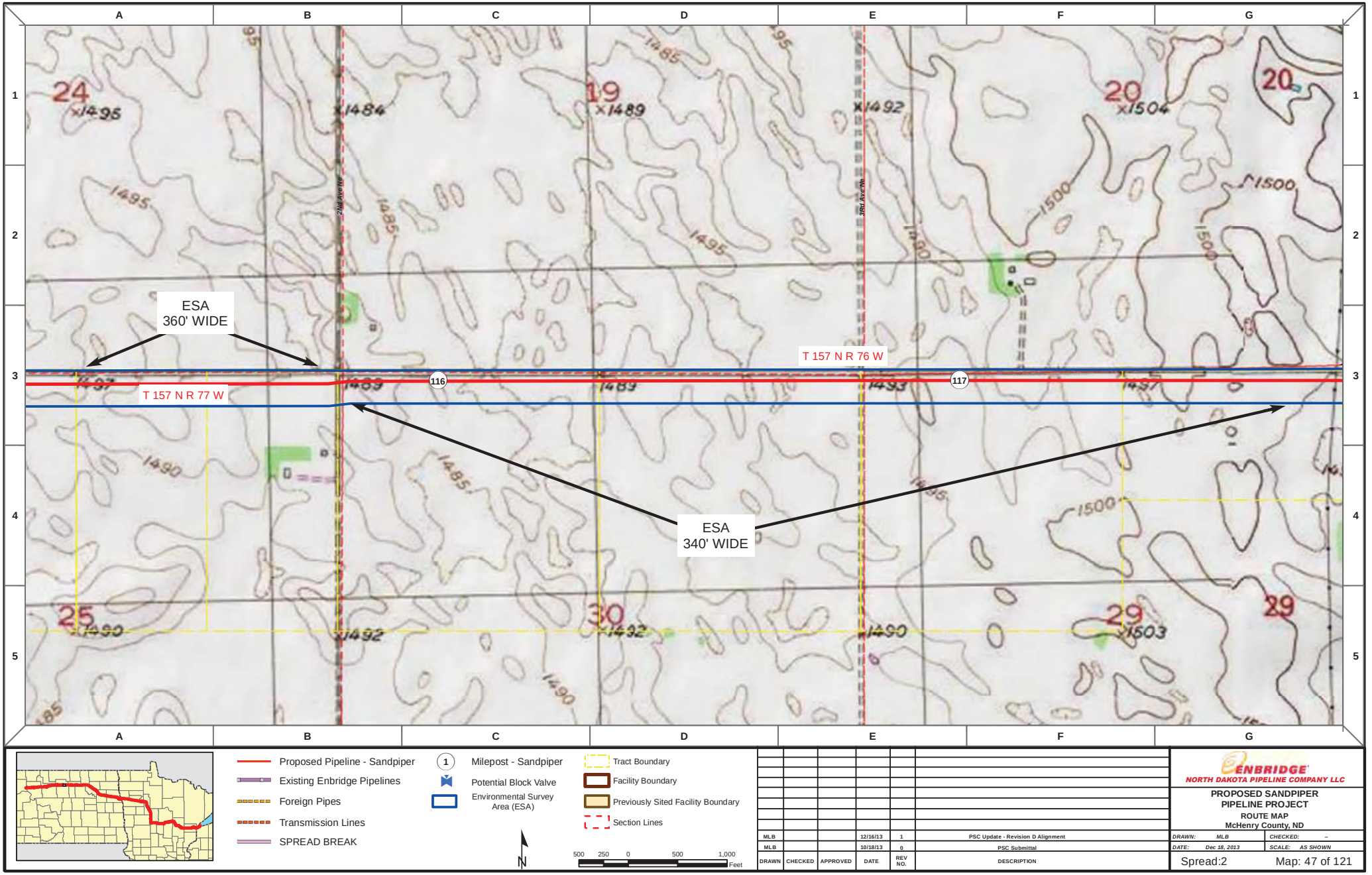
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 47 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

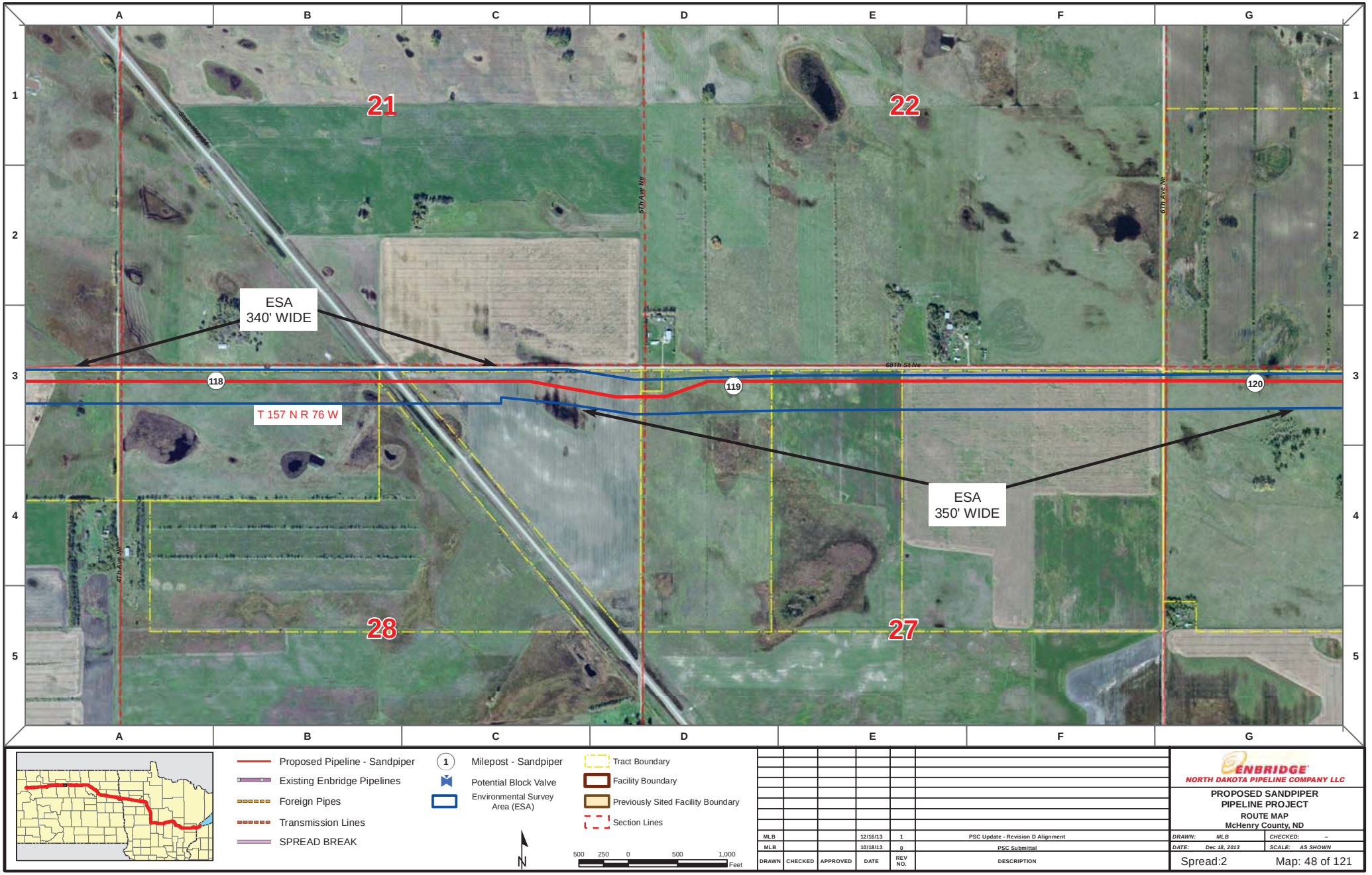
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 47 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

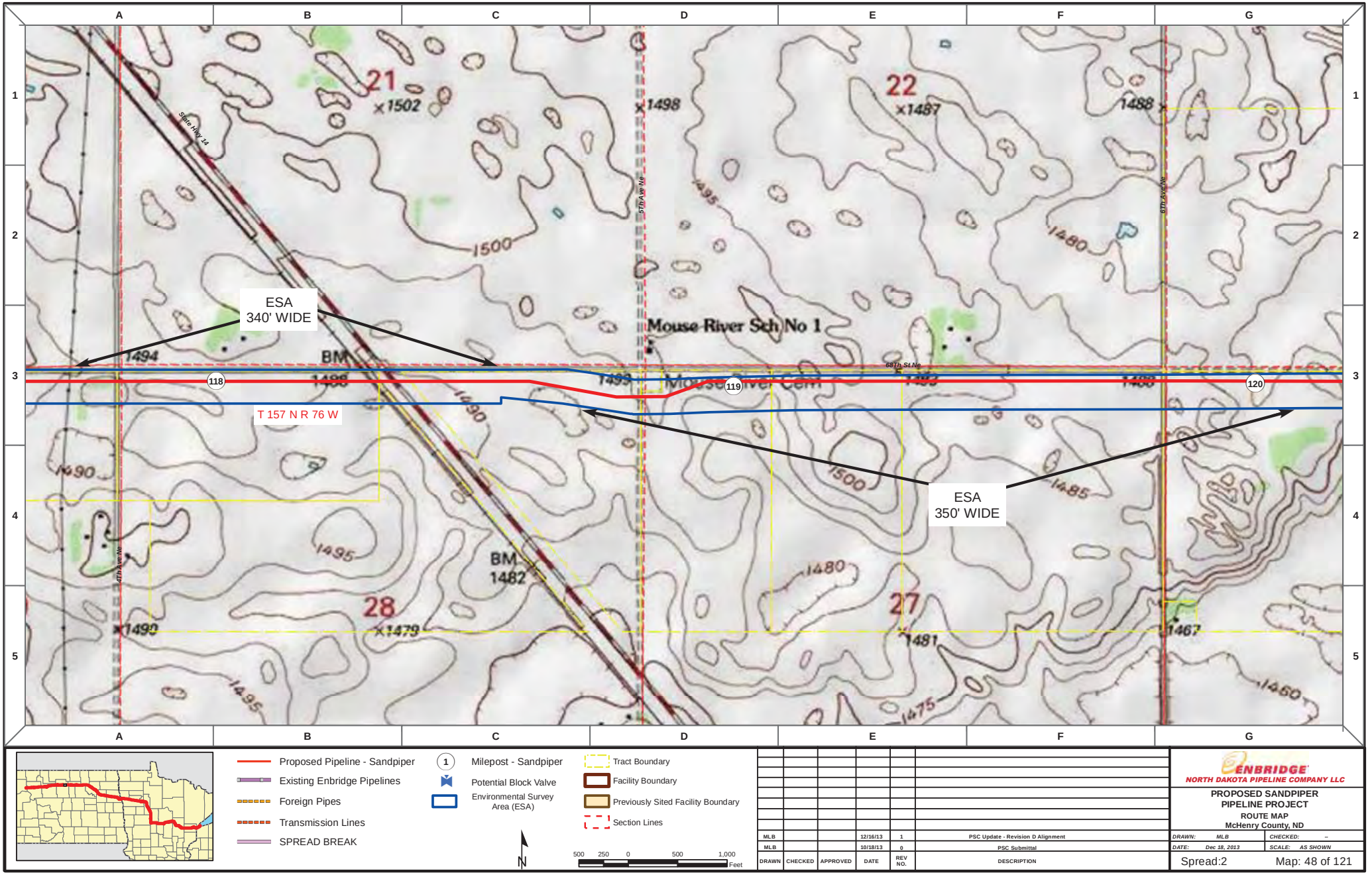
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 48 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

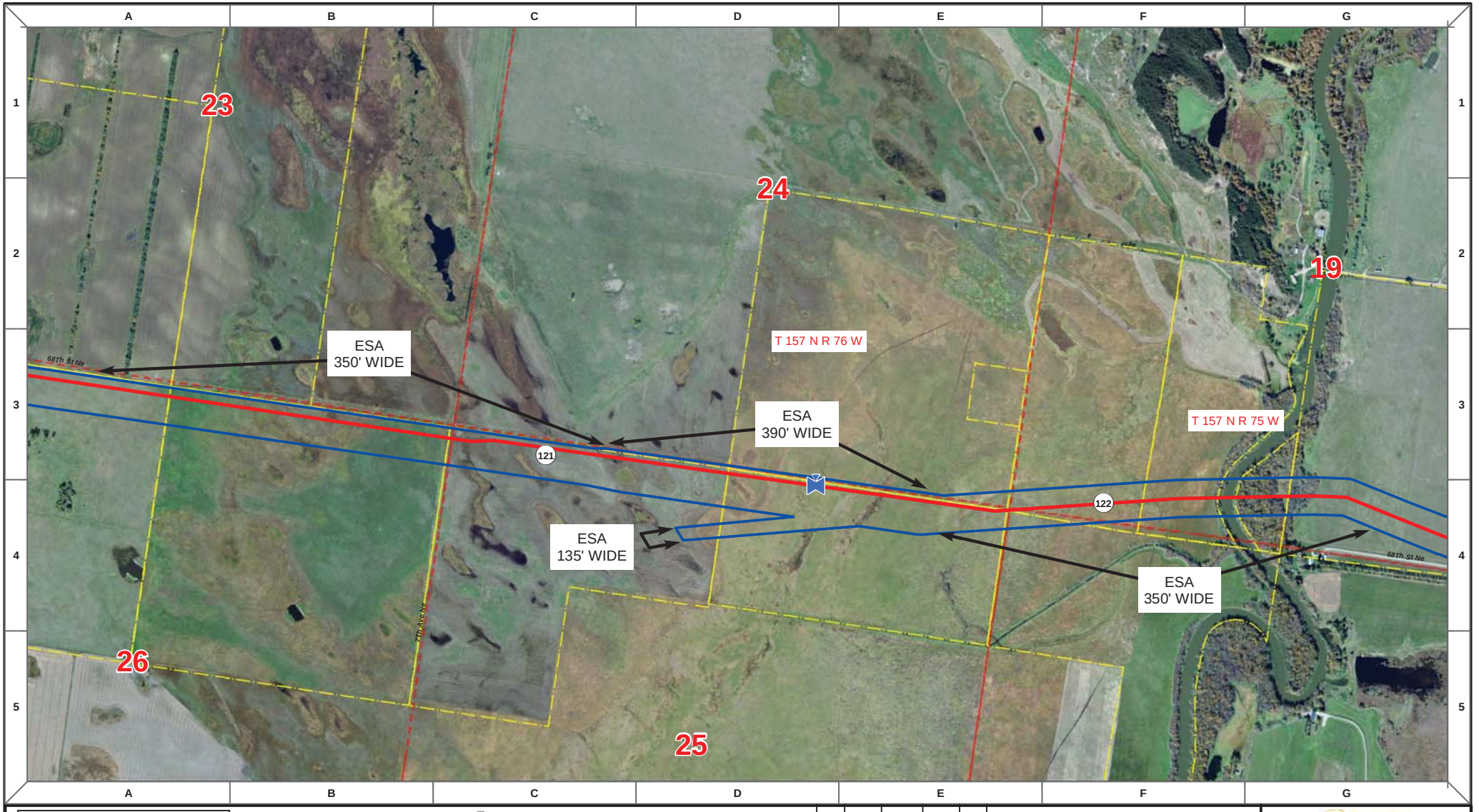
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 48 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

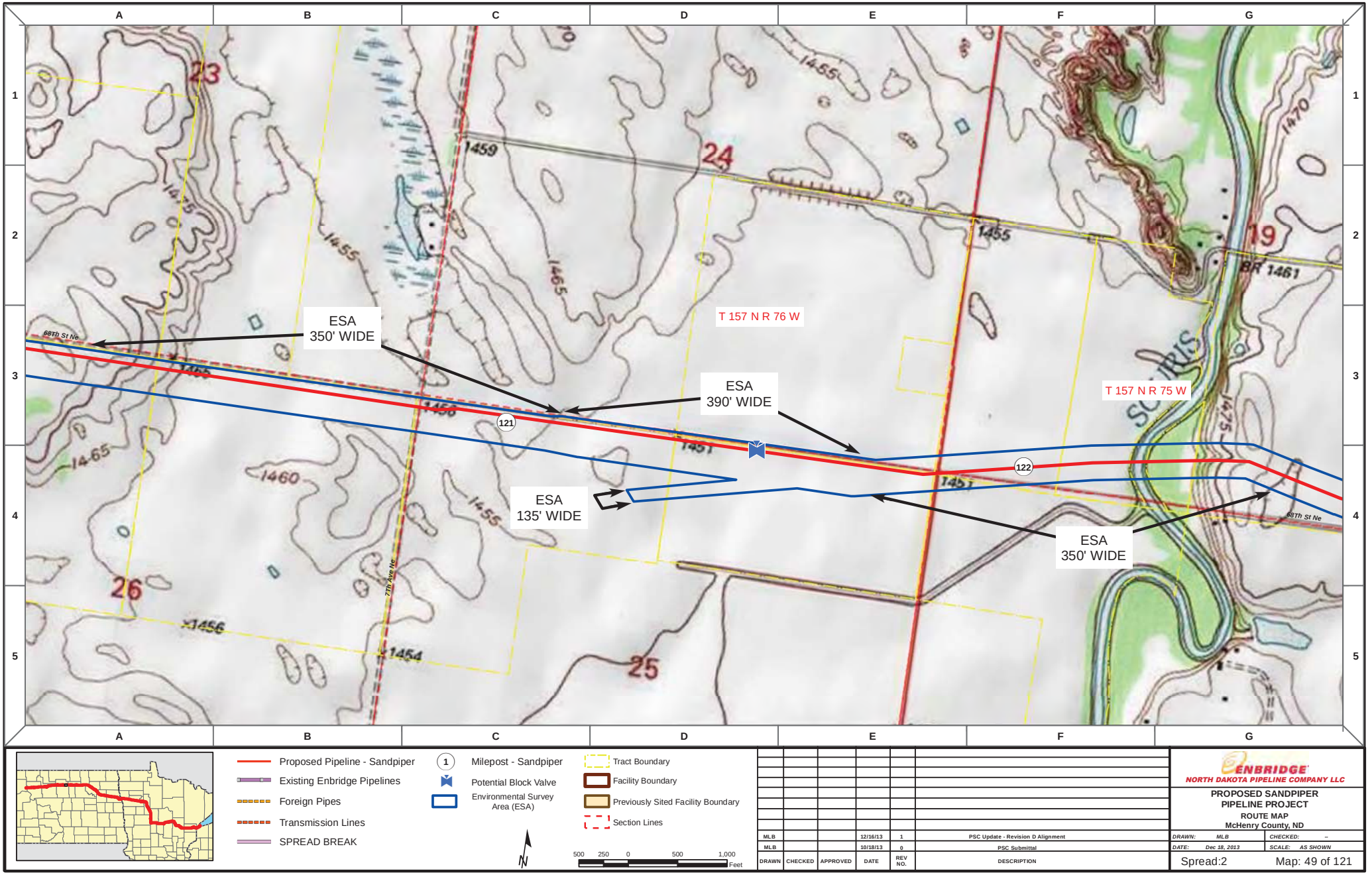
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 49 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

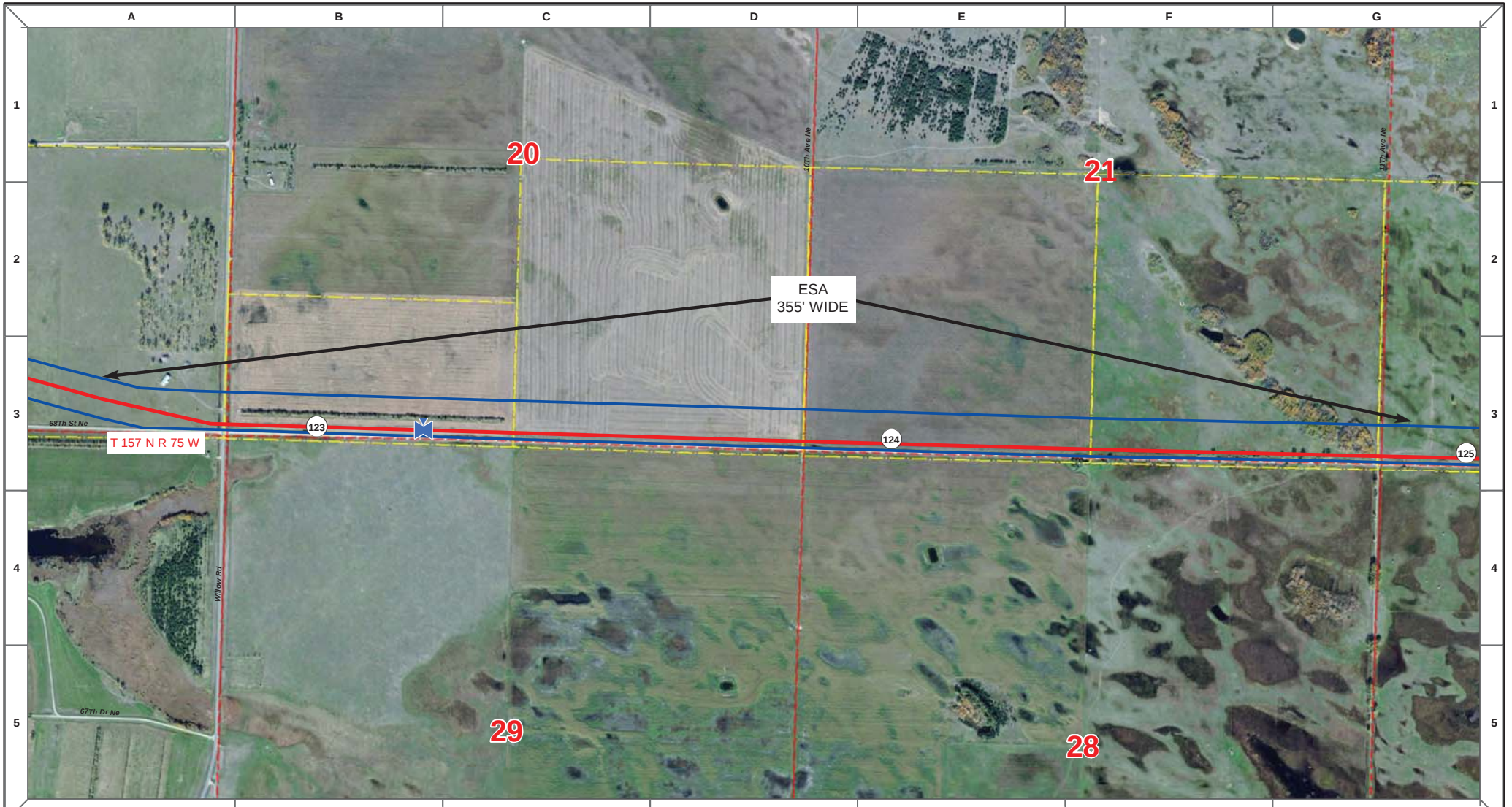
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

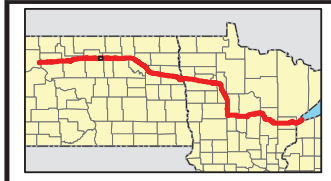
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 49 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

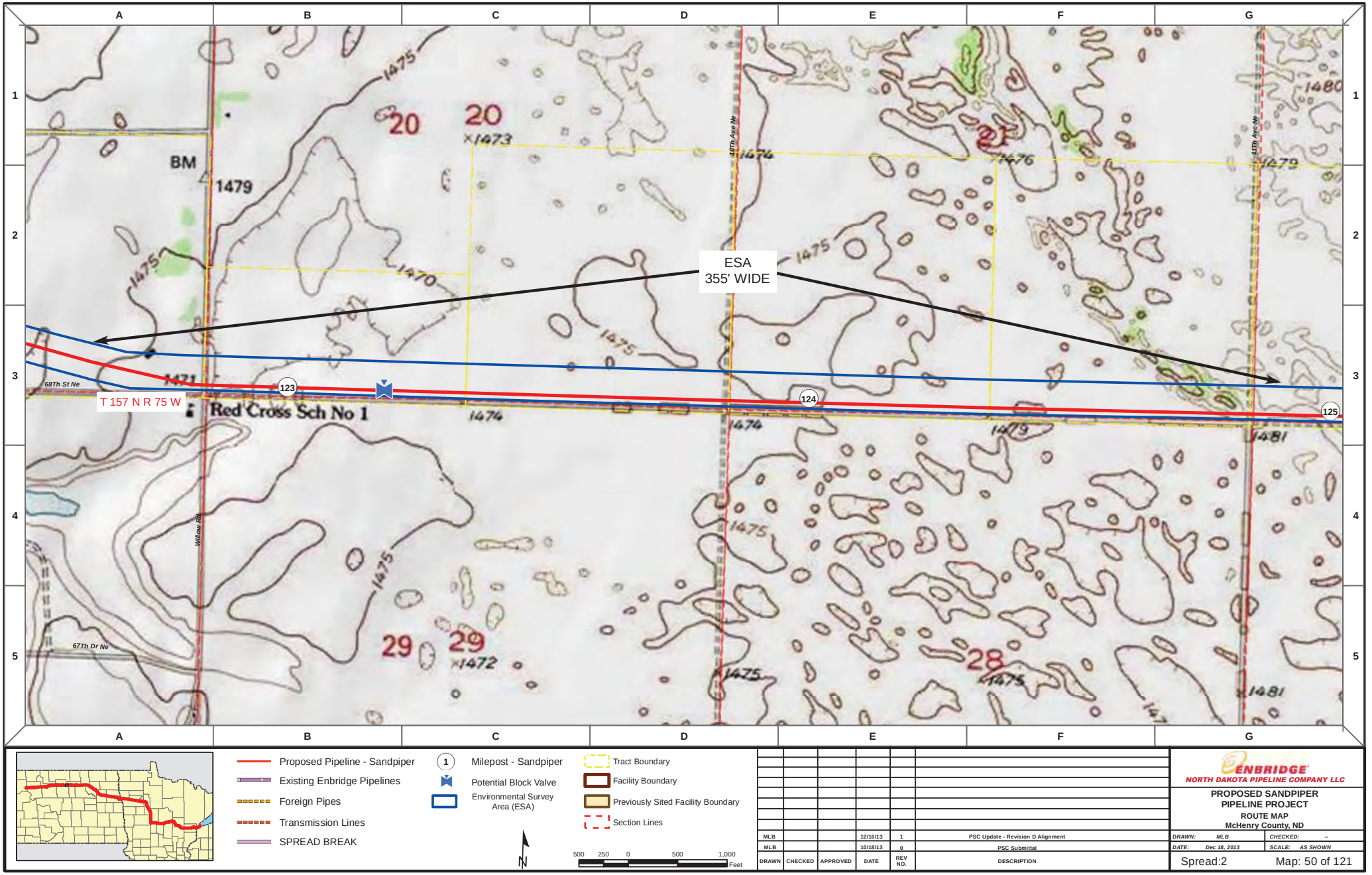
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 50 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

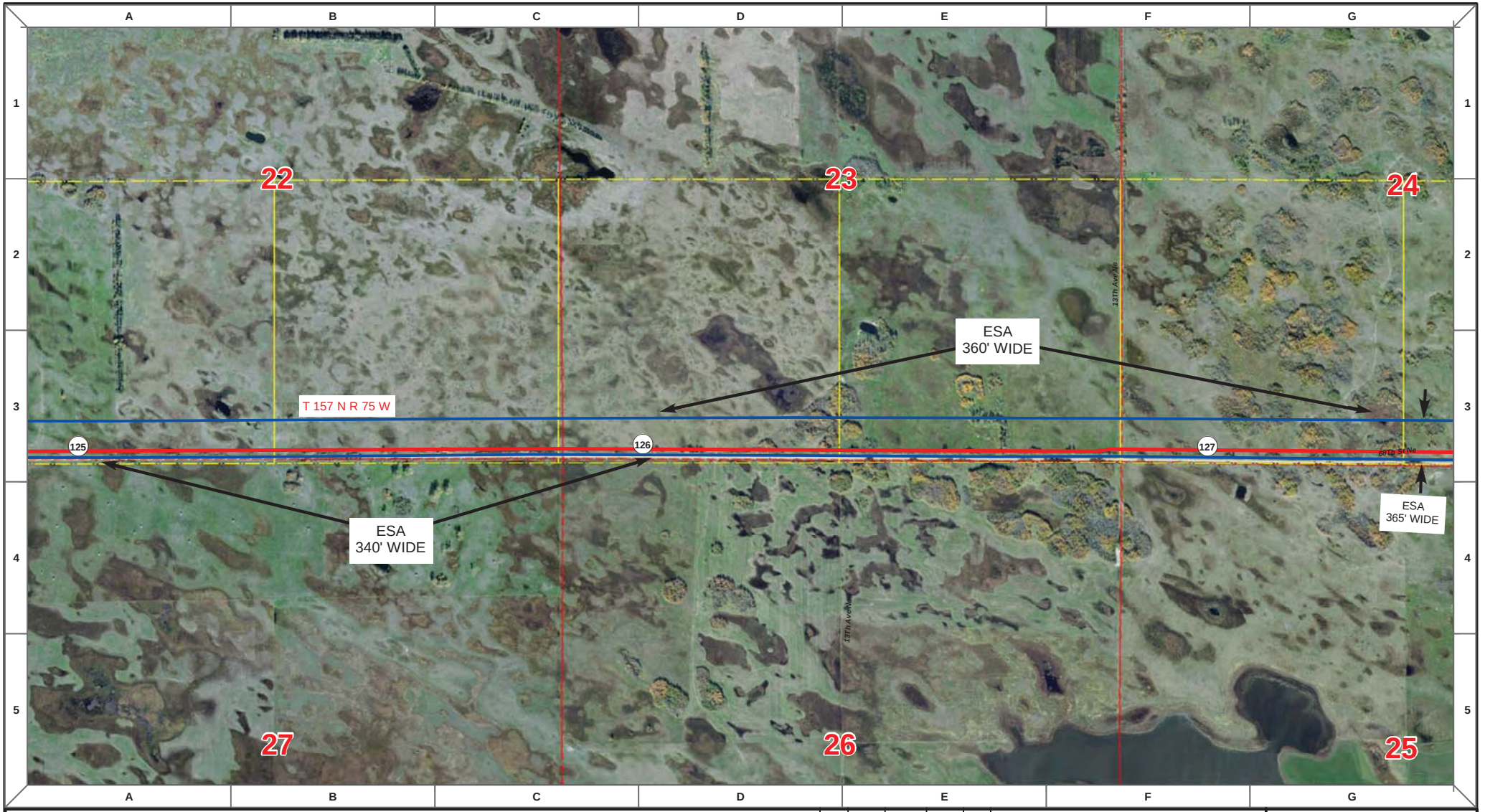
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

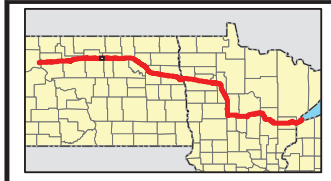
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 50 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

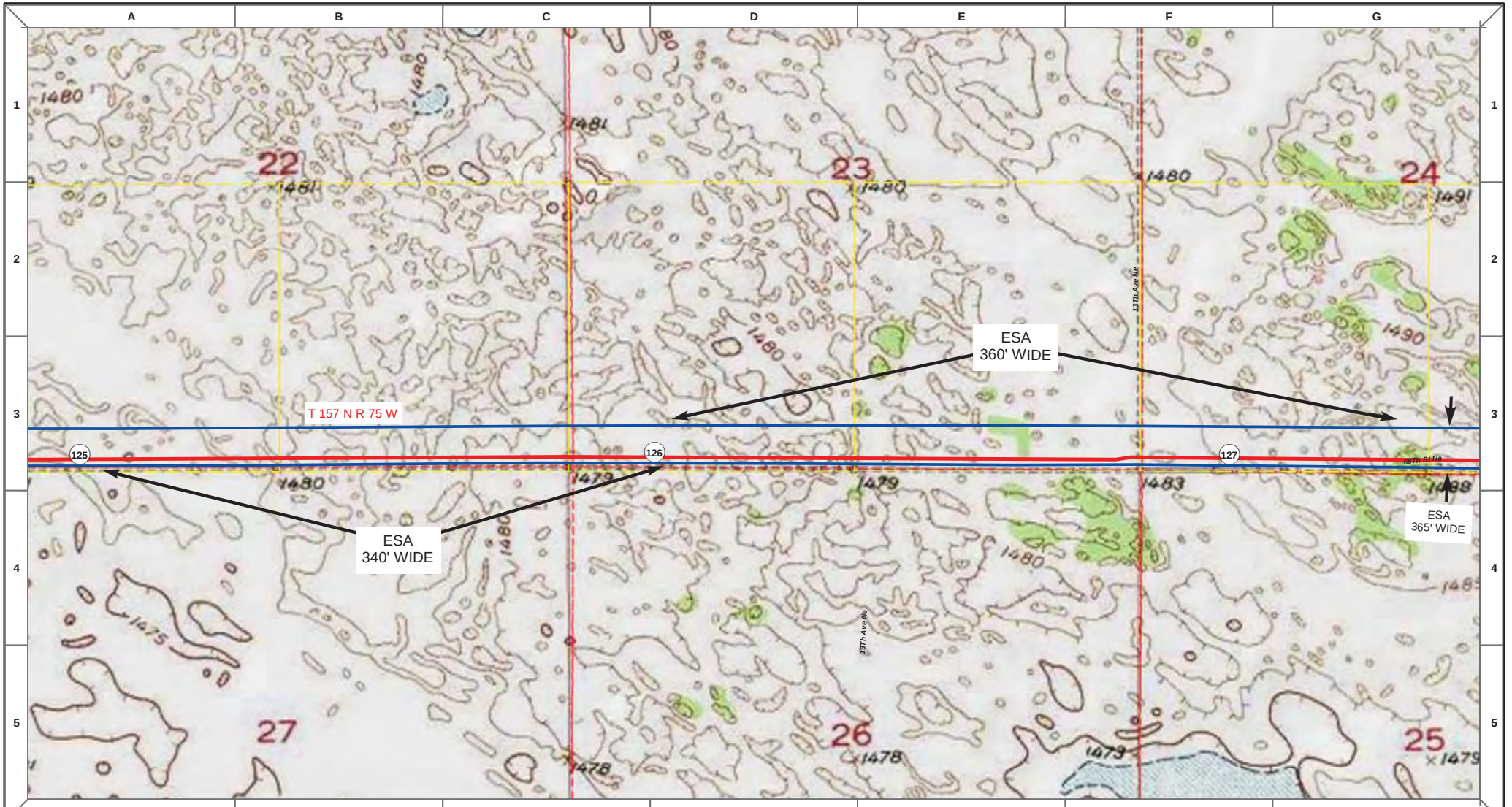
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 51 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

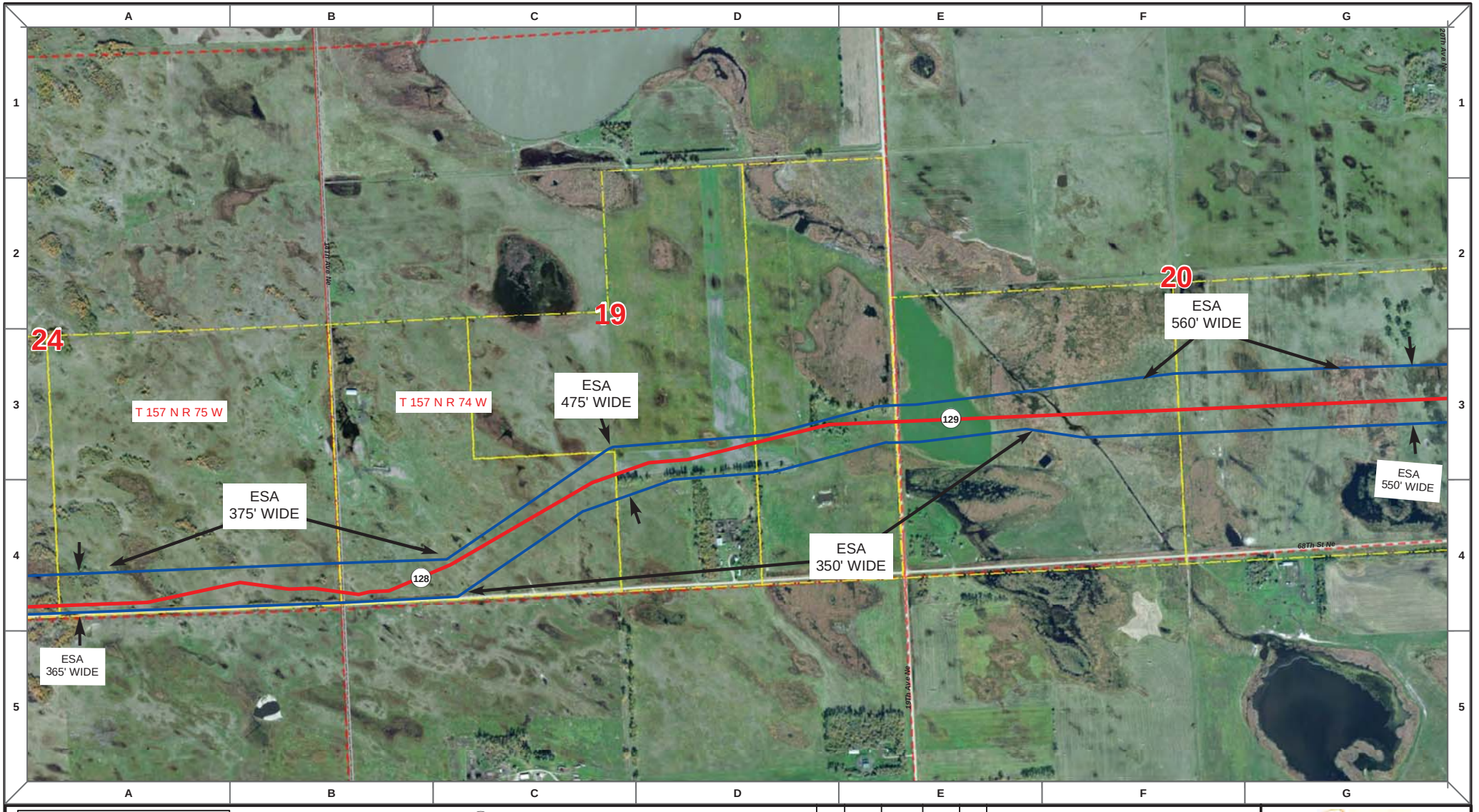
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

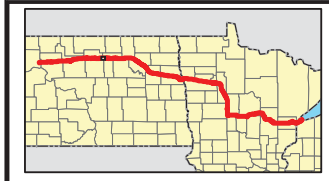
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 51 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

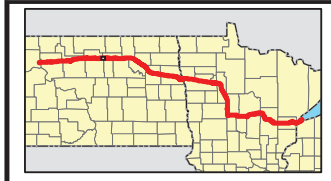
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry & Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 52 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

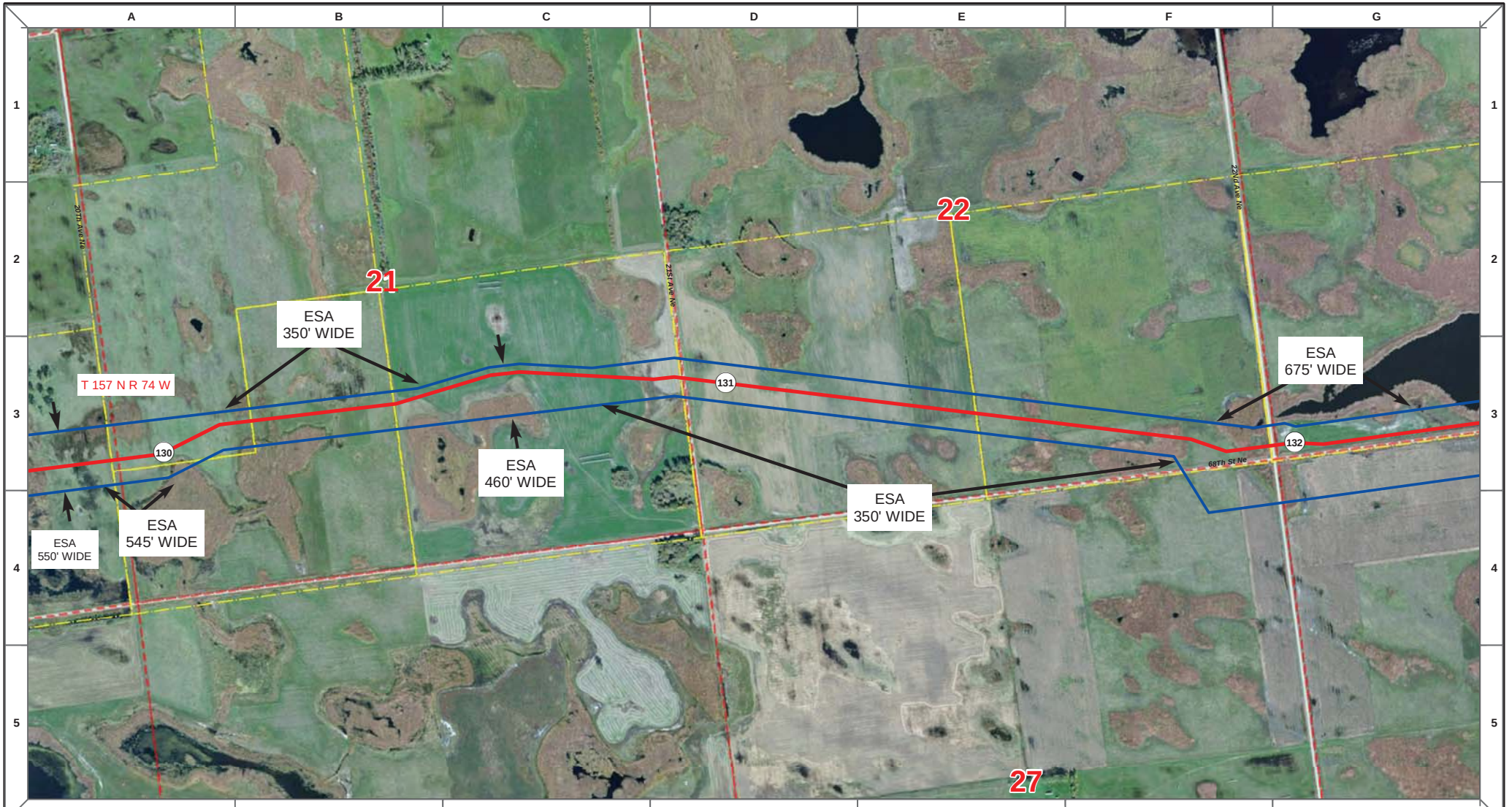
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

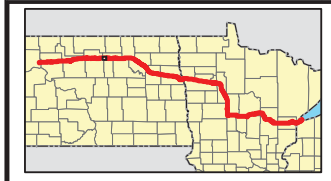
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
McHenry & Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 52 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

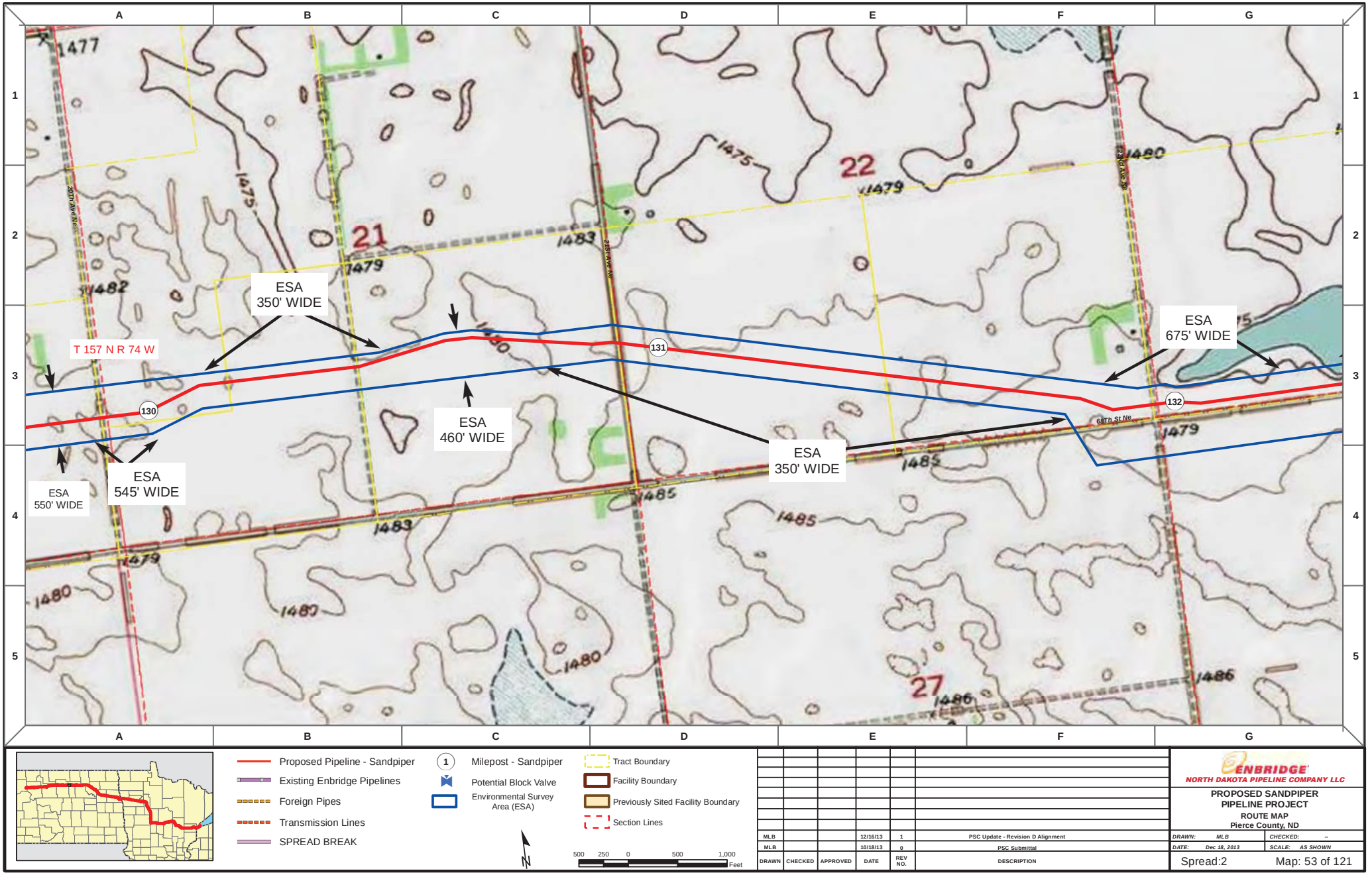
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 53 of 121



- Proposed Pipeline - Sandpiper
- Existing Enbridge Pipelines
- Foreign Pipes
- Transmission Lines
- SPREAD BREAK
- (1) Milepost - Sandpiper
- Potential Block Valve
- Environmental Survey Area (ESA)
- Tract Boundary
- Facility Boundary
- Previously Sited Facility Boundary
- Section Lines

N

500 250 0 500 1,000 Feet

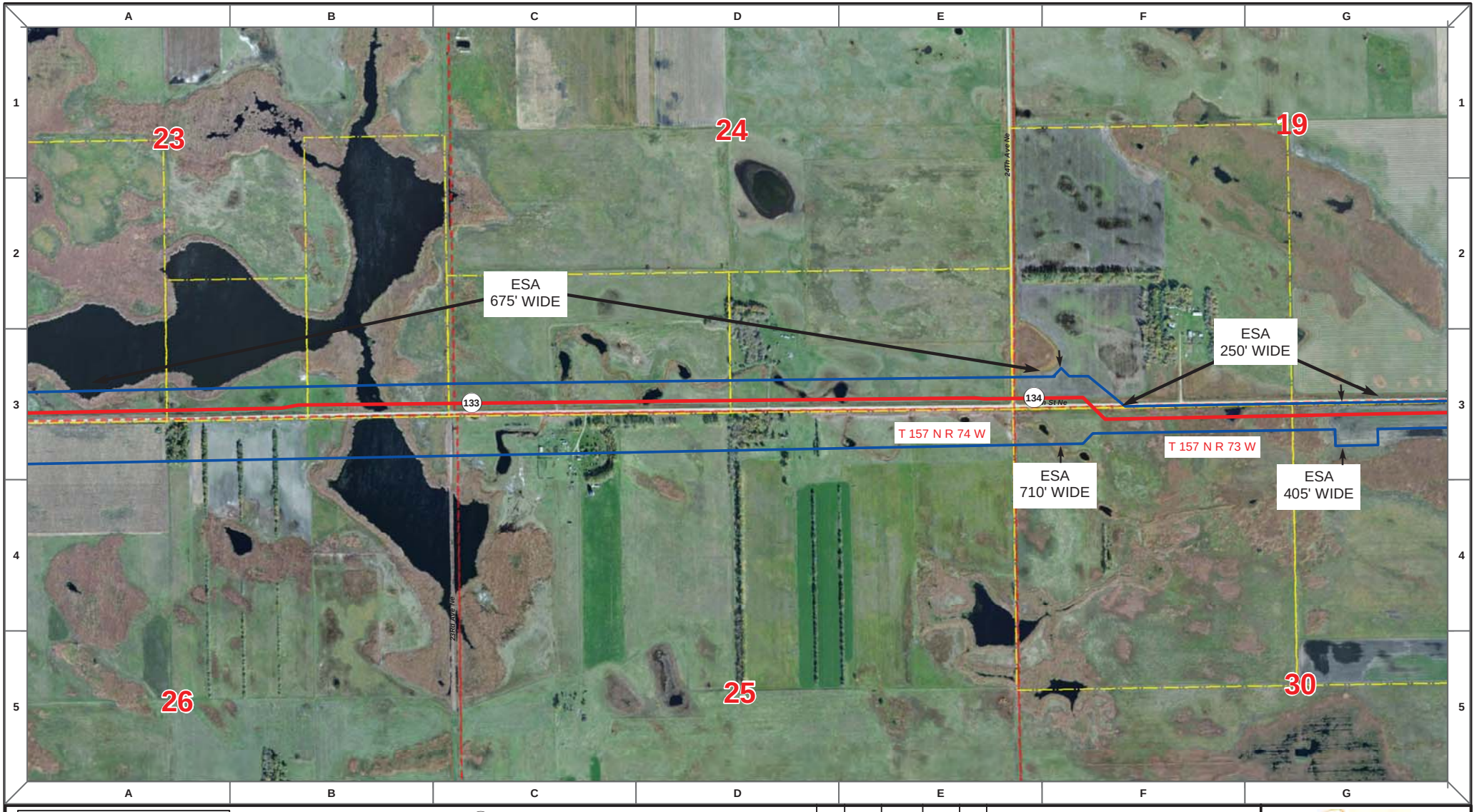
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 53 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

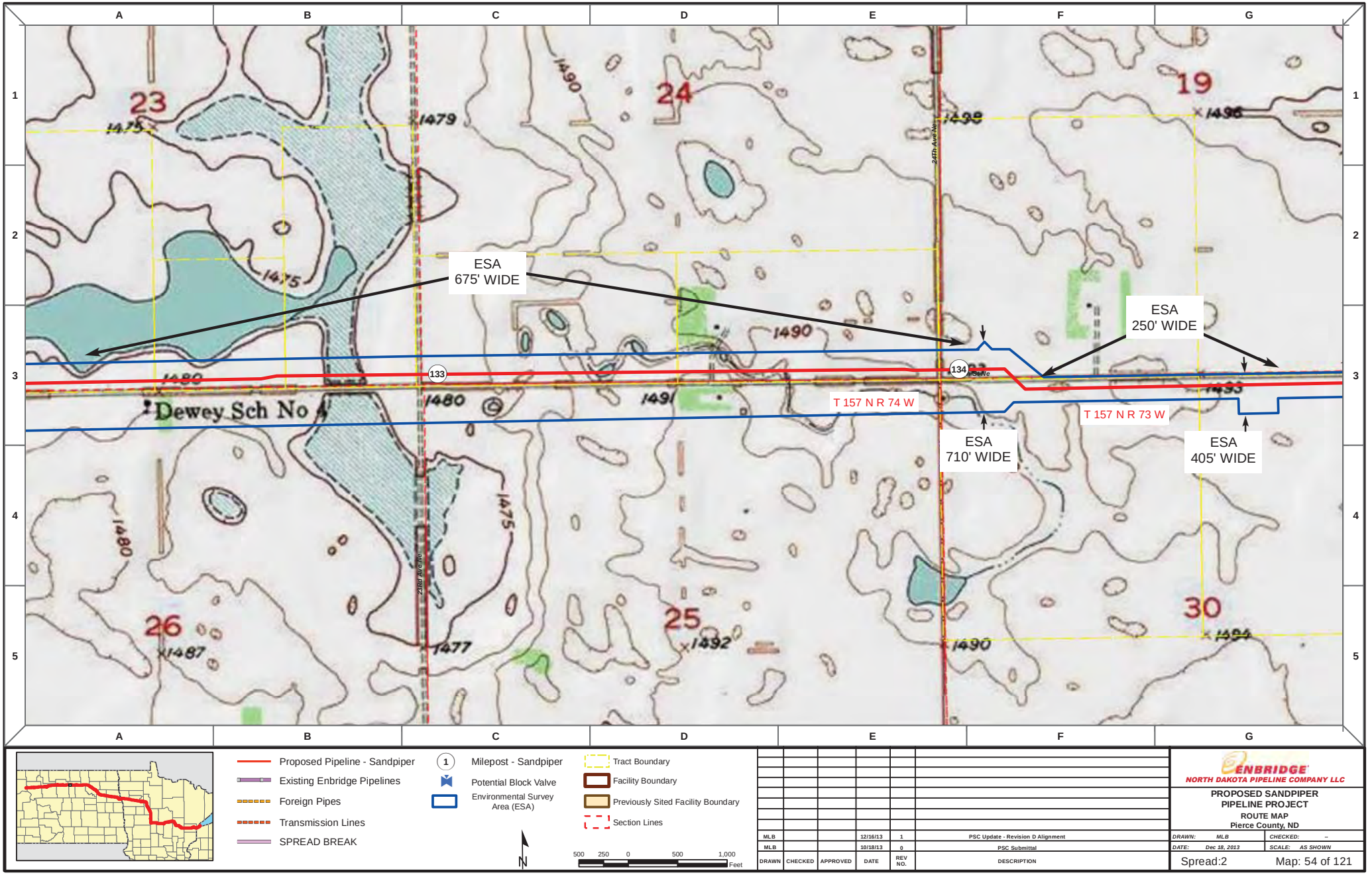
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 54 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

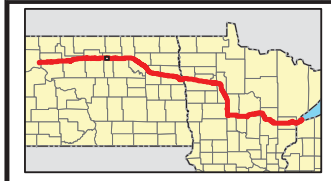
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 54 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

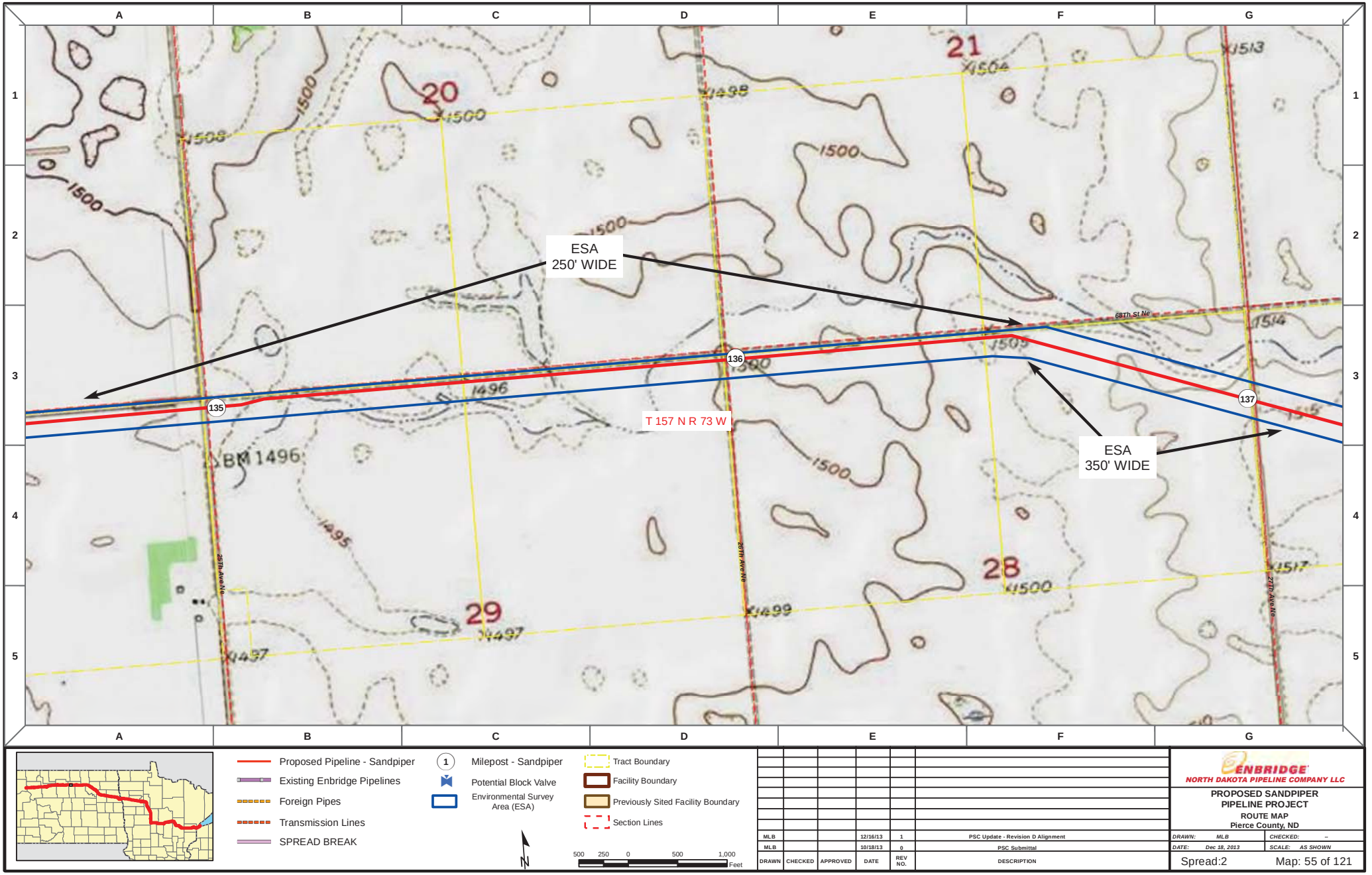
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 55 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

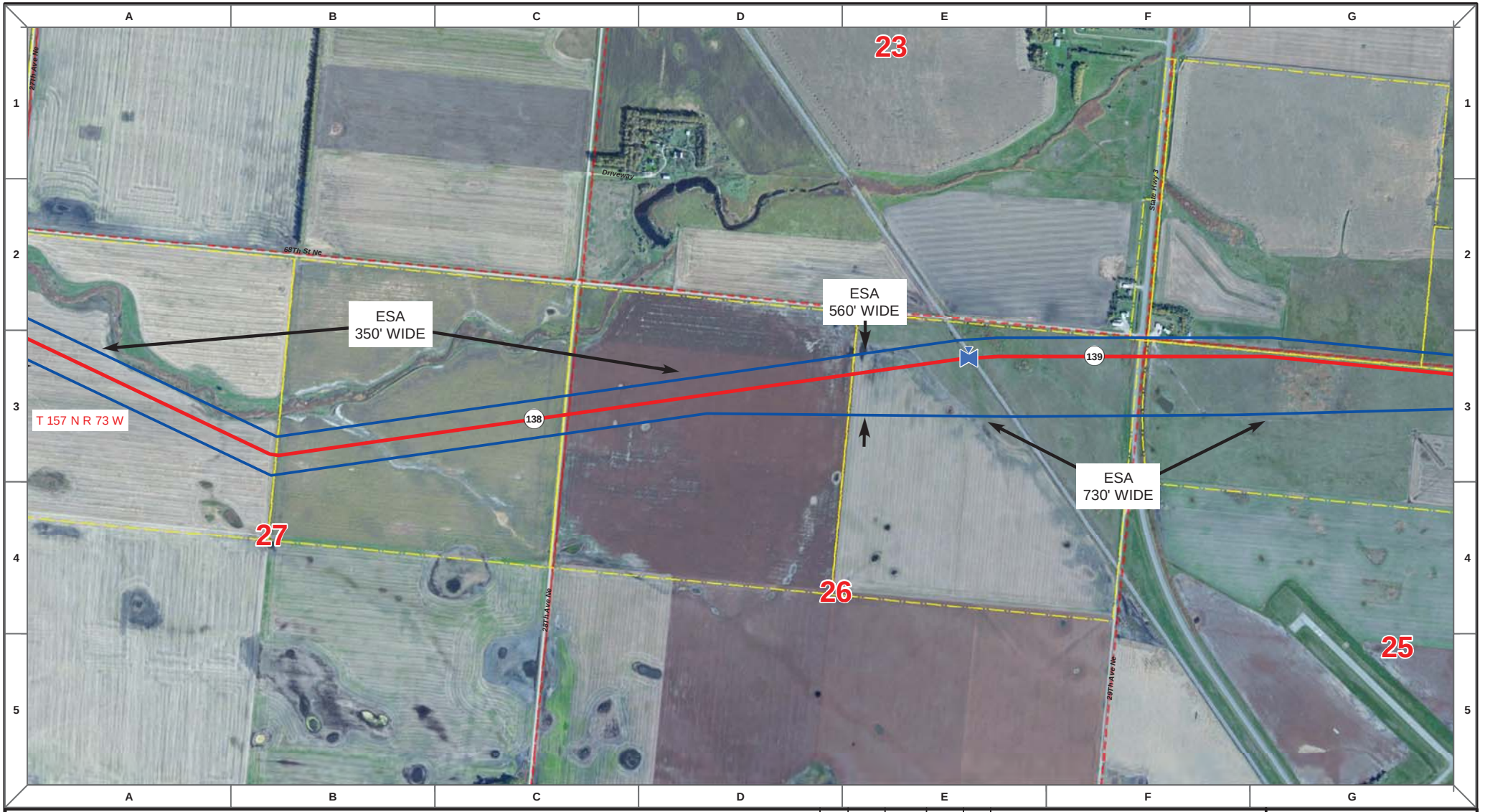
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 55 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

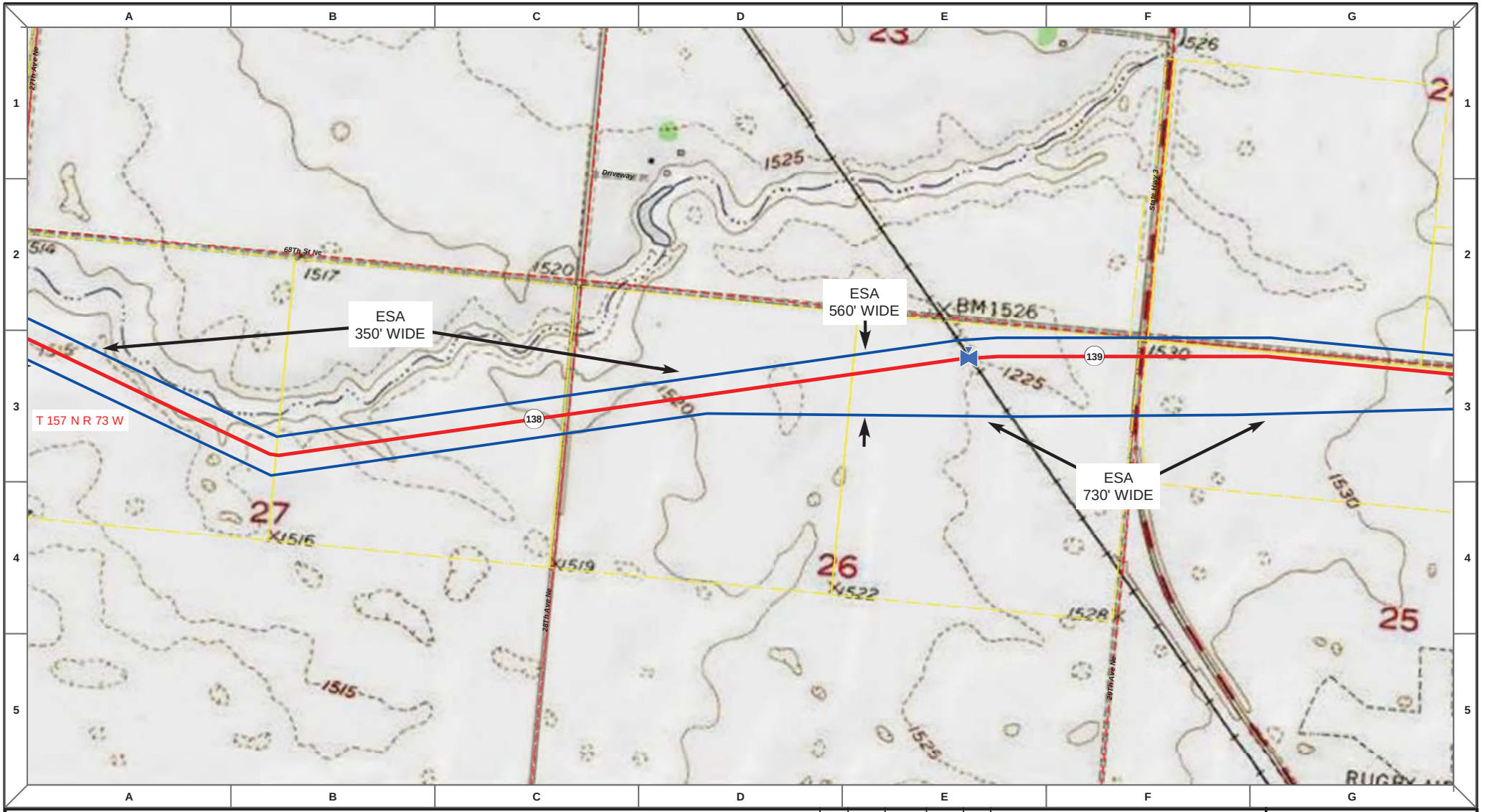
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 56 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

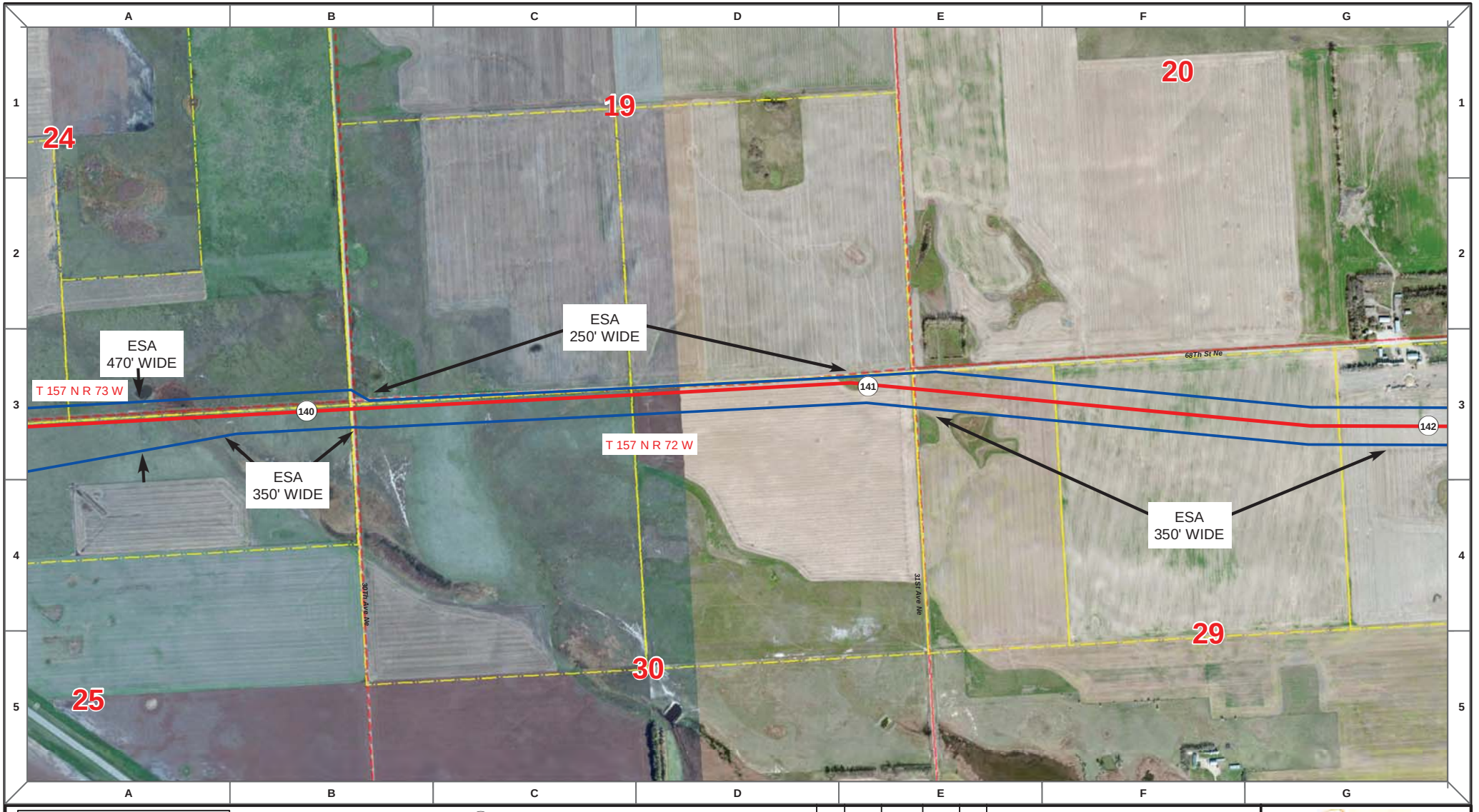
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

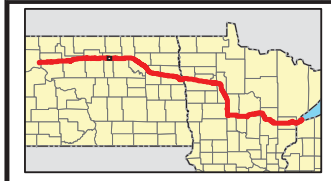
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 56 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

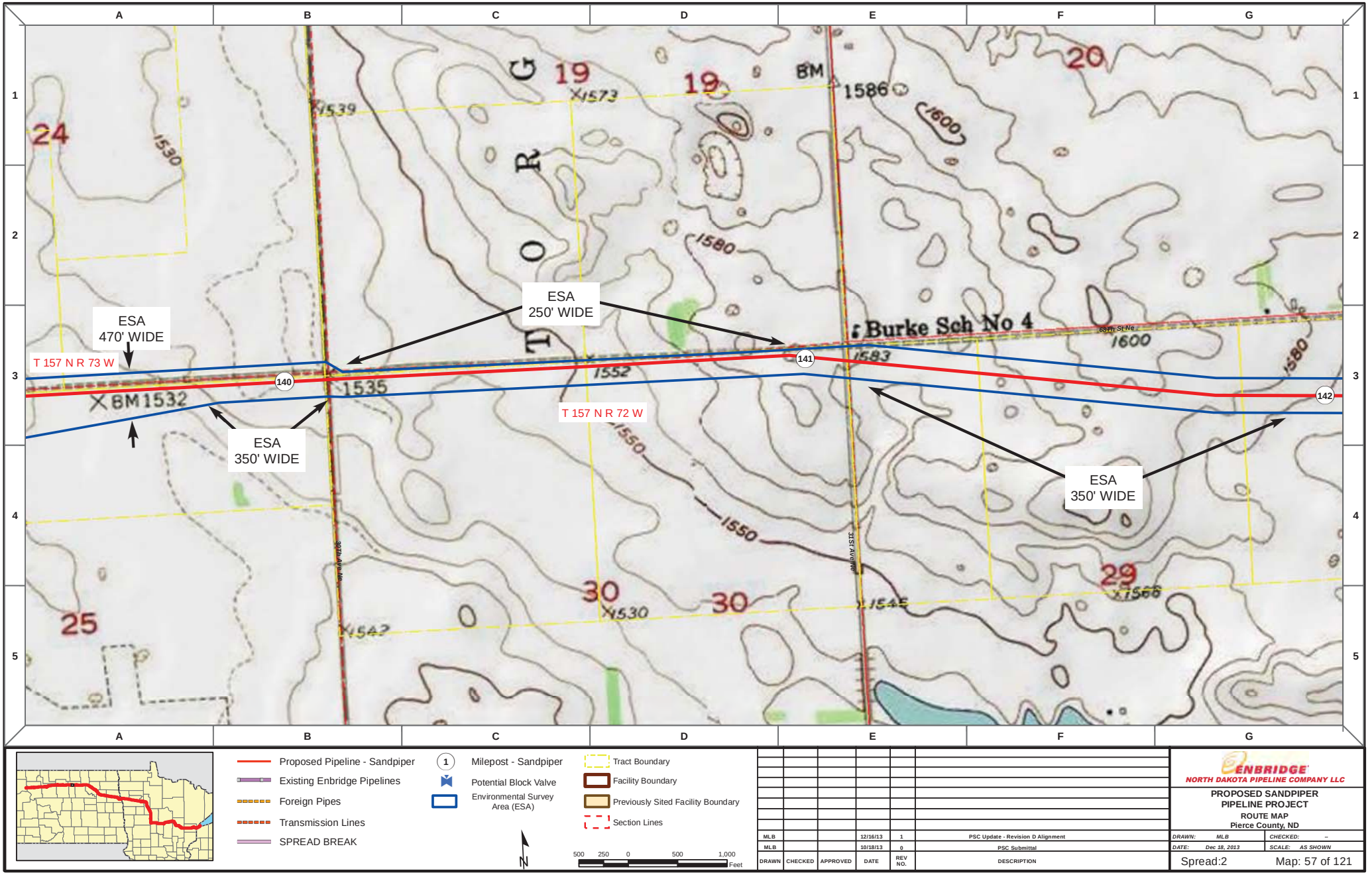
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 57 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

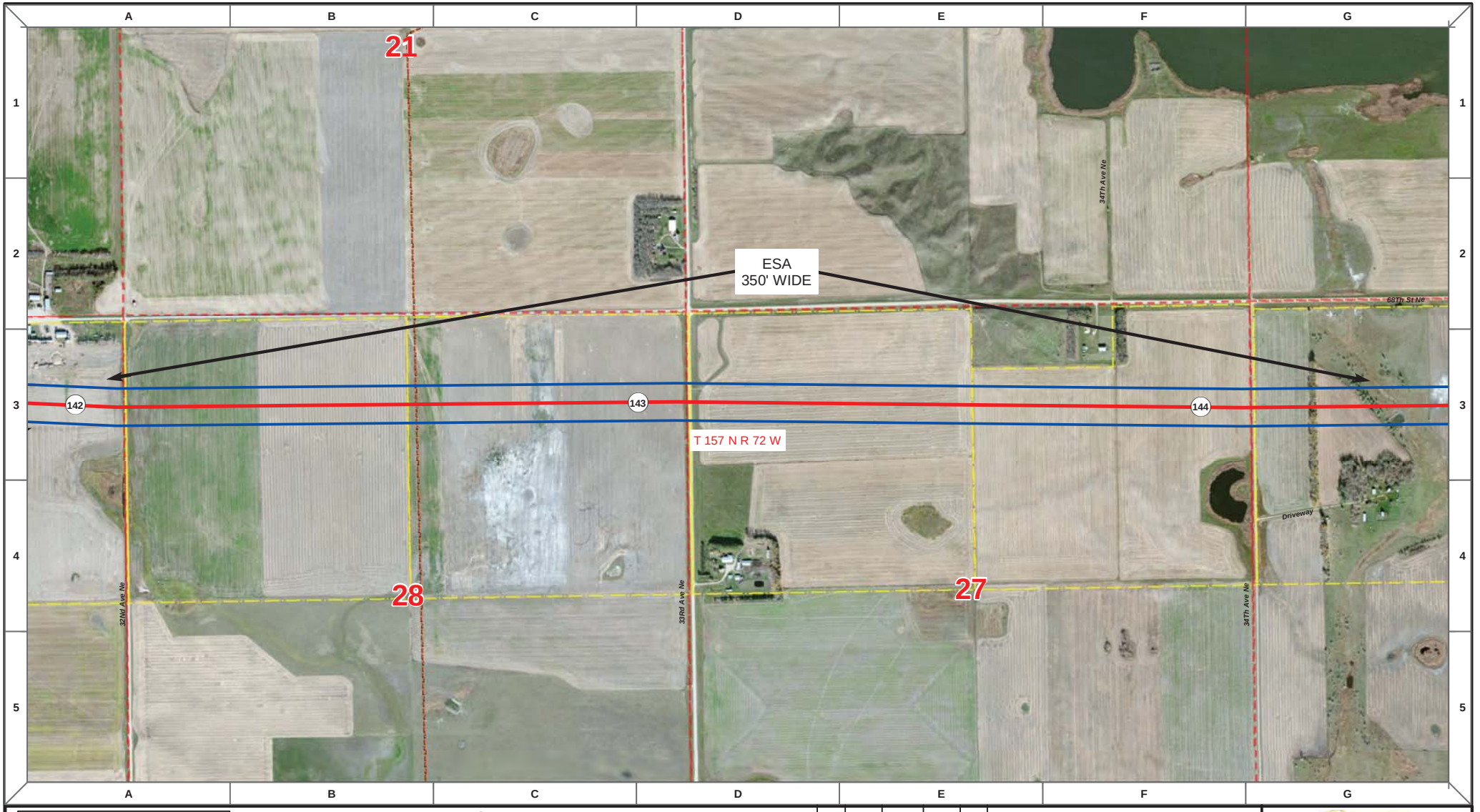
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

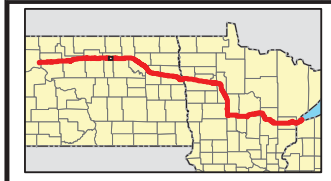
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 57 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

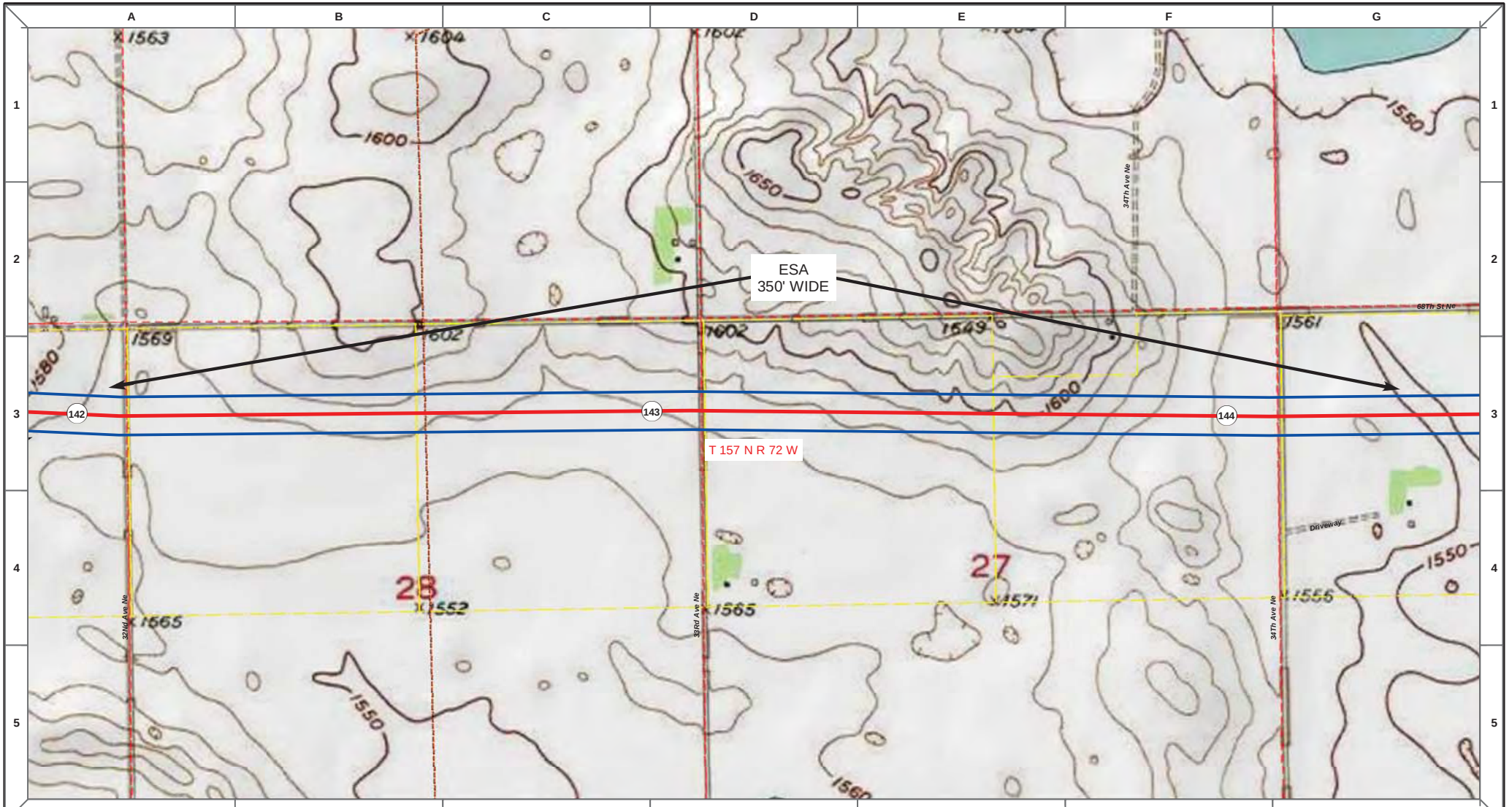
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

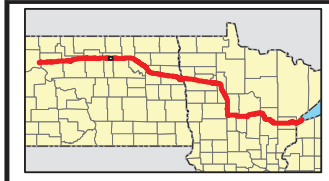
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 58 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

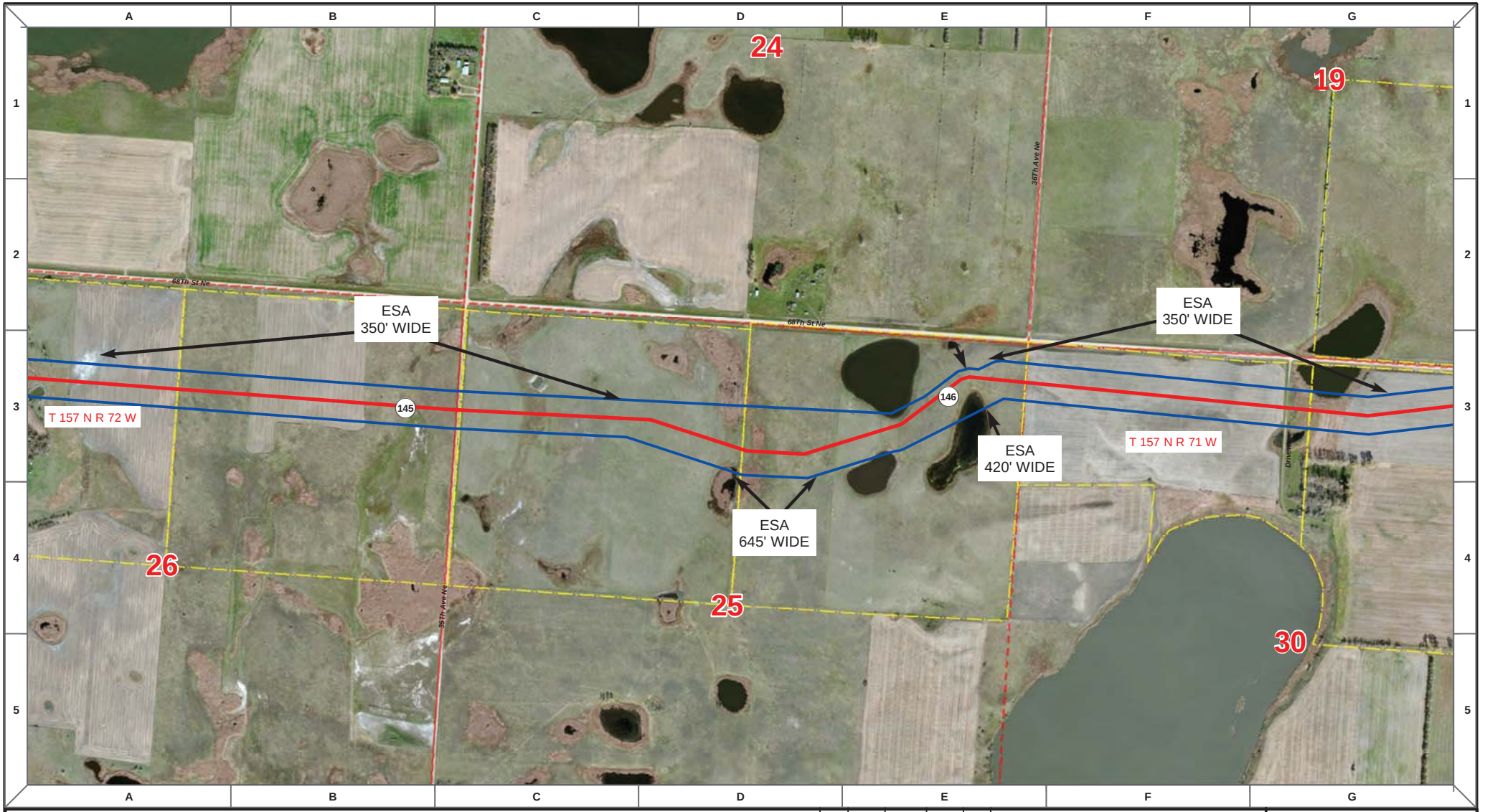
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

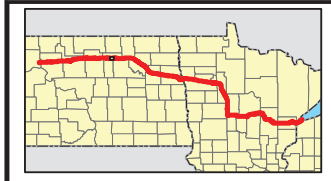
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 58 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

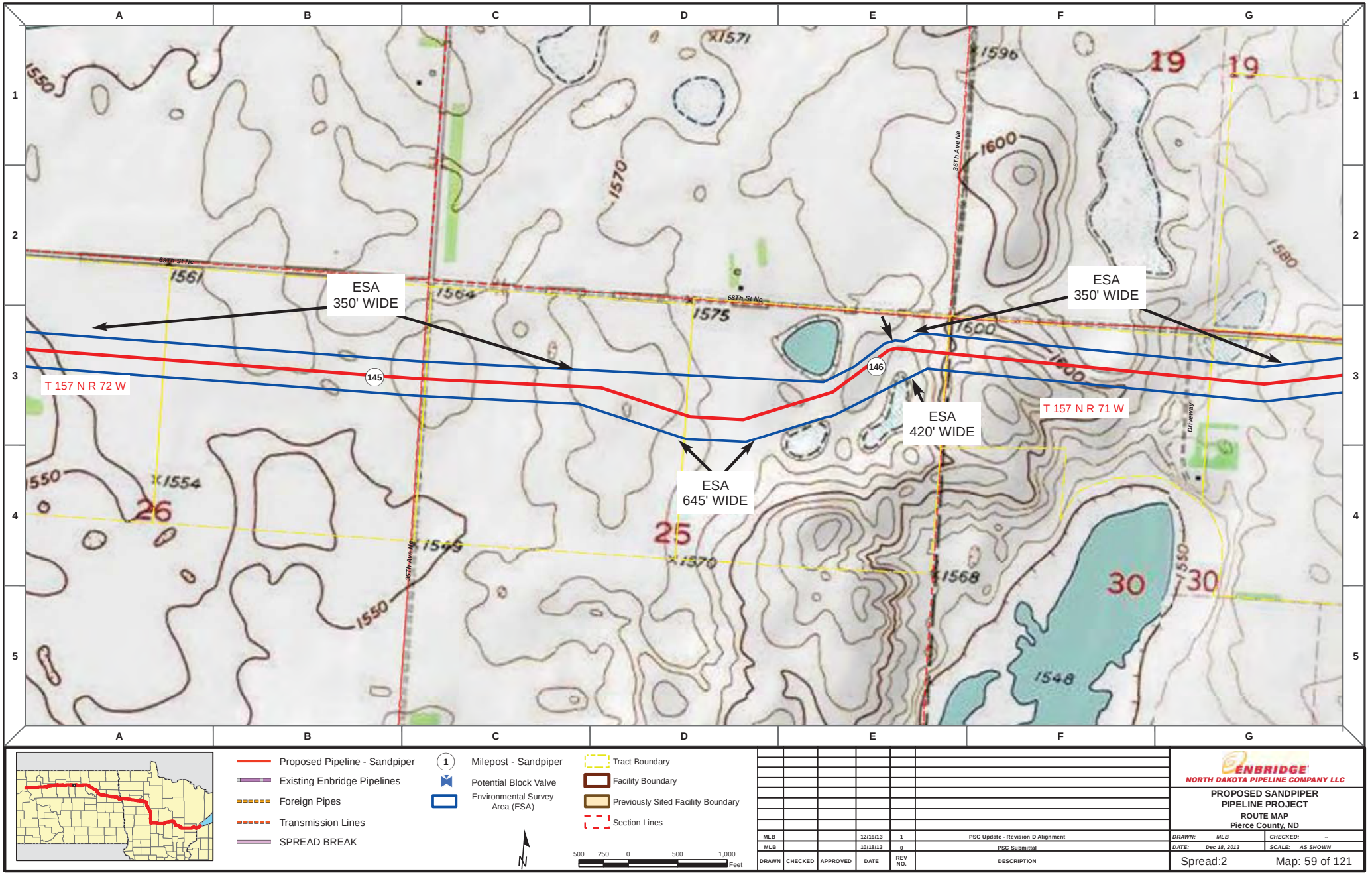
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 59 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

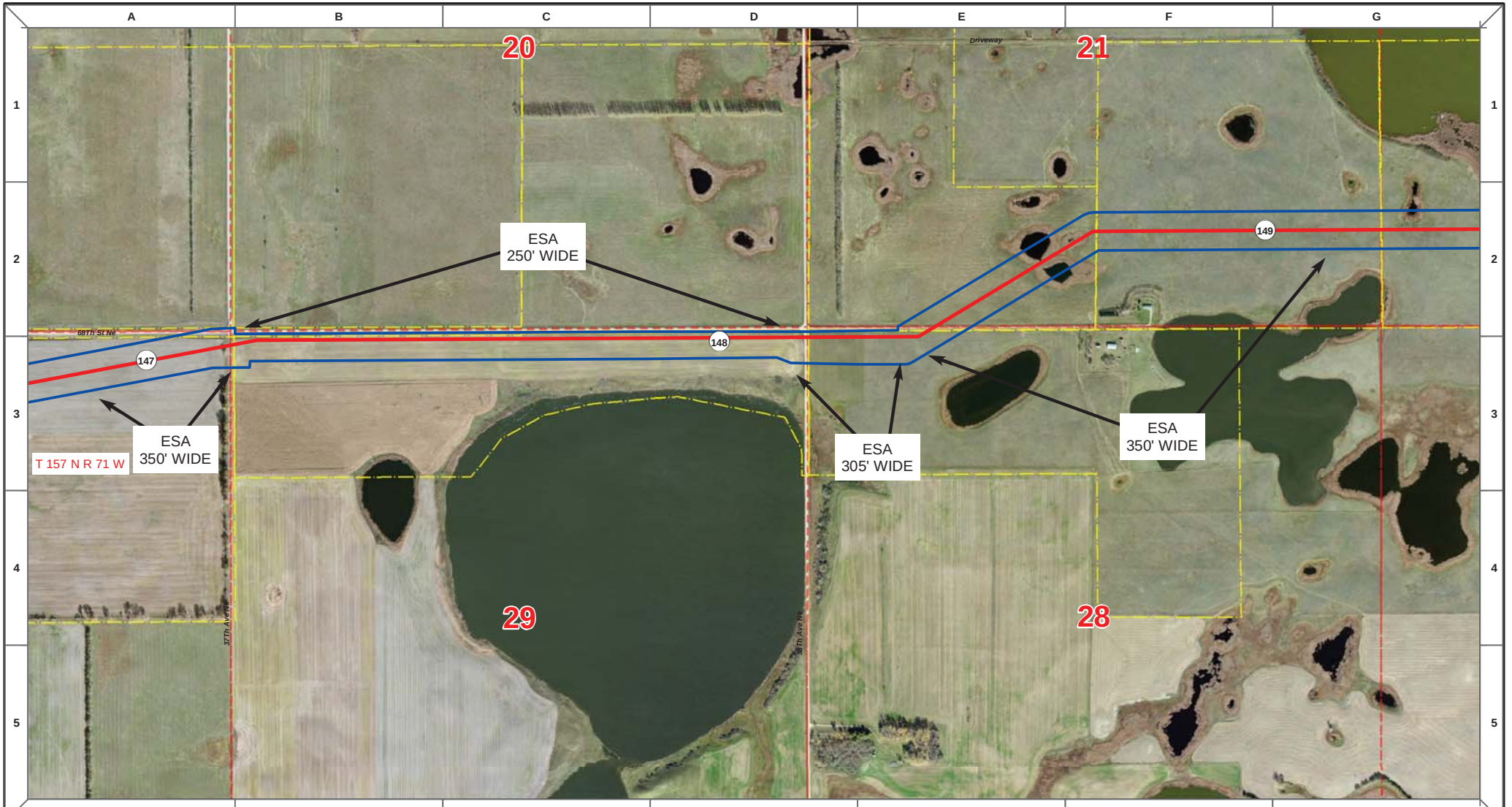
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

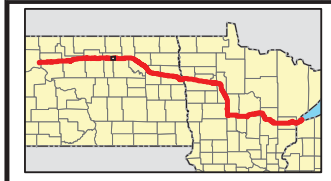
PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 59 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

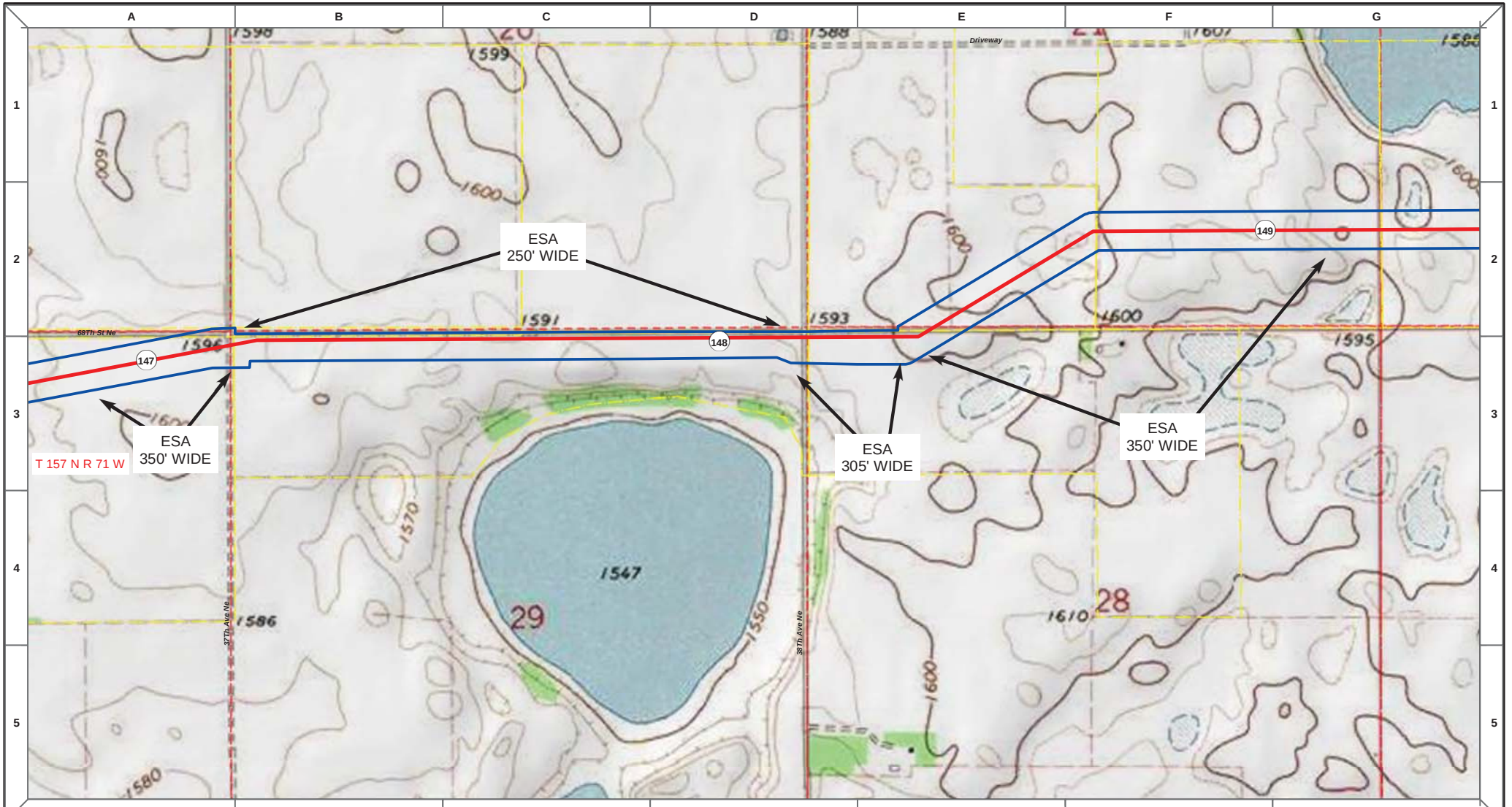
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

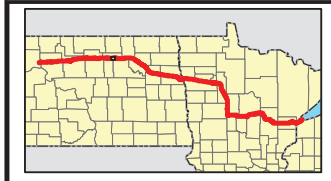
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 60 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

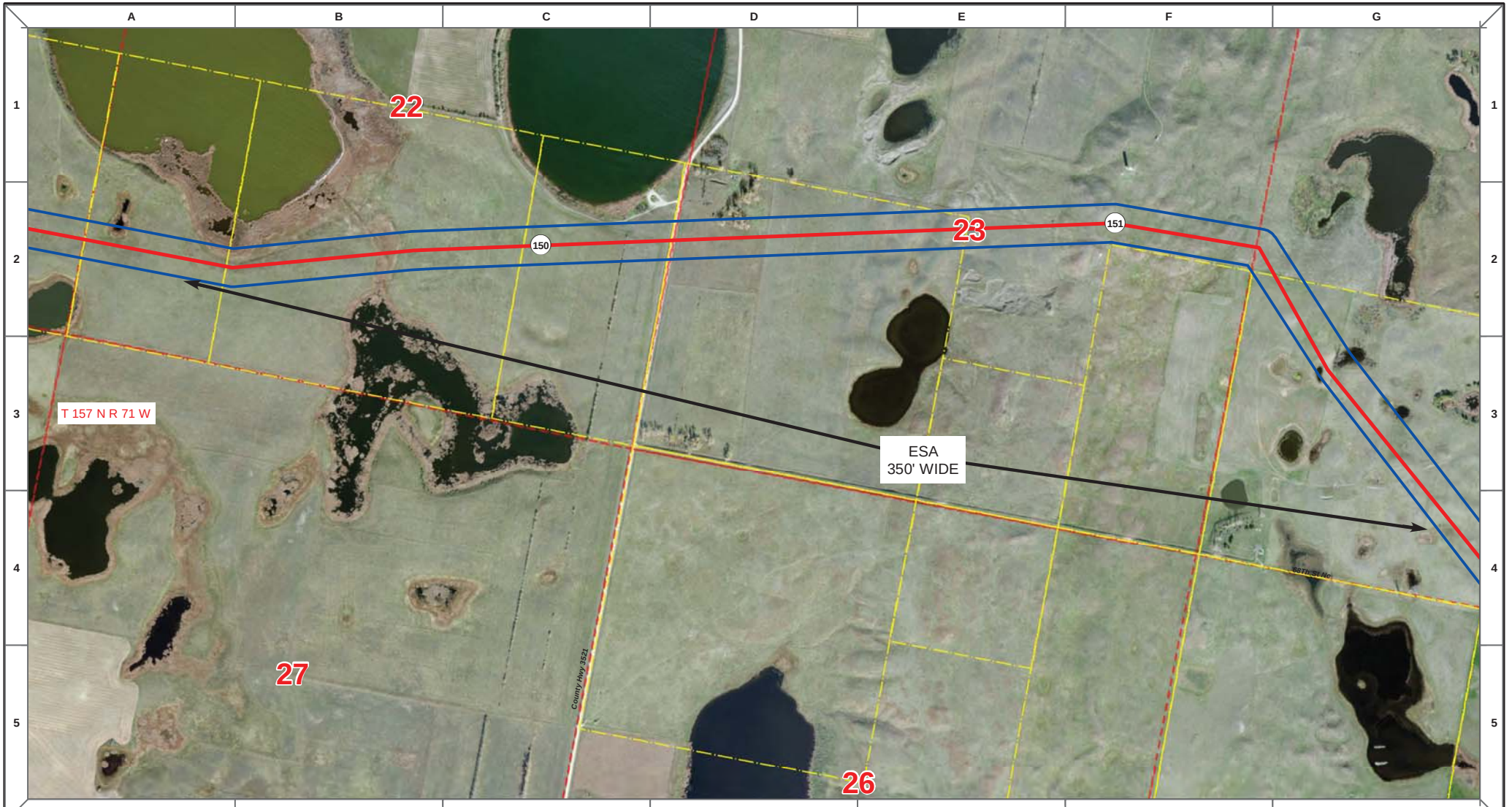
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

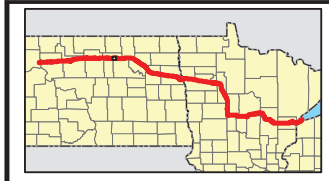
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 60 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

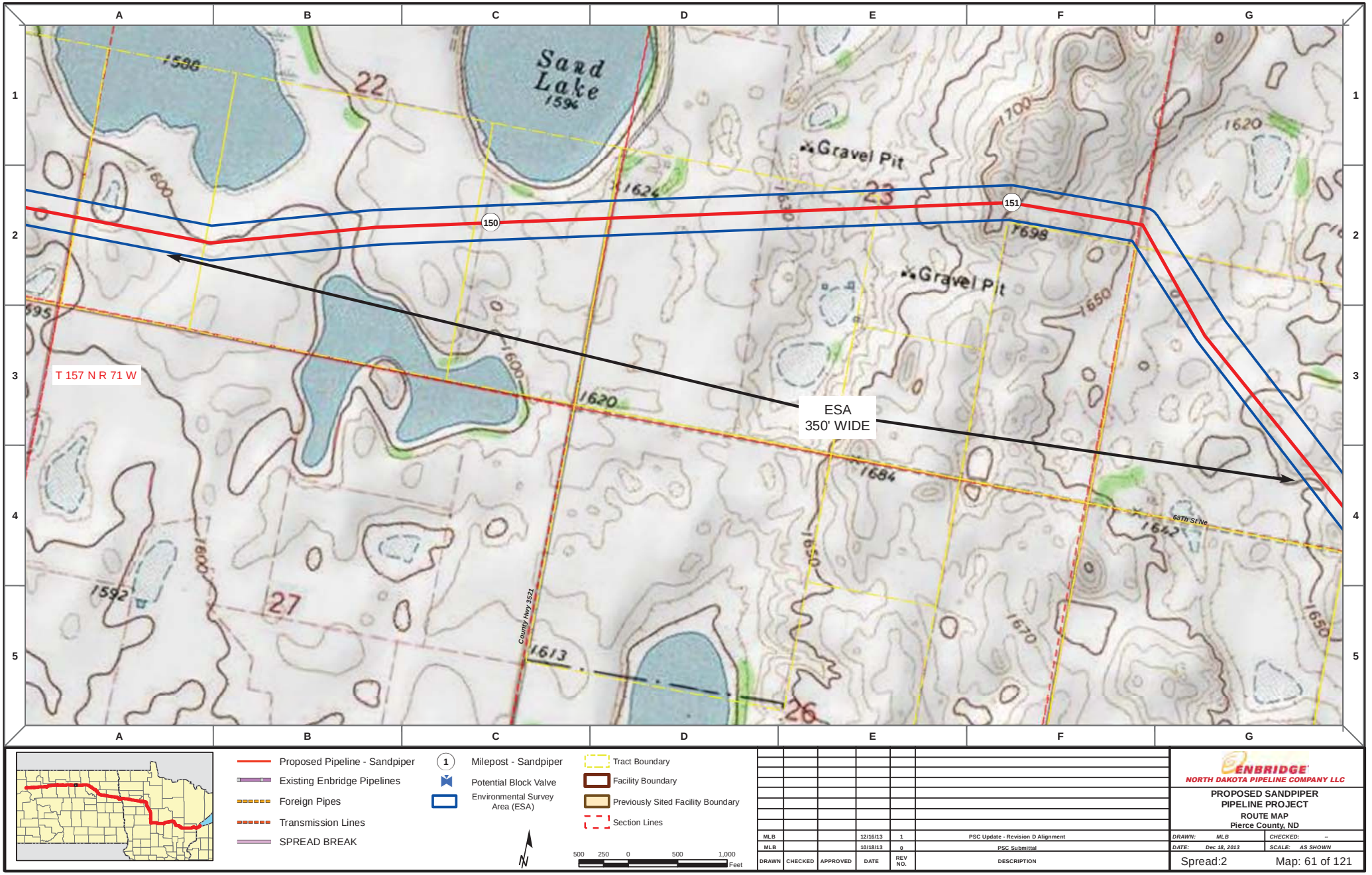
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 61 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

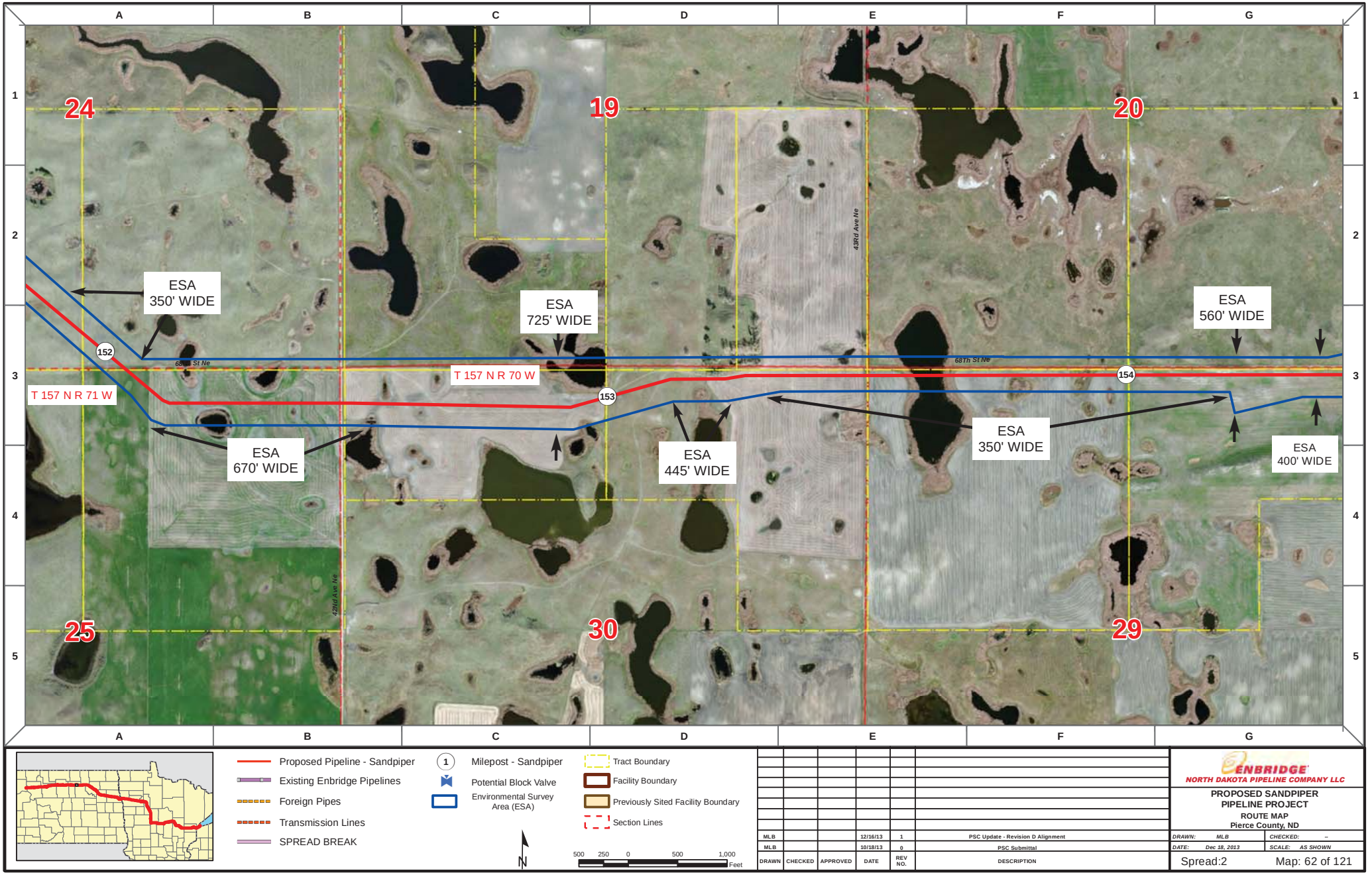
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 61 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

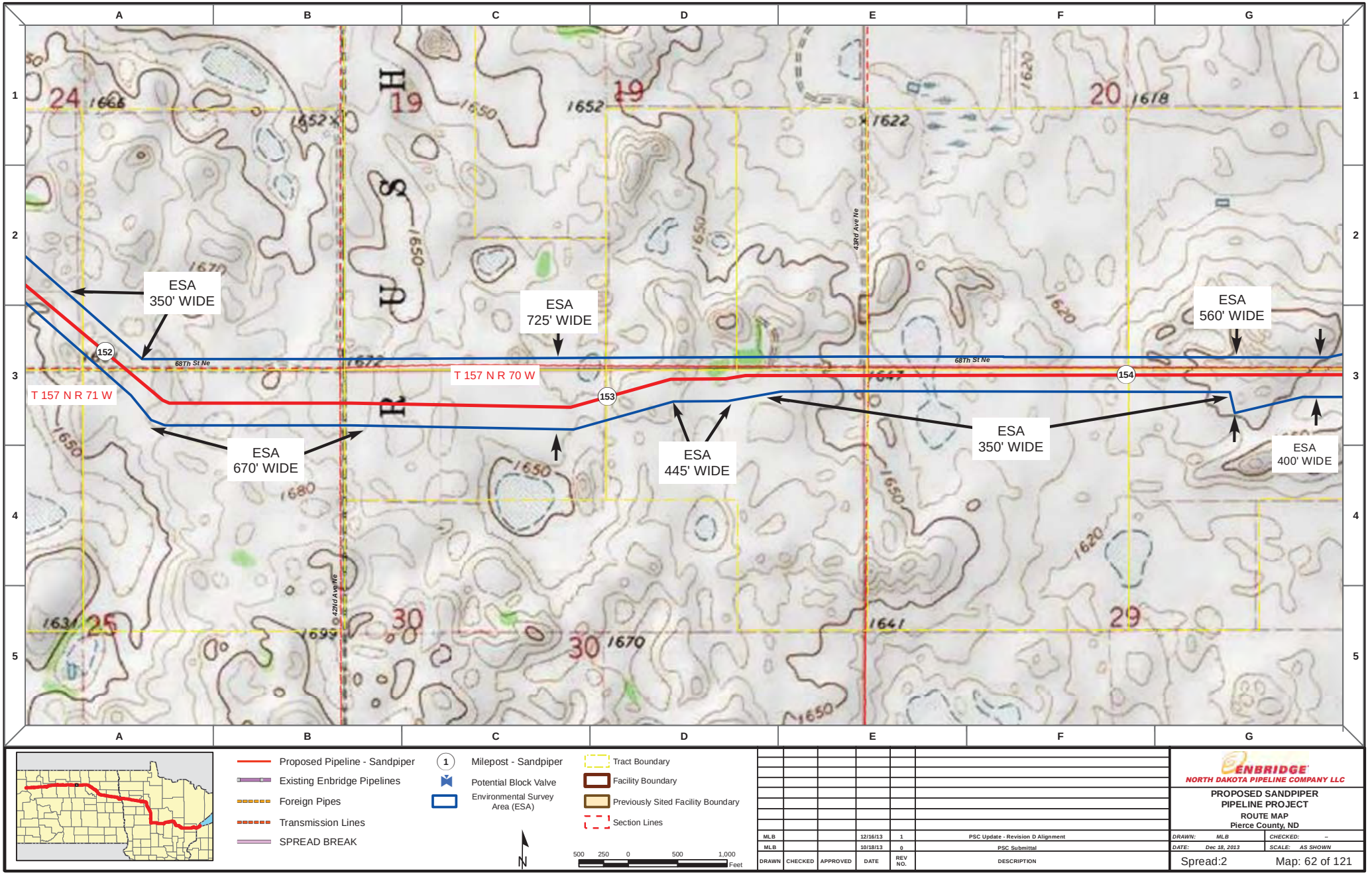
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

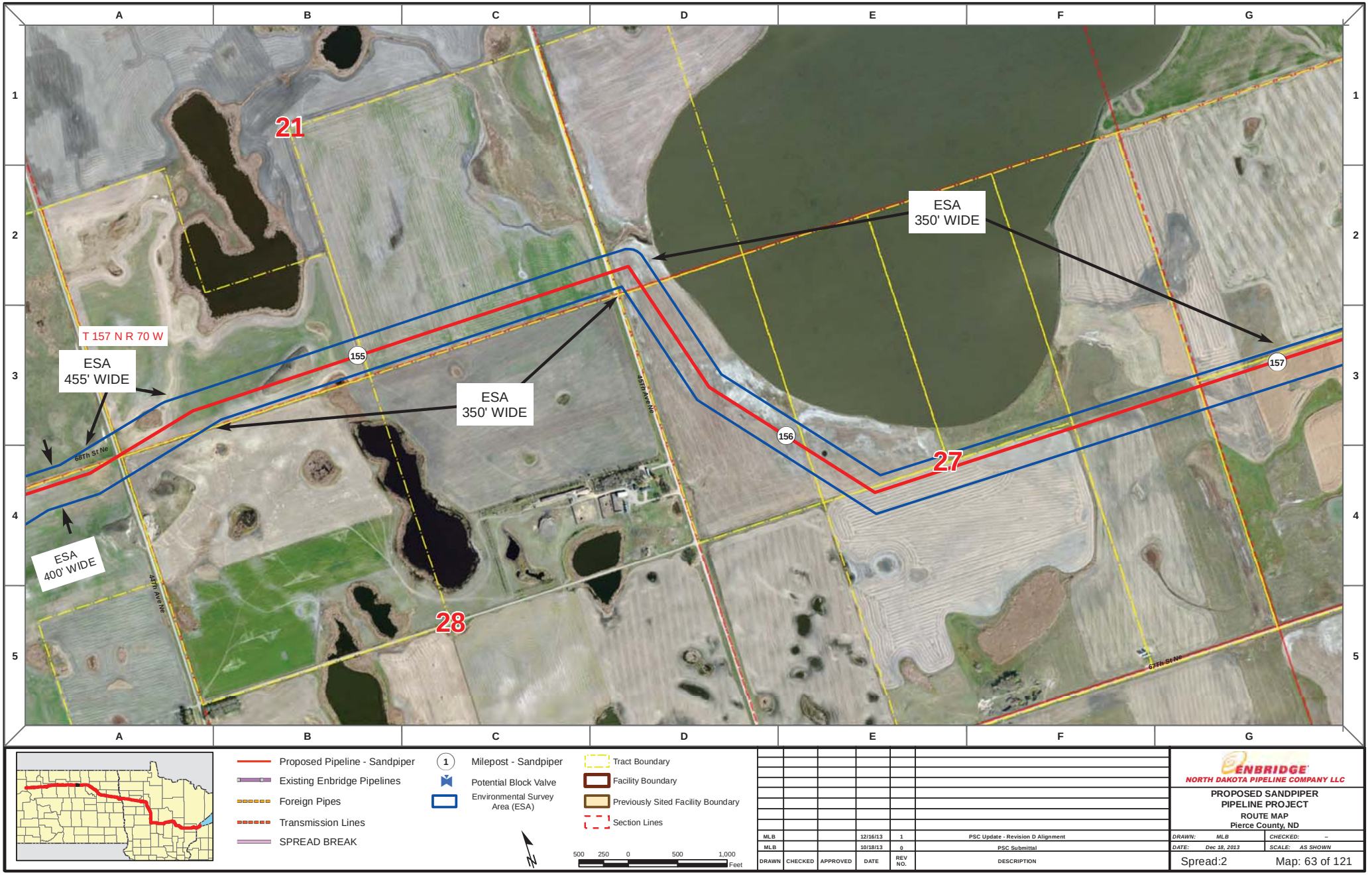
PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2 Map: 62 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

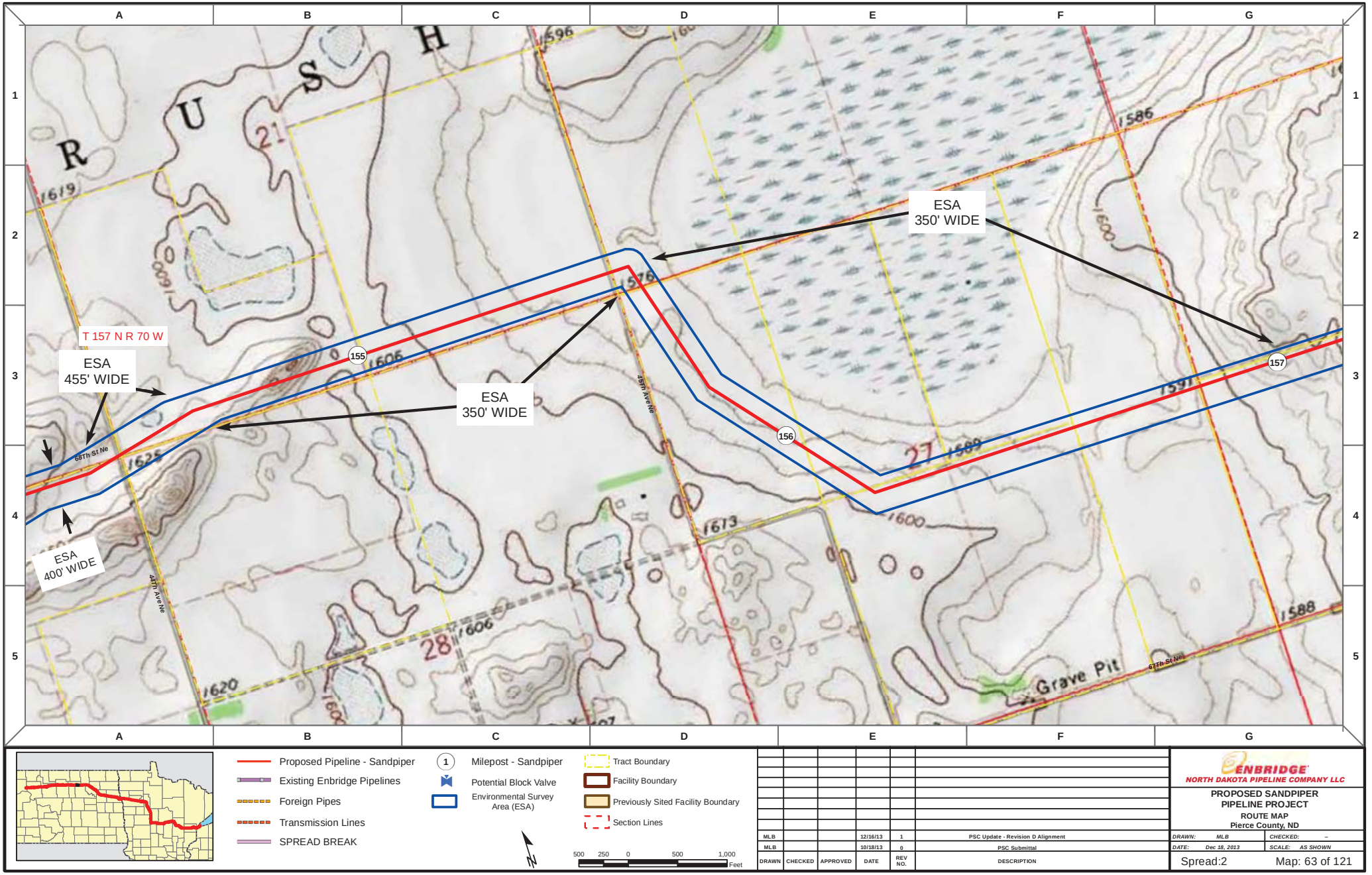
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 63 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

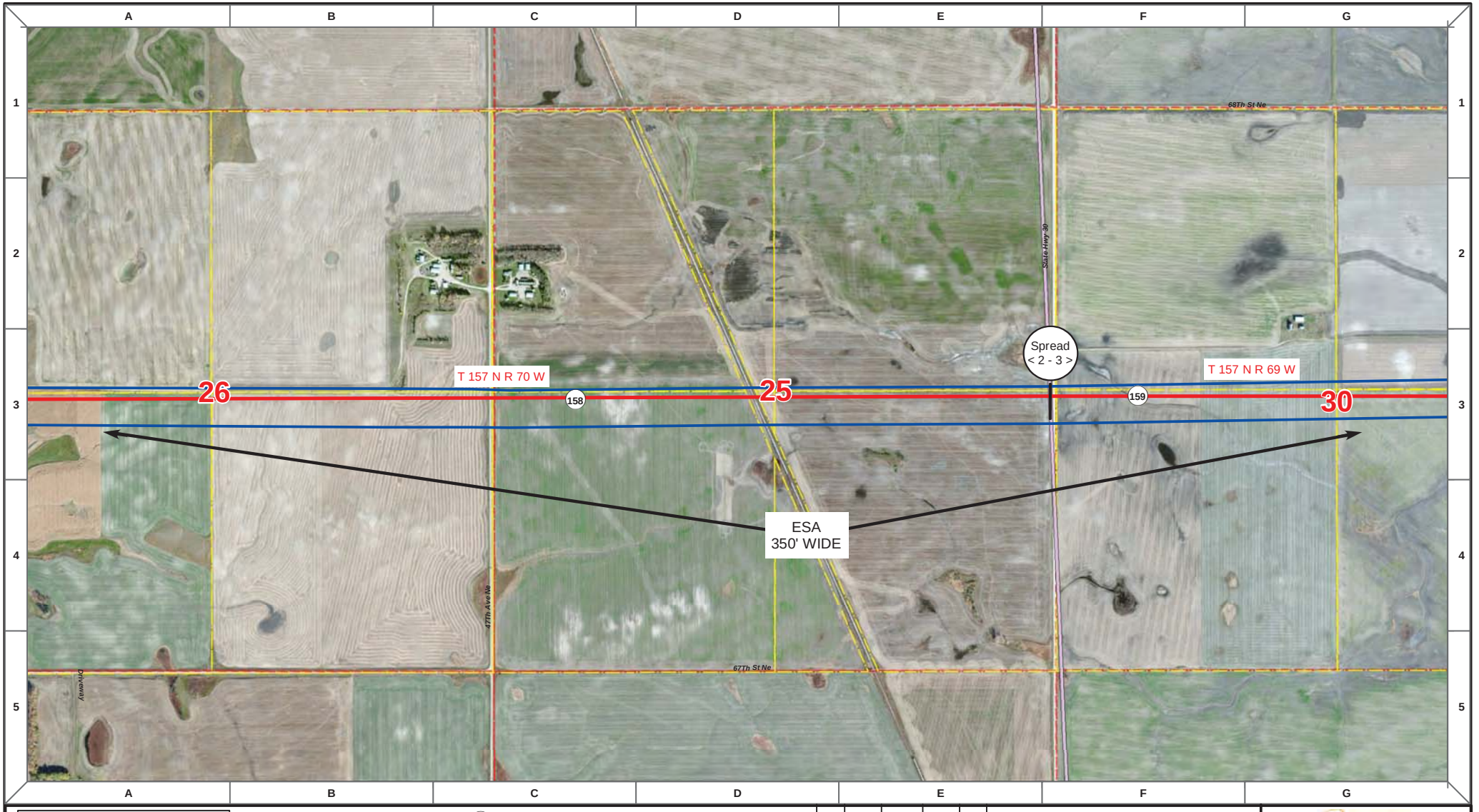
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

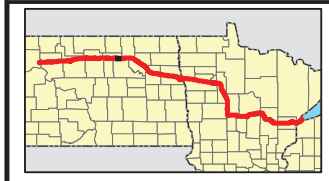
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2 Map: 63 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

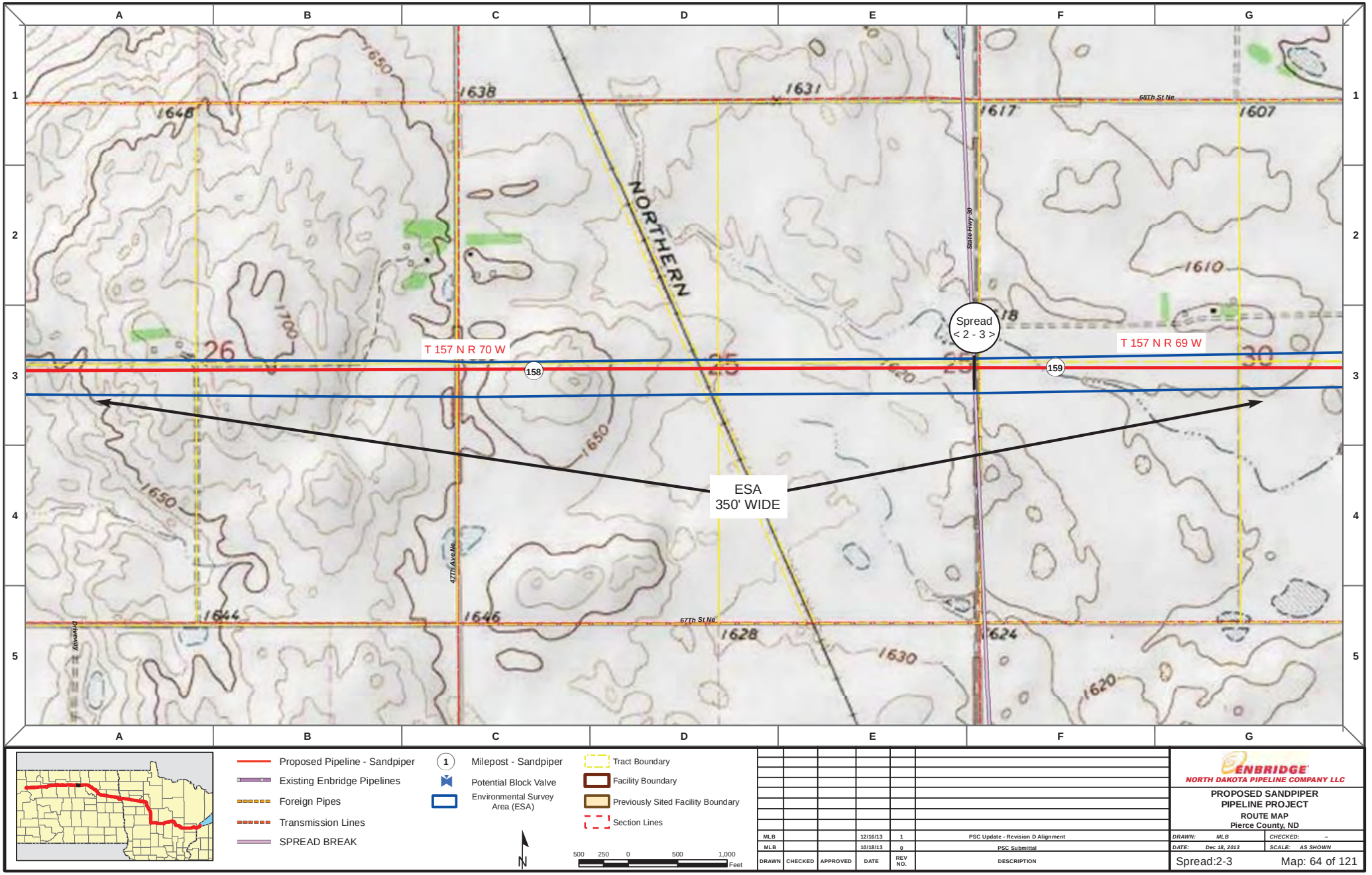
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:2-3 Map: 64 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

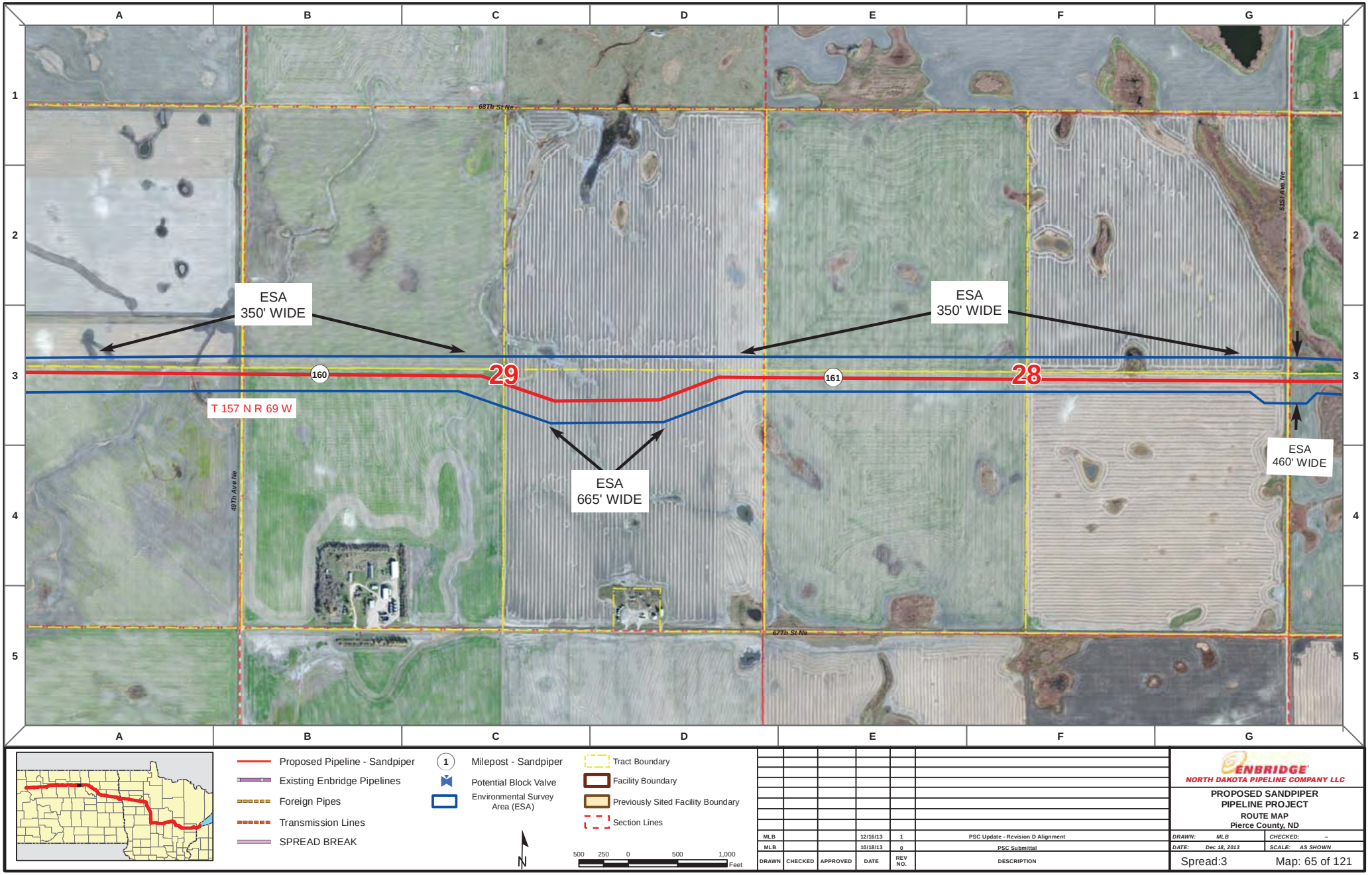
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:2-3 Map: 64 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

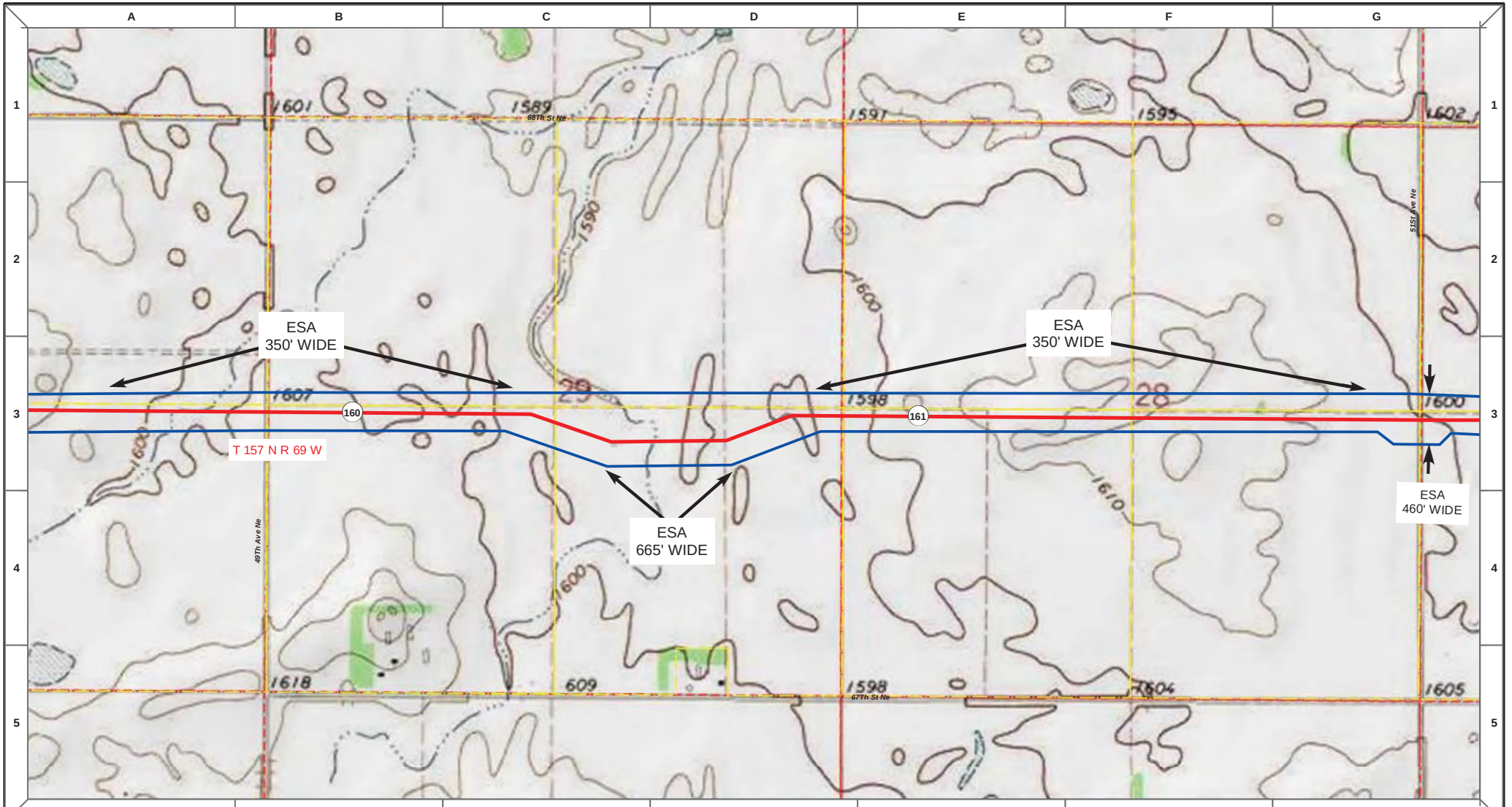
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 65 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

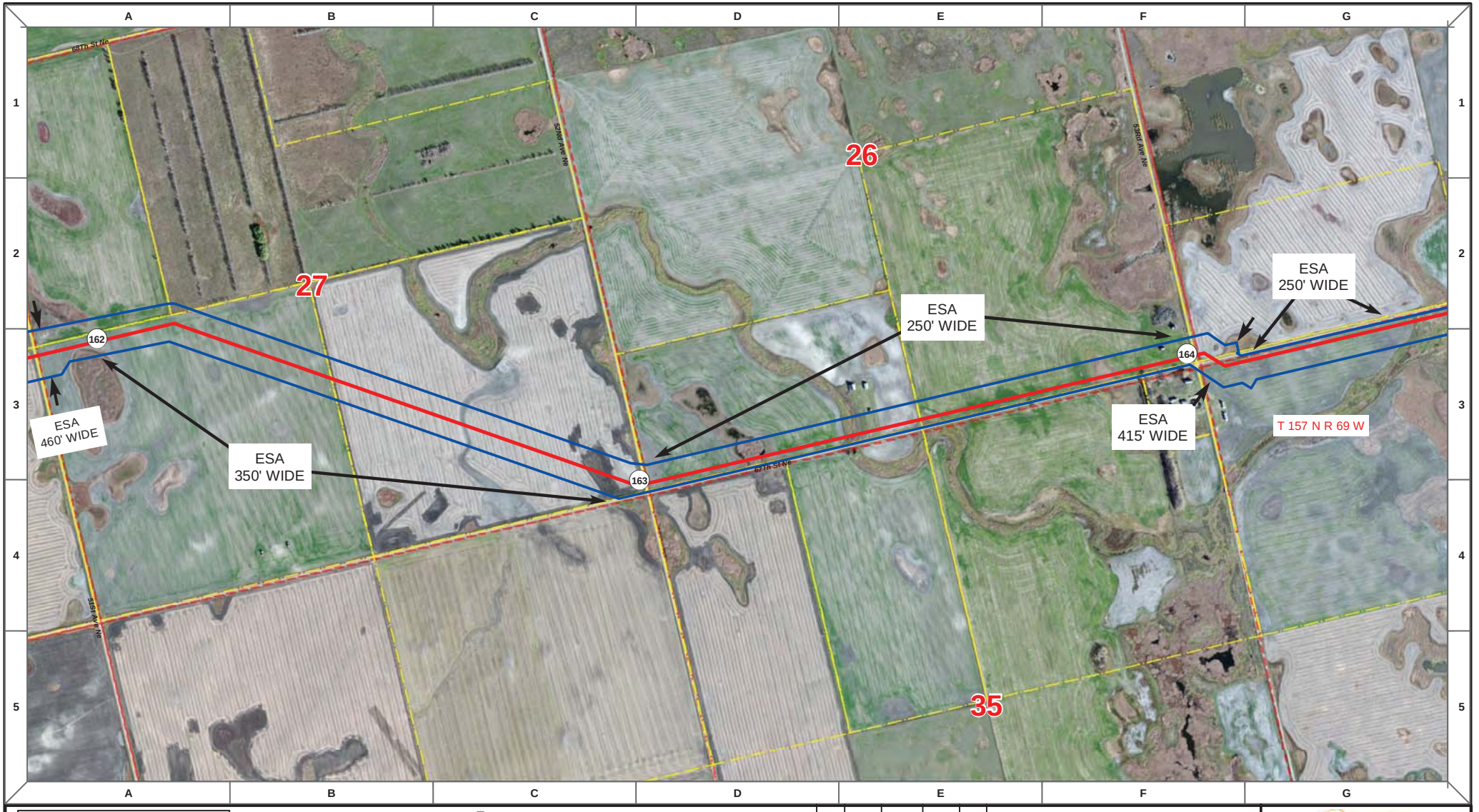
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

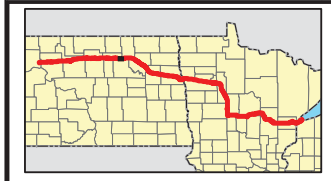
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 65 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

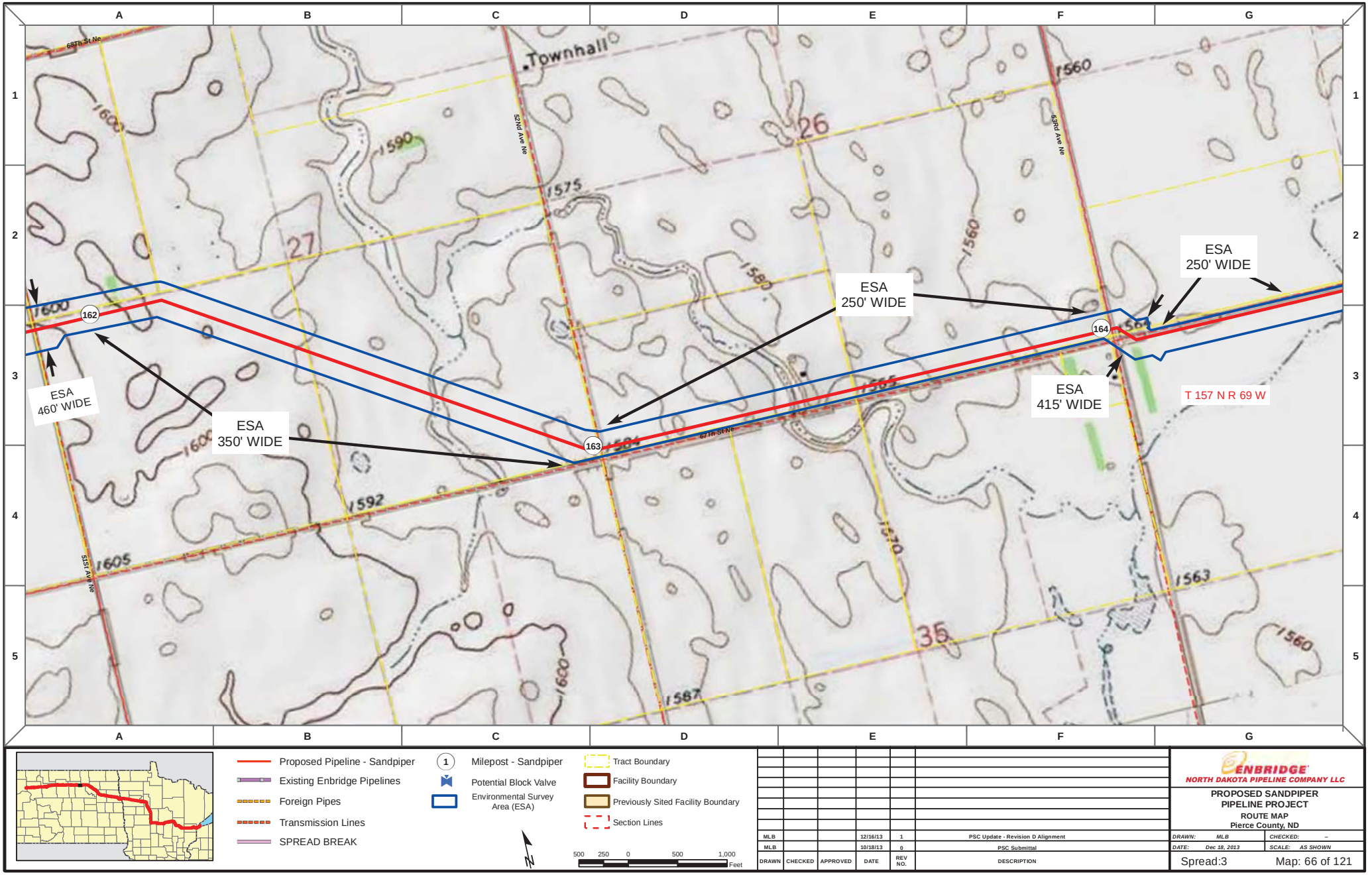
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 66 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

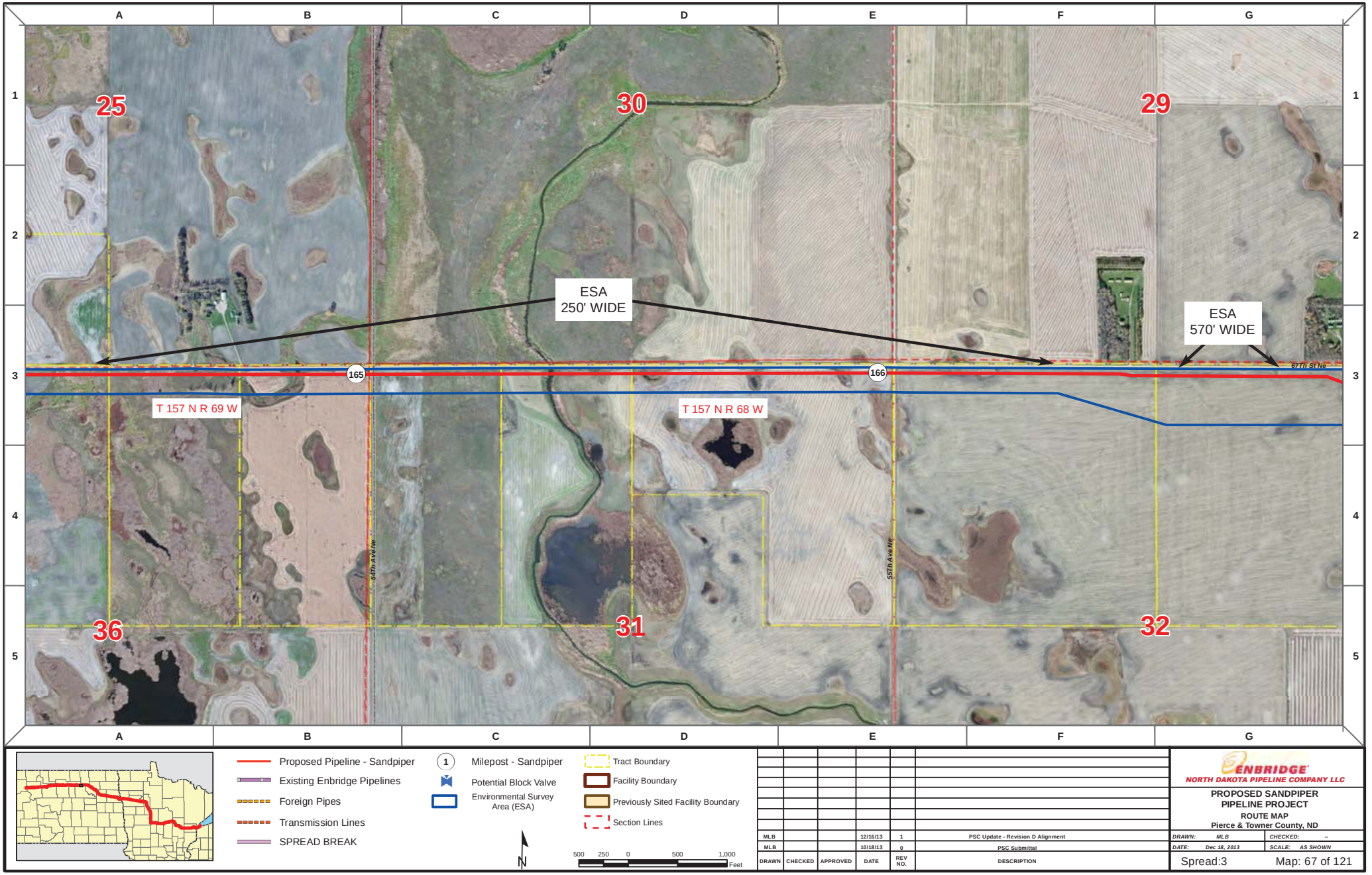
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 66 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

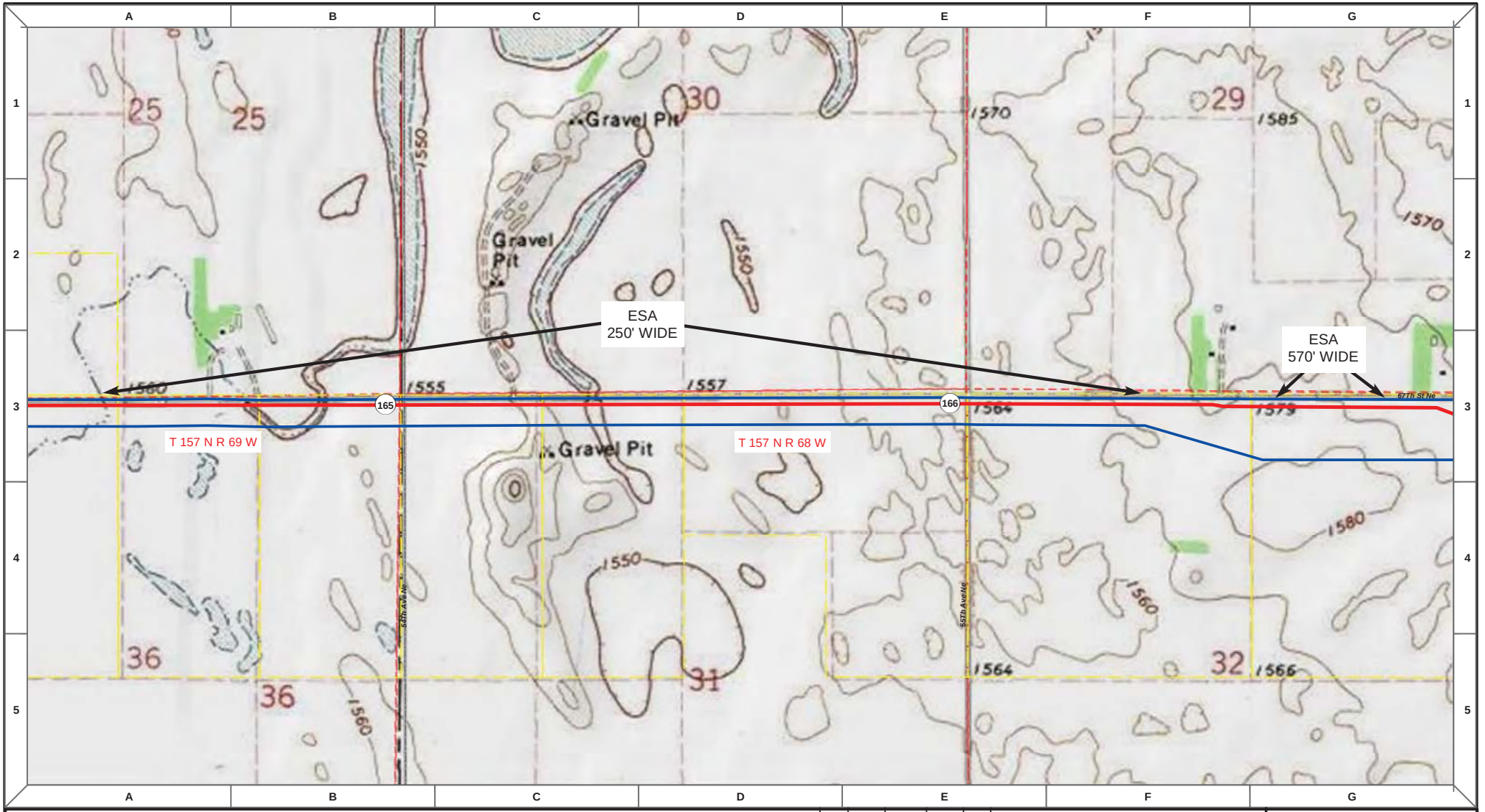
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

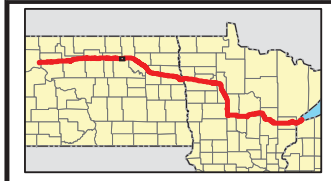
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce & Towner County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 67 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

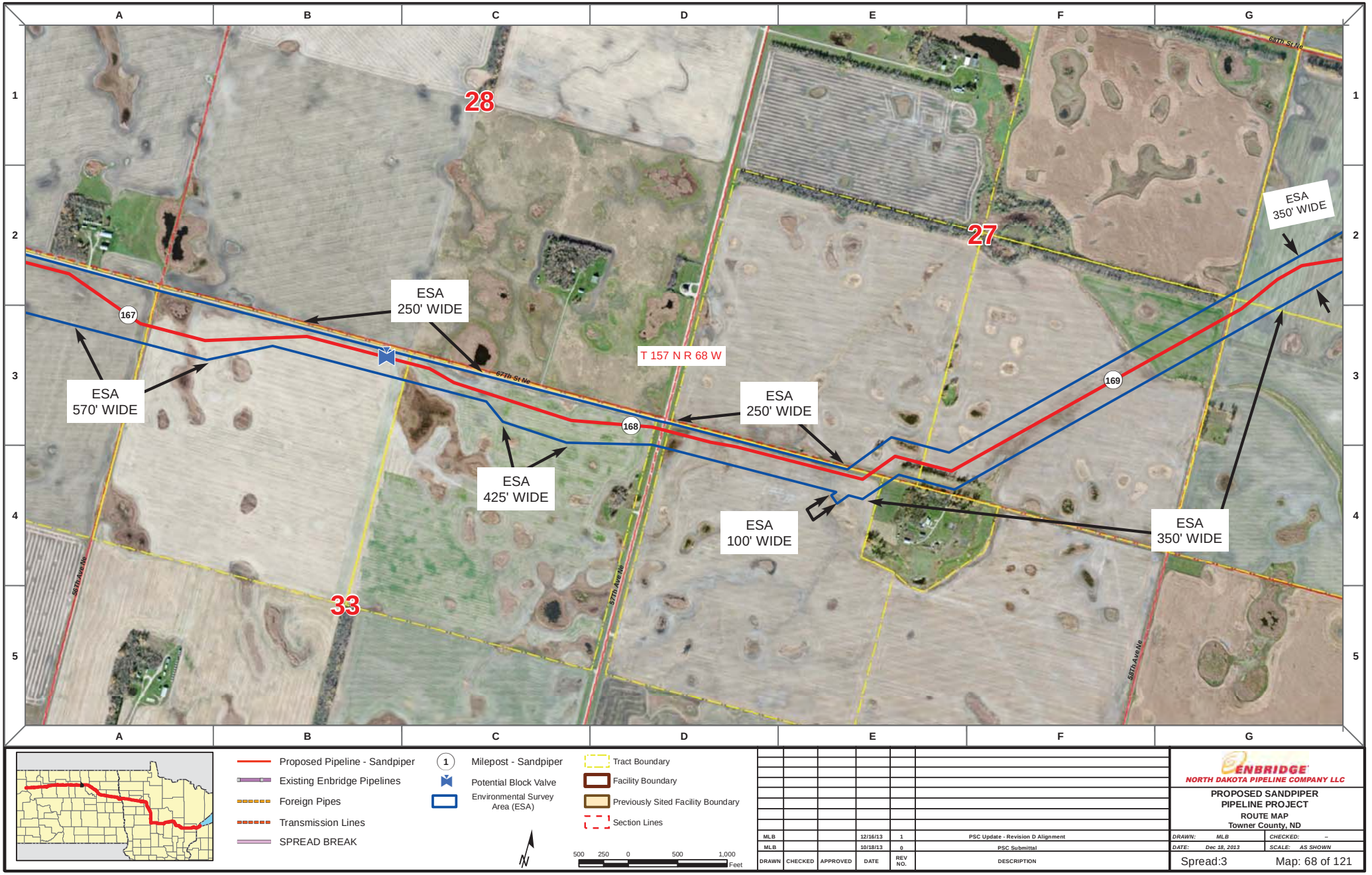
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Pierce & Towner County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 67 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

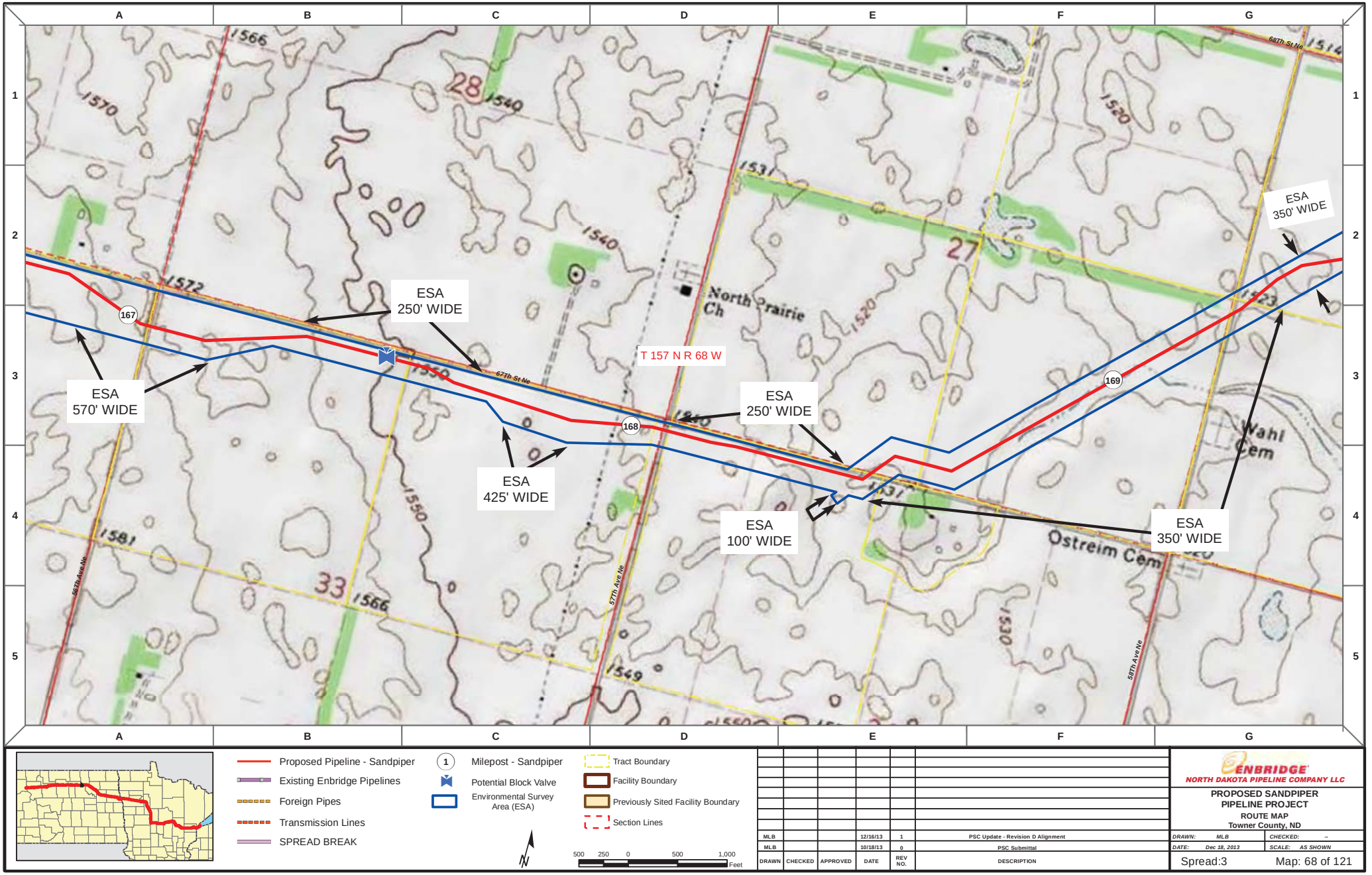
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 68 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

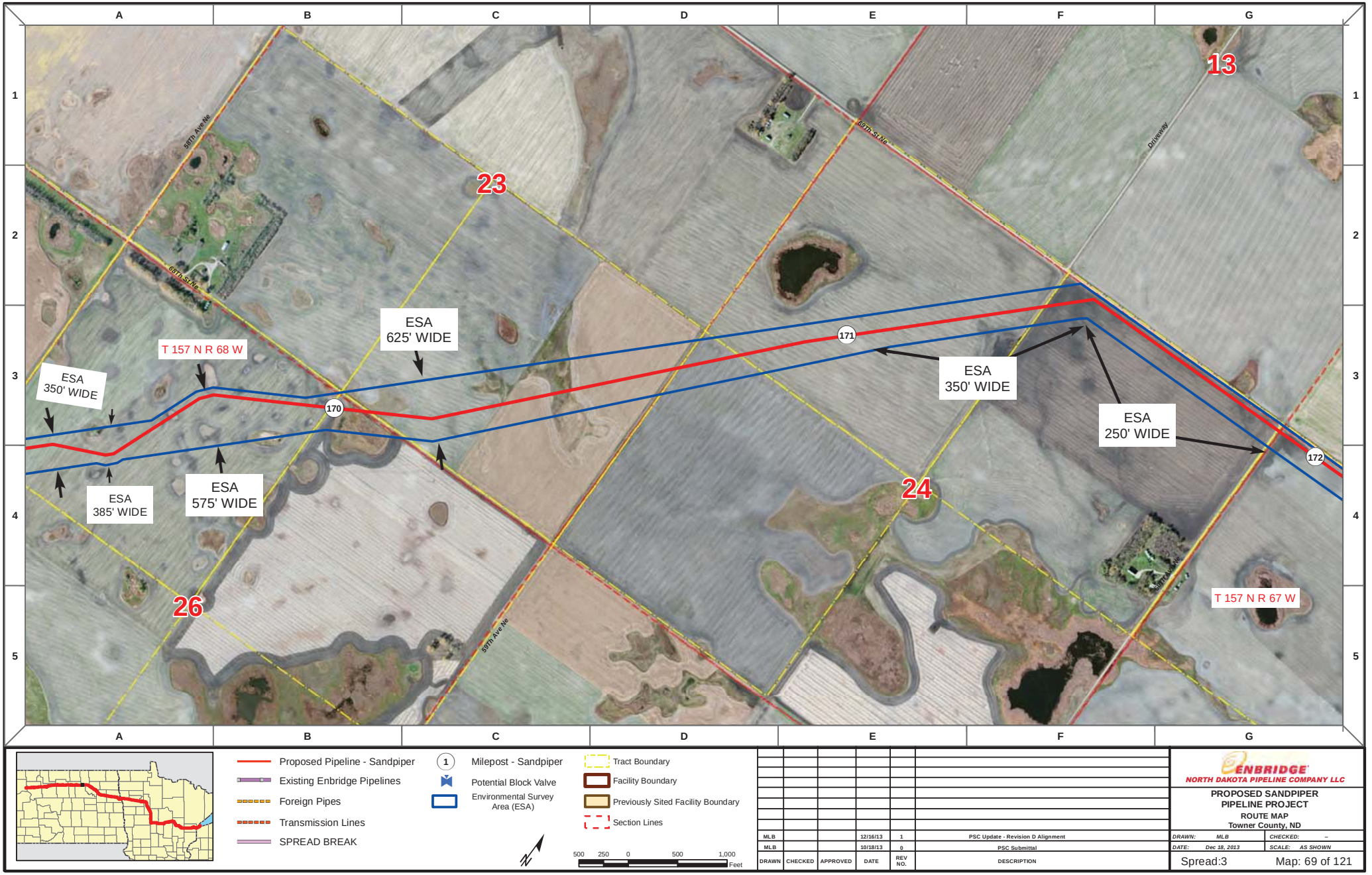
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 68 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

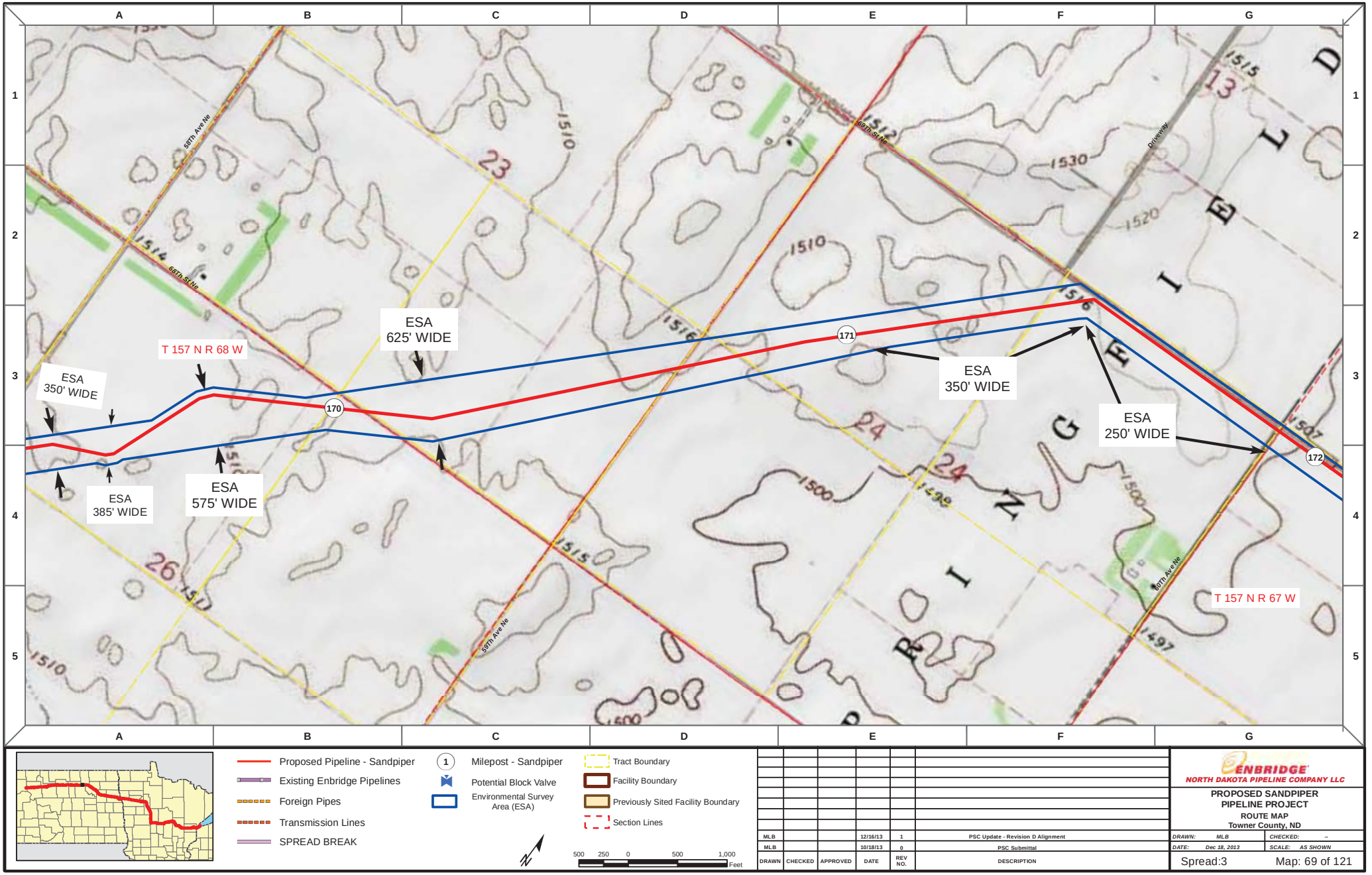
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 69 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

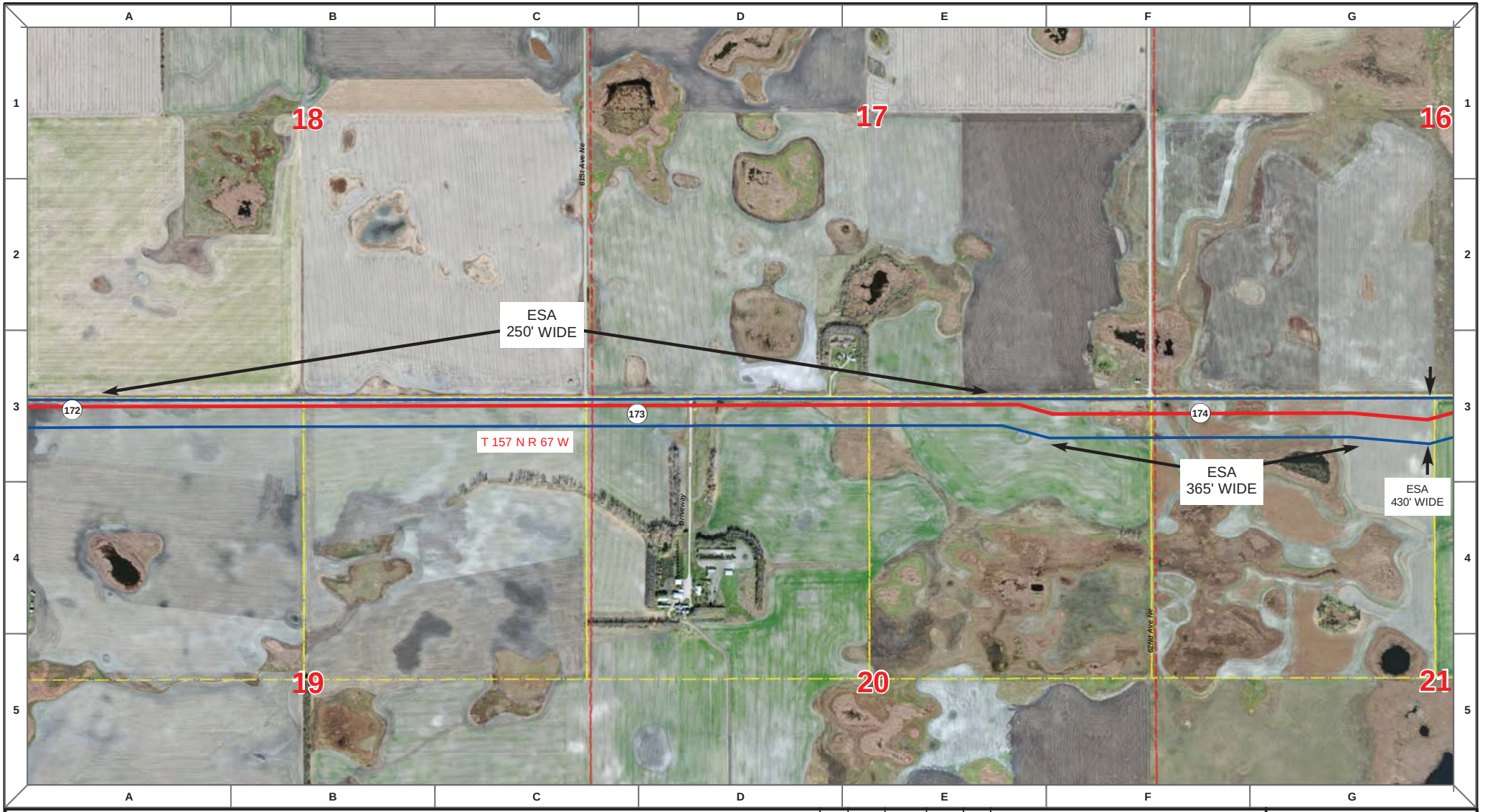
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

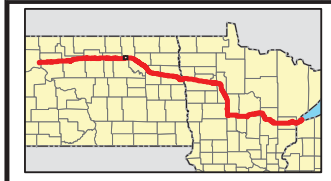
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 69 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

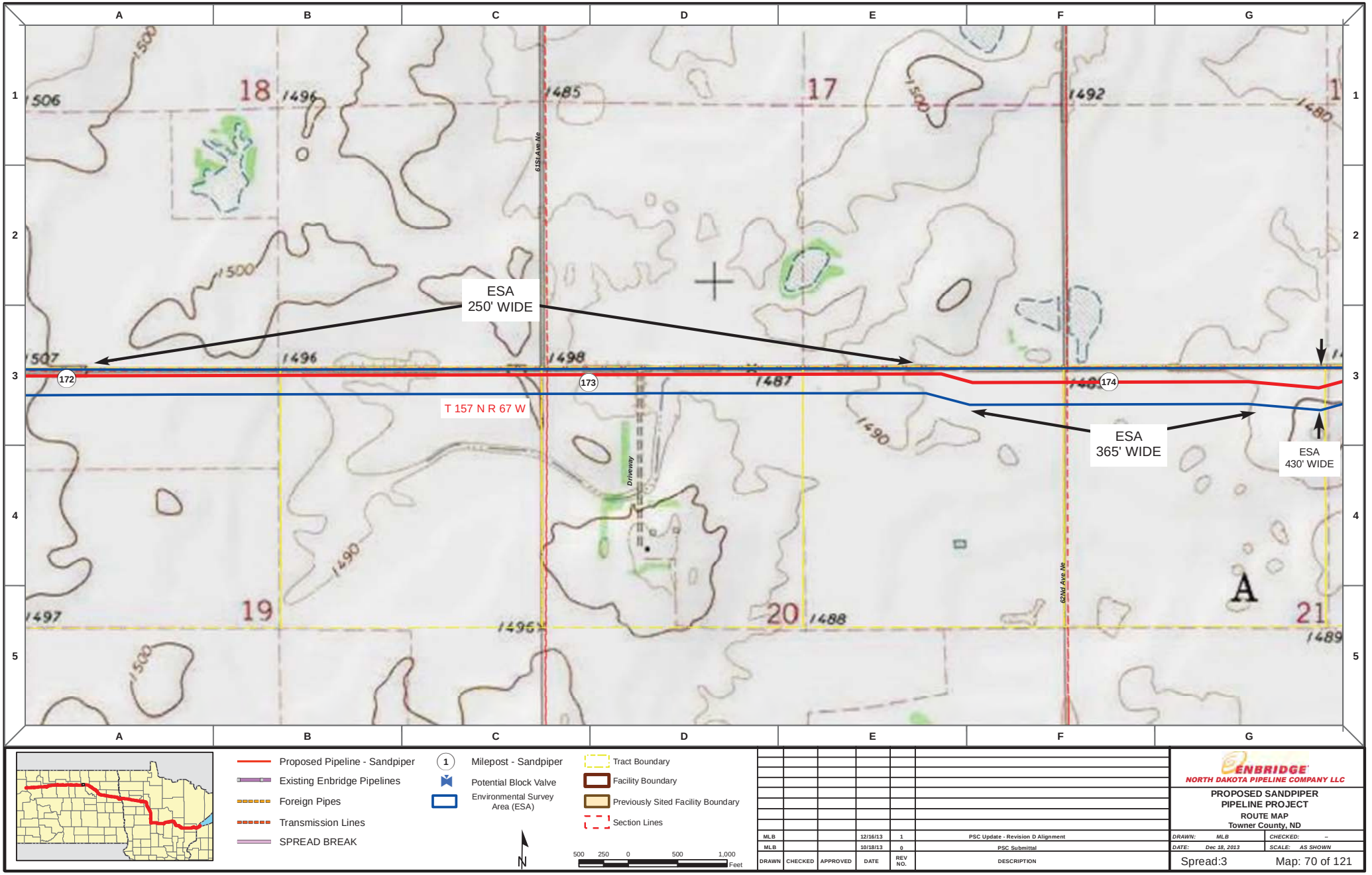
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 70 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

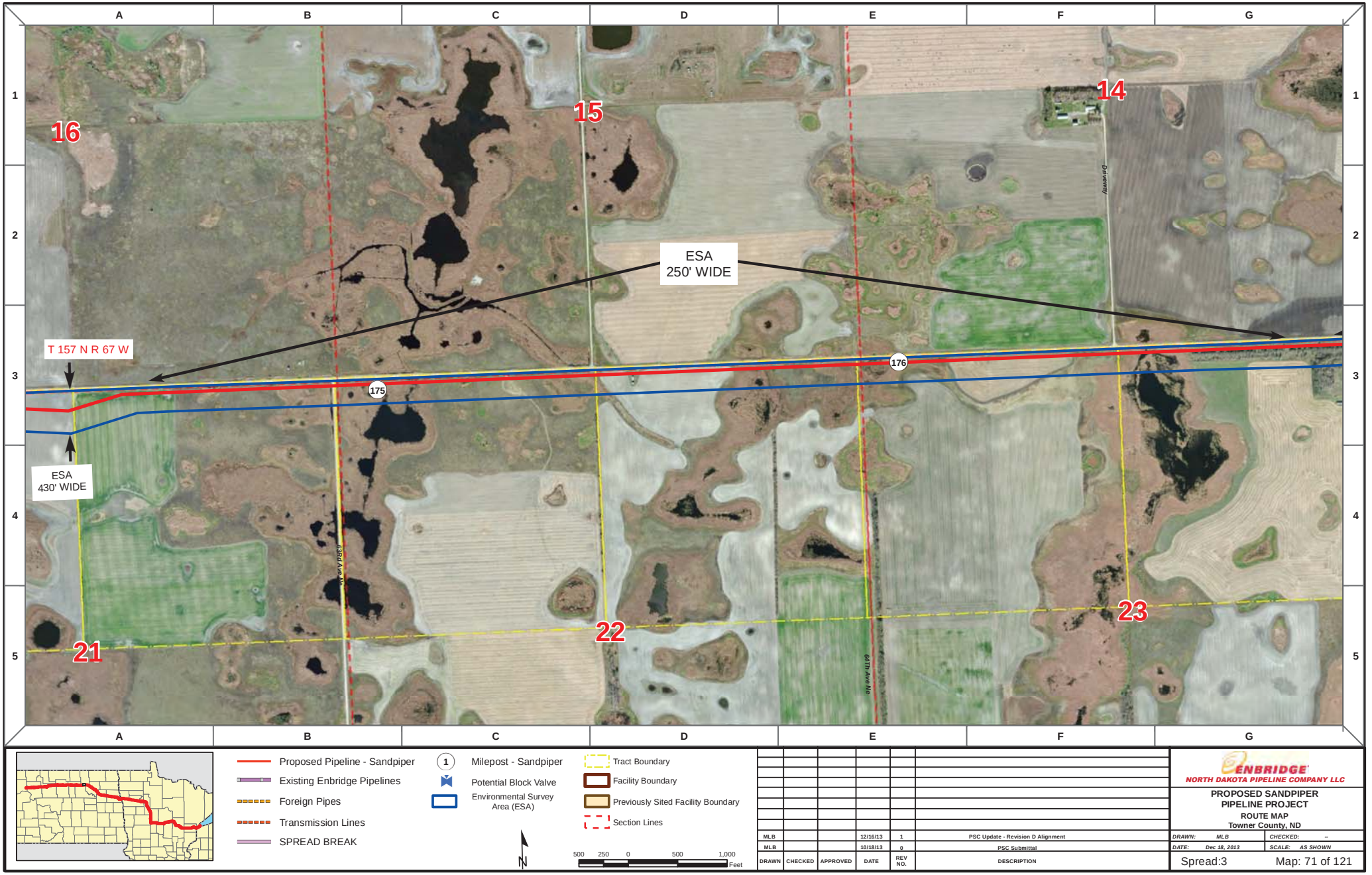
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 70 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

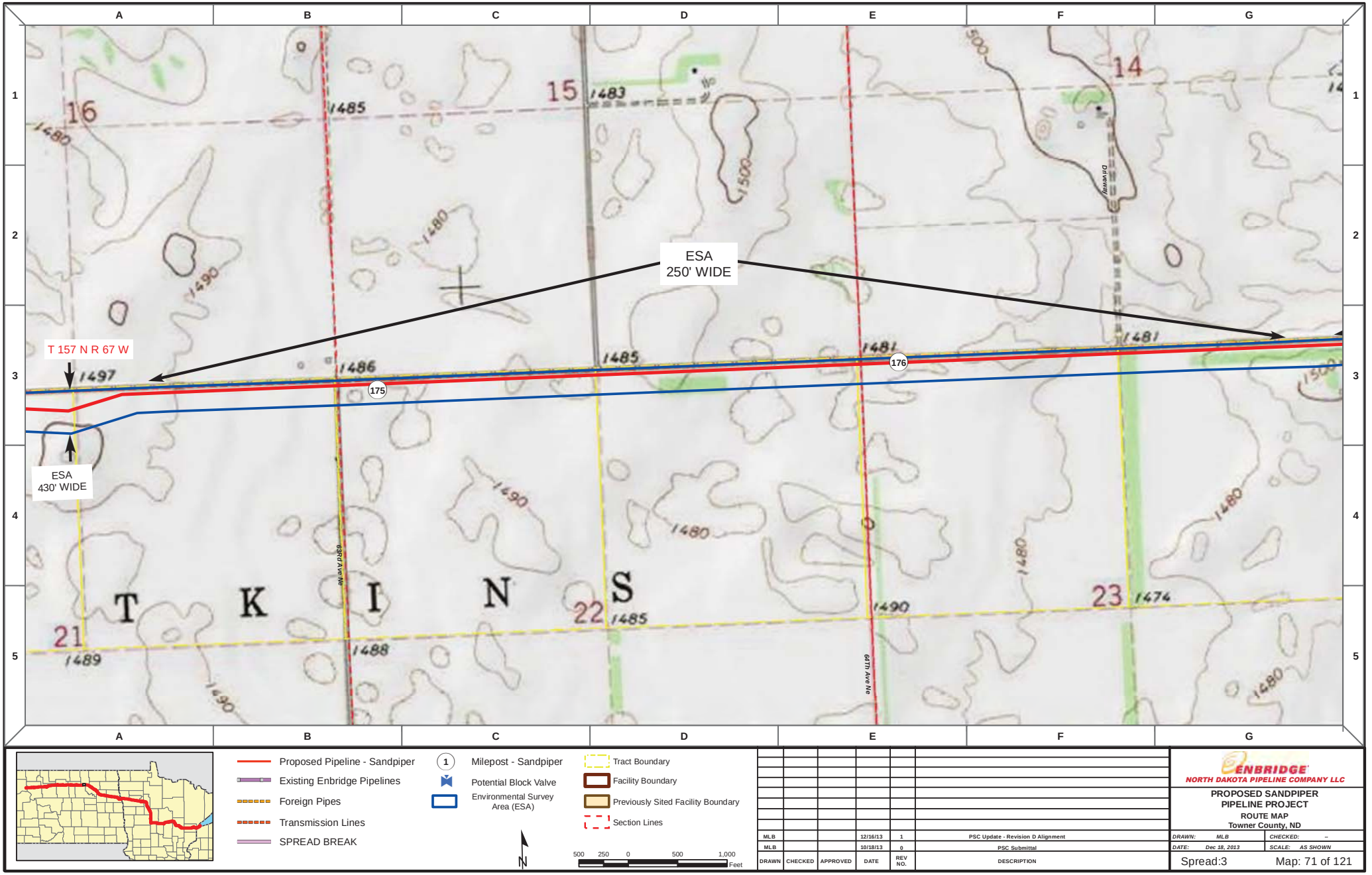
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 71 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

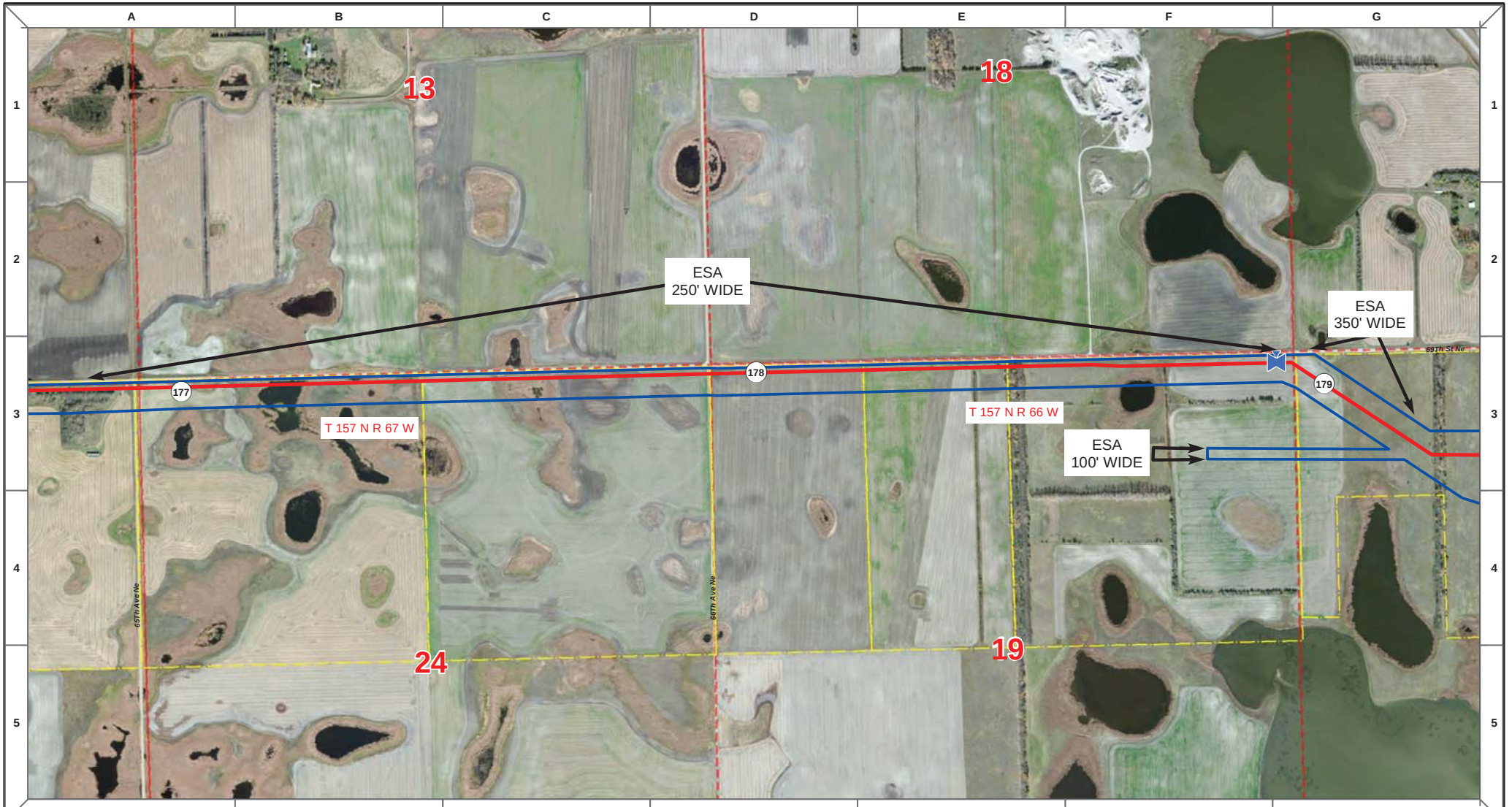
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 71 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

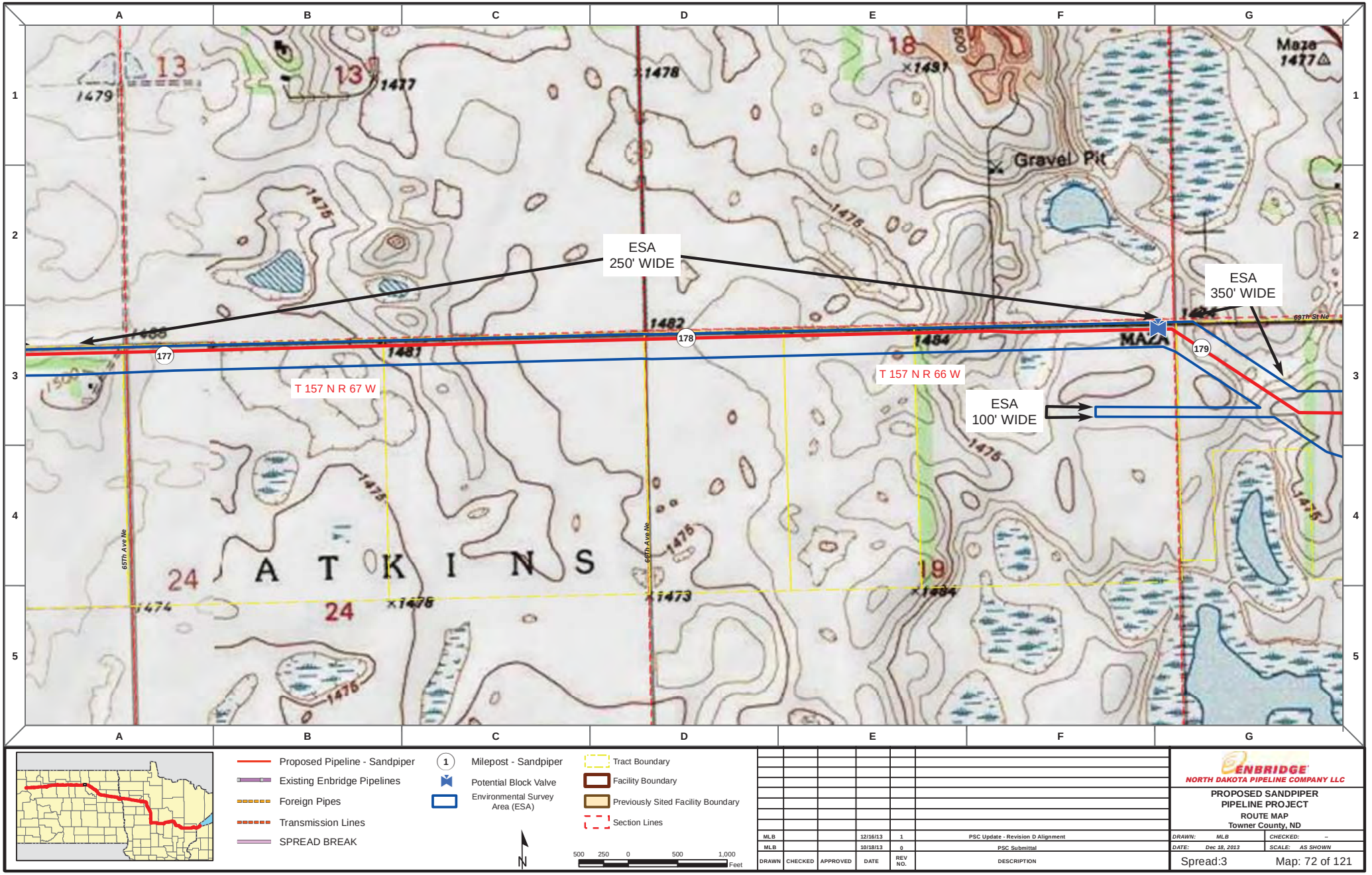
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 72 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

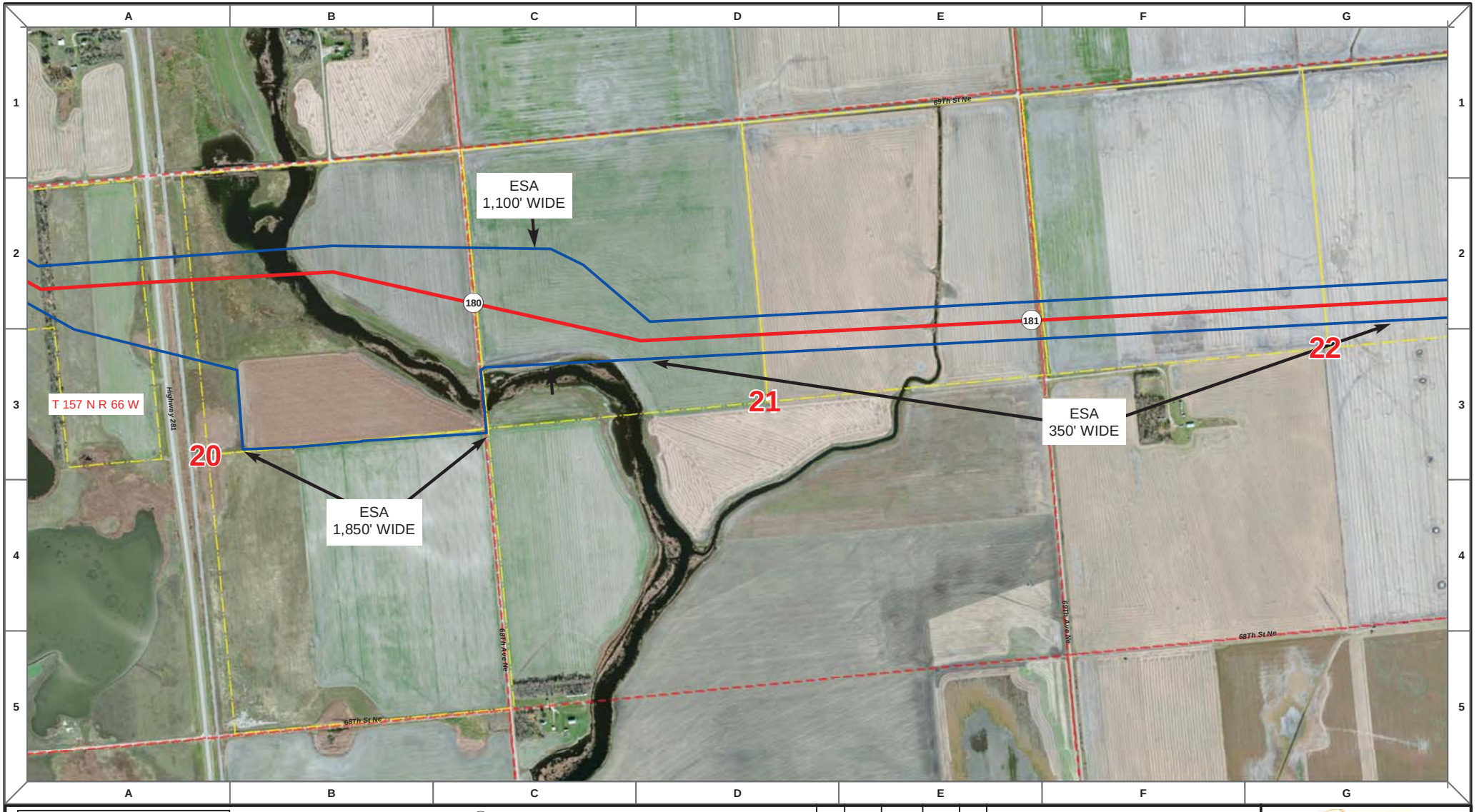
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

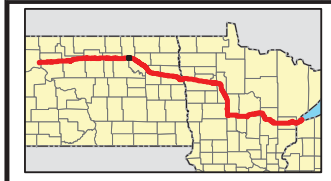
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 72 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

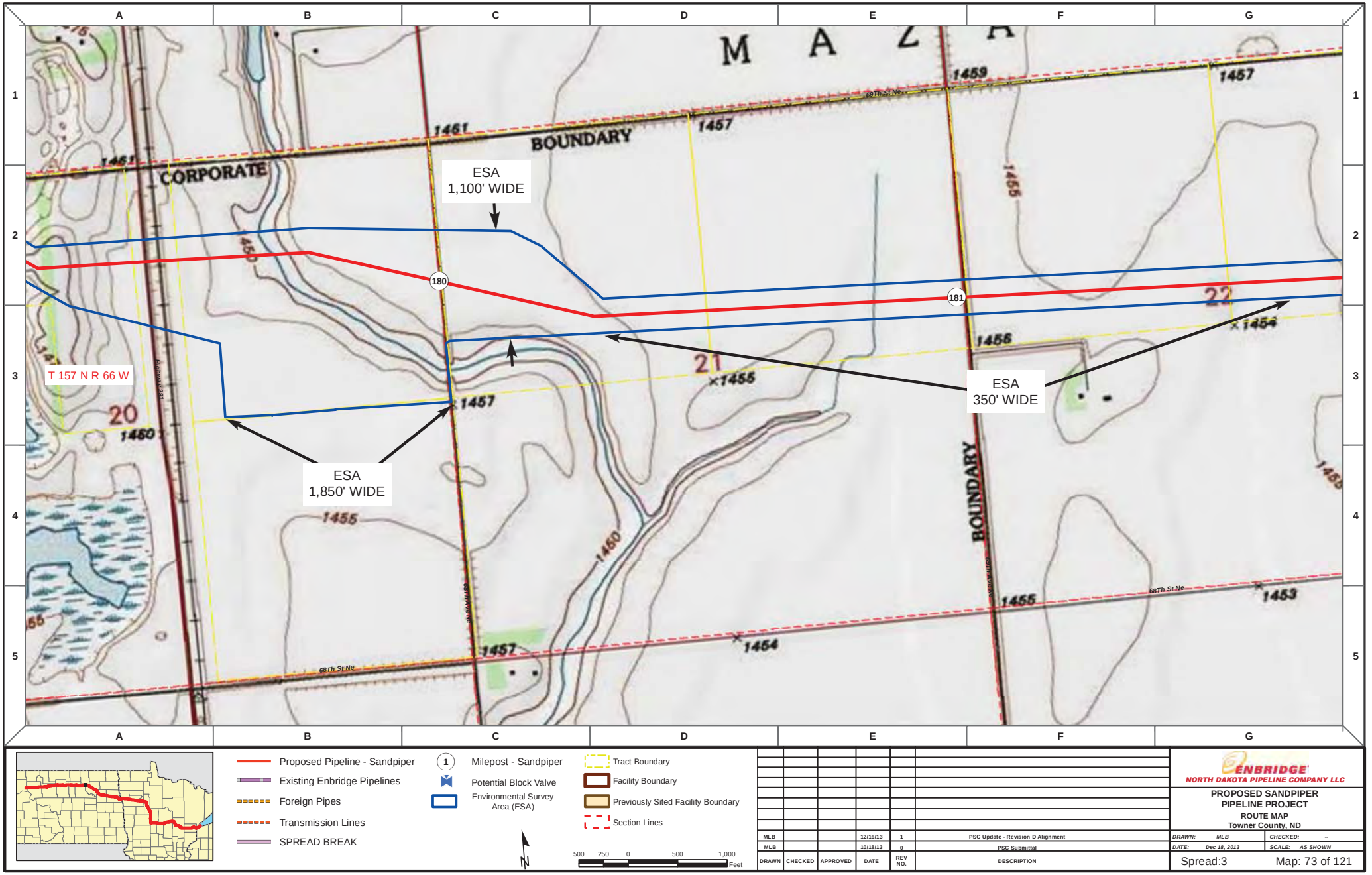
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 73 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

N

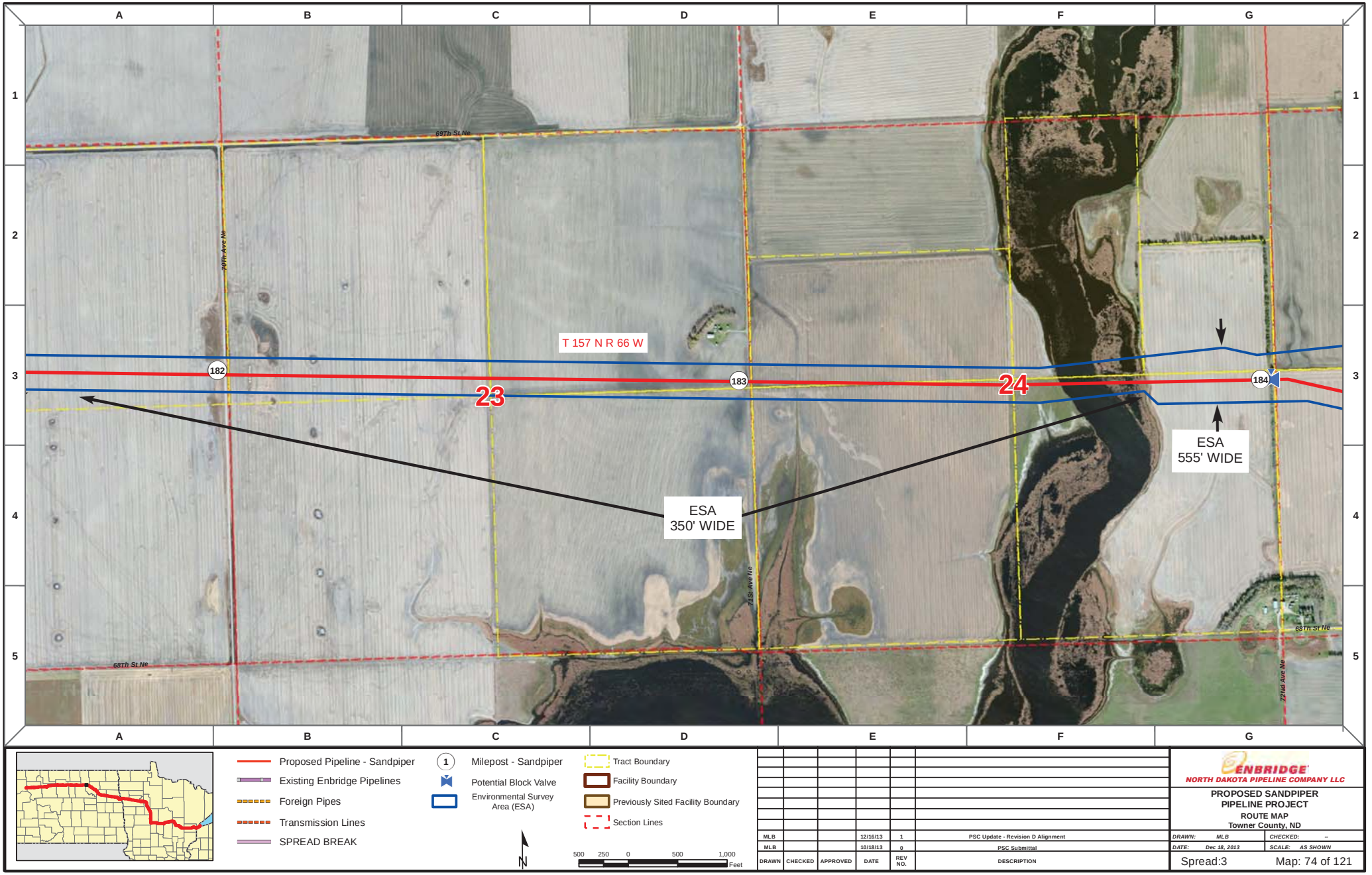
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 73 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

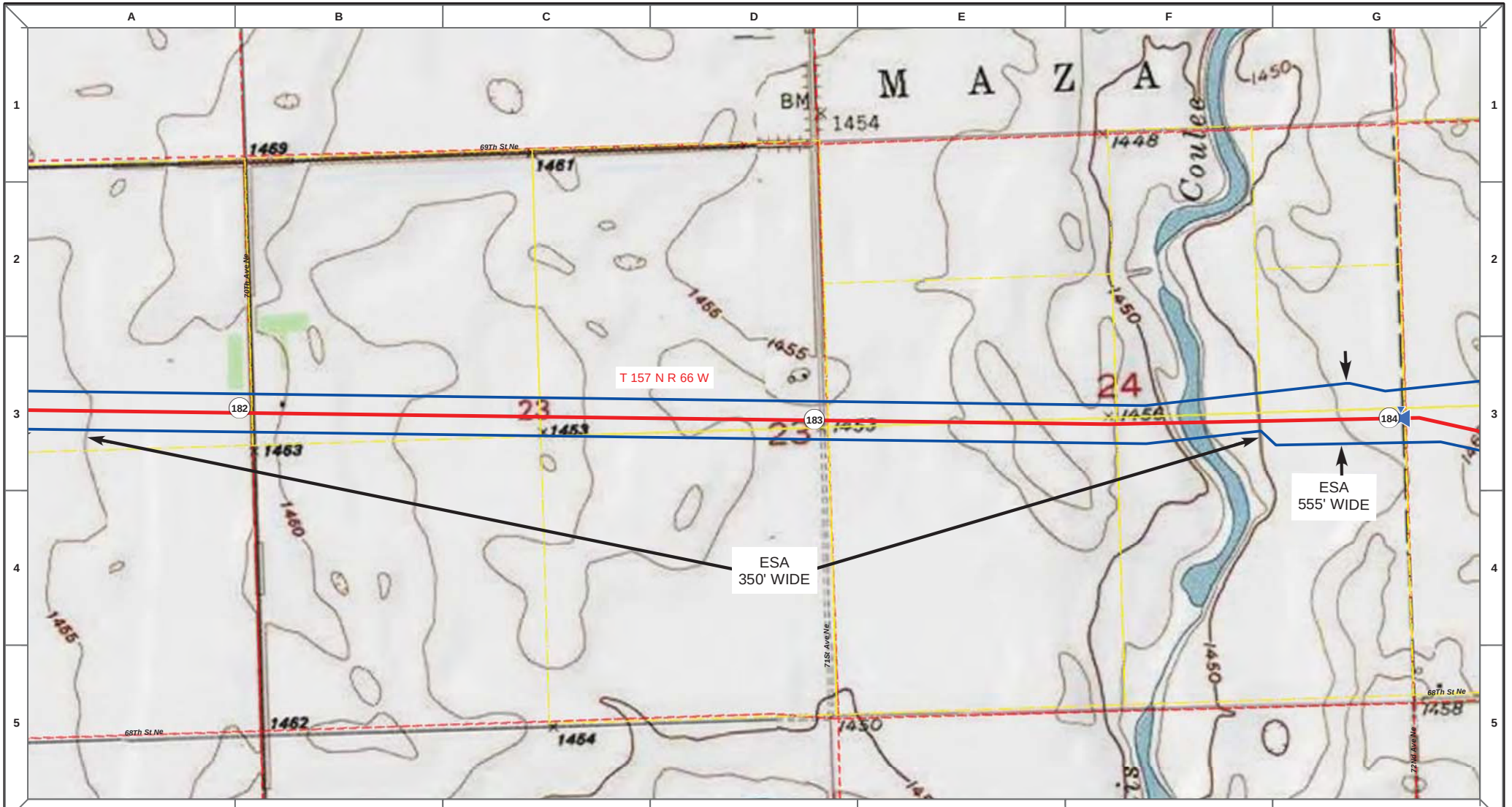
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 74 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

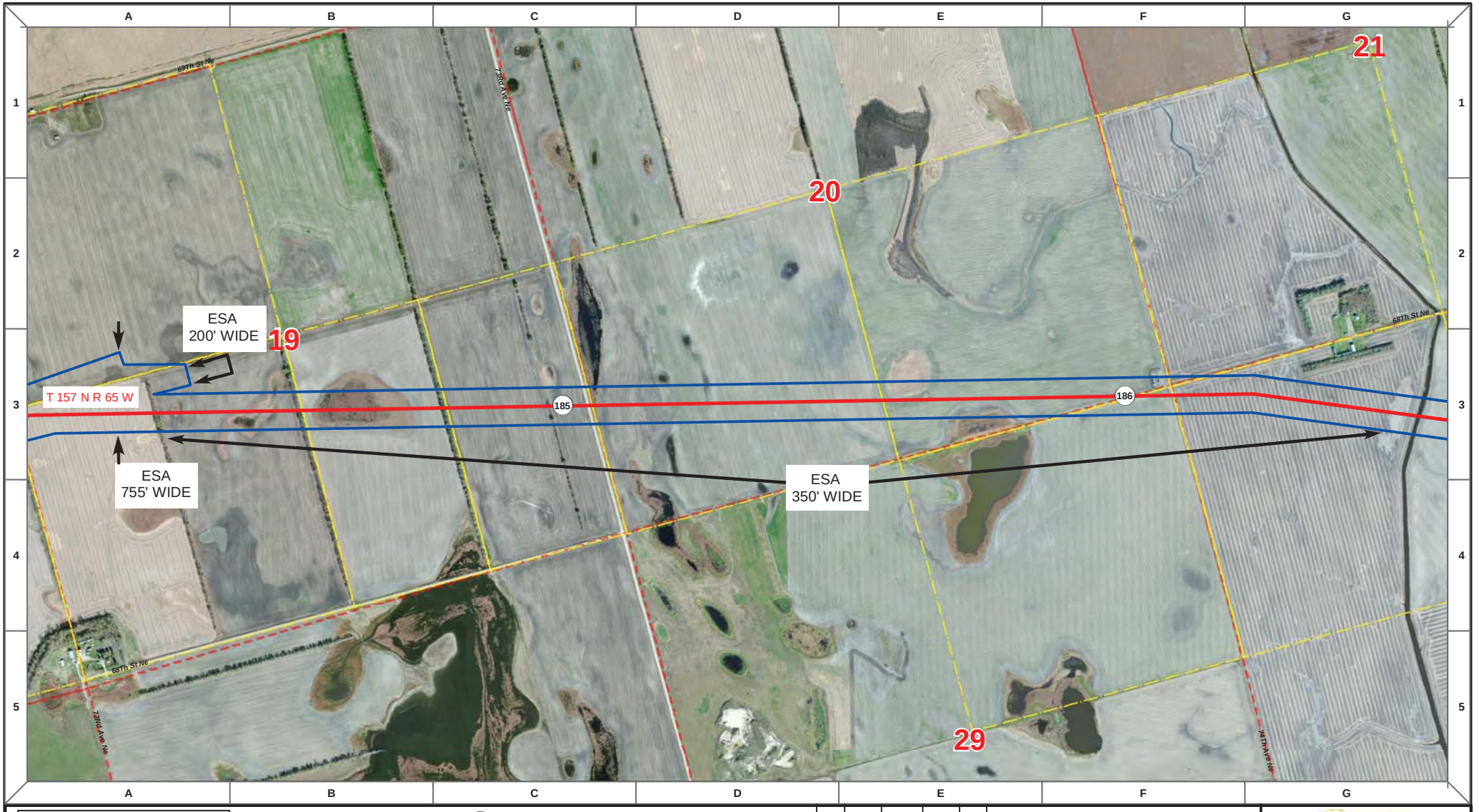
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

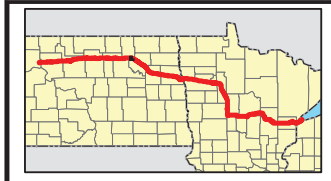
PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Towner County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 74 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

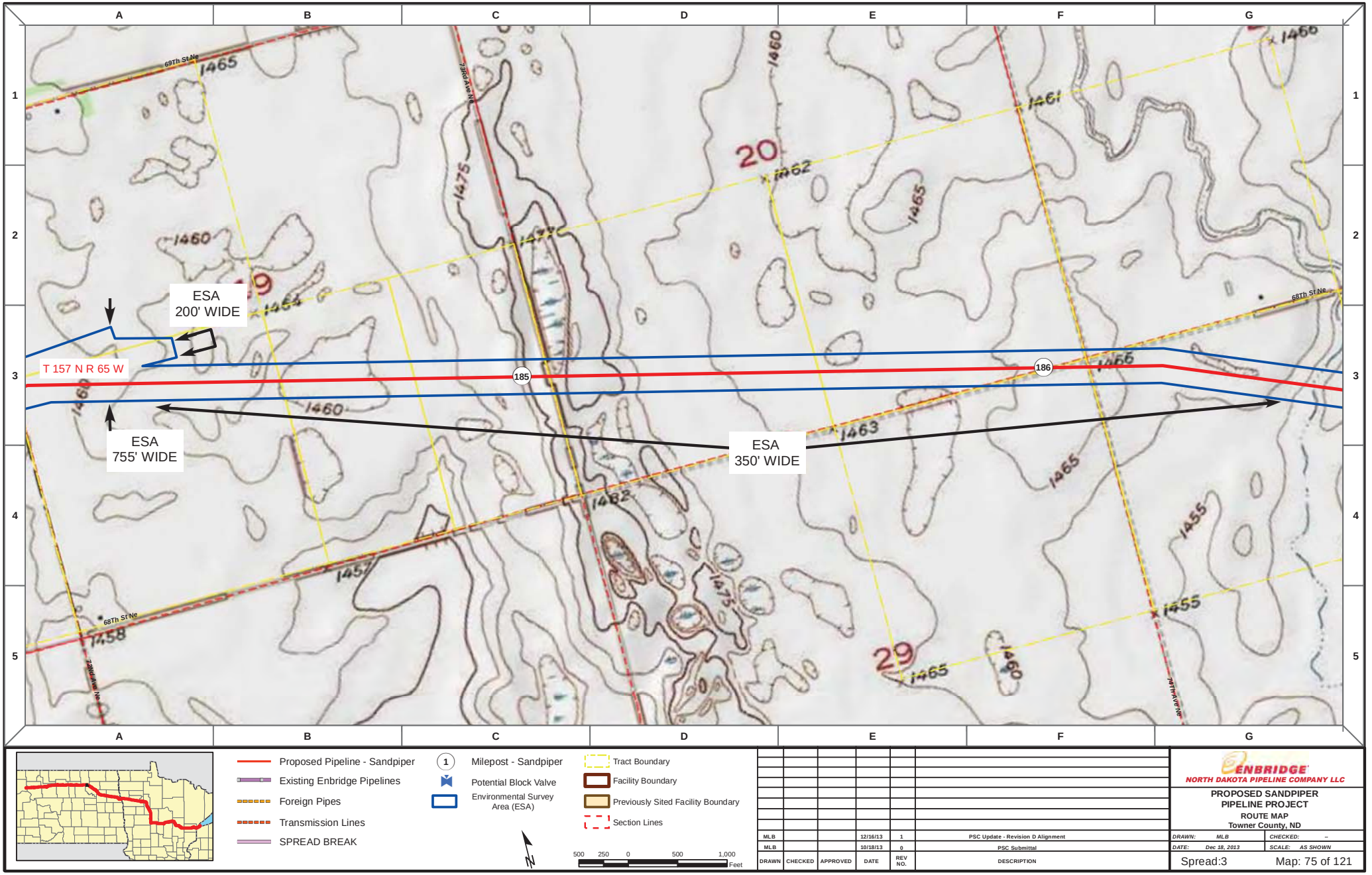
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 75 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

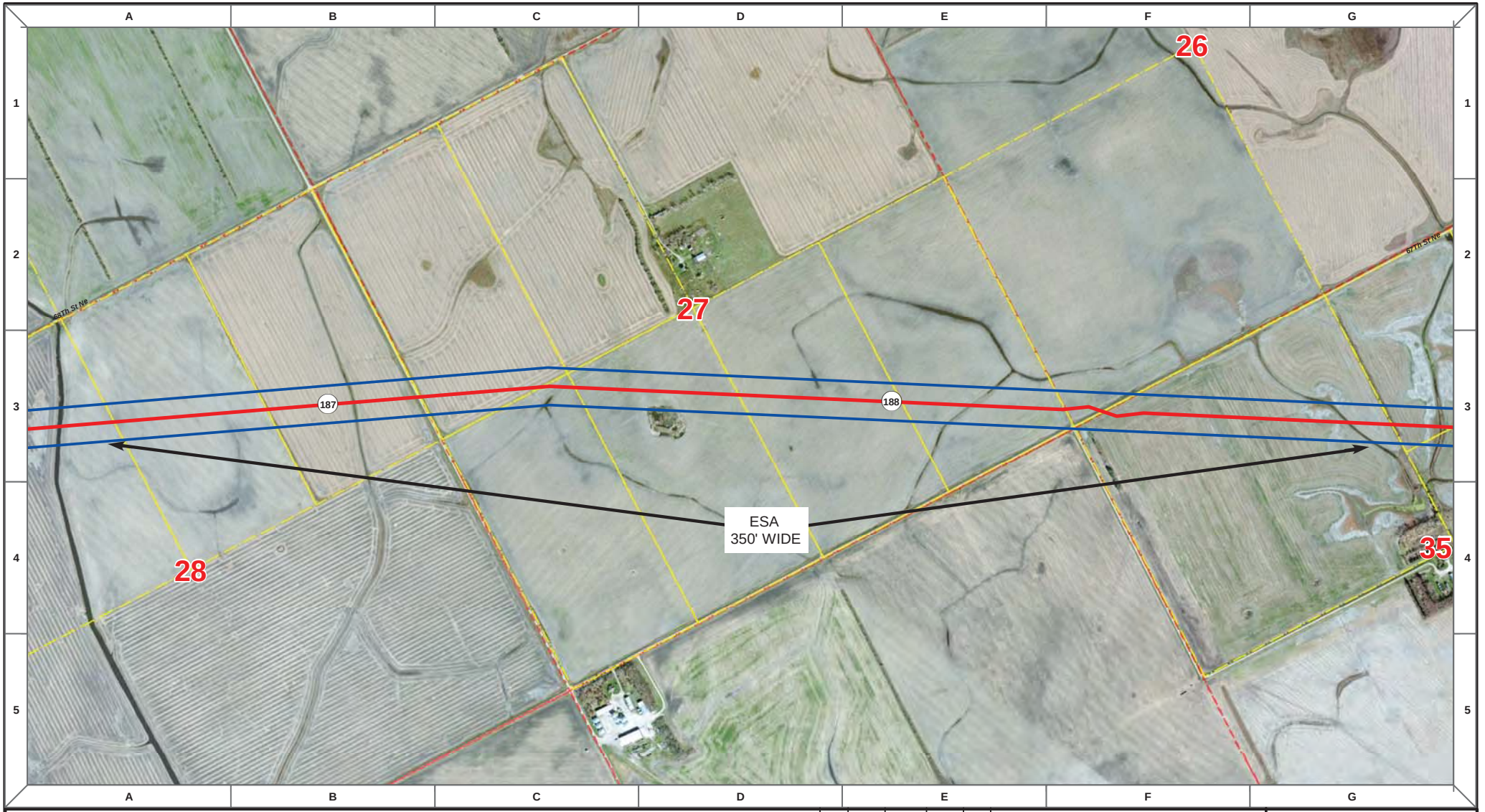
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

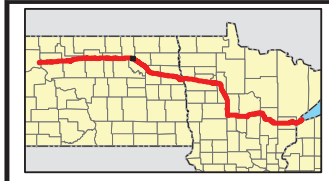
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 75 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

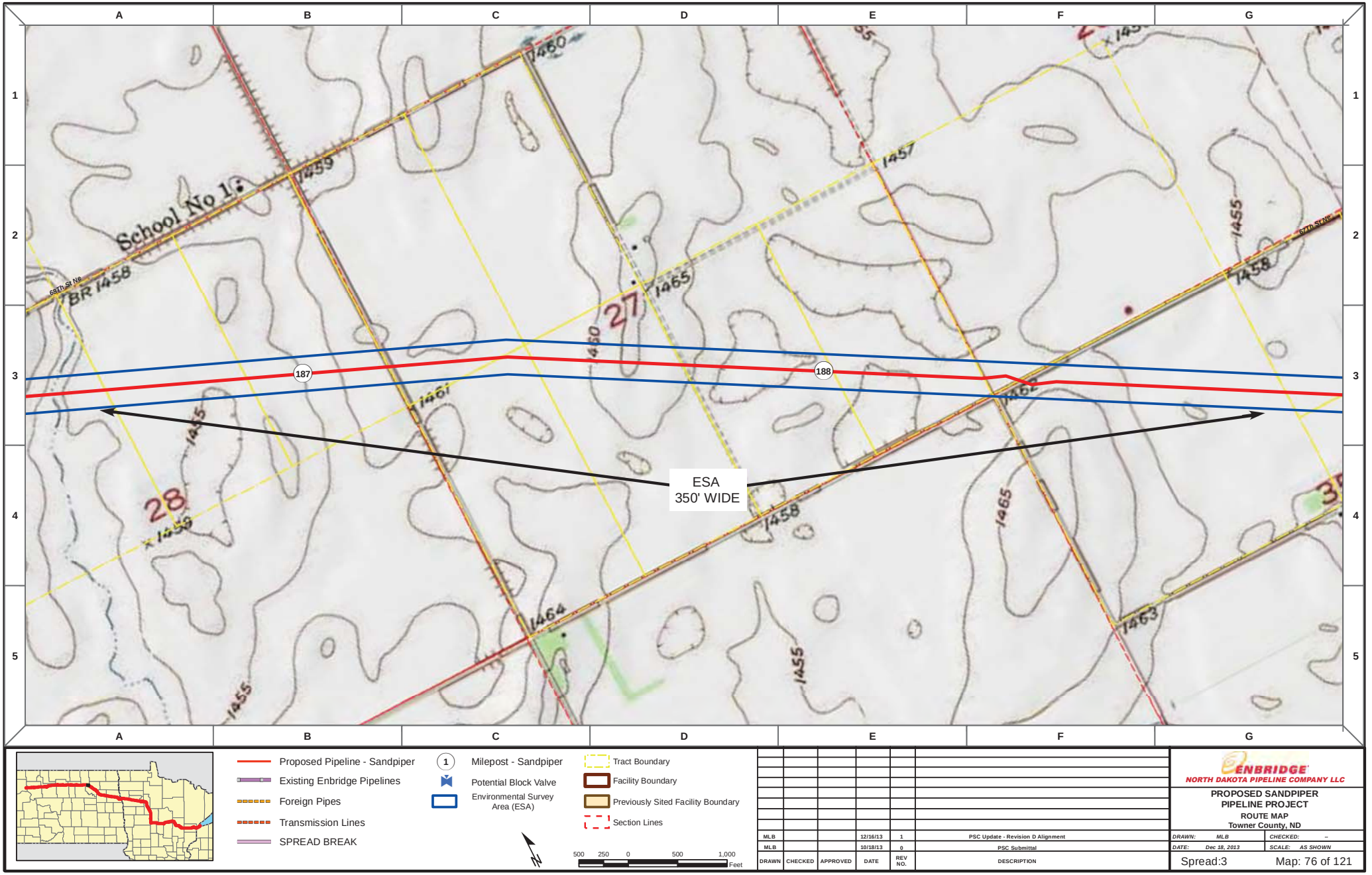
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 76 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

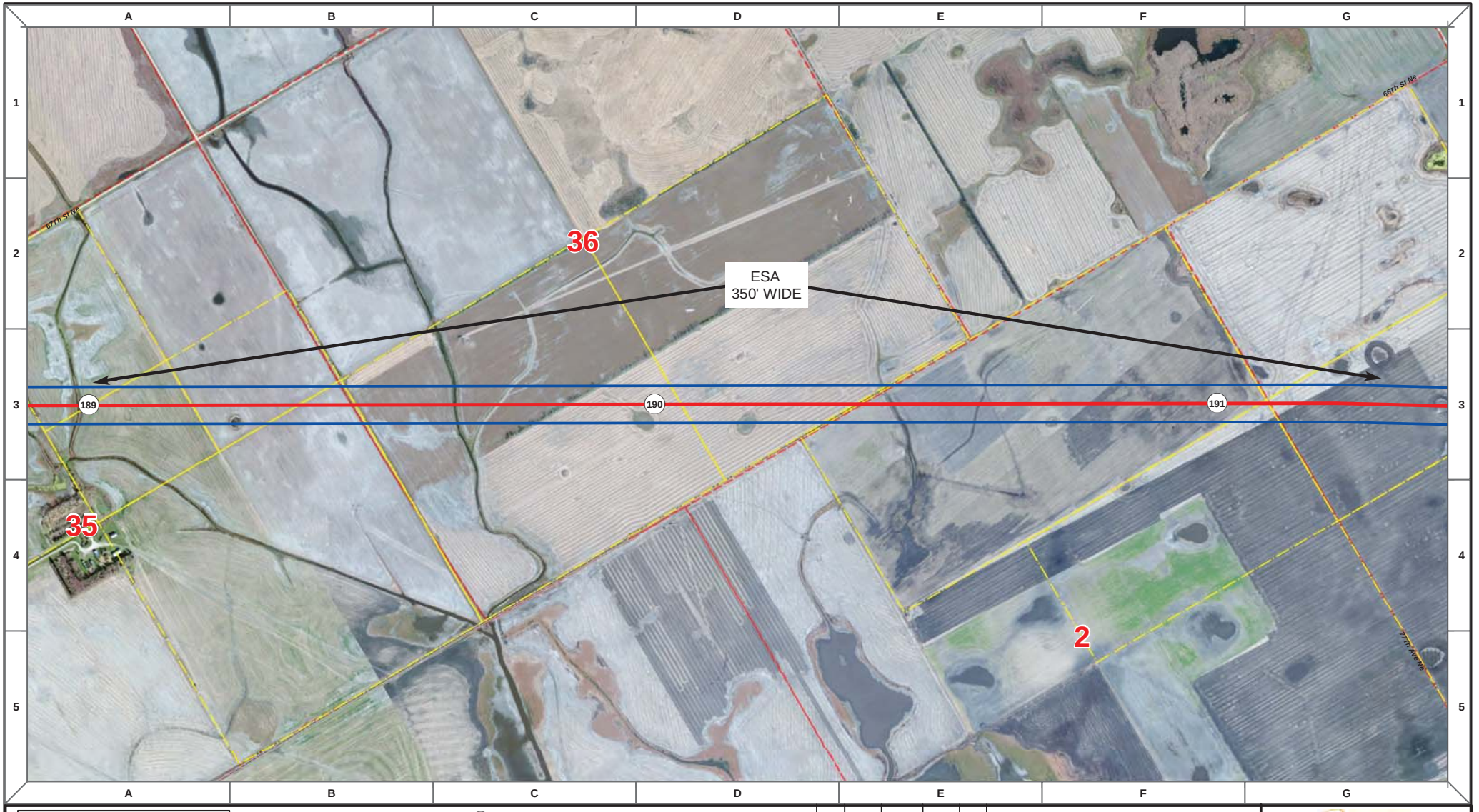
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

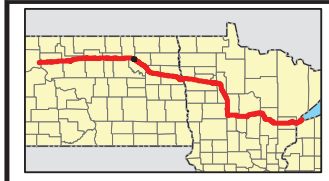
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 76 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

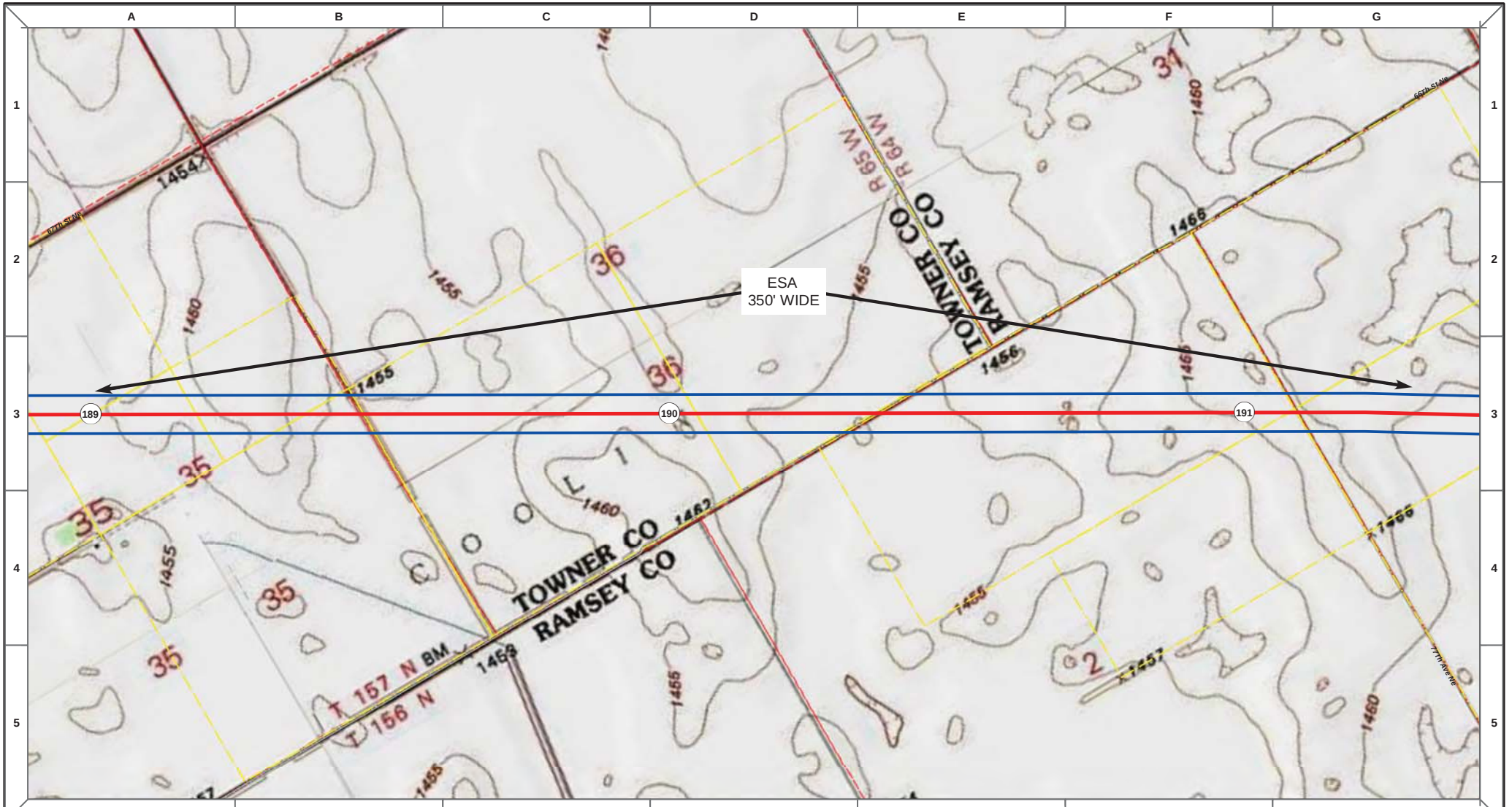
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

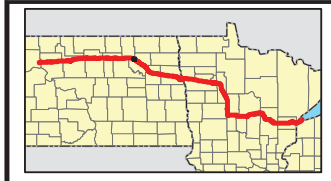
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner & Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 77 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

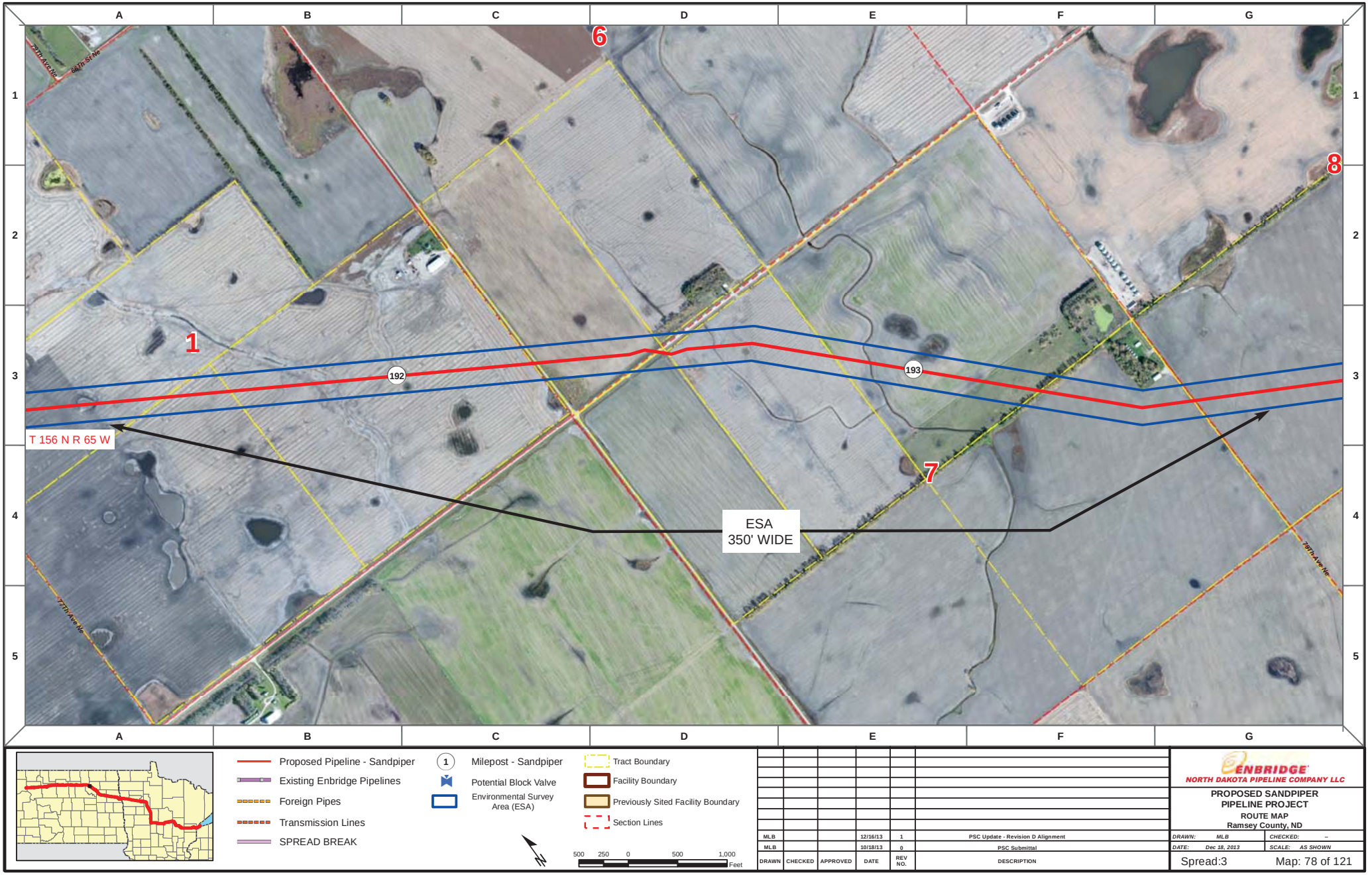
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Towner & Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 77 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

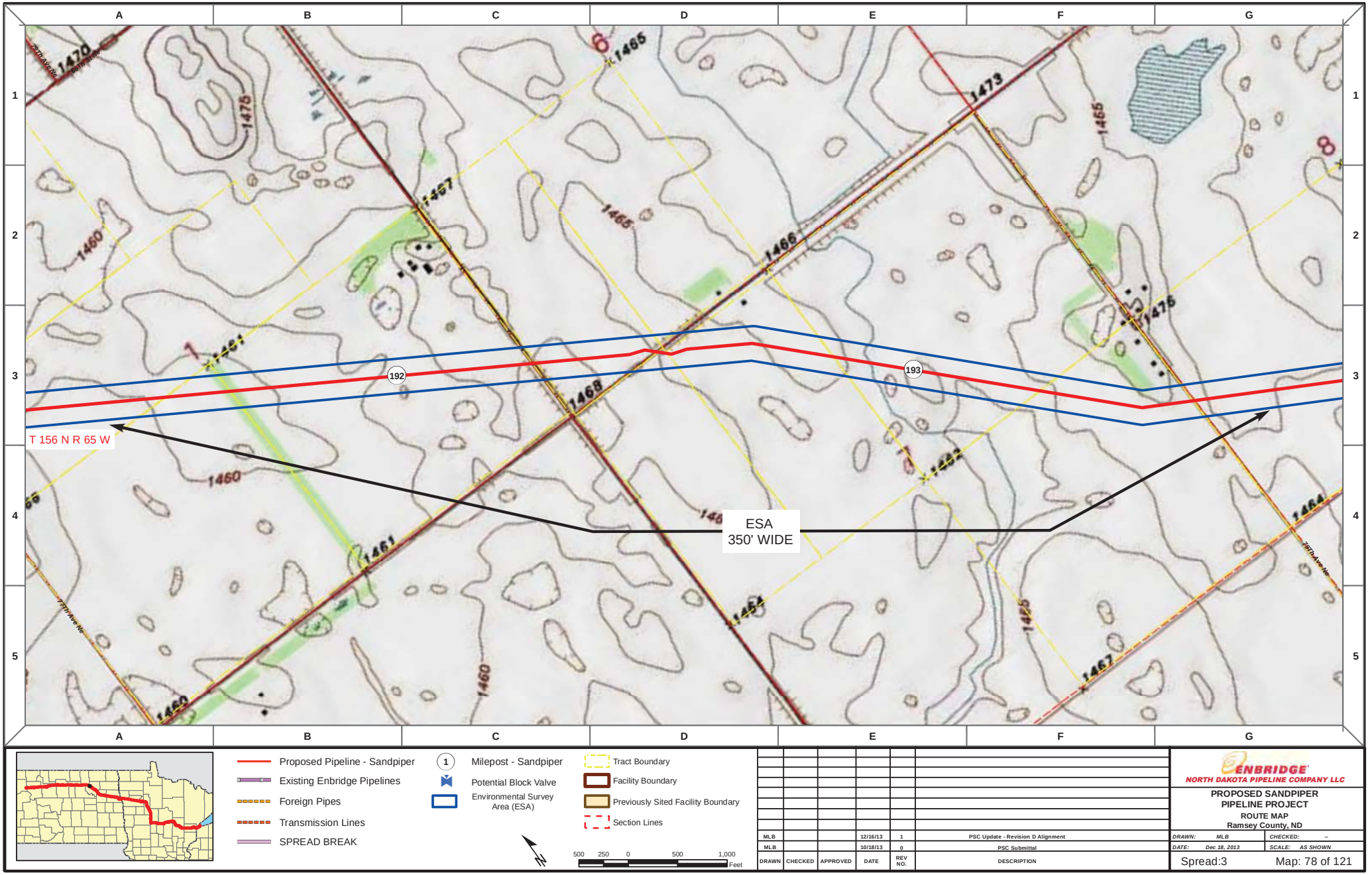
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 78 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

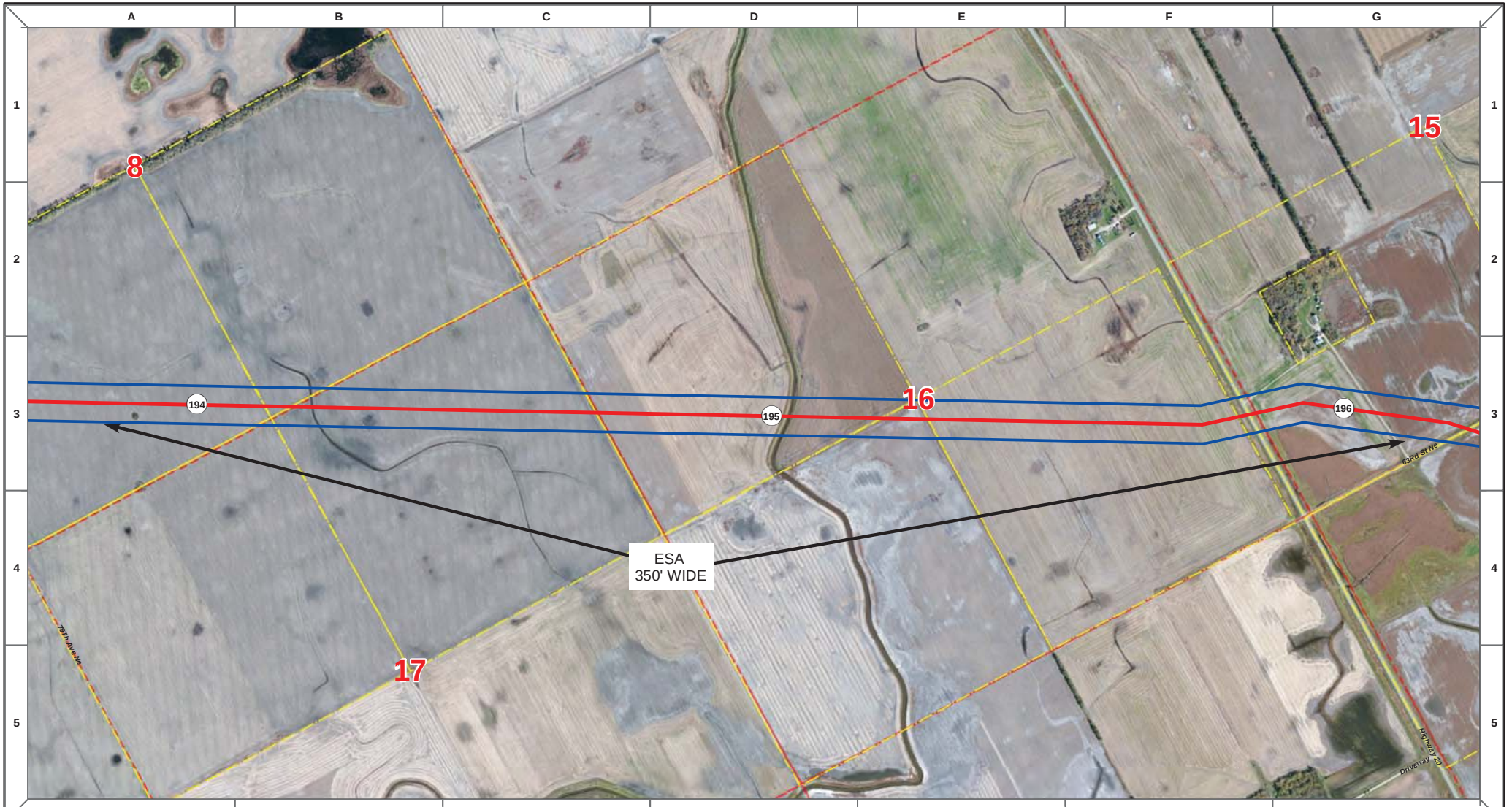
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

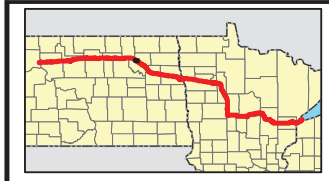
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 78 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

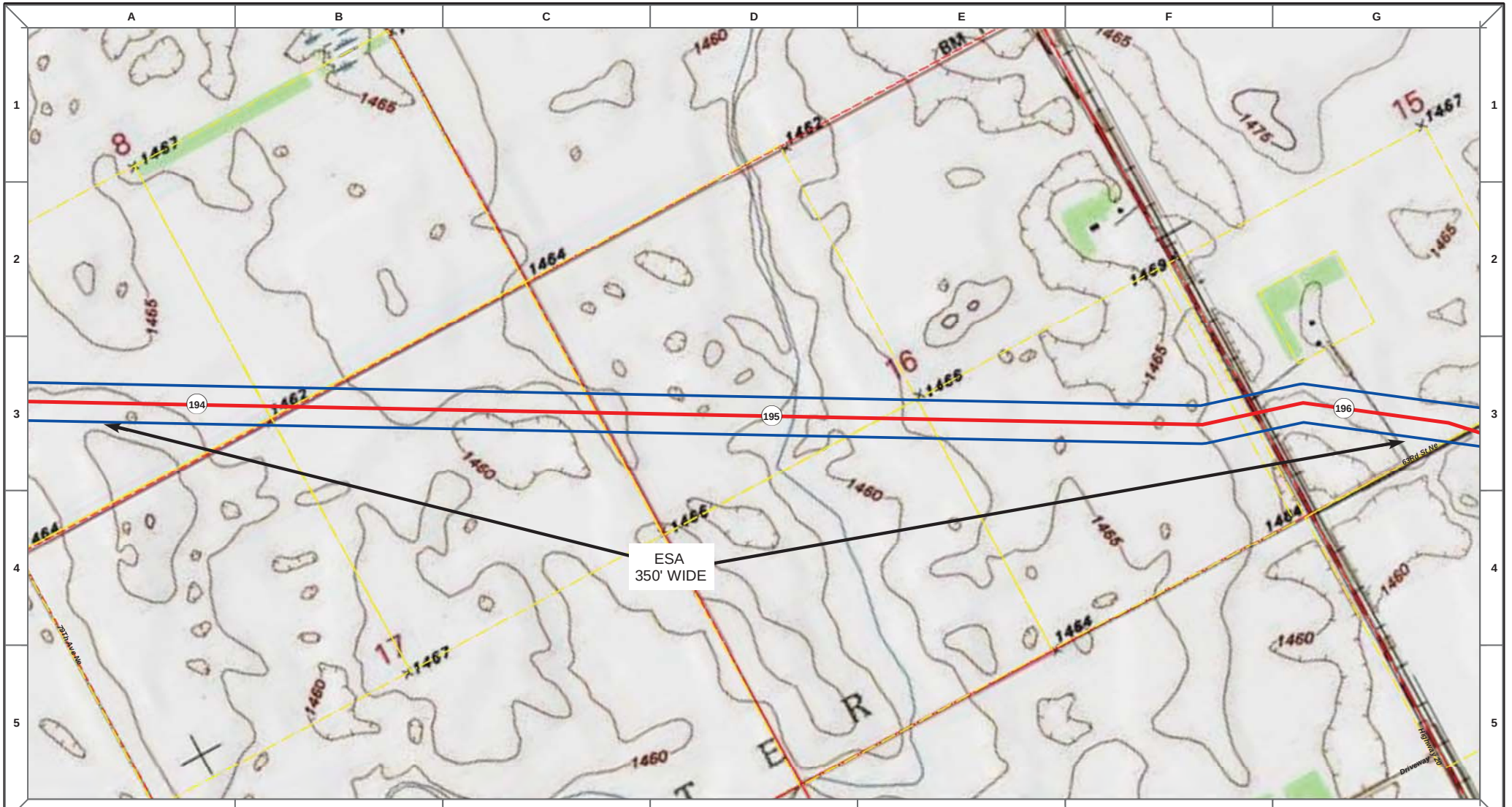
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

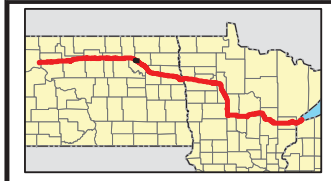
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 79 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

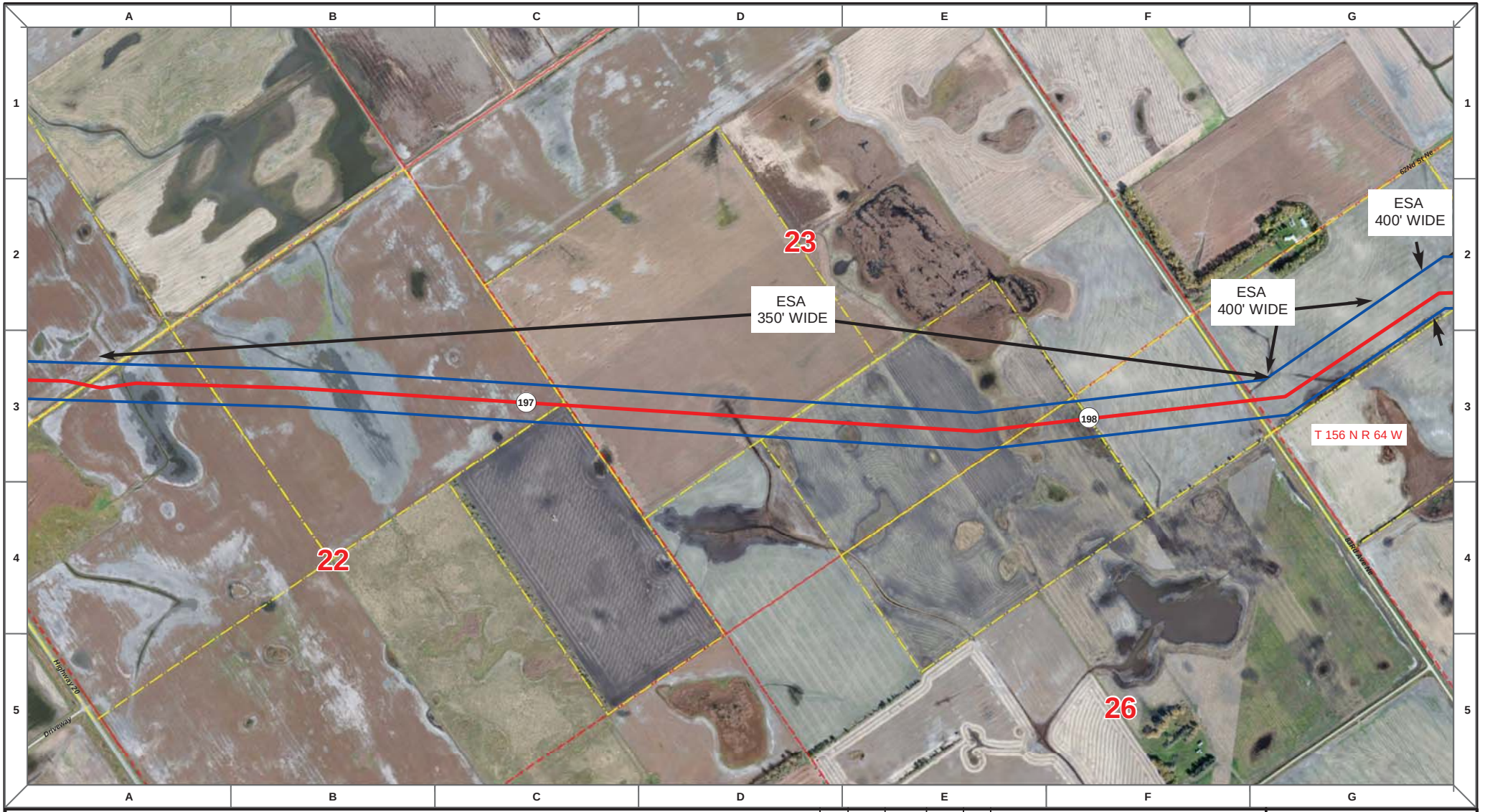
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 79 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

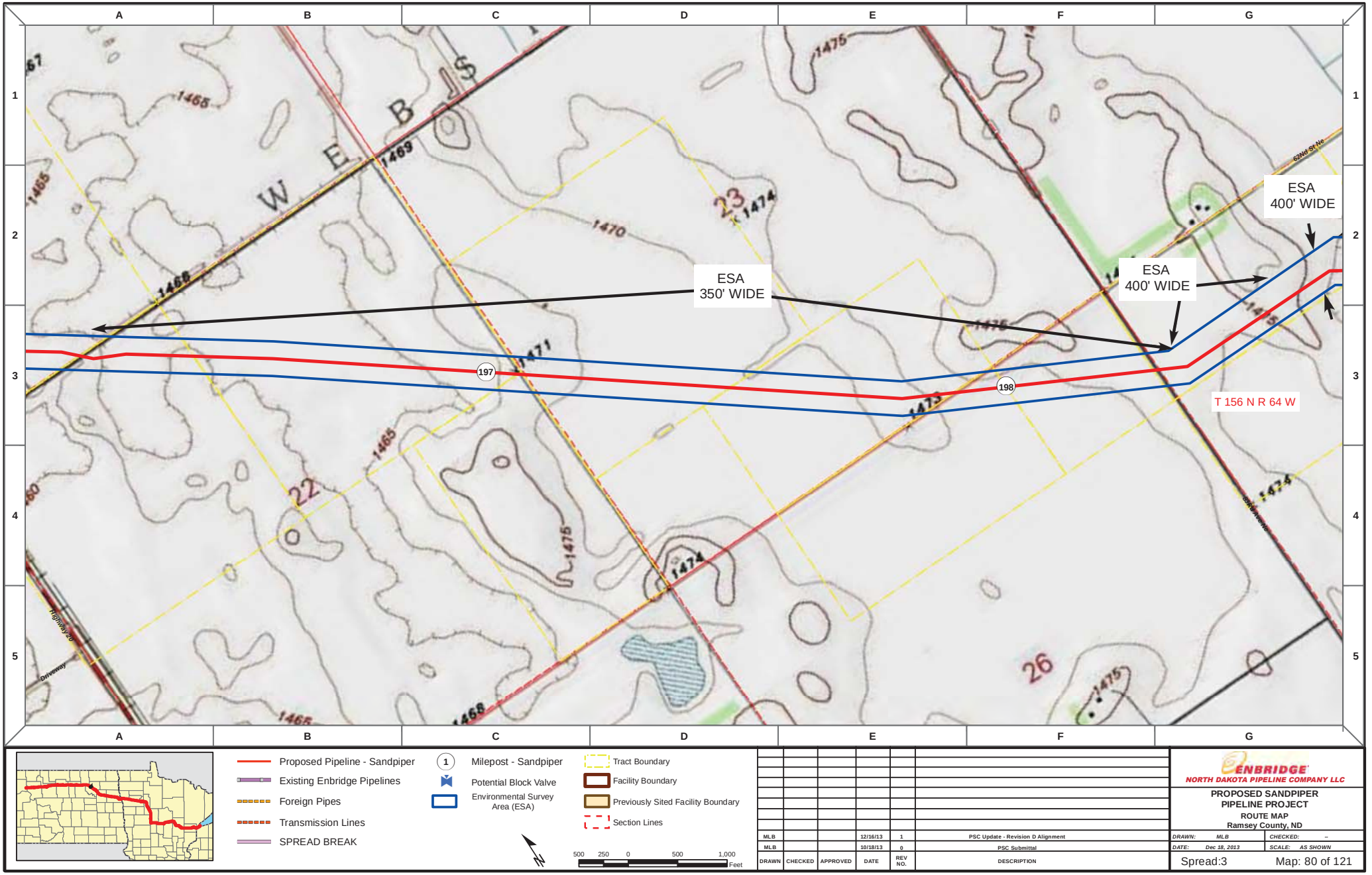
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 80 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

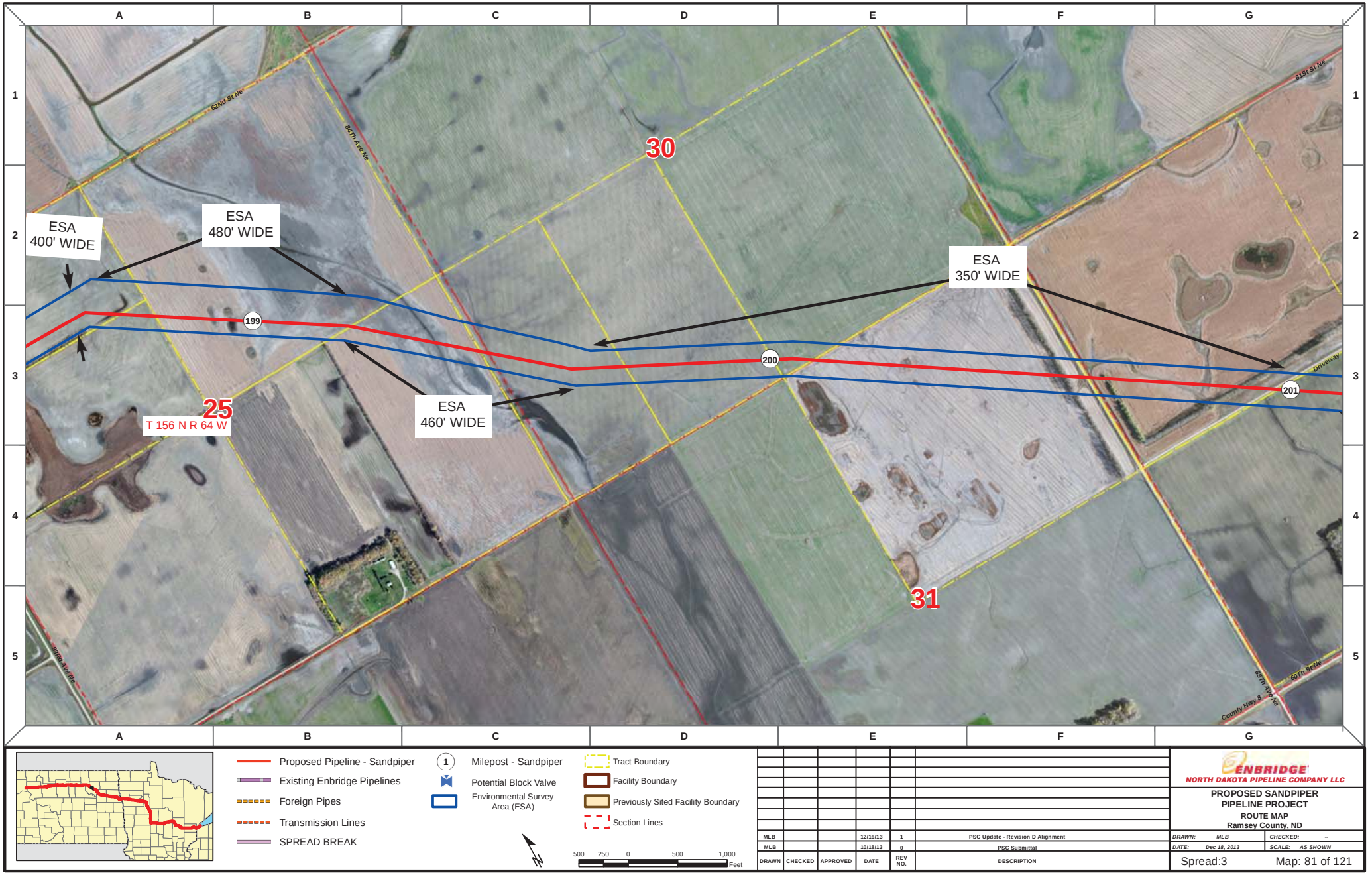
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 80 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

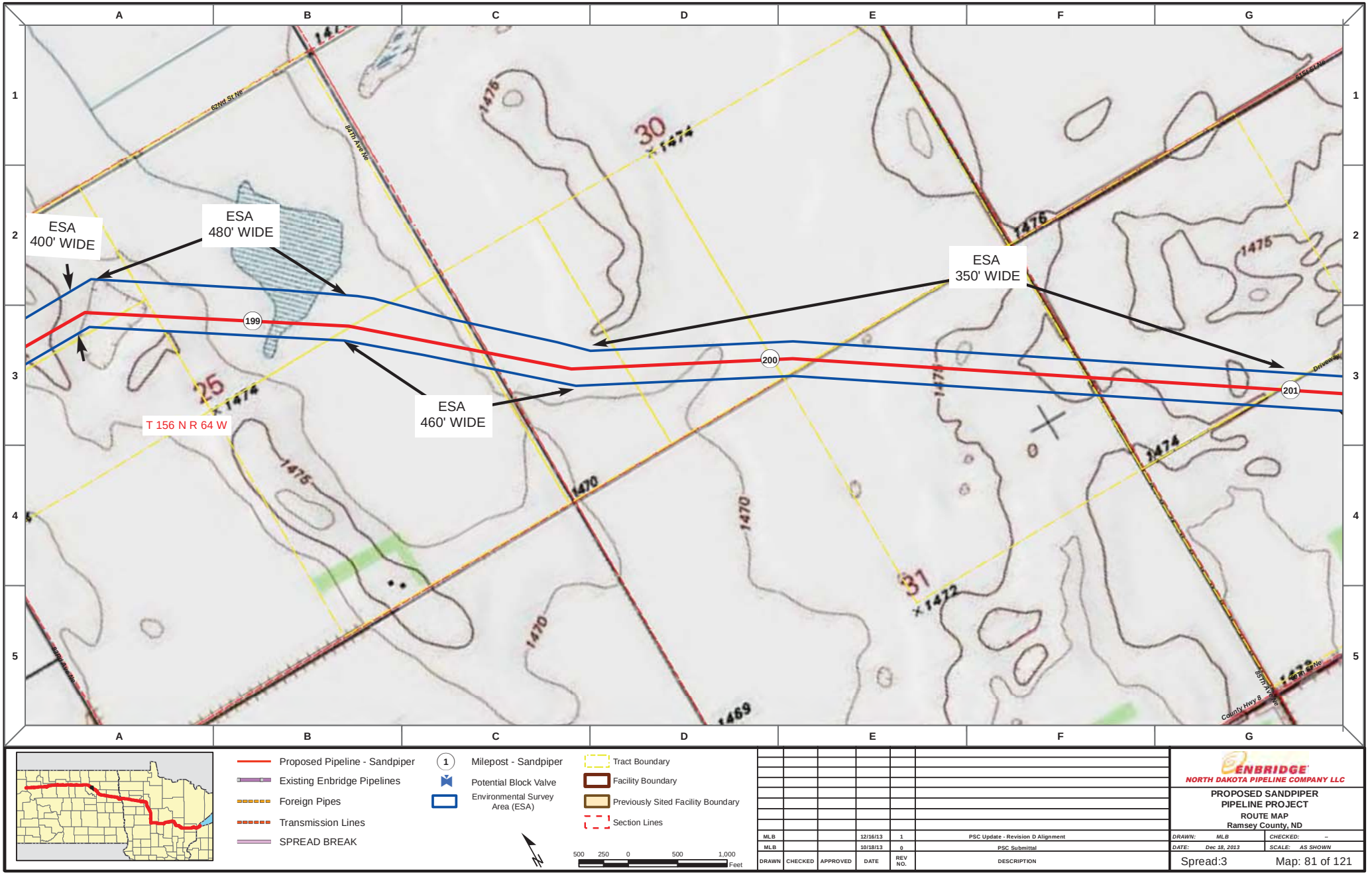
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 81 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

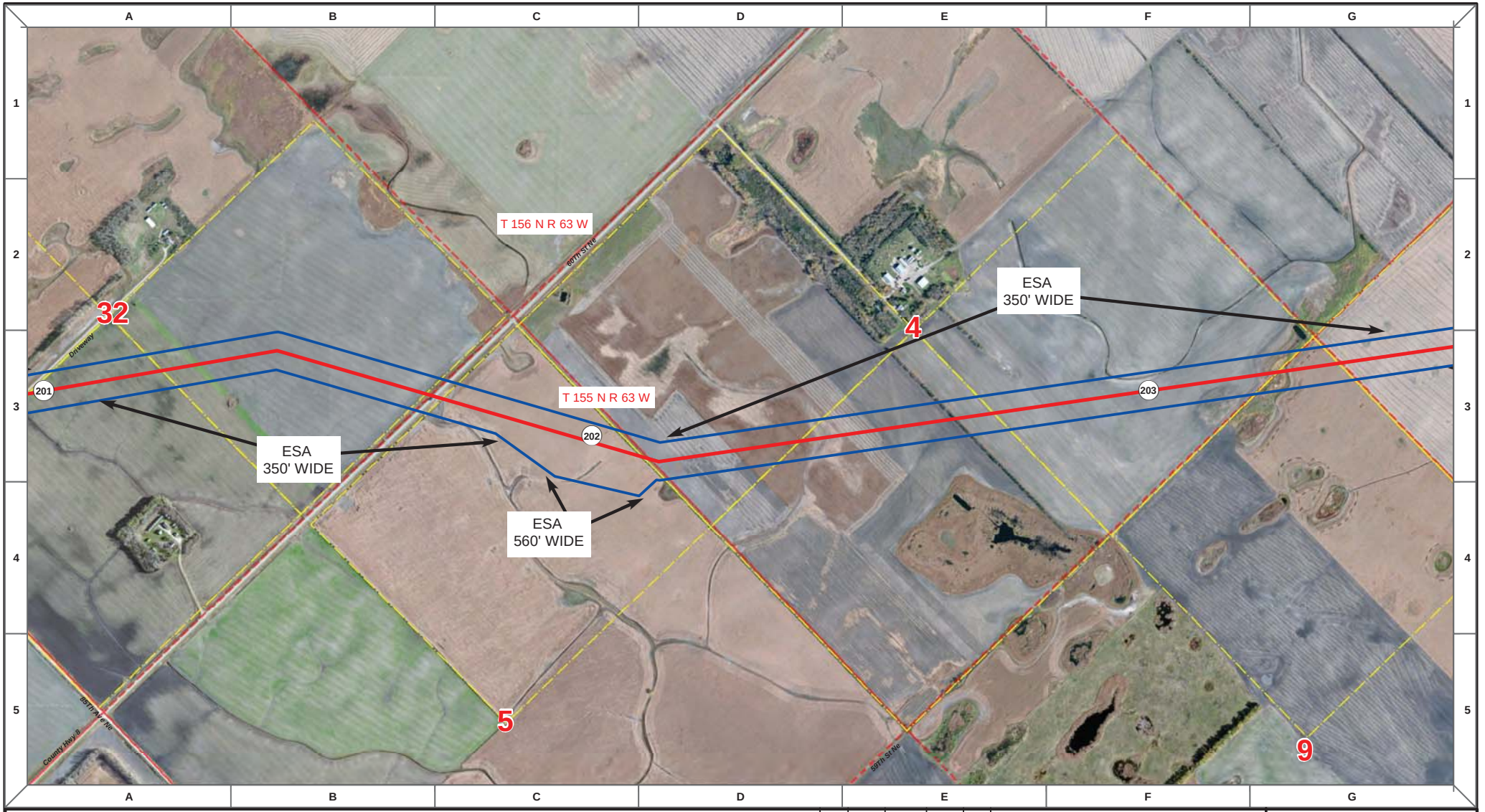
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

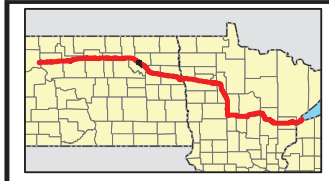
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 81 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

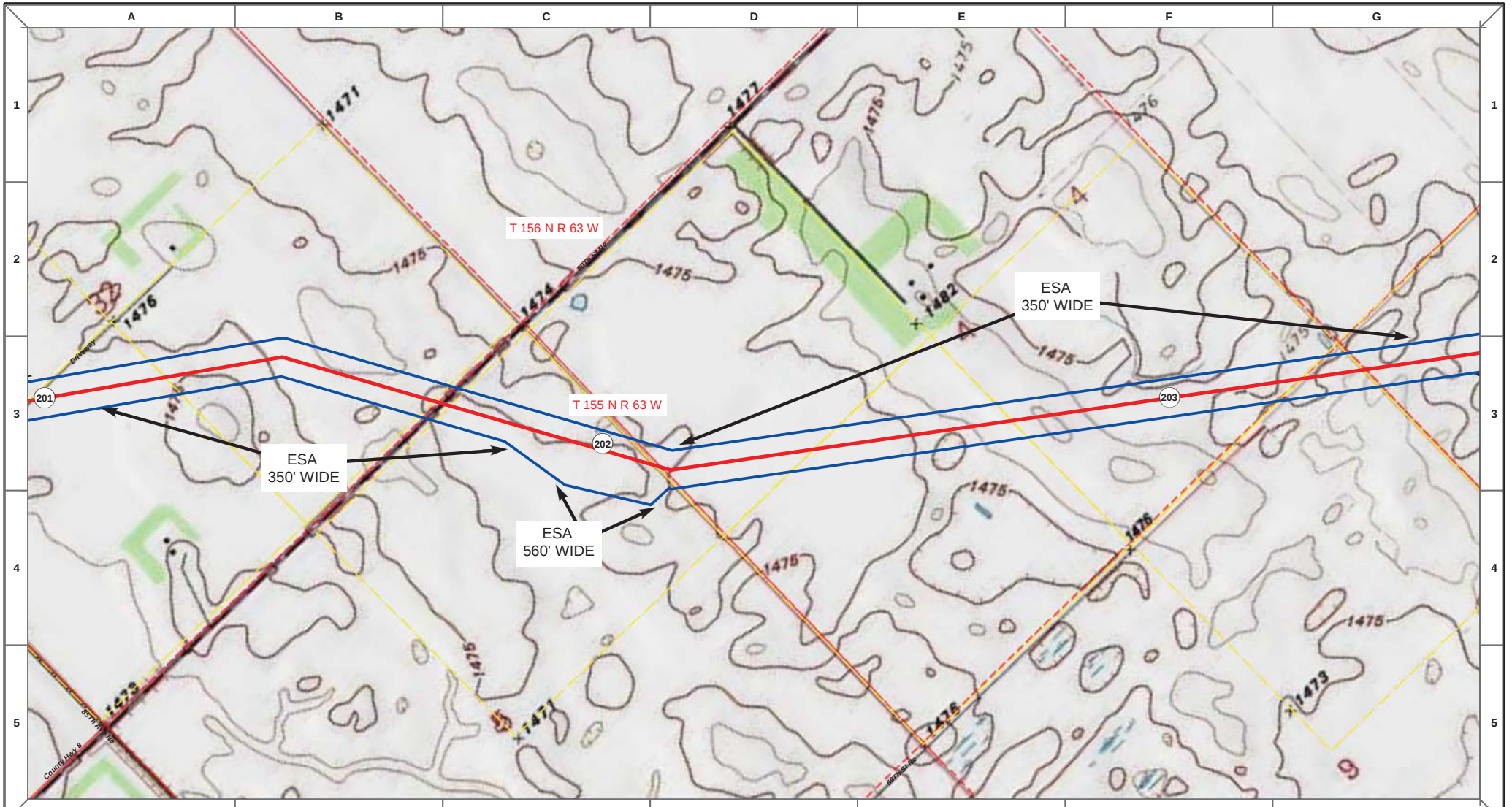
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

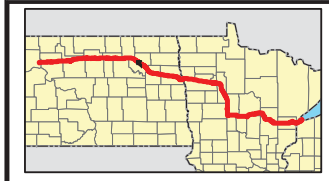
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 82 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

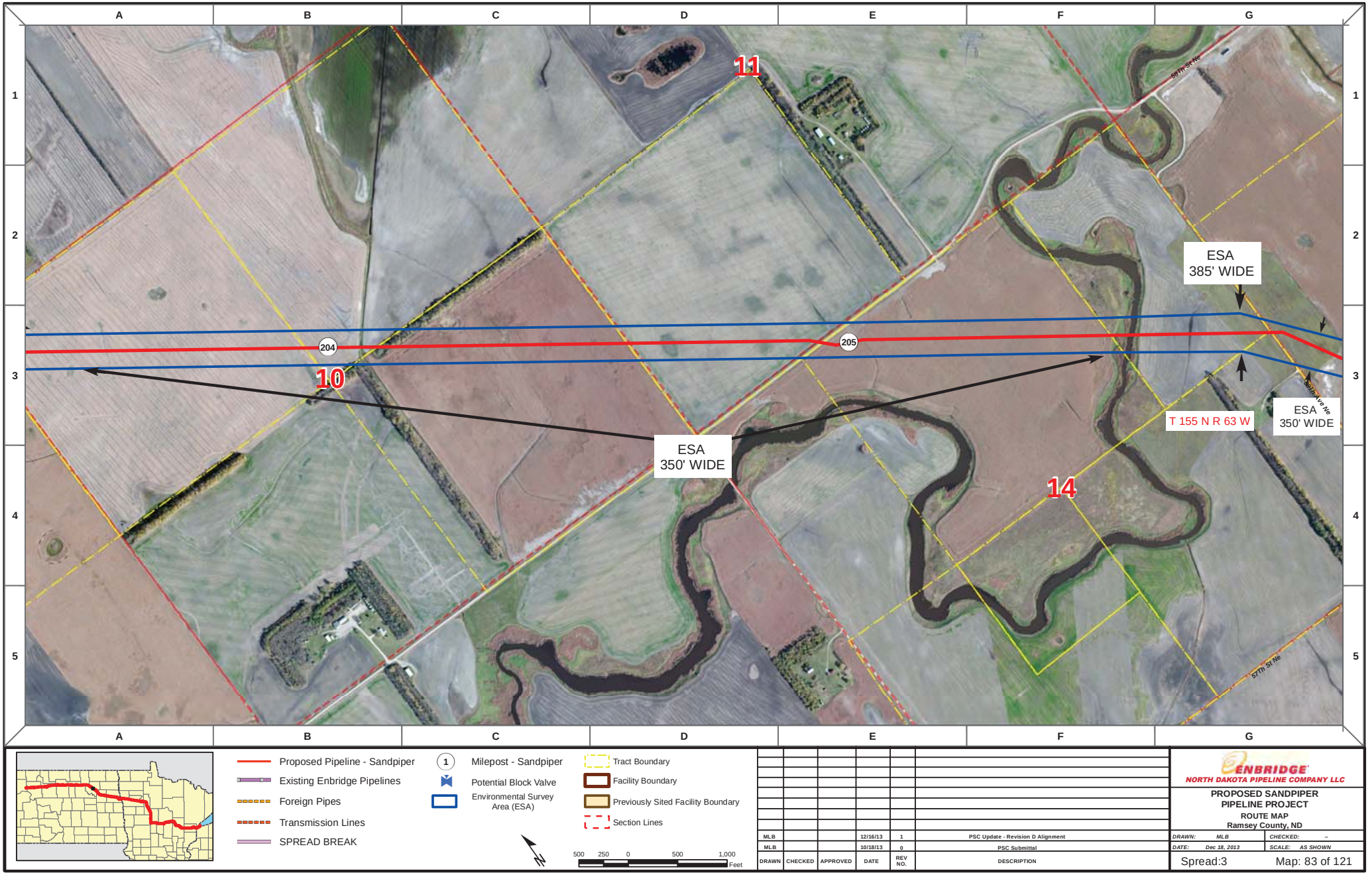
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 82 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

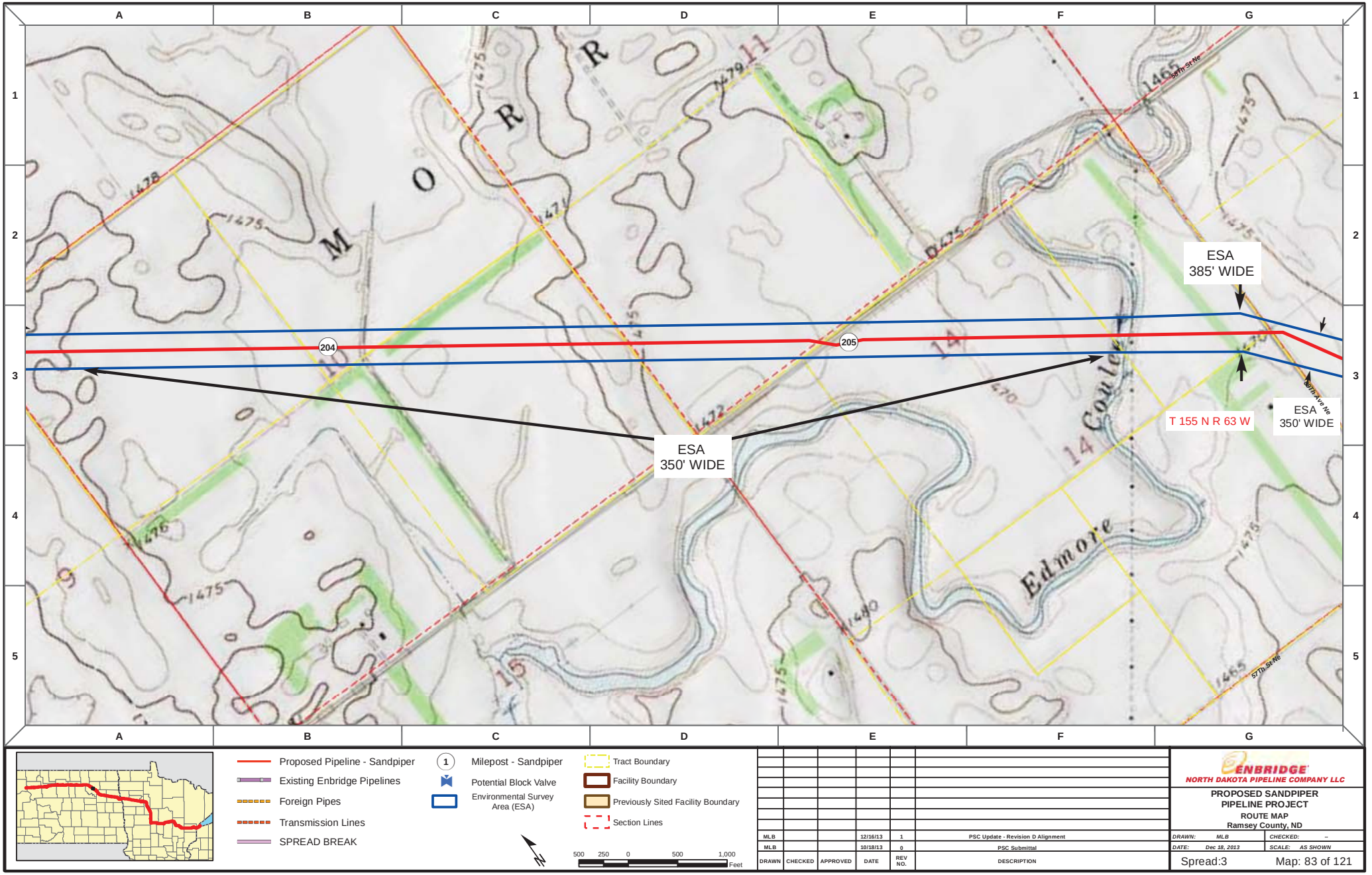
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 83 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

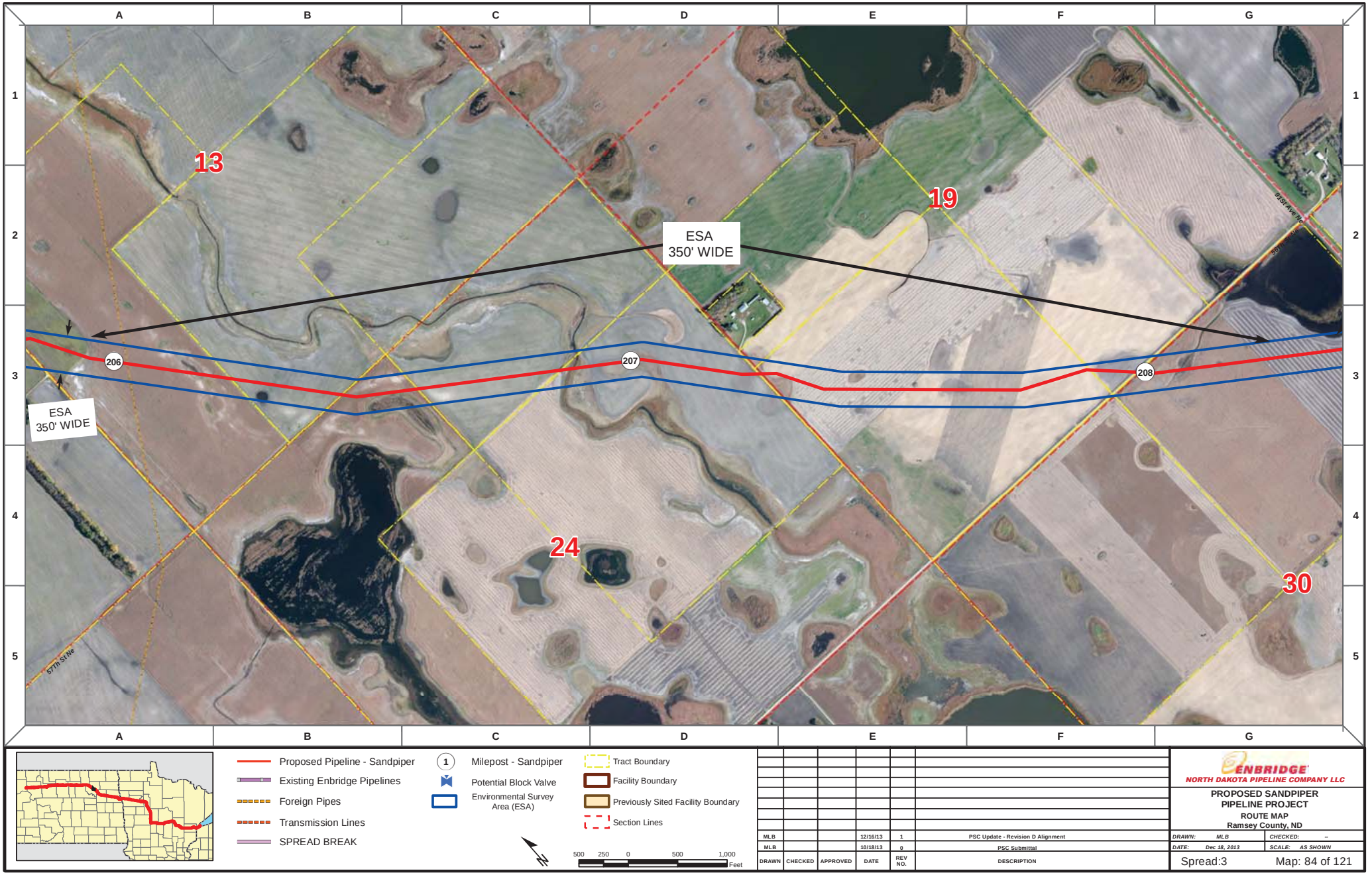
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 83 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

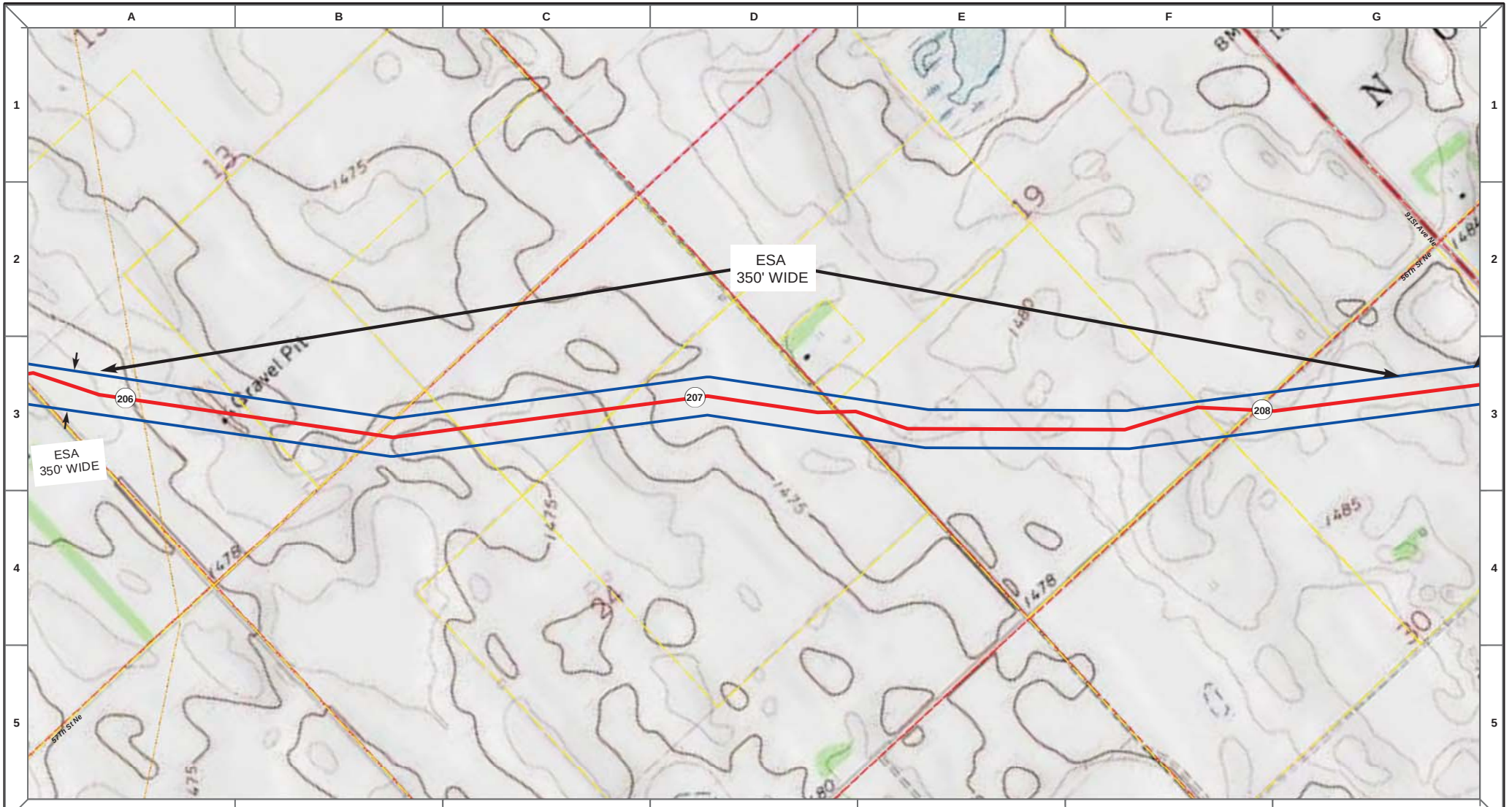
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

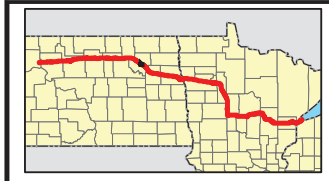
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 84 of 121





- Proposed Pipeline - Sandpiper
- Existing Enbridge Pipelines
- Foreign Pipes
- Transmission Lines
- SPREAD BREAK
- (1) Milepost - Sandpiper
- Potential Block Valve
- Environmental Survey Area (ESA)
- Tract Boundary
- Facility Boundary
- Previously Sited Facility Boundary
- Section Lines

500 250 0 500 1,000 Feet

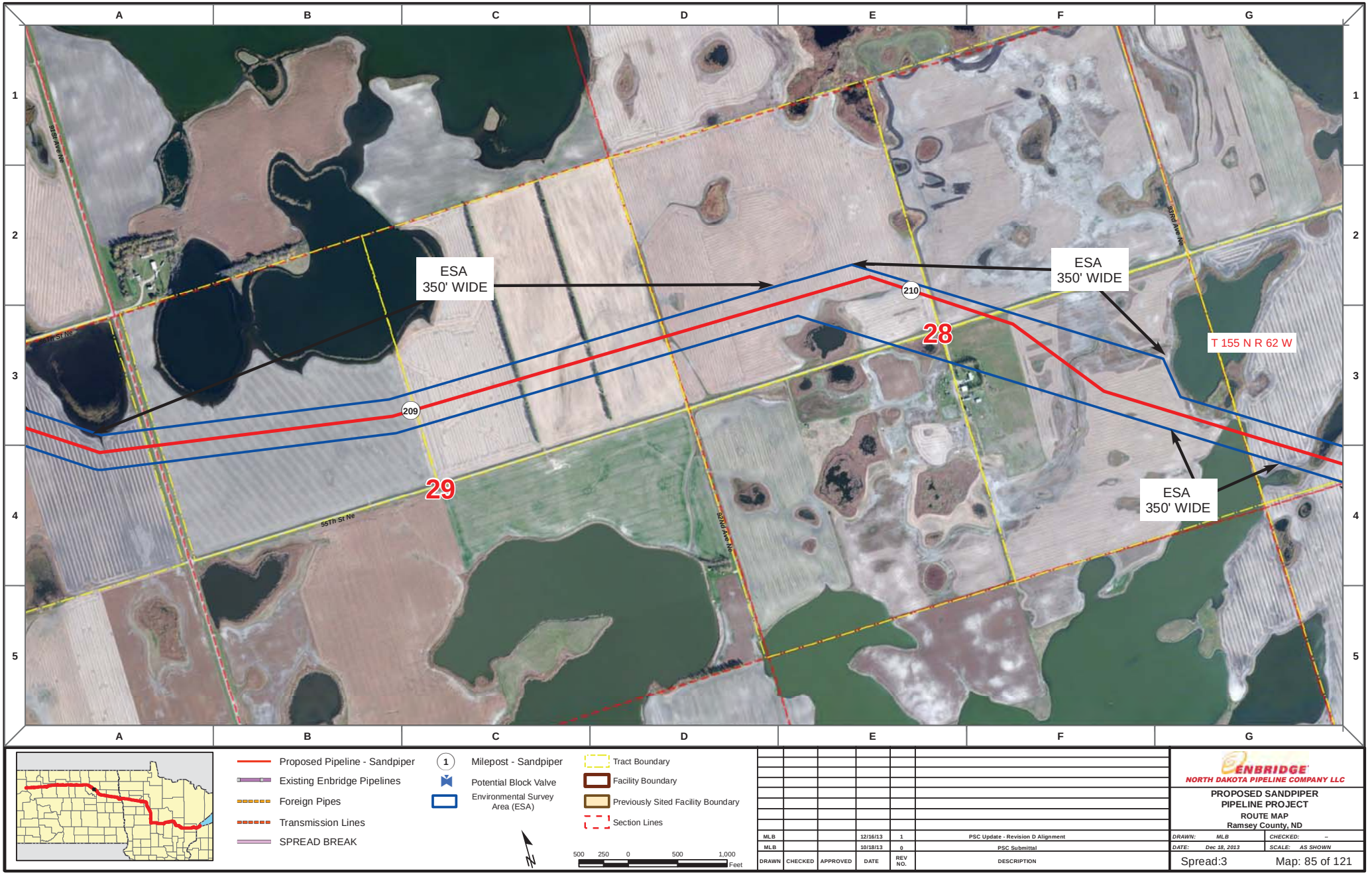
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 84 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

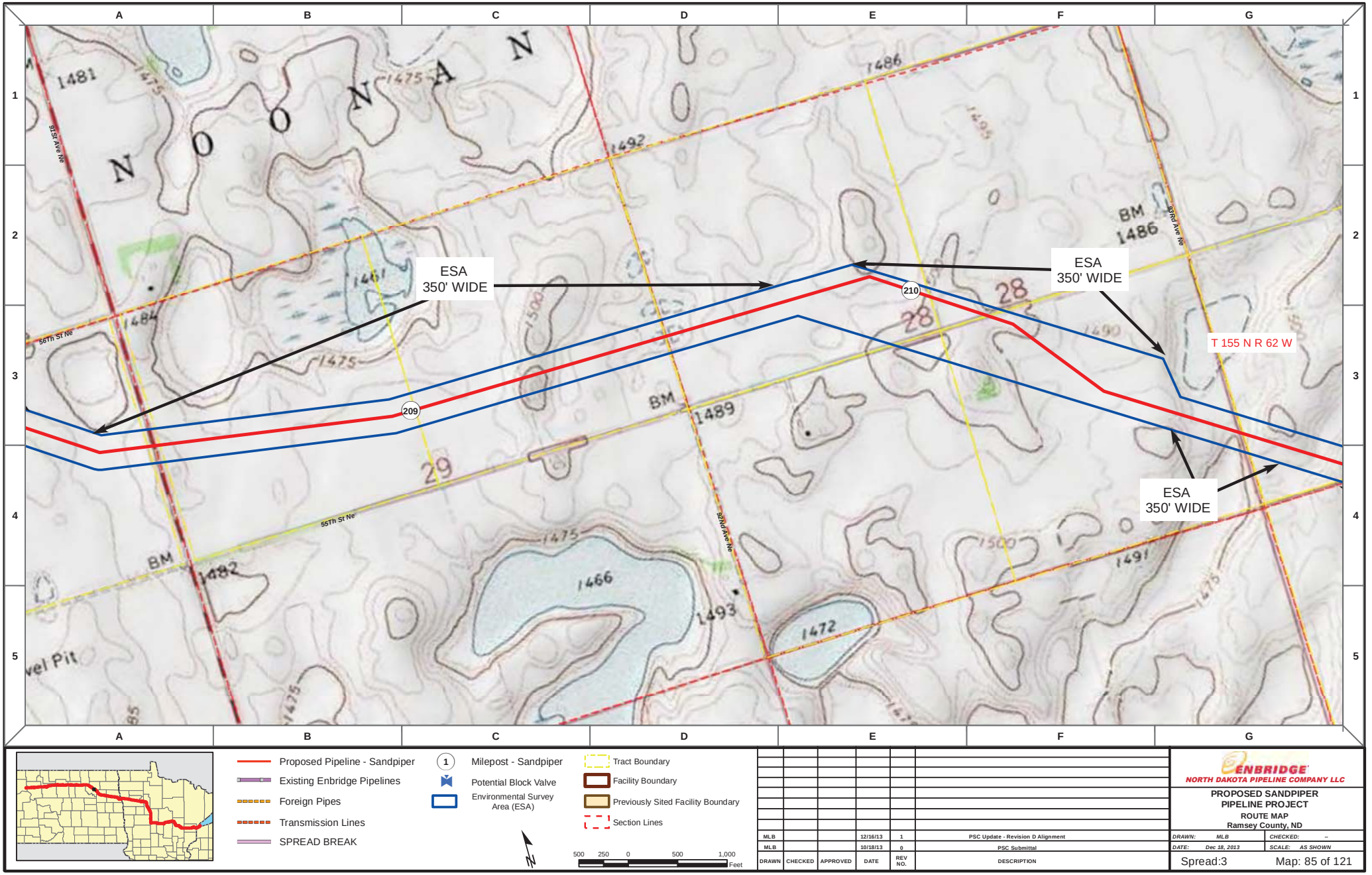
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 85 of 121



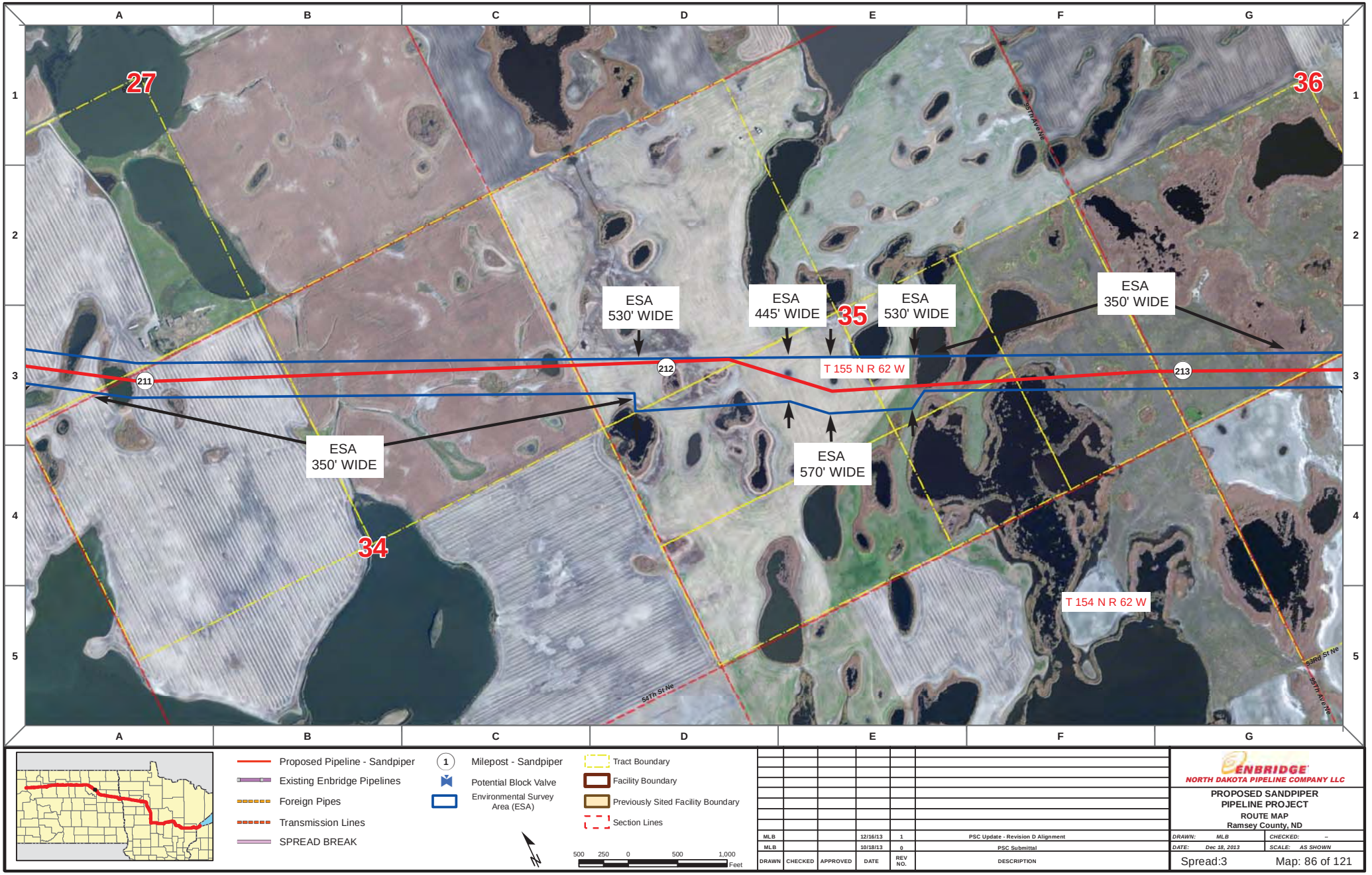
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 85 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

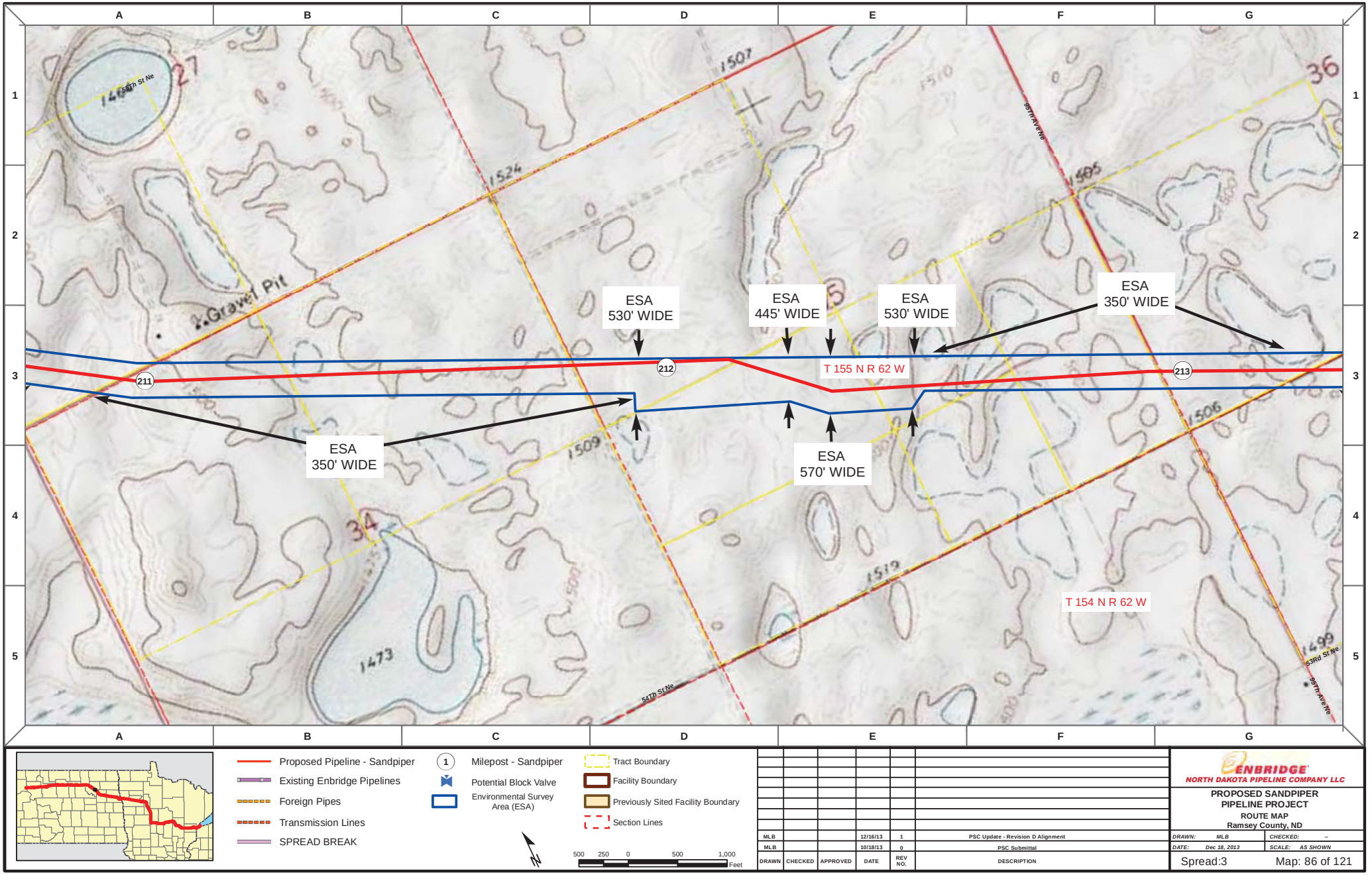
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 86 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

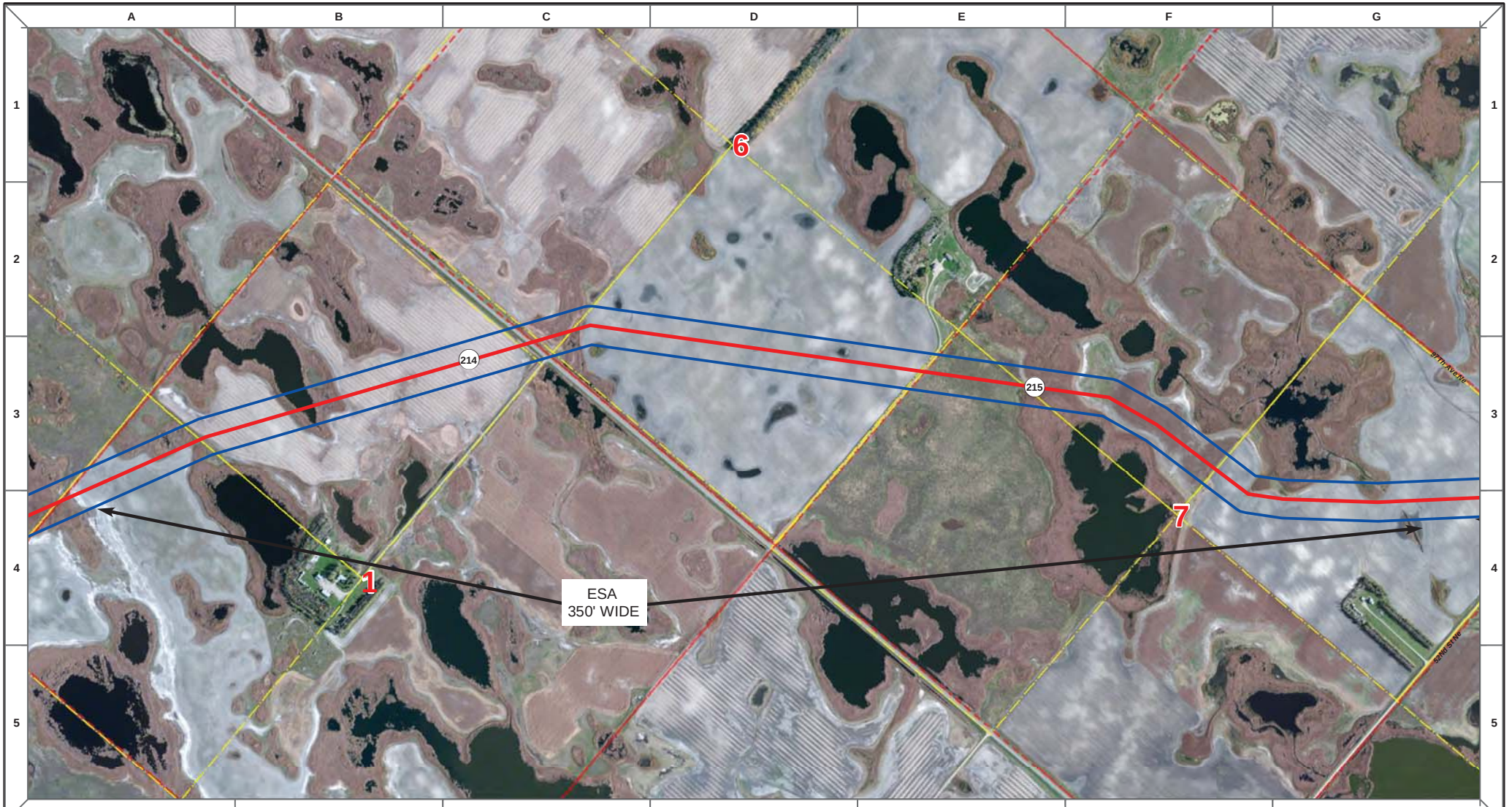
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

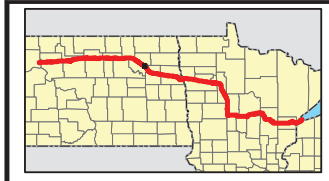
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 86 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

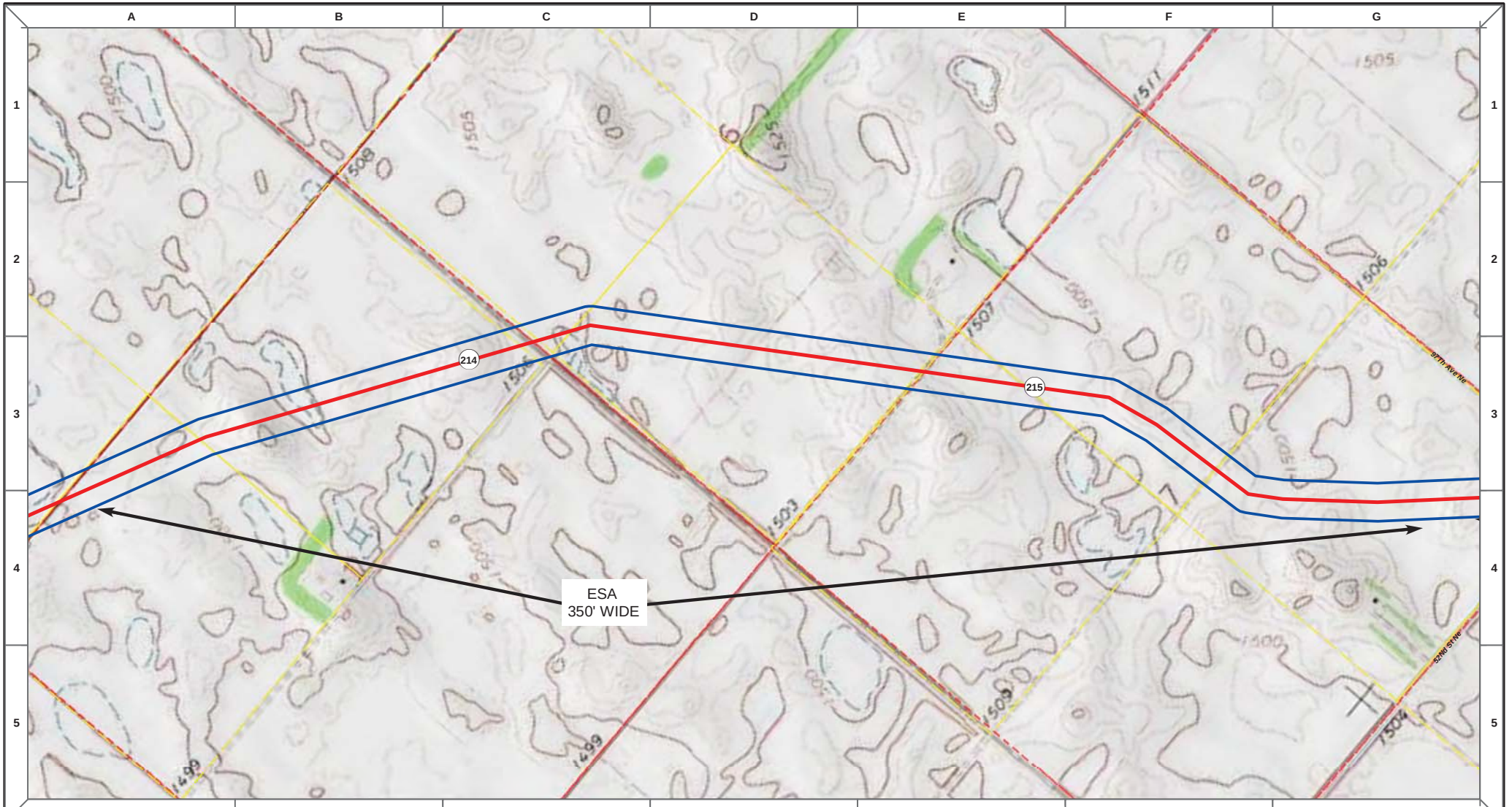
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

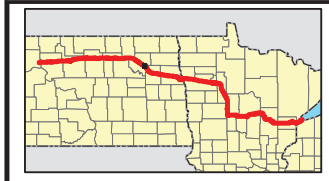
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 87 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

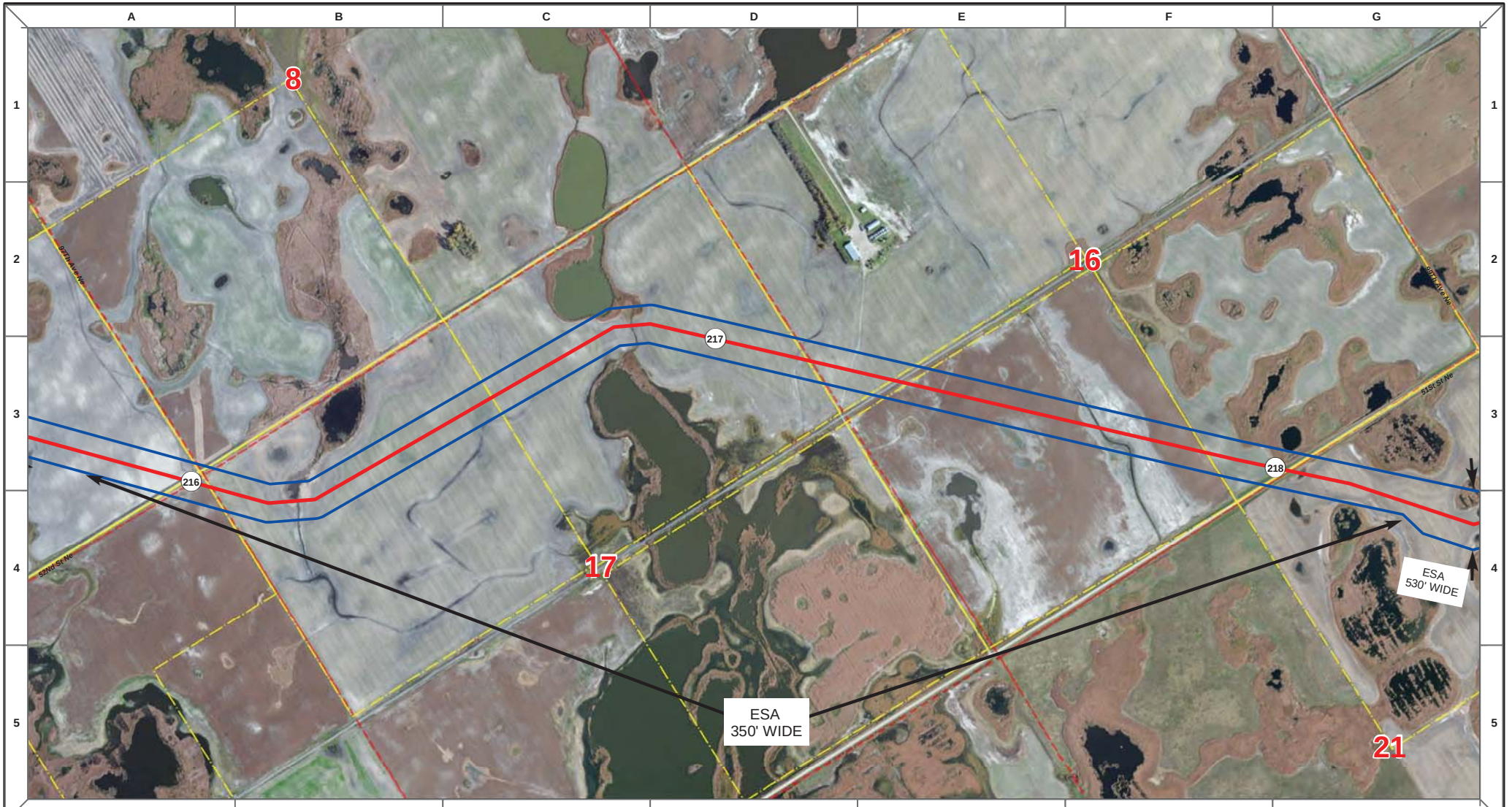
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

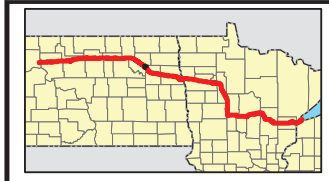
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 87 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

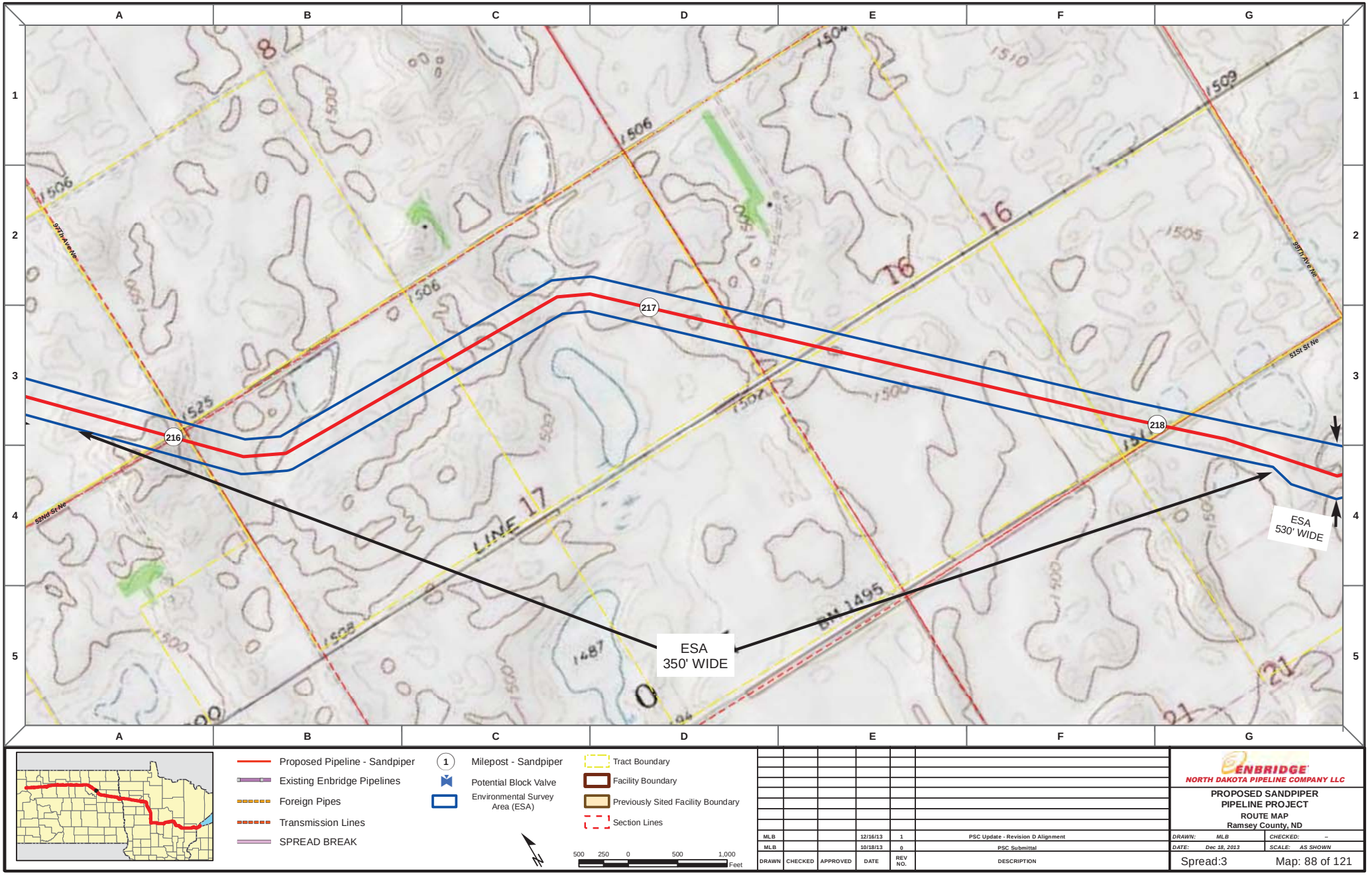
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 88 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

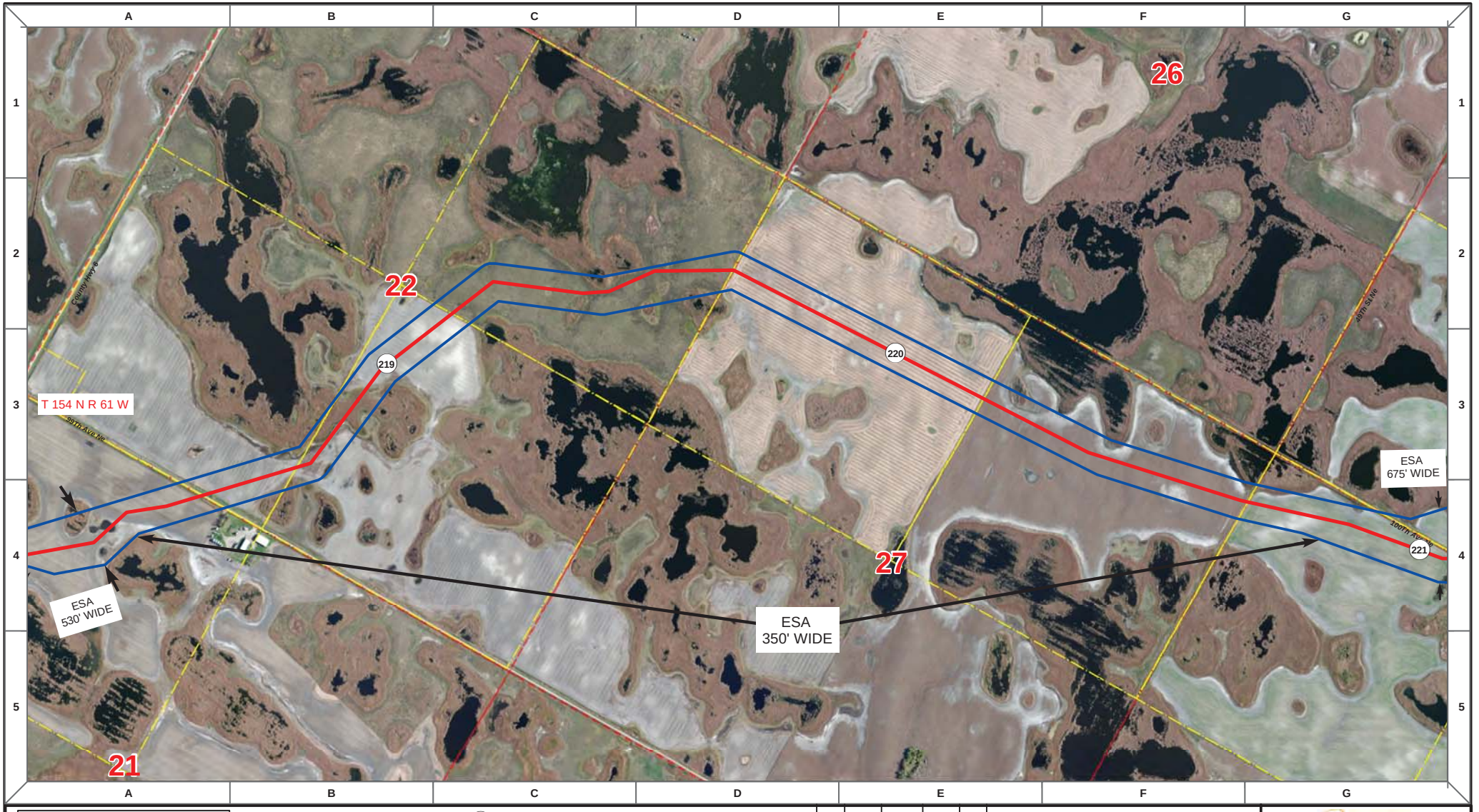
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

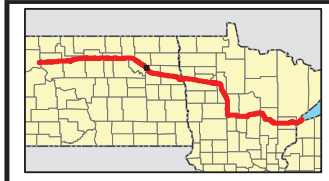
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 88 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

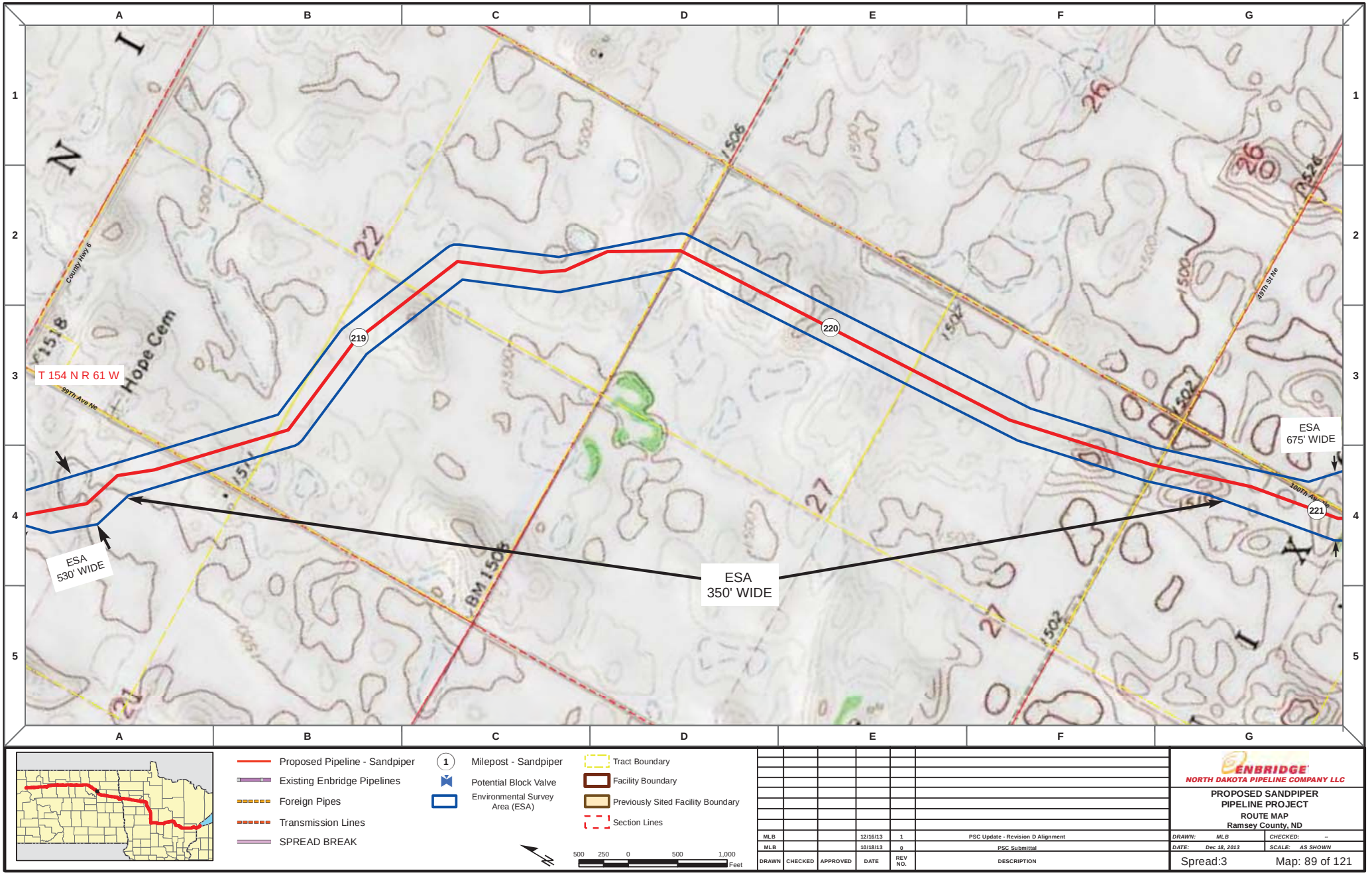
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 89 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

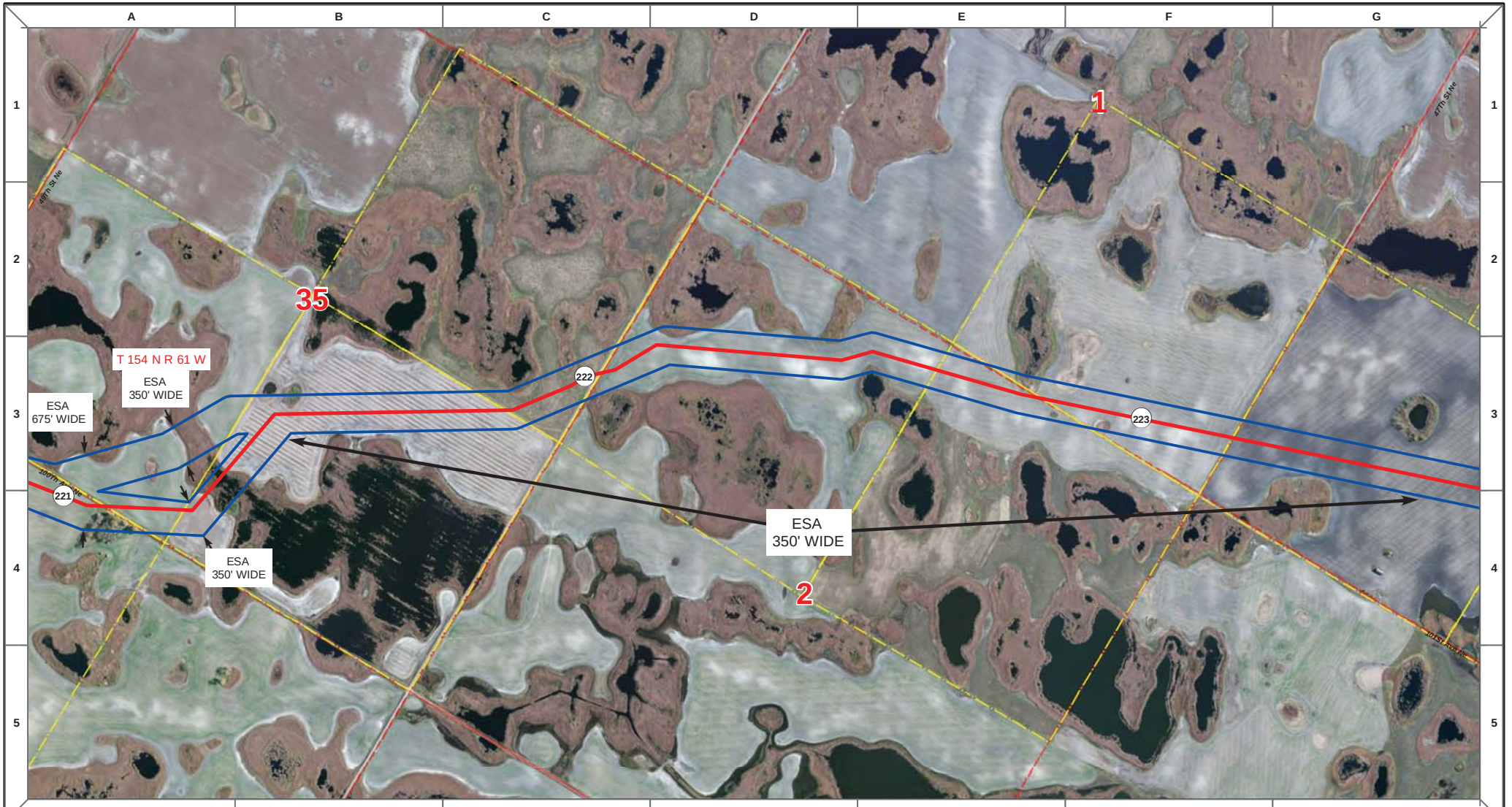
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

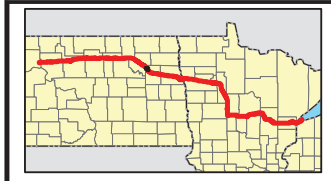
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 89 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

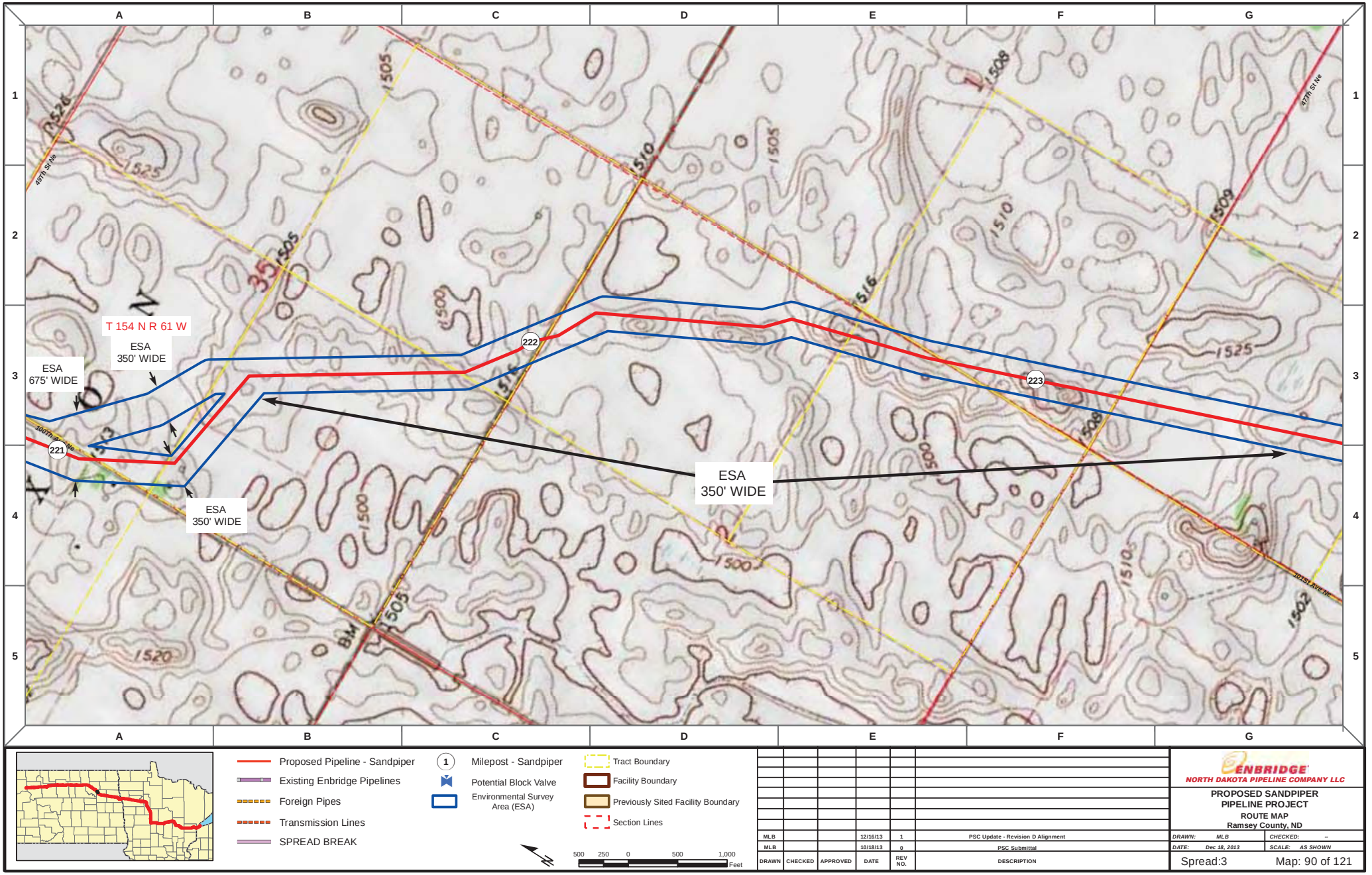
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 90 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

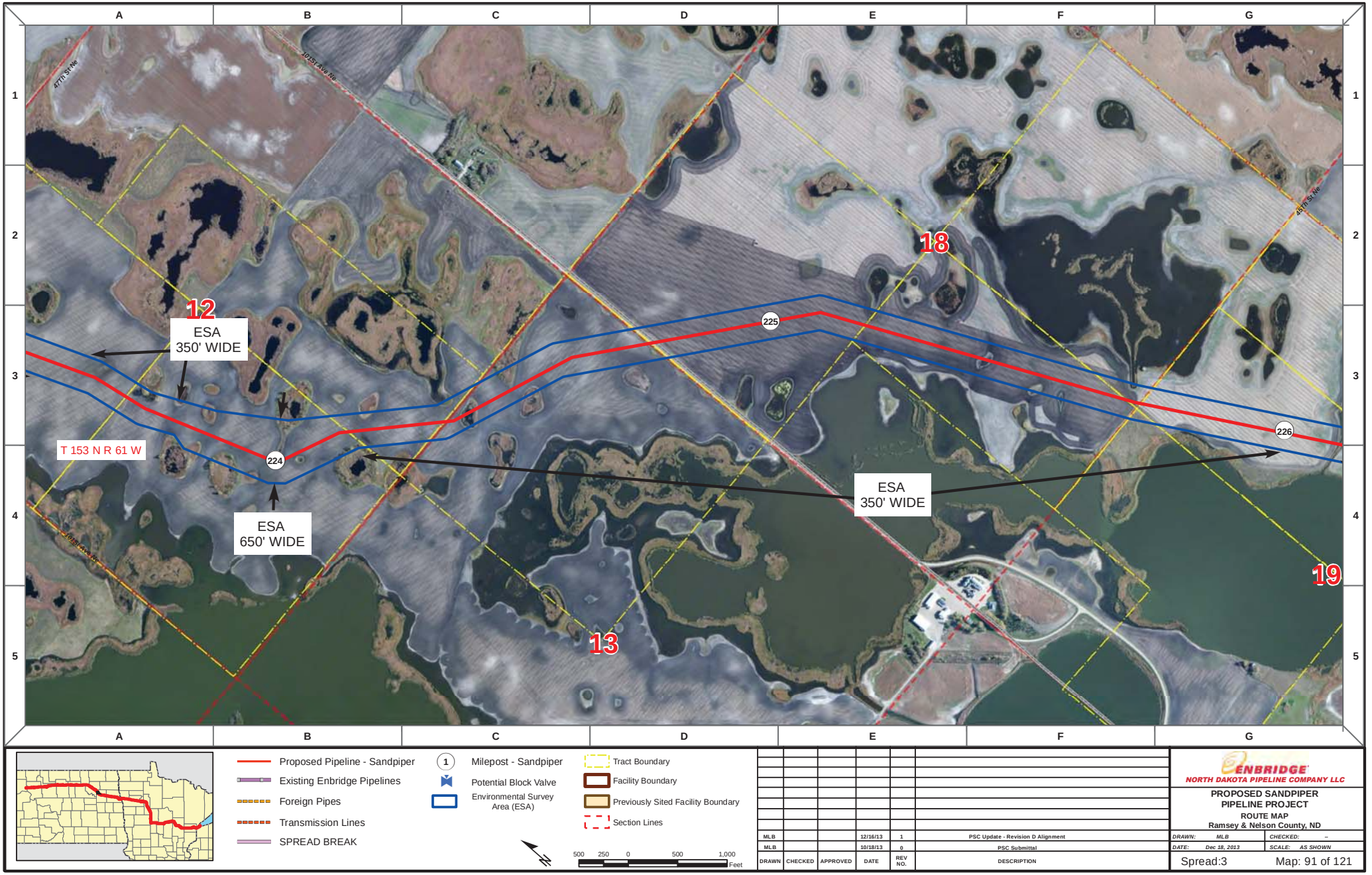
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 90 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

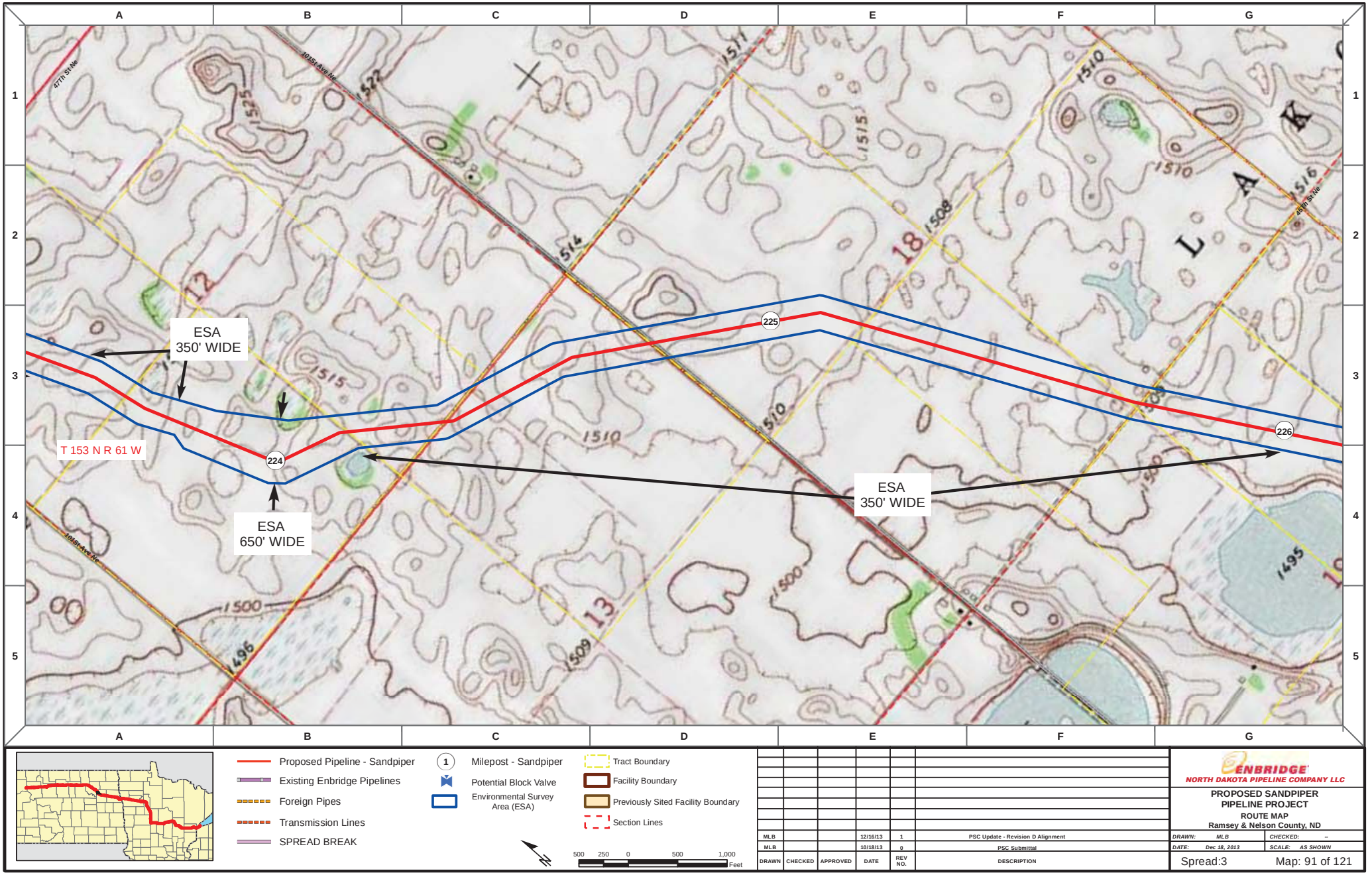
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey & Nelson County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 91 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

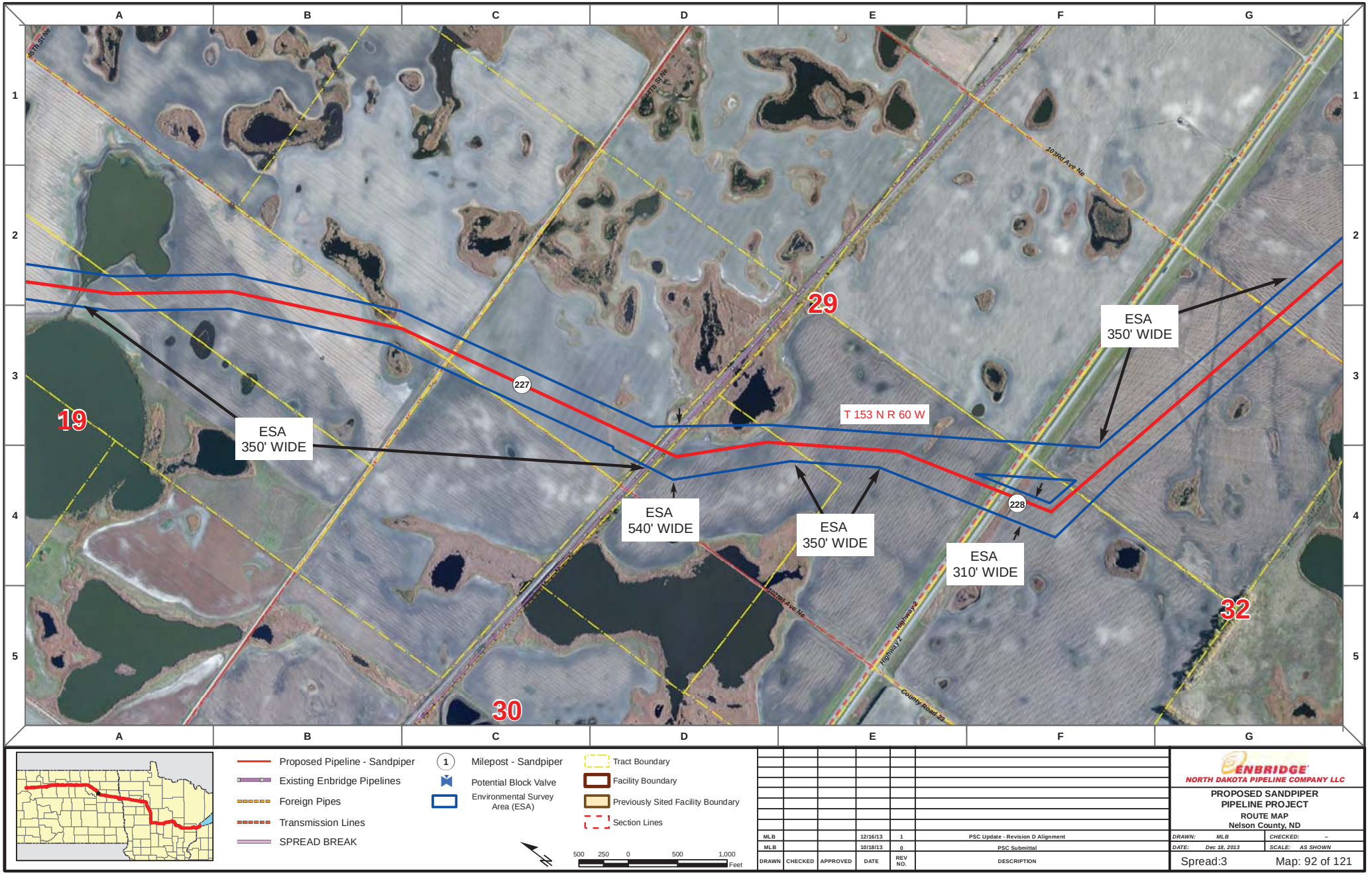
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Ramsey & Nelson County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 91 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

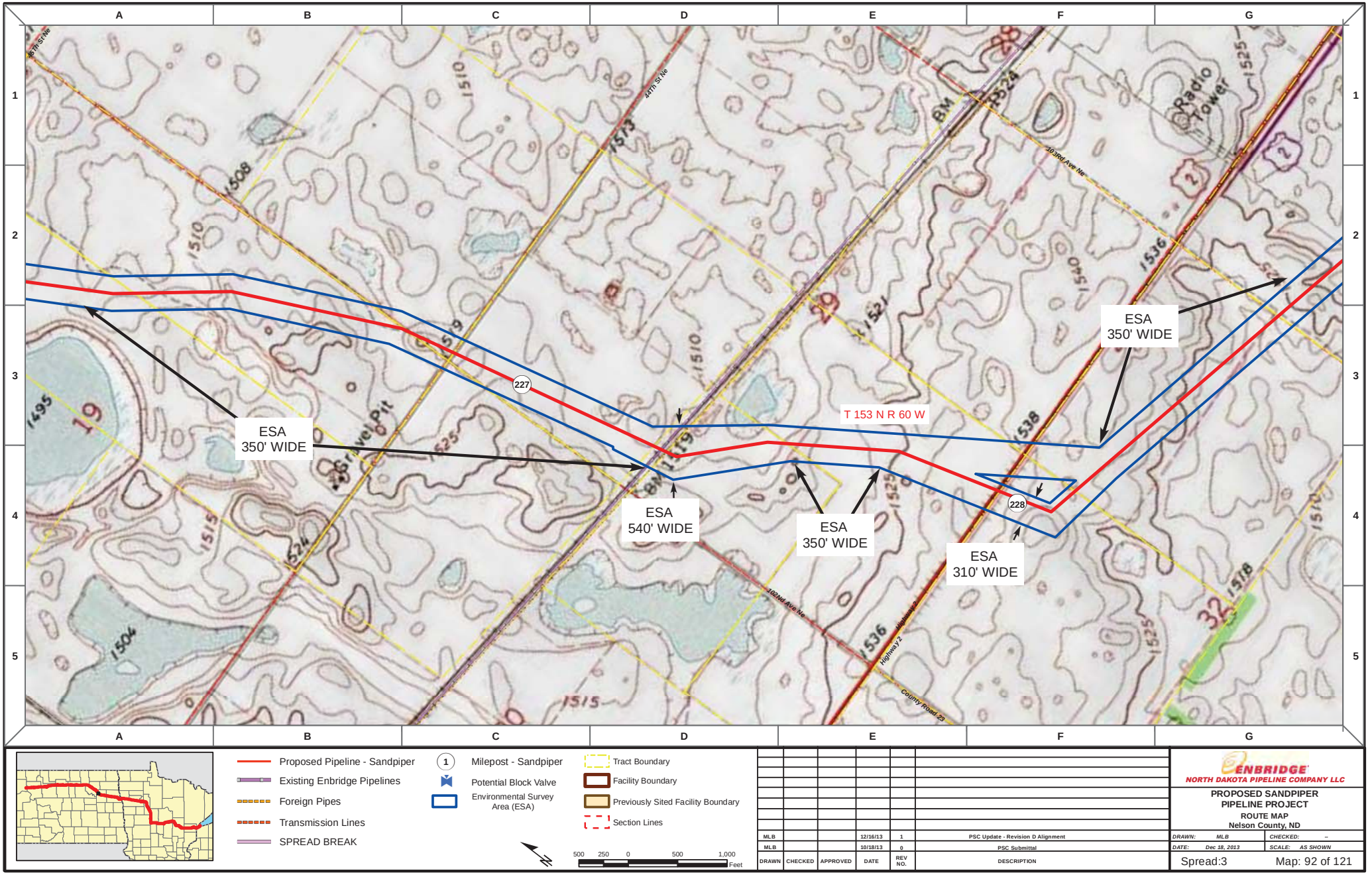
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3 Map: 92 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

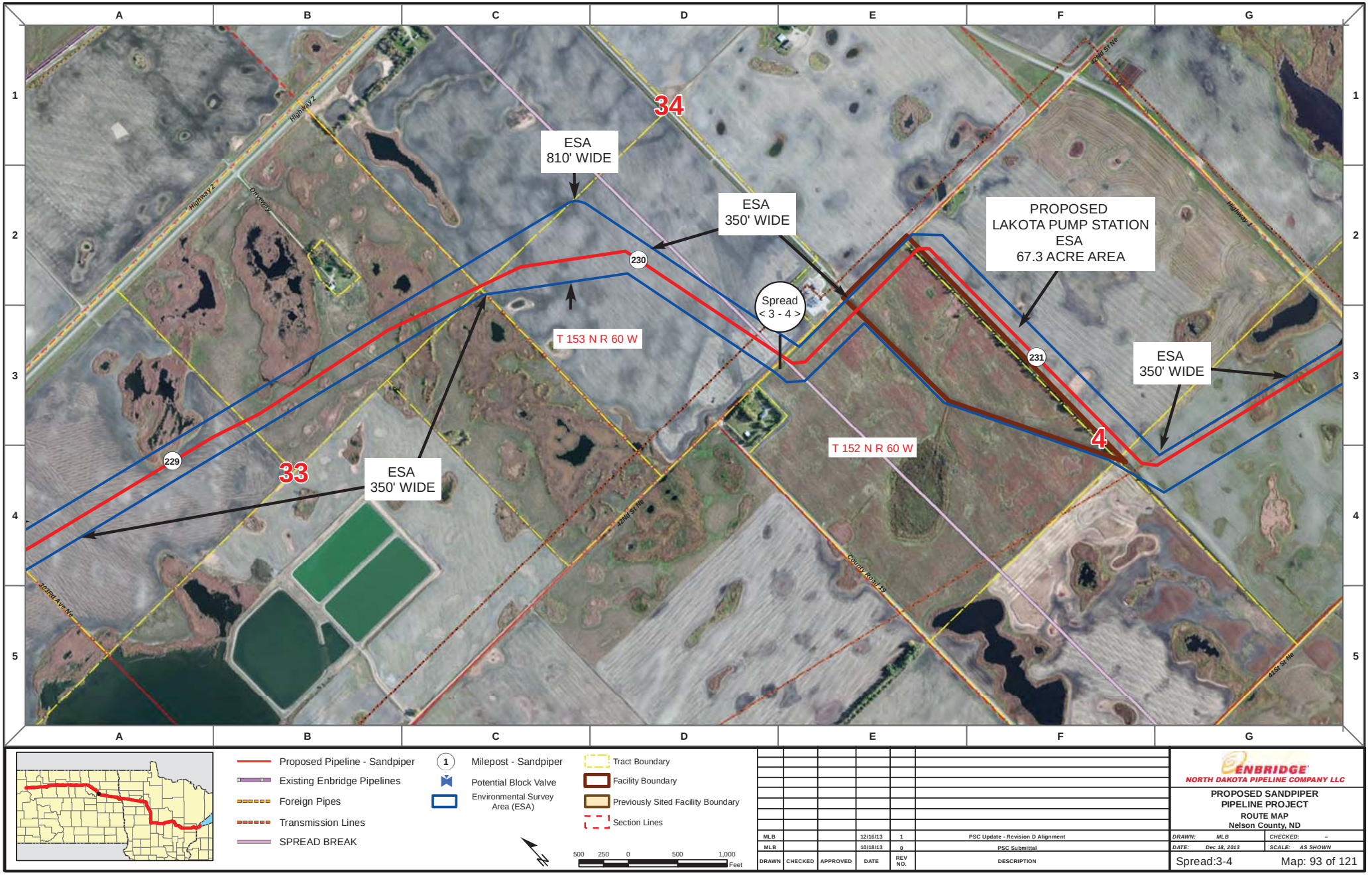
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:3 Map: 92 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

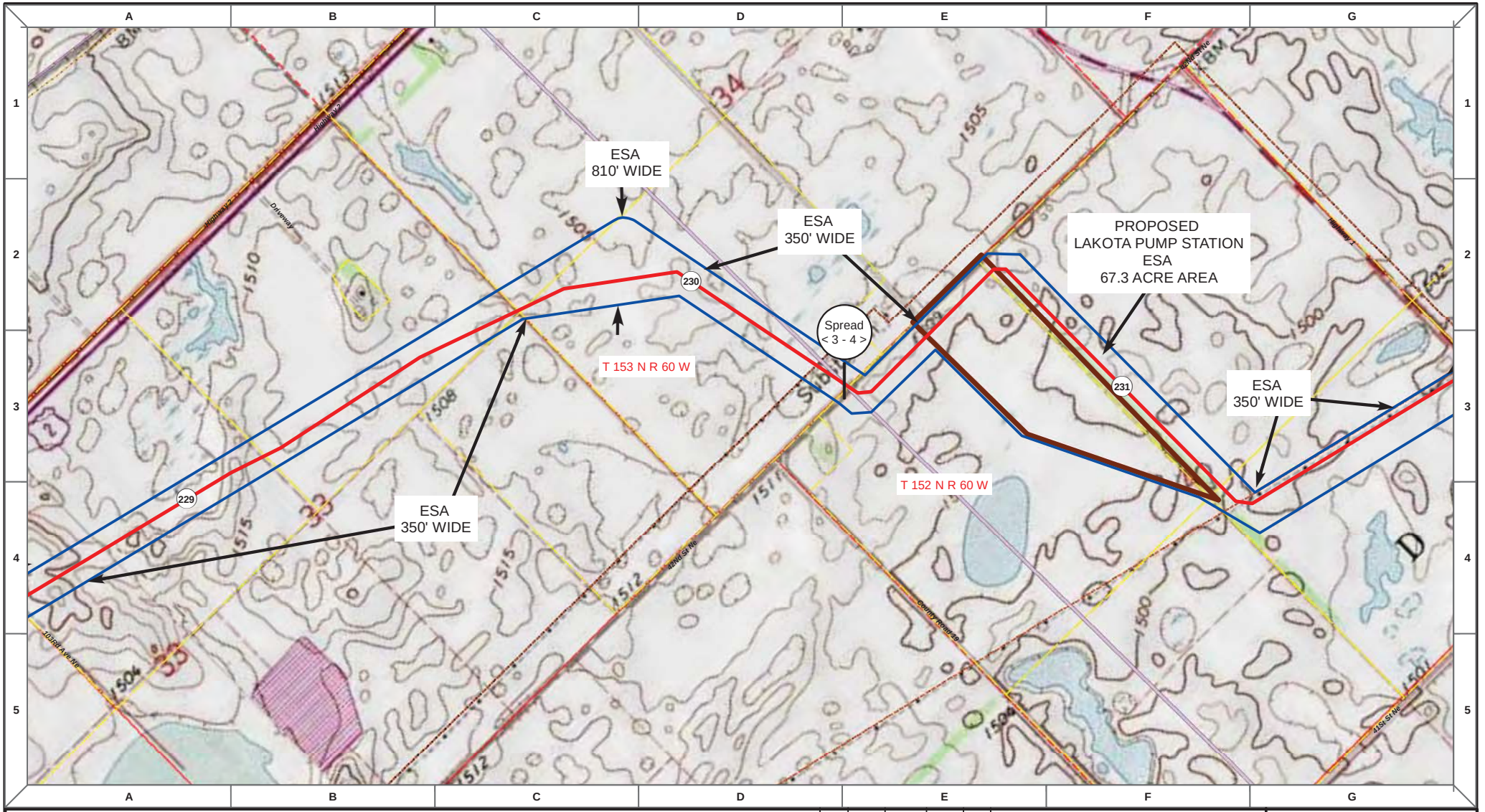
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

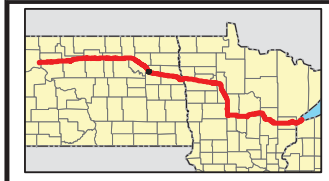
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3-4 Map: 93 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

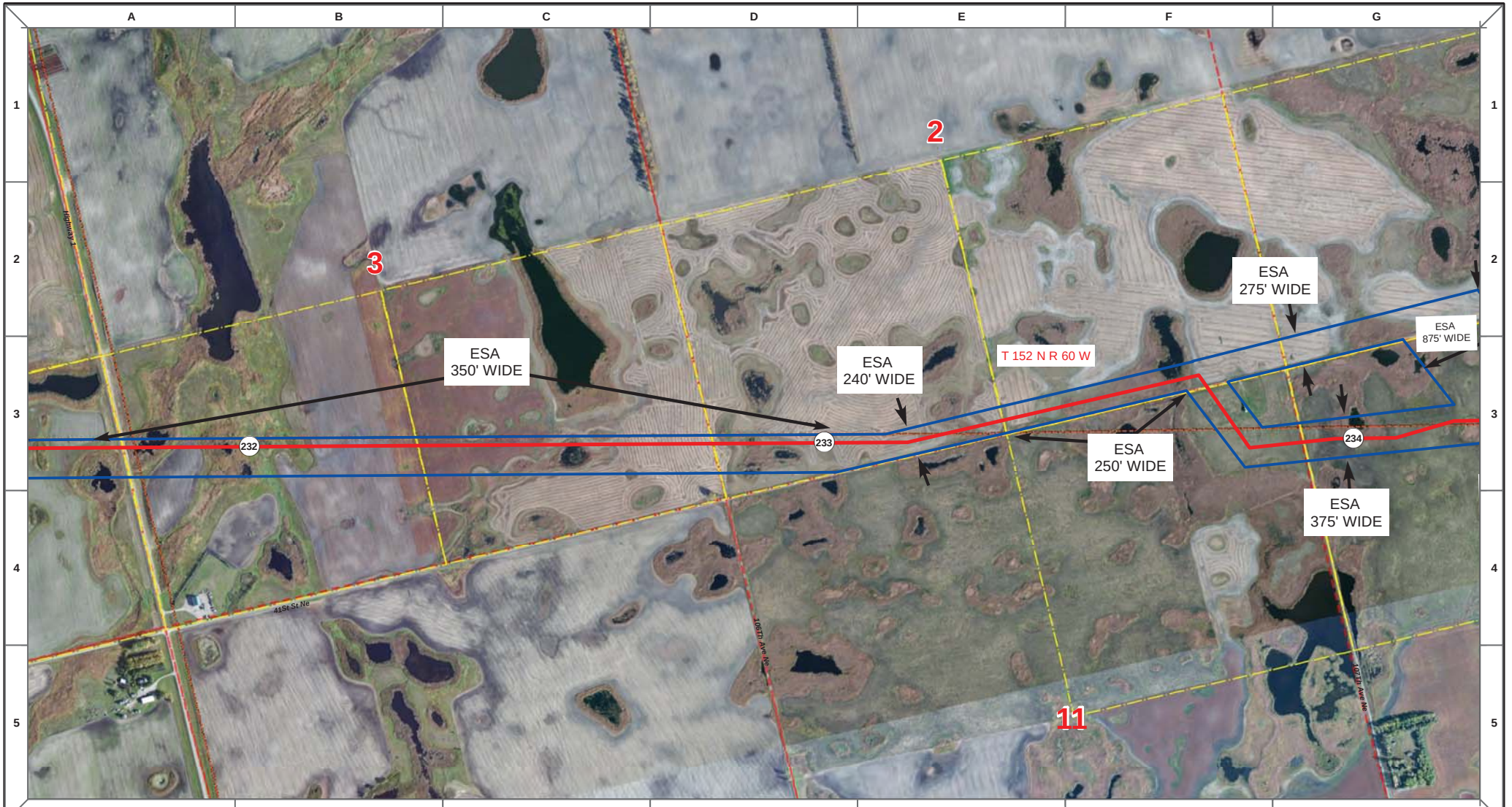
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

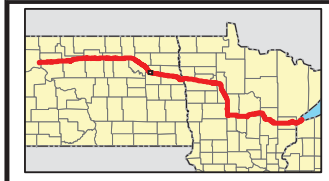
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:3-4 Map: 93 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

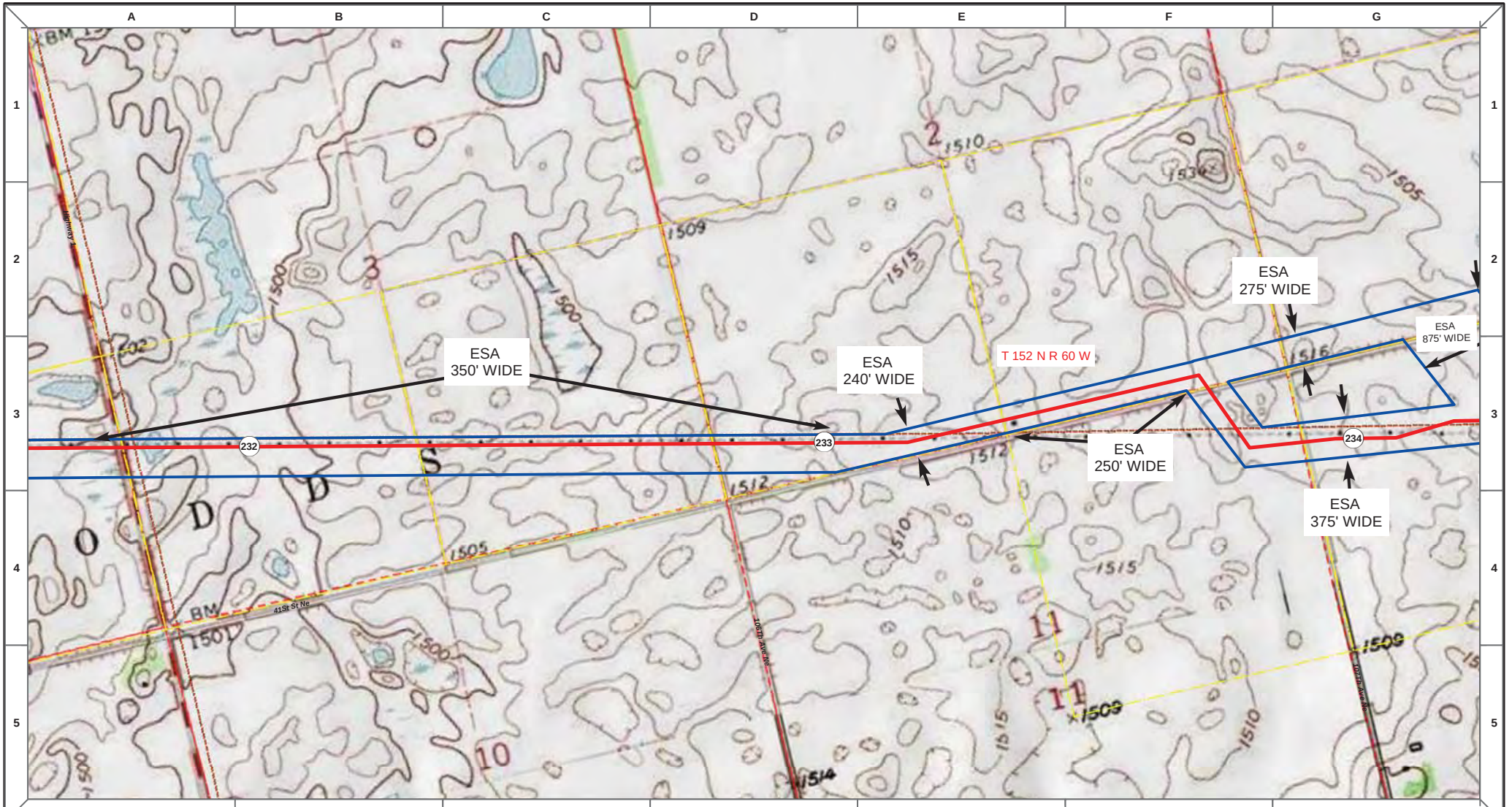
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

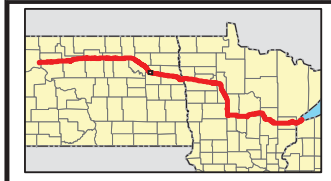
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 94 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

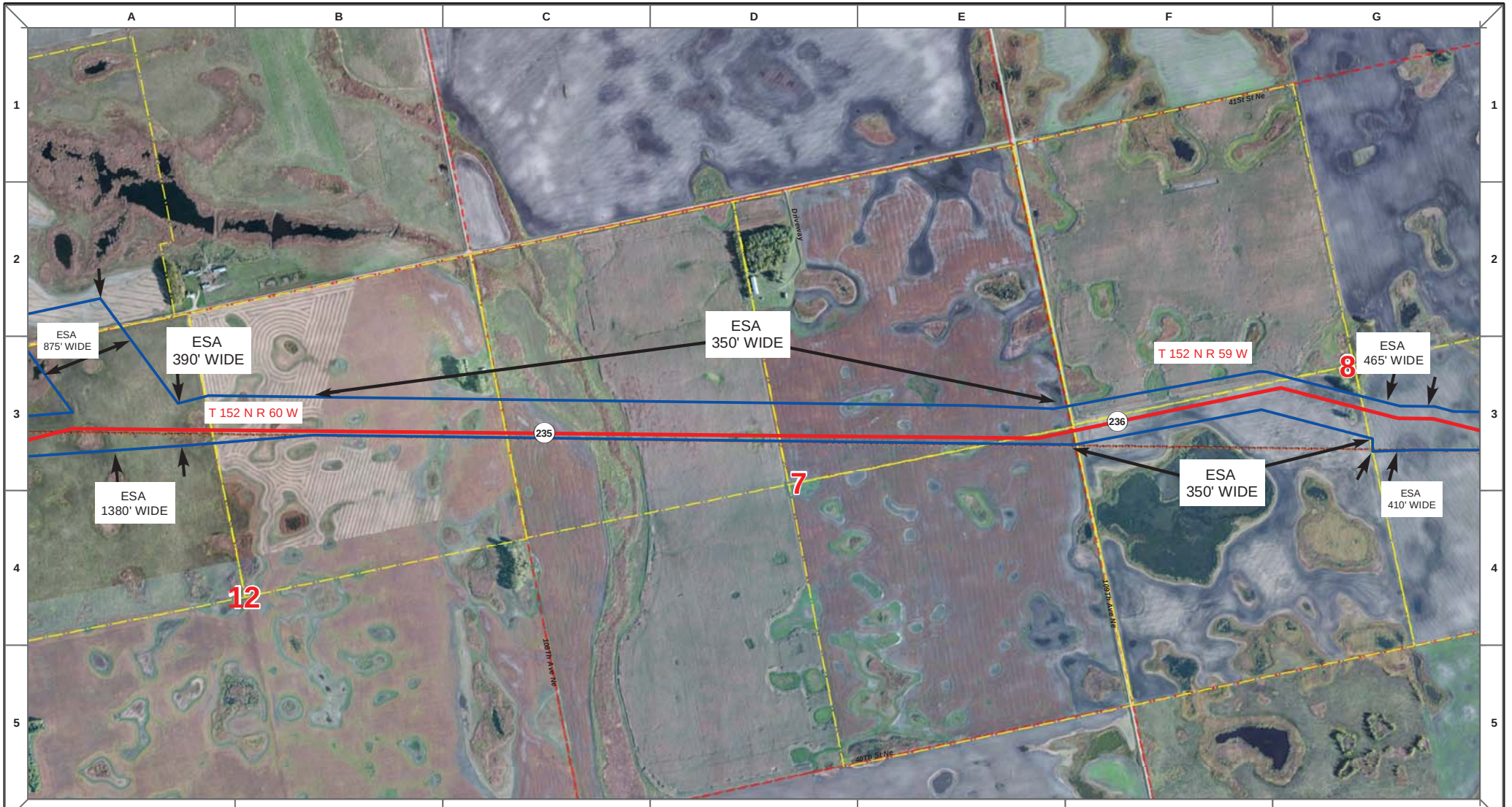
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

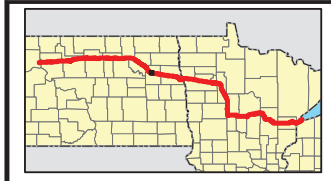
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 94 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

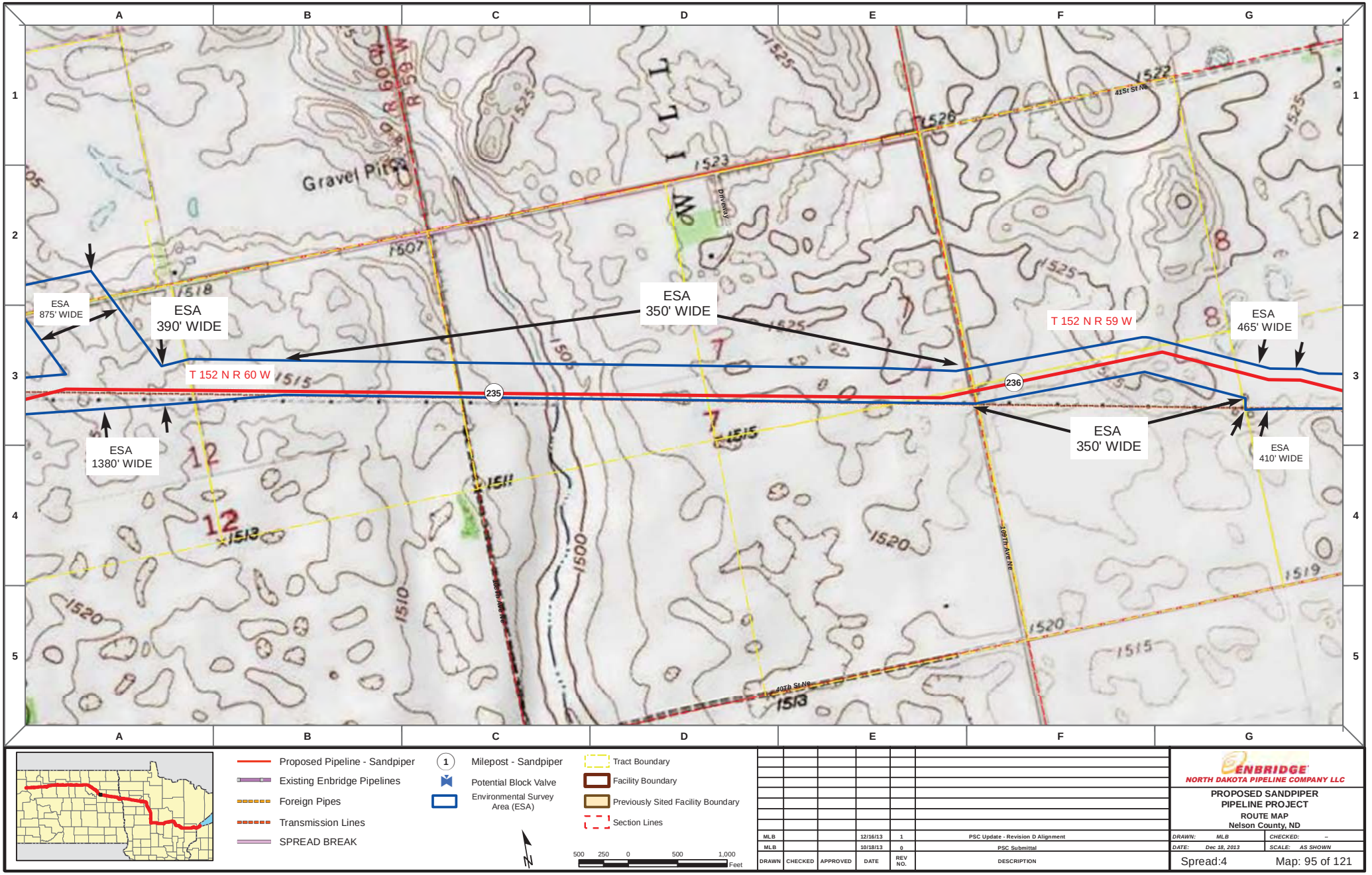
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 95 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

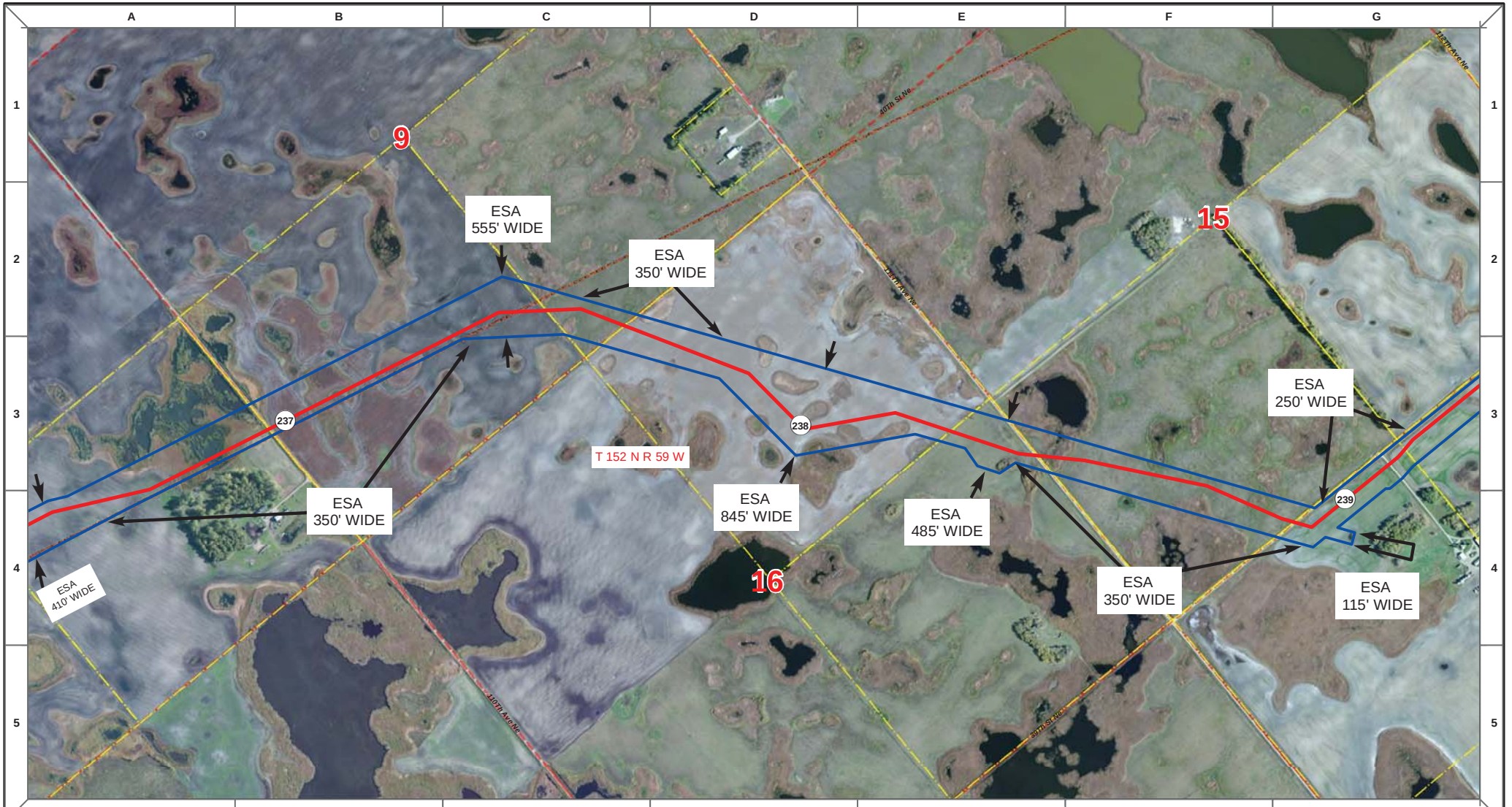
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

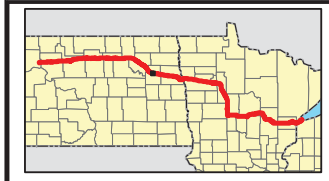
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 95 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

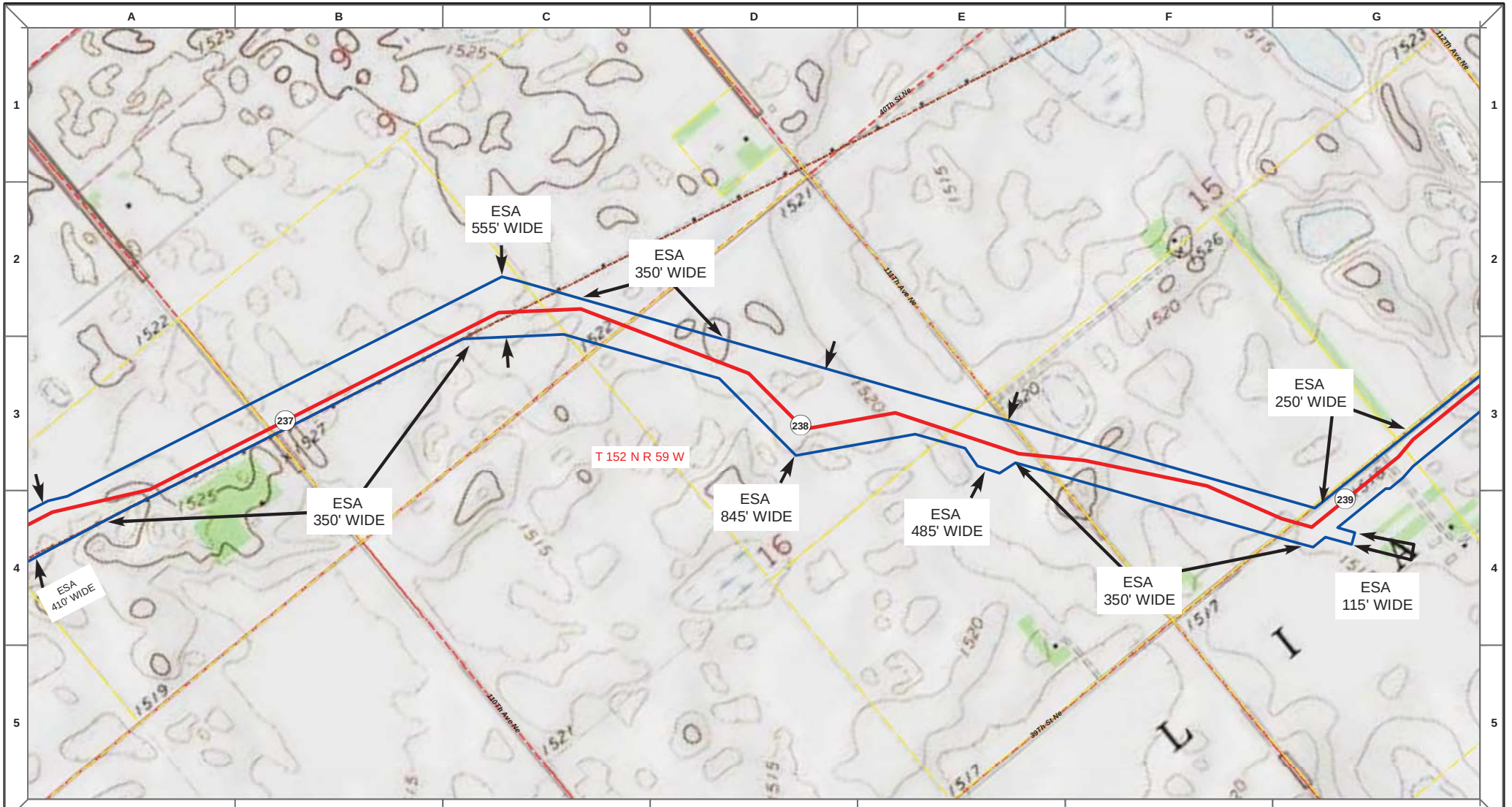
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

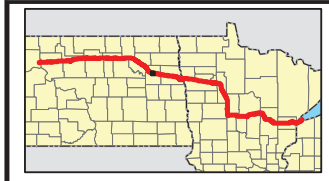
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 96 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

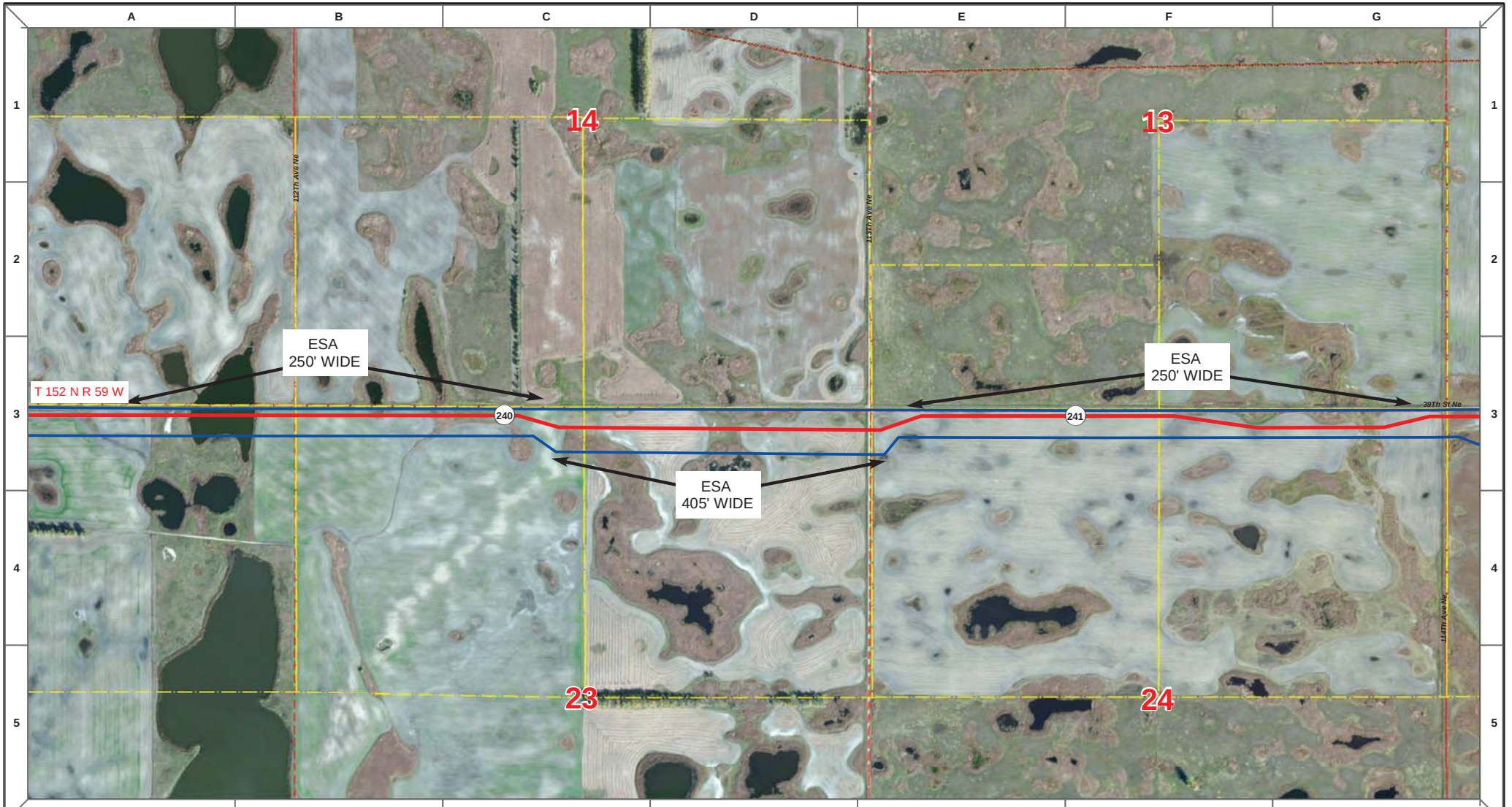
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

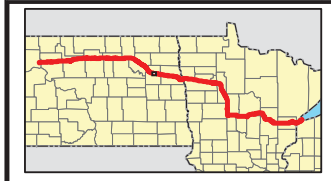
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 96 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

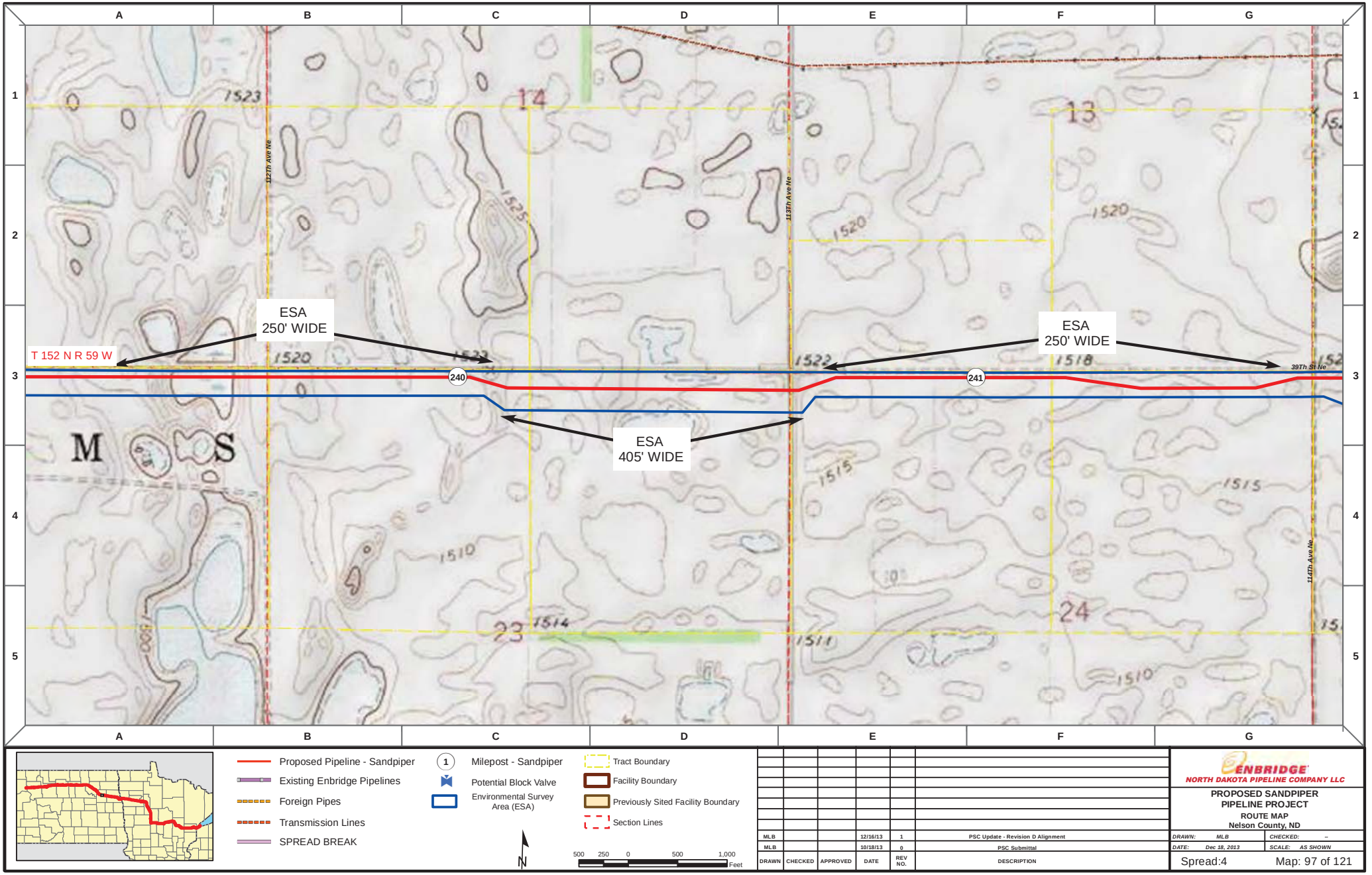
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 97 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

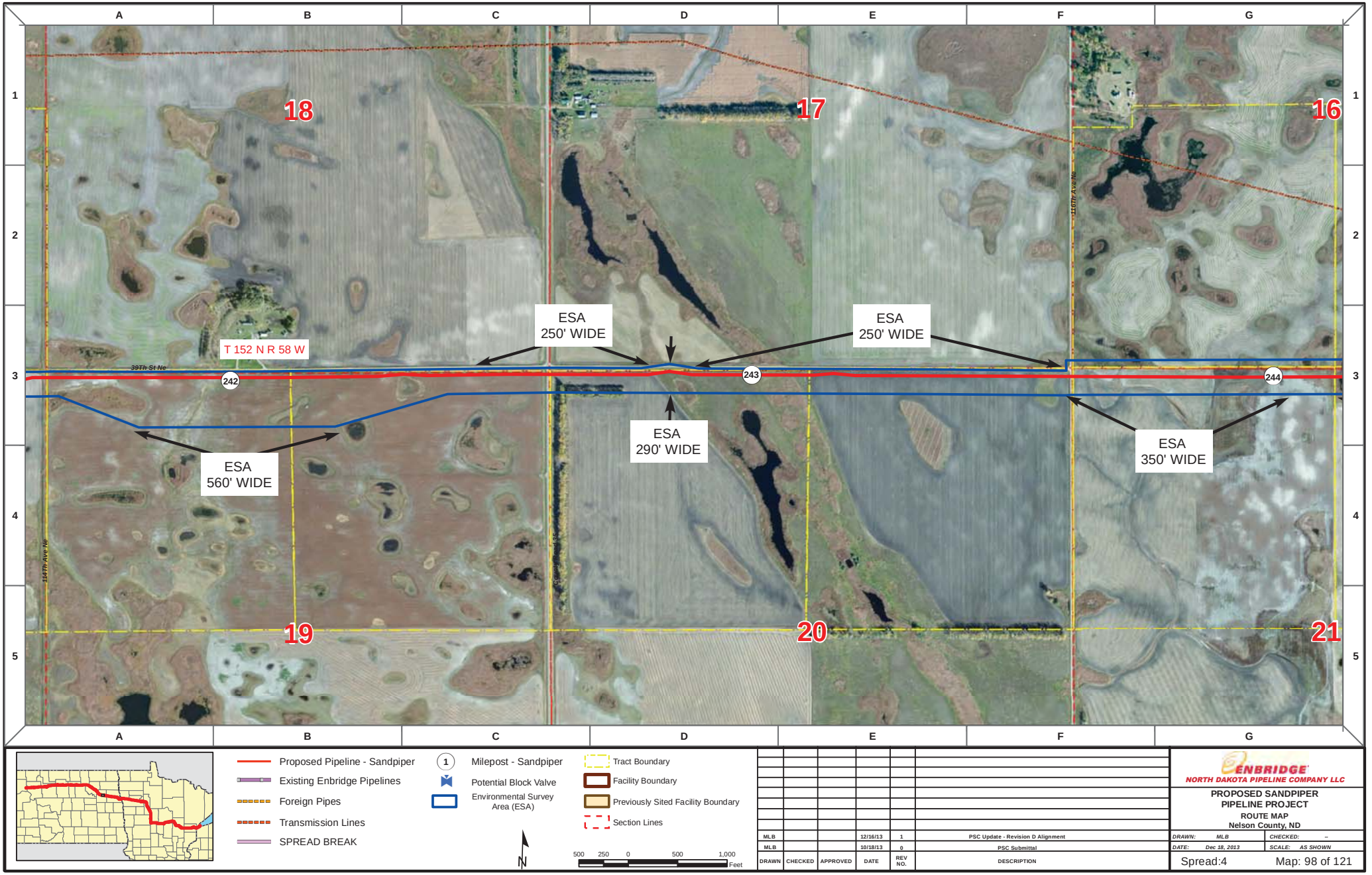
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 97 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

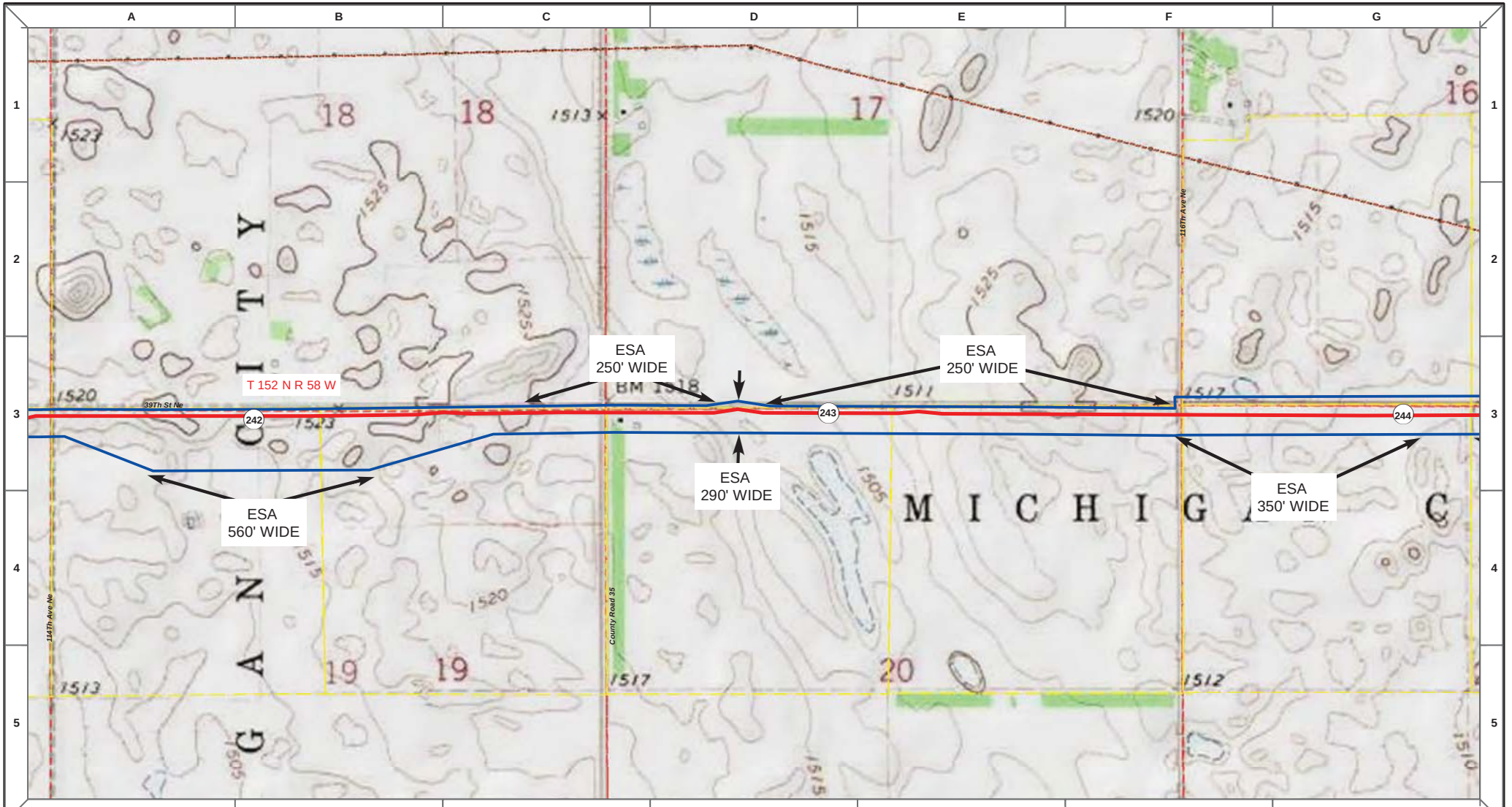
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

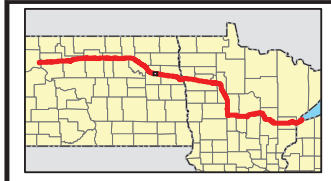
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 98 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

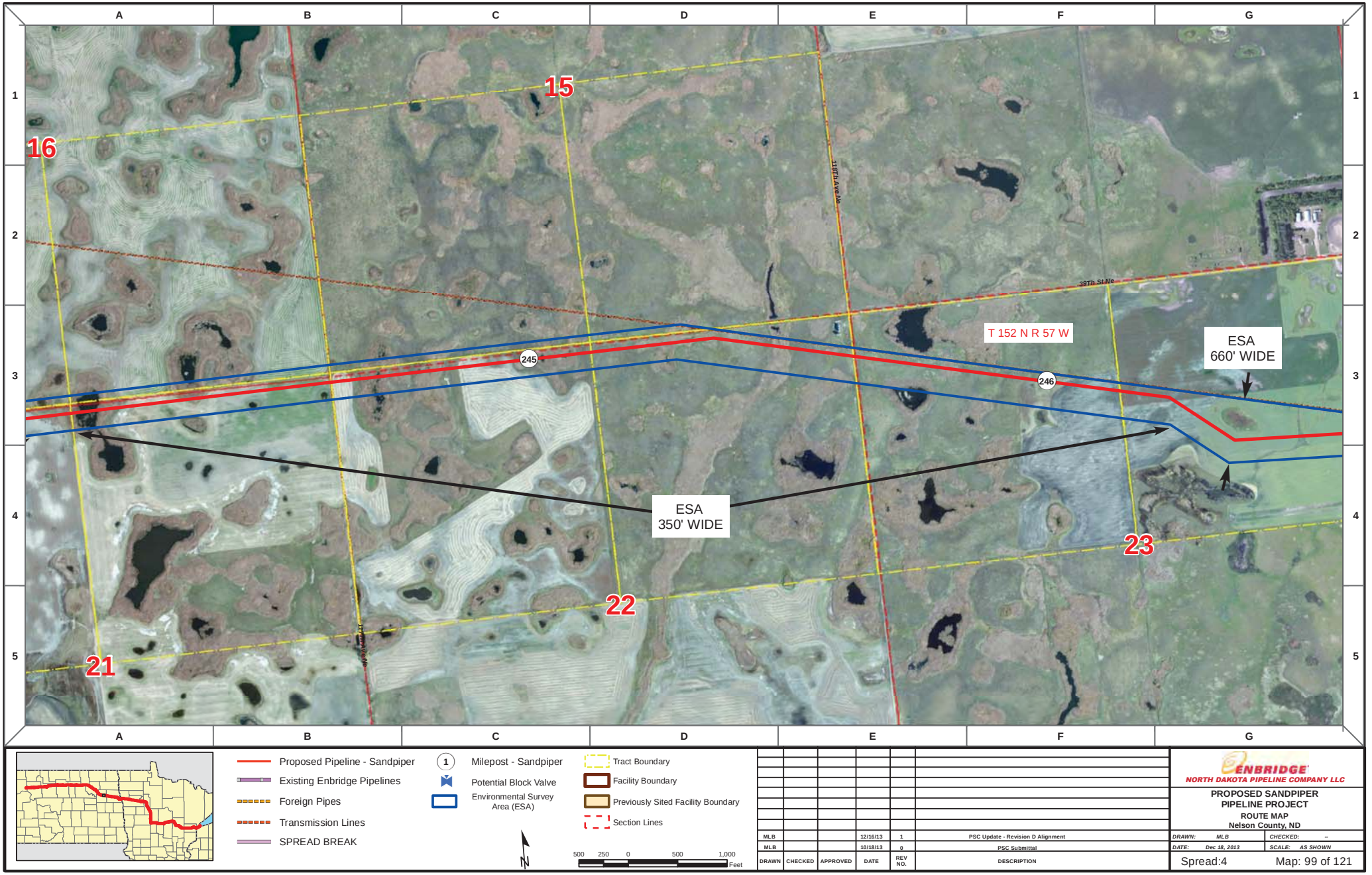
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 98 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

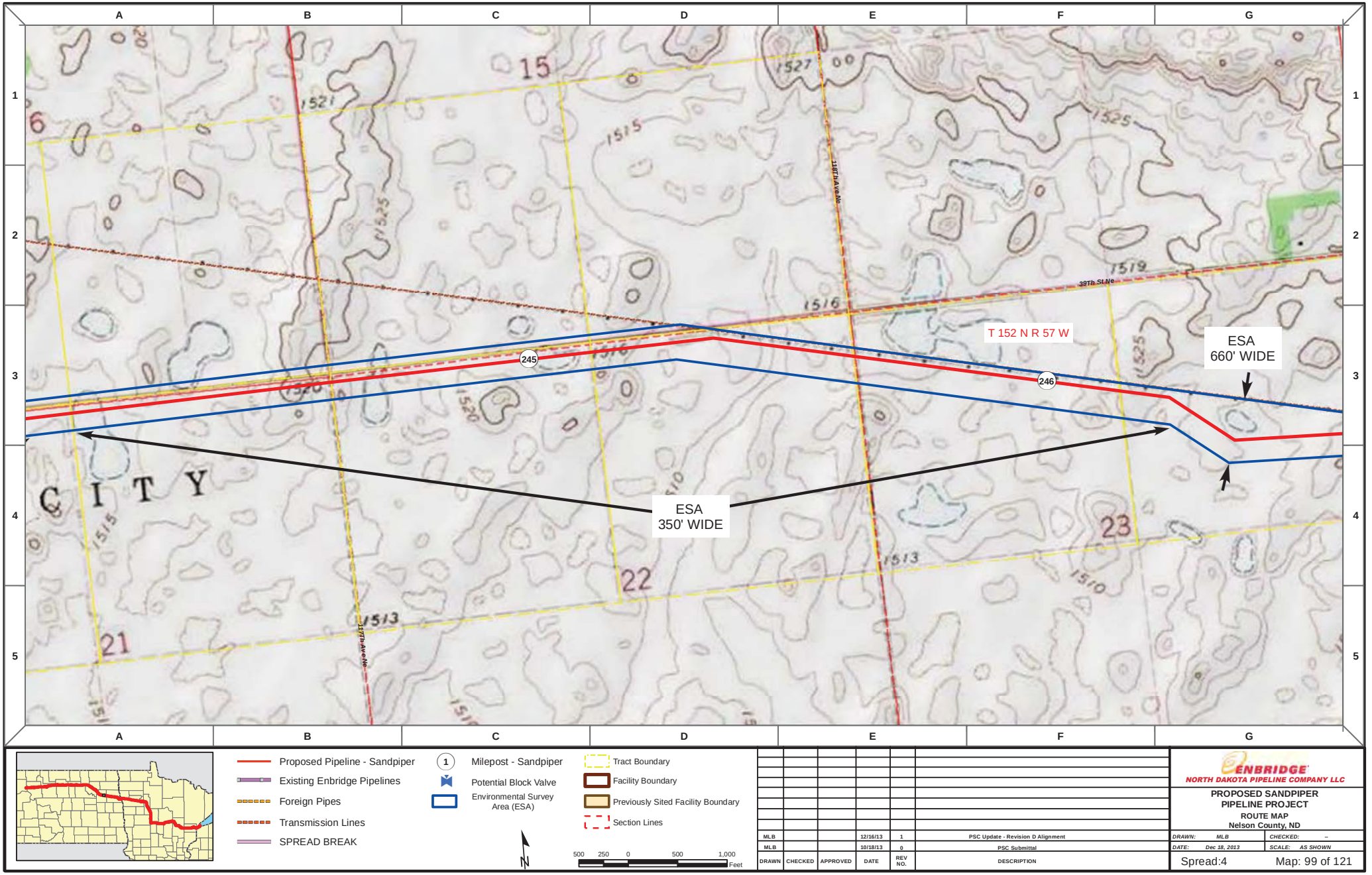
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 99 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

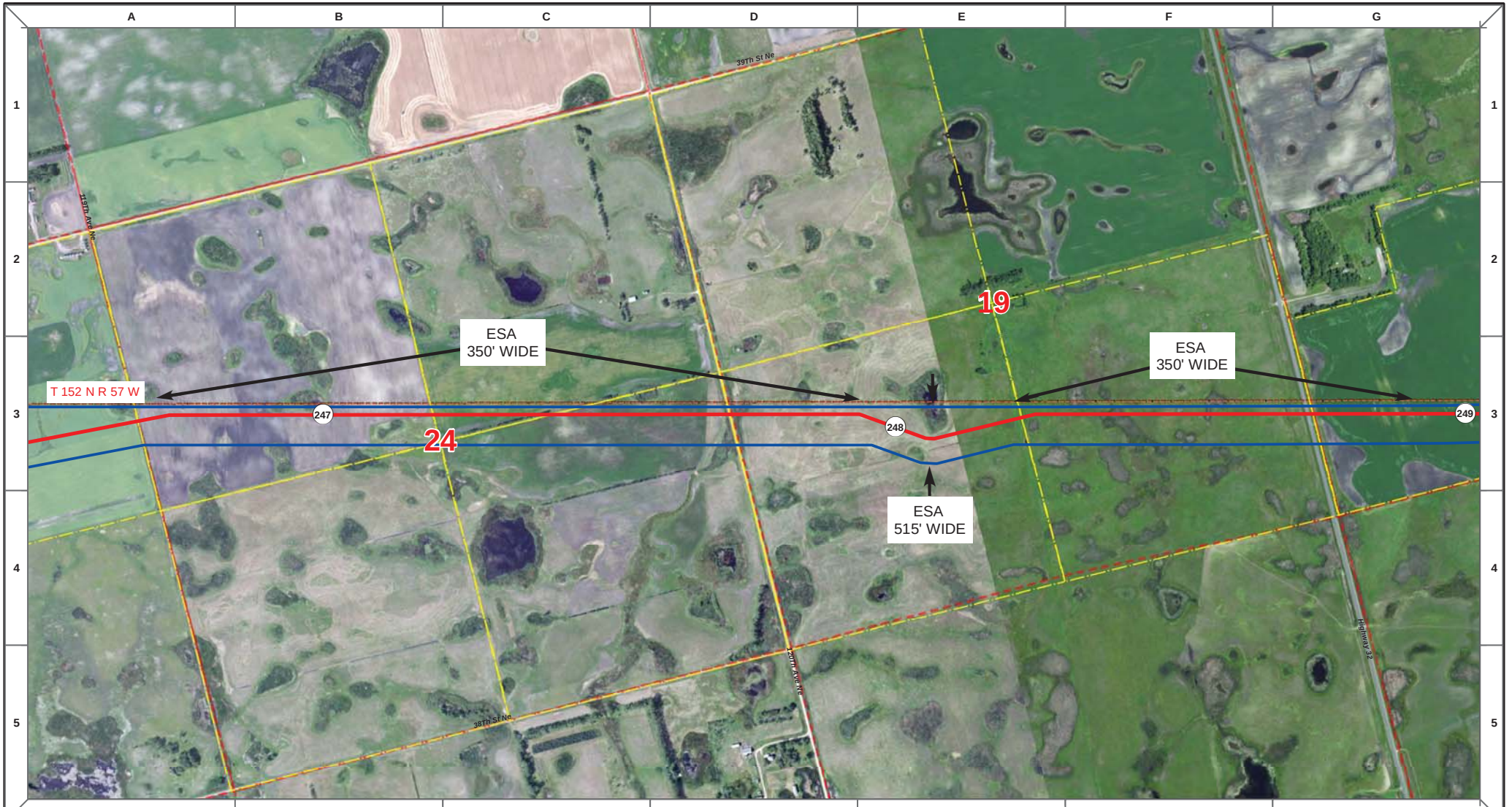
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

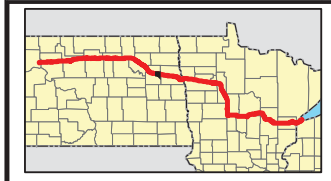
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 99 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

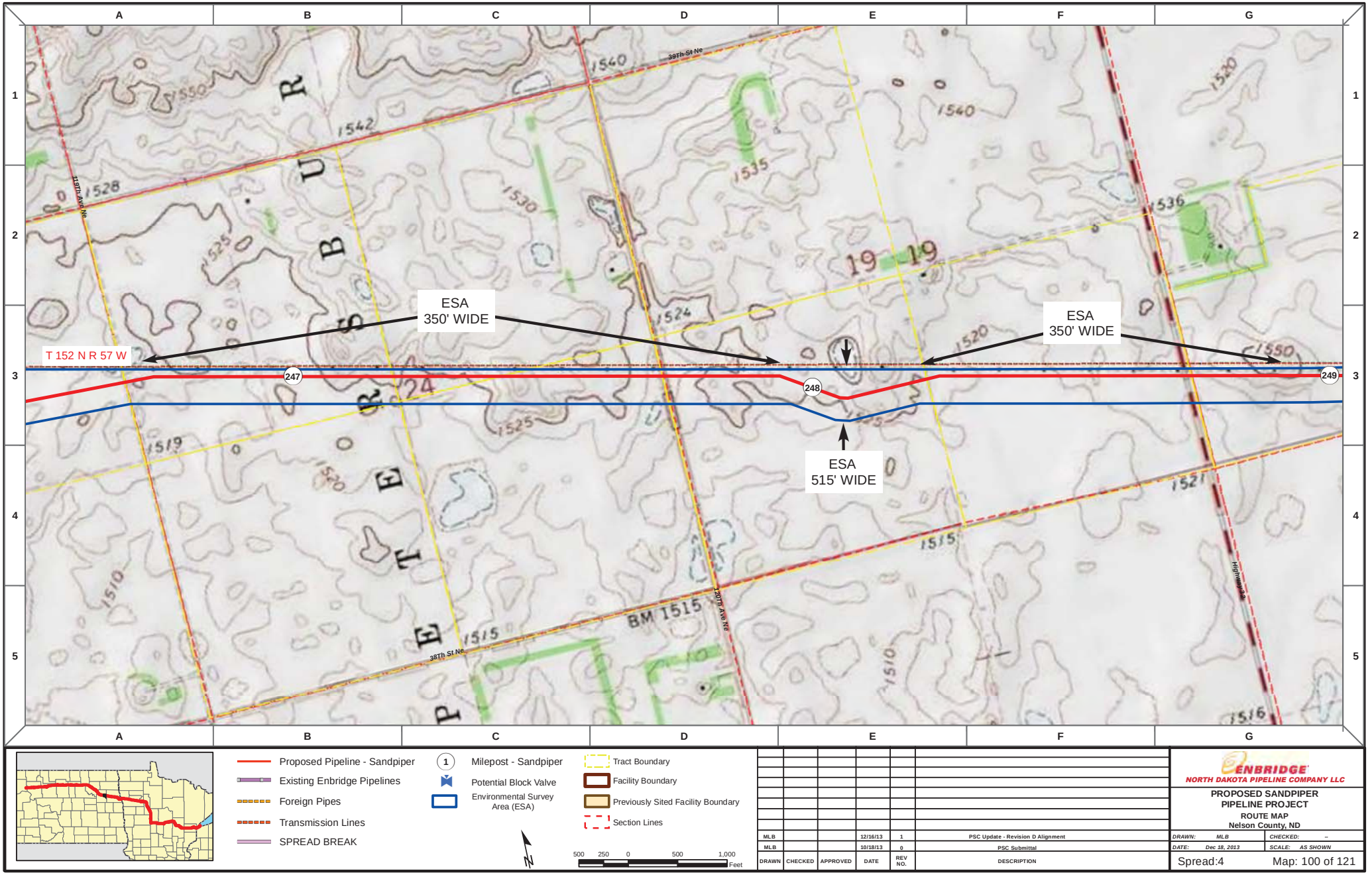
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 100 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

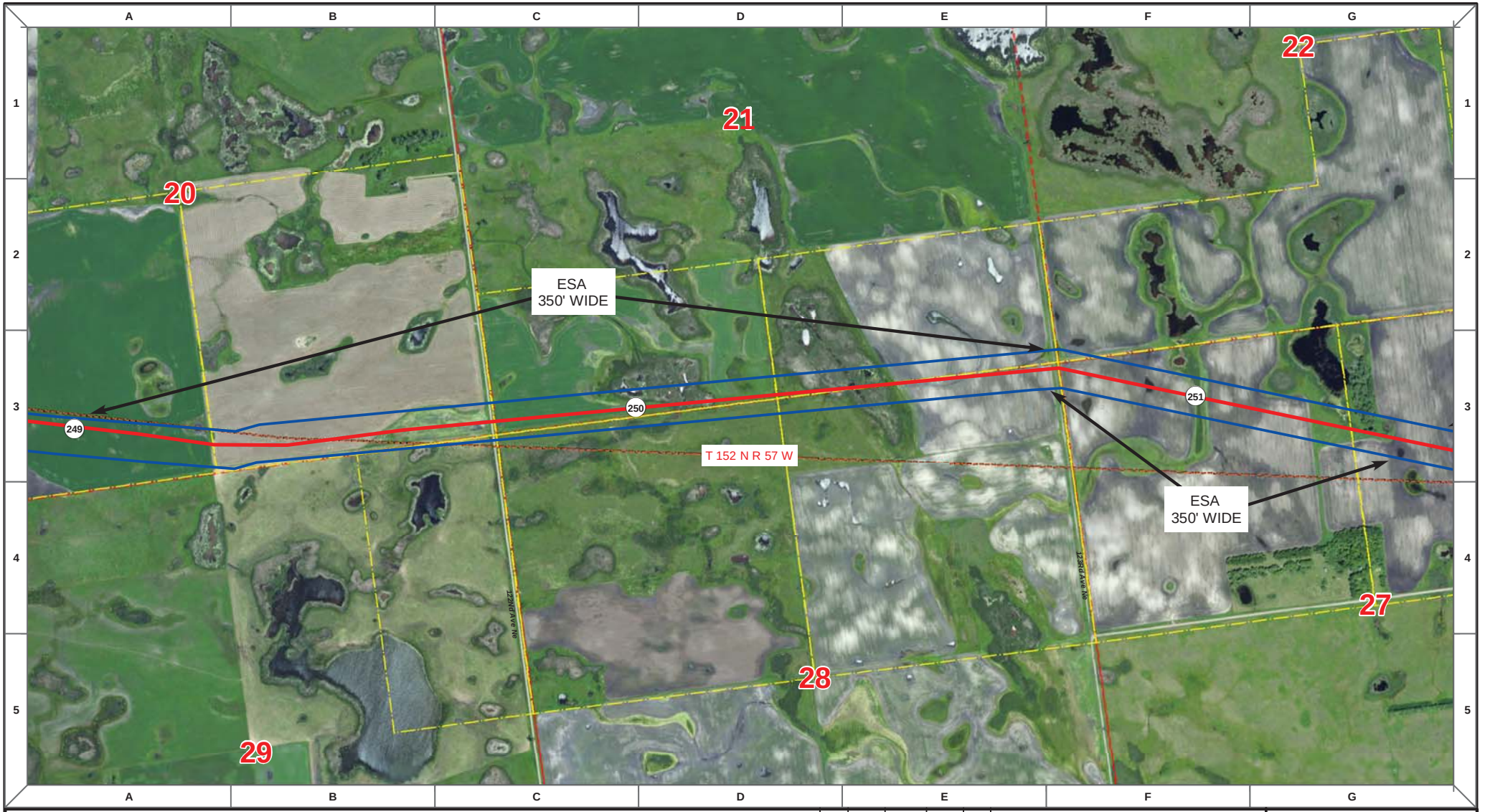
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

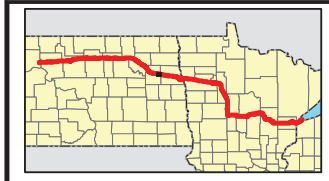
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 100 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

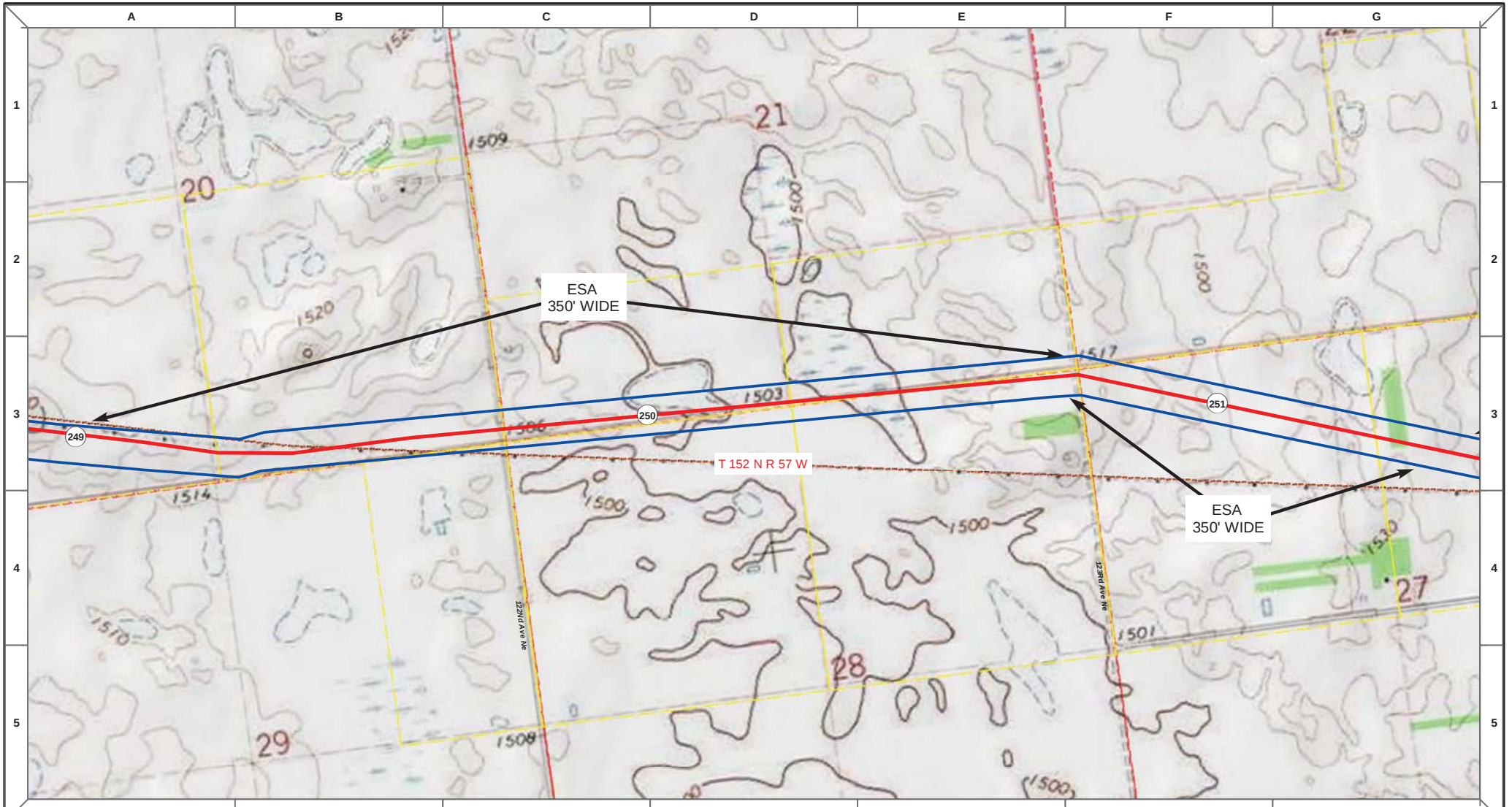
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

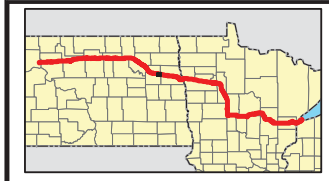
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 101 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

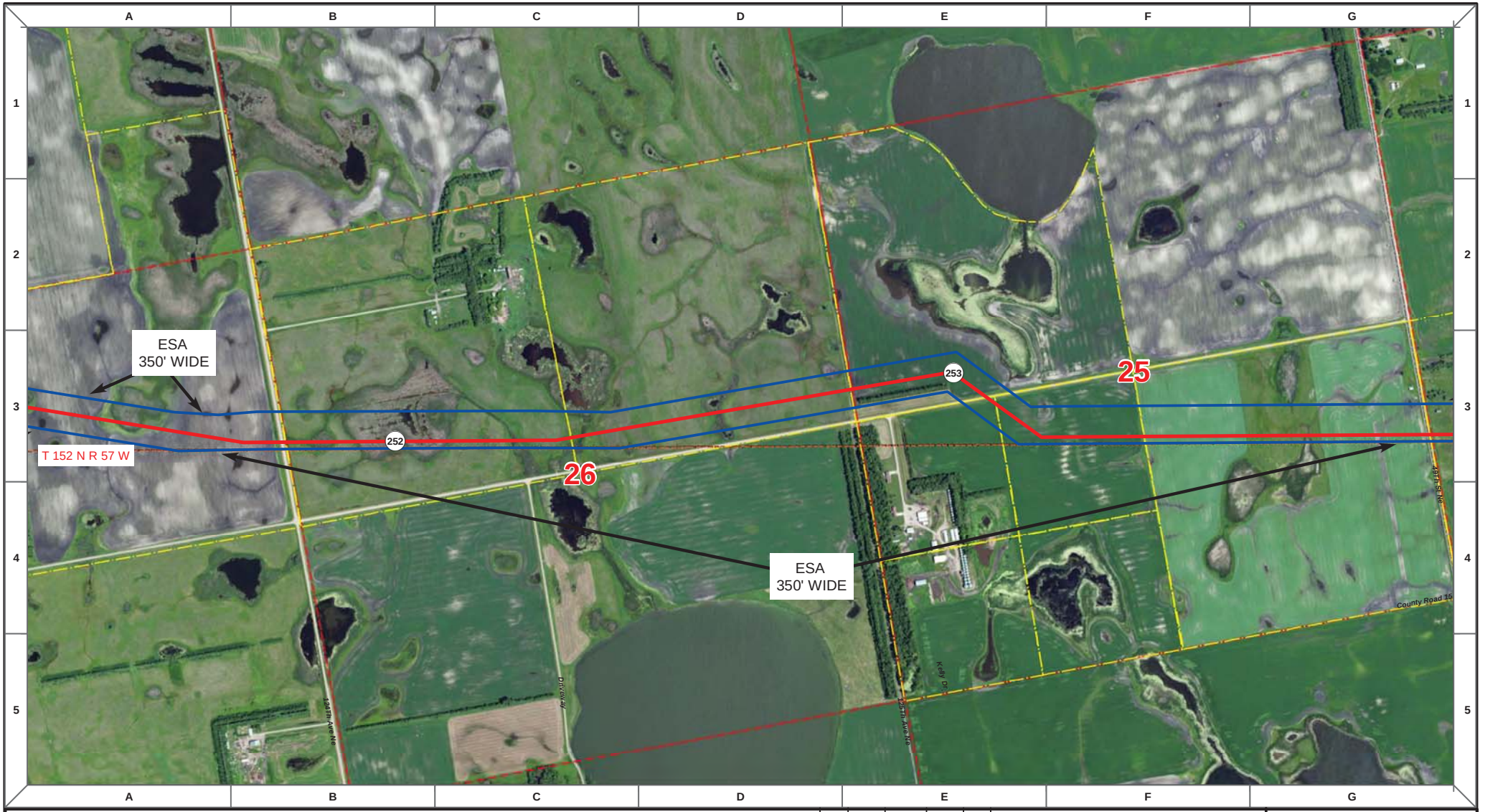
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

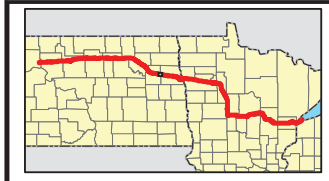
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 101 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

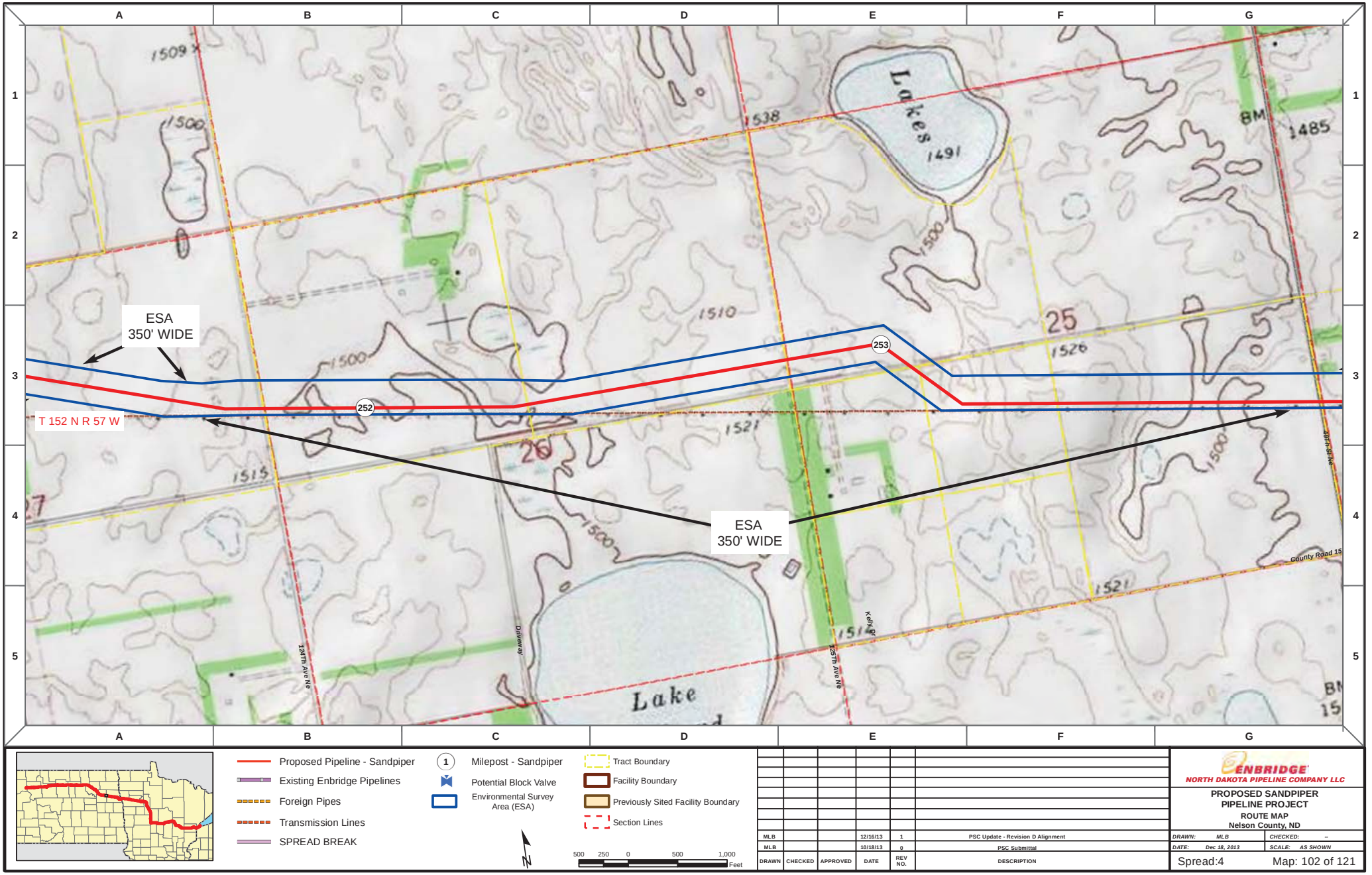
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER
PIPELINE PROJECT
ROUTE MAP
Nelson County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 102 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

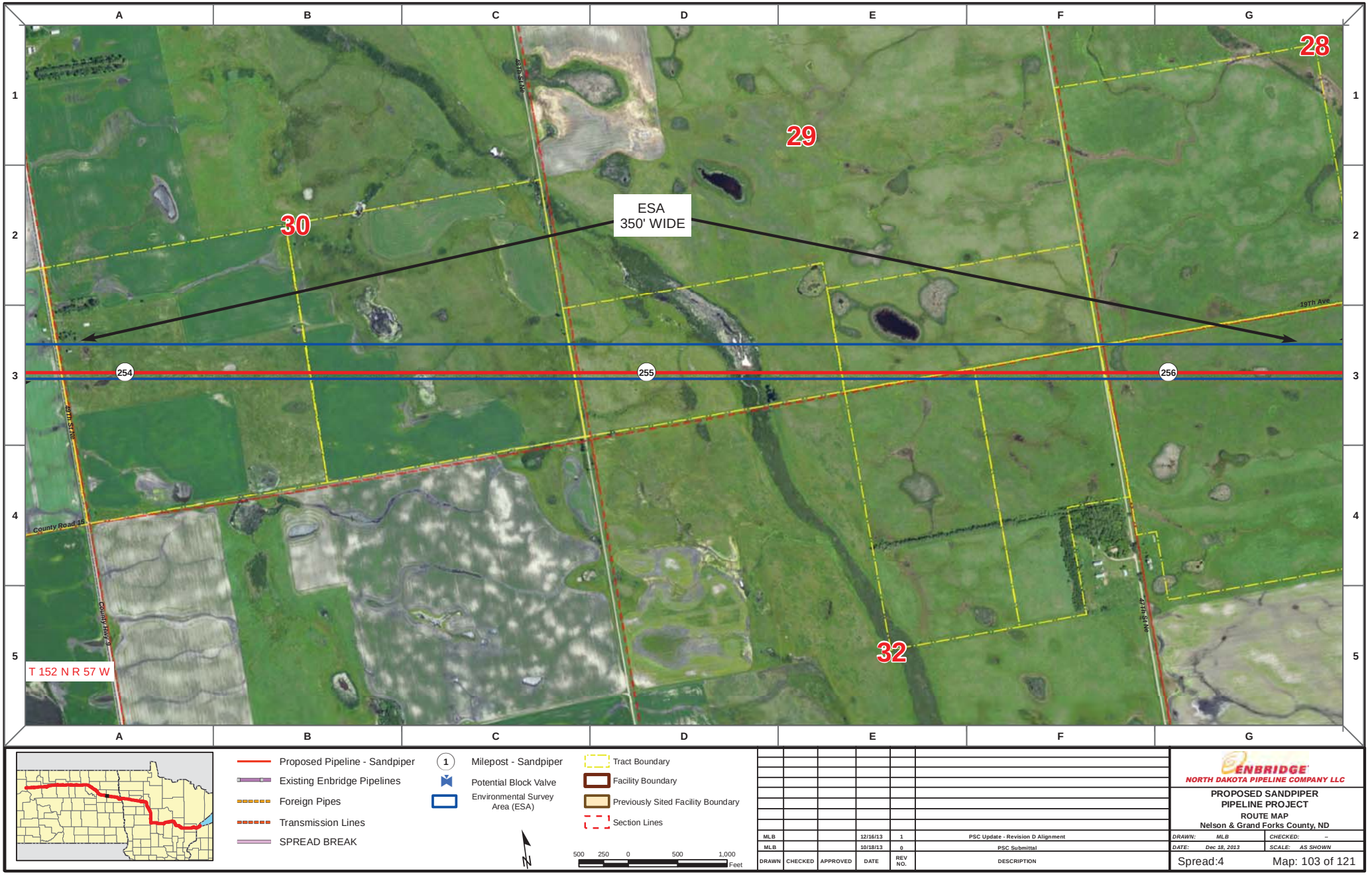
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP
Nelson County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 102 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

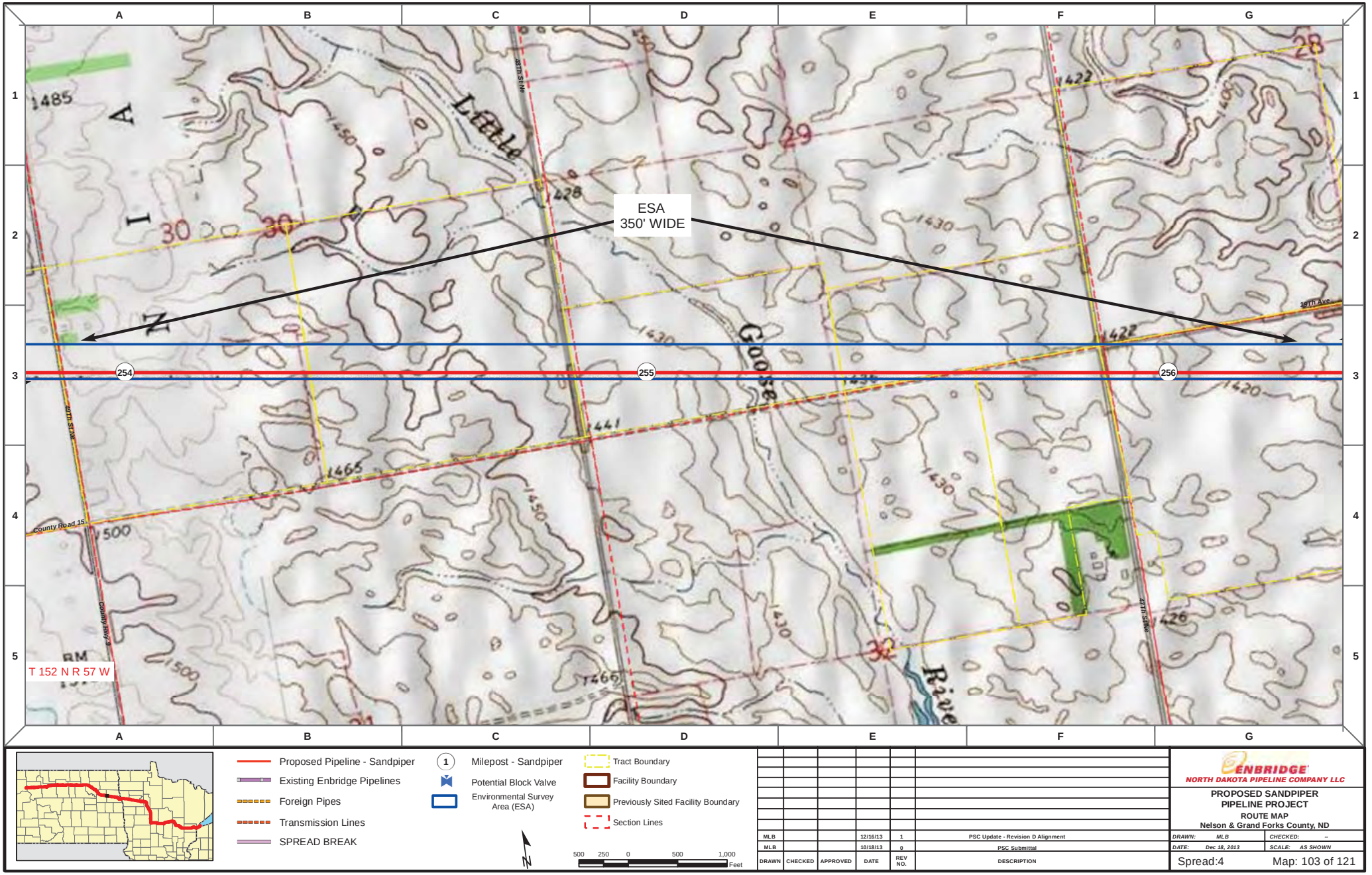
PROPOSED SANDPIPER PIPELINE PROJECT

ROUTE MAP

Nelson & Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 103 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

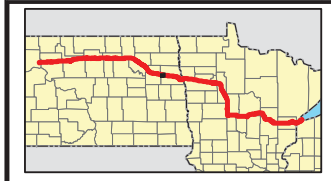
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Nelson & Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 103 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

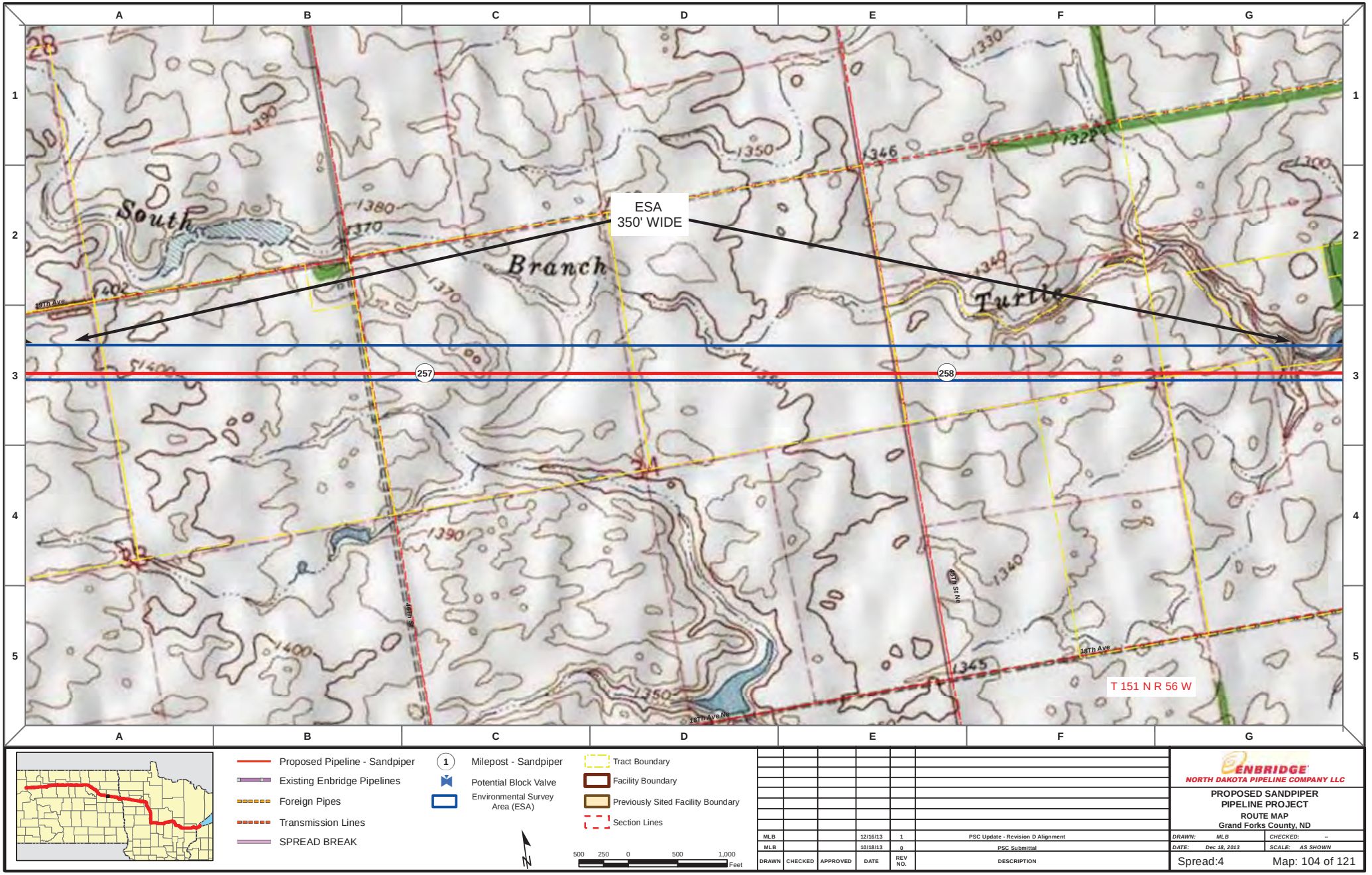
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 104 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

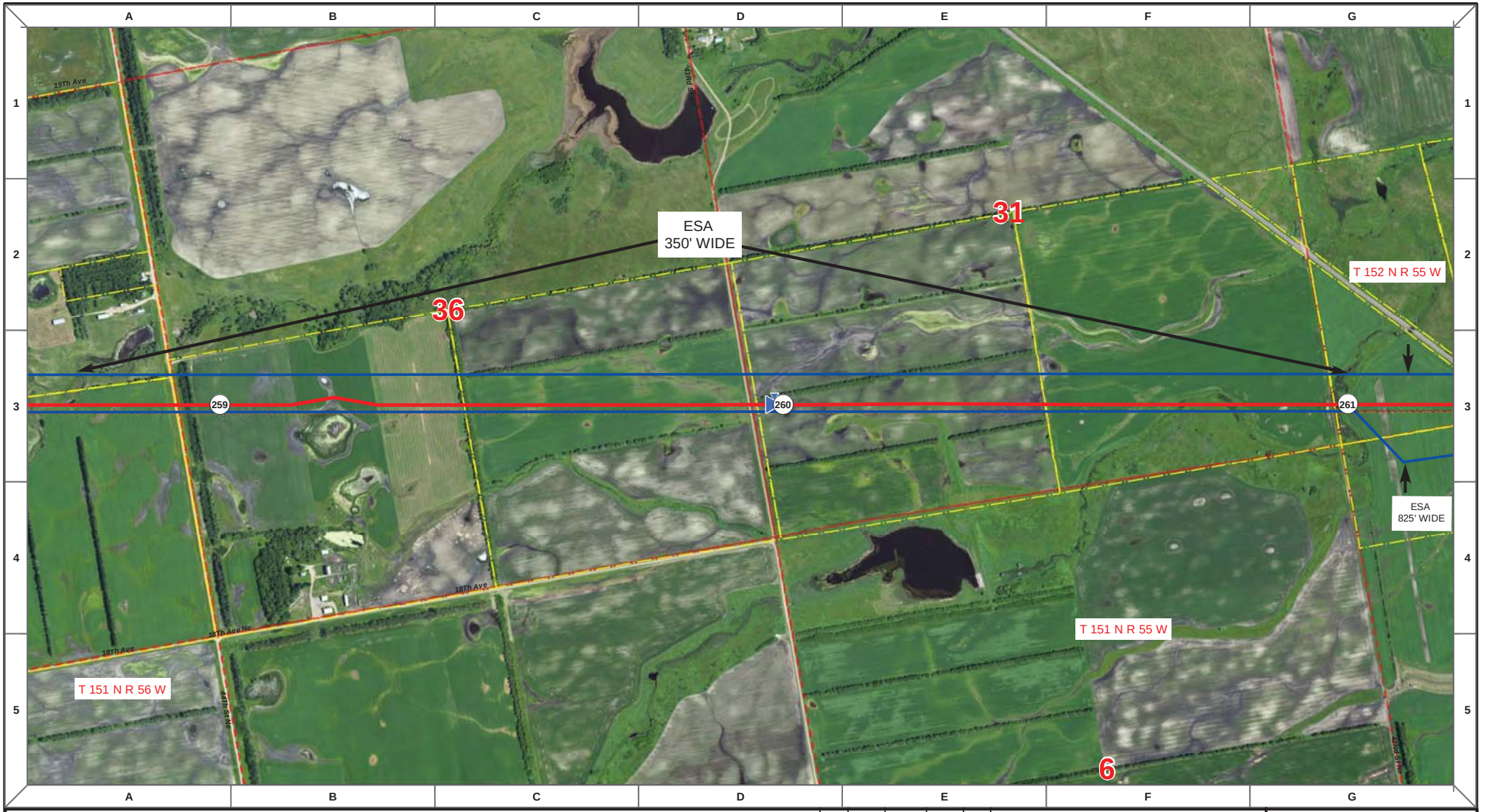
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

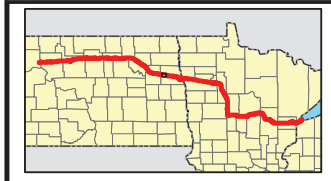
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 104 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

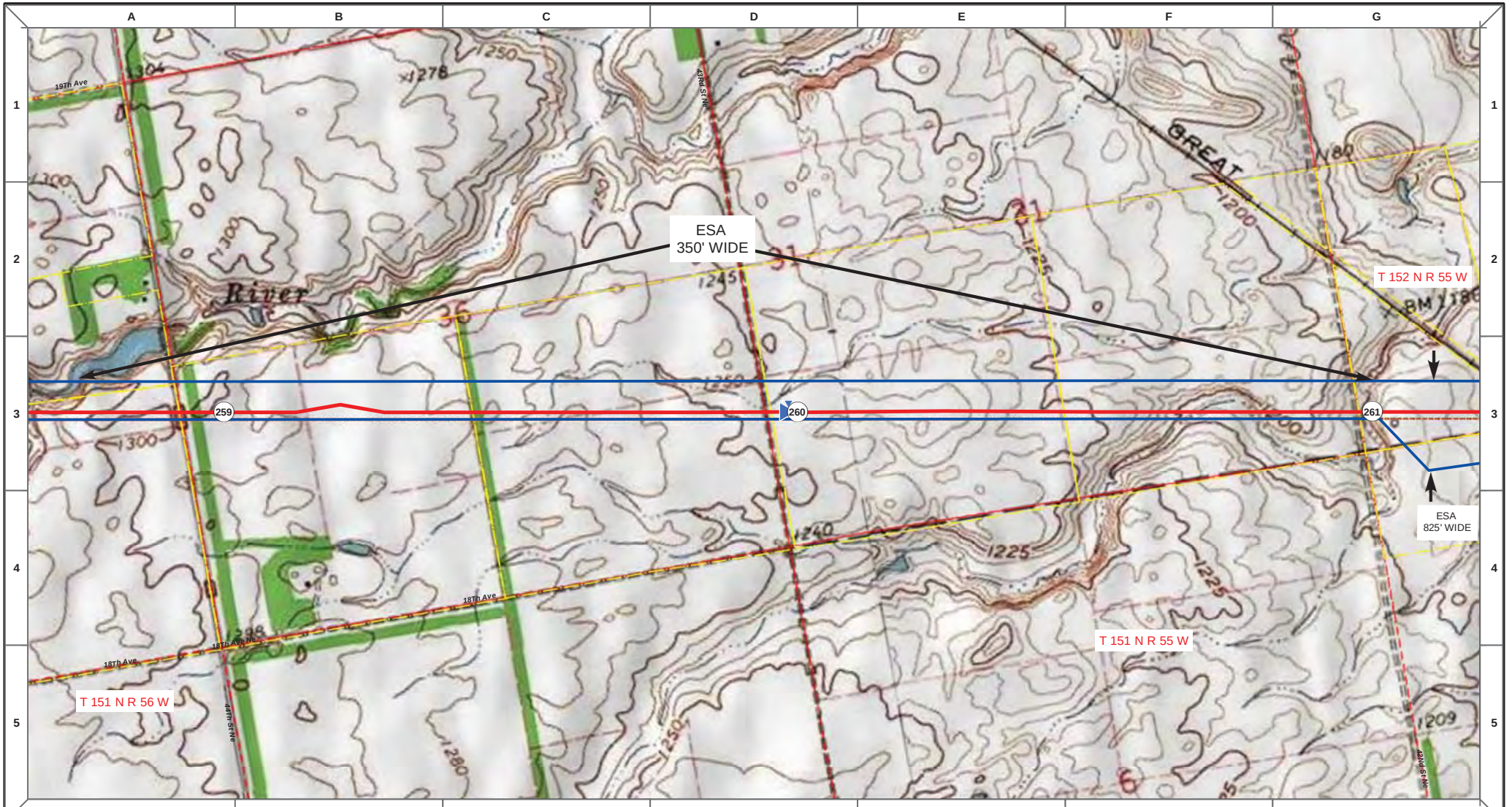
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

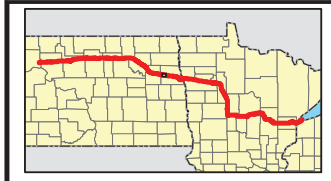
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 105 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 105 of 121

Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

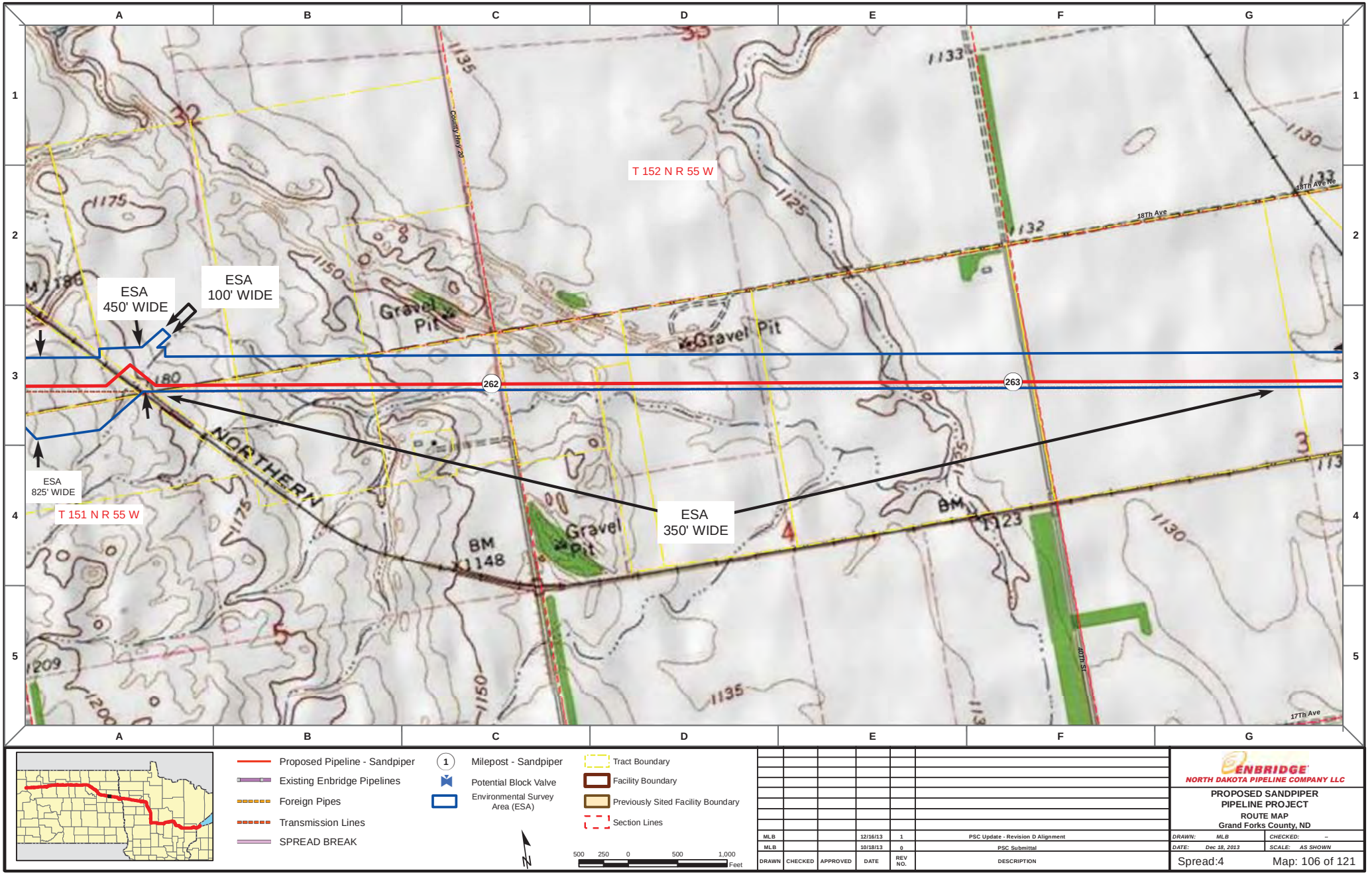
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 106 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

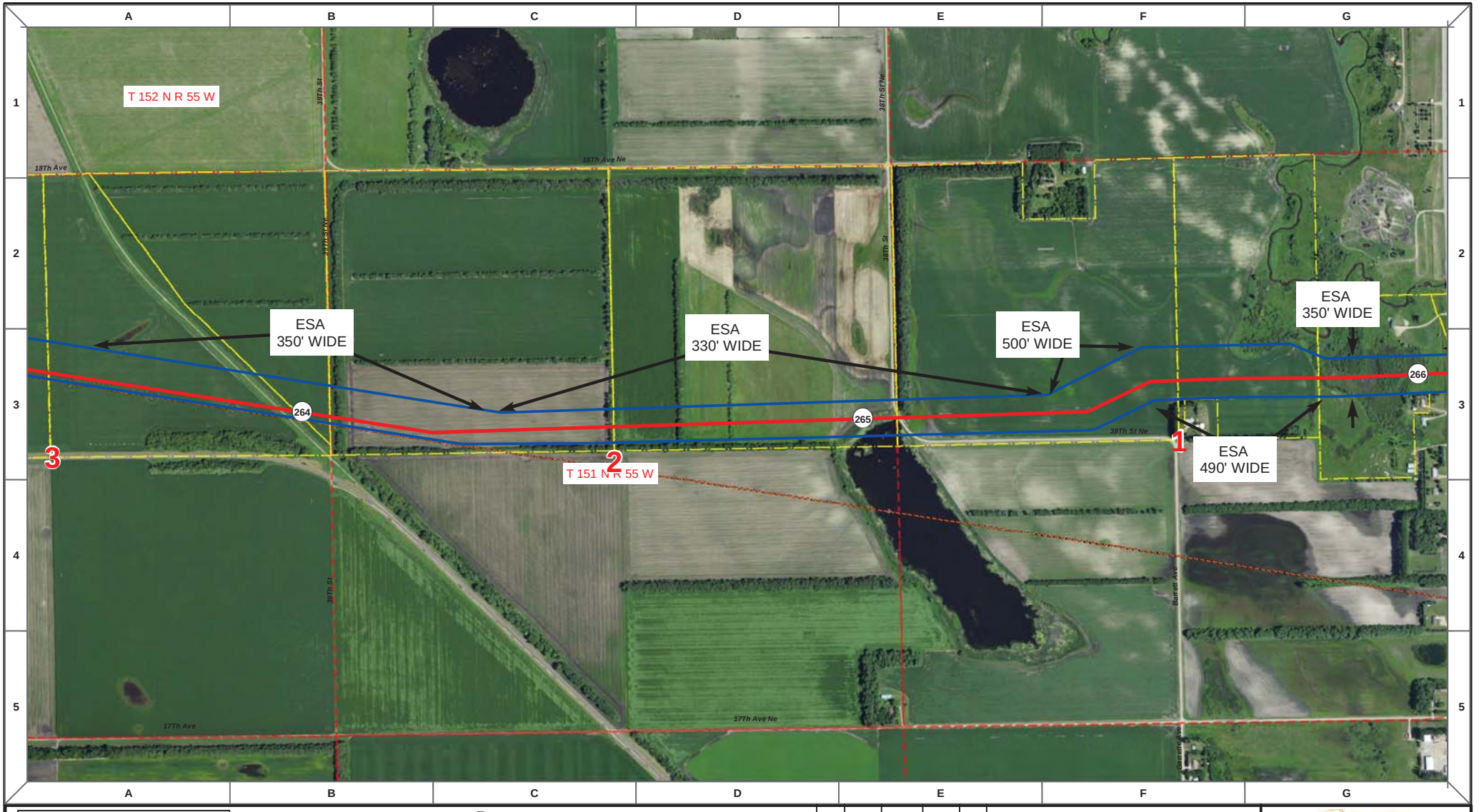
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

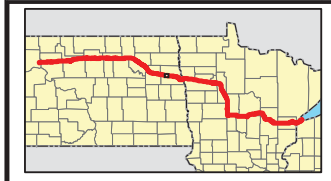
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 106 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

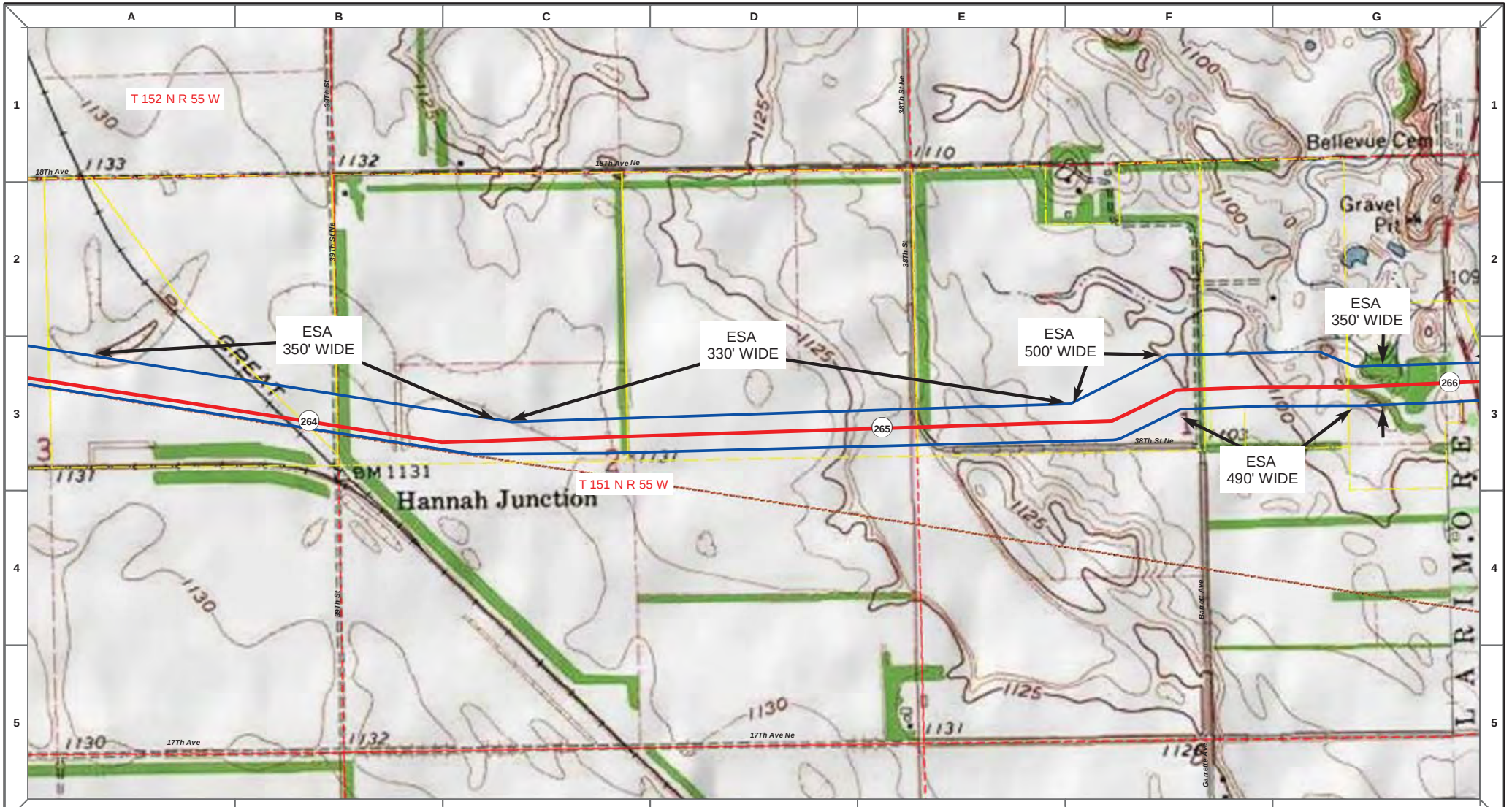
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

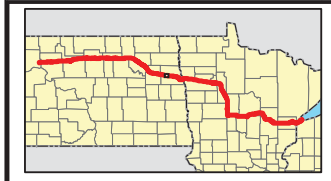
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 107 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 107 of 121

Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

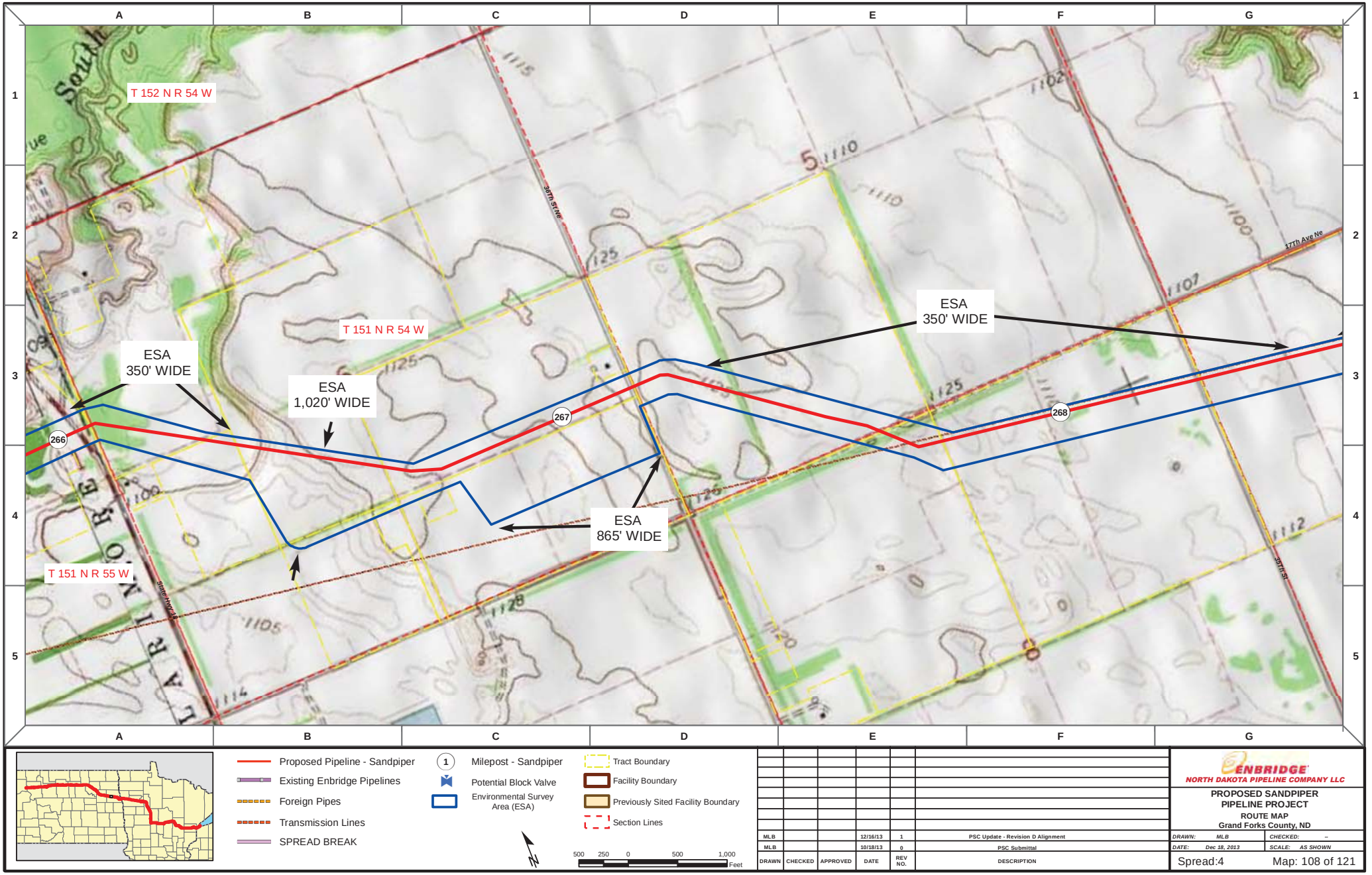
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 108 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

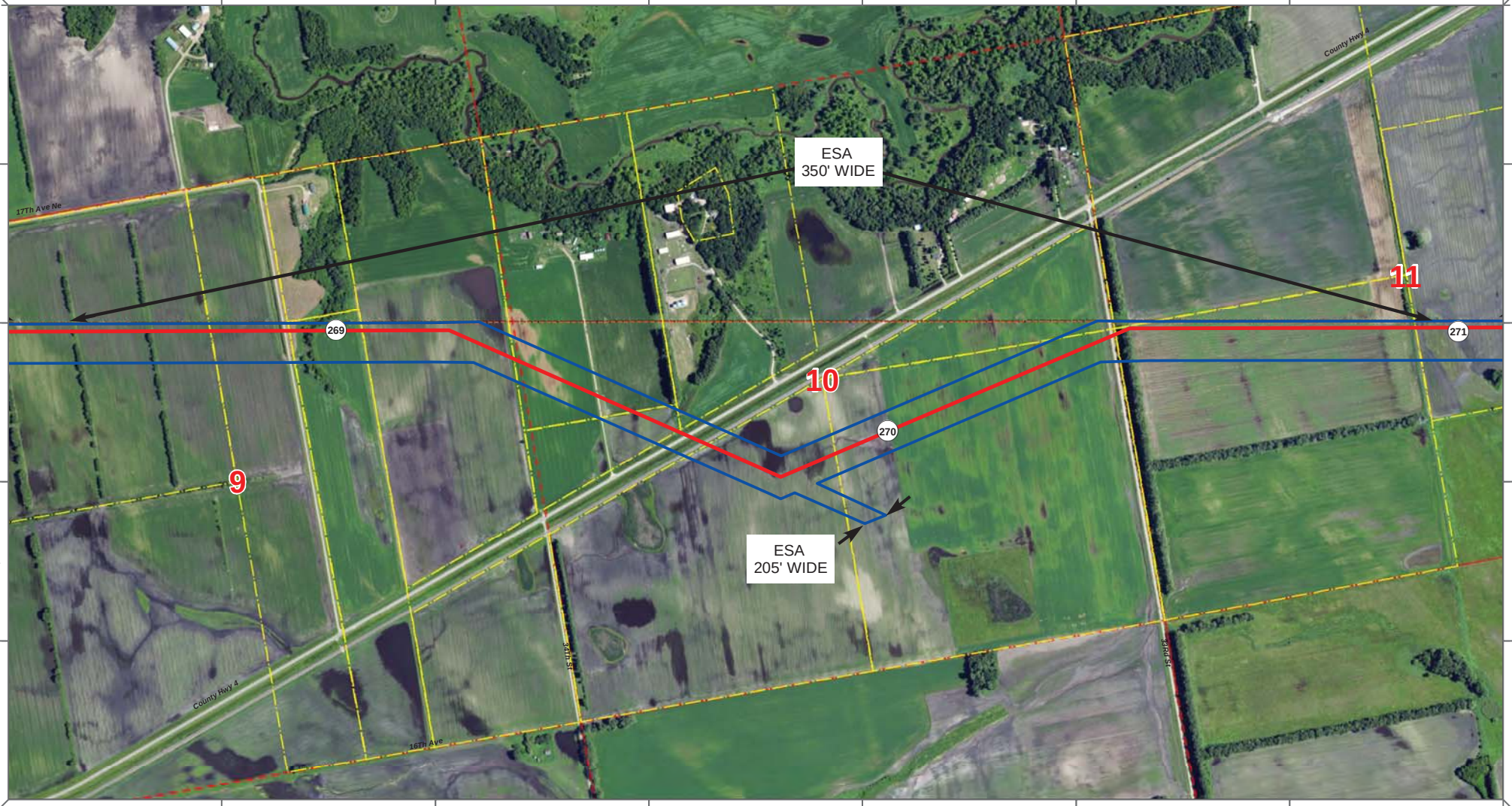
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 108 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

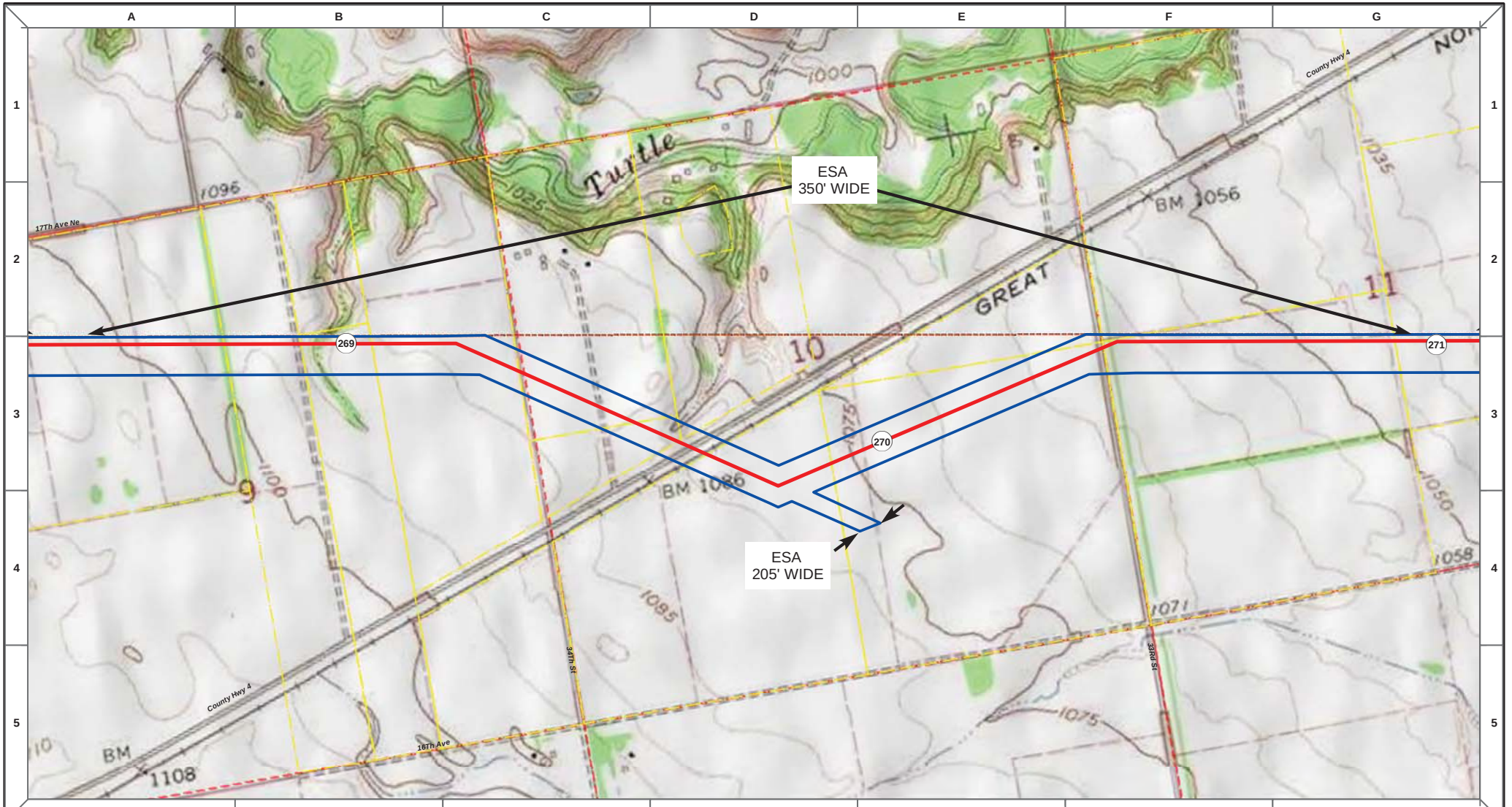
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

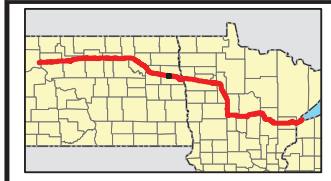
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 109 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

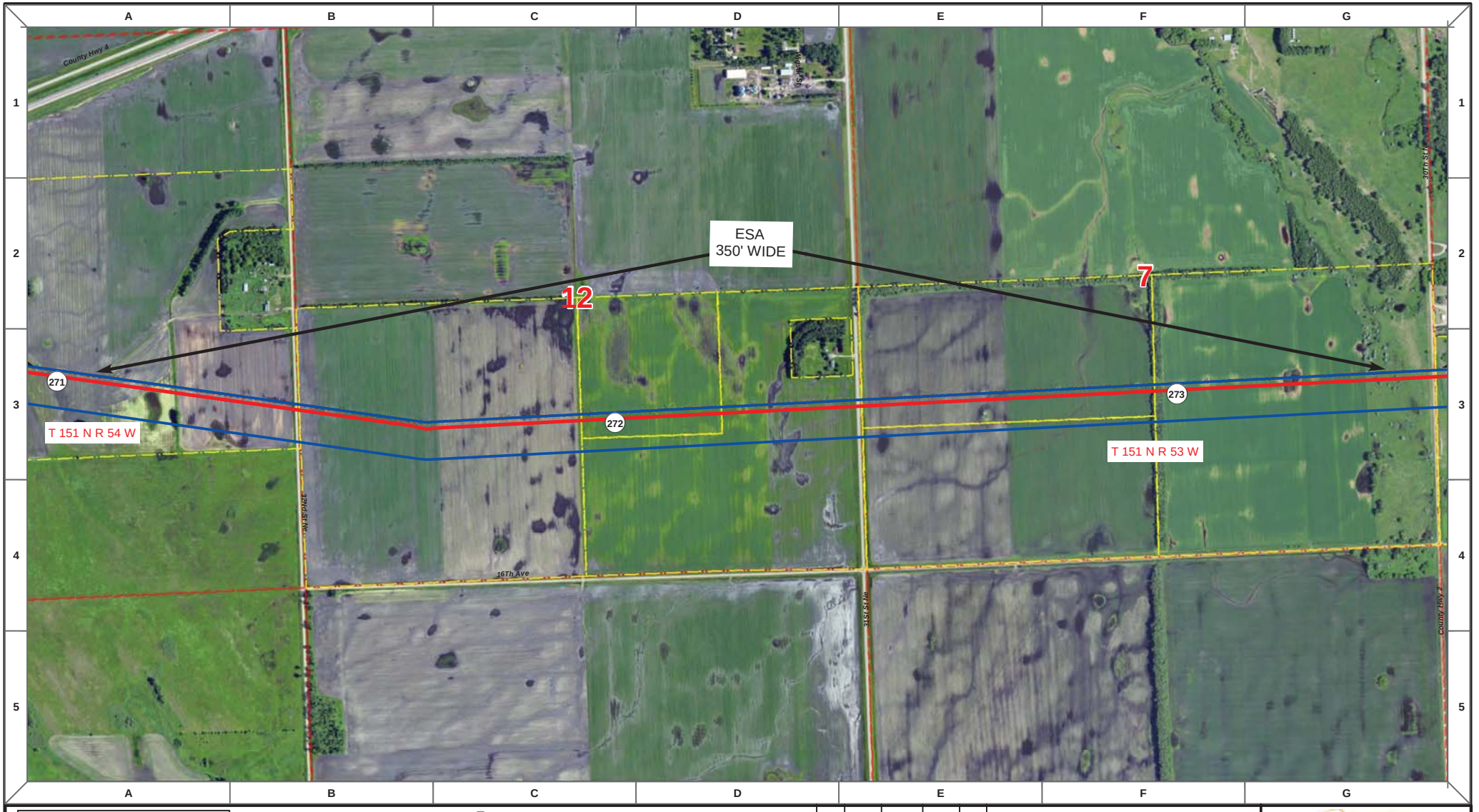
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 109 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

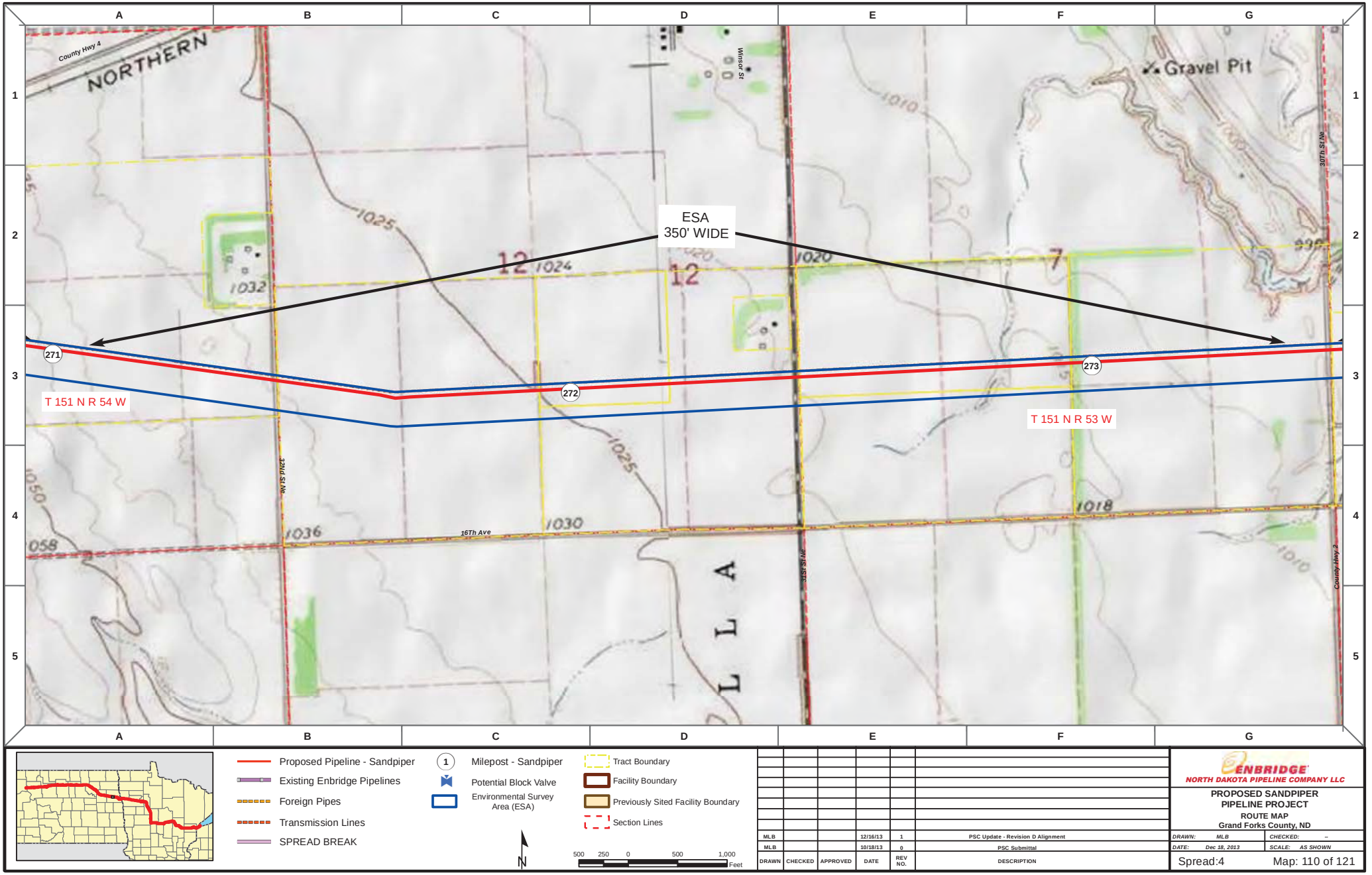
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 110 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

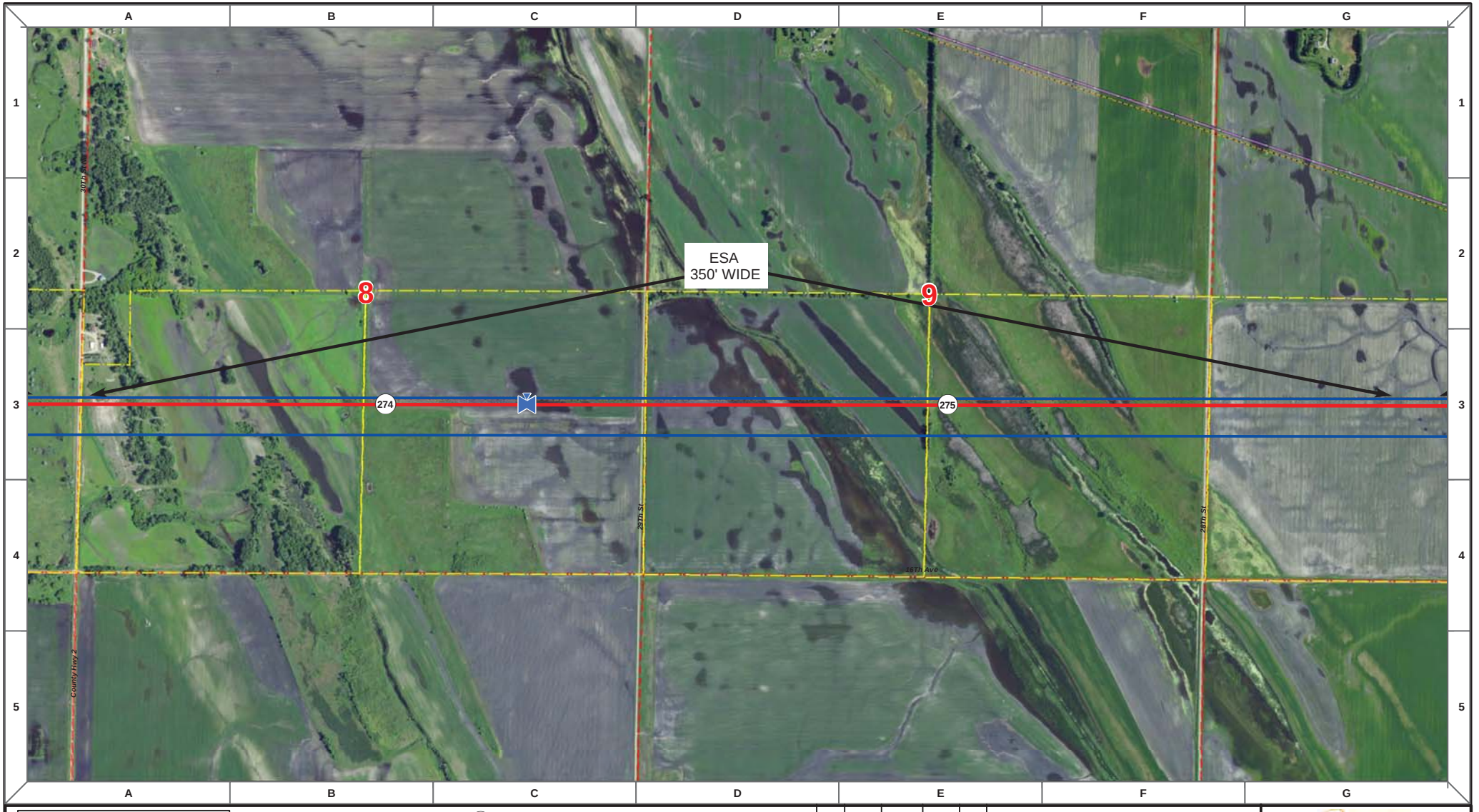
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

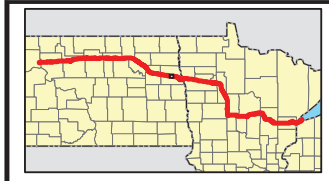
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 110 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 111 of 121

Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

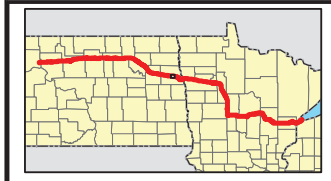
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 111 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000
Feet

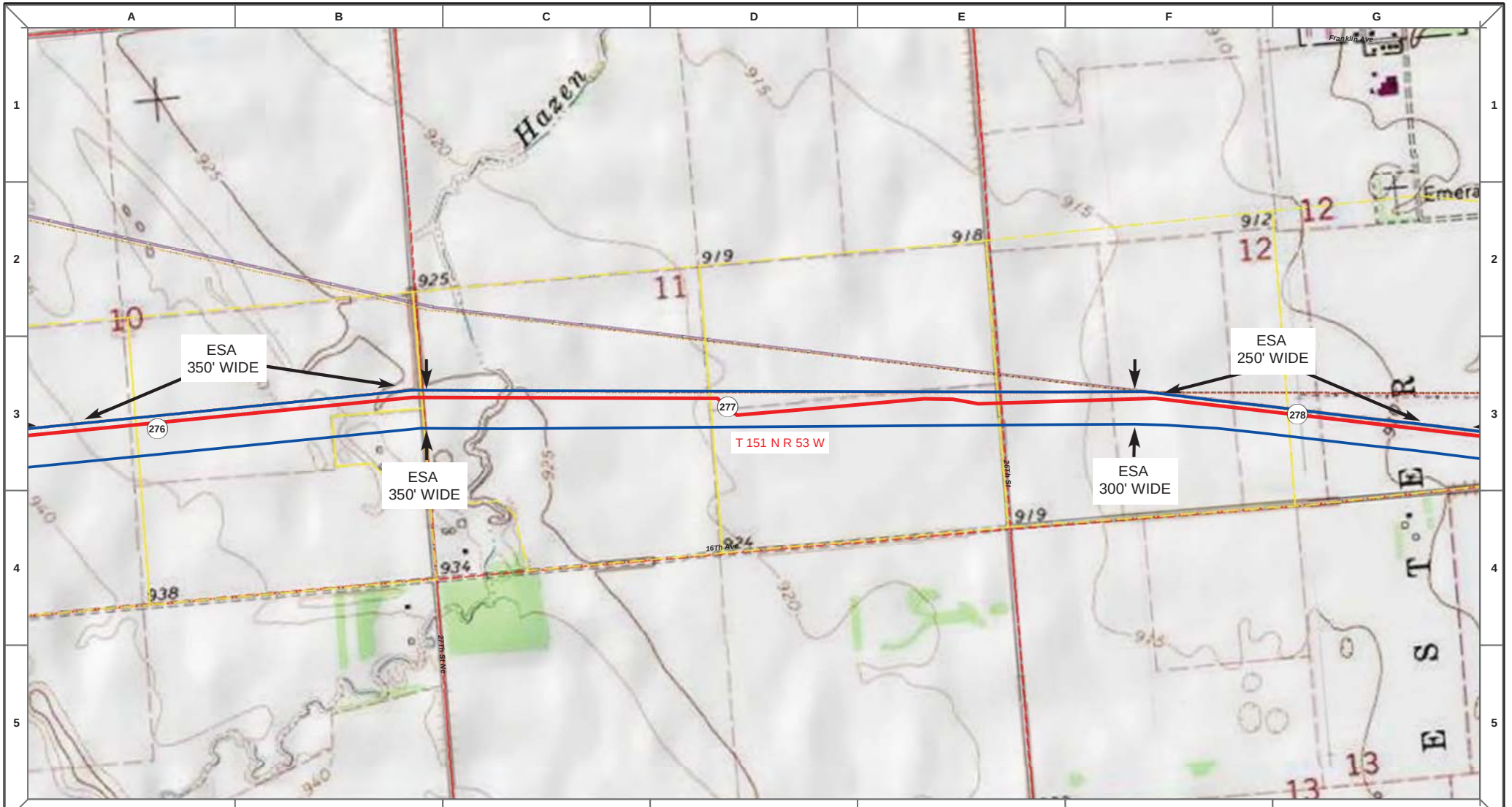
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

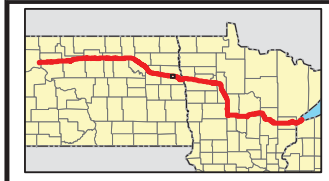
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 112 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

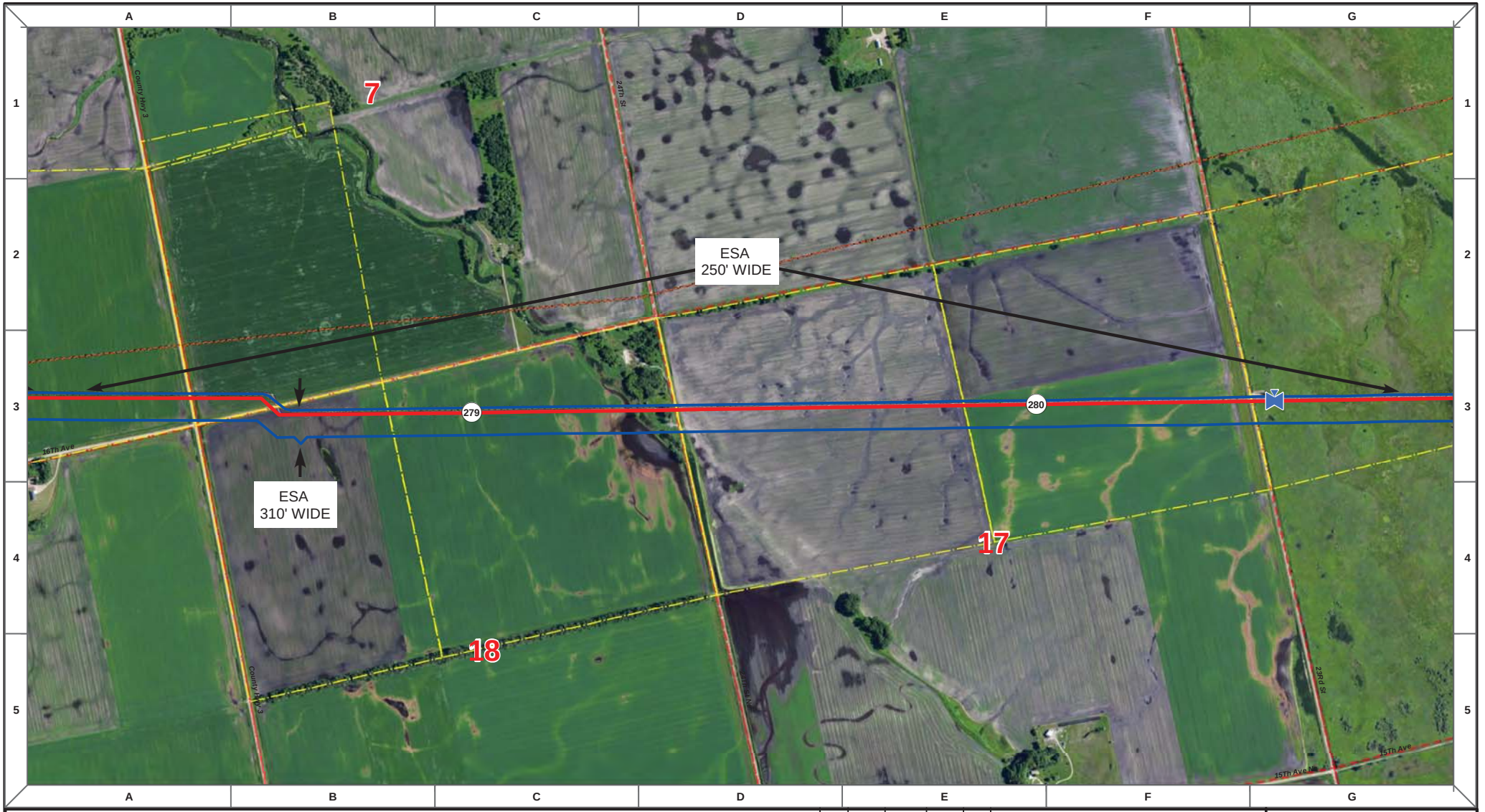
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

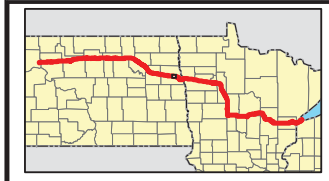
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 112 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

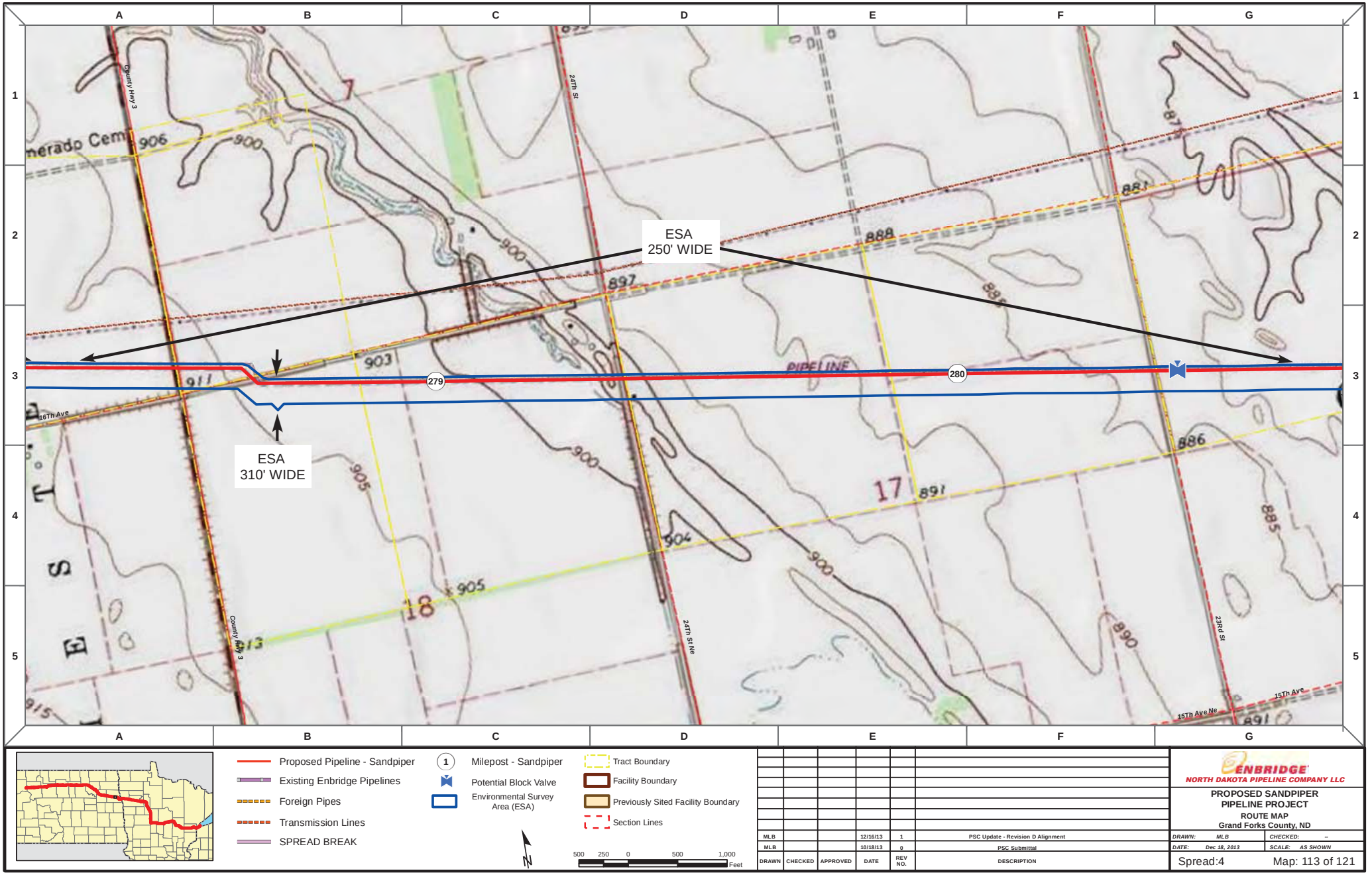
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 113 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

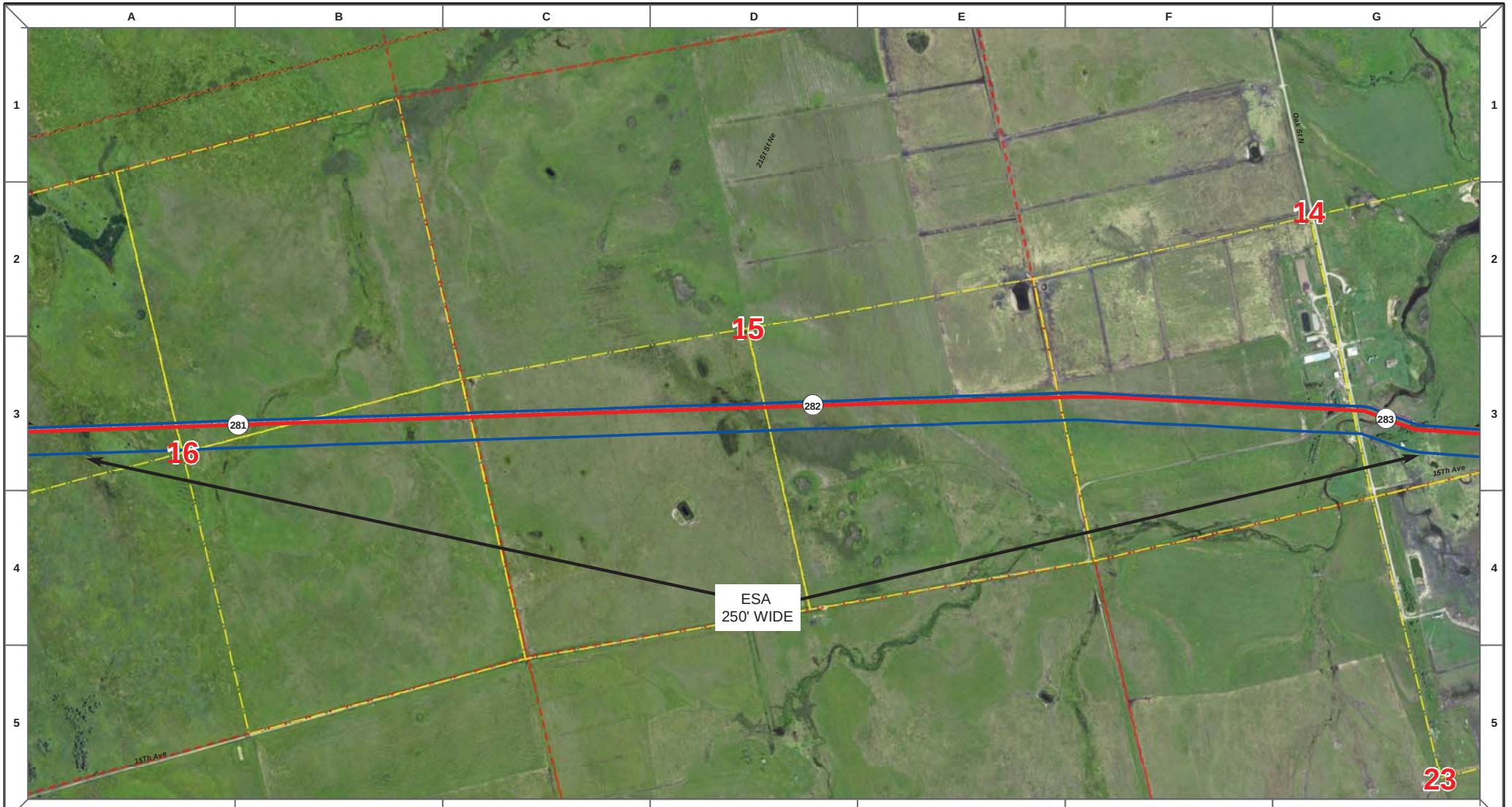
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

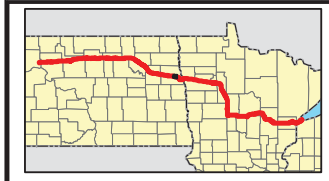
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 113 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

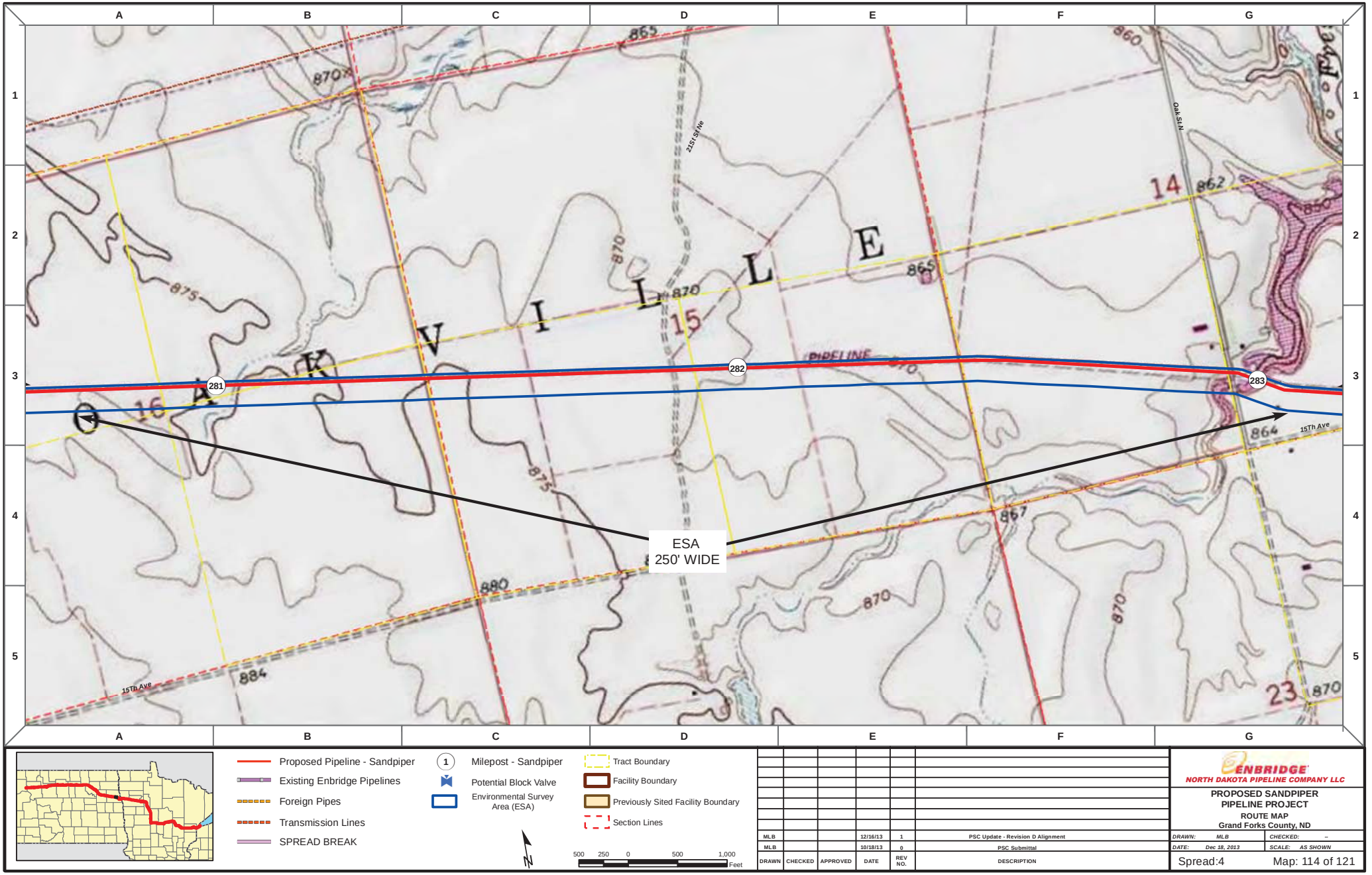
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 114 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

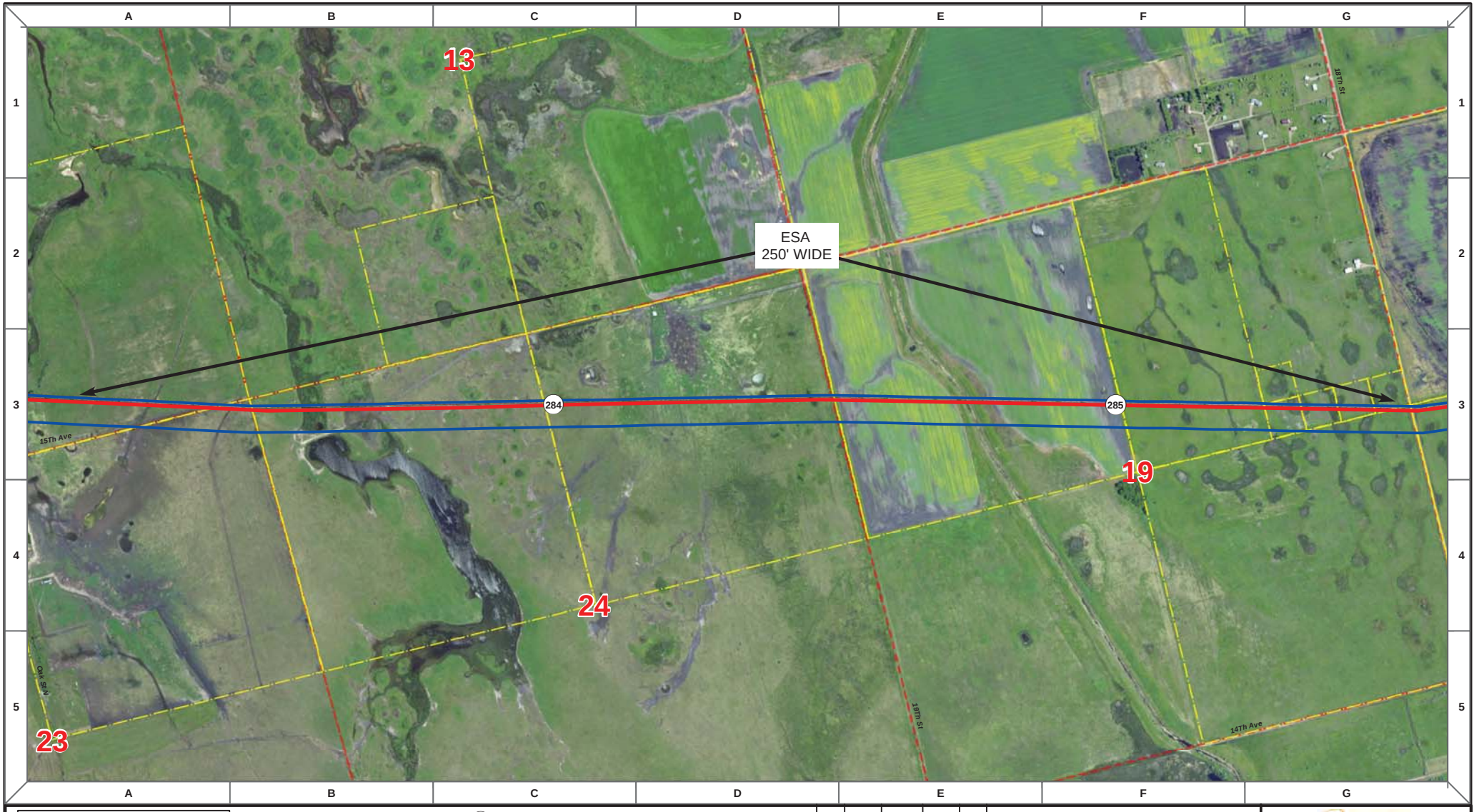
ROUTE MAP

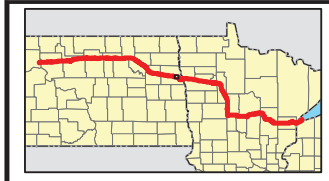
Grand Forks County, ND

DRAWN: MLB | CHECKED: --

DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 114 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

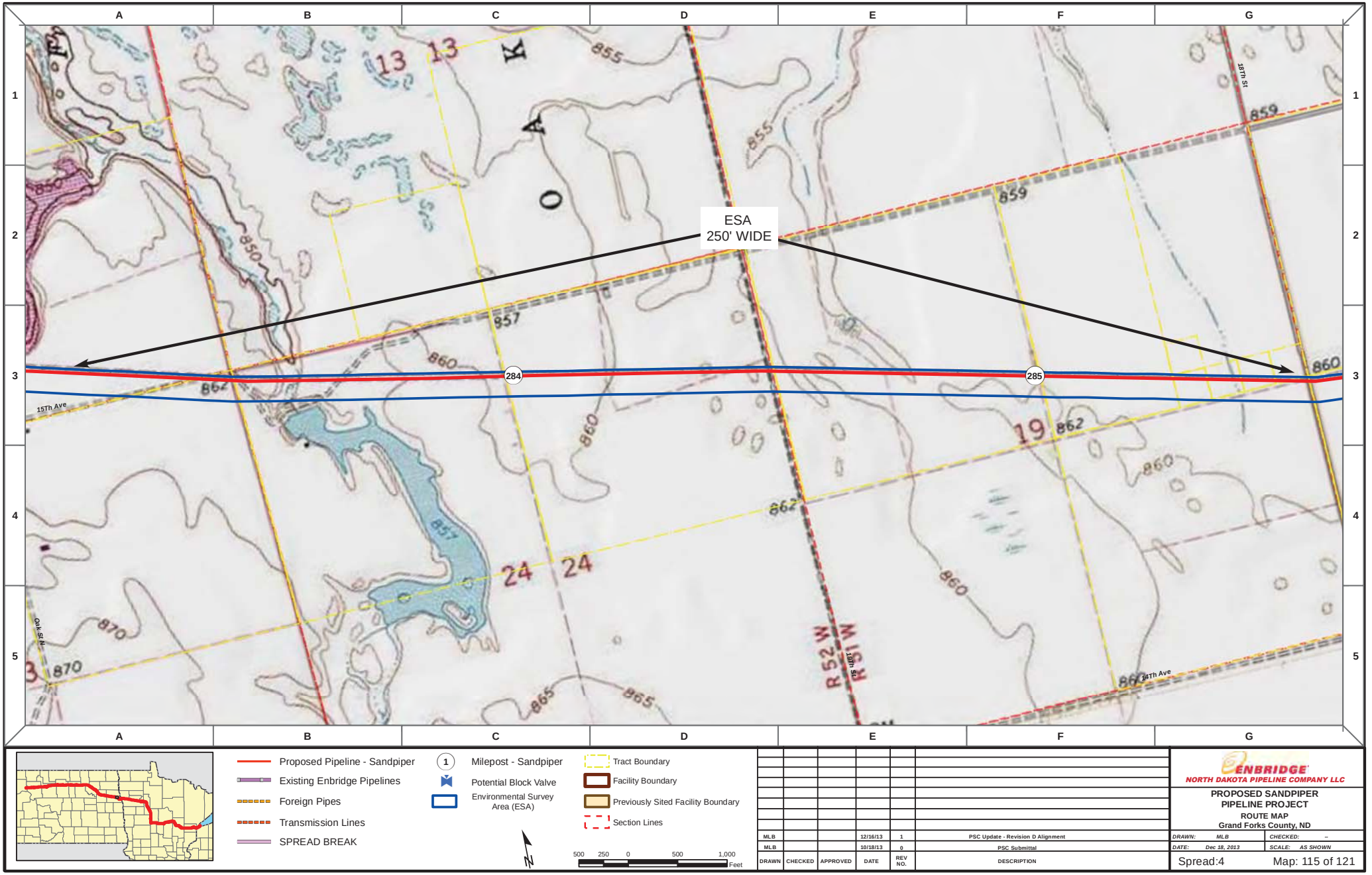
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 115 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

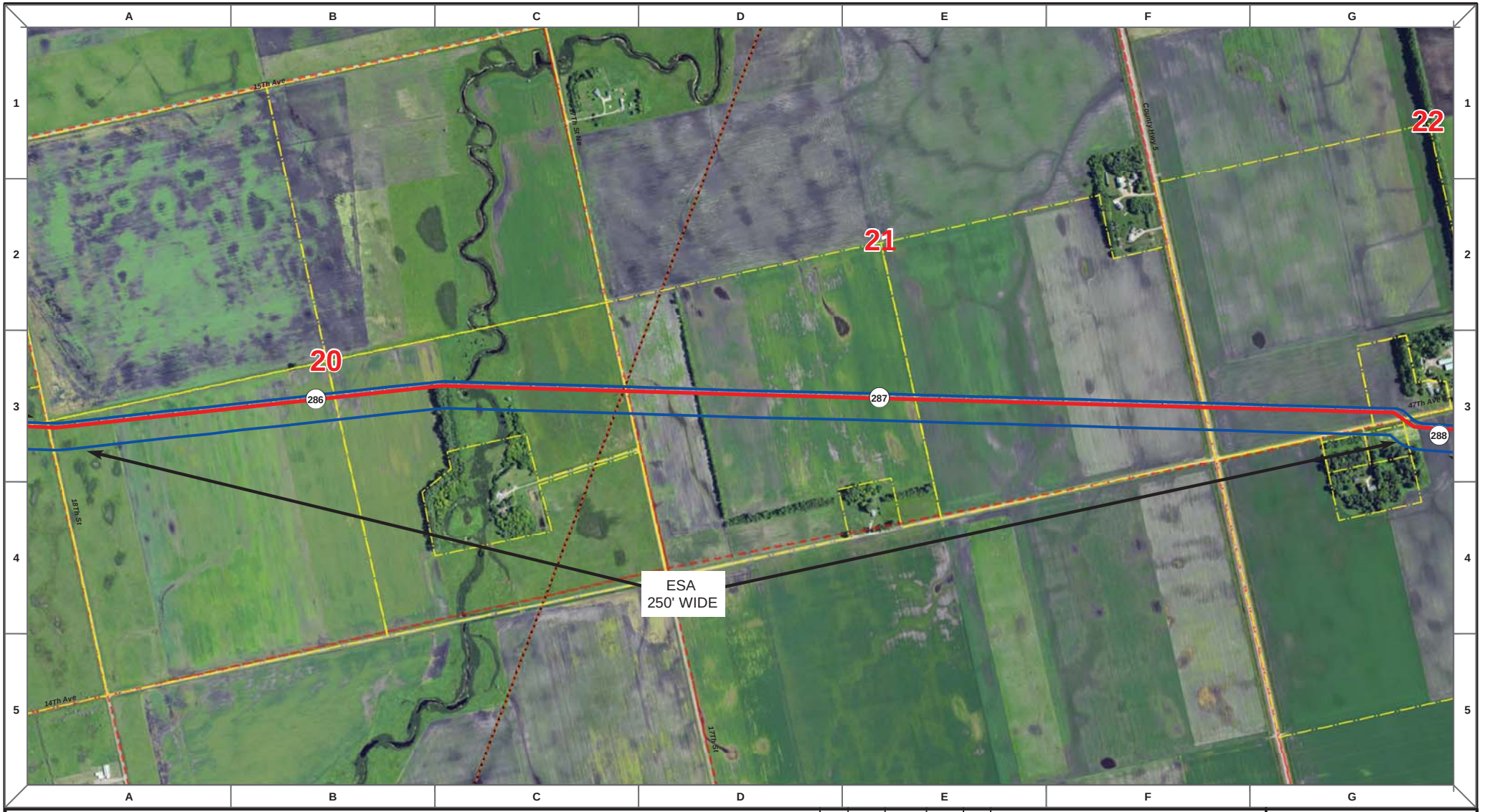
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

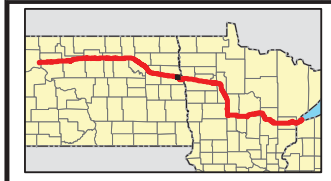
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 115 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

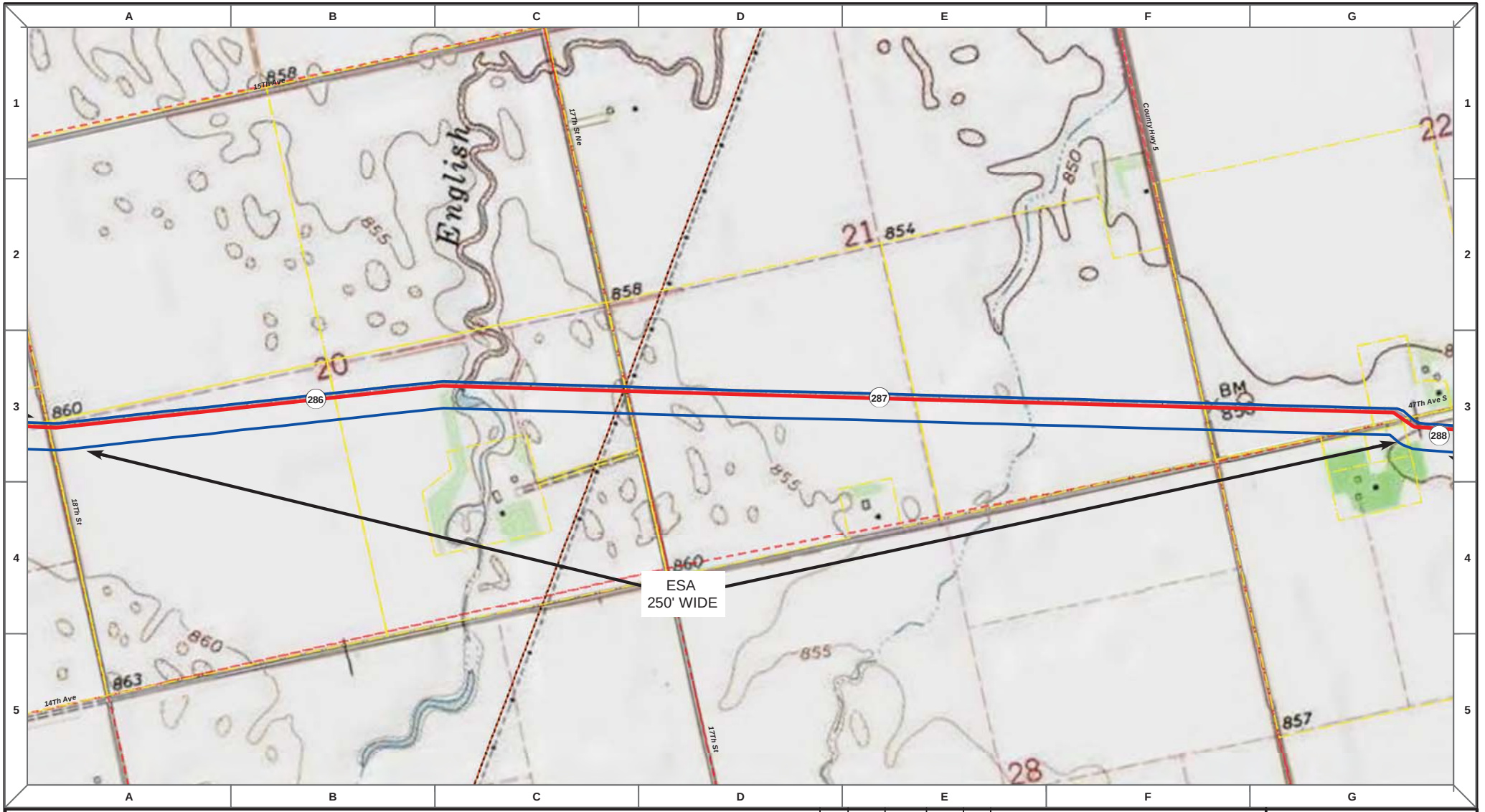
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

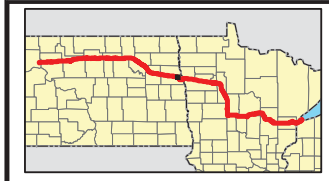
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 116 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

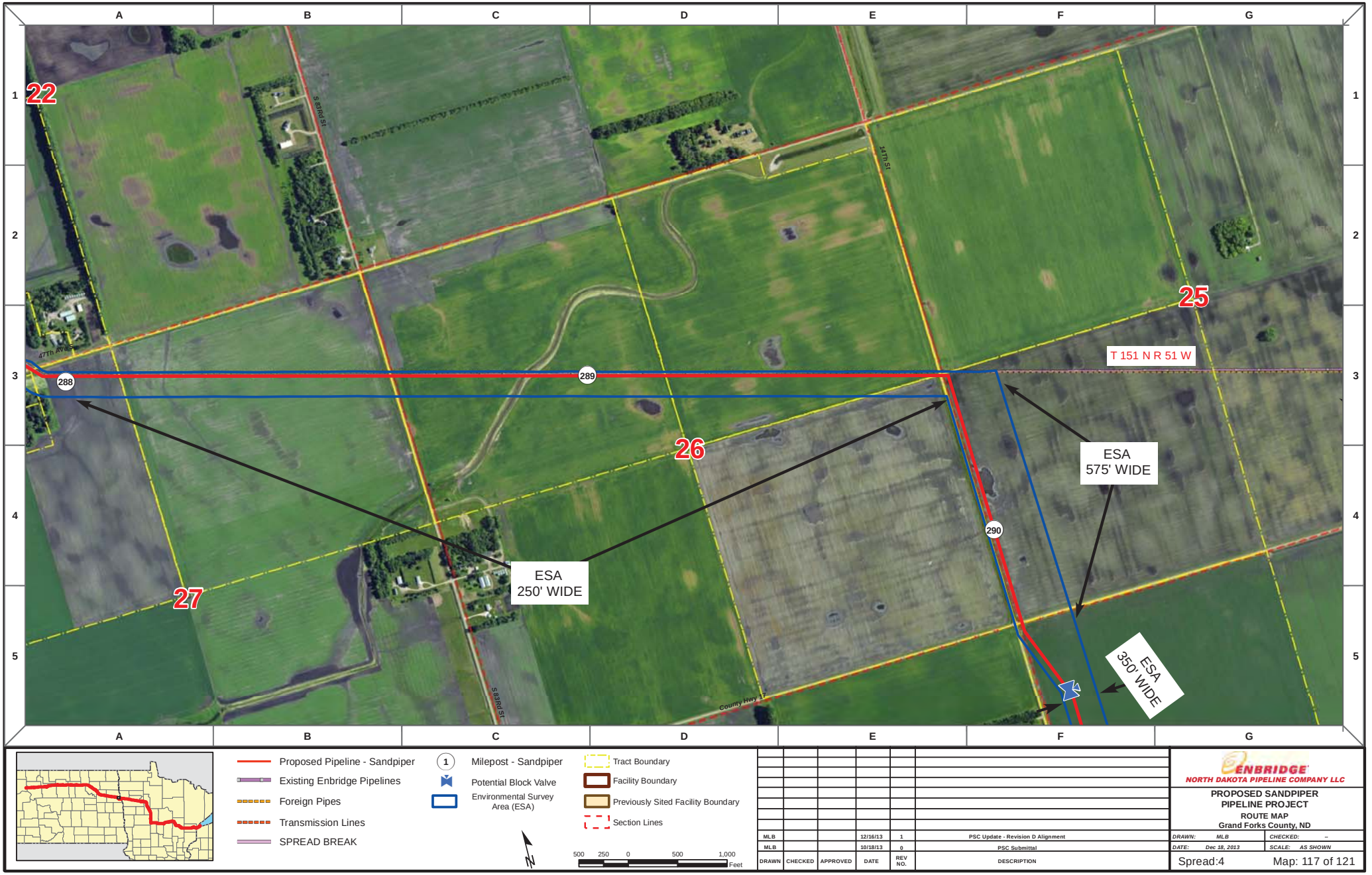
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 116 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

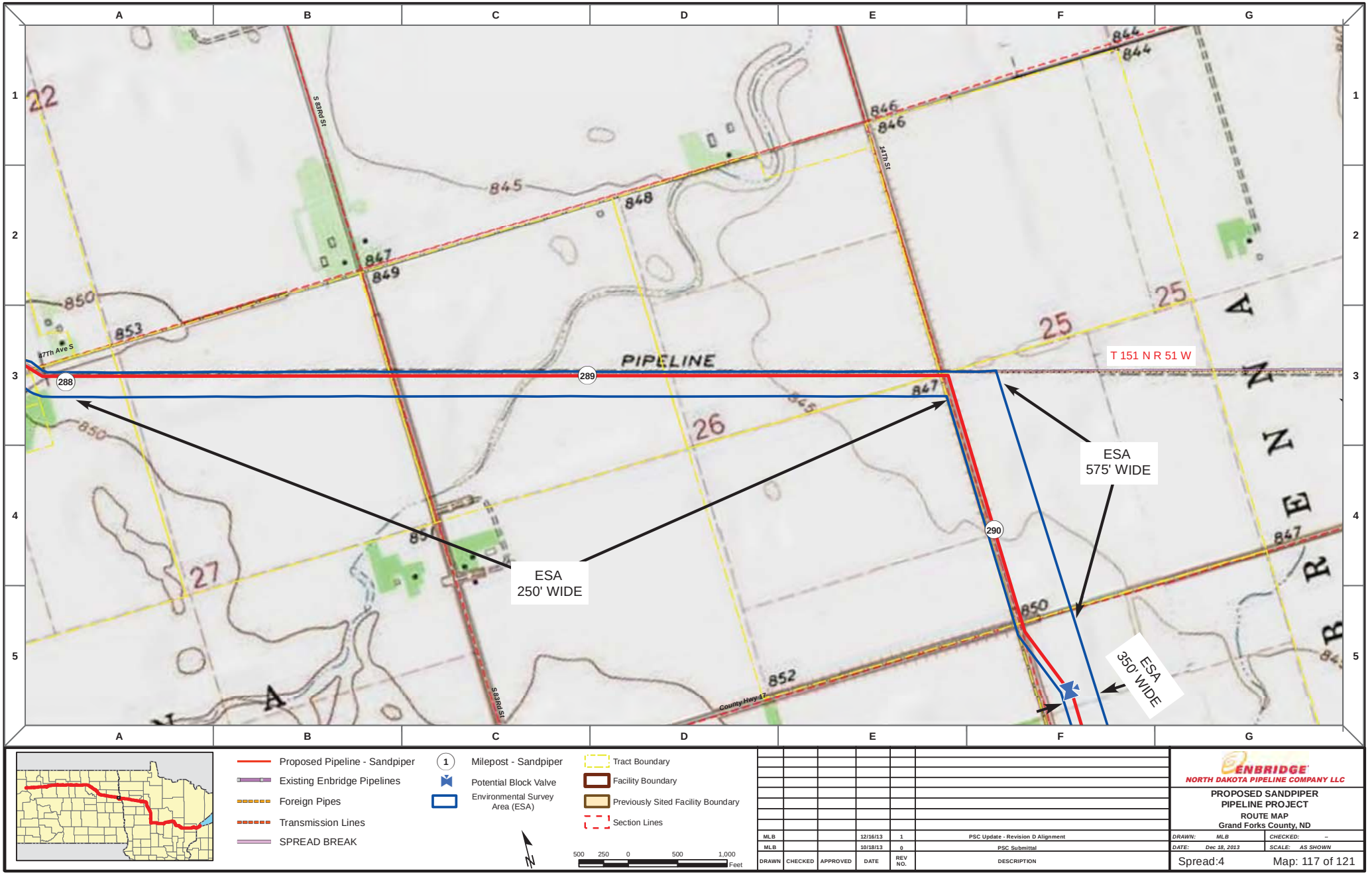
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 117 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

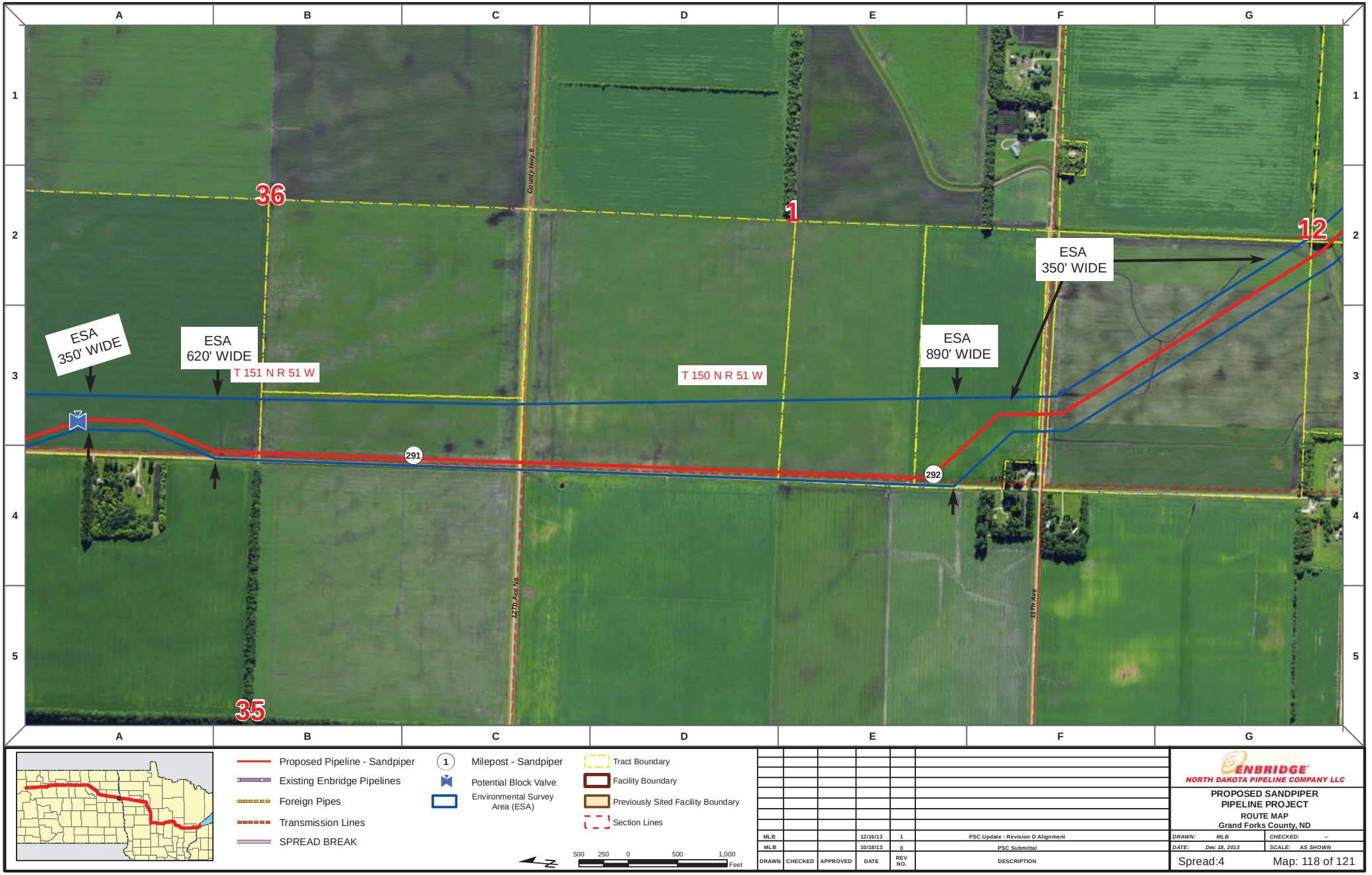
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 117 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

500 250 0 500 1,000 Feet

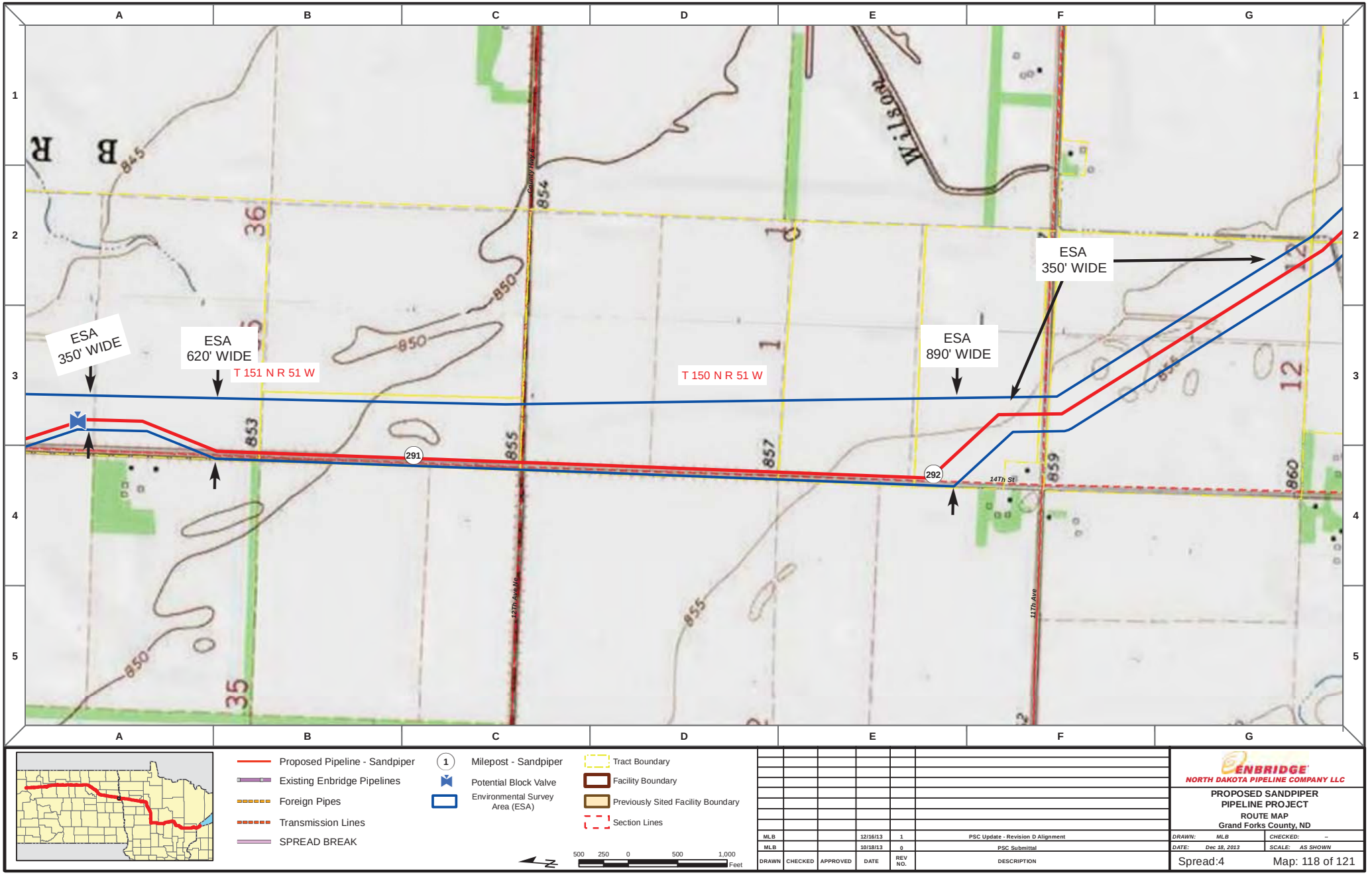
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 118 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

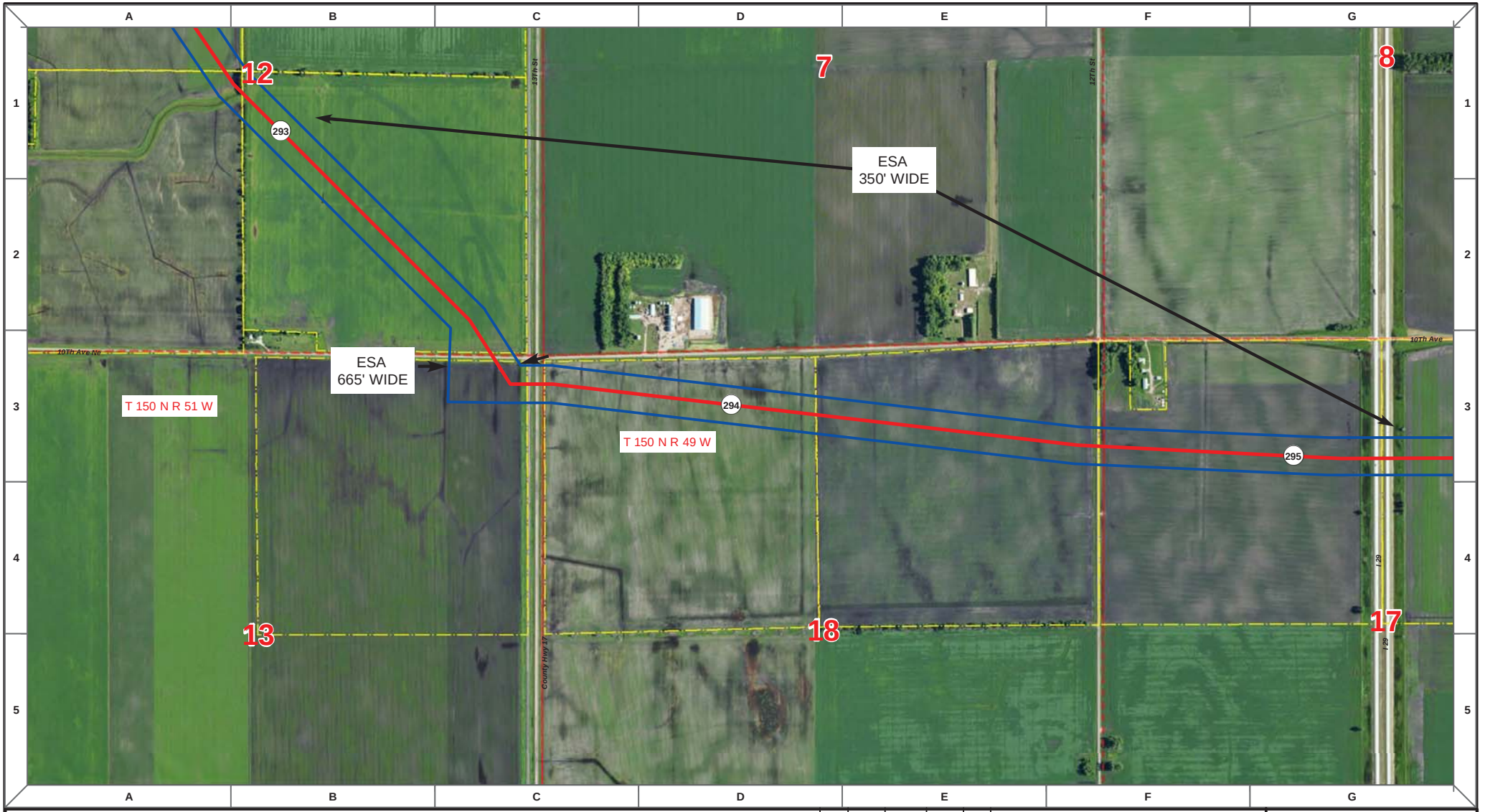
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

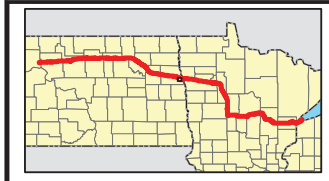
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 118 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

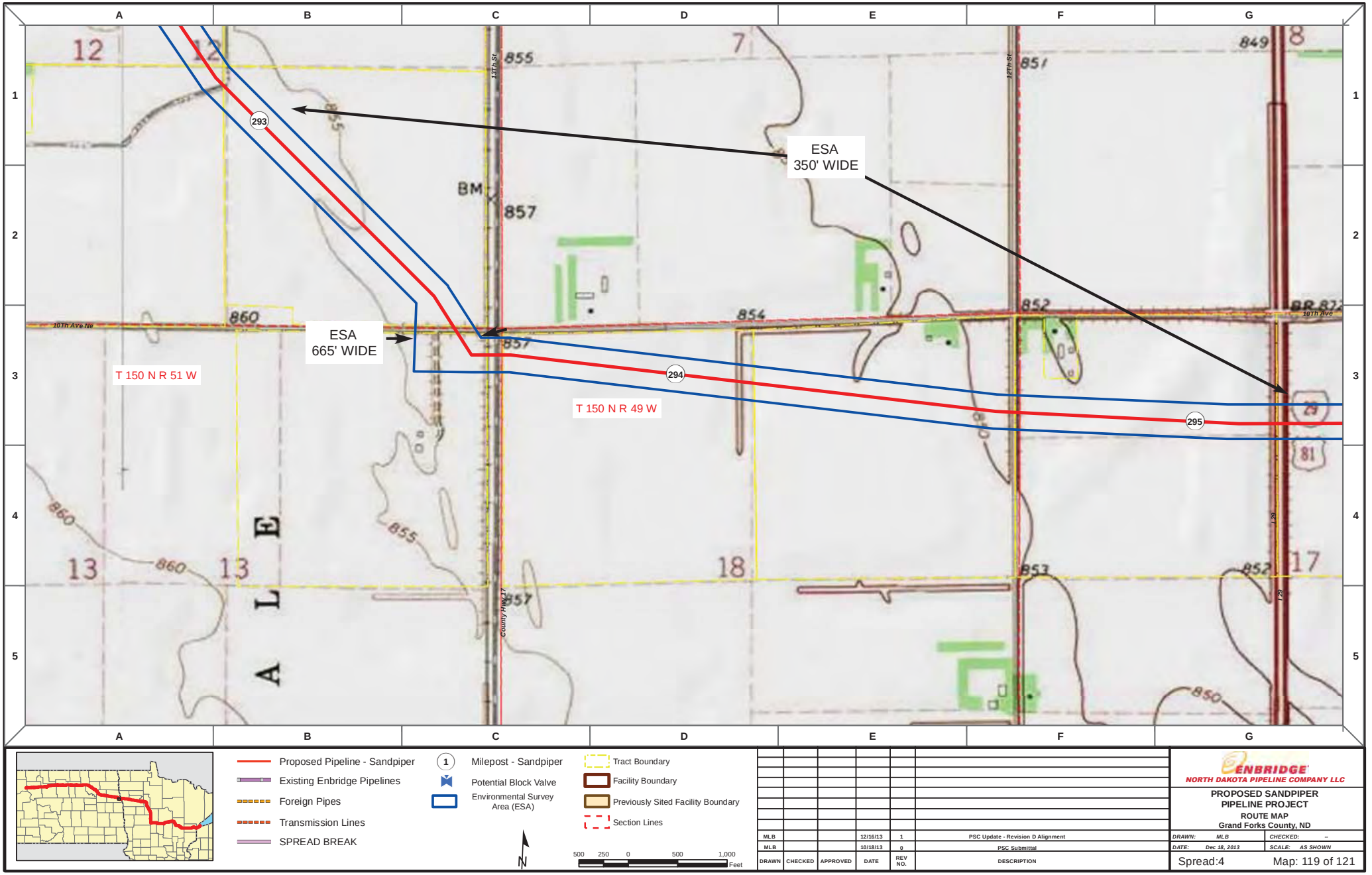
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 119 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

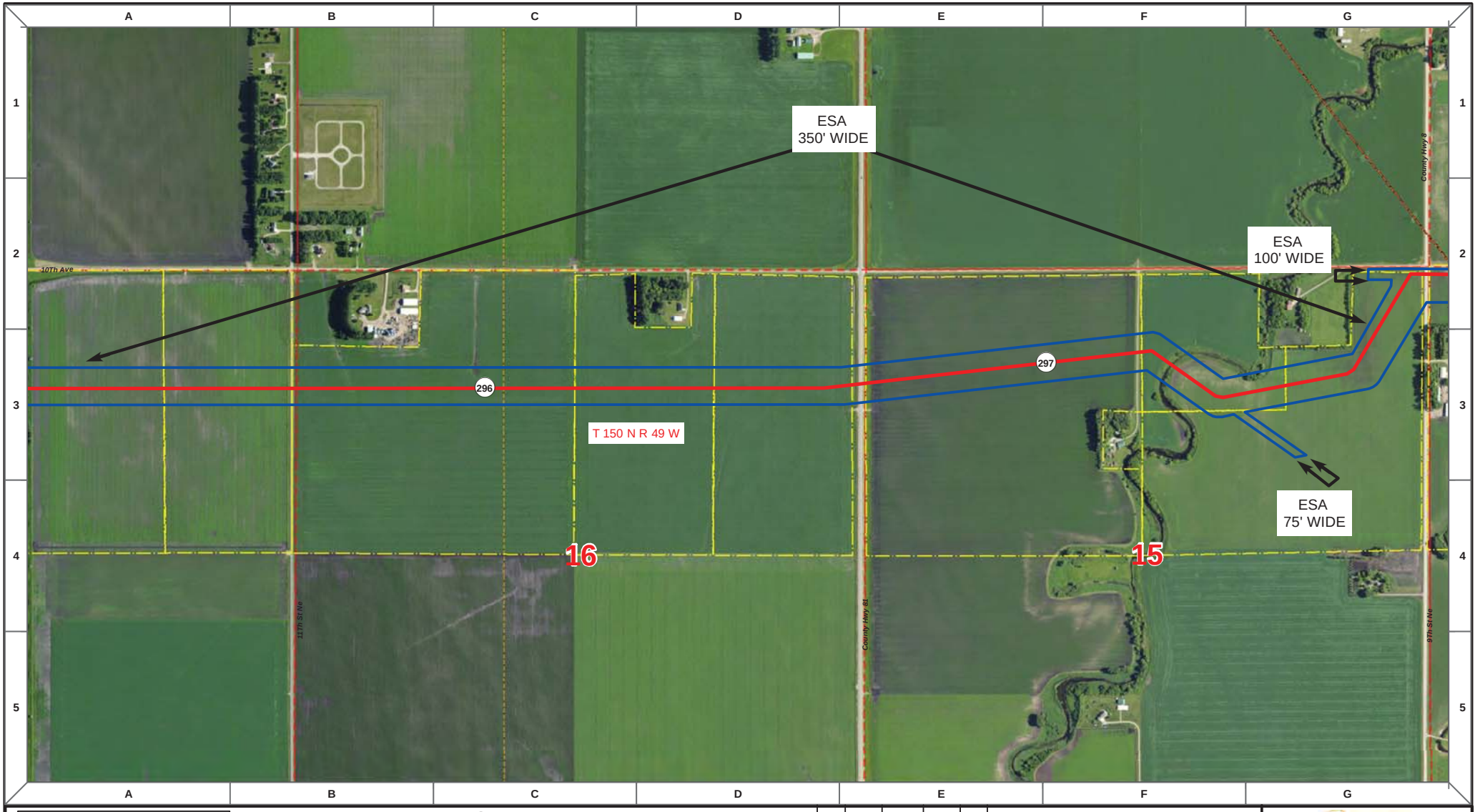
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

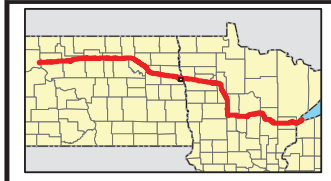
ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB CHECKED: --
DATE: Dec 18, 2013 SCALE: AS SHOWN

Spread:4 Map: 119 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

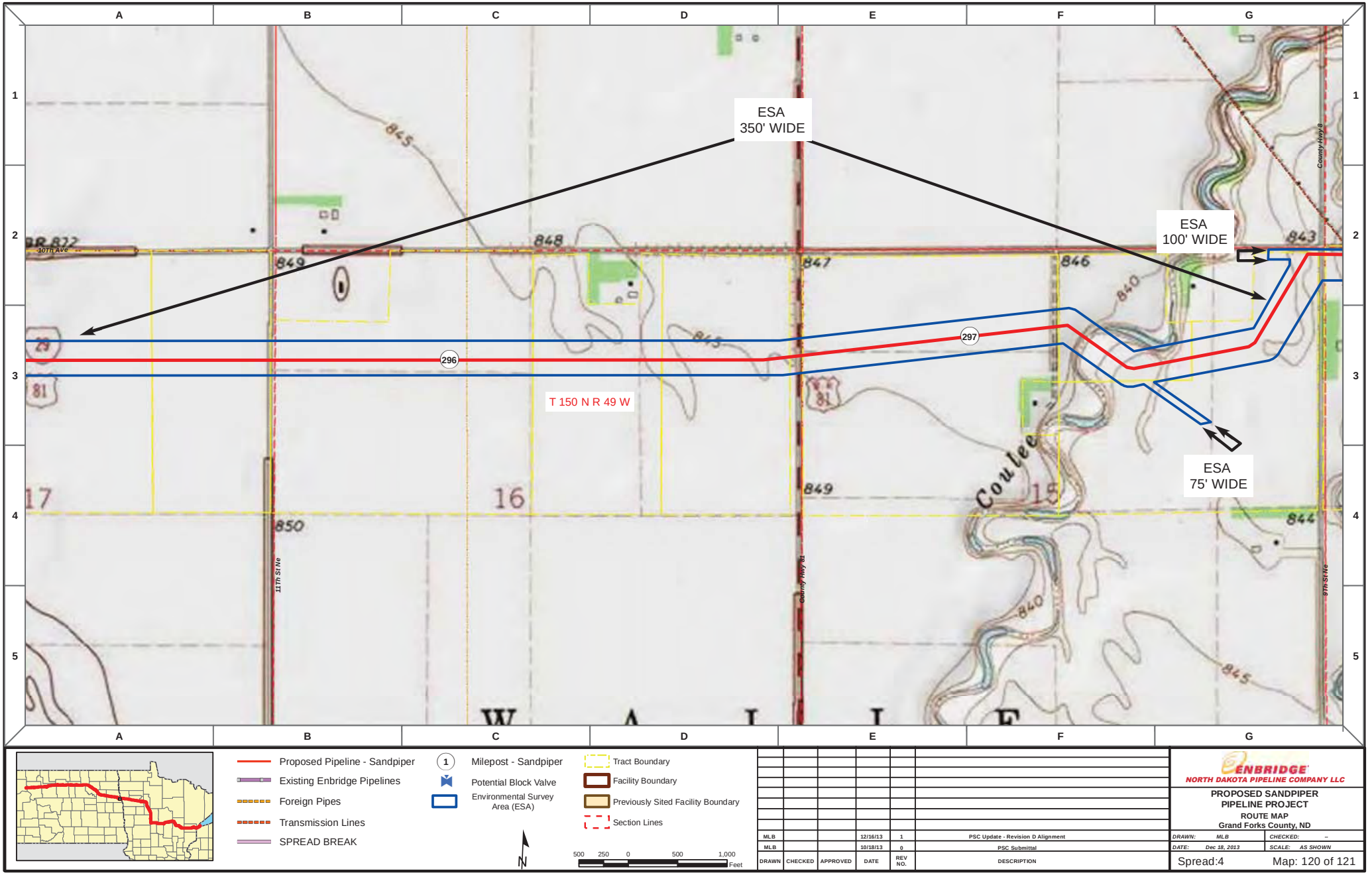
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 120 of 121



Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

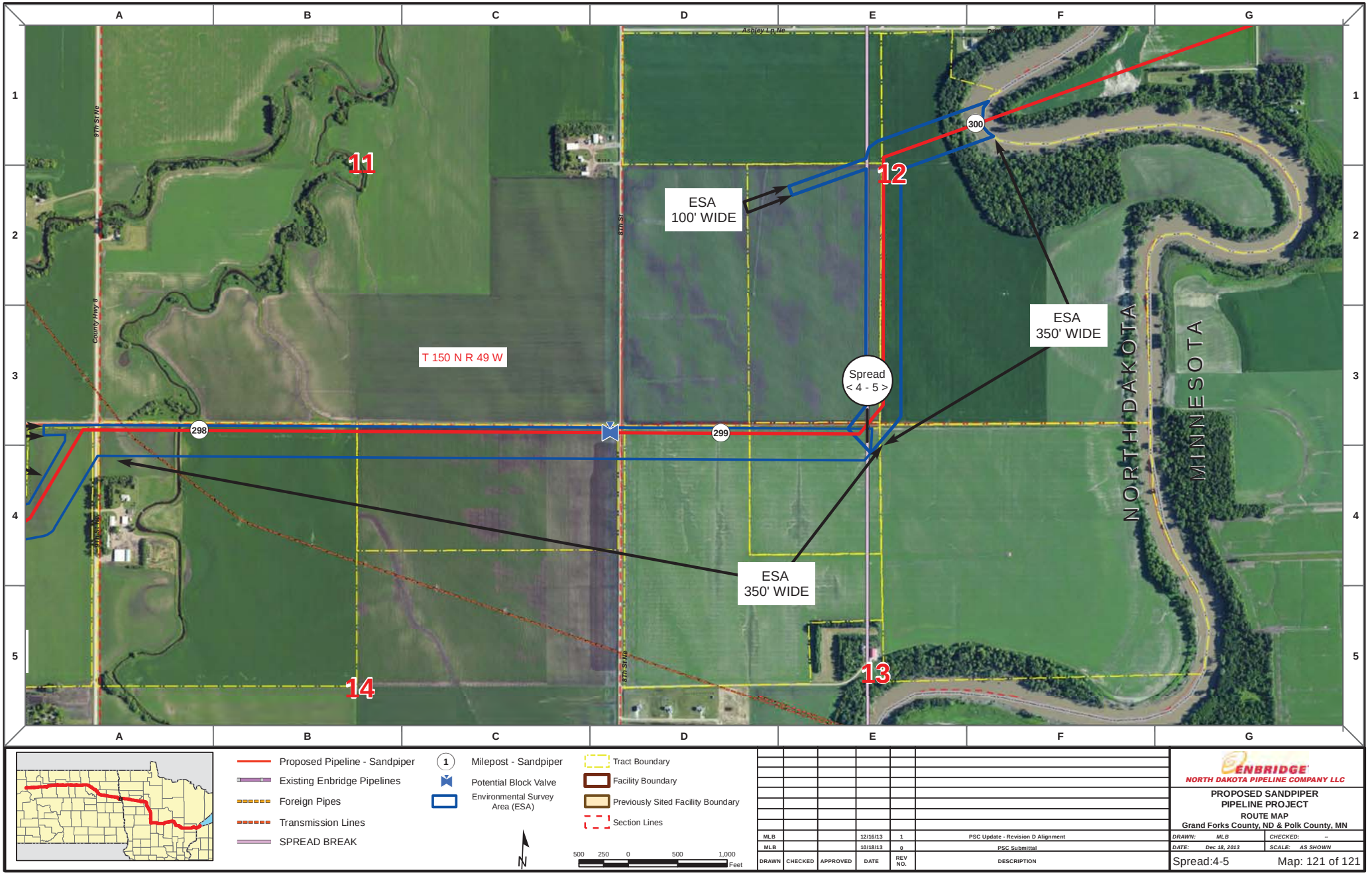
DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4 Map: 120 of 121



DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT

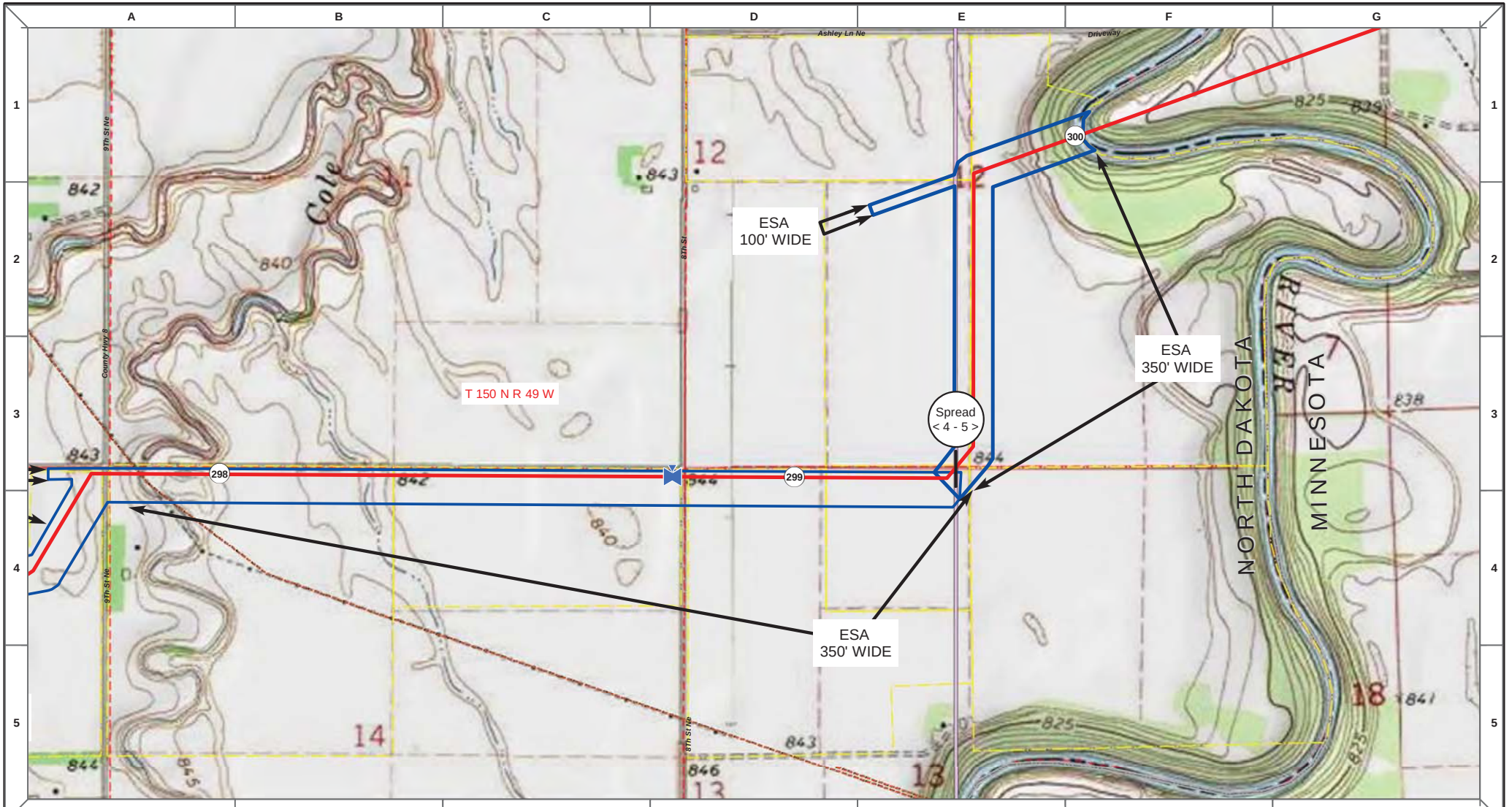
ROUTE MAP

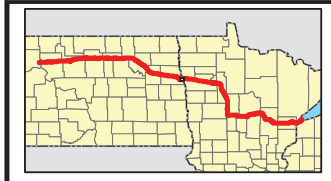
Grand Forks County, ND & Polk County, MN

DRAWN: MLB | CHECKED: --

DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4-5 Map: 121 of 121





Proposed Pipeline - Sandpiper
Existing Enbridge Pipelines
Foreign Pipes
Transmission Lines
SPREAD BREAK

1 Milepost - Sandpiper
Potential Block Valve
Environmental Survey Area (ESA)

Tract Boundary
Facility Boundary
Previously Sited Facility Boundary
Section Lines

N

500 250 0 500 1,000 Feet

DRAWN	CHECKED	APPROVED	DATE	REV NO.	DESCRIPTION
MLB			12/16/13	1	PSC Update - Revision D Alignment
MLB			10/18/13	0	PSC Submittal

ENBRIDGE
NORTH DAKOTA PIPELINE COMPANY LLC

PROPOSED SANDPIPER PIPELINE PROJECT
ROUTE MAP
Grand Forks County, ND & Polk County, MN

DRAWN: MLB | CHECKED: --
DATE: Dec 18, 2013 | SCALE: AS SHOWN

Spread:4-5 Map: 121 of 121

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit A	**Overview Maps**	See Binder 1 of 2
Exhibit A.1	Enbridge Pipelines (North Dakota) LLC System Map	
Exhibit A.2	Sandpiper Pipeline Project Overview Map	
Exhibit B	**ROW Construction Details**	
Exhibit C	**Station Maps**	
Exhibit C.1	Beaver Lodge Station Aerial, Topographic and Plot Plans	
Exhibit C.2	Stanley Station Aerial, Topographic and Plot Plans	
Exhibit C.3	Berthold Station Aerial, Topographic and Plot Plans	
Exhibit C.4	Lakota Station Aerial, Topographic and Plot Plan	
Exhibit D	**Route Maps**	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit E	**Cultural Resource Investigations**	
Exhibit E.1	Cultural Resources Abstract	
Exhibit E.2	State Historical Society of North Dakota Consultation	
Exhibit F	**Wetland and Waterbody Assessments**	
Exhibit F.1	Wetland Delineation Survey	
Exhibit F.2	Stream and Waterbody Crossings Table	
Exhibit G	**Habitat Assessments**	
Exhibit G.1	Piping Plover Habitat Assessment Report	
Exhibit G.2	Grassland Habitat Assessment Report	
Exhibit H	**Agency Consultations**	
Exhibit H.1	U.S. Department of Agriculture, Natural Resource Conservation Service Correspondence	
Exhibit H.2	North Dakota Game and Fish Department Correspondence	
Exhibit H.3	U.S. Department of Interior, Fish and Wildlife Service Correspondence	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit H.4	North Dakota Parks and Recreation Correspondence	
Exhibit H.5	North Dakota Department of Agriculture Correspondence	
Exhibit H.6	North Dakota Department of Health Correspondence	
Exhibit H.7	North Dakota Department of Trust Lands Correspondence	
Exhibit H.8	North Dakota State Water Commission Correspondence	
Exhibit H.9	U.S. Department of Agriculture, North Dakota Farm Service Agency Correspondence	
Exhibit H.10	U.S. Department of Interior, Bureau of Land Management Correspondence	
Exhibit H.11	U.S. Department of Interior, Bureau of Reclamation Correspondence	
Exhibit H.12	North Dakota County Water Resource Boards Correspondence	
Exhibit H.13	North Dakota County Weed Boards Correspondence	
Exhibit H.14	U.S. National Park Service	
Exhibit H.15	U.S. Department of Defense, U.S. Air Force Cable Affairs	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS FOR EXHIBITS

EXPLANATION		TAB
EXHIBITS TO APPLICATION FOR CERTIFICATE OF CORRIDOR COMPATIBILITY AND ROUTE PERMIT FOR A CRUDE OIL PIPELINE		**E**
Exhibit I	**Routing Selection Criteria Maps**	
Exhibit I.1	Exclusion Areas	
Exhibit I.2	Avoidance Areas	
Exhibit I.3	Other Criteria Considered	
Exhibit J	**Environmental Protection Plan**	
Exhibit K	**Unanticipated Discoveries Plan**	
Exhibit L	**Waivers for Inhabited Businesses, Schools, Residences within 500 feet of the Centerline**	
Exhibit M	**Contaminated Sites Management Plan**	
Exhibit N	**Enbridge Pipelines (North Dakota) LLC 10-Year Plan**	
Exhibit O	**Public Official and Landowner Correspondence**	

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

Exhibit E	Cultural Resource Investigations
Exhibit E.1	Cultural Resources Abstract
Exhibit E.2	State Historical Society of North Dakota Consultation

EXECUTIVE SUMMARY

Metcalf Archaeological Consultants, Inc. ("MAC"), on behalf of Merjent, Inc. ("Merjent") and Enbridge, undertook a Class II/Class III cultural resource inventory by conducting a literature review within a 2-mile-wide study area and field survey within a variable-width environmental survey corridor. This report covers the cultural resource inventory that occurred between May and November 2013 within the environmental survey corridor. The objective of the 2013 North Dakota Archaeological and Historic Structure Reconnaissance and Evaluation Studies was to identify and, in some cases, evaluate those cultural resources (i.e., Precontact, Historic, and Historic Architectural isolated occurrences, site leads, and sites) that may be affected during construction activities. Evaluation involved determining the eligibility of the resources for inclusion in the National Register of Historic Places ("NRHP"). This information will provide any federal agency determining NRHP eligibility or adverse effects with information to comply with the National Historic Preservation Act, as amended, and its implementing regulations (36 CFR Part 800). This report will also provide the North Dakota State Historic Preservation Office ("ND SHPO") with information to comment on the North Dakota Public Service Commission regulatory process.

MAC inventoried a total of 13,164 acres and recorded or updated 118 cultural resources that included 36 Precontact sites, 14 Precontact isolated occurrences, 35 Historic sites, 4 Historic Architectural sites, 27 Historic isolated occurrences, and 2 multi-component sites. MAC updated the site forms of 8 Precontact and 10 Historic sites, 2 of which are Architectural that had been recorded prior to the survey. MAC also tested/evaluated three Precontact cultural material scatters (32PI81, 32PI82, and 32MN1165**)** to determine whether they qualified for inclusion on the NRHP.

Acreage of Environmental Survey Corridor Surveyed	Number of Precontact Sites and Isolated Occurrences in Environmental Survey Corridor	Number of Historic Sites and Isolated Occurrences in Environmental Survey Corridor	Number of Multi-component Sites and Isolated Occurrences in Environmental Survey Corridor	Number of Updates in Environmental Survey Corridor	Number of Sites Recommended as Eligible in Environmental Survey Corridor
13,164	42	56	2	18 (8 Precontact; 10 Historic)	2

Site 32GF8 and the Dutch Colonial style barn in 32PI80 are recommended eligible for inclusion in the NRHP per 36 CFR 60.4, 81 sites and the isolated occurrences are recommended not eligible for inclusion, and 35 sites remain unevaluated. Most of the unevaluated sites consist of Precontact stone feature sites.

Enbridge (U.S.), Inc. – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4730

January 30, 2014

Mr. Paul Picha, and
Ms. Fern E. Swenson
State Historical Society of North Dakota
Archaeology and Historic Preservation Division
612 East Boulevard Ave
Bismarck, ND 58505

Re: Sandpiper Pipeline Project
Public Service Commission Docket No. PU-13-848
2013 North Dakota Archaeological and Historic Structure Reconnaissance and Evaluation Report

Dear Mr. Picha and Ms. Swenson:

Enbridge (U.S.), Inc. ("Enbridge") proposes to construct the Sandpiper Pipeline Project ("Sandpiper") from Enbridge's Beaver Lodge Station south of Tioga, North Dakota, across North Dakota and Minnesota, to an Enbridge's terminal in Superior, Wisconsin. Sandpiper will transport North Dakota crude petroleum to Superior terminal in order to connect to other pipelines and provide refineries in the Midwest and eastern Canada with crude oil.

In October 2013, Enbridge filed a Consolidated Application for a Certificate of Corridor Compatibility and Route Permit with the North Dakota Public Service Commission ("ND PSC") (Docket No. PU-13-848). In its ND PSC application, Enbridge committed to identify *historical resources not specifically designated as exclusion or avoidance areas* by sponsoring surveys within the environmental survey corridor proposed to contain Sandpiper construction, operation, and maintenance activities. In addition, Enbridge committed to *prepare technical reports for the project's cultural resources studies and…submit them to the State Historical Society of North Dakota ("SHSND") for…review and comment*. With this letter, Enbridge submits the results of its 2013 surveys for review and comment in support of the ND PSC process. Enbridge will submit a copy of this letter along with the cover page and abstract of the attached survey report to ND PSC as a supplemental filing.

Between May and November 2013 Metcalf Archaeological Consultants, Inc. ("MAC"), on behalf of Enbridge and Merjent, Inc. ("Merjent"), conducted archaeological and historic structure reconnaissance and evaluation studies for the majority of the environmental survey corridor in North Dakota. The entire environmental survey corridor considered in 2013 encompassed 14,776 acres, of which MAC surveyed 13,164 acres (89 percent). MAC recorded or updated 118 cultural resources, which included 36 Precontact sites, 14 Precontact isolated occurrences, 35 Historic sites, 27 Historic isolated occurrences, 4 Historic Architectural sites, and 2 Multi-component sites. Of those resources, 18 had been recorded prior to this survey effort and were subsequently updated. MAC evaluated Precontact cultural material scatters 32PI81, 32PI82, and 32MN1165 to ascertain whether they qualified for inclusion on the National Register of Historic Places ("NRHP"). Precontact site 32GF8 and the Dutch Colonial style barn associated with 32PI80 are recommended eligible for inclusion on the NRHP. MAC recommended that of the remaining 116 cultural resources recorded, 40 sites and the 41 isolated occurrences were recommended not eligible for inclusion on the NRHP, while the NRHP eligibility of 35 sites was not evaluated.

Enbridge requests that your office comment, to the extent possible, on the NRHP-eligibility recommendations presented in the attached report. Please send any written correspondence to me at the address noted on the letterhead, and provide a copy of your response to ND PSC.

Enbridge will submit an application to the U.S. Army Corps of Engineers, Bismarck Field Office ("USACE") for Nationwide Permit 12 authorization for construction in USACE jurisdictional waters of the U.S. Enbridge has recently submitted a jurisdictional request to USACE in advance of submitting its application.

Enbridge continues to define Sandpiper's centerline and construction workspaces within the environmental survey corridor and will provide updated information to SHSND that outlines additional data collection recommendations or engineering controls to avoid, minimize, or mitigate impacts to NRHP-eligible or not evaluated sites.

Please feel free to contact me (715-398-4730; Sara.Ploetz@enbridge.com) or Merjent Analyst Mike Madson (612-746-3660; mmadson@merjent.com) if you have any questions about this report.

Sincerely,

Sara Ploetz

Sara Ploetz
Environmental Analyst II
Enbridge (U.S.), Inc.

Enclosure

cc: Mike Madson, Merjent
Jason Renschler, USACE

EXHIBIT E.2

Enbridge Pipelines (North Dakota) LLC - Gayle Konik, Manager, Environment
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

ENBRIDGE

May 14, 2013

Ms. Fern E. Swenson
State Historical Society of North Dakota
Archaeology and Historic Preservation Division
612 East Boulevard Ave
Bismarck, ND 58505

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Notification of Southern Route and Request for Information Regarding Cultural Resources

Dear Ms. Swenson,

In a letter dated April 3, 2013, Enbridge Pipelines (North Dakota) LLC (Enbridge) requested a meeting to discuss the Sandpiper Pipeline Project and associated archaeological sensitivity modeling, field survey protocols, and reporting requirements.

We believe that early and frequent communication with regulatory agencies is important to the successful planning of a project, especially one of this size and scope. In particular, we believe that communication about environmental issues is essential to effectively addressing concerns early on. We understand that it is necessary to have an established lead federal agency in order to fully engage with you regarding our project. Despite the absence of a lead federal agency at this time, we are committed to keeping you informed.

Toward that end, the purpose of this letter is to let you know that we have developed a southern route in Minnesota in addition to the northern route described in our previous letter. The southern route would extend from Clearbrook, Minnesota to a point near the Minnesota-Wisconsin border through Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties. At this time, the Sandpiper Pipeline Project may follow either route. Thus, we will begin the survey and information gathering process soon for both routes. A project map of Minnesota counties crossed by the southern route and a shapefile of the southern route's 2-mile-wide study area are enclosed.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting, including cultural resources consultations and field surveys. Merjent is teaming with Foth Companies, Commonwealth Cultural Resources Group, and Stratamorph Geoexploration to prepare an archaeology sensitivity model, develop survey protocols, and conduct field surveys in Minnesota.

To facilitate cultural resources review in North Dakota, we also have been in contact with Paul Picha at the North Dakota SHPO to introduce the Sandpiper Pipeline Project and to request archaeological and historic data and recommendations related to reporting requirements.

If you have any questions, would like a copy of the April 3, 2013 letter, or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Mike Madson at Merjent (612-924-3963; mmadson@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
Project Map of Minnesota Counties – both routes
Shapefiles of the 2-mile-wide Study Area (divided into the following segments)
1. Beaver Lodge to Clearbrook
2. Clearbrook to Superior – Northern Route
3. Clearbrook to Superior – Southern Route

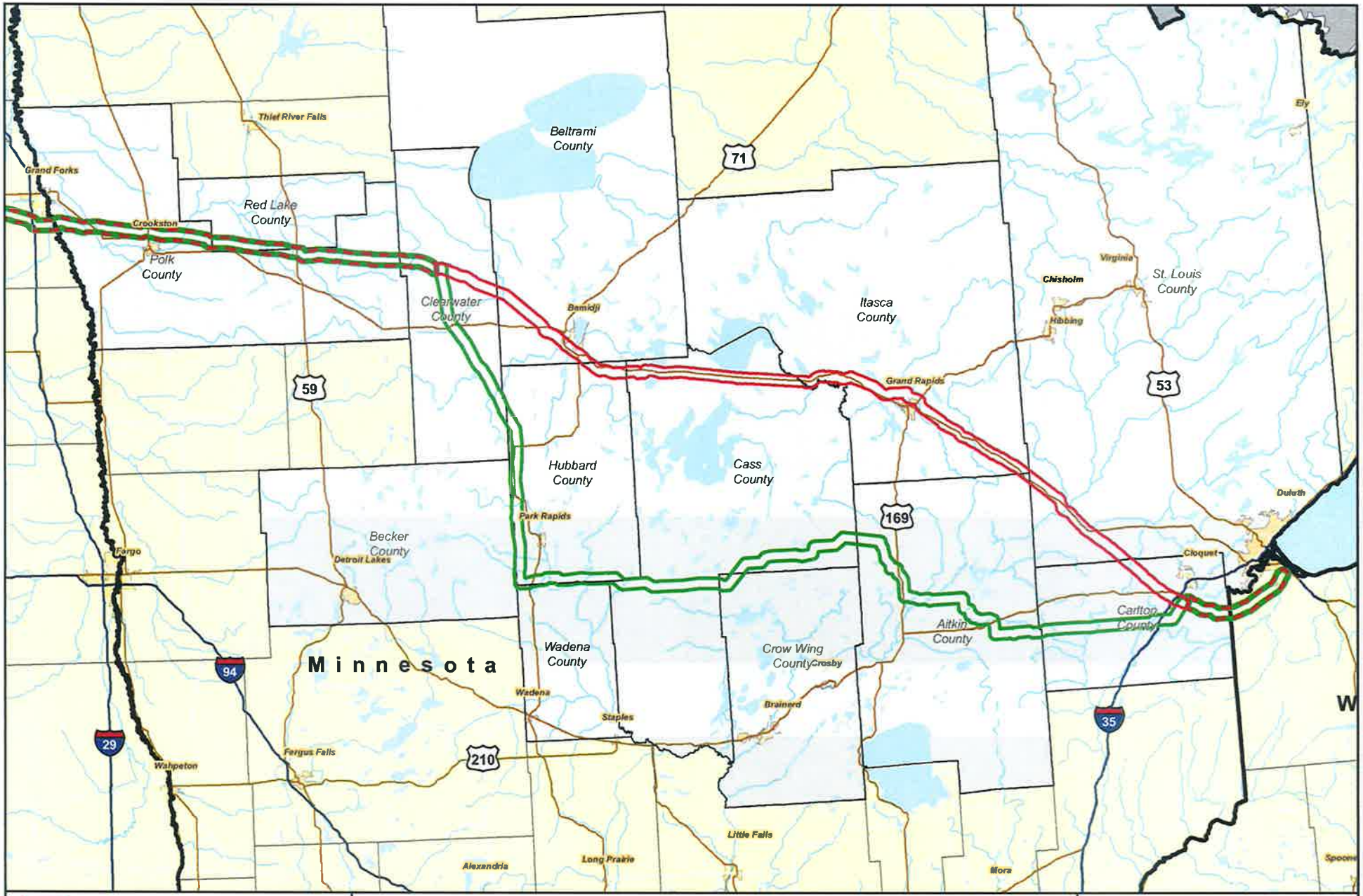
cc: Mike Madson, Merjent

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Minnesota Project Location Map

ENBRIDGE

ENBRIDGE

April 3, 2013

Ms. Fern E. Swenson
State Historical Society of North Dakota
Archaeology and Historic Preservation Division
612 East Boulevard Ave
Bismarck, ND 58505

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Cultural Resources

Dear Ms. Swenson:

With this letter, we are introducing the Sandpiper Pipeline Project ("Sandpiper"), which has the potential to require approvals and/or permits that are subject to your office's review; therefore, we expect that regulatory agencies may soon engage in consultation with your office for compliance with state or federal statutes. In addition, we plan to request meetings with members of your staff in early April to discuss archaeological sensitivity modeling, field survey protocols, and reporting.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow our existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing Line 81 pipeline right-of-way in North Dakota. The project will begin at our Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to our terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, the Sandpiper Pipeline Project would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route, a project map of North Dakota counties, and a shapefile of the 2-mile-wide study area are enclosed.

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting, including cultural resources consultations and field surveys. Merjent is teaming with Foth Companies, Metcalf Archaeological Consultants, Stratamorph Geoexploration, Beaver Creek Archaeology, and Ethnoscience, Inc., to prepare an archaeology sensitivity model, develop survey protocols, and conduct field surveys in North Dakota. These contractors will carry the annual permit required by North Dakota Century Code (NDCC) section 55-03-01 and will adhere to the North Dakota State Historic Preservation Office (SHPO) Guidelines Manual for Cultural Resources Inventory Projects.

To facilitate cultural resources review in North Dakota, we have also been in contact with Paul Picha at the North Dakota SHPO to introduce the Sandpiper Pipeline Project, to request archaeological and historic data, and recommendations related to reporting requirements.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Mike Madson at Merjent (612-924-3963; mmadson@merjent.com). Mike Madson will be contacting you to establish a time to meet to discuss sensitivity modeling, survey needs, and protocols. Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
Project Map of North Dakota Counties
Shapefile of the 2-mile-wide Study Area

cc: Mike Madson, Merjent

0 30 60 Miles

1 inch = 60 miles

N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Jack Dalrymple
Governor of North Dakota

**North Dakota
State Historical Board**

Gereld Gerntholz
Valley City - President

Calvin Grinnell
New Town - Vice President

A. Ruric Todd III
Jamestown – Secretary

Albert I. Berger
Grand Forks

Diane K. Larson
Bismarck

Chester E. Nelson, Jr.
Bismarck

Margaret Puetz
Bismarck

Sara Otte Coleman
*Director
Tourism Division*

Kelly Schmidt
State Treasurer

Alvin A. Jaeger
Secretary of State

Mark Zimmerman
*Director
Parks and Recreation
Department*

Francis Ziegler
*Director
Department of Transportation*

Merlan E. Paaverud, Jr.
Director

*Accredited by the
American Association
of Museums since 1986*

July 11, 2012

Mr. Patrick Fahn
Public Service Commission
600 East Boulevard Avenue
Bismarck ND 58505-0480

RE: Cultural Resource Reports Submitted to the North Dakota Public Service Commission
Dear Mr. Fahn,

Here is the text to the letter we will be sending out to the permitted cultural resource contractors.
Locational information for archaeological and historic sites is protected under North Dakota Century Code § 55-02-07. Due to a problem of cultural resource reports and archeological site locational information appearing on the North Dakota Public Service Commission (PSC) website, we request that all reports (Class I, Class II or Class III, or documents outlining testing or data recovery methodologies) or any loose maps sent to the PSC offices by a permitee or their client not contain site locational information. Site locational information includes the location of a site on a topographic map or aerial photographs, the location of a site in tables, such as Township, Range and Section, or the photograph of a site. It is acceptable to mention the Smithsonian Trinomial designation (e.g., 32EM0123) as this does not contain locational information, other than state and county.

For reports or documents of any type omitting site locational information can most easily be accomplished by sending just the report cover and abstract pages. Please be sure that your abstracts do not contain tables of sites with Township, Range and Section columns, or other locational identification. Report covers sent to the PSC should not contain photographs of sites, which might be identifiable in reports that cover small areas. If for some reason you need to send a loose map, please delete all archaeological and historic site locations from the map before submittal to the PSC. We have been working with PSC staff, and the abstracts alone would be acceptable. Therefore full reports that are redacted are **not** necessary.

Thank you for your attention to this important matter. If you have questions, please contact either Susan Quinnell, Review and Compliance Coordinator at squinnell@nd.gov, (701) 328-3576, or Paul Picha, Chief Archaeologist at ppicha@nd.gov, (701) 328-3574.

Sincerely,

Susan Quinnell
Review and Compliance Coordinator
State Historical Society of North Dakota

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

Exhibit F	Wetland and Waterbody Assessments
Exhibit F.1	Wetland Delineation Survey
Exhibit F.2	Streams and Waterbodies Crossings Table

Enbridge

2013 North Dakota Wetland and Waterbody Field Survey Report (Rev B)

PRESENTED BY MERJENT, INC.
January 23, 2014

TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**
1.0 INTRODUCTION **2**
1.1 PURPOSE OF SURVEYS 2
1.2 AGENCY CORRESPONDENCE 2
2.0 METHODS **2**
2.1 WETLANDS 2
2.2 WATERBODIES 4
3.0 RESULTS **4**
3.1 SURVEY COMPLETION 4
3.2 WETLAND AND WATERBODY SUMMARY 4
4.0 REFERENCES **6**

TABLES

Table 3.0-1 – Wetland, Waterbody, and Cowardin Class Summary

FIGURES

Figure 1.1-0- Project Location Map

APPENDICES

Appendix A – Agency Correspondence
Appendix B – Map Index
Appendix C – Desktop Environmental Features Exhibit
Appendix D – Wetland and Waterbody Field Protocols
Appendix E – Field-Collected Environmental Features Exhibit
Appendix F – Wetland and Waterbody Features Table (included in filing)
Appendix G – USACE Collected Data Forms
Appendix H – Photos

Other Appendices available upon request

EXECUTIVE SUMMARY

Carlson McCain, Inc. ("McCain"), on behalf of Merjent, Inc. ("Merjent") and Enbridge, conducted wetland and waterbody surveys in North Dakota during the 2013 growing season. Wetland and waterbody surveys were completed for 11,483.34 acres of the total 13,822.1 acre environmental survey corridor (83 percent). The remaining areas were not surveyed due to access restrictions or corridor modifications. Surveys will be conducted in the remaining areas during the 2014 growing season.

Wetland and waterbody surveys were conducted in accordance with U.S. Army Corps of Engineers ("USACE") technical guidance. Specific objectives of the wetland and waterbody surveys were to:

1) Delineate wetland boundaries;
2) Categorize wetland community types of each wetland;
3) Locate and characterize waterbodies.

The 2013 wetland and waterbody surveys resulted in the identification of 1,312 wetlands and 117 waterbody features. Wetlands were primarily comprised of palustrine emergent, palustrine scrub-shrub, and palustrine forested vegetative communities. Waterbodies were comprised of Riverine Lower Perennial Unconsolidated Bottom, Riverine Intermittent Streambed, Riverine Ephemeral, Riverine Lower Perennial Unconsolidated Shore, and Riverine Upper Perennial Unconsolidated Bottom.

1.0 INTRODUCTION

Carlson McCain, Inc. ("McCain"), on behalf of Merjent, Inc. ("Merjent") and Enbridge, conducted wetland and waterbody surveys in North Dakota during the 2013 growing season. Wetland and waterbody surveys were completed for 11,483.34 acres of the total 13,822.1 acre environmental survey corridor (83 percent). The remaining areas were not surveyed due to access restrictions or corridor modifications. Surveys will be conducted in the remaining areas during the 2014 growing season.

1.1 PURPOSE OF SURVEYS

McCain, on behalf of Merjent and Enbridge, conducted wetland and waterbody surveys in North Dakota during the 2013 growing season. Wetland and waterbody surveys were conducted in accordance with U.S. Army Corps of Engineers ("USACE") technical guidance. The objectives of the wetland and waterbody surveys were to:

1) Delineate wetland boundaries;
2) Categorize wetland community types of each wetland; and
3) Locate and characterize waterbodies.

The environmental survey corridor in North Dakota extends from Enbridge's Beaver Lodge Station south of Tioga, North Dakota to the North Dakota-Minnesota border, and crosses the following counties: Grand Forks, McHenry, Mountrail, Nelson, Pierce, Ramsey, Towner, Ward, and Williams (Figure 1.1-0). The environmental survey corridor covers approximately 299.27 miles and has an average width of 300 feet.

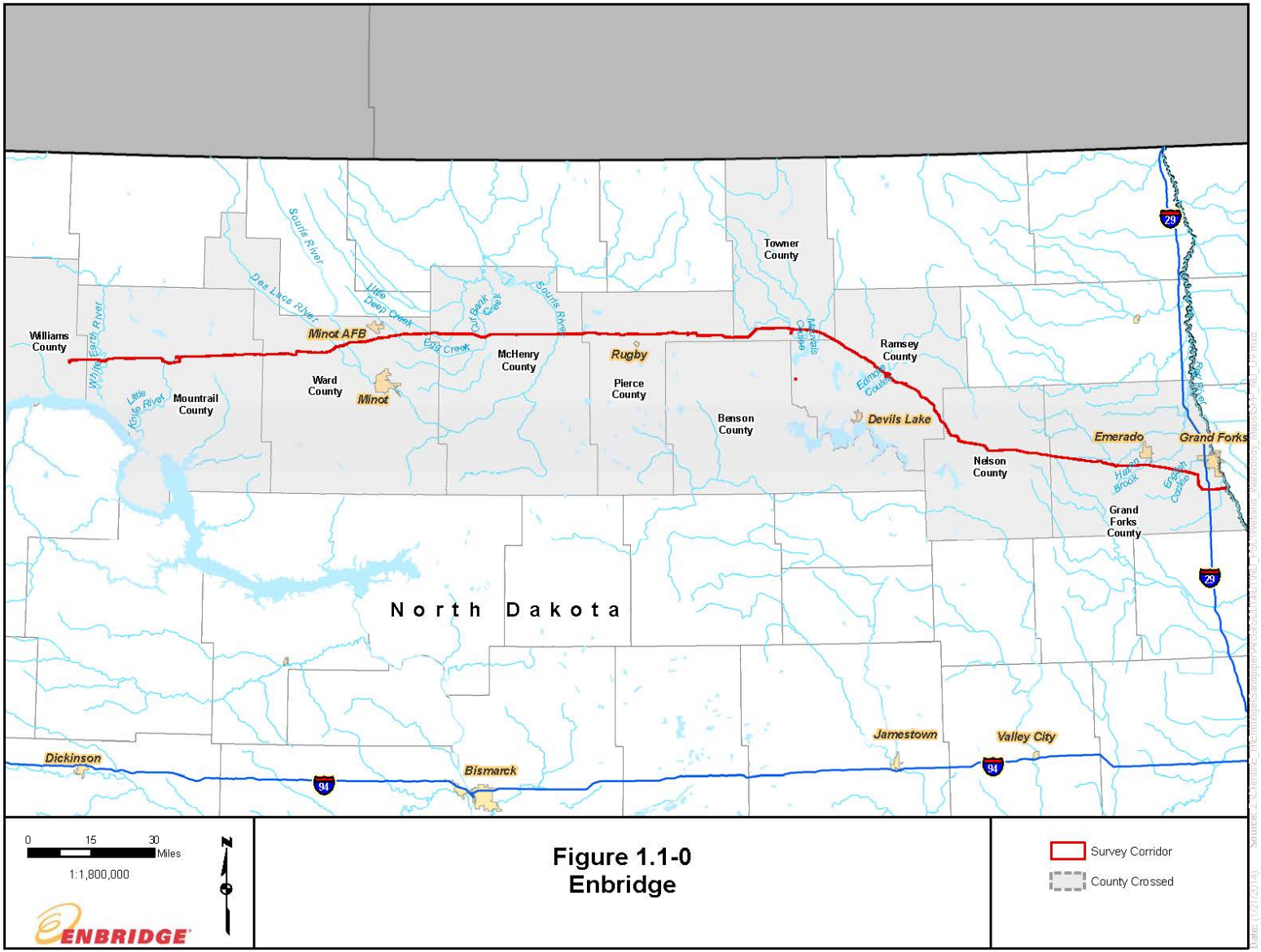
1.2 AGENCY CORRESPONDENCE

Enbridge, Merjent, and Minnesota Natural Resources, Inc. ("MNR") met with Barbara Walther of USACE St. Paul District on April 10, 2013 to discuss planned survey protocols. Survey protocols were discussed and concurred with by USACE representatives. Refer to Appendix A for a copy of the correspondence with USACE.

2.0 METHODS

2.1 WETLANDS

Wetland surveys were based on the criteria and methods outlined in the *Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1 (1987), subsequent guidance documents (USACE, 1991, 1992), and applicable Regional Supplements to the *Corps of Engineers Wetland Delineation Manual*.


Towner County
Williams County
Minot AFB
McHenry County
Rugby
Ramsey County
Ward County
Minot
Pierce County
Mountrail County
Benson County
Devils Lake
Emerado
Grand Forks
Nelson County
Grand Forks County
North Dakota
Jamestown
Valley City
Dickinson
Bismarck
Souris River
Des Lacs River
Little Deep Creek
Edig Creek
Sour Bank Creek
White Earth River
Little Knife River
Edmore Coulee
Hare Brook
Ergaily Coulee
0 15 30 Miles
1:1,800,000
N
ENBRIDGE
Figure 1.1-0
Enbridge
Survey Corridor
County Crossed

McCain completed a desktop evaluation of available resources to prepare for the survey effort, which included U.S. Geological Survey topographic maps, Natural Resources Conservation Service ("NRCS") soil survey data, U.S. Fish and Wildlife Service National Wetland Inventory ("NWI") data, and aerial photographs. These data were compiled on the same map base to approximate baseline field conditions; Appendix B presents a Map Index of the environmental survey corridor and Appendix C presents detailed maps showing soil and water environmental features.

Onsite wetland delineations were conducted using the three criteria technical approach (i.e., vegetation, soil, and hydrology) as described in the Wetland Field Survey Protocol (see Appendix D), and as defined in the USACE 1987 Manual and the applicable Regional Supplement. According to procedures described in the 1987 Manual and applicable Regional Supplement, areas that under normal circumstances reflect a predominance of hydrophytic vegetation, hydric soils, and wetland hydrology (e.g., inundated or saturated soils) are considered wetlands. Wetland sample points and boundaries were field located and recorded using GPS technology. Collected field data was then reviewed, geospatially corrected, and consolidated for use in corridor evaluation and impact analyses.

2.2 WATERBODIES

Waterbody features were identified, classified, and documented according to the methodology outlined in the Waterbody Field Survey Protocol provided in Appendix D. Waterbodies were field located and delineated using GPS technology. Physical characteristics of each waterbody were field documented, such as top of bank width, ordinary high water mark ("OHWM") width, top of bank depth, OHWM depth, substrate type, estimated water velocity, approach slope, and water-course type. OHWMs, if present, were identified as defined by USACE Regulatory Guidance Letter (RGL) 05-05.

3.0 RESULTS

3.1 SURVEY COMPLETION

The environmental survey corridor is located within Grand Forks, McHenry, Mountrail, Nelson, Pierce, Ramsey, Towner, Ward, and Williams counties. Wetland and waterbody surveys were completed for 11,483.34 acres of the total 13,822.1 acre environmental survey corridor (83 percent). The remaining areas were not surveyed due to access restrictions or corridor modifications. Surveys will continue in the remaining areas during the 2014 growing season.

3.2 WETLAND AND WATERBODY SUMMARY

2013 wetland and waterbody field surveys identified 1,312 wetlands and 117 waterbodies, illustrated by Cowardin classification in the figures provided in Appendix E and listed in tabular format in Appendix F. Table 3.0-1 identifies the wetland and waterbody Cowardin classes documented in the environmental survey corridor. Soil type, hydrology, vegetative composition, and the Cowardin class of each sampled wetland were documented on the USACE wetland delineation forms provided in Appendix G. Wetland classes observed to be present in the environmental survey corridor include: Palustrine Emergent ("PEM"), Palustrine Scrub-Shrub ("PSS"), Palustrine Forested ("PFO"), and Palustrine Unconsolidated Bottom ("PUB"). Waterbody classes present in the environmental survey corridor include: Riverine Lower Perennial Unconsolidated Bottom ("R2UB"), Riverine Intermittent Streambed ("R4SB"), Riverine

Ephemeral ("R6"), Riverine Lower Perennial Unconsolidated Shore ("R2US"), and Riverine Upper Perennial Unconsolidated Bottom ("R3UB"). Wetland acreage within the environmental survey corridor totaled 1592 acres with Cowardin class acreage identified as follows: 1581 acres of PEM, 2.84 acres of PSS, and 1.1 acres of PFO. Professional judgment was used to identify ditches, which are features that appeared to be mechanically channelized and lacked an OHWM. Appendix F describes the Cowardin class, flow rate, bank height and width, OHWM height and width, substrate, dominate riparian vegetation, waterbody name, and agency designation (if applicable) of each waterbody identified within the environmental survey corridor. Photographs were taken at each sampled wetland and waterbody site to record the general conditions at the time of the field survey, and are presented in Appendix H.

Table 3.0-1
Wetland, Waterbody, and Cowardin Class Summary

County	Feature Category	Number of Documented Features	Cowardin Classes Identified									
			PEM	***PSS***	***PFO***	***L2UB***	***R2UB***	***R4SB***	***R6***	***R2US***	***R3UB***	***Ditch***
Grand Forks	Wetlands	81	78	-	3	-	-	-	-	-	-	-
	Waterbodies	20	-	-	-	-	3	2	6	1	2	5
McHenry	Wetlands	181	178	3	-	-	-	-	-	-	-	-
	Waterbodies	4	-	-	-	-	1	1	-	-	2	-
Mountrail	Wetlands	157	154	-	-	3	-	-	-	-	-	-
	Waterbodies	11	-	-	-	-	1	2	5	-	1	2
Nelson	Wetlands	187	187	-	-	-	-	-	-	-	-	-
	Waterbodies	8	-	-	-	-	-	-	-	-	-	8
Pierce	Wetlands	197	196	-	-	1	-	-	-	-	-	-
	Waterbodies	14	-	-	-	-	-	7	2	-	2	3
Ramsey	Wetlands	115	114	1	-	-	-	-	-	-	-	-
	Waterbodies	22	-	-	-	-	1	-	1	-	5	16
Towner	Wetlands	136	136	-	-	-	-	-	-	-	-	-
	Waterbodies	16	-	-	-	-	1	3	3	1	1	7
Ward	Wetlands	250	250	-	-	-	-	-	-	-	-	-
	Waterbodies	18	-	-	-	-	5	5	1	-	1	6
Williams	Wetlands	8	8	-	-	-	-	-	-	-	-	-
	Waterbodies	4	-	-	-	-	-	-	2	2	-	-

4.0 REFERENCES

Cowardin, L.M., V. Carter, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services. FWS/OBS-79/31. Washington, D.C. 20240.

Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, MS.

Reed, P. 1988. National List of Plant Species that Occur in Wetlands. National Wetland Inventory, U.S. Department of the Interior, Fish and Wildlife Service, St. Petersburg, FL.

U.S. Army Corps of Engineers (USACE) "Clarification of the Phrase "Normal Circumstances" as it pertains to Cropped Wetlands," Regulatory Guidance Letter (RGL) 90-7 dated 26 September 1990.

USACE. 2009. “Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region,” ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-09-19. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USACE "Implementation of the 1987 Corps Wetland Delineation Manual," memorandum from John P. Elmore dated 27 August 1991.

USACE. 2010. “Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (Version 2.0),” ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-16. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USACE "Questions & Answers on the 1987 Manual," memorandum from John F. Study dated 7 October 1991.

USACE "Clarification and Interpretation of the 1987 Manual," memorandum from Major General Arthur E. Williams dated 6 March 1992.

USACE “NRCS Field Indicators of Hydric Soils," memorandum from John F. Study dated 21 March 1997.

United States Department of Agriculture (USDA), Natural Resource Conservation Service (NRCS).

USDA, NRCS. 2010. Field Indicators of Hydric Soils in the United States, Version 7.0. L.M. Vasilas, G.W. Hurt, and C.V. Noble (eds.). USDA, NRCS in cooperation with the National Technical Committee for Hydric Soils.

USDA, Soil Conservation Service, Soil Survey.

United States Geological Survey, Indiana 7.5 Minute Series (Topographic) Maps

Wetland Training Institute, Inc. 1995. Field Guide for Wetland Delineation; 1987 Corps of Engineers Manual, Glenwood, NM.

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Williams	WI002a1W	8/21/2013	PEM	None
Williams	WI008a1W	8/21/2013	PEM	None
Williams	WI011a1W	6/24/2013	PEM	None
Williams	WI012a1W	8/21/2013	PEM	None
Williams	WI012b1W	8/21/2013	PEM	None
Williams	WI013a1W	8/21/2013	PEM	None
Williams	WI013b1W	8/21/2013	PEM	None
Williams	WI013c1W	8/21/2013	PEM	None
Mountrail	MO002a1W	8/5/2013	PEM	None
Mountrail	MO002b1W	8/5/2013	PEM	None
Mountrail	MO003b1W	9/3/2013	PEM	None
Mountrail	MO005a1W	8/5/2013	PEM	None
Mountrail	MO015a1W	6/25/2013	PEM	None
Mountrail	MO019a1W	8/1/2013	PEM	None
Mountrail	MO021a1W	8/1/2013	PEM	None
Mountrail	MO021c1W	8/1/2013	PEM	None
Mountrail	MO023a1W	8/5/2013	PEM	None
Mountrail	MO023b1W	8/5/2013	PEM	None
Mountrail	MO023c1W	8/5/2013	PEM	None
Mountrail	MO024a1W	8/5/2013	PEM	None
Mountrail	MO024b1W	8/5/2013	PEM	None
Mountrail	MO024c1W	8/5/2013	PEM	None
Mountrail	MO025a1W	6/26/2013	PEM	None
Mountrail	MO026a1W	7/29/2013	PEM	None
Mountrail	MO026b1W	7/29/2013	PEM	None
Mountrail	MO027a1W	8/21/2013	PEM	None
Mountrail	MO027b1W	8/21/2013	PEM	None
Mountrail	MO028a1W	8/21/2013	PEM	None
Mountrail	MO028b1W	8/21/2013	PEM	None
Mountrail	MO028c1W	8/21/2013	PEM	None
Mountrail	MO029_200a1W	8/1/2013	PEM	None
Mountrail	MO029_200b1W	8/1/2013	PEM	None
Mountrail	MO029a1W	8/1/2013	PEM	None
Mountrail	MO029b1W	8/1/2013	PEM	None
Mountrail	MO029c1W	8/1/2013	PEM	None
Mountrail	MO031a1W	8/1/2013	PEM	None
Mountrail	MO031b1W	8/1/2013	PEM	None
Mountrail	MO031c1W	8/1/2013	PEM	None
Mountrail	MO031d1W	8/1/2013	PEM	None
Mountrail	MO031e1W	8/1/2013	PEM	None
Mountrail	MO031f1W	9/9/2013	PEM	None
Mountrail	MO032a1W	9/9/2013	PEM	None
Mountrail	MO033a1W	9/9/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Mountrail	MO033b1W	8/1/2013	PEM	None
Mountrail	MO034a1W	8/1/2013	L2UB	None
Mountrail	MO034b1W	8/1/2013	PEM	None
Mountrail	MO035a1W	8/2/2013	PEM	None
Mountrail	MO036a1W	8/2/2013	PEM	None
Mountrail	MO036b1W	8/2/2013	PEM	None
Mountrail	MO036c1W	8/2/2013	PEM	None
Mountrail	MO036d1W	8/2/2013	PEM	None
Mountrail	MO037a1W	8/2/2013	PEM	None
Mountrail	MO037c1W	8/2/2013	PEM	None
Mountrail	MO038a1W	8/2/2013	PEM	None
Mountrail	MO038b1W	8/2/2013	PEM	None
Mountrail	MO038c1W	8/2/2013	PEM	None
Mountrail	MO038d1W	8/2/2013	PEM	None
Mountrail	MO039a1W	8/2/2013	PEM	None
Mountrail	MO041a1W	8/1/2013	PEM	None
Mountrail	MO041b1W	8/1/2013	PEM	None
Mountrail	MO042a1W	8/1/2013	PEM	None
Mountrail	MO043a1W	8/1/2013	PEM	None
Mountrail	MO043b1W	8/1/2013	PEM	None
Mountrail	MO043b2W	9/3/2013	PEM	None
Mountrail	MO045a1W	8/1/2013	PEM	None
Mountrail	MO046a1W	8/1/2013	PEM	None
Mountrail	MO047a1W	8/1/2013	PEM	None
Mountrail	MO047b1W	8/1/2013	PEM	None
Mountrail	MO052a1W	8/2/2013	PEM	None
Mountrail	MO053a1W	8/2/2013	PEM	None
Mountrail	MO056_210a1W	9/3/2013	PEM	None
Mountrail	MO056_210b1W	9/3/2013	PEM	None
Mountrail	MO057a1W	8/2/2013	PEM	None
Mountrail	MO057b1W	8/2/2013	PEM	None
Mountrail	MO058a1W	9/4/2013	PEM	None
Mountrail	MO058b1W	9/4/2013	PEM	None
Mountrail	MO059a1W	6/25/2013	PEM	None
Mountrail	MO059b1W	6/25/2013	PEM	None
Mountrail	MO060a1W	8/27/2013	PEM	None
Mountrail	MO060b1W	8/27/2013	PEM	None
Mountrail	MO062a1W	8/2/2013	PEM	None
Mountrail	MO064a1W	8/6/2013	PEM	None
Mountrail	MO064b1W	8/6/2013	PEM	None
Mountrail	MO065a1W	8/6/2013	PEM	None
Mountrail	MO067a1W	7/29/2013	PEM	None
Mountrail	MO067b1W	7/29/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Mountrail	MO067c1W	7/29/2013	PEM	None
Mountrail	MO068a1W	7/29/2013	PEM	None
Mountrail	MO068b1W	7/29/2013	PEM	None
Mountrail	MO068c1W	7/29/2013	PEM	None
Mountrail	MO070a1W	8/27/2013	PEM	None
Mountrail	MO071b1W	8/27/2013	PEM	None
Mountrail	MO072a1W	8/27/2013	PEM	None
Mountrail	MO072b1W	8/27/2013	PEM	None
Mountrail	MO072c1W	8/27/2013	PEM	None
Mountrail	MO072d1W	8/27/2013	PEM	None
Mountrail	MO073a1W	8/5/2013	PEM	None
Mountrail	MO073b1W	8/5/2013	PEM	None
Mountrail	MO075a1W	7/3/2013	PEM	None
Mountrail	MO075b1W	7/3/2013	PEM	None
Mountrail	MO075c1W	7/3/2013	PEM	None
Mountrail	MO076a1W	8/5/2013	PEM	None
Mountrail	MO076b1W	8/5/2013	PEM	None
Mountrail	MO076c1W	8/5/2013	PEM	None
Mountrail	MO076d1W	8/5/2013	PEM	None
Mountrail	MO076f1W	8/5/2013	PEM	None
Mountrail	MO076g1W	8/5/2013	PEM	None
Mountrail	MO076h1W	8/5/2013	PEM	None
Mountrail	MO077a1W	8/27/2013	PEM	None
Mountrail	MO077b1W	8/27/2013	PEM	None
Mountrail	MO077c1W	8/27/2013	PEM	None
Mountrail	MO077d1W	8/27/2013	PEM	None
Mountrail	MO077e1W	8/27/2013	PEM	None
Mountrail	MO078a1W	6/26/2013	PEM	None
Mountrail	MO078b1W	6/26/2013	PEM	None
Mountrail	MO078c1W	6/26/2013	PEM	None
Mountrail	MO078d1W	6/26/2013	PEM	None
Mountrail	MO078e1W	6/26/2013	PEM	None
Mountrail	MO079a1W	6/26/2013	PEM	None
Mountrail	MO079b1W	6/26/2013	PEM	None
Mountrail	MO079c1W	6/26/2013	PEM	None
Mountrail	MO079d1W	6/26/2013	PEM	None
Mountrail	MO079e1W	6/26/2013	PEM	None
Mountrail	MO079f1W	6/26/2013	PEM	None
Mountrail	MO080a1W	7/1/2013	PEM	None
Mountrail	MO080b1W	7/1/2013	PEM	None
Mountrail	MO080c1W	7/1/2013	PEM	None
Mountrail	MO080d1W	7/1/2013	PEM	None
Mountrail	MO083a1W	7/1/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Mountrail	MO084a1W	7/1/2013	PEM	None
Mountrail	MO085a1W	7/1/2013	PEM	None
Mountrail	MO085b1W	7/1/2013	PEM	None
Mountrail	MO085c1W	7/1/2013	PEM	None
Mountrail	MO085d1W	7/1/2013	PEM	None
Mountrail	MO085e1W	7/1/2013	PEM	None
Mountrail	MO086a1W	7/1/2013	PEM	None
Mountrail	MO087a1W	7/1/2013	PEM	None
Mountrail	MO088a1W	7/1/2013	PEM	None
Mountrail	MO090_100a1W	7/2/2013	PEM	None
Mountrail	MO091a1W	7/2/2013	PEM	None
Mountrail	MO092a1W	7/2/2013	PEM	None
Mountrail	MO092b1W	7/2/2013	PEM	None
Mountrail	MO092c1W	7/2/2013	PEM	None
Mountrail	MO092d1W	7/2/2013	PEM	None
Mountrail	MO093a1W	7/2/2013	PEM	None
Mountrail	MO093b1W	7/2/2013	PEM	None
Mountrail	MO093c1W	7/2/2013	PEM	None
Mountrail	MO096a1W	7/2/2013	PEM	None
Mountrail	MO096b1W	7/2/2013	PEM	None
Mountrail	MO097a1W	7/3/2013	PEM	None
Mountrail	MO097b1W	7/3/2013	PEM	None
Mountrail	MO097c1W	7/3/2013	PEM	None
Mountrail	MO098b1W	7/3/2013	PEM	None
Mountrail	MO099a1W	7/3/2013	PEM	None
Mountrail	MO101a1W	8/5/2013	L2UB	None
Mountrail	MO102a1W	8/5/2013	L2UB	None
Mountrail	MO103_100a1W	8/5/2013	PEM	None
Mountrail	MO103a1W	7/30/2013	PEM	None
Mountrail	MO103b1W	7/30/2013	PEM	None
Mountrail	MO104a1W	7/30/2013	PEM	None
Mountrail	MO104b1W	7/30/2013	PEM	None
Mountrail	MO104c1W	7/30/2013	PEM	None
Mountrail	MO104d1W	7/30/2013	PEM	None
Mountrail	MO105a1W	7/30/2013	PEM	None
Mountrail	MO22a1W	8/5/2013	PEM	None
Ward	WA001_100a1W	6/24/2013	PEM	None
Ward	WA001_100b1W	6/27/2013	PEM	None
Ward	WA001_100c1W	6/27/2013	PEM	None
Ward	WA001a1W	6/24/2013	PEM	None
Ward	WA001b1W	6/24/2013	PEM	None
Ward	WA001c1W	6/24/2013	PEM	None
Ward	WA001d1W	6/24/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ward	WA002a1W	6/27/2013	PEM	None
Ward	WA002b1W	6/27/2013	PEM	None
Ward	WA003a1W	6/27/2013	PEM	None
Ward	WA003b1W	6/27/2013	PEM	None
Ward	WA003c1W	6/27/2013	PEM	None
Ward	WA004a1W	6/27/2013	PEM	None
Ward	WA004b1W	6/27/2013	PEM	None
Ward	WA005a1W	9/4/2013	PEM	None
Ward	WA005b1W	9/4/2013	PEM	None
Ward	WA005c1W	9/4/2013	PEM	None
Ward	WA006a1W	9/4/2013	PEM	None
Ward	WA007a1W	7/11/2013	PEM	None
Ward	WA007b1W	7/11/2013	PEM	None
Ward	WA007c1W	7/11/2013	PEM	None
Ward	WA007d1W	7/11/2013	PEM	None
Ward	WA008a1W	7/9/2013	PEM	None
Ward	WA008b1W	7/9/2013	PEM	None
Ward	WA008c1W	7/9/2013	PEM	None
Ward	WA008d1W	7/9/2013	PEM	None
Ward	WA009a1W	7/9/2013	PEM	None
Ward	WA009b1W	7/9/2013	PEM	None
Ward	WA009c1W	7/9/2013	PEM	None
Ward	WA009d1W	7/9/2013	PEM	None
Ward	WA010a1W	7/9/2013	PEM	None
Ward	WA010c1W	7/9/2013	PEM	None
Ward	WA010d1W	7/9/2013	PEM	None
Ward	WA010e1W	7/9/2013	PEM	None
Ward	WA010f1W	7/9/2013	PEM	None
Ward	WA010g1W	7/9/2013	PEM	None
Ward	WA010h1W	7/9/2013	PEM	None
Ward	WA010i1W	7/11/2013	PEM	None
Ward	WA010j1W	7/9/2013	PEM	None
Ward	WA012a1W	7/11/2013	PEM	None
Ward	WA012b1W	7/11/2013	PEM	None
Ward	WA012c1W	9/9/2013	PEM	None
Ward	WA013a1W	8/6/2013	PEM	None
Ward	WA013b1W	8/6/2013	PEM	None
Ward	WA013c1W	8/6/2013	PEM	None
Ward	WA013d1W	8/6/2013	PEM	None
Ward	WA016a1W	8/6/2013	PEM	None
Ward	WA018a1W	8/6/2013	PEM	None
Ward	WA018b1W	8/6/2013	PEM	None
Ward	WA018c1W	8/6/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ward	WA018d1W	8/6/2013	PEM	None
Ward	WA018e1W	8/6/2013	PEM	None
Ward	WA018f1W	8/6/2013	PEM	None
Ward	WA019a1W	8/6/2013	PEM	None
Ward	WA020a1W	8/6/2013	PEM	None
Ward	WA020b1W	8/6/2013	PEM	None
Ward	WA021_100a1W	8/7/2013	PEM	None
Ward	WA021a1W	8/7/2013	PEM	None
Ward	WA022_900a1W	8/7/2013	PEM	None
Ward	WA022a1W	8/7/2013	PEM	None
Ward	WA022b1W	8/7/2013	PEM	None
Ward	WA022c1W	8/7/2013	PEM	None
Ward	WA023A1W	8/7/2013	PEM	None
Ward	WA023b1W	8/7/2013	PEM	None
Ward	WA024_900a1W	8/8/2013	PEM	None
Ward	WA024a1W	8/7/2013	PEM	None
Ward	WA025a1W	8/8/2013	PEM	None
Ward	WA025b1W	8/8/2013	PEM	None
Ward	WA025c1W	8/8/2013	PEM	None
Ward	WA026a1W	8/8/2013	PEM	None
Ward	WA026b1W	8/8/2013	PEM	None
Ward	WA026d1W	8/8/2013	PEM	None
Ward	WA026e1W	8/8/2013	PEM	None
Ward	WA026f1W	8/8/2013	PEM	None
Ward	WA027a1W	8/8/2013	PEM	None
Ward	WA027b1W	8/8/2013	PEM	None
Ward	WA027c1W	8/8/2013	PEM	None
Ward	WA028a1W	8/12/2013	PEM	None
Ward	WA028b1W	8/12/2013	PEM	None
Ward	WA028c1W	8/12/2013	PEM	None
Ward	WA028d1W	8/12/2013	PEM	None
Ward	WA028e1W	8/12/2013	PEM	None
Ward	WA028f1W	8/12/2013	PEM	None
Ward	WA029a1W	8/12/2013	null	None
Ward	WA029b1W	8/12/2013	PEM	None
Ward	WA030_900RDa1W	8/12/2013	PEM	None
Ward	WA030a1W	8/12/2013	PEM	None
Ward	WA030b1W	8/12/2013	PEM	None
Ward	WA030c1W	8/12/2013	PEM	None
Ward	WA030d1W	8/12/2013	PEM	None
Ward	WA030e1W	8/12/2013	PEM	None
Ward	WA031a1W	8/12/2013	PEM	None
Ward	WA031b1W	8/12/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ward	WA031c1W	8/12/2013	PEM	None
Ward	WA031d1W	8/12/2013	PEM	None
Ward	WA031e1W	8/12/2013	PEM	None
Ward	WA032a1W	8/12/2013	PEM	None
Ward	WA032b1W	8/12/2013	PEM	None
Ward	WA033a1W	8/12/2013	PEM	None
Ward	WA035a1W	8/13/2013	PEM	None
Ward	WA036a1W	8/13/2013	PEM	None
Ward	WA039a1W	8/13/2013	PEM	None
Ward	WA041a1W	9/3/2013	PEM	None
Ward	WA048a1W	8/6/2013	PEM	None
Ward	WA049a1W	8/6/2013	PEM	None
Ward	WA049b1W	8/6/2013	PEM	None
Ward	WA049c1W	8/6/2013	PEM	None
Ward	WA050a1W	8/6/2013	PEM	None
Ward	WA054a1W	8/13/2013	PEM	None
Ward	WA055a1W	8/13/2013	PEM	None
Ward	WA055c1W	8/13/2013	PEM	None
Ward	WA055d1W	8/13/2013	PEM	None
Ward	WA055e1W	8/13/2013	PEM	None
Ward	WA055f1W	8/13/2013	PEM	None
Ward	WA057a1W	8/13/2013	PEM	None
Ward	WA057b1W	8/13/2013	PEM	None
Ward	WA057c1W	8/14/2013	PEM	None
Ward	WA057e1W	8/14/2013	PEM	None
Ward	WA058a1W	8/14/2013	PEM	None
Ward	WA058b1W	8/14/2013	PEM	None
Ward	WA059_100a1W	9/3/2013	PEM	None
Ward	WA059_100b1W	9/3/2013	PEM	None
Ward	WA059_100d1W	9/3/2013	PEM	None
Ward	WA059_100e1W	9/3/2013	PEM	None
Ward	WA059a1W	9/3/2013	PEM	None
Ward	WA061a1W	8/14/2013	PEM	None
Ward	WA062a1W	8/14/2013	PEM	None
Ward	WA062b1W	8/14/2013	PEM	None
Ward	WA062c1W	8/14/2013	PEM	None
Ward	WA062d1W	8/14/2013	PEM	None
Ward	WA063_000RDa1W	8/14/2013	PEM	None
Ward	WA064a1W	8/15/2013	PEM	None
Ward	WA064b1W	8/15/2013	PEM	None
Ward	WA064c1W	8/15/2013	PEM	None
Ward	WA064d1W	8/15/2013	PEM	None
Ward	WA064e1W	8/15/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ward	WA065a1W	8/14/2013	PEM	None
Ward	WA065b1W	8/14/2013	PEM	None
Ward	WA065c1W	8/14/2013	PEM	None
Ward	WA066a1W	8/15/2013	PEM	None
Ward	WA066b1W	8/15/2013	PEM	None
Ward	WA066c1W	8/15/2013	PEM	None
Ward	WA068a1w	8/16/2013	PEM	None
Ward	WA069a1w	8/16/2013	PEM	None
Ward	WA069b1W	8/16/2013	PEM	None
Ward	WA070a1W	7/15/2013	PEM	None
Ward	WA070b1W	7/15/2013	PEM	None
Ward	WA070c1W	7/15/2013	PEM	None
Ward	WA070d1W	7/15/2013	PEM	None
Ward	WA071a1W	8/16/2013	PEM	None
Ward	WA071b1w	8/16/2013	PEM	None
Ward	WA071c1W	8/16/2013	PEM	None
Ward	WA071d1W	8/16/2013	PEM	None
Ward	WA071e1w	8/16/2013	PEM	None
Ward	WA072a1W	8/19/2013	PEM	None
Ward	WA072b1W	8/19/2013	PEM	None
Ward	WA072c1W	8/19/2013	PEM	None
Ward	WA072d1W	8/19/2013	PEM	None
Ward	WA072e1W	8/19/2013	PEM	None
Ward	WA072f1W	8/19/2013	PEM	None
Ward	WA072g1W	8/19/2013	PEM	None
Ward	WA073a1W	8/19/2013	PEM	None
Ward	WA073b1W	8/19/2013	PEM	None
Ward	WA073c1W	8/19/2013	PEM	None
Ward	WA073d1W	8/19/2013	PEM	None
Ward	WA073e1W	8/19/2013	PEM	None
Ward	WA073f1W	8/19/2013	PEM	None
Ward	WA074a1W	10/9/2013	PEM	None
Ward	WA075a1W	9/5/2013	PEM	None
Ward	WA075b1W	9/5/2013	PEM	None
Ward	WA076a1W	8/20/2013	PEM	None
Ward	WA076b1W	8/20/2013	PEM	None
Ward	WA076c1W	8/20/2013	PEM	None
Ward	WA076d1W	8/20/2013	PEM	None
Ward	WA077a1W	8/20/2013	PEM	None
Ward	WA077b1W	8/20/2013	PEM	None
Ward	WA077c1W	8/20/2013	PEM	None
Ward	WA077d1W	8/20/2013	PEM	None
Ward	WA080a1W	8/20/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ward	WA080b1W	8/20/2013	PEM	None
Ward	WA082a1W	8/21/2013	PEM	None
Ward	WA084a1W	8/21/2013	PEM	None
Ward	WA084b1W	8/21/2013	PEM	None
Ward	WA086a1W	7/10/2013	PEM	None
Ward	WA086b1W	7/10/2013	PEM	None
Ward	WA086c1W	7/10/2013	PEM	None
Ward	WA086d1W	7/10/2013	PEM	None
Ward	WA086e1W	7/10/2013	PEM	None
Ward	WA086f1W	7/10/2013	PEM	None
Ward	WA087a1W	7/10/2013	PEM	None
Ward	WA087b1W	7/10/2013	PEM	None
Ward	WA087c1W	7/10/2013	PEM	None
Ward	WA088a1W	7/15/2013	PEM	None
Ward	WA088b1W	7/15/2013	PEM	None
Ward	WA088c1W	7/15/2013	PEM	None
Ward	WA088d1W	7/15/2013	PEM	None
Ward	WA089a1W	7/16/2013	PEM	None
Ward	WA089b1W	7/16/2013	PEM	None
Ward	WA089c1W	7/18/2013	PEM	None
Ward	WA090a1W	7/18/2013	PEM	None
Ward	WA090b1W	7/17/2013	PEM	None
Ward	WA090c1W	7/17/2013	PEM	None
Ward	WA090d1W	7/17/2013	PEM	None
Ward	WA090e1W	7/17/2013	PEM	None
Ward	WA090f1W	7/17/2013	PEM	None
Ward	WA090g1W	7/18/2013	PEM	None
Ward	WA091a1W	7/18/2013	PEM	None
Ward	WA091b1W	7/18/2013	PEM	None
Ward	WA091c1W	7/18/2013	PEM	None
Ward	WA092a1W	7/18/2013	PEM	None
Ward	WA093a1W	7/19/2013	PEM	None
Ward	WA093b1W	7/19/2013	PEM	None
Ward	WA093c1W	7/19/2013	PEM	None
Ward	WA093d1W	7/19/2013	PEM	None
Ward	WA093e1W	7/19/2013	PEM	None
Ward	WA094a1W	7/30/2013	PEM	None
Ward	WA094b1W	7/30/2013	PEM	None
Ward	WA094c1W	7/30/2013	PEM	None
Ward	WA094d1W	7/30/2013	PEM	None
Ward	WA094e1W	7/30/2013	PEM	None
Ward	WA094f1W	7/30/2013	PEM	None
Ward	WA094g1W	7/30/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ward	WA095a1W	8/21/2013	PEM	None
Ward	WA095c1W	8/21/2013	PEM	None
Ward	WA095d1W	8/21/2013	PEM	None
Ward	WA095f1W	8/21/2013	PEM	None
Ward	WA096b1W	8/21/2013	PEM	None
Ward	WA097a1W	8/16/2013	PEM	None
Ward	WA097b1W	8/16/2013	PEM	None
Ward	WA097c1W	8/16/2013	PEM	None
Ward	WA097d1W	8/16/2013	PEM	None
Ward	WA097e1W	8/16/2013	PEM	None
Ward	WA097f1W	8/16/2013	PEM	None
Ward	WA099a1W	7/30/2013	PEM	None
Ward	WA099b1W	7/30/2013	PEM	None
Ward	WA099c1W	7/30/2013	PEM	None
Ward	WA099d1W	7/30/2013	PEM	None
Ward	WA099e1W	7/31/2013	PEM	None
Ward	WA099f1W	7/31/2013	PEM	None
Ward	WA099g1W	7/31/2013	PEM	None
Ward	WA100a1W	8/16/2013	PEM	None
Ward	WA100b1W	8/16/2013	PEM	None
Ward	WA100c1W	8/16/2013	PEM	None
Ward	WA100d1W	8/16/2013	PEM	None
Ward	WA100e1W	8/16/2013	PEM	None
Ward	WA101_200a1W	8/16/2013	PEM	None
Ward	WA101a1W	8/16/2013	PEM	None
Ward	WA101b1W	8/16/2013	PEM	None
Ward	WA101c1W	8/16/2013	PEM	None
Ward	WA101d1W	8/16/2013	PEM	None
McHenry	MC001a1W	8/21/2013	PEM	None
McHenry	MC003a1W	8/21/2013	PEM	None
McHenry	MC003b1W	8/21/2013	PEM	None
McHenry	MC003c1W	8/21/2013	PEM	None
McHenry	MC003d1W	8/22/2013	PEM	None
McHenry	MC007a1W	9/4/2013	PEM	None
McHenry	MC008a1W	7/31/2013	PEM	None
McHenry	MC008b1W	7/31/2013	PEM	None
McHenry	MC008c1W	7/31/2013	PEM	None
McHenry	MC008d1W	7/31/2013	PEM	None
McHenry	MC008e1W	7/31/2013	PEM	None
McHenry	MC008f1W	7/31/2013	PEM	None
McHenry	MC010a1W	7/31/2013	PEM	None
McHenry	MC011a1W	8/22/2013	PEM	None
McHenry	MC011b1W	8/22/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
McHenry	MC011c1W	8/22/2013	PEM	None
McHenry	MC011d1W	8/22/2013	PEM	None
McHenry	MC011e1W	8/22/2013	PEM	None
McHenry	MC011f1W	8/22/2013	PEM	None
McHenry	MC012a1W	7/31/2013	PEM	None
McHenry	MC012b1W	7/31/2013	PEM	None
McHenry	MC012c1W	7/31/2013	PEM	None
McHenry	MC013a1W	8/28/2013	PEM	None
McHenry	MC013b1W	8/28/2013	PEM	None
McHenry	MC013c1W	8/28/2013	PEM	None
McHenry	MC013d1W	8/28/2013	PEM	None
McHenry	MC013e1W	8/28/2013	PEM	None
McHenry	MC014a1W	8/28/2013	PEM	None
McHenry	MC014b1W	8/28/2013	PEM	None
McHenry	MC015a1W	7/31/2013	PEM	None
McHenry	MC015b1W	7/31/2013	PEM	None
McHenry	MC015c1W	7/31/2013	PEM	None
McHenry	MC016b1W	7/31/2013	PEM	None
McHenry	MC016c1W	7/31/2013	PEM	None
McHenry	MC017a1W	8/22/2013	PEM	None
McHenry	MC018a1W	8/22/2013	PEM	None
McHenry	MC018b1W	8/22/2013	PEM	None
McHenry	MC019a1W	7/31/2013	PEM	None
McHenry	MC020a1W	7/31/2013	PEM	None
McHenry	MC020b1W	7/31/2013	PEM	None
McHenry	MC020c1W	7/31/2013	PEM	None
McHenry	MC021a1W	8/22/2013	PEM	None
McHenry	MC021c1W	8/23/2013	PEM	None
McHenry	MC021d1W	8/23/2013	PEM	None
McHenry	MC022a1W	8/23/2013	PEM	None
McHenry	MC023a1W	8/23/2013	PEM	None
McHenry	MC023b1W	8/23/2013	PEM	None
McHenry	MC024a1W	8/28/2013	PEM	None
McHenry	MC024b1W	8/28/2013	PEM	None
McHenry	MC025a1W	8/23/2013	PEM	None
McHenry	MC026a1W	8/23/2013	PEM	None
McHenry	MC027a1W	8/28/2013	PEM	None
McHenry	MC027b1W	8/28/2013	PEM	None
McHenry	MC028a1W	8/28/2013	PEM	None
McHenry	MC028b1W	8/28/2013	PEM	None
McHenry	MC029_500a1W	9/4/2013	PEM	None
McHenry	MC029_520a1W	9/4/2013	PEM	None
McHenry	MC029_520b1W	9/4/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
McHenry	MC029_520c1W	9/4/2013	PEM	None
McHenry	MC029_540a1W	7/19/2013	PEM	None
McHenry	MC029a1W	8/28/2013	PEM	None
McHenry	MC029b1W	8/28/2013	PEM	None
McHenry	MC034a1W	7/19/2013	PEM	None
McHenry	MC034b1W	7/19/2013	PEM	None
McHenry	MC034c1W	7/19/2013	PEM	None
McHenry	MC034d1W	7/19/2013	PEM	None
McHenry	MC035a1W	9/5/2013	PEM	None
McHenry	MC035c1W	9/5/2013	PEM	None
McHenry	MC035d1W	9/5/2013	PEM	None
McHenry	MC035e1W	9/5/2013	PEM	None
McHenry	MC036a1W	9/5/2013	PEM	None
McHenry	MC036b1W	9/5/2013	PEM	None
McHenry	MC036c1W	9/5/2013	PEM	None
McHenry	MC037a1W	9/5/2013	PEM	None
McHenry	MC038a1W	7/31/2013	PEM	None
McHenry	MC039a1W	7/31/2013	PEM	None
McHenry	MC040a1W	8/22/2013	PEM	None
McHenry	MC040b1W	8/22/2013	PEM	None
McHenry	MC046a1W	8/22/2013	PEM	None
McHenry	MC049a1W	8/22/2013	PEM	None
McHenry	MC049b1W	8/22/2013	PEM	None
McHenry	MC050a1W	8/22/2013	PEM	None
McHenry	MC050b1W	8/22/2013	PEM	None
McHenry	MC051a1W	8/22/2013	PEM	None
McHenry	MC051b1W	8/22/2013	PEM	None
McHenry	MC051c1W	8/22/2013	PEM	None
McHenry	MC051d1W	8/22/2013	PEM	None
McHenry	MC053a1W	8/22/2013	PEM	None
McHenry	MC054a1W	8/23/2013	PEM	None
McHenry	MC055a1W	8/23/2013	PEM	None
McHenry	MC056a1W	8/23/2013	PEM	None
McHenry	MC057a1W	8/23/2013	PEM	None
McHenry	MC058a1W	8/23/2013	PEM	None
McHenry	MC058b1W	8/23/2013	PEM	None
McHenry	MC059a1W	8/23/2013	PEM	None
McHenry	MC059b1W	8/23/2013	PEM	None
McHenry	MC059c1W	8/23/2013	PEM	None
McHenry	MC059d1W	8/23/2013	PEM	None
McHenry	MC060a1W	8/23/2013	PEM	None
McHenry	MC060b1W	8/23/2013	PEM	None
McHenry	MC061a1W	8/23/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
McHenry	MC061b1W	8/23/2013	PEM	None
McHenry	MC062a1W	9/4/2013	PEM	None
McHenry	MC062b1W	9/4/2013	PEM	None
McHenry	MC062c1W	9/4/2013	PEM	None
McHenry	MC062d1W	9/4/2013	PEM	None
McHenry	MC062e1W	9/4/2013	PEM	None
McHenry	MC063a1W	7/25/2013	PEM	None
McHenry	MC064_SHa1W	9/9/2013	PEM	None
McHenry	MC066a1W	7/25/2013	PEM	None
McHenry	MC066b1W	7/25/2013	PEM	None
McHenry	MC066c1W	7/25/2013	PEM	None
McHenry	MC068a1W	7/25/2013	PEM	None
McHenry	MC069a1W	7/25/2013	PEM	None
McHenry	MC069c1W	7/26/2013	PEM	None
McHenry	MC069d1W	7/26/2013	PEM	None
McHenry	MC069e1W	7/26/2013	PEM	None
McHenry	MC069f1W	7/26/2013	PEM	None
McHenry	MC070a1W	7/26/2013	PEM	None
McHenry	MC071a1W	8/1/2013	PEM	None
McHenry	MC082a1W	9/6/2013	PEM	None
McHenry	MC083_300a1W	7/27/2013	PEM	None
McHenry	MC083_300b1W	7/27/2013	PEM	None
McHenry	MC083_300c1W	7/29/2013	PEM	None
McHenry	MC083_300d1W	7/29/2013	PEM	None
McHenry	MC083_300e1W	7/29/2013	PEM	None
McHenry	MC083_300f1W	7/29/2013	PEM	None
McHenry	MC084a1W	9/6/2013	PEM	None
McHenry	MC085a1W	7/26/2013	PEM	None
McHenry	MC085b1W	7/26/2013	PEM	None
McHenry	MC086a1W	7/26/2013	PEM	None
McHenry	MC086b1W	7/26/2013	PEM	None
McHenry	MC086c1W	7/26/2013	PEM	None
McHenry	MC087a1W	7/26/2013	PEM	None
McHenry	MC087b1W	7/26/2013	PEM	None
McHenry	MC087c1W	7/26/2013	PEM	None
McHenry	MC087d1W	7/26/2013	PEM	None
McHenry	MC087e1W	7/26/2013	PEM	None
McHenry	MC087f1W	7/26/2013	PEM	None
McHenry	MC087g1W	8/3/2013	PEM	None
McHenry	MC087h1W	8/3/2013	PEM	None
McHenry	MC087i1W	7/27/2013	PSS	None
McHenry	MC087j1W	7/27/2013	PEM	None
McHenry	MC087k1W	7/27/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
McHenry	MC087l1W	7/27/2013	PEM	None
McHenry	MC088a1W	7/30/2013	PEM	None
McHenry	MC088b1W	7/30/2013	PEM	None
McHenry	MC088c1W	7/30/2013	PSS	None
McHenry	MC088d1W	7/31/2013	PSS	None
McHenry	MC088e1W	7/31/2013	PEM	None
McHenry	MC089a1W	7/31/2013	PEM	None
McHenry	MC091a1W	6/25/2013	PEM	None
McHenry	MC091b1W	6/25/2013	PEM	None
McHenry	MC091c1W	6/25/2013	PEM	None
McHenry	MC091d1W	6/25/2013	PEM	None
McHenry	MC091e1W	6/25/2013	PEM	None
McHenry	MC091f1W	6/25/2013	PEM	None
McHenry	MC091g1W	6/25/2013	PEM	None
McHenry	MC091h1W	6/26/2013	PEM	None
McHenry	MC091i1W	6/26/2013	PEM	None
McHenry	MC092a1W	6/24/2013	PEM	None
McHenry	MC092b1W	6/24/2013	PEM	None
McHenry	MC092c1W	6/24/2013	PEM	None
McHenry	MC092d1W	6/24/2013	PEM	None
McHenry	MC092e1W	6/24/2013	PEM	None
McHenry	MC092f1W	6/24/2013	PEM	None
McHenry	MC092g1W	6/24/2013	PEM	None
McHenry	MC092h1W	6/24/2013	PEM	None
McHenry	MC092i1W	6/24/2013	PEM	None
McHenry	MC092j1W	6/24/2013	PEM	None
McHenry	MC092k1W	6/24/2013	PEM	None
McHenry	MC092l1W	6/24/2013	PEM	None
McHenry	MC092m1W	6/24/2013	PEM	None
McHenry	MC092n1W	6/25/2013	PEM	None
McHenry	MC092o1W	6/25/2013	PEM	None
McHenry	MC092p1W	6/25/2013	PEM	None
McHenry	MC092q1W	6/25/2013	PEM	None
McHenry	MC092r1W	6/25/2013	PEM	None
McHenry	MC092s1W	6/25/2013	PEM	None
McHenry	MC092t1W	6/25/2013	PEM	None
McHenry	MC092u1W	6/25/2013	PEM	None
Pierce	PI001a1W	6/26/2013	PEM	None
Pierce	PI001AA1W	6/27/2013	PEM	None
Pierce	PI001ab1W	6/27/2013	PEM	None
Pierce	PI001b1W	6/26/2013	PEM	None
Pierce	PI001c1W	6/26/2013	PEM	None
Pierce	PI001d1W	6/26/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Pierce	PI001e1W	6/26/2013	PEM	None
Pierce	PI001f1W	6/26/2013	PEM	None
Pierce	PI001g1W	6/26/2013	PEM	None
Pierce	PI001h1W	6/26/2013	PEM	None
Pierce	PI001i1W	6/26/2013	PEM	None
Pierce	PI001j1W	6/26/2013	PEM	None
Pierce	PI001k1W	6/26/2013	PEM	None
Pierce	PI001l1W	6/26/2013	PEM	None
Pierce	PI001m1W	6/26/2013	PEM	None
Pierce	PI001n1W	6/26/2013	PEM	None
Pierce	PI001o1W	6/26/2013	PEM	None
Pierce	PI001p1W	6/26/2013	PEM	None
Pierce	PI001q1W	6/26/2013	PEM	None
Pierce	PI001r1W	6/26/2013	PEM	None
Pierce	PI001s1W	6/27/2013	PEM	None
Pierce	PI001t1W	6/27/2013	PEM	None
Pierce	PI001v1W	6/27/2013	PEM	None
Pierce	PI001w1W	6/27/2013	PEM	None
Pierce	PI001x1W	6/27/2013	PEM	None
Pierce	PI001y1W	6/27/2013	PEM	None
Pierce	PI001z1W	6/27/2013	PEM	None
Pierce	PI002a1W	6/27/2013	PEM	None
Pierce	PI002b1W	6/27/2013	PEM	None
Pierce	PI003a1W	6/27/2013	PEM	None
Pierce	PI003b1W	6/27/2013	PEM	None
Pierce	PI003c1W	6/27/2013	PEM	None
Pierce	PI003d1W	6/27/2013	PEM	None
Pierce	PI004a1W	6/17/2013	PEM	None
Pierce	PI004b1W	6/17/2013	PEM	None
Pierce	PI004c1W	7/11/2013	PEM	None
Pierce	PI005a1W	7/11/2013	PEM	None
Pierce	PI006a1W	7/11/2013	PEM	None
Pierce	PI008a1W	6/17/2013	PEM	None
Pierce	PI008b1W	6/17/2013	PEM	None
Pierce	PI008c1W	6/17/2013	PEM	None
Pierce	PI008e1W	6/17/2013	PEM	None
Pierce	PI009a1W	6/18/2013	PEM	None
Pierce	PI009b1W	6/18/2013	PEM	None
Pierce	PI010a1W	6/18/2013	PEM	None
Pierce	PI010b1W	6/18/2013	PEM	None
Pierce	PI010c1W	6/18/2013	PEM	None
Pierce	PI010d1W	6/18/2013	PEM	None
Pierce	PI011a1W	6/19/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Pierce	PI011b1W	6/19/2013	PEM	None
Pierce	PI011c1W	6/19/2013	PEM	None
Pierce	PI012b1W	6/19/2013	PEM	None
Pierce	PI012d1W	6/19/2013	PEM	None
Pierce	PI013a1W	6/19/2013	PEM	None
Pierce	PI013b1W	6/19/2013	PEM	None
Pierce	PI014a1W	6/21/2013	PEM	None
Pierce	PI014b1W	6/21/2013	PEM	None
Pierce	PI014c1W	6/21/2013	PEM	None
Pierce	PI014d1W	6/21/2013	PEM	None
Pierce	PI014e1W	6/28/2013	PEM	None
Pierce	PI014f1W	6/28/2013	PEM	None
Pierce	PI015a1W	6/28/2013	PEM	None
Pierce	PI015b1W	6/28/2013	PEM	None
Pierce	PI016a1W	8/1/2013	PEM	None
Pierce	PI017a1W	8/5/2013	PEM	None
Pierce	PI018a1W	8/6/2013	PEM	None
Pierce	PI019a1W	8/7/2013	PEM	None
Pierce	PI019b1W	8/7/2013	PEM	None
Pierce	PI019c1W	8/7/2013	PEM	None
Pierce	PI021a1W	8/8/2013	PEM	None
Pierce	PI021b1W	8/8/2013	PEM	None
Pierce	PI022a1W	8/8/2013	PEM	None
Pierce	PI022b1W	8/8/2013	PEM	None
Pierce	PI023a1W	8/12/2013	PEM	None
Pierce	PI024a1W	8/12/2013	PEM	None
Pierce	PI025a1W	8/12/2013	PEM	None
Pierce	PI026a1W	8/12/2013	PEM	None
Pierce	PI026b1W	8/12/2013	PEM	None
Pierce	PI027_000HGa1W	8/12/2013	PEM	None
Pierce	PI028a1W	8/12/2013	PEM	None
Pierce	PI028b1W	8/12/2013	PEM	None
Pierce	PI028c1W	8/12/2013	PEM	None
Pierce	PI028d_210a1W	8/12/2013	PEM	None
Pierce	PI029_200a1W	8/12/2013	PEM	None
Pierce	PI030b1W	8/13/2013	PEM	None
Pierce	PI031a1W	8/13/2013	PEM	None
Pierce	PI031b1W	8/13/2013	PEM	None
Pierce	PI031c1W	8/13/2013	PEM	None
Pierce	PI032a1W	8/12/2013	PEM	None
Pierce	PI035a1W	8/12/2013	PEM	None
Pierce	PI035c1W	8/13/2013	PEM	None
Pierce	PI041a1W	8/8/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Pierce	PI041b1W	8/8/2013	PEM	None
Pierce	PI041c1W	8/8/2013	PEM	None
Pierce	PI042b1W	6/19/2013	PEM	None
Pierce	PI042c1W	6/19/2013	PEM	None
Pierce	PI043a1W	6/19/2013	PEM	None
Pierce	PI043b1W	6/19/2013	PEM	None
Pierce	PI044a1W	6/19/2013	PEM	None
Pierce	PI044b1W	6/19/2013	PEM	None
Pierce	PI044c1W	6/19/2013	PEM	None
Pierce	PI045a1W	8/8/2013	PEM	None
Pierce	PI047a1W	8/8/2013	PEM	None
Pierce	PI049_200a1W	8/7/2013	PEM	None
Pierce	PI049_500a1W	8/7/2013	PEM	None
Pierce	PI049_500c1W	8/7/2013	PEM	None
Pierce	PI049_504a1W	8/7/2013	PEM	None
Pierce	PI049_504b1W	8/7/2013	PEM	None
Pierce	PI049_506a1W	8/7/2013	PEM	None
Pierce	PI049a1W	6/19/2013	PEM	None
Pierce	PI051a1W	6/19/2013	L2UB	None
Pierce	PI058_200a1W	7/1/2013	PEM	None
Pierce	PI058_200b1W	7/1/2013	PEM	None
Pierce	PI058a1W	7/1/2013	PEM	None
Pierce	PI058b1W	7/1/2013	PEM	None
Pierce	PI058c1W	7/1/2013	PEM	None
Pierce	PI059_200a1W	6/28/2013	PEM	None
Pierce	PI059a1W	6/20/2013	PEM	None
Pierce	PI059b1W	6/20/2013	PEM	None
Pierce	PI059e1W	6/21/2013	PEM	None
Pierce	PI059f1W	6/21/2013	PEM	None
Pierce	PI059g1W	6/28/2013	PEM	None
Pierce	PI059g2W	6/21/2013	PEM	None
Pierce	PI060_200a1W	7/1/2013	PEM	None
Pierce	PI060a1W	7/1/2013	PEM	None
Pierce	PI060b1W	7/1/2013	PEM	None
Pierce	PI060c1W	7/1/2013	PEM	None
Pierce	PI060d1W	7/1/2013	PEM	None
Pierce	PI060e1W	7/1/2013	PEM	None
Pierce	PI061_200a1W	7/1/2013	PEM	None
Pierce	PI061_210a1W	7/2/2013	PEM	None
Pierce	PI061c1W	7/1/2013	PEM	None
Pierce	PI061d1W	7/2/2013	PEM	None
Pierce	PI062a1W	8/17/2013	PEM	None
Pierce	PI062b1W	8/17/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Pierce	PI062c1W	8/17/2013	PEM	None
Pierce	PI062d1W	8/17/2013	PEM	None
Pierce	PI063a1W	8/17/2013	PEM	None
Pierce	PI063b1W	8/17/2013	PEM	None
Pierce	PI063c1W	8/17/2013	PEM	None
Pierce	PI063d1W	8/24/2013	PEM	None
Pierce	PI064a1W	8/17/2013	PEM	None
Pierce	PI065a1W	8/17/2013	PEM	None
Pierce	PI067a1W	8/12/2013	PEM	None
Pierce	PI067b1W	8/12/2013	PEM	None
Pierce	PI070_200a1W	8/13/2013	PEM	None
Pierce	PI070b1W	8/13/2013	PEM	None
Pierce	PI071a1W	8/13/2013	PEM	None
Pierce	PI073a1W	8/13/2013	PEM	None
Pierce	PI074a1W	8/13/2013	PEM	None
Pierce	PI074b1W	8/13/2013	PEM	None
Pierce	PI075a1W	7/2/2013	PEM	None
Pierce	PI076_200a1W	7/2/2013	PEM	None
Pierce	PI076a1W	7/2/2013	PEM	None
Pierce	PI076b1W	8/17/2013	PEM	None
Pierce	PI079a1W	8/14/2013	PEM	None
Pierce	PI081a1W	9/6/2013	PEM	None
Pierce	PI081b1W	9/6/2013	PEM	None
Pierce	PI081c1W	9/6/2013	PEM	None
Pierce	PI082_200a1W	9/6/2013	PEM	None
Pierce	PI082_200c1W	9/6/2013	PEM	None
Pierce	PI082a1W	9/6/2013	PEM	None
Pierce	PI083a1W	7/2/2013	PEM	None
Pierce	PI083b1W	7/2/2013	PEM	None
Pierce	PI083c1W	7/2/2013	PEM	None
Pierce	PI083d1W	7/2/2013	PEM	None
Pierce	PI084_200a1W	7/2/2013	PEM	None
Pierce	PI084_200b1W	7/2/2013	PEM	None
Pierce	PI085_200b1W	7/3/2013	PEM	None
Pierce	PI085_200c1W	7/2/2013	PEM	None
Pierce	PI085a1W	7/2/2013	PEM	None
Pierce	PI085b1W	7/3/2013	PEM	None
Pierce	PI086_200a1W	7/2/2013	PEM	None
Pierce	PI086a1W	7/2/2013	PEM	None
Pierce	PI087a1W	7/2/2013	PEM	None
Pierce	PI087b1W	7/2/2013	PEM	None
Pierce	PI088a1W	8/14/2013	PEM	None
Pierce	PI088b1W	8/14/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Pierce	PI088c1W	8/14/2013	PEM	None
Pierce	PI088d1W	8/14/2013	PEM	None
Pierce	PI089a1W	8/14/2013	PEM	None
Pierce	PI089c1W	8/14/2013	PEM	None
Pierce	PI090a1W	8/14/2013	PEM	None
Pierce	PI091a1W	8/14/2013	PEM	None
Pierce	PI091b1W	8/14/2013	PEM	None
Pierce	PI091c1W	8/14/2013	PEM	None
Pierce	PI092a1W	8/14/2013	PEM	None
Pierce	PI092b1W	8/13/2013	PEM	None
Pierce	PI092c1W	8/13/2013	PEM	None
Pierce	PI092d1W	8/13/2013	PEM	None
Pierce	PI093a1W	8/13/2013	PEM	None
Pierce	PI093b1W	8/13/2013	PEM	None
Pierce	PI093c1W	8/13/2013	PEM	None
Pierce	PI093d1W	8/13/2013	PEM	None
Pierce	PI093e1W	8/13/2013	PEM	None
Pierce	PO001u1W	6/27/2013	PEM	None
Towner	T0018j1W	6/14/2013	PEM	None
Towner	TO001a1W	8/15/2013	PEM	None
Towner	TO001b1W	8/15/2013	PEM	None
Towner	TO002a1W	8/15/2013	PEM	None
Towner	TO002b1W	8/15/2013	PEM	None
Towner	TO002c1W	8/15/2013	PEM	None
Towner	TO003a1W	8/15/2013	PEM	None
Towner	TO003b1W	8/15/2013	PEM	None
Towner	TO003c1W	8/15/2013	PEM	None
Towner	TO003d1W	8/15/2013	PEM	None
Towner	TO003e1W	8/15/2013	PEM	None
Towner	TO004a1W	8/15/2013	PEM	None
Towner	TO004b1W	8/15/2013	PEM	None
Towner	TO004c1W	8/15/2013	PEM	None
Towner	TO004d1W	8/15/2013	PEM	None
Towner	TO004e1W	8/15/2013	PEM	None
Towner	TO005a1W	8/15/2013	PEM	None
Towner	TO005c1W	8/19/2013	PEM	None
Towner	TO005d1W	8/19/2013	PEM	None
Towner	TO005e1W	8/19/2013	PEM	None
Towner	TO005f1W	8/19/2013	PEM	None
Towner	TO005g1W	8/19/2013	PEM	None
Towner	TO006a1W	6/12/2013	PEM	None
Towner	TO006c1W	6/12/2013	PEM	None
Towner	TO009a1W	6/12/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Towner	TO009b1W	6/12/2013	PEM	None
Towner	TO009c1W	6/12/2013	PEM	None
Towner	TO009d1W	6/12/2013	PEM	None
Towner	TO009e1W	6/12/2013	PEM	None
Towner	TO009f1W	6/12/2013	PEM	None
Towner	TO009g1W	6/12/2013	PEM	None
Towner	TO009h1W	6/12/2013	PEM	None
Towner	TO014a1W	6/12/2013	PEM	None
Towner	TO014b1W	6/12/2013	PEM	None
Towner	TO014c1W	6/12/2013	PEM	None
Towner	TO014d1W	6/13/2013	PEM	None
Towner	TO014e1W	6/13/2013	PEM	None
Towner	TO015a1W	6/13/2013	PEM	None
Towner	TO015b1W	6/13/2013	PEM	None
Towner	TO016a1W	6/13/2013	PEM	None
Towner	TO016c1W	6/13/2013	PEM	None
Towner	TO017a1W	6/13/2013	PEM	None
Towner	TO017b1W	6/13/2013	PEM	None
Towner	TO018a1W	6/14/2013	PEM	None
Towner	TO018b1W	6/14/2013	PEM	None
Towner	TO018c1W	6/14/2013	PEM	None
Towner	TO018d1W	6/14/2013	PEM	None
Towner	TO018e1W	6/14/2013	PEM	None
Towner	TO018f1W	6/14/2013	PEM	None
Towner	TO018g1W	6/14/2013	PEM	None
Towner	TO018h1W	6/14/2013	PEM	None
Towner	TO018i1W	6/14/2013	PEM	None
Towner	TO018k1W	6/14/2013	PEM	None
Towner	TO018l1W	6/14/2013	PEM	None
Towner	TO018m1W	6/14/2013	PEM	None
Towner	TO018n1W	6/14/2013	PEM	None
Towner	TO018o1W	6/14/2013	PEM	None
Towner	TO019a1W	6/13/2013	PEM	None
Towner	TO020a1W	6/13/2013	PEM	None
Towner	TO020b1W	6/17/2013	PEM	None
Towner	TO020c1W	6/17/2013	PEM	None
Towner	TO020d1W	6/17/2013	PEM	None
Towner	TO020e1W	6/17/2013	PEM	None
Towner	TO022a1W	8/16/2013	PEM	None
Towner	TO023a1W	8/16/2013	PEM	None
Towner	TO024a1W	8/16/2013	PEM	None
Towner	TO024b1W	8/16/2013	PEM	None
Towner	TO025a1W	6/17/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Towner	TO025b1W	6/17/2013	PEM	None
Towner	TO026a1W	6/17/2013	PEM	None
Towner	TO026b1W	6/17/2013	PEM	None
Towner	TO026c1W	6/17/2013	PEM	None
Towner	TO026d1W	6/17/2013	PEM	None
Towner	TO027a1W	6/17/2013	PEM	None
Towner	TO027b1W	6/18/2013	PEM	None
Towner	TO027d1W	6/18/2013	PEM	None
Towner	TO027e1W	6/18/2013	PEM	None
Towner	TO028a1W	6/18/2013	PEM	None
Towner	TO028b1W	6/18/2013	PEM	None
Towner	TO028c1W	6/18/2013	PEM	None
Towner	TO029a1W	8/15/2013	PEM	None
Towner	TO029b1W	8/15/2013	PEM	None
Towner	TO029c1W	8/15/2013	PEM	None
Towner	TO030a1W	8/15/2013	PEM	None
Towner	TO030b1W	8/15/2013	PEM	None
Towner	TO030c1W	8/15/2013	PEM	None
Towner	TO030d1W	8/15/2013	PEM	None
Towner	TO031a1W	8/15/2013	PEM	None
Towner	TO031b1W	8/15/2013	PEM	None
Towner	TO032a1W	8/19/2013	PEM	None
Towner	TO034a1W	8/19/2013	PEM	None
Towner	TO038a1W	6/18/2013	PEM	None
Towner	TO039a1W	6/18/2013	PEM	None
Towner	TO039c1W	6/18/2013	PEM	None
Towner	TO040a1W	8/7/2013	PEM	None
Towner	TO042a1W	8/19/2013	PEM	None
Towner	TO042b1W	8/19/2013	PEM	None
Towner	TO044a1W	8/20/2013	PEM	None
Towner	TO044b1W	8/20/2013	PEM	None
Towner	TO045a1W	10/3/2013	PEM	None
Towner	TO045b1W	10/3/2013	PEM	None
Towner	TO046a1W	10/3/2013	PEM	None
Towner	TO046c1W	10/3/2013	PEM	None
Towner	TO046d1W	10/3/2013	PEM	None
Towner	TO047a1W	10/3/2013	PEM	None
Towner	TO047b1W	10/3/2013	PEM	None
Towner	TO047c1W	10/3/2013	PEM	None
Towner	TO048a1W	9/6/2013	PEM	None
Towner	TO048b1W	9/6/2013	PEM	None
Towner	TO049a1W	9/6/2013	PEM	None
Towner	TO051a1W	8/20/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Towner	TO051b1W	9/6/2013	PEM	None
Towner	TO054_200a1W	8/20/2013	PEM	None
Towner	TO054_200a1W	8/20/2013	PEM	None
Towner	TO054a1W	8/20/2013	PEM	None
Towner	TO054b1W	8/20/2013	PEM	None
Towner	TO055a1W	8/20/2013	PEM	None
Towner	TO056b1w	8/20/2013	PEM	None
Towner	TO056c1W	8/20/2013	PEM	None
Towner	TO057b1W	8/23/2013	PEM	None
Towner	TO057c1W	8/23/2013	PEM	None
Towner	TO057e1W	8/23/2013	PEM	None
Towner	TO058a1W	8/22/2013	PEM	None
Towner	TO058b1W	8/23/2013	PEM	None
Towner	TO058c1W	8/23/2013	PEM	None
Towner	TO058d1W	8/23/2013	PEM	None
Towner	TO059a1W	8/22/2013	PEM	None
Towner	TO061a1W	8/22/2013	PEM	None
Towner	TO063c1W	8/21/2013	PEM	None
Towner	TO070a1W	8/21/2013	PEM	None
Towner	TO072a1W	8/20/2013	PEM	None
Towner	TO073a1W	8/20/2013	PEM	None
Towner	TO074a1W	8/20/2013	PEM	None
Towner	TO074b1W	8/20/2013	PEM	None
Towner	TO075a1W	8/19/2013	PEM	None
Towner	TO075b1W	8/19/2013	PEM	None
Ramsey	RA001a1W	8/27/2013	PEM	None
Ramsey	RA001b1W	8/27/2013	PEM	None
Ramsey	RA002a1W	10/2/2013	PEM	None
Ramsey	RA007a1W	8/26/2013	PEM	None
Ramsey	RA010a1W	8/27/2013	PEM	None
Ramsey	RA013a1W	8/28/2013	PEM	None
Ramsey	RA015a1W	8/28/2013	PEM	None
Ramsey	RA016a1W	8/28/2013	PEM	None
Ramsey	RA025a1W	8/29/2013	PSS	None
Ramsey	RA025b1W	8/29/2013	PEM	None
Ramsey	RA026a1U	8/29/2013	PEM	None
Ramsey	RA033a1W	8/29/2013	PEM	None
Ramsey	RA034a1W	8/29/2013	PEM	None
Ramsey	RA039b1W	8/29/2013	PEM	None
Ramsey	RA040a1W	8/29/2013	PEM	None
Ramsey	RA040b1W	8/29/2013	PEM	None
Ramsey	RA040c1W	8/29/2013	PEM	None
Ramsey	RA042a1W	8/29/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ramsey	RA043a1W	8/29/2013	PEM	None
Ramsey	RA047a1W	8/29/2013	PEM	None
Ramsey	RA047b1W	8/29/2013	PEM	None
Ramsey	RA048a1W	8/29/2013	PEM	None
Ramsey	RA048b1W	8/29/2013	PEM	None
Ramsey	RA049a1W	8/29/2013	PEM	None
Ramsey	RA051a1W	8/29/2013	PEM	None
Ramsey	RA053b1W	8/28/2013	PEM	None
Ramsey	RA053c1W	8/28/2013	PEM	None
Ramsey	RA054a1W	8/28/2013	PEM	None
Ramsey	RA054c1W	8/28/2013	PEM	None
Ramsey	RA054d1W	8/28/2013	PEM	None
Ramsey	RA059b1W	8/28/2013	PEM	None
Ramsey	RA060a1W	7/3/2013	PEM	None
Ramsey	RA061a1W	8/28/2013	PEM	None
Ramsey	RA061b1W	8/28/2013	PEM	None
Ramsey	RA062a1W	8/28/2013	PEM	None
Ramsey	RA062b1W	9/5/2013	PEM	None
Ramsey	RA062c1W	9/5/2013	PEM	None
Ramsey	RA063b1W	8/28/2013	PEM	None
Ramsey	RA063c1W	8/28/2013	PEM	None
Ramsey	RA064a1W	8/28/2013	PEM	None
Ramsey	RA064b1W	8/28/2013	PEM	None
Ramsey	RA065a1W	7/3/2013	PEM	None
Ramsey	RA066a1W	7/3/2013	PEM	None
Ramsey	RA066b1W	7/3/2013	PEM	None
Ramsey	RA066d1W	7/3/2013	PEM	None
Ramsey	RA066e1W	7/3/2013	PEM	None
Ramsey	RA067a1W	7/3/2013	PEM	None
Ramsey	RA069a1W	7/9/2013	PEM	None
Ramsey	RA069b1W	7/9/2013	PEM	None
Ramsey	RA070a1W	9/5/2013	PEM	None
Ramsey	RA070b1W	9/5/2013	PEM	None
Ramsey	RA071a1W	8/27/2013	PEM	None
Ramsey	RA072a1W	8/27/2013	PEM	None
Ramsey	RA072b1W	8/27/2013	PEM	None
Ramsey	RA072c1W	8/27/2013	PEM	None
Ramsey	RA074b1W	8/27/2013	PEM	None
Ramsey	RA074c1W	8/27/2013	PEM	None
Ramsey	RA076b1W	8/27/2013	PEM	None
Ramsey	RA077b1W	8/27/2013	PEM	None
Ramsey	RA077c1W	8/27/2013	PEM	None
Ramsey	RA079a1W	7/12/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ramsey	RA079b1W	7/12/2013	PEM	None
Ramsey	RA079c1W	7/12/2013	PEM	None
Ramsey	RA080a1W	7/12/2013	PEM	None
Ramsey	RA080b1W	7/12/2013	PEM	None
Ramsey	RA081a1W	7/15/2013	PEM	None
Ramsey	RA081b1W	7/15/2013	PEM	None
Ramsey	RA083a1W	7/15/2013	PEM	None
Ramsey	RA083b1W	7/15/2013	PEM	None
Ramsey	RA084a1W	7/3/2013	PEM	None
Ramsey	RA085a1W	7/3/2013	PEM	None
Ramsey	RA085b1W	7/3/2013	PEM	None
Ramsey	RA085c1W	7/8/2013	PEM	None
Ramsey	RA086a1W	7/15/2013	PEM	None
Ramsey	RA087a1W	7/15/2013	PEM	None
Ramsey	RA087b1W	7/15/2013	PEM	None
Ramsey	RA088a1W	7/8/2013	PEM	None
Ramsey	RA088b1W	7/8/2013	PEM	None
Ramsey	RA088c1W	7/8/2013	PEM	None
Ramsey	RA088d1W	7/8/2013	PEM	None
Ramsey	RA090a1W	7/8/2013	PEM	None
Ramsey	RA090b1W	7/8/2013	PEM	None
Ramsey	RA090c1W	7/8/2013	PEM	None
Ramsey	RA090d1W	7/8/2013	PEM	None
Ramsey	RA091a1W	7/8/2013	PEM	None
Ramsey	RA092a1W	7/8/2013	PEM	None
Ramsey	RA092b1W	7/8/2013	PEM	None
Ramsey	RA093a1W	7/9/2013	PEM	None
Ramsey	RA093b1W	7/9/2013	PEM	None
Ramsey	RA093c1W	7/9/2013	PEM	None
Ramsey	RA094a1W	7/9/2013	PEM	None
Ramsey	RA094b1W	7/9/2013	PEM	None
Ramsey	RA094c1W	7/9/2013	PEM	None
Ramsey	RA095a1W	7/12/2013	PEM	None
Ramsey	RA095b1W	7/12/2013	PEM	None
Ramsey	RA095c1W	7/12/2013	PEM	None
Ramsey	RA095d1W	7/15/2013	PEM	None
Ramsey	RA095e1W	7/15/2013	PEM	None
Ramsey	RA095f1W	7/15/2013	PEM	None
Ramsey	RA097a1W	7/9/2013	PEM	None
Ramsey	RA097b1W	7/9/2013	PEM	None
Ramsey	RA097c1W	7/9/2013	PEM	None
Ramsey	RA098a1W	7/9/2013	PEM	None
Ramsey	RA098b1W	7/9/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Ramsey	RA099a1W	7/9/2013	PEM	None
Ramsey	RA099b1W	7/9/2013	PEM	None
Ramsey	RA099c1W	7/9/2013	PEM	None
Ramsey	RA099d1W	7/9/2013	PEM	None
Ramsey	RA099e1W	7/9/2013	PEM	None
Ramsey	RA099f1W	7/9/2013	PEM	None
Ramsey	RA100a1	7/9/2013	PEM	None
Ramsey	RA100b1W	7/9/2013	PEM	None
Ramsey	RA101a1W	7/9/2013	PEM	None
Ramsey	RA101b1W	7/9/2013	PEM	None
Ramsey	RA101c1W	7/9/2013	PEM	None
Nelson	NE001a1W	7/10/2013	PEM	None
Nelson	NE003a1W	9/5/2013	PEM	None
Nelson	NE004a1W	9/11/2013	PEM	None
Nelson	NE004b1W	9/11/2013	PEM	None
Nelson	NE005_100a1W	7/10/2013	PEM	None
Nelson	NE005_100b1W	7/10/2013	PEM	None
Nelson	NE005a1W	7/10/2013	PEM	None
Nelson	NE006a1W	7/10/2013	PEM	None
Nelson	NE006b1W	7/10/2013	PEM	None
Nelson	NE007_300a1W	7/10/2013	PEM	None
Nelson	NE007_300b1W	7/10/2013	PEM	None
Nelson	NE007a1W	7/10/2013	PEM	None
Nelson	NE009a1W	7/10/2013	PEM	None
Nelson	NE009d1W	7/10/2013	PEM	None
Nelson	NE009e1W	7/10/2013	PEM	None
Nelson	NE010a1W	7/10/2013	PEM	None
Nelson	NE011a1W	7/10/2013	PEM	None
Nelson	NE011b1W	7/10/2013	PEM	None
Nelson	NE011c1W	7/10/2013	PEM	None
Nelson	NE011d1W	7/10/2013	PEM	None
Nelson	NE011e1W	7/10/2013	PEM	None
Nelson	NE011f1W	7/10/2013	PEM	None
Nelson	NE011g1W	7/10/2013	PEM	None
Nelson	NE012_100a1W	7/10/2013	PEM	None
Nelson	NE012_100b1W	7/10/2013	PEM	None
Nelson	NE012_100c1W	7/10/2013	PEM	None
Nelson	NE012a1W	7/10/2013	PEM	None
Nelson	NE012b1W	7/10/2013	PEM	None
Nelson	NE013a1W	7/11/2013	PEM	None
Nelson	NE013c1W	7/11/2013	PEM	None
Nelson	NE013d1W	8/26/2013	PEM	None
Nelson	NE013e1W	8/26/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Nelson	NE013g1W	10/10/2013	PEM	None
Nelson	NE013h1W	10/10/2013	PEM	None
Nelson	NE013j1W	10/10/2013	PEM	None
Nelson	NE015a1W	7/11/2013	PEM	None
Nelson	NE015b1W	7/11/2013	PEM	None
Nelson	NE016a1W	7/11/2013	PEM	None
Nelson	NE016b1W	7/11/2013	PEM	None
Nelson	NE016c1W	7/11/2013	PEM	None
Nelson	NE016d1W	7/11/2013	PEM	None
Nelson	NE016e1W	7/11/2013	PEM	None
Nelson	NE017a1W	6/4/2013	PEM	None
Nelson	NE017b1W	6/4/2013	PEM	None
Nelson	NE018a1W	6/6/2013	PEM	None
Nelson	NE018b1W	6/6/2013	PEM	None
Nelson	NE019_300a1W	6/5/2013	PEM	None
Nelson	NE019a1W	6/6/2013	PEM	None
Nelson	NE019b1W	6/6/2013	PEM	None
Nelson	NE019c1W	10/10/2013	PEM	None
Nelson	NE020_300a1W	7/24/2013	PEM	None
Nelson	NE020a1W	6/5/2013	PEM	None
Nelson	NE021a1W	6/5/2013	PEM	None
Nelson	NE022a1W	6/5/2013	PEM	None
Nelson	NE022b1W	6/6/2013	PEM	None
Nelson	NE022c1W	6/6/2013	PEM	None
Nelson	NE022d1W	6/5/2013	PEM	None
Nelson	NE023a1W	6/6/2013	PEM	None
Nelson	NE024_110b1W	6/7/2013	PEM	None
Nelson	NE024_110d1W	6/7/2013	PEM	None
Nelson	NE024_110e1W	6/7/2013	PEM	None
Nelson	NE024a1W	6/7/2013	PEM	None
Nelson	NE025c1W	6/10/2013	PEM	None
Nelson	NE026a1W	6/10/2013	PEM	None
Nelson	NE027c1W	6/10/2013	PEM	None
Nelson	NE027d1W	6/10/2013	PEM	None
Nelson	NE027e1W	6/10/2013	PEM	None
Nelson	NE027f1W	6/10/2013	PEM	None
Nelson	NE028a1W	6/10/2013	PEM	None
Nelson	NE028b1W	6/10/2013	PEM	None
Nelson	NE028c1W	6/11/2013	PEM	None
Nelson	NE028d1W	6/11/2013	PEM	None
Nelson	NE028e1W	6/11/2013	PEM	None
Nelson	NE029_500a1W	6/11/2013	PEM	None
Nelson	NE029_500b1W	6/11/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Nelson	NE029_500c1W	6/11/2013	PEM	None
Nelson	NE029_500d1W	6/11/2013	PEM	None
Nelson	NE029_500e1W	6/11/2013	PEM	None
Nelson	NE029_500f1W	6/11/2013	PEM	None
Nelson	NE029_520a1W	6/11/2013	PEM	None
Nelson	NE029_520b1W	6/11/2013	PEM	None
Nelson	NE029a1W	6/11/2013	PEM	None
Nelson	NE029b1W	6/11/2013	PEM	None
Nelson	NE029c1W	6/11/2013	PEM	None
Nelson	NE030_300a1W	6/11/2013	PEM	None
Nelson	NE030_300b1W	6/11/2013	PEM	None
Nelson	NE030_300c1W	7/24/2013	PEM	None
Nelson	NE030_300d1W	7/24/2013	PEM	None
Nelson	NE030_300e1W	7/24/2013	PEM	None
Nelson	NE030_500_100a1W	7/23/2013	PEM	None
Nelson	NE030_500_100b1W	7/23/2013	PEM	None
Nelson	NE030_500a1W	7/23/2013	PEM	None
Nelson	NE032_500a1W	6/11/2013	PEM	None
Nelson	NE032_500b1W	7/24/2013	PEM	None
Nelson	NE032_500c1W	7/24/2013	PEM	None
Nelson	NE032_510a1W	6/12/2013	PEM	None
Nelson	NE032_510b1W	6/12/2013	PEM	None
Nelson	NE032_510c1W	6/12/2013	PEM	None
Nelson	NE032_510d1W	6/12/2013	PEM	None
Nelson	NE034_500a1W	6/12/2013	PEM	None
Nelson	NE034_500b1W	6/12/2013	PEM	None
Nelson	NE034_500c1W	6/12/2013	PEM	None
Nelson	NE034_500d1W	6/12/2013	PEM	None
Nelson	NE034_500e1W	6/12/2013	PEM	None
Nelson	NE037_105h1W	6/13/2013	PEM	None
Nelson	NE037_105i1W	6/13/2013	PEM	None
Nelson	NE037a1W	6/13/2013	PEM	None
Nelson	NE037b1W	6/13/2013	PEM	None
Nelson	NE037c1W	6/13/2013	PEM	None
Nelson	NE037e1W	6/13/2013	PEM	None
Nelson	NE037g1W	6/13/2013	PEM	None
Nelson	NE038_210a1W	6/14/2013	PEM	None
Nelson	NE038a1W	6/13/2013	PEM	None
Nelson	NE038b1W	6/14/2013	PEM	None
Nelson	NE038c1W	6/14/2013	PEM	None
Nelson	NE038e1W	6/14/2013	PEM	None
Nelson	NE039_200_100a1W	6/14/2013	PEM	None
Nelson	NE039_200_100b1W	7/17/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Nelson	NE039a1W	6/14/2013	PEM	None
Nelson	NE039b1W	7/17/2013	PEM	None
Nelson	NE039c1W	7/17/2013	PEM	None
Nelson	NE039d1W	7/17/2013	PEM	None
Nelson	NE040a1W	7/16/2013	PEM	None
Nelson	NE040b1W	7/16/2013	PEM	None
Nelson	NE040c1W	7/16/2013	PEM	None
Nelson	NE040d1W	7/16/2013	PEM	None
Nelson	NE040e1W	7/16/2013	PEM	None
Nelson	NE040f1W	7/16/2013	PEM	None
Nelson	NE041a1W	7/16/2013	PEM	None
Nelson	NE041b1W	7/16/2013	PEM	None
Nelson	NE042a1W	7/16/2013	PEM	None
Nelson	NE043a1W	7/16/2013	PEM	None
Nelson	NE043b1W	7/16/2013	PEM	None
Nelson	NE043c1W	7/16/2013	PEM	None
Nelson	NE043d1W	7/16/2013	PEM	None
Nelson	NE043e1W	7/16/2013	PEM	None
Nelson	NE043f1W	7/16/2013	PEM	None
Nelson	NE045_100a1W	7/16/2013	PEM	None
Nelson	NE045_100b1W	7/16/2013	PEM	None
Nelson	NE045_100c1W	7/16/2013	PEM	None
Nelson	NE045a1W	7/16/2013	PEM	None
Nelson	NE045b1W	7/16/2013	PEM	None
Nelson	NE045c1W	7/16/2013	PEM	None
Nelson	NE045d1W	7/16/2013	PEM	None
Nelson	NE046a1W	7/16/2013	PEM	None
Nelson	NE046b1W	7/17/2013	PEM	None
Nelson	NE046c1W	7/17/2013	PEM	None
Nelson	NE046d1W	7/17/2013	PEM	None
Nelson	NE046e1W	7/17/2013	PEM	None
Nelson	NE046f1W	7/17/2013	PEM	None
Nelson	NE046g1W	7/17/2013	PEM	None
Nelson	NE046h1W	7/17/2013	PEM	None
Nelson	NE048a1W	7/17/2013	PEM	None
Nelson	NE049a1W	7/17/2013	PEM	None
Nelson	NE049b1W	7/17/2013	PEM	None
Nelson	NE049c1W	7/17/2013	PEM	None
Nelson	NE050a1W	7/17/2013	PEM	None
Nelson	NE050b1W	7/17/2013	PEM	None
Nelson	NE050c1W	7/18/2013	PEM	None
Nelson	NE050d1W	7/18/2013	PEM	None
Nelson	NE050e1W	7/18/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Nelson	NE050f1W	7/18/2013	PEM	None
Nelson	NE051a1W	7/17/2013	PEM	None
Nelson	NE052_320a1W	7/17/2013	PEM	None
Nelson	NE052_320b1W	7/17/2013	PEM	None
Nelson	NE052a1W	7/17/2013	PEM	None
Nelson	NE053a1W	7/17/2013	PEM	None
Nelson	NE053b1W	7/18/2013	PEM	None
Nelson	NE054a1W	7/18/2013	PEM	None
Nelson	NE054b1W	7/18/2013	PEM	None
Nelson	NE054c1W	7/18/2013	PEM	None
Nelson	NE056_200a1W	7/18/2013	PEM	None
Nelson	NE056a1W	7/18/2013	PEM	None
Nelson	NE056c1W	7/18/2013	PEM	None
Nelson	NE057a1W	7/18/2013	PEM	None
Nelson	NE057b1W	7/18/2013	PEM	None
Nelson	NE058_100a1W	7/18/2013	PEM	None
Nelson	NE058_100b1W	7/18/2013	PEM	None
Nelson	NE058_100c1W	7/18/2013	PEM	None
Nelson	NE058_100d1W	7/18/2013	PEM	None
Nelson	NE058a1W	7/18/2013	PEM	None
Nelson	NE058b1W	7/18/2013	PEM	None
Nelson	NE058c1W	7/18/2013	PEM	None
Nelson	NE058d1W	7/19/2013	PEM	None
Nelson	NE059a1W	7/18/2013	PEM	None
Nelson	NE061a1W	7/18/2013	PEM	None
Nelson	NE061b1W	7/19/2013	PEM	None
Grand Forks	GR001a1W	7/19/2013	PEM	None
Grand Forks	GR001b1W	7/19/2013	PEM	None
Grand Forks	GR001c1W	7/19/2013	PEM	None
Grand Forks	GR002a1W	7/19/2013	PEM	None
Grand Forks	GR002b1W	7/19/2013	PEM	None
Grand Forks	GR003a1W	7/22/2013	PEM	None
Grand Forks	GR003b1W	7/22/2013	PEM	None
Grand Forks	GR003c1W	7/22/2013	PEM	None
Grand Forks	GR004a1W	7/22/2013	PEM	None
Grand Forks	GR007a1W	7/22/2013	PEM	None
Grand Forks	GR007b1W	7/22/2013	PEM	None
Grand Forks	GR008a1W	7/22/2013	PEM	None
Grand Forks	GR009a1W	7/19/2013	PEM	None
Grand Forks	GR009b1W	7/19/2013	PEM	None
Grand Forks	GR009c1W	7/19/2013	PEM	None
Grand Forks	GR011_310a1W	7/19/2013	PEM	None
Grand Forks	GR013_200a1W	7/22/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Grand Forks	GR014a1W	7/22/2013	PEM	None
Grand Forks	GR014b1W	7/22/2013	PEM	None
Grand Forks	GR015a1W	7/22/2013	PEM	None
Grand Forks	GR016a1W	7/22/2013	PEM	None
Grand Forks	GR016b1W	7/22/2013	PEM	None
Grand Forks	GR016c1W	7/22/2013	PEM	None
Grand Forks	GR017a1W	7/22/2013	PEM	None
Grand Forks	GR018a1W	7/22/2013	PEM	None
Grand Forks	GR018b1W	7/26/2013	PEM	None
Grand Forks	GR021a1W	7/22/2013	PEM	None
Grand Forks	GR021c1W	7/22/2013	PEM	None
Grand Forks	GR022a1W	7/23/2013	PEM	None
Grand Forks	GR022b1W	7/23/2013	PEM	None
Grand Forks	GR024a1W	7/23/2013	PEM	None
Grand Forks	GR024b1W	7/23/2013	PEM	None
Grand Forks	GR030a1W	7/26/2013	PEM	None
Grand Forks	GR031a1W	8/26/2013	PEM	None
Grand Forks	GR032a1W	8/26/2013	PEM	None
Grand Forks	GR033a1W	8/27/2013	PEM	None
Grand Forks	GR033b1w	8/27/2013	PEM	None
Grand Forks	GR034a1W	9/11/2013	PEM	None
Grand Forks	GR036aw1	7/23/2013	PEM	None
Grand Forks	GR036b1W	7/23/2013	PEM	None
Grand Forks	GR039_300a1W	7/23/2013	PEM	None
Grand Forks	GR041a1W	7/23/2013	PEM	None
Grand Forks	GR041b1W	7/23/2013	PEM	None
Grand Forks	GR042a1W	7/24/2013	PEM	None
Grand Forks	GR043a1W	7/24/2013	PEM	None
Grand Forks	GR043b1W	7/24/2013	PEM	None
Grand Forks	GR043c1W	7/24/2013	PEM	None
Grand Forks	GR046a1W	7/24/2013	PFO	None
Grand Forks	GR046b1W	7/26/2013	PFO	None
Grand Forks	GR049a1W	9/20/2013	PEM	None
Grand Forks	GR055a1W	8/26/2013	PEM	None
Grand Forks	GR061a1W	7/24/2013	PFO	None
Grand Forks	GR061b1W	7/25/2013	PEM	None
Grand Forks	GR061c1W	7/25/2013	PEM	None
Grand Forks	GR061d1W	7/25/2013	PEM	None
Grand Forks	GR061e1W	7/25/2013	PEM	None
Grand Forks	GR062a1W	7/25/2013	PEM	None
Grand Forks	GR062b1W	7/25/2013	PEM	None
Grand Forks	GR063a1W	9/11/2013	PEM	None
Grand Forks	GR064a1W	10/2/2013	PEM	None

County	Feature ID	Survey Date	Cowardin Classification	Agency Designation
Grand Forks	GR064b1W	10/2/2013	PEM	None
Grand Forks	GR070a1W	7/29/2013	PEM	None
Grand Forks	GR070b1W	7/29/2013	PEM	None
Grand Forks	GR071a1W	8/26/2013	PEM	None
Grand Forks	GR076a1W	8/26/2013	PEM	None
Grand Forks	GR076c1W	8/26/2013	PEM	None
Grand Forks	GR076d1W	8/26/2013	PEM	None
Grand Forks	GR078a1W	8/26/2013	PEM	None
Grand Forks	GR080a1W	7/29/2013	PEM	None
Grand Forks	GR081a1W	7/29/2013	PEM	None
Grand Forks	GR081b1W	7/29/2013	PEM	None
Grand Forks	GR082a1W	8/26/2013	PEM	None
Grand Forks	GR084a1W	7/30/2013	PEM	None
Grand Forks	GR084b1W	7/30/2013	PEM	None
Grand Forks	GR084c1W	7/30/2013	PEM	None
Grand Forks	GR085a1W	7/30/2013	PEM	None
Grand Forks	GR085b1W	7/30/2013	PEM	None
Grand Forks	GR085c1W	7/30/2013	PEM	None
Grand Forks	GR089a1W	7/29/2013	PEM	None
Grand Forks	GR090a1W	7/29/2013	PEM	None
Grand Forks	GR106_526a1W	7/30/2013	PEM	None

County	Feature ID	Cowardin Classification	Survey Date	Flow Rate (m/s)	Left Bank Height (ft)	Right Bank Height (ft)	Top of Bank Width (ft)	OHWM Height (ft)	OHWM Width (ft)	Substrate	Dominant Riparian Vegetation	Waterbody	Agency Designation
Williams	WI008aWB	R2US	8/21/2013	0.00	2.50	2.50	35.00	2.75	50.00	Clay	Phalaris arundinacea	Dry Fork Creek	None
Williams	WI008aWB	R2US	8/21/2013	0.00	2.50	2.50	35.00	2.75	50.00	Clay	Phalaris arundinacea	Dry Fork Creek	None
Williams	WI011aWB	R6	6/24/2013	1.00	0.05	0.05	1.00	1.00	2.00	Silt	row crops	Unnamed Stream	None
Williams	WI011bWB	R6	6/24/2013	0.30	0.10	0.10	0.50	0.30	0.50	Silt	row crops	Unnamed Stream	None
Mountrail	MO010aWB	R4SB	9/3/2013	2.00	6.00	6.00	45.00	22.00	60.00	Silt	Spartina pectinata	White Earth River	None
Mountrail	MO015aWB	R6	6/25/2013	1.00	1.00	1.00	6.00	4.00	6.00	Silt	Disturbed Pasture	Unnamed Tributary (White Earth River)	None
Mountrail	MO025_100aWB	R6	6/26/2013	0.50	0.50	0.50	5.00	4.00	2.00	Silt	Mentha arvensis	Unnamed Stream	None
Mountrail	MO034aWB	Ditch	8/1/2013	0.00	15.00	15.00	45.00	5.00	20.00	Gravel	Rumex maritimus, Typha X glauca	Unnamed Ditch	None
Mountrail	MO035aWB	Ditch	8/2/2013	0.00	15.00	15.00	25.00	2.00	12.00	Clay	Phalaris arundinacea	Unnamed Ditch	None
Mountrail	MO046aWB	R4SB	8/1/2013	0.50	1.00	1.00	10.00	10.00	150.00	Clay	Spartina sp.	Unnamed Stream	None
Mountrail	MO047aWB	R2UB	8/1/2013	1.00	0.75	0.75	650.00	4.00	1400.00	Clay	Scirpus Sp.	Little Knife River	303 D Impaired Waterbody
Mountrail	MO049aWB	R6	8/1/2013	0.00	0.00	0.00	0.00	0.00	0.00	NA	Bromus sp.	Unnamed Tributary (Little Knife River)	None
Mountrail	MO051aWB	R6	8/1/2013	0.00	0.50	0.50	10.00	0.70	12.00	Clay	Bromus sp.	Unnamed Tributary (Little Knife River)	None
Mountrail	MO056_210aWB	R3UB	9/3/2013	0.00	1.50	1.50	170.00	2.20	225.00	Clay	Spartina pectinata	Little Knife River	303 D Impaired Waterbody
Mountrail	MO059aWB	R6	6/25/2013	0.50	0.30	0.30	3.00	1.00	2.00	Silt	Row Crop	Unnamed Stream	None
Ward	WA009aWB	R6	7/9/2013	0.01	2.00	2.00	8.00	2.00	8.00	Silt	Typha sp.	Unnamed Stream	None
Ward	WA021_100aWB	Ditch	8/7/2013	0.10	6.00	4.00	80.00	1.00	69.00	Clay	Typha x glauca	Unnamed Ditch	None
Ward	WA023aWB	Ditch	8/7/2013	0.00	1.00	1.00	10.00	8.00	0.50	Silt	Thlaspi arvense, Amaranthus retroflexus, Ambrosia artemisiifolia	Unnamed Ditch	None
Ward	WA024aWB	Ditch	8/7/2013	0.00	1.50	0.50	11.00	1.50	11.00	Silt	Echinocloa crusgalii	Unnamed Ditch	None
Ward	WA024bWB	Ditch	8/7/2013	0.00	2.50	10.00	17.00	1.00	7.00	Silt	Phalaris arundinacea	Unnamed Ditch	None
Ward	WA032aWB	R2UB	8/12/2013	0.00	5.00	5.00	8.00	8.00	17.00	Gravel	Spartina pectinata	Fuller Coulee	None
Ward	WA036aWB	Ditch	8/13/2013	0.00	0.20	0.20	3.00	0.10	0.10	Silt	Echinochloa crus-galli	Unnamed Ditch	None
Ward	WA039aWB	R4SB	8/13/2013	0.00	1.50	1.50	4.00	1.50	4.00	Clay	Scirpus pallidus, Spartina pectinata	Unnamed Stream	None
Ward	WA041aWB	R4SB	9/3/2013	1.50	12.00	20.00	75.00	3.00	60.00	Clay	Cirsium arvense	Des Lac River	None
Ward	WA041bWB	R4SB	9/3/2013	1.00	14.00	25.00	50.00	4.00	40.00	Clay	Bidens alba	Des Lac River	None
Ward	WA041cWB	R4SB	9/3/2013	2.00	15.00	20.00	25.00	5.00	20.00	Clay	Spartina pectinata	Des Lac River	None
Ward	WA055aWB	Ditch	8/13/2013	0.00	0.00	0.00	0.00	0.00	0.00	NA	Row Crops	Unnamed Ditch	None
Ward	WA070aWB	R2UB	8/16/2013	1.00	3.50	0.00	450.00	3.00	430.00	Silt	Typha x glauca	Unnamed Stream	None
Ward	WA070bWB	R4SB	7/15/2013	0.50	1.00	1.00	9.00	1.50	8.00	Silt	Carex pellita	Unnamed Stream	None
Ward	WA079aWB	R2UB	8/20/2013	0.00	2.00	2.00	30.00	2.00	30.00	Silt	Spartina pectinata, Typha x glauca, lycopus americana	Unnamed Stream	None
Ward	WA082aWB	R3UB	8/21/2013	0.00	5.00	3.00	130.00	2.00	100.00	Clay	Scirpus tabermontia, Spartina pectinata, Typha x glauca	Egg Creek	None
Ward	WA084aWB	R2UB	8/21/2013	0.00	4.00	3.00	50.00	1.50	34.00	Silt	Spartina pectinata, Typha x glauca	Unnamed Stream	None
Ward	WA092aWB	R2UB	7/18/2013	0.50	1.00	1.00	150.00	3.00	120.00	Silt	Hordeum jubatum	Unnamed Stream	None
McHenry	MC003aWB	R3UB	8/21/2013	0.50	1.00	1.00	50.00	6.00	250.00	Clay	Sparganium eurycarpum, Typha latifolia, Sium suave	Little Deep Creek	None
McHenry	MC018aWB	R3UB	8/22/2013	0.10	6.00	4.00	150.00	5.00	160.00	Silt	Typha latifolia	Little Deep Creek	None
McHenry	MC029_540aWB	R2UB	7/19/2013	0.00	0.00	0.00	0.00	0.00	0.00	Silt	Carex atherodes, Eleocharis palustris, Hippuris vulgaris	Cut Bank Creek	None
McHenry	MC078aWB	R4SB	8/24/2013	0.00	0.00	0.00	0.00	0.00	0.00	Clay	Alisma subcordatum, Persicaria amphibia, Sium suave	Souris River	303d Impaired Waterbody
Pierce	PI004aWB	Ditch	7/11/2013	0.00	0.00	0.00	0.00	0.00	0.00	Silt	Brassica napus	Unnamed Ditch	None
Pierce	PI014aWB	R4SB	6/21/2013	1.00	4.00	4.00	10.00	6.00	20.00	Sand	Typha sp.	Unnamed Stream	None

County	Feature ID	Cowardin Classification	Survey Date	Flow Rate (m/s)	Left Bank Height (ft)	Right Bank Height (ft)	Top of Bank Width (ft)	OHWM Height (ft)	OHWM Width (ft)	Substrate	Dominant Riparian Vegetation	Waterbody	Agency Designation
Pierce	PI014bWB	R4SB	6/28/2013	1.00	5.00	4.00	12.00	6.00	20.00	Sand	Phalaris arundinacea	Unnamed Stream	None
Pierce	PI014cWB	R4SB	6/28/2013	1.00	5.00	5.00	10.00	6.00	15.00	Sand	Spartina pectinata	Unnamed Stream	None
Pierce	PI036aWB	R3UB	8/12/2013	1.00	2.00	2.00	4.00	1.00	2.00	Sand	Echinochloa crus-galli	Unnamed Ditch	None
Pierce	PI080aWB	Ditch	8/14/2013	0.00	0.00	0.00	0.00	0.00	0.00	Sand	NA	Unnamed Ditch	None
Pierce	PI081_200aWB	Ditch	9/6/2013	0.00	1.00	1.00	8.00	1.25	9.00	Clay	Row Crops	Unnamed Ditch	None
Pierce	PI083aWB	R6	7/2/2013	0.00	2.00	2.00	4.00	2.00	15.00	Silt	Brassica napus	Unnamed Stream	None
Pierce	PI083bWB	R6	7/2/2013	1.00	1.00	1.00	15.00	2.00	45.00	Clay	Phalaris arundinacea	Unnamed Stream	None
Pierce	PI088aWB	R3UB	9/5/2013	0.00	1.00	1.00	70.00	1.00	70.00	Clay	Sparganium eurycarpum, Typha x glauca	Unnamed Stream	None
Pierce	PI092a1WB	R4SB	8/13/2013	0.00	0.00	0.00	0.00	0.00	0.00	Clay	Argentina anserina, Spartina pectinata, Mentha arvensis	Unnamed Stream	None
Pierce	PI092a2WB	R4SB	8/13/2013	0.00	0.00	0.00	0.00	0.00	0.00	Clay	Argentina anserina, Spartina pectinata, Mentha arvensis	Unnamed Stream	None
Pierce	PI092aWB	R4SB	8/13/2013	1.20	3.00	3.50	30.00	4.00	35.00	Clay	Medicago sativa	Unnamed Stream	None
Pierce	PI093aWB	R4SB	8/13/2013	0.75	1.50	2.50	70.00	6.25	80.00	Clay	Typha sp.	Unnamed Stream	None
Towner	TO002aWB	R3UB	8/15/2013	0.50	1.00	1.00	80.00	5.00	120.00	Silt	Typha sp.	Unnamed Stream	None
Towner	TO016aWB	R6	6/13/2013	0.50	2.00	3.00	30.00	1.00	20.00	Silt	Zea mays	Unnamed Stream	None
Towner	TO016bWB	R4SB	6/13/2013	0.50	1.00	2.00	20.00	3.00	60.00	Silt	Typha X glauca	Unnamed Stream	None
Towner	TO020aWB	R6	6/13/2013	0.20	0.50	1.00	8.00	1.00	10.00	Silt	Row Crops	Unnamed Stream	None
Towner	TO042aWB	R4SB	8/19/2013	1.00	3.00	1.00	450.00	3.00	650.00	Silt	Typha sp.	Unnamed Tributary (Big Coulee)	None
Towner	TO044aWB	R2US	8/20/2013	0.25	1.00	1.00	30.00	4.50	700.00	Silt	Typha sp.	Unnamed Tributary (Big Coulee)	None
Towner	TO046aWB	Ditch	10/3/2013	0.00	0.25	0.25	12.00	0.25	12.00	Clay	Typha x glauca	Unnamed Tributary (Big Coulee)	None
Towner	TO049aWB	Ditch	9/6/2013	0.00	0.25	0.25	25.00	1.00	25.00	Clay	Typha x glauca	Unnamed Ditch	None
Towner	TO051aWB	R4SB	9/6/2013	0.00	0.00	0.00	0.00	0.00	0.00	Clay	Hordeum jubatum, Rumex crispus, Echinochloa muricata	Big Coulee	None
Towner	TO060aWB	R2UB	8/22/2013	5.00	6.00	6.00	50.00	1.00	56.00	Silt	Typha sp.	Unnamed Stream	303d Impaired Waterbody
Towner	TO062aWB	Ditch	9/6/2013	0.00	1.75	1.75	12.00	2.00	16.00	Clay	Plowed Field	Unnamed Ditch	None
Towner	TO067aWB	R6	8/21/2013	0.00	0.50	0.50	30.00	0.50	18.00	Silt	Echinocchloa crus gali	Unnamed Ditch	None
Towner	TO069aWB	Ditch	8/21/2013	0.00	0.00	0.00	0.00	0.00	0.00	Clay	Eleocharis parvula, Alisma subcordatum	Unnamed Ditch	None
Towner	TO070aWB	Ditch	8/21/2013	0.00	5.00	5.00	55.00	5.00	55.00	Clay	Typha x glauca	Unnamed Ditch	None
Towner	TO074aWB	Ditch	8/20/2013	0.00	4.75	4.75	35.00	3.75	25.00	Clay	Typha x glauca	Unnamed Ditch	None
Towner	TO074bWB	Ditch	8/20/2013	0.10	2.00	2.00	30.00	2.20	40.00	Clay	Typha sp.	Unnamed Ditch	None
Ramsey	RA005aWB	Ditch	10/2/2013	0.00	0.25	0.25	5.00	0.25	5.00	Clay	No vegetation	Unnamed Ditch	None
Ramsey	RA005bWB	Ditch	10/2/2013	0.00	0.50	0.50	5.00	0.50	5.00	Clay	No vegetation	Unnamed Ditch	None
Ramsey	RA011aWB	Ditch	8/27/2013	0.50	4.00	5.00	25.00	2.00	15.00	Silt	Alisma gramnium	Unnamed Ditch	None
Ramsey	RA016aWB	R2UB	8/28/2013	5.00	8.00	8.00	36.00	5.00	24.00	Clay	Chara sp.	Starkweather Coulee	None
Ramsey	RA034aWB	Ditch	8/29/2013	0.00	2.00	2.00	10.00	2.50	10.00	Clay	Typha sp.	Unnamed Ditch	None
Ramsey	RA040aWB	Ditch	8/29/2013	0.00	2.50	2.50	8.00	3.10	10.00	Clay	Sonchus oleraceus	Unnamed Ditch	None
Ramsey	RA043aWB	Ditch	8/29/2013	0.00	5.00	5.00	12.00	5.20	13.00	Clay	Typha sp.	Unnamed Ditch	None
Ramsey	RA046aWB	R3UB	8/29/2013	0.00	35.00	40.00	150.00	10.00	60.00	Clay	Typha x glauca	Edmor Coulee	None
Ramsey	RA047aWB	R3UB	8/29/2013	0.00	20.00	20.00	125.00	13.00	80.00	Clay	Typha x glauca	Edmor Coulee	None
Ramsey	RA047bWB	R3UB	8/29/2013	1.00	30.00	30.00	120.00	8.00	80.00	Clay	Typha x glauca	Edmor Coulee	None
Ramsey	RA047cWB	R3UB, Ditch	8/29/2013	0.00	20.00	40.00	110.00	9.00	45.00	Clay	Typha x glauca	Edmor Coulee	None
Ramsey	RA048aWB	Ditch	8/29/2013	0.00	3.00	3.00	19.00	1.50	7.00	Clay	Brassica kaber	Unnamed Ditch	None
Ramsey	RA048bWB	Ditch	8/29/2013	0.00	13.00	13.00	28.00	5.00	22.00	Clay	Typha x glauca	Unnamed Ditch	None
Ramsey	RA048cWB	R3UB	8/29/2013	0.00	30.00	30.00	90.00	15.00	60.00	Clay	Typha x glauca	Edmor Coulee	None
Ramsey	RA049aWB	Ditch	8/29/2013	0.00	6.00	6.00	15.00	2.00	10.00	Silt	Potemegeton pectinata	Unnamed Ditch	None
Ramsey	RA053aWB	Ditch	8/29/2013	0.00	2.50	2.50	13.00	2.50	13.00	Silt	Alisma subcortata	Unnamed Ditch	None
Ramsey	RA058aWB	Ditch	8/28/2013	0.00	1.00	1.00	3.50	0.01	0.10	Clay	Bare ground	Unnamed Ditch	None
Ramsey	RA059aWB	Ditch	8/28/2013	0.00	3.00	3.00	6.00	3.00	6.00	Clay	Rumex crispus	Unnamed Ditch	None
Ramsey	RA064aWB	Ditch	8/28/2013	0.00	0.50	0.50	2.00	0.50	1.50	Clay	Typha x glauca	Unnamed Ditch	None

County	Feature ID	Cowardin Classification	Survey Date	Flow Rate (m/s)	Left Bank Height (ft)	Right Bank Height (ft)	Top of Bank Width (ft)	OHWM Height (ft)	OHWM Width (ft)	Substrate	Dominant Riparian Vegetation	Waterbody	Agency Designation
Ramsey	RA064bWB	Ditch	8/28/2013	0.00	2.50	2.50	5.00	2.50	5.00	Silt	Cirsium arvense	Unnamed Ditch	None
Ramsey	RA077aWB	Ditch	8/27/2013	0.00	4.50	4.50	12.00	2.00	6.00	Silt	Alisma subcortatum	Unnamed Ditch	None
Ramsey	RA080aWB	R6	7/12/2013	1.00	3.00	4.00	15.00	3.00	10.00	Clay	Typha sp.	Unnamed Ditch	None
Nelson	NE003aWB	Ditch	9/5/2013	0.00	6.00	6.00	15.00	1.75	6.00	Clay	Bare ground	Unnamed Ditch	None
Nelson	NE003bWB	Ditch	9/5/2013	0.00	1.25	1.25	2.75	0.10	0.75	Clay	Bare ground	Unnamed Ditch	None
Nelson	NE004aWB	Ditch	9/11/2013	0.00	4.00	4.00	18.00	5.00	20.00	Clay	Typha sp.	Unnamed Ditch	None
Nelson	NE013aWB	Ditch	8/26/2013	1.00	15.00	15.00	50.00	4.00	16.00	Sand	Typha sp.	Unnamed Ditch	None
Nelson	NE015aWB	Ditch	7/11/2013	0.10	15.00	10.00	40.00	5.00	13.00	Silt	Typha x glauca	Unnamed Ditch	None
Nelson	NE058aWB	Ditch	7/18/2013	0.50	3.00	3.00	13.00	3.00	13.00	Silt	Typha x glauca	Unnamed Ditch	None
Nelson	NE058bWB	Ditch	7/19/2013	0.00	11.00	4.00	40.00	4.00	29.00	Silt	Typha x glauca	Unnamed Ditch	None
Nelson	NE059aWB	Ditch	7/18/2013	0.00	1.00	1.00	8.00	1.00	9.00	Clay	Hordeum sp.	Unnamed Ditch	None
Grand Forks	GR003aWB	R2UB	7/22/2013	0.50	10.00	4.00	130.00	8.00	95.00	Clay	Typha x glauca, Phragmites australis	Little Goose River	None
Grand Forks	GR010aWB	R6	7/19/2013	0.00	4.00	5.00	40.00	15.00	350.00	Clay	Typha sp.	South Branch Turtle River	303d Impaired Waterbody
Grand Forks	GR013_200aWB	R6	7/22/2013	0.00	3.00	5.00	60.00	40.00	350.00	Clay	Spartina sp.	South Branch Turtle River	303d Impaired Waterbody
Grand Forks	GR013aWB	R6	7/22/2013	0.00	3.00	3.00	30.00	40.00	220.00	Clay	Typha sp.	South Branch Turtle River	303d Impaired Waterbody
Grand Forks	GR016aWB	R6	7/22/2013	0.00	1.50	1.50	12.00	3.00	35.00	Clay	Glysine sp.	Unnamed Ditch	None
Grand Forks	GR017aWB	R6	7/22/2013	0.00	2.00	2.00	15.00	15.00	300.00	Sand	Typha sp.	Unnamed Stream	None
Grand Forks	GR018aWB	R6	9/11/2013	0.00	2.00	2.00	4.00	2.00	4.00	Silt	Typha x glauca	Unnamed Stream	None
Grand Forks	GR025aWB	Ditch	7/23/2013	0.00	13.00	13.00	42.00	5.00	22.00	Silt	Typha x glauca, Schoenoplectus actus	Unnamed Ditch	None
Grand Forks	GR067aWB	Ditch	7/29/2013	1.00	2.50	2.00	2.75	7.00	60.00	Sand	Phalaris arundinacea	Unnamed Ditch	None
Grand Forks	GR081aWB	R2UB	7/29/2013	0.00	14.00	6.00	40.00	6.00	10.00	Clay	Spartina pectinata, Schoenoplectus fluvetalis	Unnamed Stream	None
Grand Forks	GR082aWB	R2UB	9/11/2013	0.00	3.00	4.80	40.00	1.50	36.00	Gravel	Typha x glauca	Unnamed Stream	None
Grand Forks	GR084aWB	R3UB	7/30/2013	0.00	35.00	20.00	250.00	12.00	100.00	Clay	Typha x glauca	Fresh Water Coulee	None
Grand Forks	GR086aWB	Ditch	7/30/2013	0.00	12.00	12.00	22.00	6.00	12.00	Gravel	Typha x glauca	Unnamed Ditch	None
Grand Forks	GR087aWB	Ditch	7/29/2013	0.00	1.50	1.50	12.00	1.50	12.00	Clay	Typha x glauca	Unnamed Ditch	None
Grand Forks	GR106_520aWB	R4SB	7/30/2013	0.00	1.50	1.50	10.00	2.00	10.00	Silt	Typha x glauca	Wilson Creek	None
Grand Forks	GR106_542aWB	R3UB	7/30/2013	0.00	35.00	15.00	45.00	7.00	20.00	Clay	Salix exigua, Typha x glauca	Elm Coulee	None
Grand Forks	GR106_542bWB	R3UB	7/30/2013	0.00	10.00	10.00	35.00	6.00	15.00	Clay	Salix exigua, Typha x glauca	Elm Coulee	None
Grand Forks	GR106_546aWB	Ditch	9/20/2013	0.00	0.00	0.00	0.00	0.00	0.00	Clay	Salix exigua , Typha x glauca	Unnamed Tributary (Red River of the North	None
Grand Forks	GR106_556aWB	R4SB	9/20/2013	0.00	0.00	0.00	0.00	0.00	0.00	Clay	Salix exigua , Typha x glauca	Red River of the North	303d Impaired Waterbody
Grand Forks	GR46aWB	R2US	9/11/2013	0.00	0.00	0.00	0.00	0.00	0.00	Silt	Phalaris arundinacea, Scirpus pallidus, Urtica dioica	NA	None

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
1.81	Dry Fork Creek	River/Stream	R2US	Williams	Field Delineation
1.82	Dry Fork Creek	River/Stream	R2US	Williams	Field Delineation
3.01	Unnamed Stream	River/Stream	R6	Williams	Field Delineation
3.28	Unnamed Stream	River/Stream	R6	Williams	Field Delineation
8.48	White Earth River	River/Stream	R4SB	Mountrail	Field Delineation
8.52	White Earth River	River/Stream	R4SB	Mountrail	Field Delineation
10.50	Unnamed Tributary (White Earth River)	River/Stream	R6	Mountrail	Field Delineation
15.25	Unnamed Stream	River/Stream	R6	Mountrail	Field Delineation
18.93	Unnamed Ditch	Ditch	Ditch	Mountrail	Field Delineation
18.94	Unnamed Ditch	Ditch	Ditch	Mountrail	Field Delineation
19.46	Unnamed Ditch	Ditch	Ditch	Mountrail	Field Delineation
19.47	Unnamed Ditch	Ditch	Ditch	Mountrail	Field Delineation
24.02	Unnamed Stream	River/Stream	R4SB	Mountrail	Field Delineation
24.03	Unnamed Stream	River/Stream	R4SB	Mountrail	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
24.43	Little Knife River	River/Stream	R2UB	Mountrail	Field Delineation
24.54	Little Knife River	River/Stream	R2UB	Mountrail	Field Delineation
25.26	Unnamed Tributary (Little Knife River)	River/Stream	R6	Mountrail	Field Delineation
25.87	Unnamed Tributary (Little Knife River)	River/Stream	R6	Mountrail	Field Delineation
27.72	Little Knife River	River/Stream	N/A	Mountrail	National Hydrography Dataset
28.52	Little Knife River	River/Stream	R3UB	Mountrail	Field Delineation
28.55	Little Knife River	River/Stream	R3UB	Mountrail	Field Delineation
54.18	Unnamed Stream	River/Stream	R6	Ward	Field Delineation
58.84	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation
58.86	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation
60.34	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation
60.35	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation
60.68	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation
60.68	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
64.56	Fuller Coulee	River/Stream	R2UB	Ward	Field Delineation
64.57	Fuller Coulee	River/Stream	R2UB	Ward	Field Delineation
65.99	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation
67.38	Unnamed Stream	River/Stream	R4SB	Ward	Field Delineation
67.82	Des Lac River	River/Stream	R4SB	Ward	Field Delineation
67.83	Des Lac River	River/Stream	R4SB	Ward	Field Delineation
72.46	Unnamed Ditch	Ditch	Ditch	Ward	Field Delineation
78.42	Unnamed Stream	River/Stream	R4SB	Ward	Field Delineation
78.44	Unnamed Stream	River/Stream	R4SB	Ward	Field Delineation
78.69	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
78.77	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
82.49	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
82.50	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
83.28	Egg Creek	River/Stream	R3UB	Ward	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
83.34	Egg Creek	River/Stream	R3UB	Ward	Field Delineation
84.09	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
84.13	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
86.98	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
87.02	Unnamed Stream	River/Stream	R2UB	Ward	Field Delineation
91.55	Little Deep Creek	River/Stream	R3UB	Mountrail	Field Delineation
91.59	Little Deep Creek	River/Stream	R3UB	Mountrail	Field Delineation
96.86	Little Deep Creek	River/Stream	R3UB	Mountrail	Field Delineation
96.91	Little Deep Creek	River/Stream	R3UB	Mountrail	Field Delineation
104.79	Cut Bank Creek	River/Stream	R2UB	Mountrail	Field Delineation
104.83	Cut Bank Creek	River/Stream	R2UB	Mountrail	Field Delineation
122.15	Souris River	River/Stream	R4SB	Mountrail	Field Delineation
122.20	Souris River	River/Stream	R4SB	Mountrail	Field Delineation
129.16	Unnamed Ditch	Ditch	Ditch	Pierce	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
133.12	Unnamed Stream	River/Stream	R4SB	Pierce	Field Delineation
142.78	Unnamed Ditch	Ditch	R3UB	Pierce	Field Delineation
158.95	Unnamed Ditch	Ditch	Ditch	Pierce	Field Delineation
159.66	Unnamed Ditch	Ditch	Ditch	Pierce	Field Delineation
163.34	Unnamed Stream	River/Stream	R3UB	Pierce	Field Delineation
163.35	Unnamed Stream	River/Stream	R3UB	Pierce	Field Delineation
164.72	Unnamed Stream	River/Stream	R4SB	Pierce	Field Delineation
164.73	Unnamed Stream	River/Stream	R4SB	Pierce	Field Delineation
164.85	Unnamed Stream	River/Stream	R4SB	Pierce	Field Delineation
164.86	Unnamed Stream	River/Stream	R4SB	Pierce	Field Delineation
165.32	Unnamed Stream	River/Stream	R3UB	Towner	Field Delineation
165.34	Unnamed Stream	River/Stream	R3UB	Towner	Field Delineation
168.79	Unnamed Stream	River/Stream	R6	Towner	Field Delineation
168.82	Unnamed Stream	River/Stream	R6	Towner	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
168.87	Unnamed Stream	River/Stream	R6	Towner	Field Delineation
169.05	Unnamed Stream	River/Stream	R4SB	Towner	Field Delineation
170.18	Unnamed Stream	River/Stream	R6	Towner	Field Delineation
179.59	Unnamed Tributary (Big Coulee)	River/Stream	R4SB	Towner	Field Delineation
179.65	Unnamed Tributary (Big Coulee)	River/Stream	R4SB	Towner	Field Delineation
180.79	Unnamed Tributary (Big Coulee)	River/Stream	R2US	Towner	Field Delineation
180.79	Unnamed Tributary (Big Coulee)	River/Stream	R2US	Towner	Field Delineation
181.53	Unnamed Tributary (Big Coulee)	River/Stream	Ditch	Towner	Field Delineation
183.07	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
183.08	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
183.57	Big Coulee	River/Stream	R4SB	Towner	Field Delineation
183.75	Big Coulee	River/Stream	R4SB	Towner	Field Delineation
186.48	Unnamed Stream	River/Stream	R2UB	Towner	Field Delineation
186.49	Unnamed Stream	River/Stream	R2UB	Towner	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
187.01	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
188.10	Unnamed Ditch	Ditch	R6	Towner	Field Delineation
188.77	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
188.77	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
188.93	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
188.94	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
189.61	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
189.68	Unnamed Ditch	Ditch	Ditch	Towner	Field Delineation
191.82	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
191.90	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
192.87	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
192.88	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
194.98	Starkweather Coulee	River/Stream	R2UB	Ramsey	Field Delineation
195.00	Starkweather Coulee	River/Stream	R2UB	Ramsey	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
200.73	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
204.02	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
205.47	Edmor Coulee	River/Stream	R3UB	Ramsey	Field Delineation
205.52	Edmor Coulee	River/Stream	R3UB	Ramsey	Field Delineation
206.85	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
206.85	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
209.47	Unnamed Ditch	Ditch	Ditch	Ramsey	Field Delineation
216.81	Unnamed Ditch	Ditch	R6	Ramsey	Field Delineation
225.66	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
226.09	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
226.09	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
230.48	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
230.49	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
251.79	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
251.80	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
251.81	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
251.82	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
252.17	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
252.18	Unnamed Ditch	Ditch	Ditch	Nelson	Field Delineation
255.15	Little Goose River	River/Stream	R2UB	Grand Forks	Field Delineation
258.62	South Branch Turtle River	River/Stream	R6	Grand Forks	Field Delineation
260.67	Unnamed Stream	River/Stream	R6	Grand Forks	Field Delineation
260.75	Unnamed Stream	River/Stream	R6	Grand Forks	Field Delineation
260.94	Unnamed Stream	River/Stream	R6	Grand Forks	Field Delineation
260.94	Unnamed Stream	River/Stream	R6	Grand Forks	Field Delineation
262.75	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
262.76	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
268.93	NA	NA	R2US	Grand Forks	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
268.93	NA	NA	R2US	Grand Forks	Field Delineation
276.54	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
276.55	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
279.30	Salt Water Coulee	River/Stream	N/A	Grand Forks	National Hydrography Dataset
282.97	Unnamed Stream	River/Stream	R2UB	Grand Forks	Field Delineation
282.97	Unnamed Stream	River/Stream	R2UB	Grand Forks	Field Delineation
283.53	Fresh Water Coulee	River/Stream	R3UB	Grand Forks	Field Delineation
283.57	Fresh Water Coulee	River/Stream	R3UB	Grand Forks	Field Delineation
284.71	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
284.72	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
285.17	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
285.18	Unnamed Ditch	Ditch	Ditch	Grand Forks	Field Delineation
292.88	Wilson Creek	River/Stream	R4SB	Grand Forks	Field Delineation
297.19	Elm Coulee	River/Stream	R3UB	Grand Forks	Field Delineation

Sandpiper: Streams and Waterbodies Crossings Table

Milepost	Waterbody Name	Type	Cowardin Classification	County	Data Source
297.22	Elm Coulee	River/Stream	R3UB	Grand Forks	Field Delineation
297.93	Unnamed Tributary (Red River of the North)	Ditch	Ditch	Grand Forks	Field Delineation
297.94	Unnamed Tributary (Red River of the North)	Ditch	Ditch	Grand Forks	Field Delineation

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

Exhibit G	Habitat Assessments
Exhibit G.1	Piping Plover Habitat Assessment Report
Exhibit G.2	Grassland and Native Prairie Habitat Assessment Report

Enbridge

2013 Piping Plover Habitat Assessment Report (Rev 0)

PRESENTED BY MERJENT, INC.
January 22, 2014

TABLE OF CONTENTS

EXECUTIVE SUMMARY **1**
1.0 INTRODUCTION **2**
2.0 PURPOSE OF HABITAT ASSESSMENT **2**
3.0 PIPING PLOVER STATUS, NATURAL HISTORY, AND RANGE **2**
4.0 METHODS **4**
4.1 DESKTOP REVIEW 4
4.2 FIELD-BASED HABITAT ASSESSMENT 4
4.2.1 Field Methods 4
4.2.2 Interpretation of Field Data 5
5.0 RESULTS **6**
5.1 RESULTS OF DESKTOP REVIEW 6
5.2 FIELD LIMITATIONS 9
5.3 FIELD-BASED HABITAT ASSESSMENT 10
6.0 REFERENCES **14**

LIST OF TABLES

Table 5.1-1 Wetlands Identified as Potentially Suitable Habitat Based on Desktop Review

Table 5.1-2 Potentially Suitable Piping Plover Wetlands within Environmental Survey Corridor

Table 5.3-1 Characteristics of Potentially Suitable Piping Plover Wetlands within Environmental Survey Corridor

LIST OF FIGURES

Figure 3.0-1 North Dakota Counties Where Piping Plover May Occur Along the Route

APPENDICES

Appendix A 2013 Piping Plover Habitat Assessment Protocol

Appendix B U.S. Fish and Wildlife Service Correspondence

Appendix C Maps of Potentially Suitable Piping Plover Habitat (included in filing)

Appendix D Field Data Sheets

Appendix E Photographs of Wetlands Visited during Field Surveys

Other Appendices available upon request

EXECUTIVE SUMMARY

Western Ecosystems Technologies, Inc. ("WEST"), on behalf of Merjent, Inc. ("Merjent") and Enbridge, conducted piping plover (*Charadrius melodus*) habitat assessment surveys between August to October, 2013 within an environmental survey corridor. The habitat assessment is necessary to determine the specific locations for surveys of piping plover individuals prior to pipeline construction activities and to evaluate potential impacts on the federally threatened Great Plains piping plover.

The environmental survey corridor crosses through five counties in North Dakota where the piping plover is known to occur: Williams, Mountrail, Ward, McHenry, and Pierce counties. Piping plover nest on exposed, sparsely vegetated beaches surrounding large wetlands. The suitability of a wetland for piping plover depends on water levels and may vary annually.

The piping plover habitat assessment is described in the 2013 Piping Plover Habitat Assessment Protocol ("Protocol"). The habitat assessment was conducted in two steps: (1) preliminary desktop review of wetlands using several years of aerial imagery that represented dry and wet years to assess potentially suitable habitat within a one-mile study area, and (2) field-based habitat assessment of wetlands identified in the desktop review and located within the environmental survey corridor to further evaluate their suitability as piping plover habitat based on a suite of characteristics. The desktop review and field-based habitat assessment took place from August to October 2013 in counties where piping plover have the potential to occur.

The desktop review identified 242 wetlands within a one-mile study area that were considered to provide potentially suitable habitat because they were 2 hectares or larger and had evidence of exposed substrate during dry or wet years. Of the 242 wetlands identified as potentially suitable habitat during the desktop review, 54 wetlands are located within the environmental survey corridor. Fifty three wetlands were surveyed. One wetland in Mountrail County (PPHMO047a) was not surveyed due to access restrictions.

Wetlands were eliminated as potentially suitable piping plover habitat if one or more of the following characteristics were present:

1) greater than 25 percent vegetative cover along the shoreline;
2) silty or mucky substrate with no sand, gravel, or salt-encrusted substrate present; or
3) presence of trees within the environmental survey corridor.

Forty-six of the 53 surveyed wetlands were eliminated as potential habitat due to the presence of vegetative cover greater than 25 percent along the shoreline.

Of the remaining seven wetlands that were surveyed, four did not have gravel or sand in the substrate and one had trees in the environmental survey corridor. Based on these characteristics, two wetlands had the characteristics necessary to be suitable habitat: PPHWA001b and PPHPI070a.

The results of the habitat assessment will inform future survey efforts for piping plover individuals during the nesting season, facilitate discussions with U.S. Fish and Wildlife Service ("USFWS"), and provide data to evaluate potential impacts on the species under the federal Endangered Species Act.

1.0 INTRODUCTION

Western Ecosystems Technologies, Inc. ("WEST"), on behalf of Merjent, Inc. ("Merjent") and Enbridge, conducted piping plover (*Charadrius melodus*) habitat assessment surveys within an environmental survey corridor. The assessment included a preliminary desktop review followed by field-based habitat assessment. The desktop review and field-based habitat assessment were conducted by WEST from August to October, 2013.

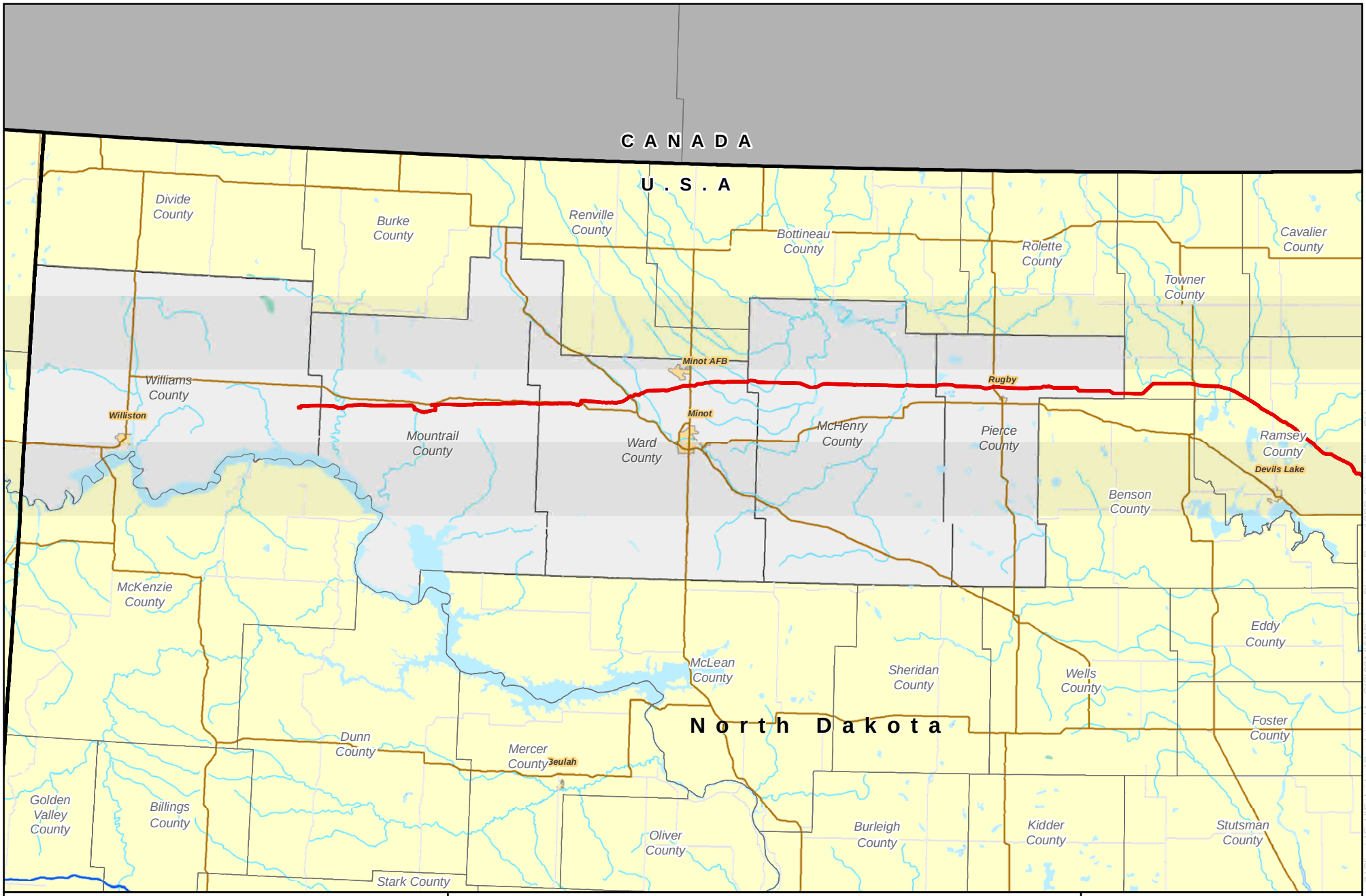
2.0 PURPOSE OF HABITAT ASSESSMENT

The purpose of the 2013 Piping Plover Habitat Assessment is to identify potentially suitable piping plover habitat within the environmental survey corridor, which ranges from approximately 250-foot to 450-foot wide area. Under Section 7 of the federal Endangered Species Act ("ESA"), the potential effects of actions that are implemented, funded, or permitted by a federal agency must be evaluated to determine if federally listed species may be impacted. In order to determine potential impacts, the presence of suitable habitat within the environmental survey corridor was assessed. The results of the habitat assessment will inform potential surveys for piping plover individuals, future consultations with the USFWS, impact analysis under the ESA, and conservation measures development for the species.

3.0 PIPING PLOVER STATUS, NATURAL HISTORY, AND RANGE

Piping plover are small shorebirds that breed in three geographic regions in North America. The range of the Great Plains population of piping plover overlaps with the environmental survey corridor. The Great Plains population of piping plover is listed under the ESA as threatened. In the Great Plains, piping plover nest on open, sparsely vegetated sand or gravel beaches adjacent to wetlands, and on beaches, sand bars, and dredged material islands of major river systems. Piping plover arrive on breeding grounds in early April through mid-May and remain for 3 to 4 months. They lay 3 to 4 eggs in shallow scraped depressions lined with light colored pebbles and shell fragments. The eggs are well camouflaged and blend in well with their surroundings. Both sexes incubate the eggs, which hatch within 30 days, and both sexes feed the young until they can fly, about 30 days after hatching (USFWS, undated).

Prairie freshwater and alkali wetlands and surrounding shoreline may provide courtship, nesting, foraging, sheltering, brood-rearing, and dispersal habitat for Great Plains piping plovers. Piping plovers nest in wetlands ranging from 3 to 2,576 hectares (Licht, 2001). Piping plover generally nest on beaches that are sparsely vegetated; wetlands with cattails or trees are not suitable habitat (C. Aron, USFWS, pers. comm. June 26, 2013). Some research indicates that piping plover nest primarily in alkali wetlands (Root and Ryan, 2004). However, surveys have found piping plover nesting in freshwater wetlands, as well (Haig et al. 2005; C. Aron, USFWS, pers. comm., June 26, 2013). The suitability of wetlands for piping plover nesting depends in part on water levels that may vary annually. Thus, wetlands should be initially evaluated using several years of aerial imagery that include years with both high and low water levels (C. Aron, USFWS, pers. comm., June 26, 2013).



Survey Corridor

Counties with Piping Plover Occurrences within the Environmental Survey Corridor

0 12.5 25 Miles

1 inch = 25 miles

N

Enbridge

Figure 3.0-1
Piping Plover Habitat Survey

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\SPP_PipingPlover_OV.mxd

Date: (1/21/2014)

4.0 METHODS

The 2013 Piping Plover Habitat Assessment Protocol (Protocol), prepared by Merjent, describes the methods used to identify potentially suitable piping plover habitat within the environmental survey corridor (Appendix A). The assessment included a preliminary desktop review followed by field-based habitat assessment. The desktop review and field-based habitat assessment were conducted by WEST on behalf of Merjent and Enbridge from August to October, 2013.

The Protocol was developed based on general information about the species provided by the USFWS North Dakota Field Office ("NDFO") (Appendix B). Merjent and Enbridge forwarded the Protocol to the USFWS NDFO on June 3, 2013 and requested agency review, recommendations, and concurrence regarding the Protocol. The USFWS NDFO initially indicated that they would be able to discuss the Protocol and provided some preliminary comments. However, before detailed discussions could occur, the USFWS NDFO determined that further consultations with Enbridge could not occur until a federal lead agency had been identified. Enbridge was not able to receive recommendations or concurrence on the Protocol prior to implementation of the desktop review and field-based habitat assessment described in this report. Enbridge received additional guidance from the USFWS NDFO in December 2013 and January 2014 after a lead federal agency had been identified (Appendix B). This guidance was used to further define suitable habitat based on the data that was collected during the field-based habitat assessment.

4.1 DESKTOP REVIEW

The desktop review of potential piping plover habitat was conducted by WEST Geographic Information System ("GIS") specialists and biologists within the five North Dakota counties where the USFWS indicates piping plover may occur, specifically within the environmental survey corridor. Using GIS data, National Wetland Inventory ("NWI") wetlands were identified within a one-mile study area. Multi-basin wetlands were divided into single basins and basins less than 2 hectares ("ha") were omitted. A 2-hectare minimum size instead of 3 hectares was used to be additionally inclusive during the identification of potential piping plover suitable habitat.

Wetlands greater than 2 hectares were assessed during a wet year (2012) and two dry years (2003 & 2006) using National Agricultural Imagery Program ("NAIP") county mosaic imagery. Wetlands greater than two hectares that showed no open water or no exposed substrate (i.e., exposed, sparsely vegetated areas) during both the wet (2012) and dry time periods (2003 and 2006) were omitted. The remaining NWI wetlands within the environmental survey corridor and within one-mile study area were documented and included in a shapefile for use in the field-based habitat assessment effort.

4.2 FIELD-BASED HABITAT ASSESSMENT

A field-based habitat assessment of the 54 wetlands located within the environmental survey corridor and identified as potential piping plover suitable habitat during the desktop review was conducted in Williams, Mountrail, Ward, McHenry, and Pierce counties.

4.2.1 Field Methods

Data was collected on a sub-meter Trimble GeoXH unit using the North Dakota State Plane North, NAD 83 survey feet coordinate system.

Survey crews recorded the following characteristics for use in evaluating a wetland as piping plover suitable habitat:

- Presence of sand, gravel, and/or salt-encrusted substrate;
- Estimated percentage of overall vegetative cover using an overall visual qualitative observation and the Daubenmire cover class method (Daubenmire, 1959);
- Presence of halophytic vegetation such as *Salicornia rubra, Suaeda calceoliformis, Atriplex patula, Hordeum jubatum, Distichils spicata,* and *Puccinellia nuttslliana*;
- Presence of cattails (*Typha* spp.);
- Presence of trees; and
- Visual and auditory observations of piping plover.

Percent vegetative cover was estimated using two methods—an overall visual qualitative assessment and the Daubenmire cover class method. The visual qualitative assessment consisted of surveyors visually estimating the approximate percent of vegetative cover along the shoreline using six categories of vegetative cover: 0-5 percent, 5-25 percent, 25-50 percent, 50-75 percent, 75-95 percent, and 95-100 percent. A second method, the Daubenmire cover class method, was used to confirm the results of the visual qualitative assessment. For the Daubenmire cover class method, surveyors employed a 50 centimeters ("cm") by 20 cm Daubenmire frame, which was placed at the sample point, typically located 5 to 10 feet from the water's edge (Daubenmire, 1959). In some cases the sample point was closer to the water's edge because 5 to 10 feet would have been within upland. Total vegetative cover within the Daubenmire frame was estimated and assigned one of six cover classes (0-5 percent, 5-25 percent, 25-50 percent, 50-75 percent, 75-95 percent, and 95-100 percent). Each sample point and actual water's edge were recorded. In cases in which the results from the two methods differed, the results of the visual qualitative assessment were used because this method assessed the entire wetland as opposed to a small sample plot.

4.2.2 Interpretation of Field Data

Following the completion of field surveys, wetlands identified as providing potentially suitable habitat during the desktop review were further evaluated based on the data collected during field surveys. Wetlands were omitted as suitable habitat if surveys showed either of the following:

- Habitat had been disturbed or destroyed since aerial imagery was recorded; or
- Presence of one or more of the following characteristics:
  - greater than 25 percent vegetative cover along the shoreline;
  - silty or mucky substrate with no sand, gravel, or salt-encrusted substrate present; and
  - presence of trees in the environmental survey corridor.

Presence of cattails was not used to eliminate wetlands as potential suitable habitat for piping plovers; piping plover may nest along the shorelines of wetlands if cattails are sparse or present in discrete patches. Limiting suitable habitat to wetlands with less than 25 percent vegetative cover ensured that wetlands that were included as potential habitat did not have cattails covering most of their shoreline. Absence of exposed wetland substrate during field surveys was also not used to eliminate the area as potentially suitable habitat because in wet years, such as 2013, typically exposed beach habitat may be inundated. Presence or absence of halophytic vegetation provided information on the alkaline nature of the wetland, but was not

used to eliminate a wetland as potential habitat because piping plover may nest near freshwater wetlands during some years.

5.0 RESULTS

5.1 RESULTS OF DESKTOP REVIEW

The desktop review of aerial imagery resulted in the identification of 242 wetlands with the potential to serve as providing potentially suitable habitat located within the one-mile study area; 54 of the 242 wetlands are located within the environmental survey corridor (see Table 5.1-1). Wetlands were included as potentially suitable habitat if they were greater than 2 hectares in size and if there was evidence of open water and barren beach habitat in aerial imagery from past dry (2003, 2006) or wet time periods (2012). Maps of the wetlands documented during the desktop habitat assessment are provided in Appendix C.

Table 5.1-1
Wetlands Identified as Potentially Suitable Habitat Based on Desktop Review

County	Wetland Basins Within Environmental Survey Corridor	Wetland Basins Within 1-mile Study Area
Williams	0	1
Mountrail	18	83
Ward	10	54
McHenry	6	39
Pierce	20	65
TOTAL	54	242

Each of the wetlands within the environmental survey corridor is listed in Table 5.1-2, along with the tract number(s) where they occur, their size, and NWI classification. These wetlands range in size from 2 hectares (i.e., the minimum size to be considered potential piping plover habitat) to 228 hectares. The majority (39) are classified as “freshwater emergent wetland”. Nine are classified as “lake”, and six are classified as “freshwater pond”. None of these wetlands occur entirely within the environmental survey corridor, and many have little overlap with the corridor.

Table 5.1-1
Wetlands Identified as Potentially Suitable Habitat Based on Desktop Review

Wetland Number	Tract Number(s)	Size of Wetland (hectares)	Wetland Type	Wetland Code[1]
PPHMO031a	ND-MO-031	2.13	Freshwater Emergent Wetland	PEMC
PPHMO032a	ND-MO-032	2.63	Freshwater Emergent Wetland	PEMC
PPHMO032b	ND-MO-032, ND-MO-033	4.27	Freshwater Emergent Wetland	PEMC
PPHMO034a	ND-MO-034	55.78	Lake	L2ABG
PPHMO038a	ND-MO-038	2.87	Freshwater Emergent Wetland	PEMC
PPHMO039a	ND-MO-038, ND-MO-039	35.55	Freshwater Emergent Wetland	PEMC
PPHMO047a	ND-MO-047.900RV	21.16	Freshwater Emergent Wetland	PEMA
PPHMO056.210a	ND-MO-056.210	13.36	Freshwater Emergent Wetland	PEM/ABFh
PPHMO076.1a	ND-MO-075, ND-MO-75.900RD, ND-MO-076.1	6.07	Freshwater Pond	PABF
PPHMO076a	ND-MO-076	5.94	Freshwater Emergent Wetland	PEM/ABF
PPHMO096a	ND-MO-096	3.32	Freshwater Emergent Wetland	PEMC
PPHMO096b	ND-MO-096, ND-MO-097	2.00	Freshwater Emergent Wetland	PEMC
PPHMO097a	ND-MO-097, ND-MO-097.900RD	3.29	Freshwater Emergent Wetland	PEMC
PPHMO098a	ND-MO-098, ND-MO-099	8.32	Freshwater Emergent Wetland	PEM/ABF
PPHMO100a	ND-MO-100, ND-MO-101	16.13	Lake	L2ABG
PPHMO102a	ND-MO-102	14.84	Lake	L2ABG
PPHMO103a	ND-MO-103, ND-103.100	20.17	Lake	L2ABG
PPHMO105a	ND-MO-105	4.69	Freshwater Emergent Wetland	PEMC
PPHWA001a	ND-WA_001	3.24	Freshwater Emergent Wetland	PEMC
PPHWA001b	ND-WA-001, ND-WA-001.1	7.73	Freshwater Emergent Wetland	PEMF
PPHWA001.1a	ND-WA-001	2.01	Freshwater Emergent Wetland	PEMF
PPHWA003a	ND-WA-003	2.12	Freshwater Pond	PABF

Table 5.1-1
Wetlands Identified as Potentially Suitable Habitat Based on Desktop Review

Wetland Number	Tract Number(s)	Size of Wetland (hectares)	Wetland Type	Wetland Code[1]
PPHWA003b	ND-WA-003	2.10	Freshwater Emergent Wetland	PEM/ABF
PPHWA004a	ND-WA-004a	15.84	Lake	L2ABG
PPHWA006a	ND-WA-006	5.80	Freshwater Pond	PABF
PPHWA007a	ND-WA-007	30.36	Lake	L2ABG
PPHWA010a	ND-WA-010, ND-WA-010.900RR	2.06	Freshwater Emergent Wetland	PEMF
PPHWA070a	ND-WA-070	29.41	Freshwater Emergent Wetland	PEM/ABF
PPHMC029.520a	ND-MC-029.520	8.18	Freshwater Emergent Wetland	PEMC
PPHMC029.540a	ND-MC-029.540	203.66	Freshwater Emergent Wetland	PEM/ABF
PPHMC034a	ND-MC-034	2.10	Freshwater Emergent Wetland	PEMC
PPHMC034b	ND-MC-034	9.93	Freshwater Emergent Wetland	PEMC
PPHMC046a	ND-MC-046	42.33	Freshwater Emergent Wetland	PEMC
PPHMC071a	ND-MC-071	28.29	Freshwater Emergent Wetland	PEMC
PPHPI004a	ND-PI-004	20.17	Freshwater Emergent Wetland	PEMC
PPHPI005a	ND-PI-005	8.36	Freshwater Emergent Wetland	PEMC
PPHPI006a	ND-PI-006, ND-PI-007	4.38	Freshwater Emergent Wetland	PEMCd
PPHPI008a	ND-PI-008	9.84	Freshwater Emergent Wetland	PEMC
PPHPI011a	ND-PI-011, ND-PI-012, ND-PI-013	66.73	Lake	L2ABF
PPHPI020a	ND-PI-020	10.53	Freshwater Emergent Wetland	PEMC
PPHPI022a	ND-PI-022	3.15	Freshwater Emergent Wetland	PEMC
PPHPI044a	ND-PI-044	3.72	Freshwater Emergent Wetland	PEM/ABF
PPHPI044b	ND-PI-044	3.11	Freshwater Emergent Wetland	PEM/ABF
PPHPI045a	ND-PI-045, ND-PI-046	2.73	Freshwater Emergent Wetland	PEM/ABF
PPHPI049.504a	ND-PI-049,504, ND-PI-049.506	96.65	Lake	L2ABG
PPHPI049.506a	ND-PI-049.506	23.33	Freshwater Pond	PABF

Table 5.1-1
Wetlands Identified as Potentially Suitable Habitat Based on Desktop Review

Wetland Number	Tract Number(s)	Size of Wetland (hectares)	Wetland Type	Wetland Code[1]
PPHPI058a	ND-PI-058, ND-PI-058.200	2.35	Freshwater Emergent Wetland	PEMC
PPHPI058.2a	ND-PI-058.200, ND-PI-058	7.93	Freshwater Pond	PABF
PPHPI060a	ND-PI-060, ND-PI-061	4.83	Freshwater Emergent Wetland	PEM/ABF
PPHPI061a	ND-PI-061	4.59	Freshwater Pond	PABF
PPHPI062a	ND-PI-062, ND-PI-063	4.50	Freshwater Emergent Wetland	PEMC
PPHPI067a	ND-PI-067	11.96	Freshwater Emergent Wetland	PEMF
PPHPI070a	ND-PI-070.200, ND-PI-070	228.05	Lake	L2ABG
PPHPI086a	ND-PI-086	2.95	Freshwater Emergent Wetland	PEMAd

Notes:
[1] PEMC – Palustrine, emergent, seasonally flooded
L2ABG – Lacustrine, littoral, aquatic bed, intermittently exposed
PEMA - Palustrine, emergent, temporarily flooded
PEM/ABFh – Palustrine emergent/aquatic bed, semi-permanently flooded, diked/impounded
PABF - Palustrine, aquatic bed, semi-permanently flooded
PEM/ABF – Palustrine emergent/aquatic bed, semi-permanently flooded
PEMF - Palustrine, emergent, semi-permanently flooded
PABF - Palustrine, aquatic bed, semi-permanently flooded
PEMCd - Palustrine, emergent, seasonally flooded, partially drained/ditched
L2ABF – Lacustrine, littoral, aquatic bed, semi-permanently flooded
PEMAd - Palustrine, emergent, temporarily flooded, partially drained/ditche

5.2 FIELD LIMITATIONS

Data were collected on all but one (PPHMO047a) of the 54 wetlands identified during the desktop review. This wetland was not surveyed due to access restrictions, but will be surveyed in 2014 if access is granted. All 54 wetlands are included in the mapset.

Most wetlands that were investigated occurred in depressions in the landscape; their size may vary considerably from year to year depending on precipitation and groundwater. Overall, 2013 was above average for precipitation in the portion of North Dakota where the environmental survey corridor is located, and in particular, in the five counties where wetlands were investigated for piping plover habitat. Therefore, many of the wetlands were at or near their full capacity. However, two wetlands, PPHMO032b and PPHMO038a, appeared to be declining wetlands (i.e., becoming upland), probably as a result of sedimentation from wind and water erosion from adjacent cultivated fields.

5.3 FIELD-BASED HABITAT ASSESSMENT

Maps of the wetlands that were investigated in the field are provided in Appendix C. Data sheets collected at each wetland are provided in Appendix D. Photographs of each wetland are available in Appendix E, including overviews of the wetlands, photos of substrate, and the Daubenmire plot. A summary of the habitat features recorded at each wetland is provided in Table 5.3-1.

The habitat assessment included documenting visual and auditory observations of piping plover individuals. The presence of piping plover at a site would indicate that the wetland was suitable habitat, regardless of the presence or absence of other features. However, the efficacy of the habitat assessment did not depend on being timed to occur when individuals were present. Each field crew included at least one biologist familiar with piping plover. No evidence either visual or auditory indicated presence of piping plover. Therefore, no wetlands were included as suitable habitat based on this criterion. Given the timing of the habitat assessment, the lack of observations of piping plover individuals may have been because the piping plovers had left their breeding habitat for the year.

According to the Protocol, any wetlands investigated in the field that were found to be disturbed or destroyed could be eliminated as potentially suitable piping plover habitat. None of the wetlands were found to be destroyed; however, as described above in Section 5.2, 2 of the wetlands (PPHMO032b and PPHMO038a) investigated appeared to be "filling in" and had no surface water, most likely due to sedimentation from surrounding cultivated fields. While this might be considered a type of disturbance, data were collected at these wetlands, and they were not eliminated based on disturbance.

Wetlands were considered suitable piping plover habitat, if they had one or more of the following characteristics:

- greater than 25 percent vegetative cover along the shoreline;
- silty or mucky substrate with no sand, gravel, or salt-encrusted substrate present; and
- presence of trees in the environmental survey corridor.

Approximately 46 of the 53 surveyed wetlands were eliminated due to the presence of vegetative cover greater than 25 percent (Table 5.3-1)[1]. Forty-six (46) of the 53 wetlands were eliminated as potential habitat due to the presence of vegetative cover greater than 25 percent along the shoreline. Of the remaining seven wetlands that were surveyed, four did not have gravel or sand in the substrate, and one had trees in the environmental survey corridor. Based on these characteristics, two wetlands had the characteristics necessary to be suitable habitat: PPHWA001b and PPHPI070a.

[1] This includes the 2 wetlands where vegetation was not sampled using a Daubenmire plot because there was no open water (PPHMO032b and PPHMO038a); the vegetative cover at these 2 wetlands was estimated visually at greater than 95 percent cover.

Table 5.3-1
Characteristics of Potentially Suitable Piping Plover Wetlands within the Environmental Survey Corridor

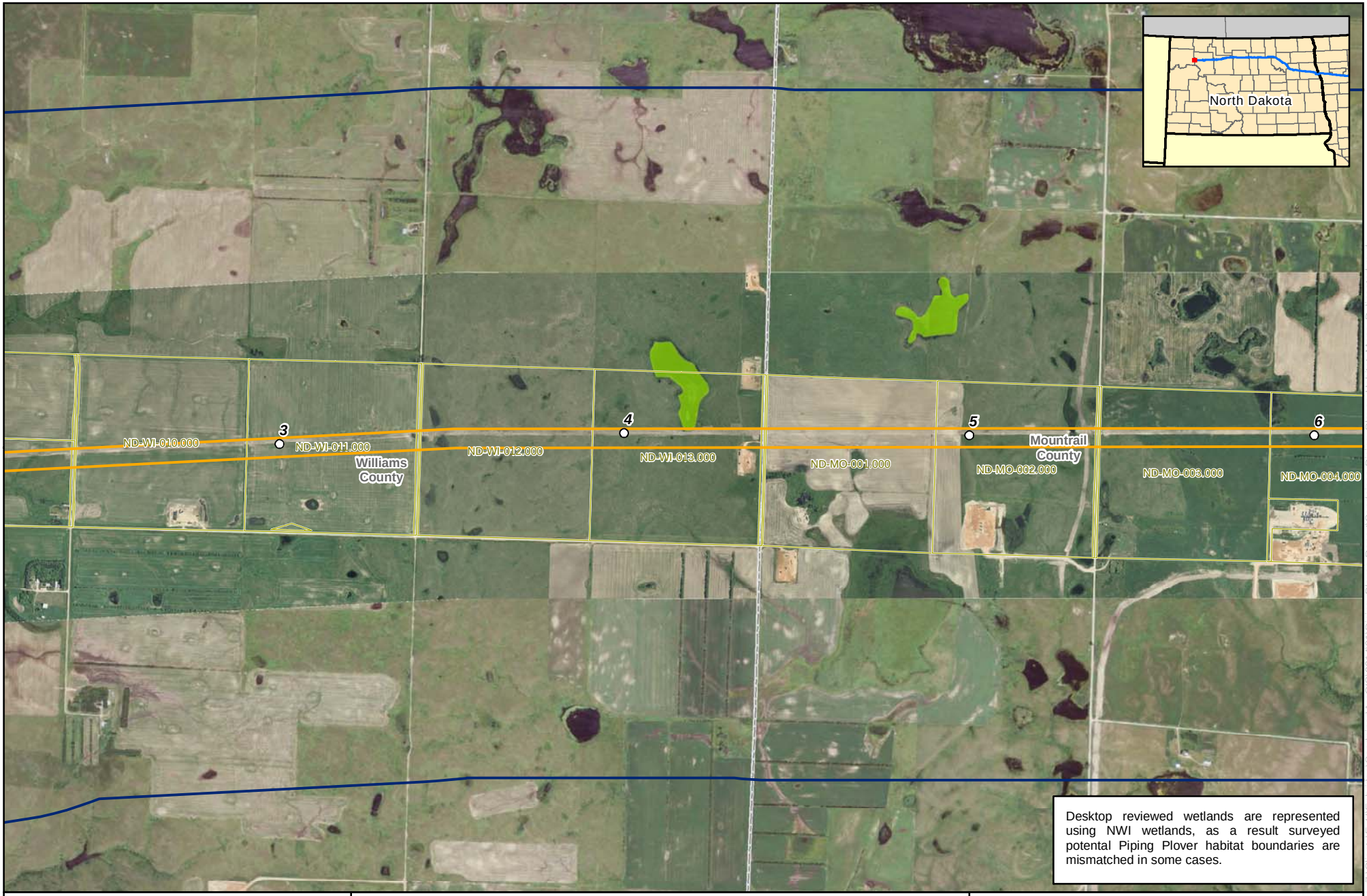
Wetland Number	Size (ha)	Vegetative Cover	Halophytic Vegetation Present?	Sand, Gravel, or Salt Encrusted Substrate Present?		Substrate Observed At Sample Point	Cattail Present?		Trees Present?		Potentially Suitable Piping Plover Habitat
				Within Corridor	Outside Corridor		Within Corridor	Outside Corridor	Within Corridor	Outside Corridor	
PPHMO031a	2.13	95-100 percent	No	No	No	Muck	No	No	No	Yes	No
PPHMO032a	2.63	75-95 percent	No	No	No	Muck	Yes	Yes	No	Yes	No
PPHMO032b	4.27	>95 percent (est.)	No	No	No	None exposed	No	No	No	Yes	No
PPHMO034a	55.78	95-100 percent	No	No	No	None exposed	No	No	No	Yes	No
PPHMO038a	2.87	>95 percent (est.)	Yes[1]	No	No	None exposed	No	No	No	No	No
PPHMO039a	35.55	5-25 percent	Yes[1]	No	No	Silty muck	Yes	Yes	No	No	No
PPHMO047a[7]	21.16										Unknown
PPHMO056.210a	13.36	95-100 percent	Yes[1,2,3,4,5]	No	No	Silty clay	Yes	Yes	No	No	No
PPHMO076.1a	6.07	95-100 percent	Yes[1]	No	No	Rock, debris	No	No	No	No	No
PPHMO076a	5.94	75-95 percent	Yes[1,4]	No	No	Muck	Yes	No	No	Yes	No
PPHMO096a	3.32	95-100 percent	Yes[1]	No	No	None exposed	Yes	Yes	No	No	No
PPHMO096b	2.00	25-50 percent	Yes[1]	No	No	Muck	Yes	Yes	No	No	No
PPHMO097a	3.29	95-100 percent	Yes[1]	No	No	Muck	Yes	Yes	No	No	No
PPHMO098a	8.32	50-75 percent	Yes[1]	No	No	Clayey muck	Yes	Yes	No	Yes	No
PPHMO100a	16.13	5-25 percent	Yes[1]	Yes	Yes	Gravel, soil	Yes	Yes	Yes	Yes	No
PPHMO102a	14.84	50-75 percent	Yes[1]	Yes	Yes	Dark soil; sand & gravel in water	Yes	Yes	Yes	Yes	No
PPHMO103a	20.17	50-75 percent	Yes[1]	No	No	Dark muck	No	No	No	Yes	No
PPHMO105a	4.69	75-95 percent	Yes[1]	No	No	Dark muck	Yes	Yes	Yes	No	No
PPHWA001a	3.24	0-5 percent	Yes[1]	No	No	Dark clay	Yes	Yes	No	No	No
PPHWA001b	7.73	5-25 percent	Yes[1]	Yes	Yes	Dark clay; some gravel	Yes	Yes	No	No	Yes
PPHWA001.1a	2.01	0-5 percent	Yes[1]	No	No	No sand or gravel	No	No	No	No	No

Table 5.3-1
Characteristics of Potentially Suitable Piping Plover Wetlands within the Environmental Survey Corridor

Wetland Number	Size (ha)	Vegetative Cover	Halophytic Vegetation Present?	Sand, Gravel, or Salt Encrusted Substrate Present?		Substrate Observed At Sample Point	Cattail Present?		Trees Present?		Potentially Suitable Piping Plover Habitat
				Within Corridor	Outside Corridor		Within Corridor	Outside Corridor	Within Corridor	Outside Corridor	
PPHWA003a	2.12	5-25 percent	Yes[1]	No	No	Dark muck	Yes	Yes	No	No	No
PPHWA003b	2.10	25-50 percent	Yes[1]	Yes	Yes	Sand & gravel in water	Yes	Yes	No	No	No
PPHWA004a	15.84	25-50 percent	Yes[1,6]	Yes	Yes	Sand & dark soil	Yes	Yes	No	Yes	No
PPHWA006a	5.80	95-100 percent	Yes[1]	No	No	Muck	No	No	No	No	No
PPHWA007a	30.36	25-50 percent	Yes[1]	Yes	Yes	Sand & muck	Yes	Yes	Yes	Yes	No
PPHWA010a	2.06	50-75 percent	Yes[1]	No	No	Dark clay	Yes	Yes	Yes	Yes	No
PPHWA070a	29.41	25-50 percent	No	No	No	Black soil	Yes	Yes	Yes	Yes	No
PPHMC029.520a	8.18	50-75 percent	No	No	No	Black soil	Yes	Yes	No	Yes	No
PPHMC029.540a	203.66	95-100 percent	No	No	No	Dark, no sand	Yes	Yes	No	No	No
PPHMC034a	2.10	95-100 percent	Yes[6]	No	No	Not recorded	Yes	Yes	No	No	No
PPHMC034b	9.93	75-95 percent	Yes[1,6]	No	No	Slight sand	Yes	Yes	No	No	No
PPHMC046a	42.33	50-75 percent	Yes[1]	No	No	Not sandy	Yes	Yes	No	No	No
PPHMC071a	28.29	75-95 percent	No	No	No	None exposed	Yes	Yes	No	Yes	No
PPHPI004a	20.17	95-100 percent	Yes[1,6]	No	No	Muck	Yes	Yes	No	No	No
PPHPI005a	8.36	75-95 percent	Yes[1,4,6]	No	No	Muck	Yes	Yes	No	No	No
PPHPI006a	4.38	50-75 percent	Yes[6]	No	No	Muck	Yes	Yes	No	No	No
PPHPI008a	9.84	75-95 percent	Yes[1,6]	No	No	None exposed	Yes	Yes	No	No	No
PPHPI011a	66.73	95-100 percent	Yes[1,3,4,5,6]	Yes	No	Fine sand, salt crust	Yes	Yes	Yes	No	No
PPHPI020a	10.53	95-100 percent	Yes[1,2,3,4,5,6]	Yes	Yes	Sandy, silty soil	Yes	Yes	No	No	No
PPHPI022a	3.15	95-100 percent	Yes[1,2,3]	No	No	Sandy silt	Yes	Yes	No	No	No
PPHPI044a	3.72	95-100 percent	Yes[1,6]	No	No	Muck	No	Yes	No	No	No
PPHPI044b	3.11	95-100 percent	No	No	No	None exposed	Yes	Yes	No	No	No
PPHPI045a	2.73	95-100 percent	No	No	No	None exposed	Yes	Yes	No	Yes	No

Appendix C

Maps of Potentially Suitable Piping Plover Habitat



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

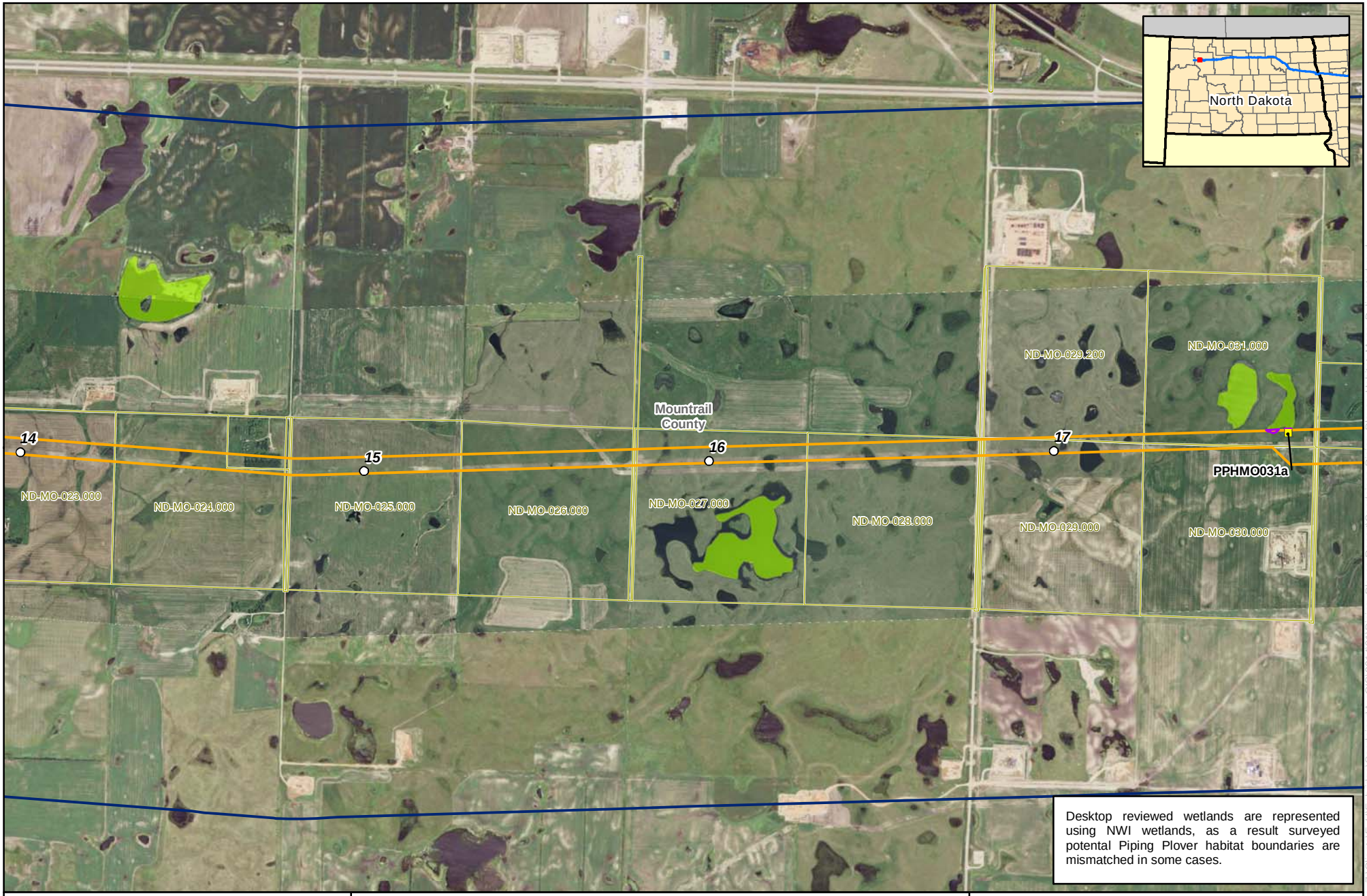
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

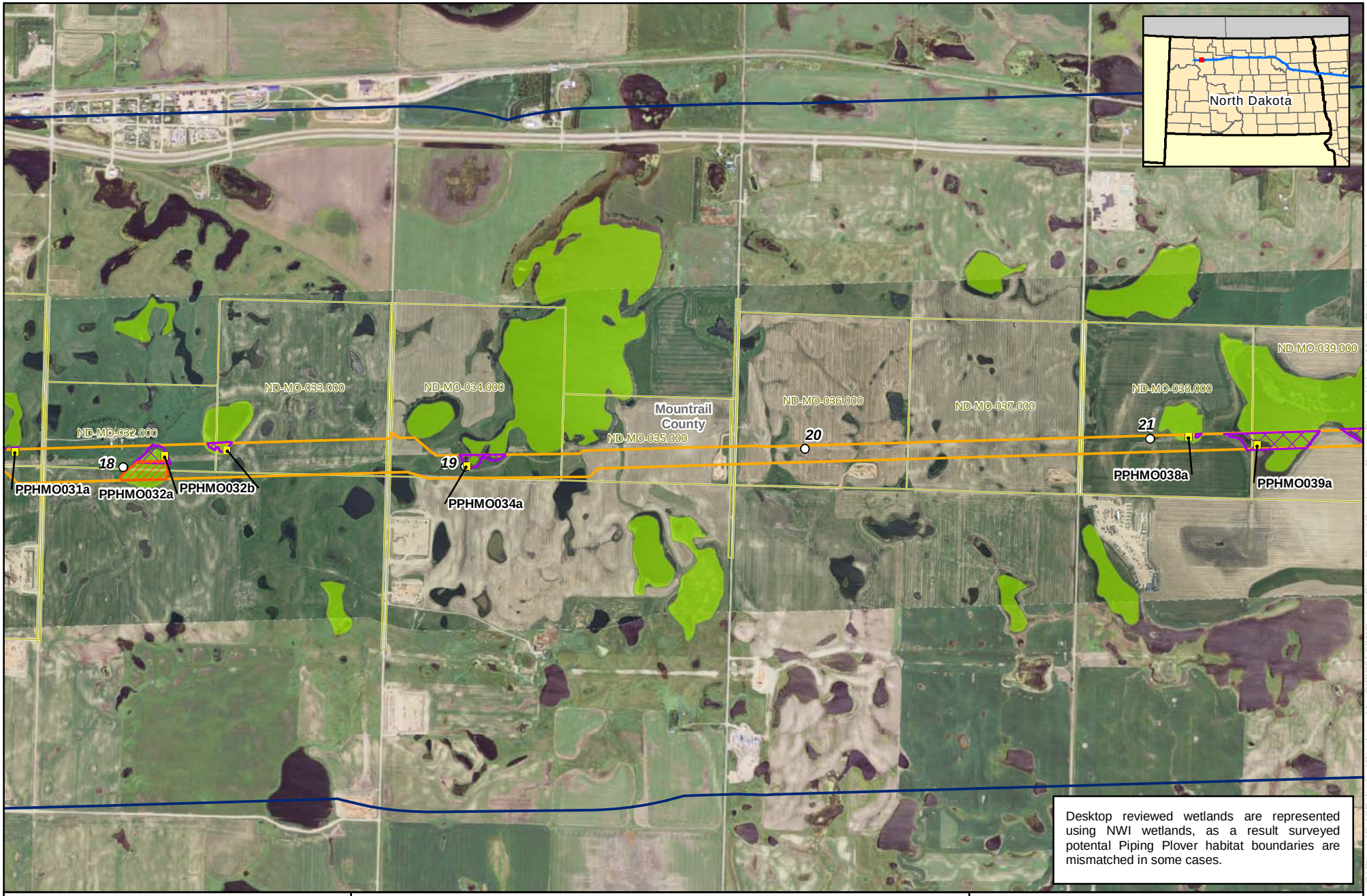
Enbridge

Potential Piping Plover Suitable Habitat

Milepost
Study Area
Environmental Survey Corridor
Survey Needed
Parcels
Sample Point
Desktop Reviewed Wetlands
Potential Piping Plover Habitat
Yes
No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

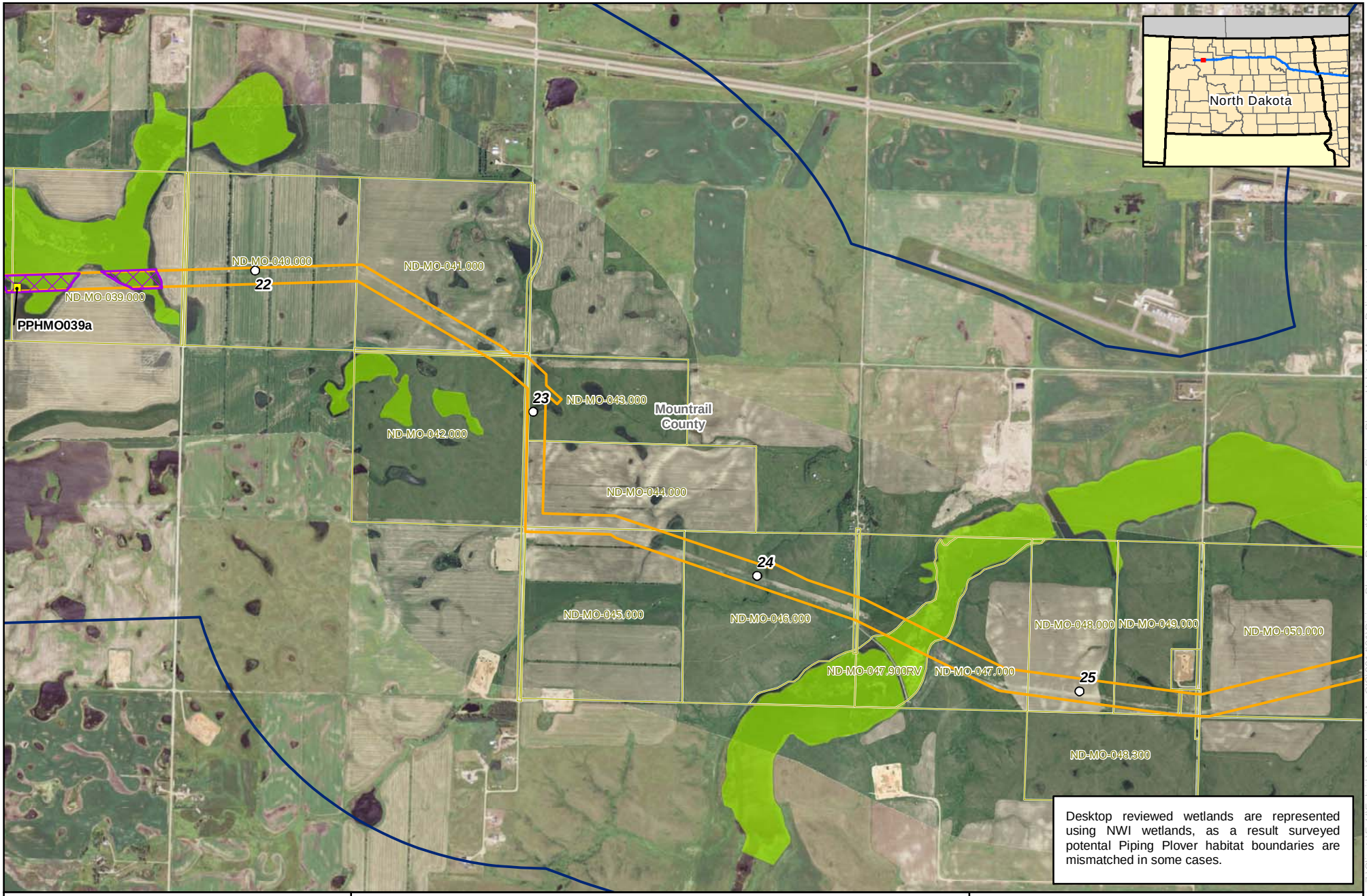
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

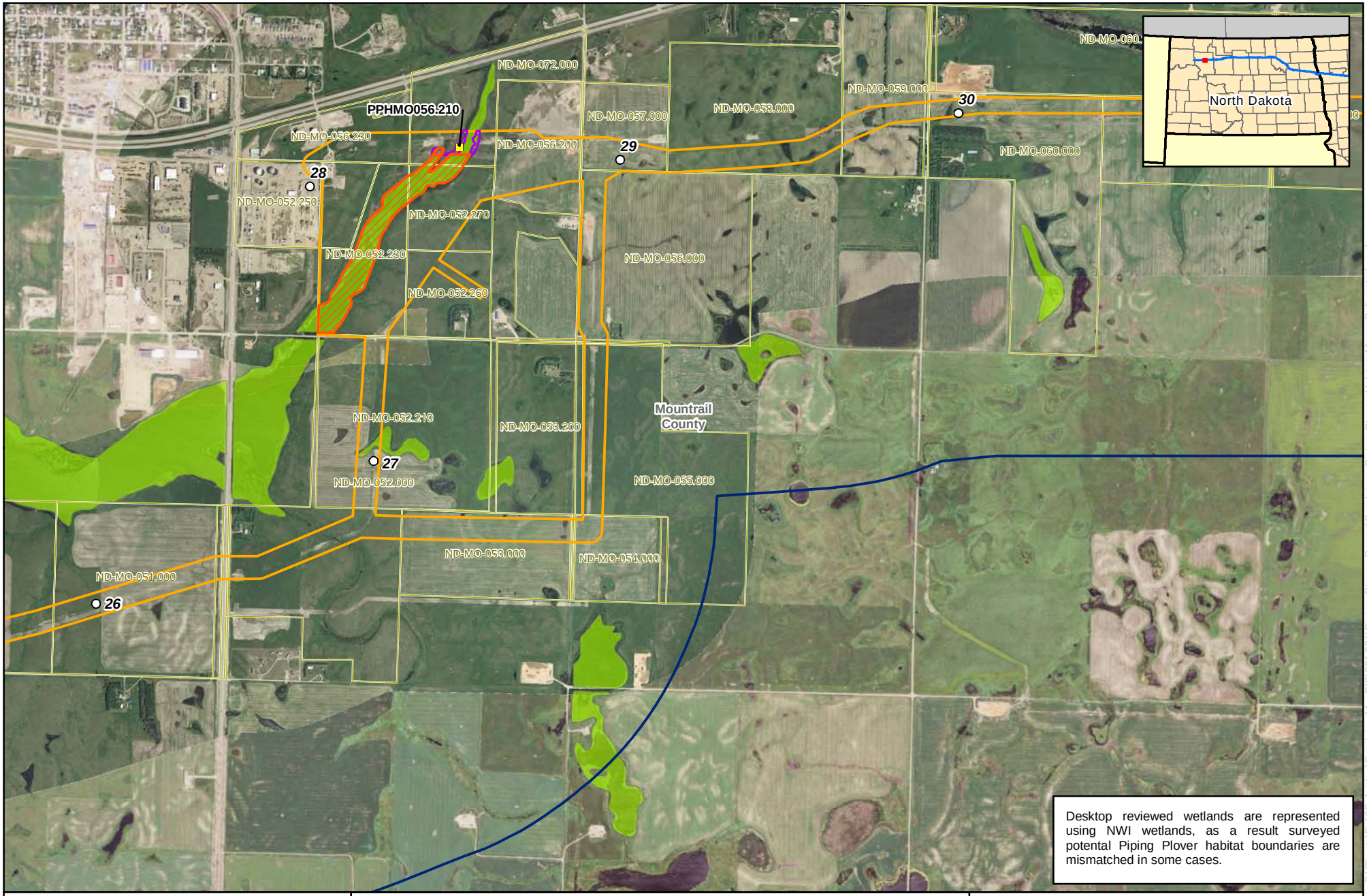
Enbridge

Potential Piping Plover Suitable Habitat

- Milepost
- Sample Point
- Study Area
- Desktop Reviewed Wetlands
- Environmental Survey Corridor
- Potential Piping Plover Habitat
- Survey Needed
- Yes
- Parcels
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

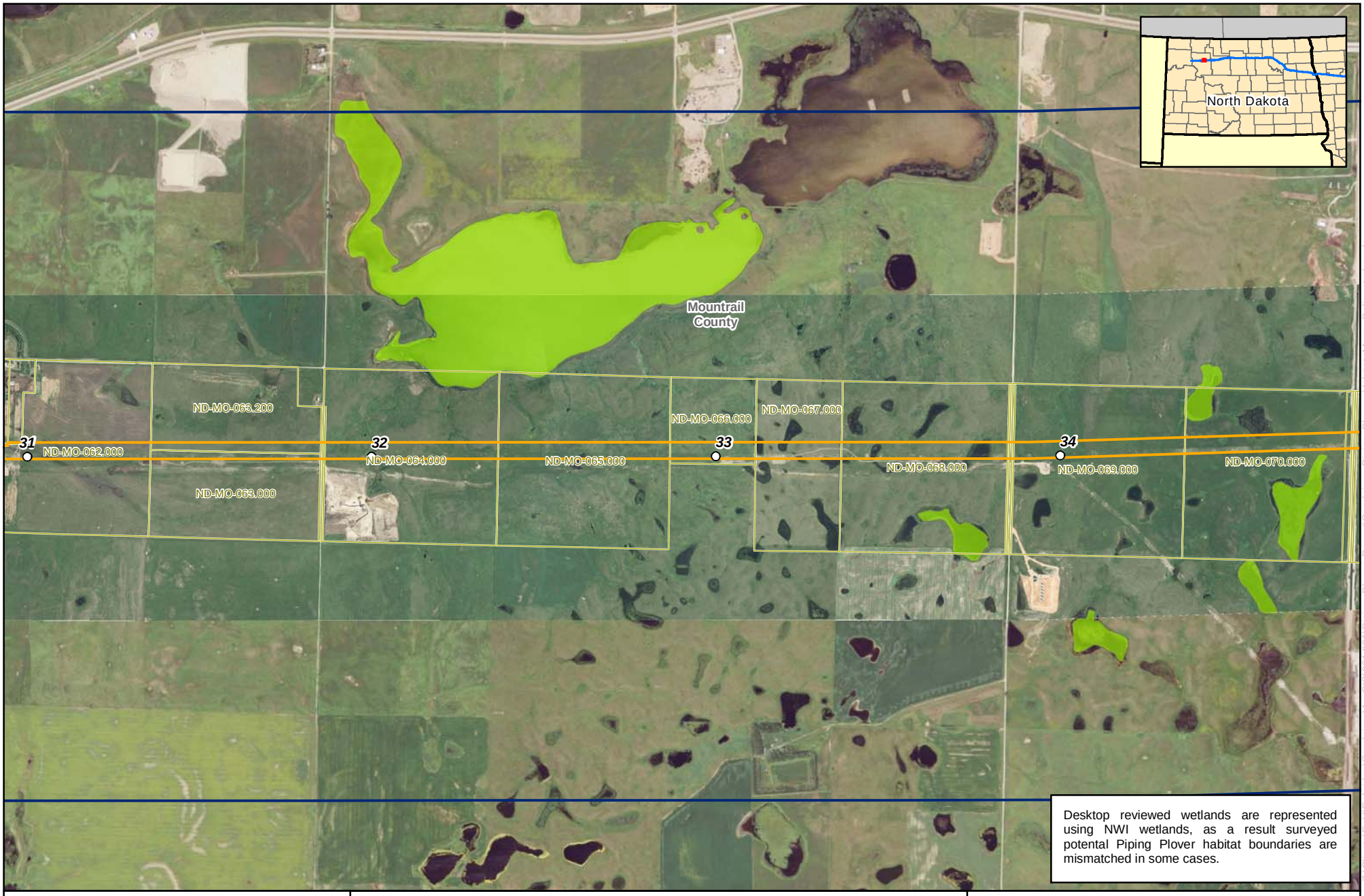
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



Desktop reviewed wetlands are represented using NWI wetlands, as a result surveyed potental Piping Plover habitat boundaries are mismatched in some cases.

ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

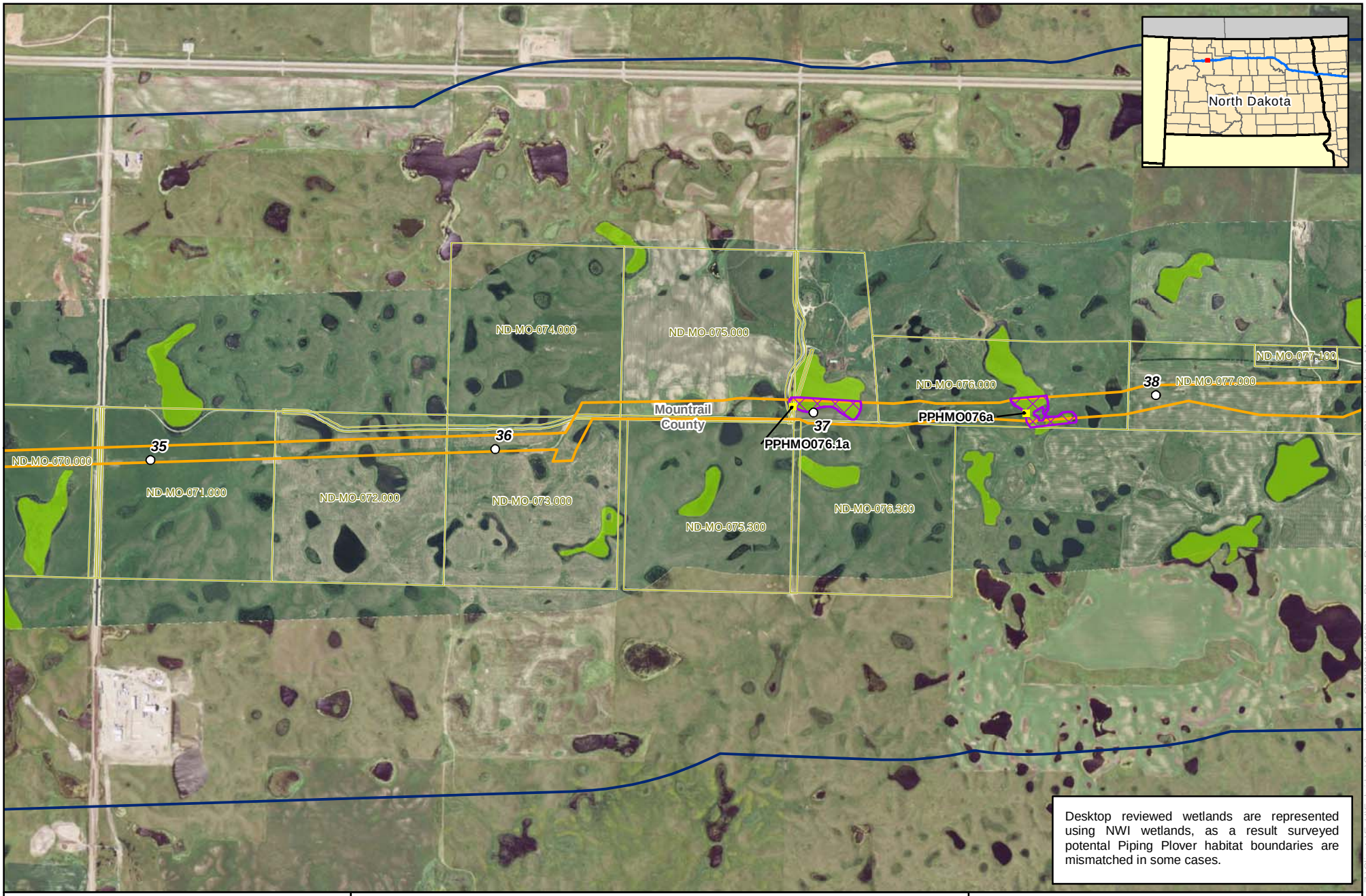
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

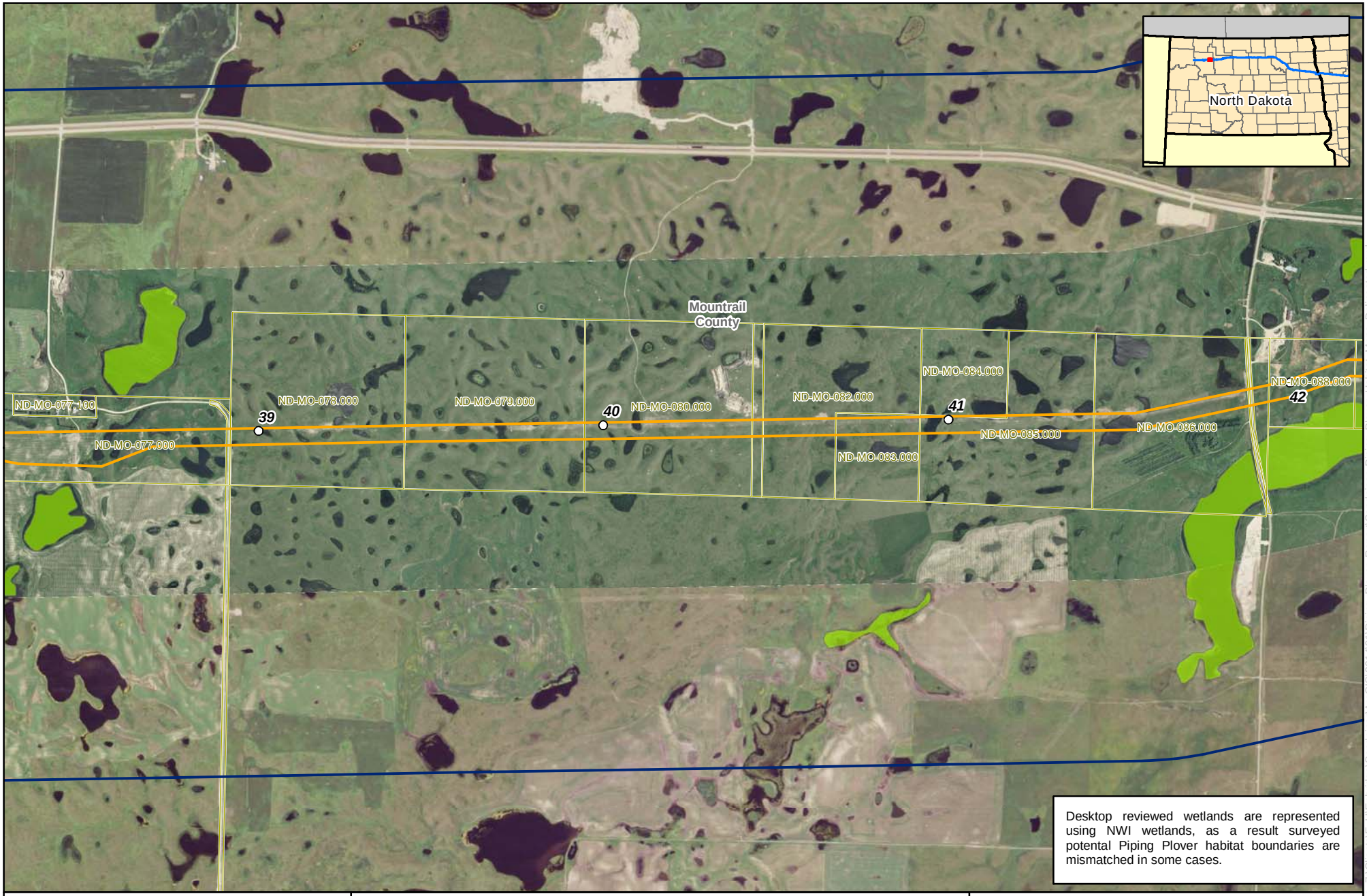
Enbridge

Potential Piping Plover Suitable Habitat

Milepost
Study Area
Environmental Survey Corridor
Survey Needed
Parcels
Sample Point
Desktop Reviewed Wetlands
Potential Piping Plover Habitat
Yes
No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

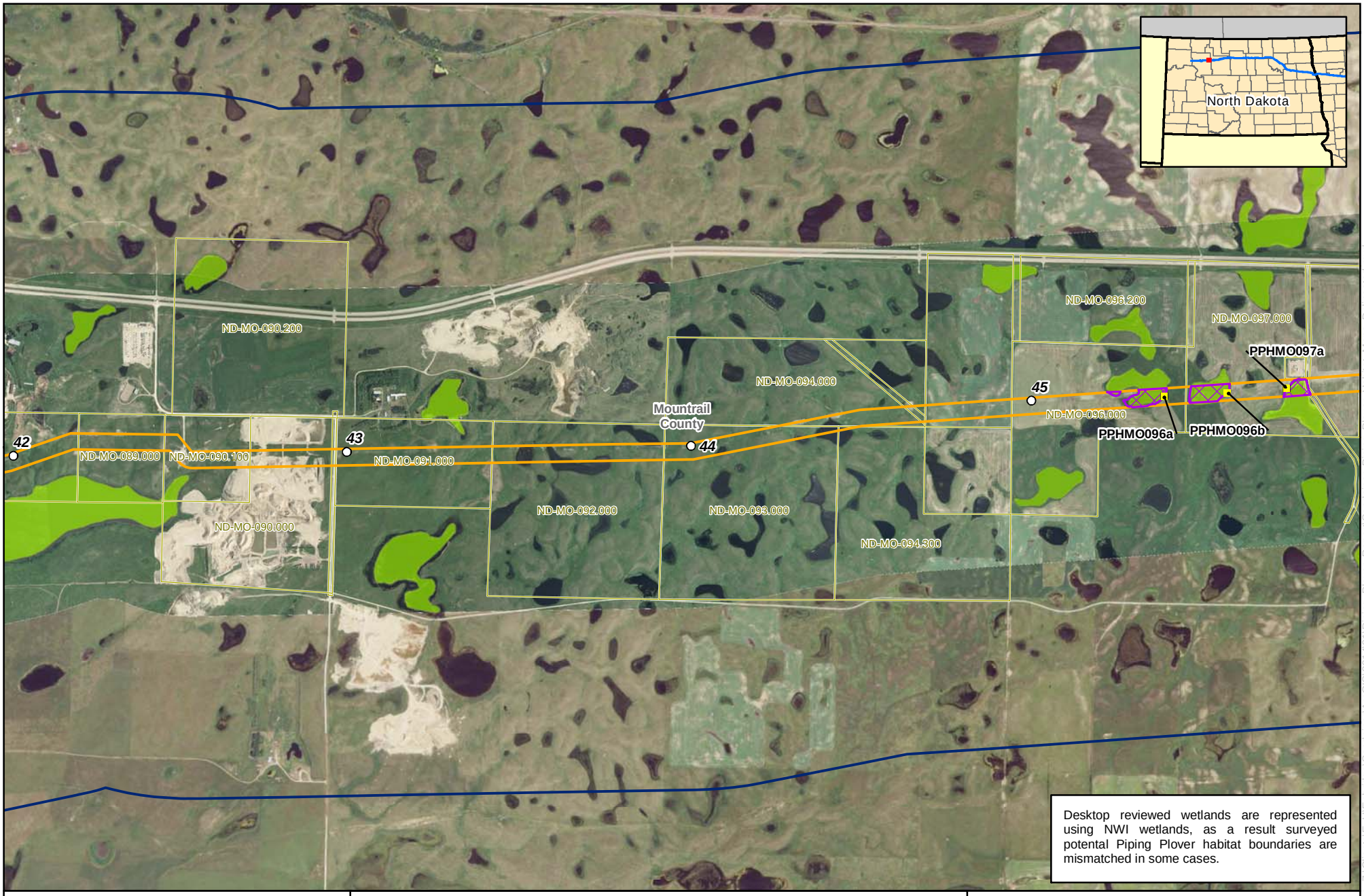
Enbridge

Potential Piping Plover Suitable Habitat

Milepost
Sample Point
Study Area
Desktop Reviewed Wetlands
Environmental Survey Corridor
Potential Piping Plover Habitat
Survey Needed
Yes
Parcels
No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

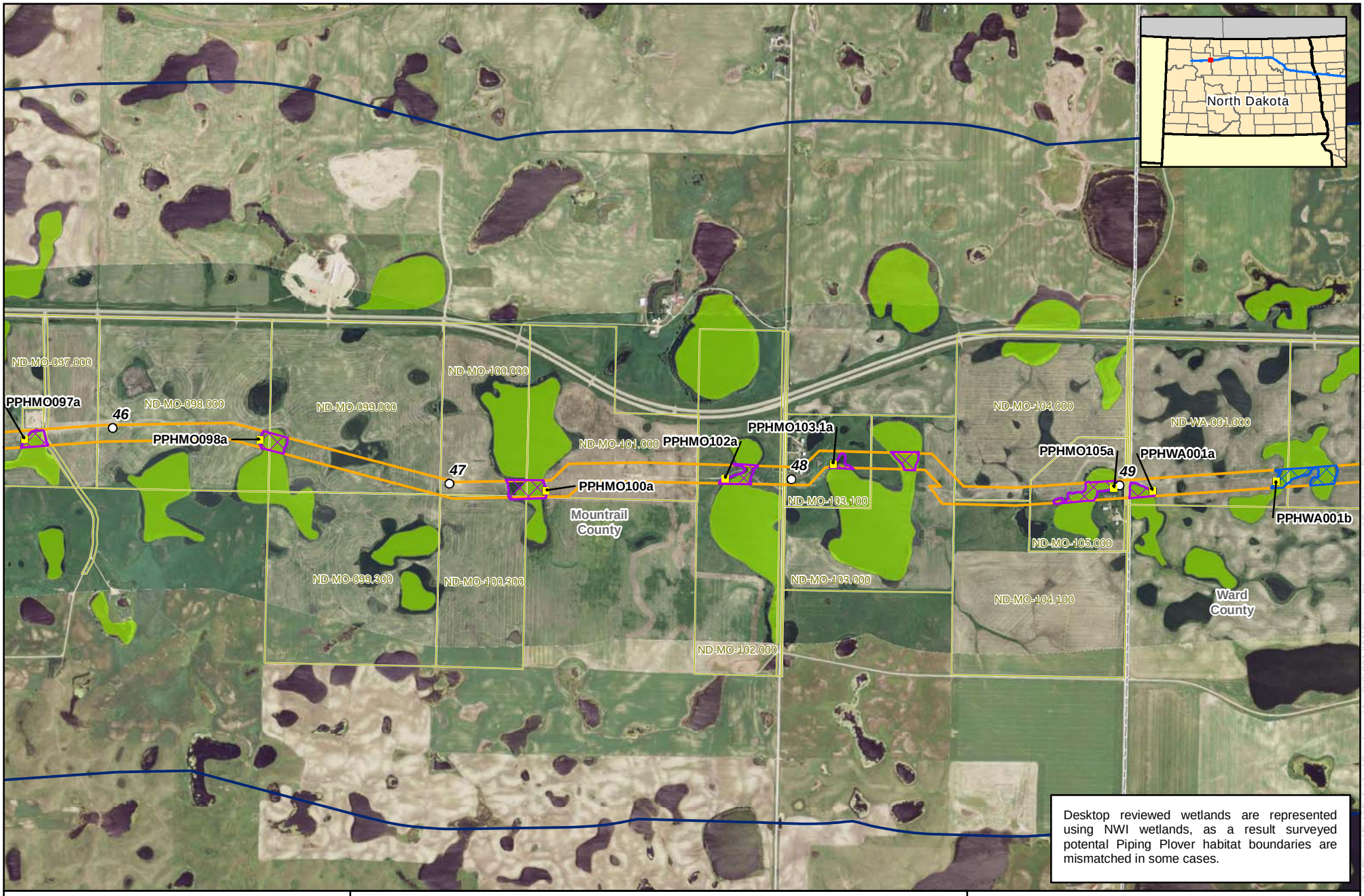
Enbridge

Potential Piping Plover Suitable Habitat

- Milepost
- Sample Point
- Study Area
- Desktop Reviewed Wetlands
- Environmental Survey Corridor
- Potential Piping Plover Habitat
- Survey Needed
- Yes
- Parcels
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

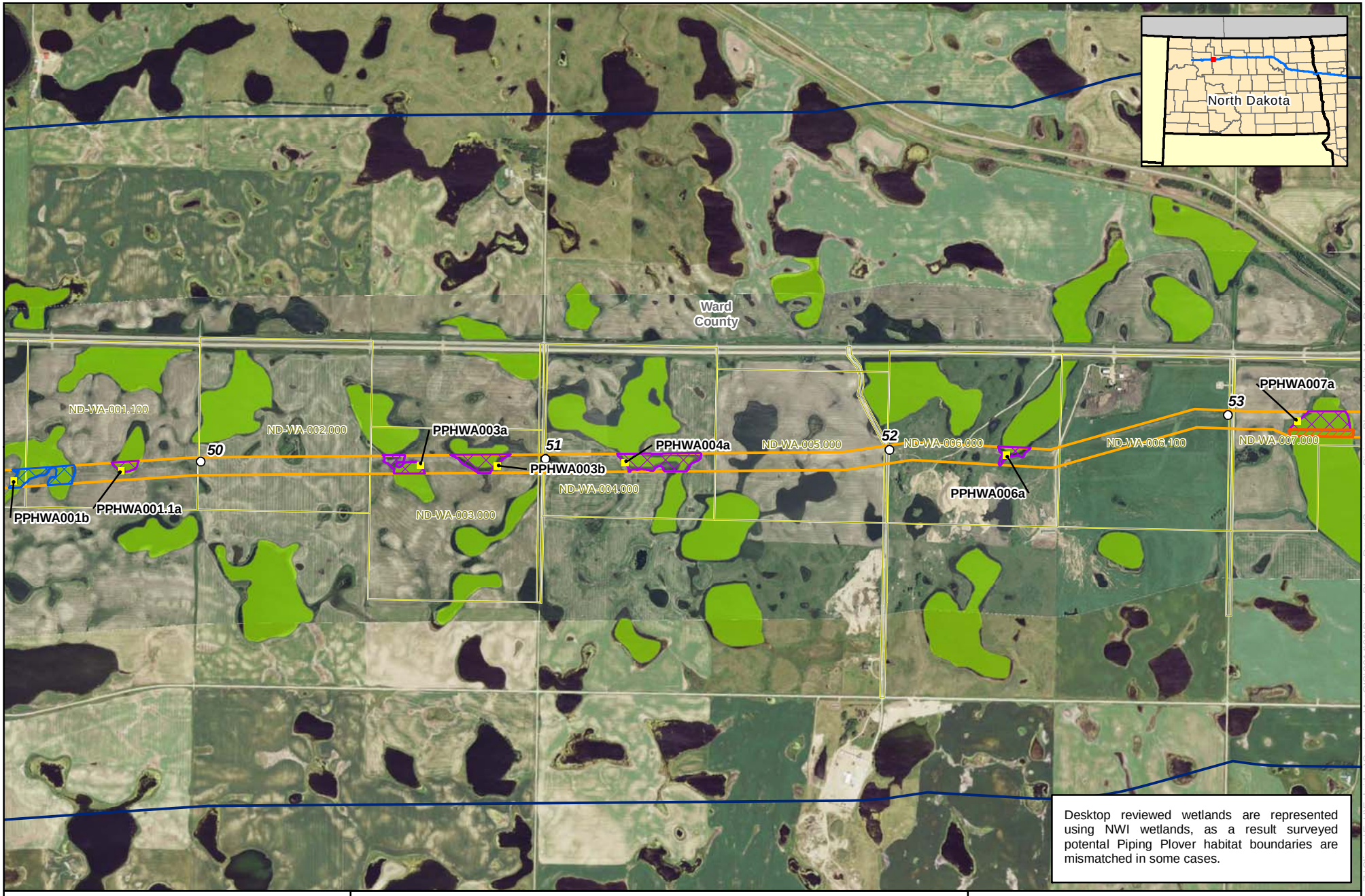
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

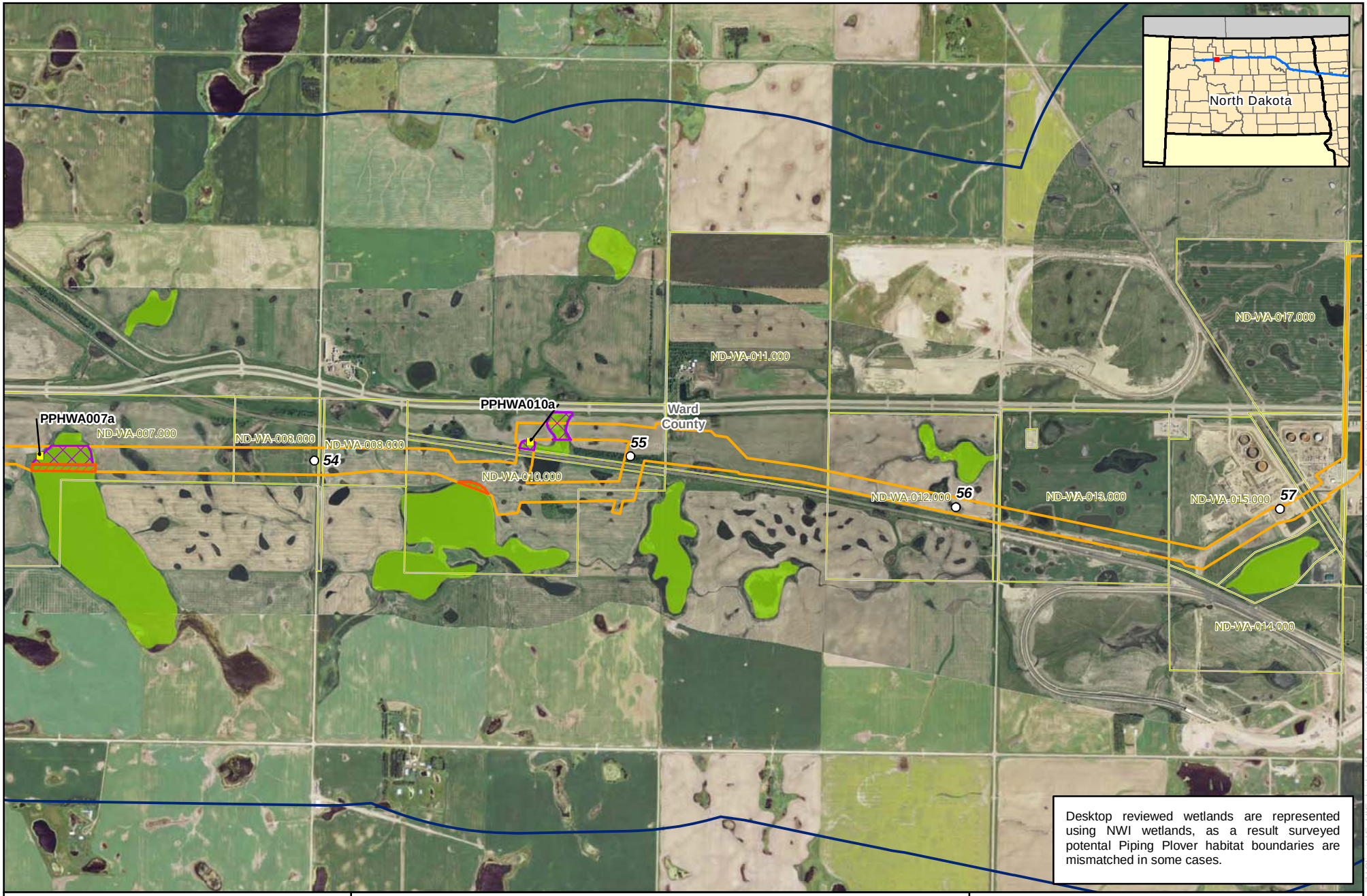
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

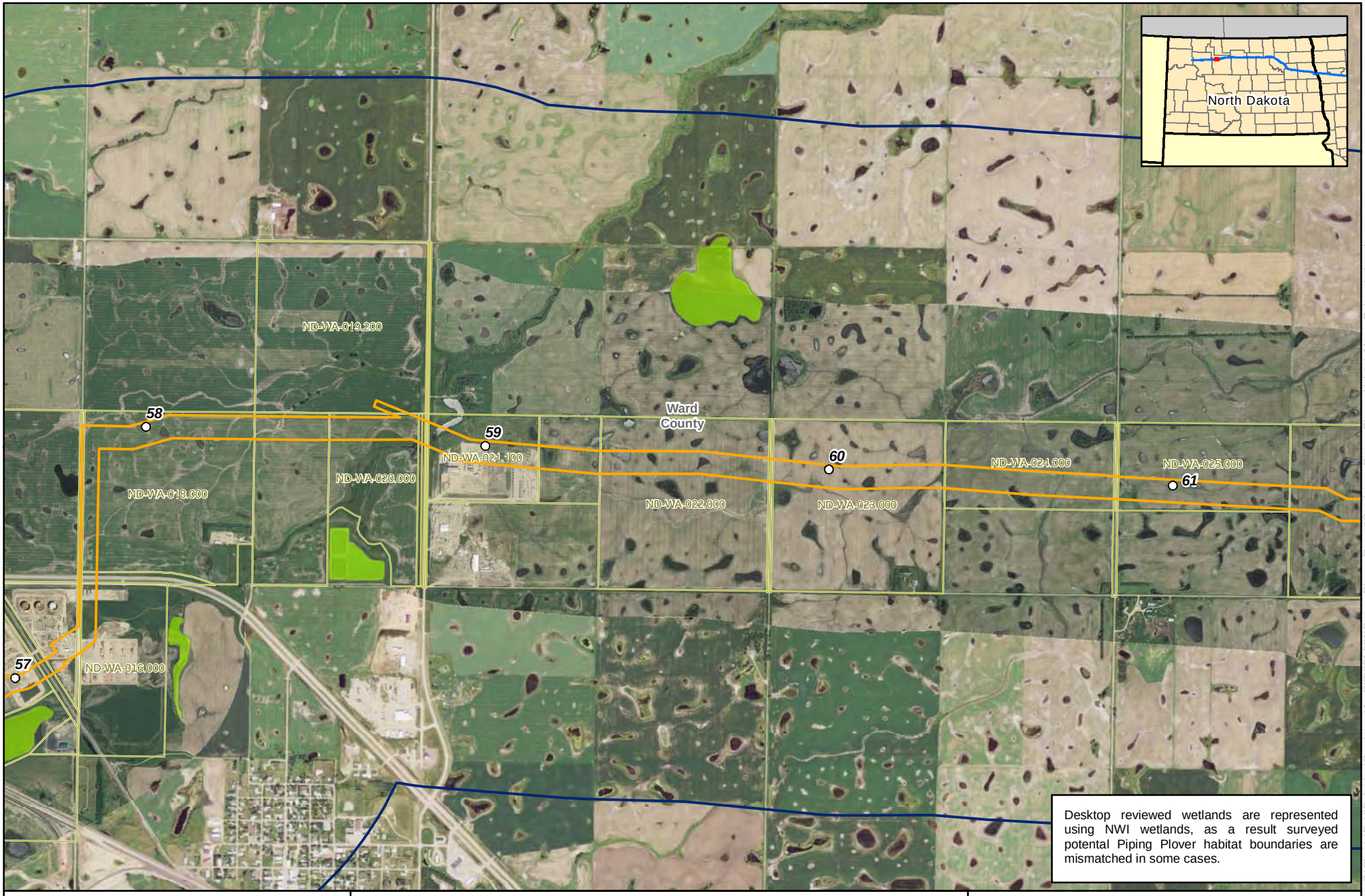
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

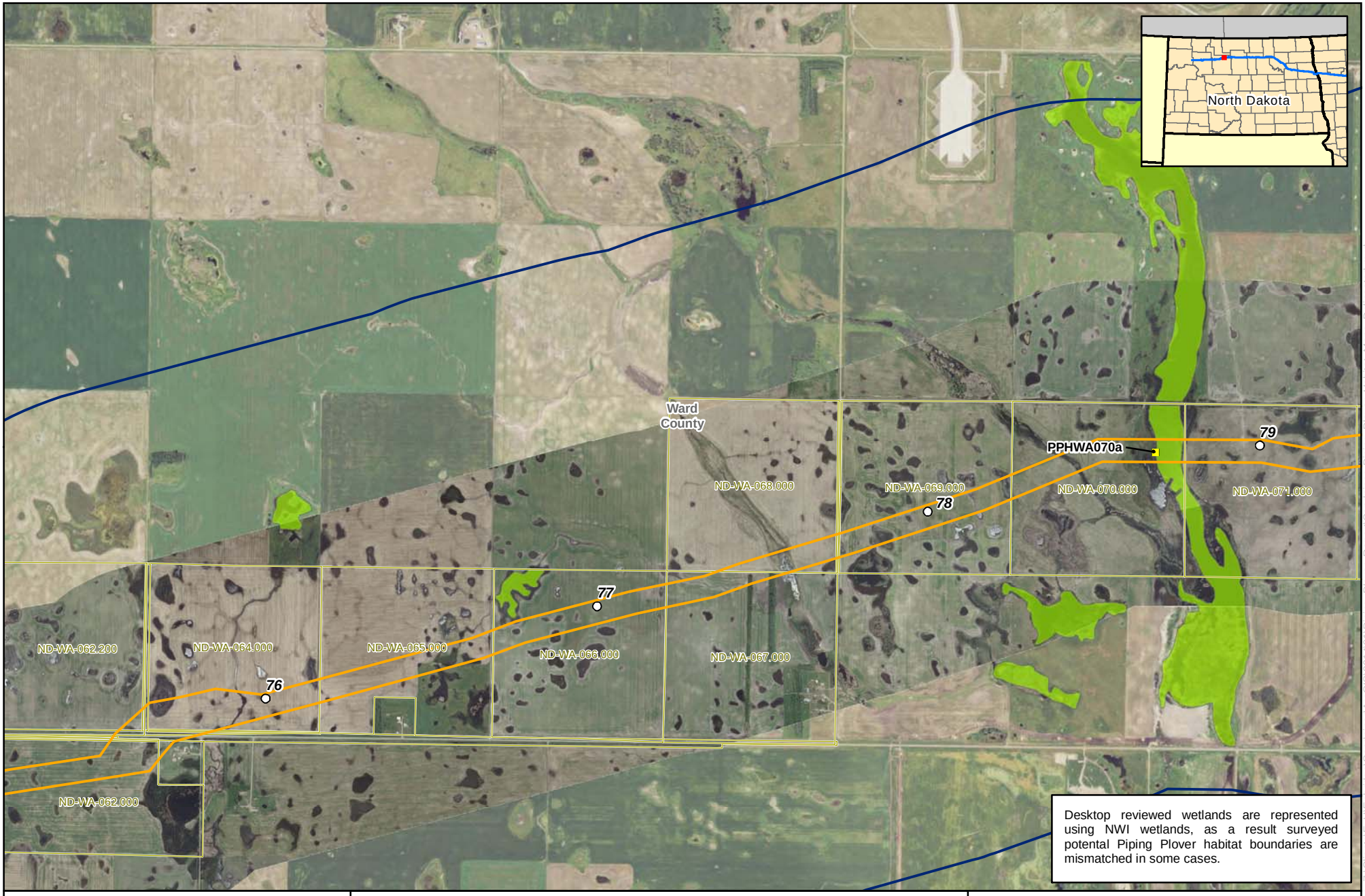
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

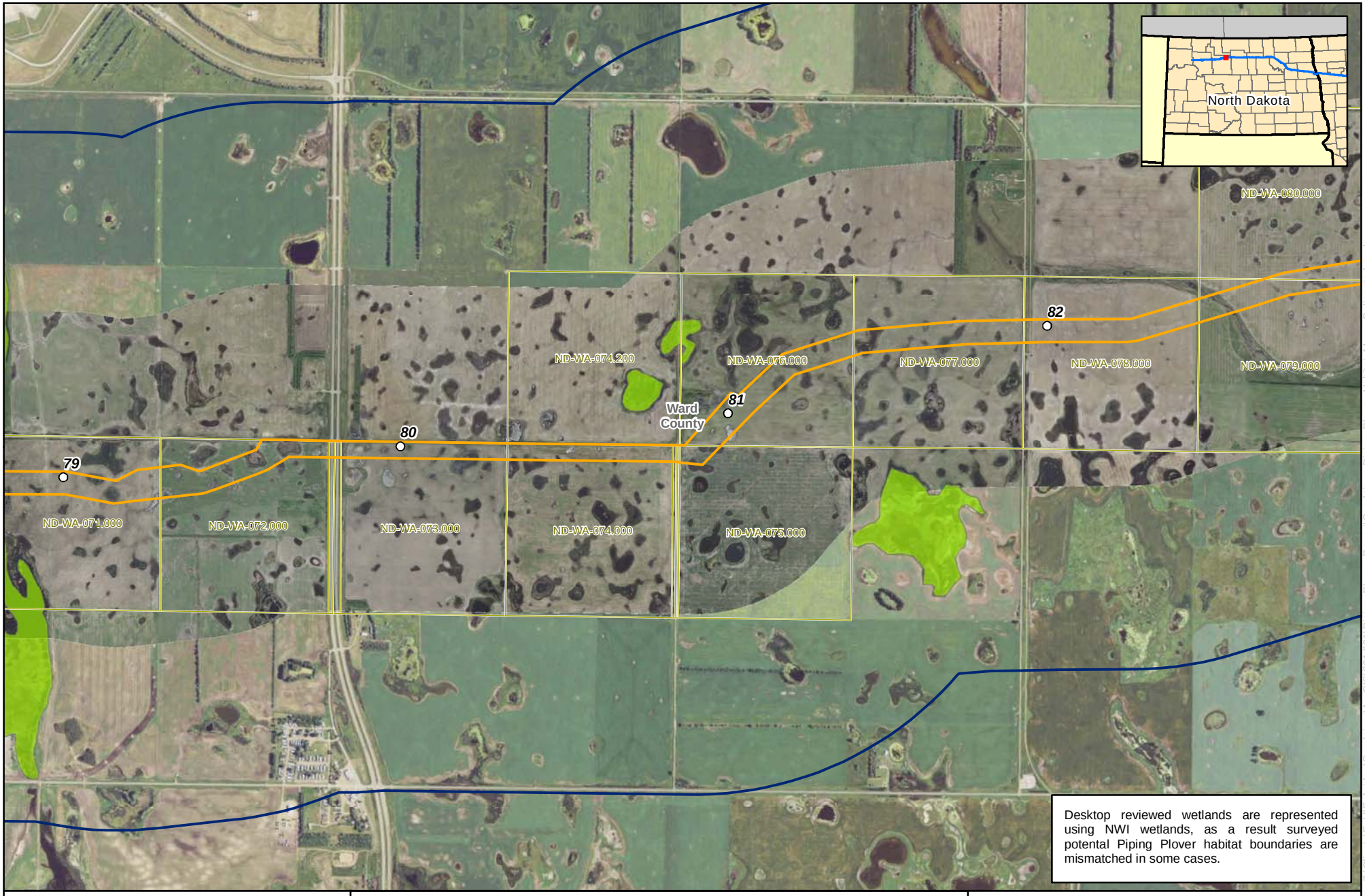
Enbridge

Potential Piping Plover Suitable Habitat

Milepost
Study Area
Environmental Survey Corridor
Survey Needed
Parcels
Sample Point
Desktop Reviewed Wetlands
Potential Piping Plover Habitat
Yes
No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

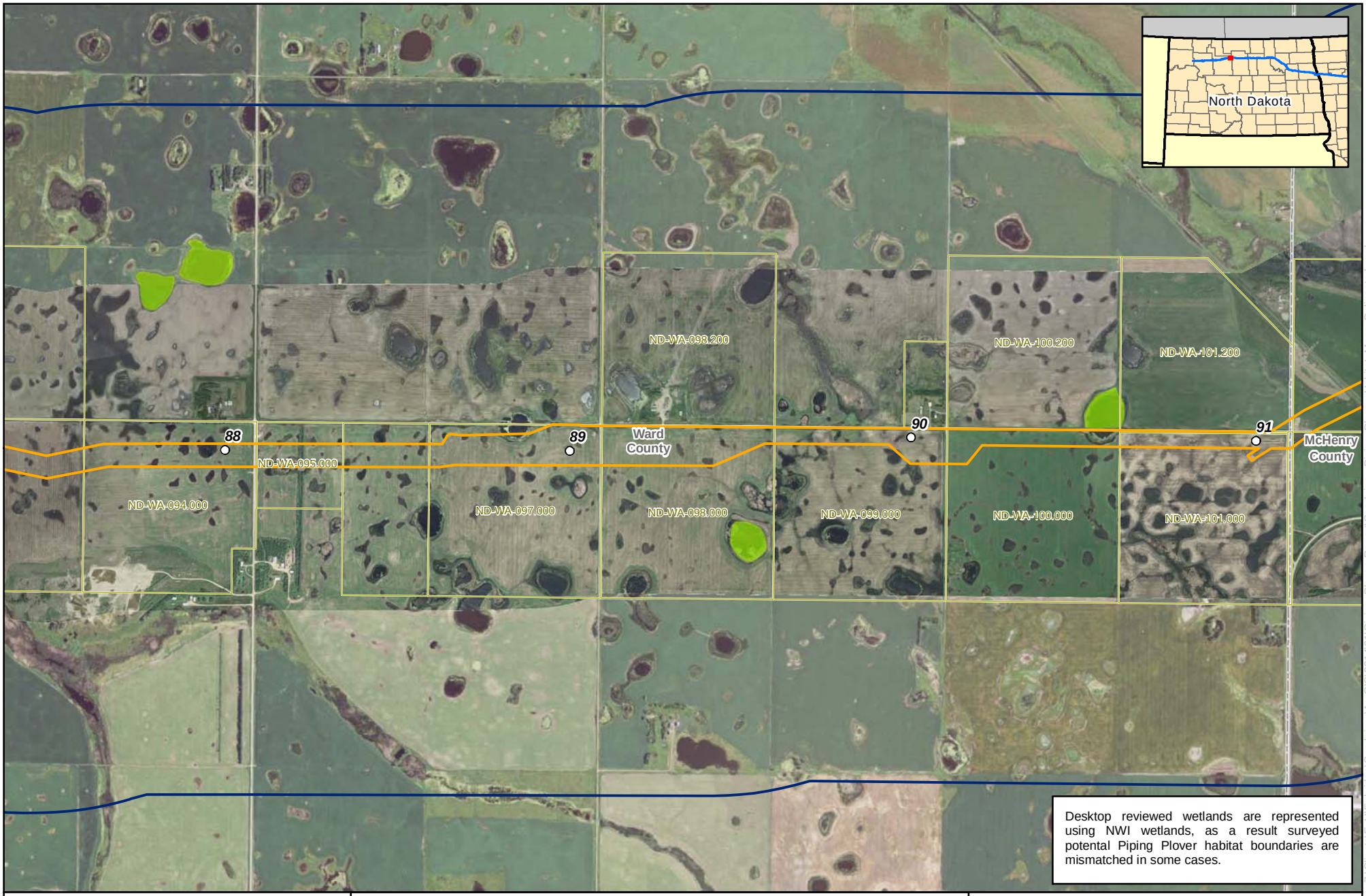
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

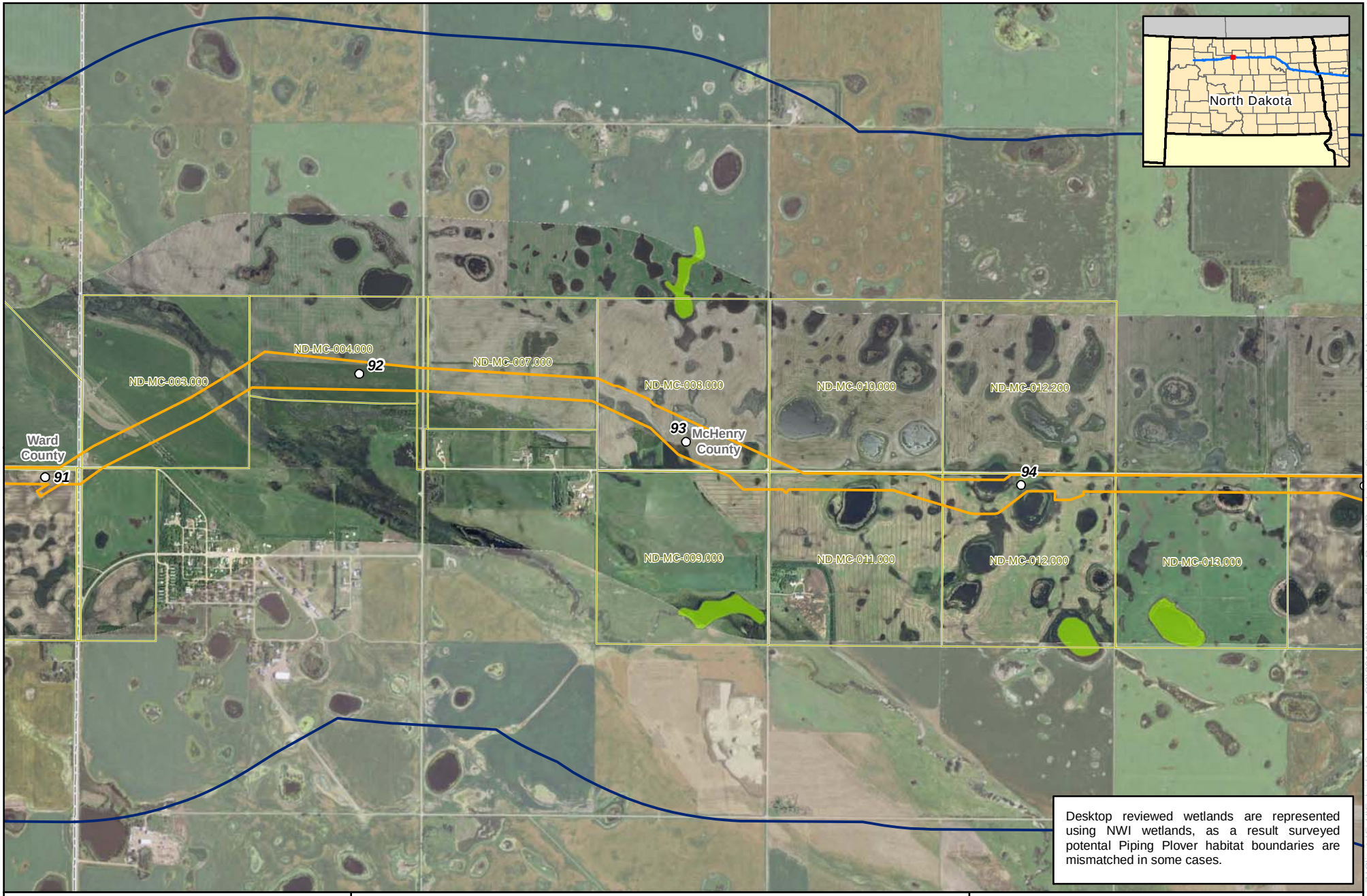
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

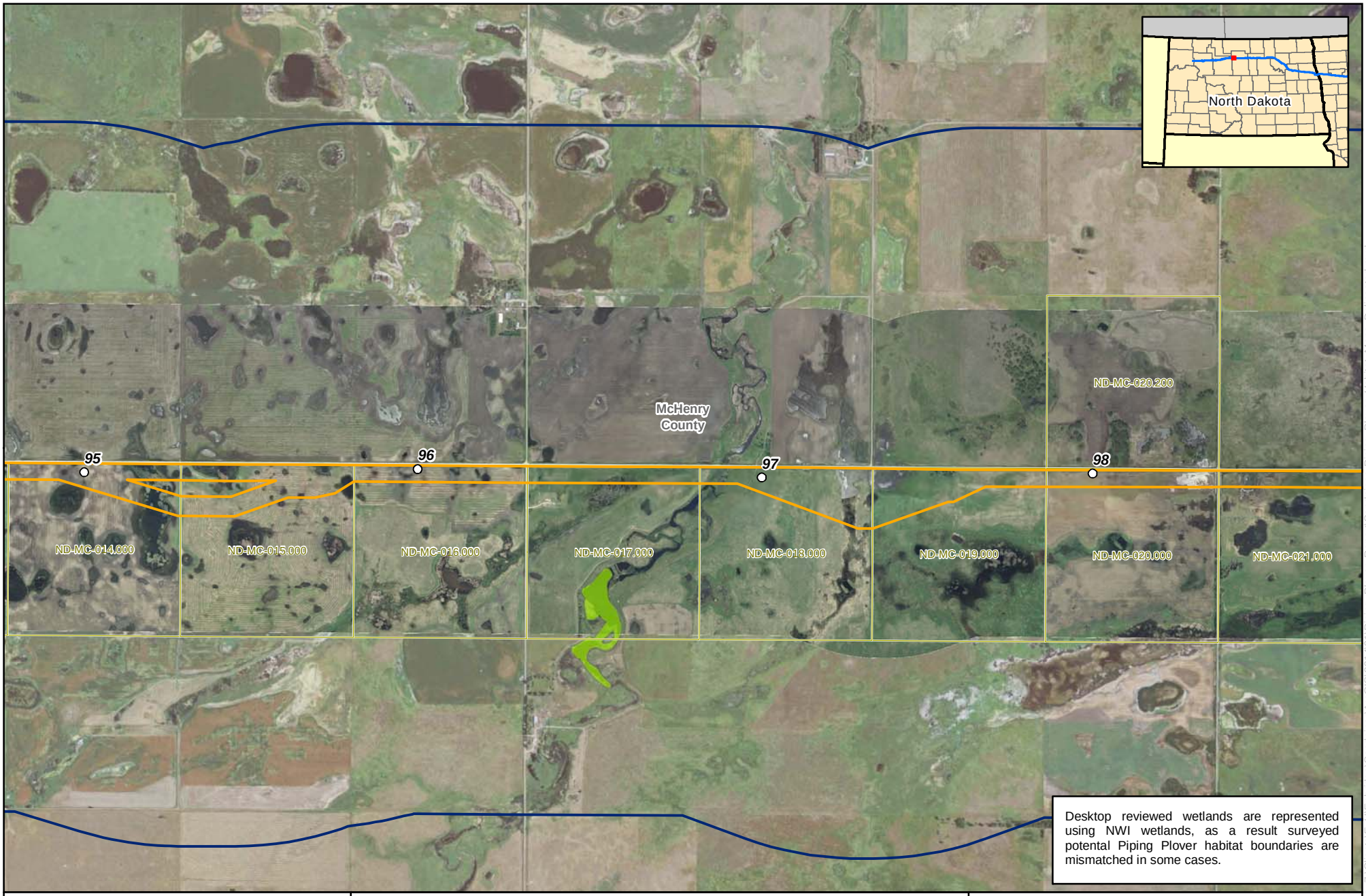
Enbridge

Potential Piping Plover Suitable Habitat

Milepost
Study Area
Environmental Survey Corridor
Survey Needed
Parcels
Sample Point
Desktop Reviewed Wetlands
Potential Piping Plover Habitat
Yes
No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

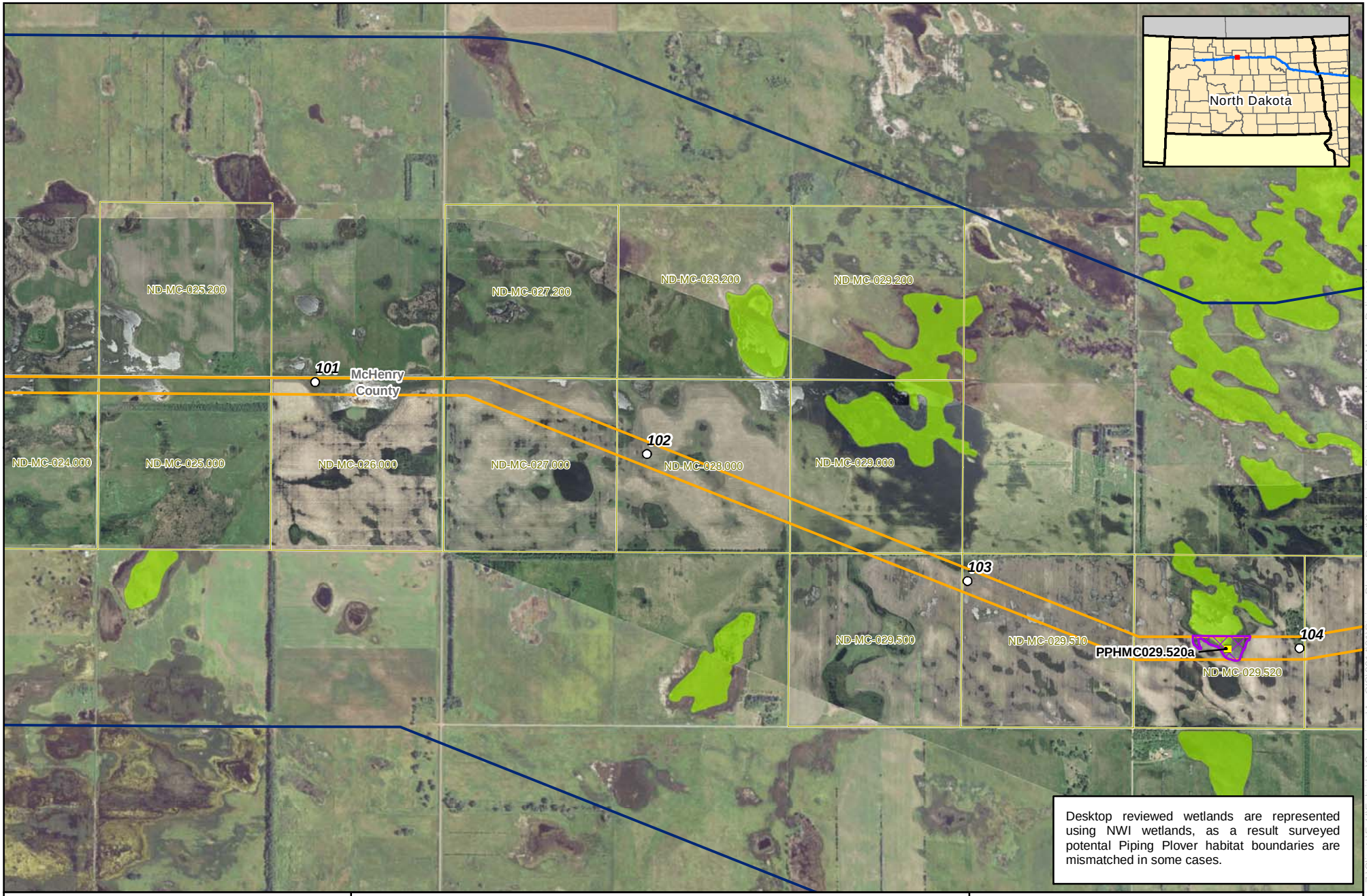
Enbridge

Potential Piping Plover Suitable Habitat

Milepost
Study Area
Environmental Survey Corridor
Survey Needed
Parcels
Sample Point
Desktop Reviewed Wetlands
Potential Piping Plover Habitat
Yes
No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

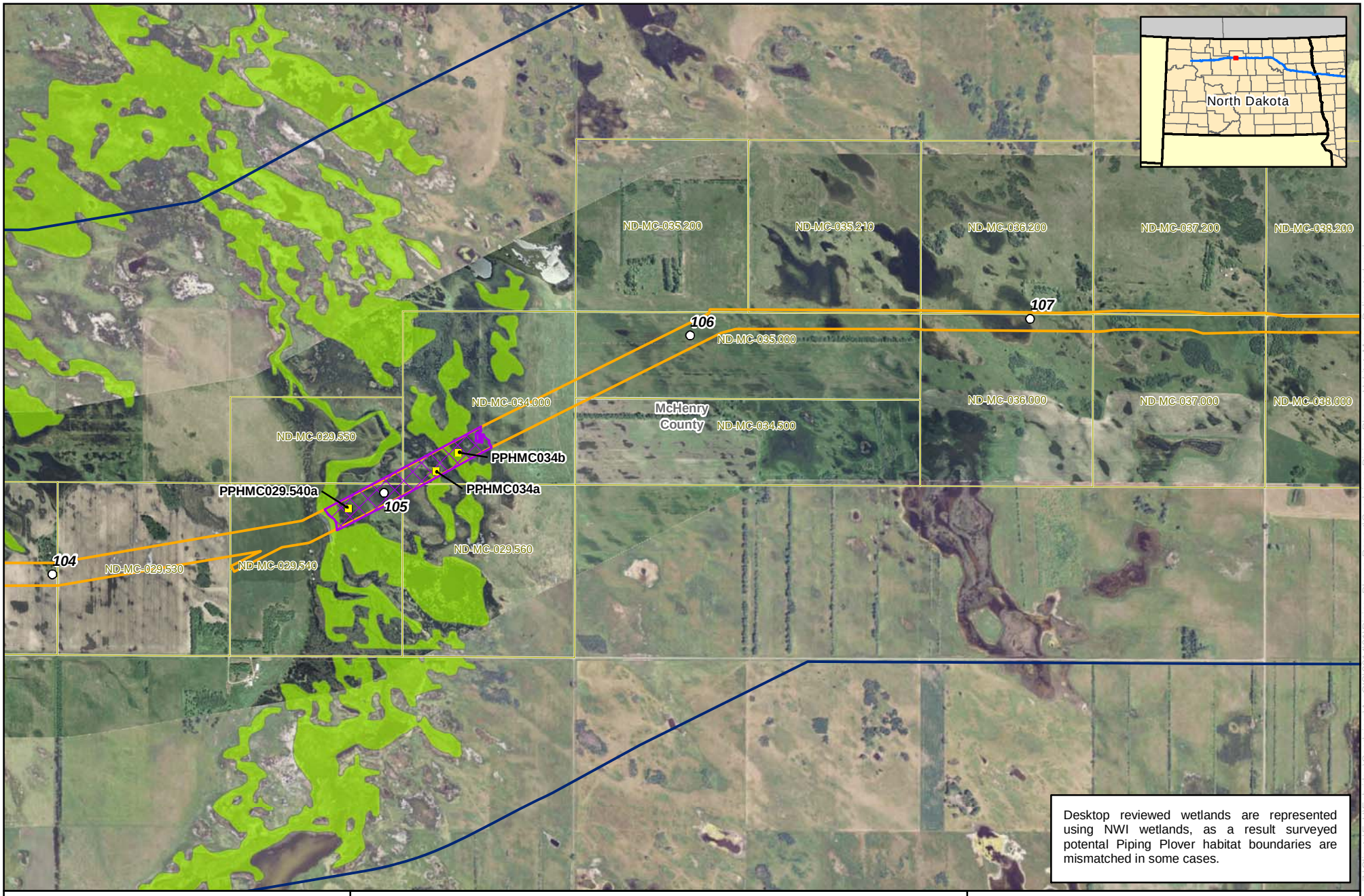
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

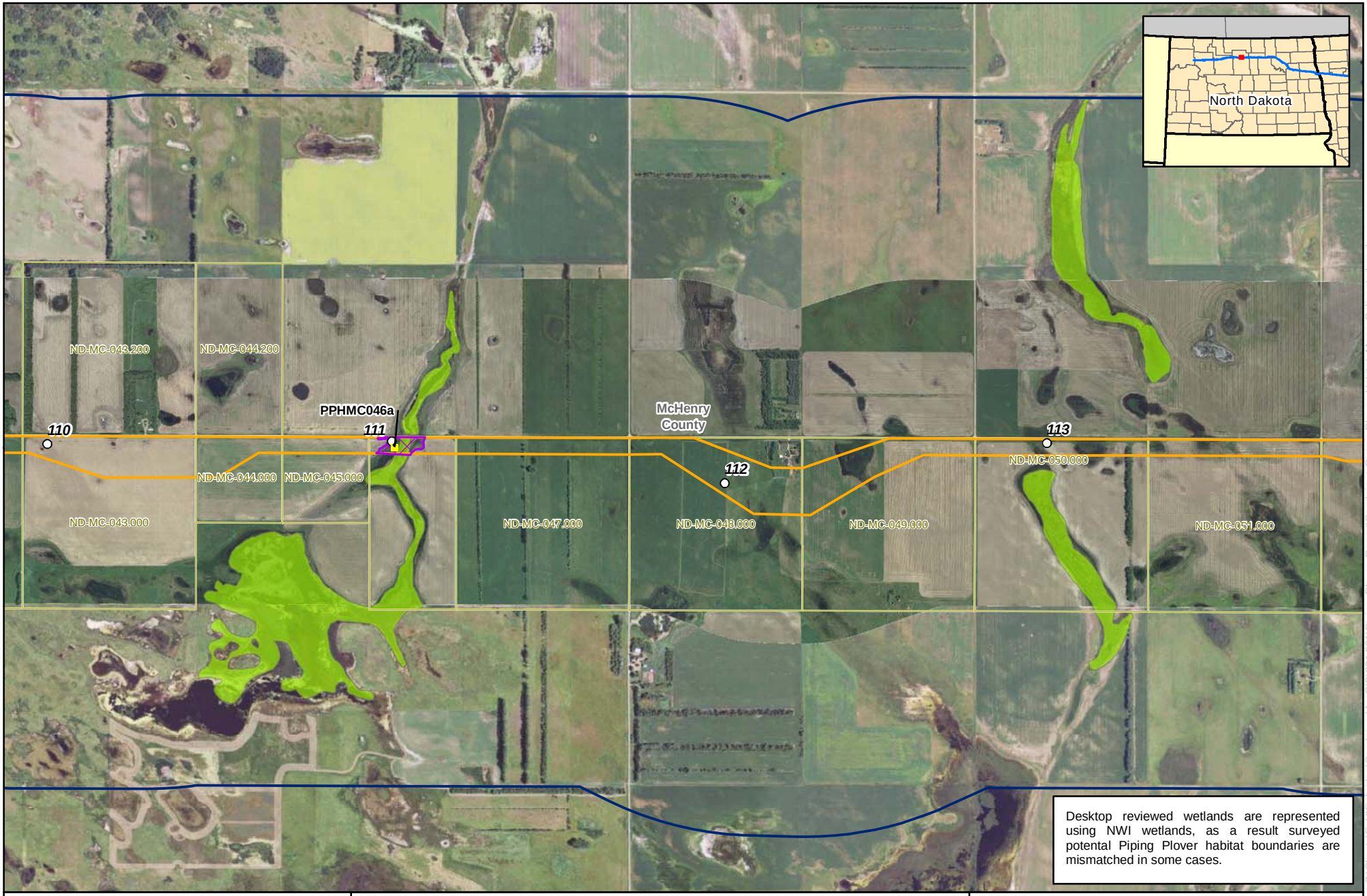
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

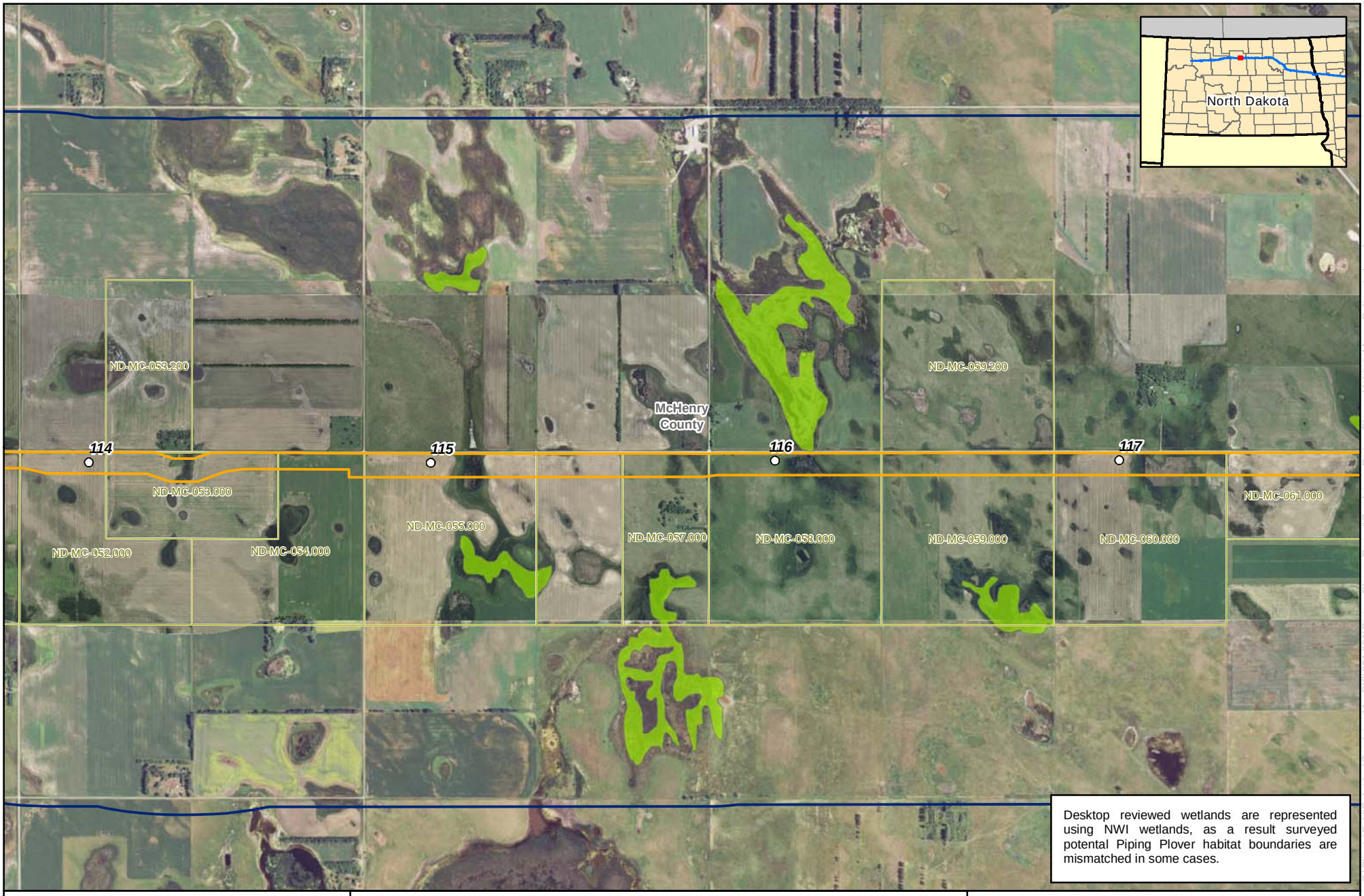
Enbridge

Potential Piping Plover Suitable Habitat

Milepost
Study Area
Environmental Survey Corridor
Survey Needed
Parcels
Sample Point
Desktop Reviewed Wetlands
Potential Piping Plover Habitat
Yes
No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

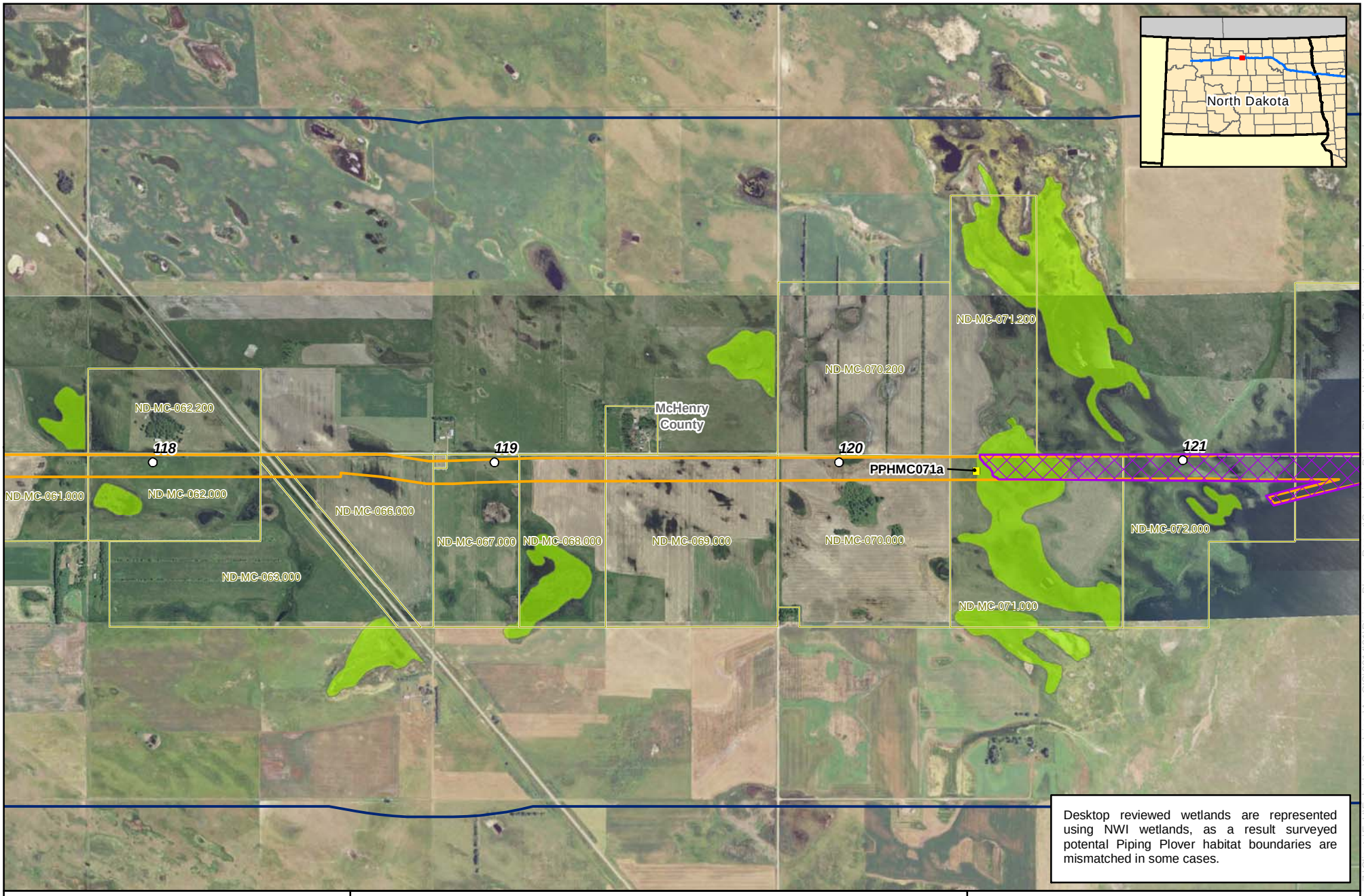
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

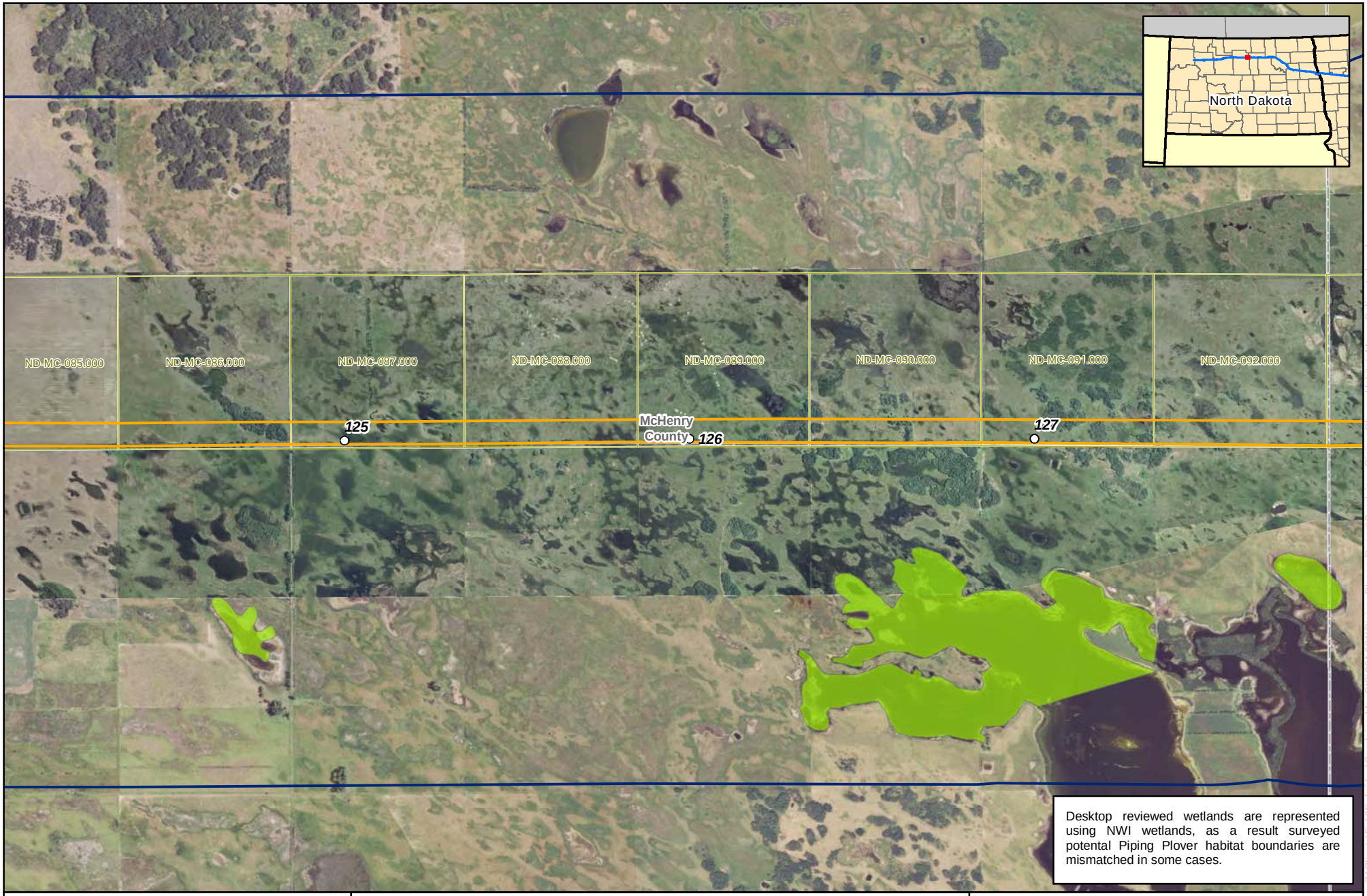
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

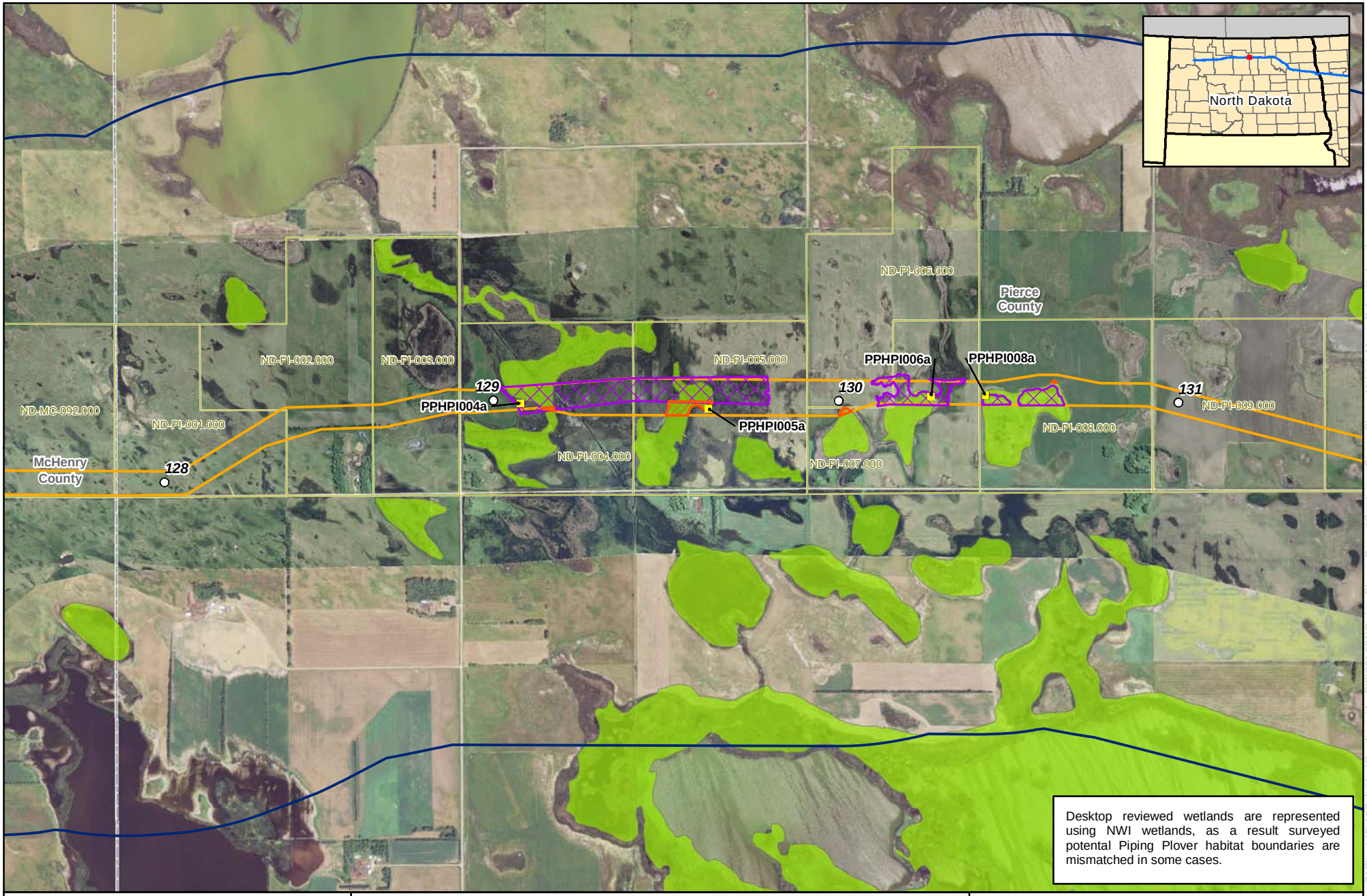
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

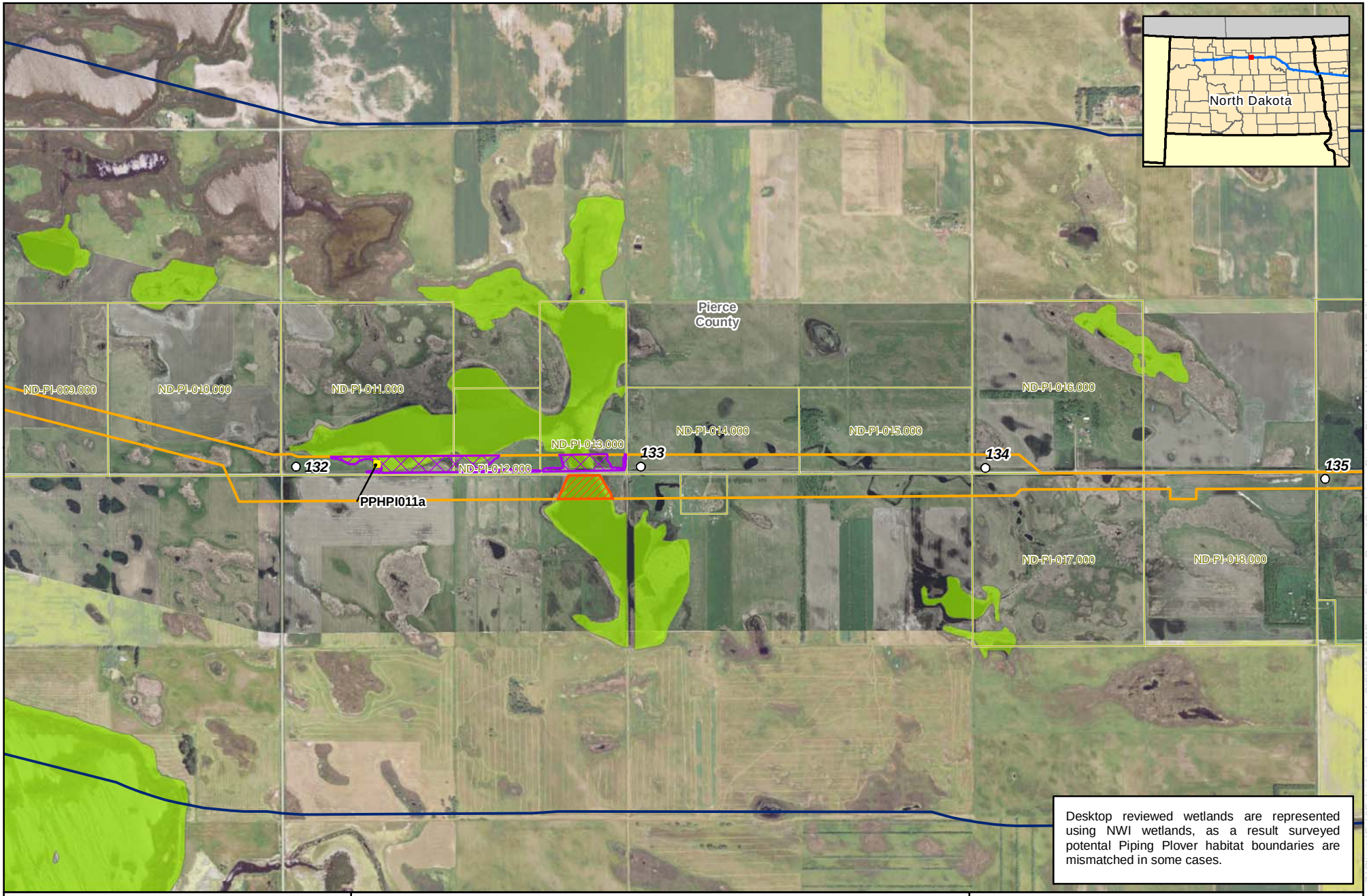
Potential Piping Plover Suitable Habitat

Page 25 of 32

- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands
- Potential Piping Plover Habitat
  - Yes
  - No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

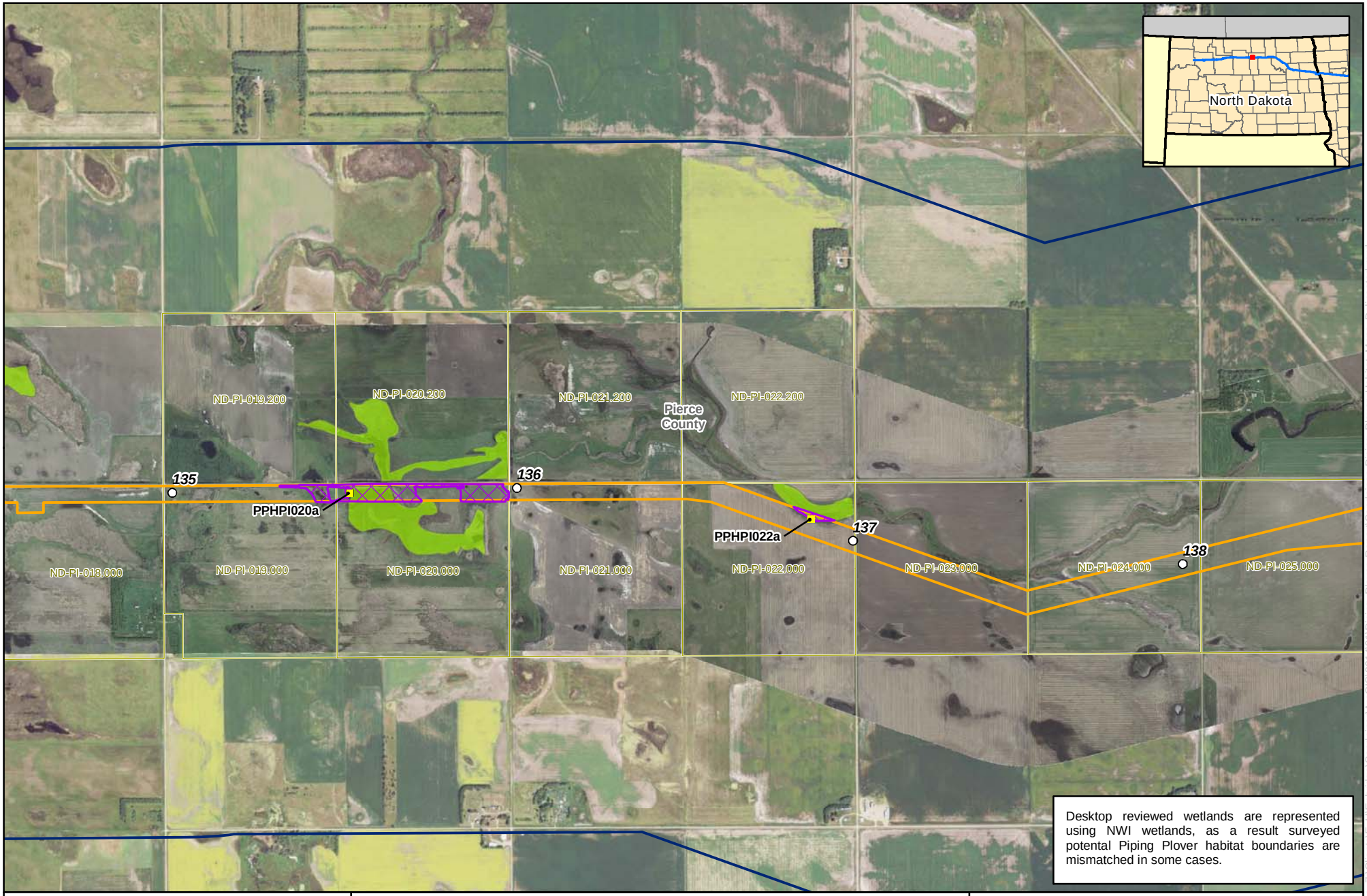
Enbridge

Potential Piping Plover Suitable Habitat

- Milepost
- Sample Point
- Study Area
- Desktop Reviewed Wetlands
- Environmental Survey Corridor
- Potential Piping Plover Habitat
- Survey Needed
  - Yes
  - No
- Parcels

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

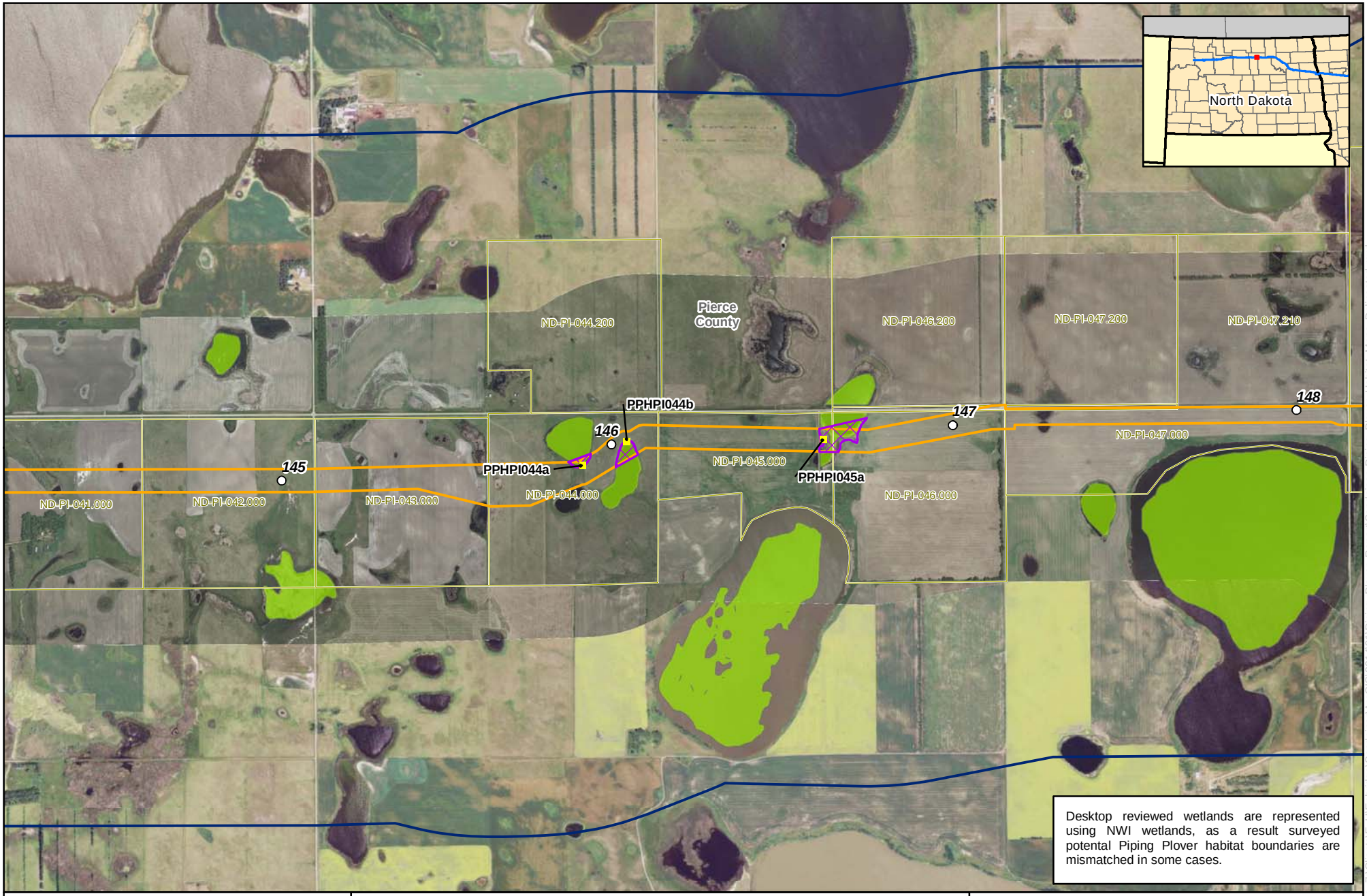
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

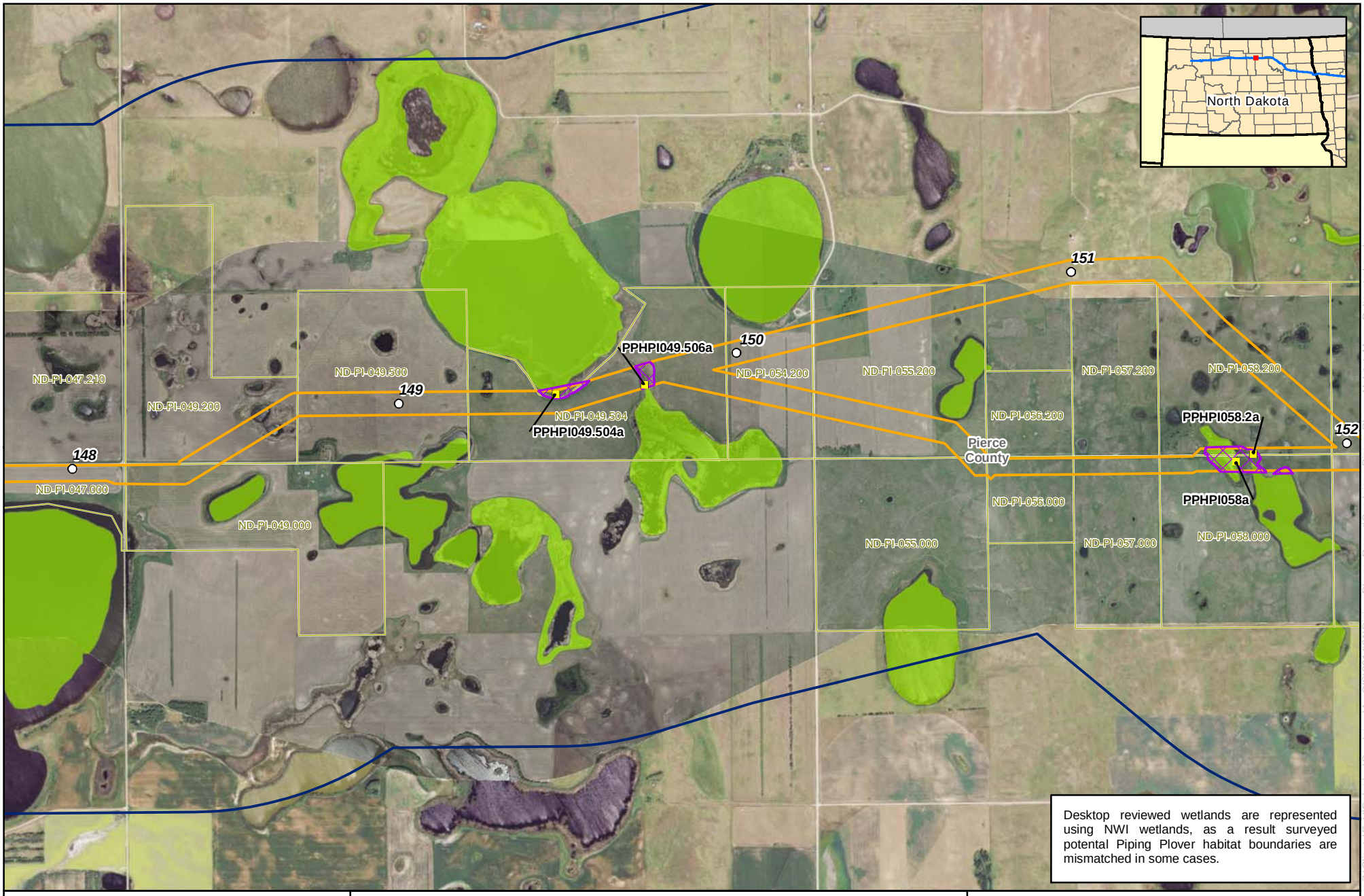
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

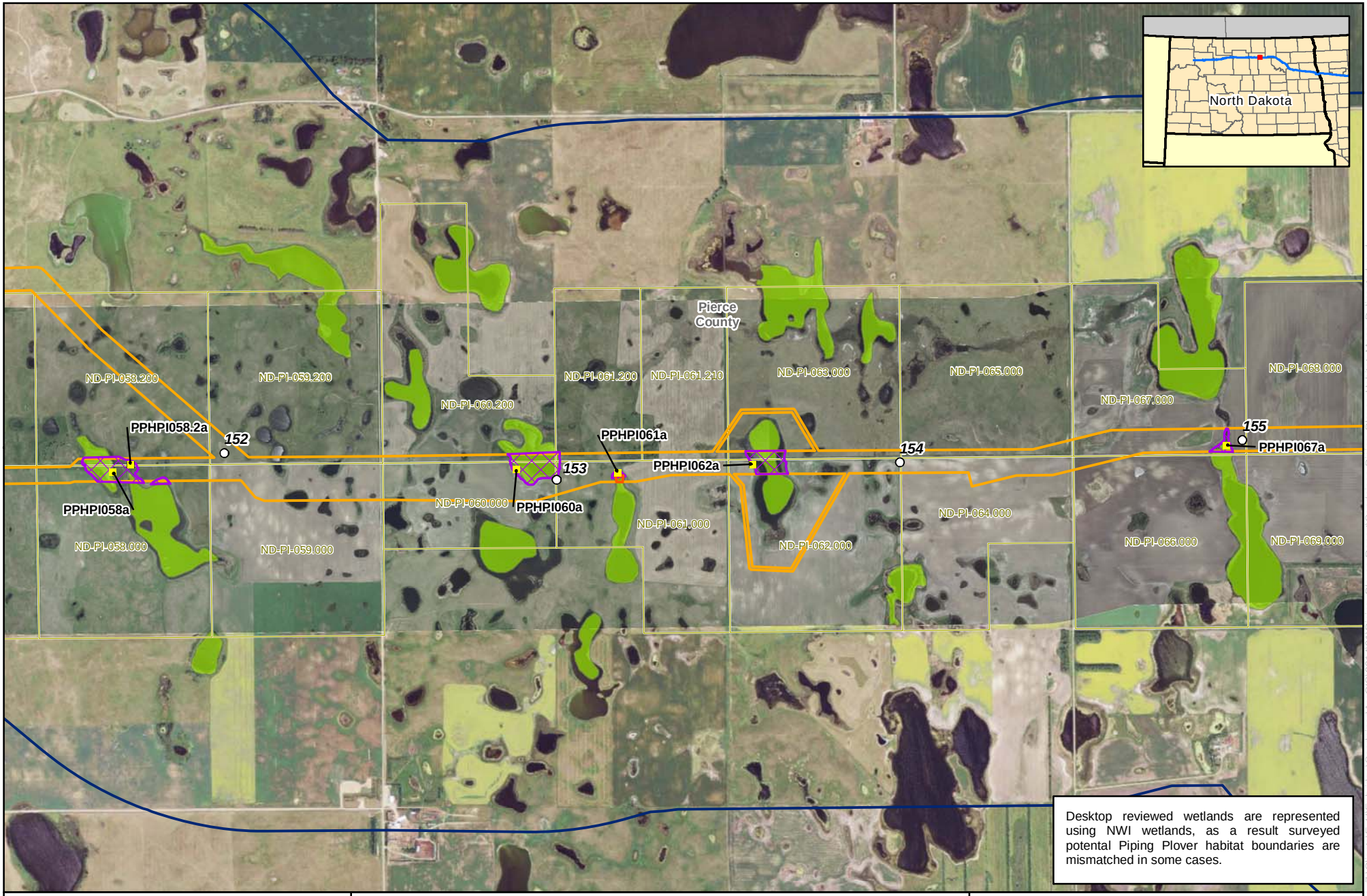
- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

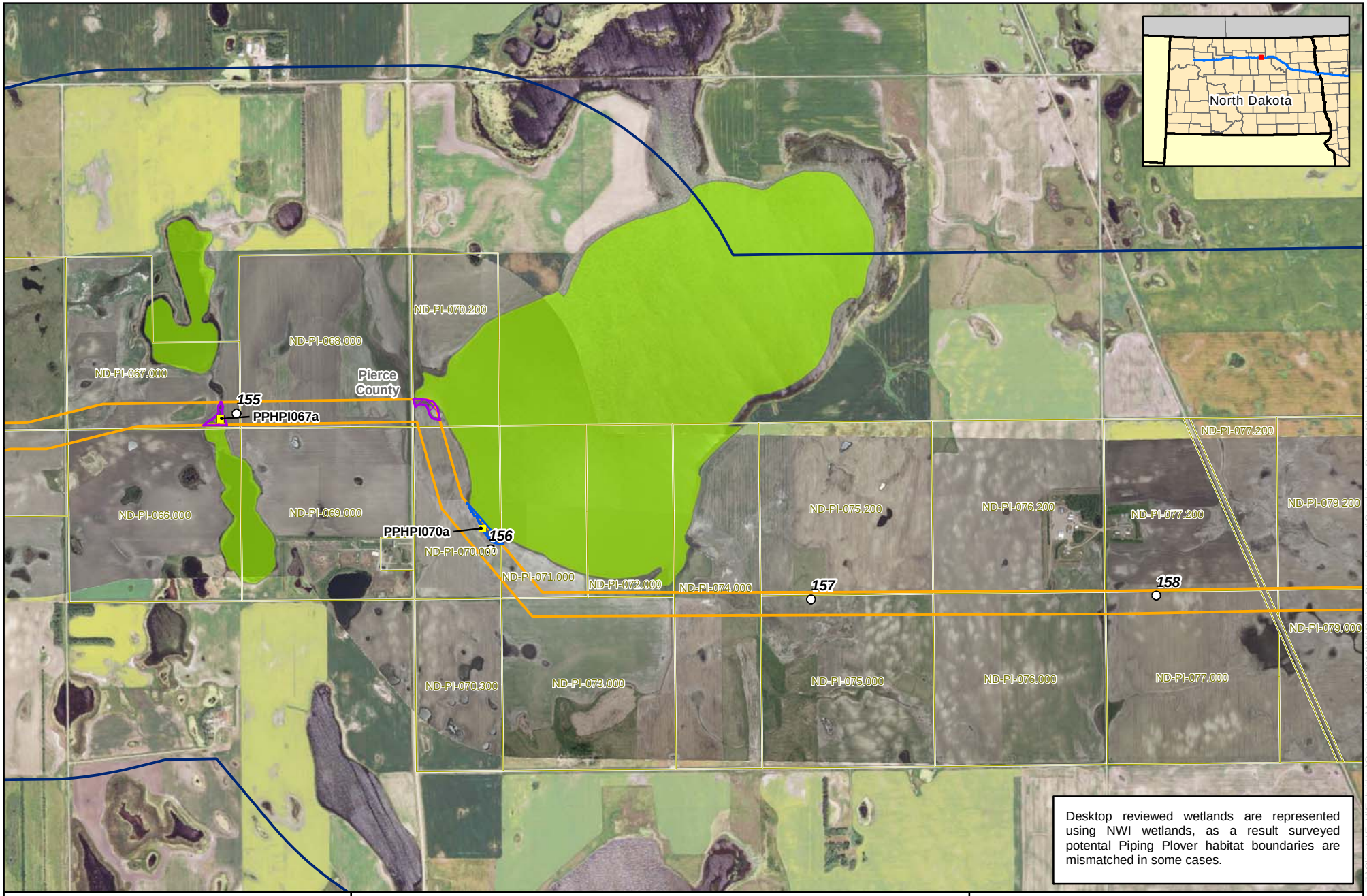
1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands
- Potential Piping Plover Habitat
  - Yes
  - No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd
Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

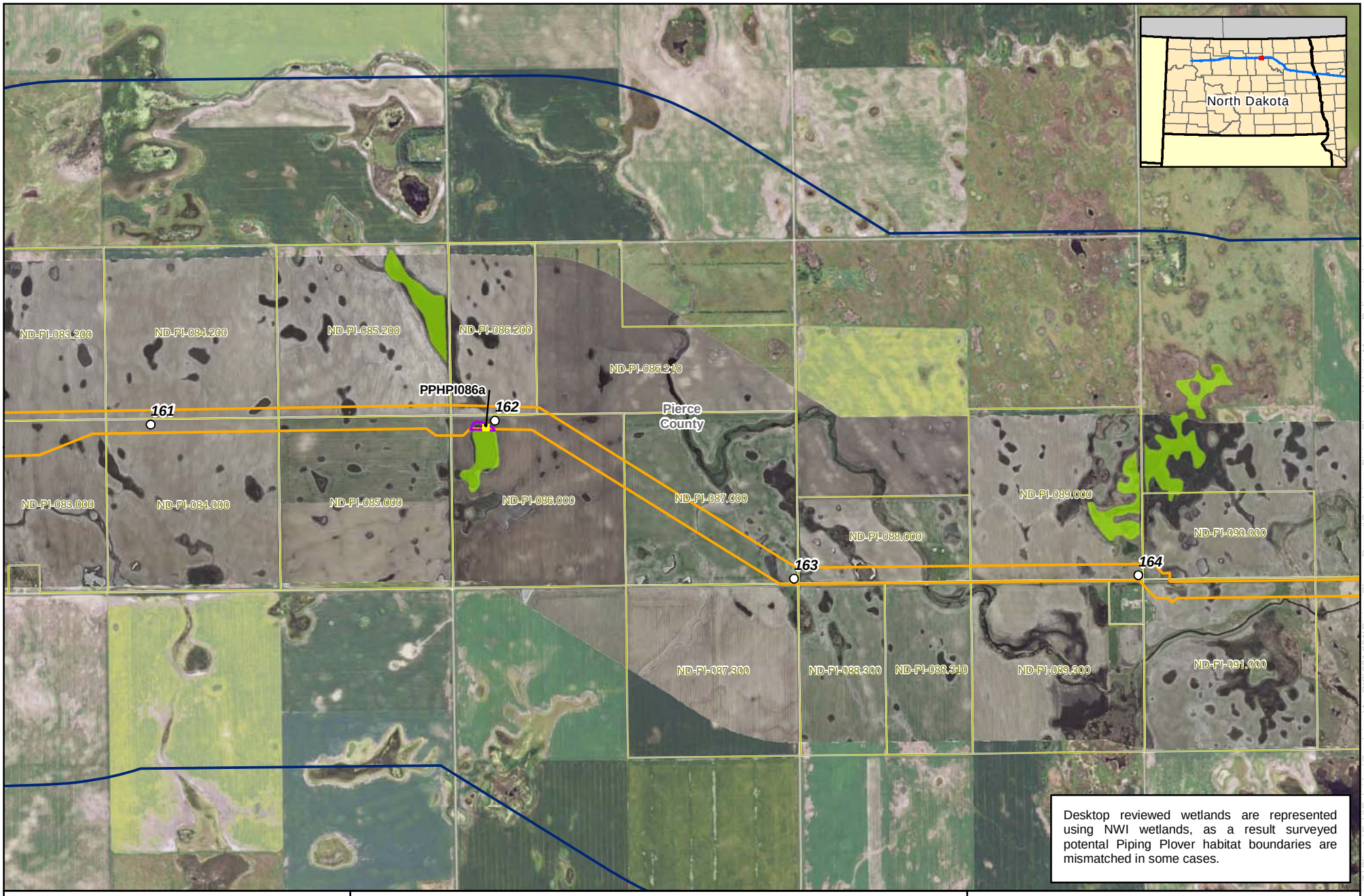
Potential Piping Plover Suitable Habitat

- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd
Date: (1/20/2014)



ENBRIDGE

0 1,000 2,000 Feet

1:24,000

Enbridge

Potential Piping Plover Suitable Habitat

- Milepost
- Study Area
- Environmental Survey Corridor
- Survey Needed
- Parcels
- Sample Point
- Desktop Reviewed Wetlands

Potential Piping Plover Habitat

- Yes
- No

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Piping_Plover_Report\Sandpiper_Piping_Plover_Habitat_Maps_Delineated.mxd

Date: (1/20/2014)

Enbridge

2013 Grassland Habitat Assessment Report (Rev 0)

PRESENTED BY MERJENT, INC.
January 21, 2014

TABLE OF CONTENTS

EXECUTIVE SUMMARY 1
1.0 INTRODUCTION 3
2.0 PURPOSE OF HABITAT ASSESSMENT 3
3.0 GRASSLAND SPECIES NATURAL HISTORY AND RANGE 4
4.0 METHODS 5
4.1 DESKTOP ANALYSIS 6
4.2 FIELD-BASED HABITAT ASSESSMENT 9
4.2.1 Confirmation and Classification of Grasslands 9
4.2.2 Sprague's Pipit 10
4.2.3 Dakota Skipper 10
4.2.4 Poweshiek Skipperling 11
5.0 RESULTS 12
5.1 DESKTOP ANALYSIS 12
5.2 FIELD-BASED HABITAT ASSESSMENT 13
5.2.1 Confirmation and Classification of Grasslands 13
5.2.2 Sprague's Pipit 14
5.2.3 Dakota Skipper 16
5.2.4 Poweshiek Skipperling 18
6.0 REFERENCES 19

LIST OF TABLES

Table 3.0-1 Occurrence of Sprague's Pipit, Dakota Skipper, and Poweshiek Skipperling in Counties Crossed by Environmental Survey Corridor

Table 5.1-1 Grassland Acreages by County within Environmental Survey Corridor and One-Mile Study Area

Table 5.2-1 Field-Verified Grasslands by County and Type within Environmental Survey Corridor

Table 5.2-2 Suitable Habitat for Sprague's Pipit in Grasslands ≥ 69 Hectares that Intersect Environmental Survey Corridor

Table 5.2-3 Suitable Habitat for Dakota Skipper in Grasslands that Intersect Environmental Survey Corridor

LIST OF FIGURES

Figure 4.0-1 Area Surveyed during Grasslands Habitat Assessment

Figure 4.0-2 EPA Level III Ecoregions Showing the Boundary between Grassland and Forest Habitat near the Clearbrook Storage Facility

APPENDICES

Appendix A 2013 Grassland Habitat Assessment Protocol

Appendix B U.S. Fish and Wildlife Service Correspondence

Appendix C Field-Verified Grassland Habitat that Intersects the Environmental Survey Corridor

Appendix D Maps of Grasslands Surveyed that Intersect the Environmental Survey Corridor

Appendix E Field Data Sheets

Appendix F Representative Photographs of Grasslands Visited during Field Surveys

Appendices available upon request

EXECUTIVE SUMMARY

The 2013 Grassland Habitat Assessment was conducted to document the following: (1) presence of native and non-native habitat for grassland birds, (2) suitable habitat for the Sprague's pipit (*Anthus spragueii*), (3) suitable habitat for Dakota skipper (*Hesperia dacotae*), and (4) suitable habitat for the Poweshiek skipperling (*Oarisma poweshiek*)

The 2013 Grassland Habitat Assessment was completed along the environmental survey corridor west of Enbridge's Clearbrook Storage Facility. This part of the survey corridor is considered the Great Plains and is dominated by grasslands. Grassland habitat was assessed for migratory birds along the same portion of the survey corridor. Suitable habitat for the Sprague's pipit, Dakota skipper, and Poweshiek skipperling was assessed in the counties in which there are occurrence records for each species.

The assessment was comprised of a desktop analysis that identified and determined acreages of grasslands in the one-mile study area. Field-based habitat surveys were conducted of the grasslands identified during the desktop analysis in the 250-foot- to 450-foot-wide environmental survey corridor The field-based habitat assessment further evaluated and confirmed the grasslands identified during the desktop analysis as well as determined characteristics and suitability for grassland migratory birds, Sprague's pipit, Dakota skipper, and Poweshiek skipperling.

The field-based effort for grassland birds focused on determining if grasslands identified during the desktop analysis were predominantly native or non-native and tilled or untilled. Overall, the field-based habitat assessment showed 1034.46 hectares of grasslands within the environmental survey corridor. In North Dakota, the majority of the grasslands were tilled and dominated by non-native vegetation (386.73 hectares). Of the approximately 317 hectares in North Dakota that were untilled, 123.55 hectares were predominantly native species and 193.78 hectares were predominantly non-native species. In Minnesota, all 142 hectares of the grasslands classified were untilled. Of the tilled grasslands that intersect the environmental survey corridor in Minnesota, 2.5 hectares were predominantly native vegetation and nearly 140 hectares were predominantly by non-native vegetation. The classification of grasslands as predominantly native or non-native and tilled or untilled was used to inform the characterization of suitable habitat for the Sprague's pipit, Dakota skipper and Poweshiek skipperling.

Suitable habitat for the Sprague's pipit was defined as grasslands that were at least 69 hectares in size and that had less than 20 percent shrub cover, less than 10 percent bare ground, and an absence of trees. The habitat assessment for Sprague's pipit was conducted in the eight counties in which the species occurs along the environmental survey corridor: Williams, Mountrail, Ward, McHenry, Pierce, Towner, and Ramsey counties, North Dakota, and Polk County, Minnesota. Information on the size of each grassland that intersected the environmental survey corridor was determined during the desktop analysis. Data on amount of shrub cover and bare ground and absence of trees was collected during the field effort. The results of the habitat assessment indicated that 25 grasslands met the criteria for Sprague's pipit suitable habitat. These grasslands were located Williams, Mountrail, Ward, McHenry, and Pierce counties in North Dakota.

Suitable habitat for the Dakota skipper was defined as grasslands or discrete patches within a larger grassland that were untilled, had predominantly native species, and contained larval food and nectar plants suitable for Dakota skipper larvae and adults. Dakota skipper surveys took place in the four counties along the environmental survey corridor where the Dakota skipper has

records of occurrence: Mountrail, Ward, McHenry counties, North Dakota, and Polk County, Minnesota. Results of the field-based habitat assessment for Dakota skipper showed 25 areas of suitable habitat that intersected the environmental survey corridor.

Similar to the Dakota skipper, suitable habitat for the Poweshiek skipperling was defined as grasslands or discrete patches within a larger grassland that were untilled, had predominantly native species, and contained larval food and nectar plants suitable for Poweshiek skipperling larvae and adults. Suitable habitat for the species was assessed only in Polk County, Minnesota, because this is the sole county along the environmental survey corridor with records of occurrence for Poweshiek skipperling. Results of the field-based habitat assessment showed no areas of suitable habitat for the Poweshiek skipperling in Polk County because no predominantly native grasslands or predominantly native patches within larger grasslands intersected the environmental survey corridor.

1.0 INTRODUCTION

The 2013 Grassland Habitat Assessment was conducted to document the following: (1) presence of native and non-native habitat for grassland birds, (2) suitable habitat for the Sprague's pipit (*Anthus spragueii*), (3) suitable habitat for Dakota skipper (*Hesperia dacotae*), and (4) suitable habitat for the Poweshiek skipperling (*Oarisma poweshiek*).

The 2013 Grassland Habitat Assessment was completed along the environmental survey corridor west of Enbridge's Clearbrook Storage Facility. This part of the survey corridor is considered the Great Plains and is dominated by grasslands. Grassland habitat was assessed for migratory birds along the same portion of the survey corridor. Suitable habitat for the Sprague's pipit, Dakota skipper, and Poweshiek skipperling was assessed in the counties in which there are occurrence records for each species.

The assessment was comprised of a desktop analysis that identified and determined acreages of grasslands in the one-mile study area. Field-based habitat surveys were conducted of the grasslands identified during the desktop analysis in the 250-foot- to 450-foot-wide environmental survey corridor The field-based habitat assessment further evaluated and confirmed the grasslands identified during the desktop analysis as well as determined characteristics and suitability for grassland migratory birds, Sprague's pipit, Dakota skipper, and Poweshiek skipperling.

2.0 PURPOSE OF HABITAT ASSESSMENT

The purpose of the 2013 Grassland Habitat Assessment is to document the presence of habitat for grassland birds, Sprague's pipit (*Anthus spragueii*), Dakota skipper (*Hesperia dacotae*), and Poweshiek skipperling (*Oarisma poweshiek*) within the 250-foot- to 450-foot-wide environmental survey corridor.

The specific objectives of the Protocol are to:

1. Identify and quantify areas of native prairie habitat and other grasslands that may be used by migratory birds, pursuant to the Migratory Bird Treaty Act ("MBTA");
2. Identify and quantify potentially suitable habitat for the Sprague's pipit, a candidate species under the federal Endangered Species Act ("ESA");
3. Identify and quantify potentially suitable habitat for the Dakota skipper, proposed on October 24, 2013 (U.S. Fish and Wildlife Service ["USFWS"] 2013a) as federally threatened under the ESA and designated as state endangered in Minnesota (Minnesota Department of Natural Resources ["MN DNR"] 2013); and
4. Identify and quantify potentially suitable habitat for the Poweshiek skipperling, proposed on October 24, 2013 as federally endangered under the ESA (USFWS 2013a) and designated as state endangered in Minnesota (MN DNR 2013).

The results of the habitat assessment will inform potential surveys for individuals, future consultations with the USFWS and MN DNR, impact analysis under the MBTA and ESA, and conservation measures development for these species.

3.0 GRASSLAND SPECIES NATURAL HISTORY AND RANGE

Native prairie and non-native grasslands provide courtship, nesting, foraging, sheltering, brood-rearing, and dispersal habitat for many species of migratory birds, including Sprague's pipit. The Dakota skipper and Poweshiek skipperling also occur in grasslands, but are limited to untilled parcels of native prairie with specific species of native prairie plants.

Sprague's pipit may occur in both native prairie and non-native grasslands. Although Sprague's pipits are more abundant and prefer nesting in native prairie throughout their range, they have been observed performing territorial displays in non-native grasslands and nesting in non-native hayfields in part of their range (Jones 2010, USFWS 2012). Vegetation structure appears to be an important predictor of species occurrence (USFWS 2012). Sprague's pipits prefer to breed in large patches of native grassland with a typical minimum size of 145 hectares (approximately 358 acres) and a range of 69 to 314 hectares (170 to 776 acres) (Davis 2004 *in* USFWS 2012). The species typically breeds in open grasslands with low shrub cover and avoids edge habitat between grassland and woody vegetation (USWFS 2012). The species also appears to prefer nesting in grasslands that are surrounded by other grasslands (C. Aron, USFWS, pers. comm. June 26, 2013) (see Appendix B). The USFWS county distribution lists indicate that the Sprague's pipit is known to occur in Williams, Mountrail, Ward, McHenry, Pierce, Towner, and Ramsey counties, North Dakota, and Polk County, Minnesota (see Table 3.0-1). Neither the historical nor the current distribution of Sprague's pipits extends as far east as Wisconsin.

Native prairie also provides habitat for the four basic life stages of the Dakota skipper and the Poweshiek skipperling. Habitats beneficial to the Dakota skipper include high-quality, wet-mesic tallgrass remnant prairie that occurs on near-shore glacial lake soil deposits or high-quality, dry-mesic remnant prairie on rolling terrain consisting of gravelly glacial moraine soil deposits. These preferred habitats are characterized by a predominance of native grasses and native flowering forbs; undisturbed (not tilled) glacial soil types including (but not limited to) loam, sandy loam, loamy sand, and gravel; an absence of or only sparse coverage of trees or large shrubs; an absence or only sparse occurrence of non-native invasive plants; and native grasses and native flowering forbs for larval and adult food and shelter (A. Horton, USFWS, pers. comm., June 14, 2013) (see Appendix B).

Habitat preferences of the Poweshiek skipperling are similar to the Dakota skipper in Minnesota, but vary more widely across the Poweshiek's historical range, from dry tallgrass prairie in North Dakota to sedge meadows and prairie fens in Michigan (USFWS 2011; A. Horton, USFWS, pers. comm., July 3, 2013) (see Appendix B). In North Dakota and Minnesota, the Poweshiek skipperling inhabits both wet and dry native prairie that are untilled, have predominantly native species, native grasses and native flowering forbs for larval and adult food and shelter; moist prairie preferred where available (USFWS 2011; MN DNR 2013; USFWS 2013a; A. Horton, USFWS, pers. comm., June 14, 2013) (see Appendix B).

USFWS county distribution lists indicate that Dakota skippers occur in Polk County, Minnesota and McHenry, Mountrail, and Ward counties, North Dakota (see Table 3.0-1). According to the USFWS county distribution lists, the Poweshiek skipperling is not known to occur in any counties along the environmental survey corridor; however, the Biotics Database of Minnesota's Natural Heritage Inventory System shows occurrence of the Poweshiek skipperling in Polk County (http://www.dnr.state.mn.us/nhnrp/nhis.html). The Poweshiek historically occurred as far north as Canada along the western border of Minnesota, and the USFWS recommended surveying for the species in Polk County, Minnesota (A. Horton, pers. comm., June 14, 2013) (see Appendix B).

Critical habitat for the Dakota skipper and Poweshiek skipperling was proposed concurrently with the proposal for listing these species (USFWS 2013b). Proposed critical habitat for the Poweshiek skipperling is not located in counties crossed by the environmental survey corridor. For the Dakota skipper, critical habitat is proposed in two counties crossed by the environmental survey corridor--McHenry County, North Dakota and Polk County, Minnesota. The environmental survey corridor does not intersect any critical habitat units; however, in McHenry County, North Dakota, Dakota Skipper Critical Habitat Unit 6 is located 1.3 miles north, Unit 7 is located 5.9 miles south, and Unit 8 is located 4.6 miles south of the environmental survey corridor. In Polk County, Minnesota, Critical Habitat Unit 15 is 4.3 miles south of the environmental survey corridor.

Table 3.0-1
Occurrence of Sprague's Pipit, Dakota Skipper, and Poweshiek Skipperling in Counties Crossed by Environmental Survey Corridor

State	County	Sprague's Pipit	Dakota Skipper	Poweshiek Skipperling
North Dakota	Williams	✓		
	Mountrail	✓	✓	
	Ward	✓	✓	
	McHenry	✓	✓	
	Pierce	✓		
	Towner	✓		
	Ramsey	✓		
	Nelson			
	Grand Forks			
Minnesota	Polk	✓	✓	∗
	Red Lake			
	Clearwater			
	Hubbard			
	Cass			
	Crow Wing			
	Aitkin			
	Carlton			
Wisconsin	Douglas			

Notes:
✓ According to USFWS county distribution list for species (http://www.fws.gov/midwest/endangered/lists/minnesot-cty.html; http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action).
∗ Presence indicated in Minnesota Department of Natural Resources Natural Heritage Information System Biotics Database (http://www.dnr.state.mn.us/nhnrp/nhis.html).

4.0 METHODS

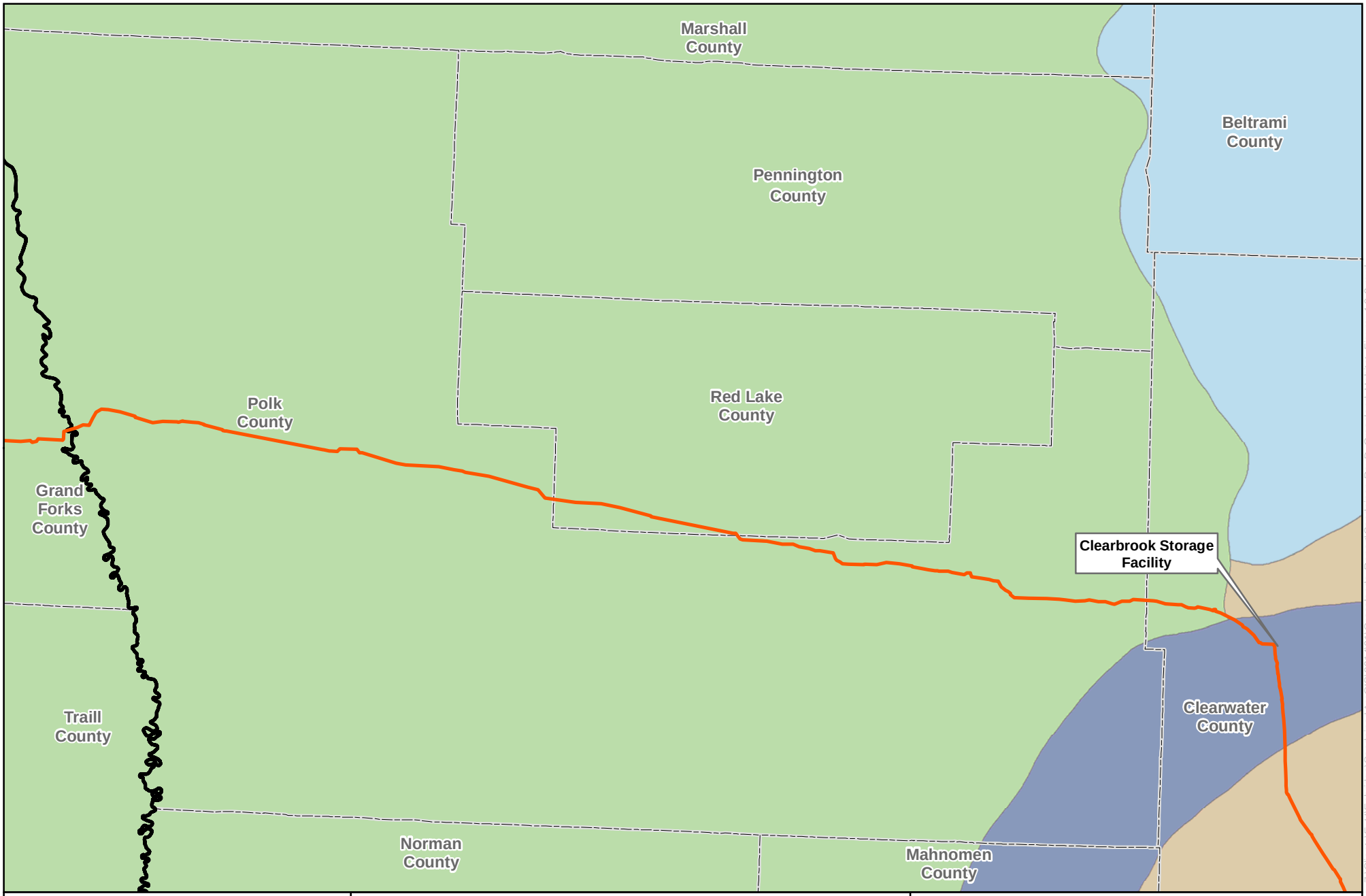
The 2013 Grassland Habitat Assessment Protocol ("Protocol"), prepared by Merjent, Inc. ("Merjent"), describes the methods used to document and assess grasslands within the environmental survey corridor (Appendix A). The assessment included a preliminary desktop review followed by field-based habitat assessment. The assessment was conducted by experienced WEST GIS specialists and biologists on behalf of Merjent and Enbridge from July to October, 2013. The field surveys were conducted by two crews, each with two members.

One member on each crew, at a minimum, was a botanist familiar with grassland vegetation of North Dakota and Minnesota. Data were collected on a Trimble GEOXH GPS Unit. The assessment was conducted along the portion of the proposed environmental survey corridor that is considered the Great Plains and that is dominated by grasslands (Figure 4.0-1). This point is approximately 3 miles west of the boundary between the grassland and forest ecoregions using EPA Level III Ecoregions (http://www.epa.gov/wed/pages/ecoregions/level_iii_iv.htm) (Figure 4.0-2).

4.1 DESKTOP ANALYSIS

The desktop analysis was completed using ArcGIS, ArcMap 10.1. Grasslands within the one-mile study area were digitized using the aerial imagery and information on the grasslands was collected using several geospatial datasets. In North Dakota, aerial imagery and geospatial datasets used were 2012 National Agricultural Imagery Program ("NAIP") aerial imagery, 2006 National Land Cover Data land use/land cover, 2004 North Dakota Gap Analysis Program ("GAP") land use/land cover, and 2010 and 2011 National Agricultural Statistical Service ("NASS") land classification. In Minnesota, the imagery and geospatial databases used were 2006 Minnesota GAP land use/land cover; 2008 Minnesota GAP Conservation Reserve Program lands; 1998 MN DNR railroad rights-of-way prairies; and 2010, 2011, and 2012 NASS land classification. All disturbed areas were excluded along with the visible road right-of-way (i.e., road ditch). Trees/shrubs were also excluded if they made up approximately 20 percent or more of a grassland polygon. Large wetlands that were encompassed by grasslands were identified using National Wetland Inventory ("NWI") data, and omitted from calculations of grassland acreages. Smaller wetlands that were encompassed in grasslands were omitted from calculations of grassland acreages after field-based wetland delineations became available in the fall of 2013. Omitting these features from digitized grasslands facilitated accurate estimation of grassland acreages within the environmental survey corridor.

Additional desktop review was completed as part of the assessment of Sprague's pipit suitable habitat. As described above, Sprague's pipit has been noted using grassland parcels that are a minimum of 69 hectares (170 acres) in size (USFWS 2012). In order to collect this data for the species suitable habitat determination, the size of each grassland that intersected the environmental survey corridor was determined during the desktop review.



ENBRIDGE

0 5 10 Miles

1:500,000

N

Enbridge

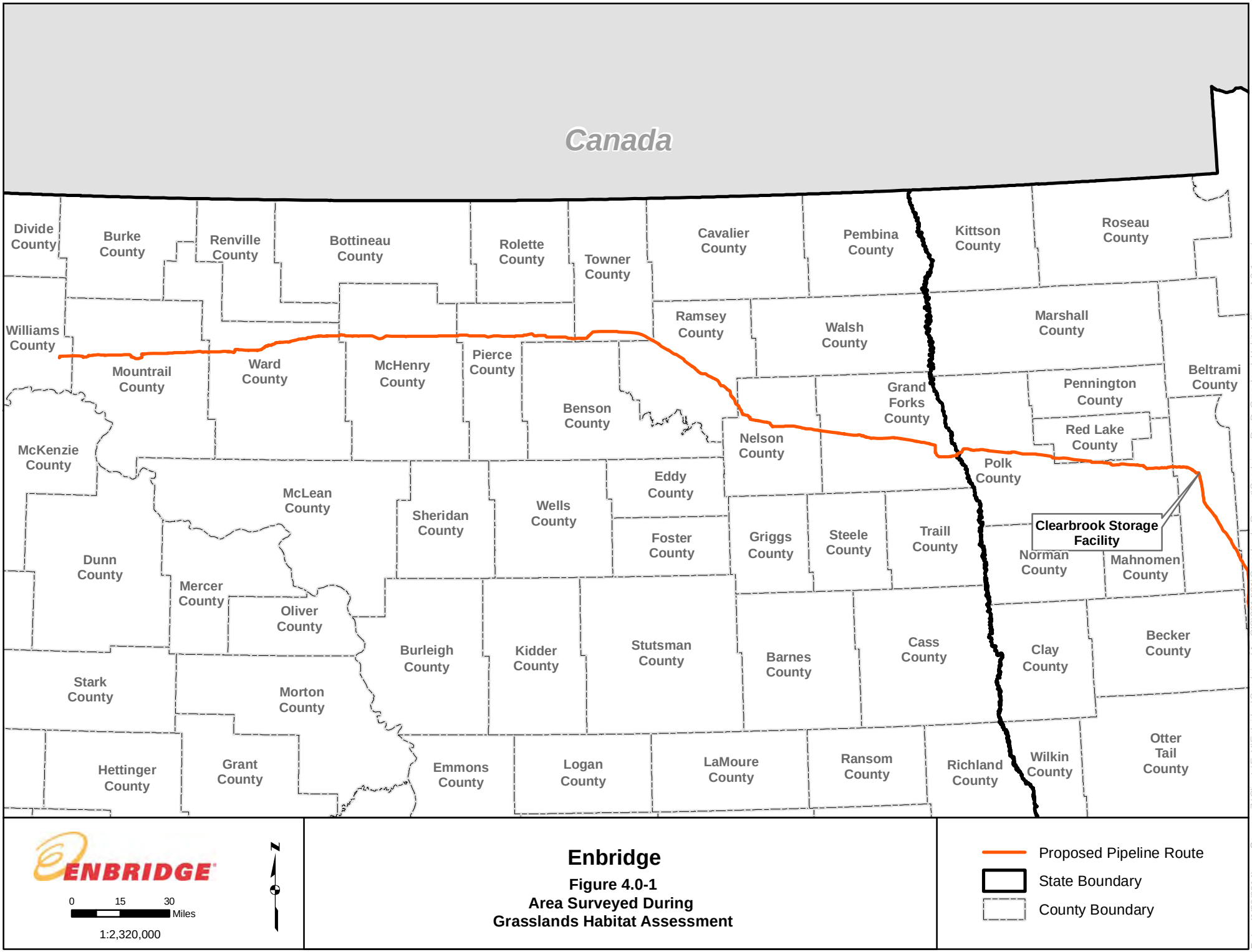
Figure 4.0-2
EPA Level III Ecoregions Showing the Boundary between Grassland and Forest Habitat near the Clearbrook Storage Facility

Proposed Pipeline Route
State Boundary
County Boundary

EPA Level III Ecoregion
Lake Agassiz Plain
North Central Hardwood Forests
Northern Lakes and Forests
Northern Minnesota Wetlands

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Grasslands_Report\Sandpiper_RevD_Grassland_Habitat_Figure_4.0-2.mxd

Date: (1/20/2014)


Canada
Divide County
Burke County
Renville County
Bottineau County
Rolette County
Towner County
Cavalier County
Pembina County
Kittson County
Roseau County
Williams County
Mountrail County
Ward County
McHenry County
Pierce County
Ramsey County
Walsh County
Marshall County
Benson County
Grand Forks County
Pennington County
Beltrami County
Red Lake County
Nelson County
McKenzie County
Polk County
Eddy County
McLean County
Sheridan County
Wells County
Clearbrook Storage Facility
Foster County
Griggs County
Steele County
Traill County
Norman County
Mahnomen County
Dunn County
Mercer County
Oliver County
Burleigh County
Kidder County
Stutsman County
Barnes County
Cass County
Clay County
Becker County
Stark County
Morton County
Hettinger County
Grant County
Emmons County
Logan County
LaMoure County
Ransom County
Richland County
Wilkin County
Otter Tail County
ENBRIDGE
0 15 30 Miles
1:2,320,000
N
Enbridge
Figure 4.0-1
Area Surveyed During
Grasslands Habitat Assessment
Proposed Pipeline Route
State Boundary
County Boundary
Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2014\01\Grasslands_Report\Sandpiper_RevD_Grassland_Habitat_Figure_4.0-1.mxd
Date: (1/20/2014)

4.2 FIELD-BASED HABITAT ASSESSMENT

Field surveys consisted of visiting each grassland area identified during the desktop review within the environmental survey corridor. The North Dakota State Plane North, NAD 83 survey feet coordinate system and Minnesota State Plane North, NAD 83 survey feet coordinate system were used per the Protocol, as applicable.

4.2.1 Confirmation and Classification of Grasslands

The field-based habitat assessment served to confirm grassland habitat, document the location of each grassland area within the environmental survey corridor, and classify the grassland as native or non-native and tilled or untilled. This confirmation, documentation, and classification of the grasslands provided information needed to quantify migratory bird and federal proposed/candidate species habitat.

To confirm and document the location of the grassland, a GPS point was taken at the western edge of each grassland area and a second point was recorded at the eastern edge within the environmental survey corridor. If the area was not grassland, a note was made on the current habitat present (e.g., wetland, cropland). Each confirmed grassland area was assigned a unique site identification number according to the nomenclature described in the Protocol.

Grasslands were then classified according to their dominant vegetation cover—native or non-native—using two methods. The first method was the rule of dominance in which a visual qualitative assessment was made to determine if native or non-native vegetation had the higher percent cover. A second method was used to confirm the results of the visual qualitative assessment; this second method employed a belt transect for each distinct grassland area that was at least 0.1 mile in length within the environmental survey corridor (Grant et al. 2004). The belt transect consisted of laying a 25-meter tape across vegetation in the grassland area. The dominant plant group at each 0.1-meter by 0.5-meter segment (50 total segments) along the tape was identified and recorded according to a hierarchical listing of plant group types for north-central and northwestern North Dakota (Grant et al. 2004). The identification of the plant group was made by a botanist on the survey crew. The location of each belt transect was recorded using a GPS, and a photograph of the belt was taken. For longer stretches of grassland area within the environmental survey corridor, an additional belt transect was conducted every 0.25 mile. With the belt transect method, a determination of dominance by native or non-native species was made by totaling the native and non-native segments within each grassland area. If the classifications of native or non-native using the two different methods did not agree, additional belt transects were completed, and the classification was based on the collective results of the belt transects for that grassland.

The dual use of the rule of dominance and belt transect methods was not possible for grasslands that spanned less than 0.1 mile in length, hayed grasslands, and heavily grazed grasslands. For grasslands that spanned less than 0.1 mile in length in the environmental survey corridor, the belt transect was not used, and the classification of native or non-native was made solely using the rule of dominance. In hayed grasslands, grasses were generally unidentifiable; because of the way these grasslands are used, they were assumed to be dominated by non-native species. If a grassland was heavily grazed, grasses were also typically not identifiable; these grasslands were classified as “unknown” because grazing occurs on native and non-native grasslands.

In addition to classifying a grassland as native or non-native, surveyors also noted if there was evidence that a grassland had been tilled. Such evidence generally included piles of rocks and boulders, topography (e.g., steep slopes that may not have been able to be tilled), and signatures on aerial photos of rows from row cropping. In North Dakota, information on lands enrolled in the federal Conservation Reserve Program ("CRP") is not available to the public, but in Minnesota this information is available. Therefore, in Minnesota, enrollment in CRP was also used as an indicator that a grassland area was previously tilled, because lands enrolled in CRP have been used for agriculture in the past.

4.2.2 Sprague's Pipit

In counties where Sprague's pipit is known to occur (see Table 3.0-1), each grassland within the environmental survey corridor was assessed for Sprague's pipit suitable habitat. The field data were collected in conjunction with the confirmation and classification of grasslands (Section 4.2.1). Per the Protocol, data collected in the field included the following that are considered characteristics of Sprague's pipit suitable habitat (Jones 2010, USFWS 2012):

- Dominance of grass and sedge cover;
- Less than 20 percent shrub and brush cover;
- Less than 10 percent bare ground; and
- Absence of trees at territory scale (2-3 hectares [5-7.5 acres]).

Data from the desktop review and field-based habitat assessment were used in evaluating grasslands as suitable habitat for the Sprague's pipit. Suitable habitat for the species was defined as grasslands with the above four habitat characteristics that were at least 69 hectares, as determined during the desktop review of aerial photos. The 69 hectares size limit represents the minimum size of grassland in which the species has been observed breeding (Davis 2004 *in* USFWS 2012).

4.2.3 Dakota Skipper

In counties where Dakota skipper is known to occur (see Table 3.0-1), each grassland within the environmental survey corridor was surveyed for Dakota skipper suitable habitat. Suitable habitat for the Dakota skipper is grasslands or discrete patches of habitat within a grassland that are predominantly native and that have not been tilled. In some cases, although the overall grassland may be non-native and/or tilled, a patch within the grassland may be native and untilled. Survey methods for determining whether a grassland was predominantly native or non-native and tilled or untilled are described in Section 4.2.1; the resulting classifications were used to determine the suitability of grasslands as potential Dakota skipper habitat. Per the Protocol, additional data collected in the field included the presence of appropriate plant species (A. Horton, USFWS, pers. comm., June 14, 2013) (see Appendix B):

- Presence of plants typical of native bluestem prairie: wood lily (*Lilium philadelphicum*), harebell (also known as bluebell bellflower [*Campanula rotundifolia*]), and smooth camas (*Zygadenus elegans*);
- Presence of plants typical of upland (dry) prairie (often found on ridges and hillsides): bluestem grasses, needlegrasses, pale purple coneflower (*Echinacea pallida*), upright

coneflower (also known as blacksamson Echinacea [*Echinacea angustifolia*]), and blanketflowers (*Gaillardia* spp.);

- Presence of one or both of the following native grasses available as food and shelter sources during larval stages: prairie dropseed (*Sporobolus heterolepis*) and little bluestem (*Schizachyrium scoparium*); and
- Presence of the following preferred nectar plants: long-headed coneflower (also known as upright prairie coneflower [*Ratibida columnifera*]), harebell (also known as bluebell bellflower), white prairie clover (*Dalea candida*), fleabanes (*Erigeron* spp.), blanketflowers, black-eyed susan (*Rudbeckia hirta*), blacksamson Echinacea, yellow sundrops (also known as tooth-leaved primrose [*Calylophus serrulatus*]), and groundplum milkvetch (*Astragalus crassicarpus*).

Suitable habitat for the Dakota skipper was defined as grasslands or discrete areas within grasslands that were untilled, predominantly native, and that had appropriate larval food and nectar plant species present. Areas that met the definition of suitable habitat were delineated with a GPS. Relevant species were recorded on a datasheet, and photographs were taken.

4.2.4 Poweshiek Skipperling

In Polk County, Minnesota, the only county along the environmental survey corridor where the Poweshiek skipperling has documented occurrence (see Table 3.0-1), each grassland within the environmental survey corridor was surveyed for the Poweshiek skipperling suitable habitat. Similar to the Dakota skipper, suitable habitat for the Poweshiek skipperling are grasslands or discrete patches of habitat within a grassland that are predominantly native and that have not been tilled. In some cases, although the overall grassland may be non-native and/or tilled, a patch within the grassland may be native and untilled. Survey methods for determining whether a grassland was predominantly native or non-native and tilled or untilled are described in Section 4.2.1; the resulting classifications were used to determine the suitability of grasslands as potential Poweshiek skipperling habitat. Per the Protocol, additional data collected in the field included the presence of the following plant species (A. Horton, USFWS, pers. comm., June 14, 2013) (see Appendix B):

- Presence of characteristic wet prairie plants: big bluestem (*Andropogon gerardii*), prairie cordgrass (*Spartina pectinata*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), and woolly sedge (*Carex pellita*);
- Presence of characteristic dry prairie plants: big bluestem, prairie dropseed, little bluestem, Indian grass, porcupine grass (*Heterostipa spartea*), and side-oats grama (*Bouteloua curtipendula*);
- Presence of native, fine-stemmed grasses and sedges for egg-laying and larval feeding: big bluestem, prairie dropseed, little bluestem, porcupine grass, and side-oats grama; and
- Presence of the following preferred nectar plants during the flight period: smooth ox-eye (*Heliopsis helianthoides*), blacksamson echinacea, stiff tickseed (*Coreopsis palmata*), black-eyed susan, and palespike lobelia (*Lobelia spicata*).

Suitable habitat for the Poweshiek skipperling was defined as grasslands or discrete areas within larger grasslands that were untilled, predominantly native, and that had appropriate larval food and nectar plant species present. Relevant species were recorded on a datasheet.

5.0 RESULTS

Results of the grassland desktop review and field-based habitat assessment are presented below, including information on the following within the environmental survey corridor:

- Acreages of grasslands within the one-mile study area and within the environmental survey corridor based on desktop analysis;
- Classification and acreages of grasslands within the environmental survey corridor that are native or non-native and tilled or untilled as determined in field-based habitat assessments;
- Habitat characteristics and potential suitability of habitat for the Sprague's pipit;
- Habitat characteristics and potential suitability of habitat for the Dakota skipper; and
- Habitat characteristics and potential suitability of habitat for the Poweshiek skipperling.

Maps showing the locations of these grasslands and potentially suitable habitat within the environmental survey corridor are provided in Appendix D. Data sheets from the field surveys are provided in Appendix E. Representative photos of the grasslands and habitats are provided in Appendix F.

5.1 DESKTOP ANALYSIS

The desktop analysis focused on determining locations and acreages of grasslands within the one-mile study area and within the environmental survey corridor (see Table 5.1-1). The desktop analysis found a total of 19,531.03 hectares (48,262.23 acres) of potential grassland habitat in North Dakota and 3,137.82 hectares (7,753.72 acres) in Minnesota within the one-mile study area. Within the environmental survey corridor, 1,211.44 hectares (2,993.53 acres) of potential grassland habitat were recorded in North Dakota and 261.3 hectares (645.69 acres) were recorded in Minnesota (see Table 5.1-1). These estimates were refined based on the results of field-based habitat assessments.

Table 5.1-1
Grassland Acreages by County within the Environmental Survey Corridor and within the One-Mile Study Area

State	County	Desktop Analysis Results	
		Grasslands within the Environmental Survey Corridor (ha)[1]	Grasslands Within the One Mile Study Area (ha)[1]
ND	Williams	47.06	489.09
ND	Mountrail	330.18	5,761.79
ND	Ward	52.31	1,009.45
ND	McHenry	210.80	3,760.64
ND	Pierce	212.44	3,236.19
ND	Towner	25.25	361.35
ND	Ramsey	47.09	463.89
ND	Nelson	129.68	2,010.65

Table 5.1-1
Grassland Acreages by County within the Environmental Survey Corridor and within the One-Mile Study Area

State	County	Desktop Analysis Results	
		Grasslands within the Environmental Survey Corridor (ha)[1]	Grasslands Within the One Mile Study Area (ha)[1]
ND	Grand Forks	156.63	2,437.98
MN	Polk	198.01	2,190.92
MN	Red Lake	49.11	783.71
MN	Clearwater	14.18	163.19
North Dakota Total		1,211.44	19,531.03
Minnesota Total		261.30	3,137.82
Grand Total		1,472.74	22,668.85

Notes:
[1] Acreages in this column were determined during desktop assessment. These estimates were refined based on the results of field-based habitat assessments.

5.2 FIELD-BASED HABITAT ASSESSMENT

The field-based habitat assessment further evaluated the grasslands identified during the desktop analysis to determine characteristics and suitability for grassland migratory birds, Sprague's pipit, Dakota skipper, and Poweshiek skipperling.

5.2.1 Confirmation and Classification of Grasslands

The grasslands identified within the environmental survey corridor during the desktop analysis were verified in the field as grassland or removed from further assessment if no grassland was present (e.g., found to be cropland). Field verification resulted in a decrease in grassland acreages (see Table 5.2-1). Grassland acreages estimated during the desktop analysis were further reduced because smaller wetlands, included with grasslands during the desktop analysis, were later omitted from the grassland acreages after they were delineated during field-based wetland surveys. After this information from field-based assessments was incorporated, grassland acreages within the environmental survey corridor were 868.87 hectares in North Dakota and 165.64 hectares in Minnesota (see Table 5.2-1).

A second overall objective of the field-based habitat assessment was classification of the grasslands that intersected the environmental survey corridor as predominantly native or non-native and as either tilled or untilled. In North Dakota, most of the grasslands that intersected the environmental survey corridor were tilled and dominated by non-native species (386.73 hectares). About 1.4 hectares were tilled yet dominated by native vegetation. Over 317 hectares of grasslands that intersected the environmental survey corridor in North Dakota were untilled; of these, approximately 123.55 hectares were predominantly native species and 193.78 hectares were predominantly non-native species. In Minnesota, no grasslands that intersect the environmental survey corridor were untilled. Of the tilled grasslands that intersect the environmental survey corridor in Minnesota, 2.5 hectares were predominantly native vegetation and nearly 140 hectares were predominantly by non-native vegetation. Approximately 163 hectares in North Dakota and 24 hectares in Minnesota could not be classified as tilled or untilled and/or native or non-native (see Table 5.2-1). Field surveyors could not classify grasslands as tilled or untilled and/or native or non-native where Enbridge did not have

permission to access the grassland or the grassland was hayed or heavily grazed so that the vegetation was not identifiable.

Each field-verified discrete grassland within the environmental survey corridor is listed in the table in Appendix C by county from west to east. The grasslands dominated by native species primarily occur in the western-most counties in North Dakota; several counties in eastern North Dakota and Minnesota had no grasslands dominated by native species (Appendix C). Kentucky bluegrass (*Poa pratensis*) was the most common non-native species recorded during the survey.

Table 5.2-1
Field-Verified Grasslands by County and Type within the Environmental Survey Corridor

State	County	Untilled		Tilled		Unknown[1]
		Dominant Native Vegetation (ha)	Dominant Non-native Vegetation (ha)	Dominant Native Vegetation (ha)	Dominant Non-native Vegetation (ha)	
ND	Williams	16.05	27.87	0	2.35	0
ND	Mountrail	85.69	77.22	0	69.61	57.90
ND	Ward	7.37	18.26	0	42.41	4.65
ND	McHenry	9.58	55.90	0	54.42	15.33
ND	Pierce	4.88	7.90	0	88.29	17.92
ND	Towner	0	4.27	0	2.46	1.56
ND	Ramsey	0	0	0	7.89	33.18
ND	Nelson	0	0	0	55.13	11.29
ND	Grand Forks	0	2.36	1.37	89.42	21.57
MN	Polk	0	0	0	122.34	7.50
MN	Red Lake	0	0	0	16.62	0
MN	Clearwater	0	0	2.57	0.39	16.22
North Dakota Total		123.55	193.78	1.37	386.73	163.39
Minnesota Total		0	0	2.57	139.35	23.72
GRAND TOTAL		123.55	193.78	3.94	526.08	187.11

Notes:
[1] These acreages represent grassland parcels that field surveyors could not determine were tilled or untilled and/or were predominantly native or non-native vegetation.

5.2.2 Sprague's Pipit

Sprague's pipit has documented occurrences in eight counties crossed by the environmental survey corridor in North Dakota. (see Table 3.0-1). Sprague's pipit suitable habitat was found in the environmental survey corridor in the five western-most of these eight counties: Williams, Mountrail, Ward, McHenry, and Pierce counties. Suitable habitat for the Sprague's pipit was defined as grasslands with the following characteristics:

- At least 69 hectares in size;
- Less than 20 percent shrub cover;
- Less than 10 percent bare ground; and
- Absence of trees at territory scale (2-3 hectares [5-7.5 acres]).

Table 5.2-2 lists the survey data for the grasslands that were at least 69 hectares in size. All but one of these grasslands met the criteria outlined for the species' suitable habitat (GLHMO046a). Grassland GLHMO046a had greater than 20 percent shrubs and thus did not meet the definition for suitable habitat. Overall, based on the survey data collected and definition of suitable habitat, a total of 25 grasslands that intersect the environmental survey corridor may serve as suitable habitat for the Sprague's pipit.

Table 5.2-2
Suitable Habitat for Sprague's Pipit in Grasslands >69 Hectares that Intersect the Environmental Survey Corridor

Grassland ID Number	County	Size (ha) Within Survey Corridor	Predominantly Native Vegetation?[1]	Less than 20% shrub cover?	Less than 10% bare ground?	No trees at territory scale?	Suitable Habitat?	Mapset[3] Page Number
GLHWI002a	Williams	15.33	Yes	Yes	Yes	Yes	Yes	1
GLHWI012a	Williams	13.58	No	Yes	Yes	Yes	Yes	3
GLHMO002a	Mountrail	5.11	No	Yes	Yes	Yes	Yes	4
GLHMO005a	Mountrail	2.48	No	Yes	Yes	No	Yes	5-6
GLHMO007a	Mountrail	6.81	Yes	Yes	Yes	Yes	Yes	6
GLHMO010a	Mountrail	43.11	No	Yes	Yes	Yes	Yes	6-9
GLHMO027a	Mountrail	10.71	No	Yes	Yes	Yes	Yes	10-11
GLHMO029a	Mountrail	8.98	No	Yes	Yes	Yes	Yes	11-12
GLHMO046a	Mountrail	8.39	No	No	Yes	Yes	No	14-15
GLHMO064a	Mountrail	22.68	Yes	Yes	Yes	Yes	Yes	21-23
GLHMO076a	Mountrail	10.80	No	Yes	Yes	Yes	Yes	25-26
GLHMO078a	Mountrail	31.77	Yes	Yes	Yes	Yes	Yes	27-29
GLHMO091a	Mountrail	18.66	No	Yes	Yes	Yes	Yes	30-31
GLHWA039a	Ward	4.23	No	Yes	Yes	Yes	Yes	35
GLHWA041a	Ward	7.37	Yes	Yes	Yes	Yes	Yes	35-36
GLHWA046a	Ward	6.71	No	Yes	Yes	Yes	Yes	36-37
GLHWA050b	Ward	4.21	No	Yes	Yes	Yes	Yes	37-38
GLHMC029a	McHenry	3.86	No	Yes	Yes	Yes	Yes	46
GLHMC038a	McHenry	9.09	No	Yes	Yes	Yes	Yes	49-50
GLHMC057a	McHenry	8.95	No	Yes[2]	Yes[2]	Yes[2]	Yes	52-53
GLHMC086a	McHenry	30.61	No	Yes	Yes	Yes	Yes	58-61
GLHMC092a	McHenry	5.27	Yes	Yes	Yes	Yes	Yes	61-62
GLHPI001a	Pierce	1.92	No	Yes	Yes	Yes	Yes	62
GLHPI044a	Pierce	0.17	No	Yes	Yes	Yes	Yes	71
GLHPI061.2a	Pierce	3.14	No	Yes[2]	Yes[2]	Yes[2]	Yes	76
GLHPI063a	Pierce	4.82	Yes	Yes	Yes	Yes	Yes	76-77

Notes:
[1] Sprague's pipit suitable habitat was not based on whether a grassland was predominantly native or non-native. However, this information was provided in the table because research has shown that Sprague's pipit prefer to breed in native grasslands.
[2] Determination based on visual assessment from nearby road and review of aerial photos.
[3] See Appendix D

5.2.3 Dakota Skipper

Dakota skipper is known to occur in four counties crossed by the environmental survey corridor (see Table 3.0-1). Based on the communication with the USFWS (A. Horton, USFWS, pers. comm., June 14, 2013) (see Appendix B) and the proposed listing and critical habitat designation for the species, suitable habitat for the Dakota skipper was defined as untilled grasslands or untilled discrete patches within tilled grasslands that were dominated by native prairie plants with the appropriate species-specific larval food plants and nectar plants present (see Section 4.2.3). Suitable Dakota skipper habitat was found in the environmental survey corridor in two of the four counties where their occurrence is documented along the environmental survey corridor, Mountrail and McHenry counties, North Dakota. Twenty-five discrete areas of suitable habitat were located and recorded during the survey (see Table 5.2-3). These areas were distinctive, often small, isolated pockets typically found on a hill slope or depression in grasslands otherwise dominated by both native and non-native species. Most of these areas were located entirely within the environmental survey corridor; some were partially within the environmental survey corridor. Dakota skipper suitable habitat totaled 3.75 hectares within the environmental survey corridor and ranged in size from 0.01 to 0.98 hectare.

Per the Protocol, dominant prairie plant species were recorded as part of the field-based habitat assessment (see Table 5.2-3). Two larval food plants with the potential to occur in these grasslands were little bluestem and prairie dropseed. Little bluestem was found in all the areas of suitable habitat; prairie dropseed was not found in any of the habitat areas. A variety of nectar plants were observed; at least one species of nectar plant was present in each area of suitable habitat. In addition to the plant species that serve as sources of larval food and nectar, another group of dominant native species observed in many of the suitable habitat areas were needlegrasses.

Table 5.2-3
Suitable Habitat for Dakota Skipper in Grasslands That Intersect the Environmental Survey Corridor

Site ID[1]	County	Size (ha)[2]		Larval Food Plants[3]	Nectar Plants[3]	Other Dominant Prairie Plants[3]	Potentially Suitable Habitat?	Mapset Page Number[4]
GLHMO005a_DS	Mountrail	0.57	0.57	SCSC	ECAN	--	Yes	6
GLHMO010a_DS1	Mountrail	0.15	0.15	SCSC	ECPA, ECAN, RACO, ERSP	---	Yes	7
GLHMO010a_DS2	Mountrail	0.03	0.03	SCSC	ECPA, ECAN, RACO, CASE	needlegrasses	Yes	7
GLHMO010a_DS3	Mountrail	0.06	0.06	SCSC	ECPA, ECAN, RACO, CASE	needlegrasses	Yes	8
GLHMO010a_DS4	Mountrail	0.04	0.04	SCSC	ECPA, ECAN, RACO, ERSP	needlegrasses	Yes	8
GLHMO010a_DS5	Mountrail	0.21	0.21	SCSC	RACO	needlegrasses	Yes	8
GLHMO010a_DS7	Mountrail	0.10	0.10	SCSC	ECPA, ECAN, RACO	needlegrasses	Yes	8
GLHMO010a_DS8	Mountrail	0.04	0.04	SCSC	ECPA, ECAN, RACO, ERSP, CASE	needlegrasses	Yes	8
GLHMO025a_DS	Mountrail	0.03	0.09	SCSC	ECPA, ECAN, GASP, RACO, DACA	needlegrasses	Yes	10
GLHMO027a_DS1	Mountrail	0.30	0.01	SCSC	ECPA, ECAN, RACO, CARO	needlegrasses	Yes	10
GLHMO027a_DS2	Mountrail	0.21	0.02	SCSC	ECPA, ECAN, RACO, CARO, GASP	needlegrasses	Yes	10
GLHMO029a_DS	Mountrail	0.08	0.07	SCSC	ECPA, ECAN, CARO	--	Yes	11
GLHMO046a_DS	Mountrail	0.03	0.03	SCSC	ECAN, CARO, DACA, GASP, RUHI	--	Yes	14
GLHMO047a_DS	Mountrail	0.10	0.10	SCSC	ECPA, ECAN, GASP, RACO	needlegrasses	Yes	15
GLHMO050a_DS	Mountrail	0.30	0.30	SCSC	ECPA, ECAN, CARO, DACA	needlegrasses	Yes	16
GLHMO052b_DS	Mountrail	0.21	0.21	SCSC	ECPA, ECAN, CARO, GASP, RACO, DACA	needlegrasses	Yes	17
GLHMO064a_DS	Mountrail	0.04	0.03	SCSC	ECPA, ECAN, CARO, DACA	needlegrasses	Yes	21
GLHMO078a_DS1	Mountrail	0.10	0.08	SCSC	ECPA, ECAN, CARO	--	Yes	27
GLHMO078a_DS2	Mountrail	0.05	0.05	SCSC	ECPA, ECAN, CARO	--	Yes	27
GLHMO085a_DS1	Mountrail	0.04	0.04	SCSC	ECPA, ECAN, CARO, RACO, ERSP, CASE	needlegrasses	Yes	29
GLHMO085a_DS2	Mountrail	0.03	0.03	SCSC	ECPA, ECAN, CARO, RACO, ERSP, CASE	needlegrasses	Yes	29

Table 5.2-3
Suitable Habitat for Dakota Skipper in Grasslands That Intersect the Environmental Survey Corridor

Site ID[1]	County	Size (ha)[2]		Larval Food Plants[3]	Nectar Plants[3]	Other Dominant Prairie Plants[3]	Potentially Suitable Habitat?	Mapset Page Number[4]
GLHMO085a_DS3	Mountrail	0.07	0.07	SCSC	ECPA, ECAN, CARO, RACO, ERSP, CASE	needlegrasses	Yes	29
GLHMO085a_DS4	Mountrail	0.08	0.08	SCSC	CARO, RACO, CASE	needlegrasses	Yes	29
GLHMC038a_DS1	McHenry	0.47	0.37	SCSC	RACO	--	Yes	50
GLHMC038a_DS2	McHenry	1.01	0.98	SCSC	CARO, RACO	--	Yes	50
TOTAL		**4.34**	**3.75**					

Notes:

1 All grasslands in this table have predominantly native species and are untilled.

2 Total size of grassland; size within the environmental survey corridor

3 Plant species codes:

SCSC – *Schizachyrium scoparium* (little bluestem)

ECPA – *Echinacea pallida* (pale purple coneflower)

ECAN - *Echinacea angustifolia* (upright coneflower or blacksamson Echinacea)

CARO - *Campanula rotundifolia* (harebell or bluebell bellflower)

GASP - *Gaillardia* spp. (blanketflowers)

RACO - *Ratibida columnifera* (long-headed or upright prairie coneflower)

DACA - *Dalea candida* (white prairie clover)

ERSP - *Erigeron* spp. (fleabanes)

RUHI - *Rudbeckia hirta* (black-eyed susan)

CASE - *Calylophus serrulatus* (yellow sundrops or tooth-leaved primrose)

4 See Appendix D

5.2.4 Poweshiek Skipperling

Polk County, Minnesota is the only county crossed by the environmental survey corridor has known occurrences of Poweshiek skipperling. Based on communications with the USFWS (A. Horton, USFWS, pers. comm., June 14, 2013) (see Appendix B) and the proposed listing and critical habitat designation for the Poweshiek skipperling, suitable habitat was defined as untilled grasslands or discrete patches of untilled grasslands within larger tilled grasslands that are dominated by native prairie plants with larval food plants and nectar plants present (see Section 4.2.4). None of the grasslands surveyed in Polk County were dominated by native species; all were predominantly non-native vegetation. No suitable habitat was documented.

One grassland was not surveyed due to lack of access (GLHPO063a). This grassland will be surveyed in 2014 if permission to access has been obtained. Grassland GLHPO063a is a narrow strip of grassland within cropland (based on aerial photo interpretation); it is likely previously tilled based on its location within cropland.

Two grassland areas (GLHPO065a and GLHPO.93b) had one or more plant species present indicative of Poweshiek skipperling suitable habitat, including larval food and nectar plants, as well as the other native prairie plants. However, these two grasslands were dominated by non-native species including smooth brome (Bromus inermis) and reed canarygrass (*Phalaris arundinaceae*) and therefore did not meet the criteria for Poweshiek skipperling suitable habitat.

6.0 REFERENCES

Grant, T. and four others. 2004. Monitoring native prairie vegetation: The belt transect method. Ecological Restoration 22(2) 106-112.

Davis, S.K. 2004. Area sensitivity in grassland passerines: effects of patch size, patch shape, and vegetation structure on bird abundance and occurrence in southern Saskatchewan. Auk 121:1130-1145.

Jones, S. L. 2010. Sprague's Pipit (*Anthus spragueii*) Conservation Plan. U.S. Department of Interior, Fish and Wildlife Service, Washington, D.C.

Minnesota Department of Natural Resources (MN DNR). 2013. Rare Species Guide: *Oarisma poweshiek*. Available at: http://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=IILEP57010Accessed June 2013.

U.S. Fish and Wildlife Service (USFWS). 2011. Poweshiek Skipperling Candidate Assessment Form. Available at: http://www.fws.gov/midwest/endangered/insects/posk/pdf/POSKCandidateAssessmentForm2011.pdf. Accessed June 2013.

U.S. Fish and Wildlife Service (USFWS). 2012 USFWS Species Assessment and Listing Priority Assignment Form. Available at: http://ecos.fws.gov/docs/candidate/assessments/2013/r6/B0GD_V01.pdf Accessed June 2013.

U.S. Fish and Wildlife Service (USFWS). 2013a. Endangered and Threatened Wildlife and Plants; Threatened Status for Dakota Skipper and Endangered Status for Poweshiek Skipperling. Federal Register 78(206): 63574-63625). October 24, 2013.

U.S. Fish and Wildlife Service (USFWS). 2013b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Dakota Skipper and Poweshiek Skipperling. Federal Register 78(206): 63625-63745. October 24, 2013.

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

Exhibit H	Agency Consultations
Exhibit H.1	U.S. Department of Agriculture, Natural Resource Conservation Service Correspondence
Exhibit H.2	North Dakota Game and Fish Department Correspondence
Exhibit H.3	U.S. Department of Interior, Fish and Wildlife Service Correspondence
Exhibit H.4	North Dakota Parks and Recreation Correspondence
Exhibit H.5	North Dakota Department of Agriculture Correspondence
Exhibit H.6	North Dakota Department of Health Correspondence
Exhibit H.7	North Dakota Department of Trust Lands Correspondence
Exhibit H.8	North Dakota State Water Commission Correspondence
Exhibit H.9	U.S. Department of Agriculture, North Dakota Farm Service Agency Correspondence
Exhibit H.10	U.S. Department of Interior, Bureau of Land Management Correspondence
Exhibit H.11	U.S. Department of Interior, Bureau of Reclamation Correspondence
Exhibit H.12	North Dakota County Water Resource Boards Correspondence
Exhibit H.13	North Dakota County Weed Boards Correspondence
Exhibit H.14	U.S. National Park Service
Exhibit H.15	U.S. Department of Defense, U.S. Air Force Cable Affairs

EXHIBIT H.1		
Sandpiper Pipeline Project Agency Consultation Correspondence		
Natural Resources Conservation Service (NRCS)		
North Dakota Counties	**Date of Initial Consultation Correspondence**	**Date of NRCS Reply Correspondence**
Williams	4-22-2013	
Mountrail	4-22-2013	
Ward	4-22-2013	
McHenry	4-22-2013	
Pierce	4-22-2013	
Towner	4-22-2013	
Ramsey	4-22-2013	
Nelson	4-22-2013	
Grand Forks	4-22-2013	
All Counties Combined		4-26-2013

From:	Gayle Konik
To:	Angela M. Ronayne; John W. Muehlhausen; Sara Ploetz
Subject:	FW: Enbridge Sandpiper Pipeline Project - ND NRCS County Initial Consultation
Date:	Friday, April 26, 2013 9:32:57 AM

From: Gayle Konik
Sent: Friday, April 26, 2013 9:32 AM
To: 'Lund, Lisa - NRCS, Bismarck, ND'
Cc: 'Hagel, Todd - NRCS, Bismarck, ND'
Subject: RE: Enbridge Sandpiper Pipeline Project - ND NRCS County Initial Consultation

Hi Lisa: Thanks for the assistance. We will await further information from NRCS. The link to the noxious weed contacts will be very helpful.

Have a good weekend, Gayle

Gayle M. Konik
Manager, Environment

o- 715-3984559
c- 715-718-1832

From: Lund, Lisa - NRCS, Bismarck, ND [mailto:lisa.lund@nd.usda.gov]
Sent: Friday, April 26, 2013 9:20 AM
To: Gayle Konik
Cc: Hagel, Todd - NRCS, Bismarck, ND
Subject: FW: Enbridge Sandpiper Pipeline Project - ND NRCS County Initial Consultation

Please do not open any attachments from organizations or people that you are not familiar with. Also, since it is possible for viruses to "spoof" or fake the sender's address, do not open emails with attachments from people you know, but from whom you were not expecting an attachment or if the attachment is a file type or file name that you customarily do not receive from this person.

Hi Gayle,

I'm am responding on behalf of all 9 counties listed. I've cc'd Todd Hagel (ND Assistant State Conservationist for Water Resources) as he will be providing you the shapefile for the WRP/GRP easements/lands. Keep in mind that Farm Service Agency administers CRP. As far as the request for known locations of noxious and invasive weeds, we would ask that you work with the local weed boards/officers. Here is a link that will provide a directory of contacts:
http://www.nd.gov/ndda/program/noxious-weeds

Lisa Lund
ND State Administrative Offier

From: Gayle Konik [mailto:Gayle.Konik@enbridge.com]
Sent: Tuesday, April 23, 2013 8:10 AM
To: Wingenbach, Jerry - NRCS, Minot, ND
Subject: Enbridge Sandpiper Pipeline Project - ND NRCS County Initial Consultation

Please do not open any attachments from organizations or people that you are not familiar with. Also, since it is possible for viruses to "spoof" or fake the sender's address, do not open emails with attachments from people you know, but from whom you were not expecting an attachment or if the attachment is a file type or file name that you customarily do not receive from this person.

April 22, 2013

Jerald Wingenbach, District Conservationist
Natural Resources Conservation Service
Minot Service Center
1920 13th St SE
Minot, ND 58701-6059

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Wingenbach,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance. An original, signed copy of this correspondence will follow.

Sincerely,

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

---

* IMPORTANT NOTICE* *
Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

---

* IMPORTANT NOTICE* *
Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

David W. Schmidt, District Conservationist
Natural Resources Conservation Service
Williston Service Center
1106 West 2nd St
Williston, ND 58801-5804

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Schmidt,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

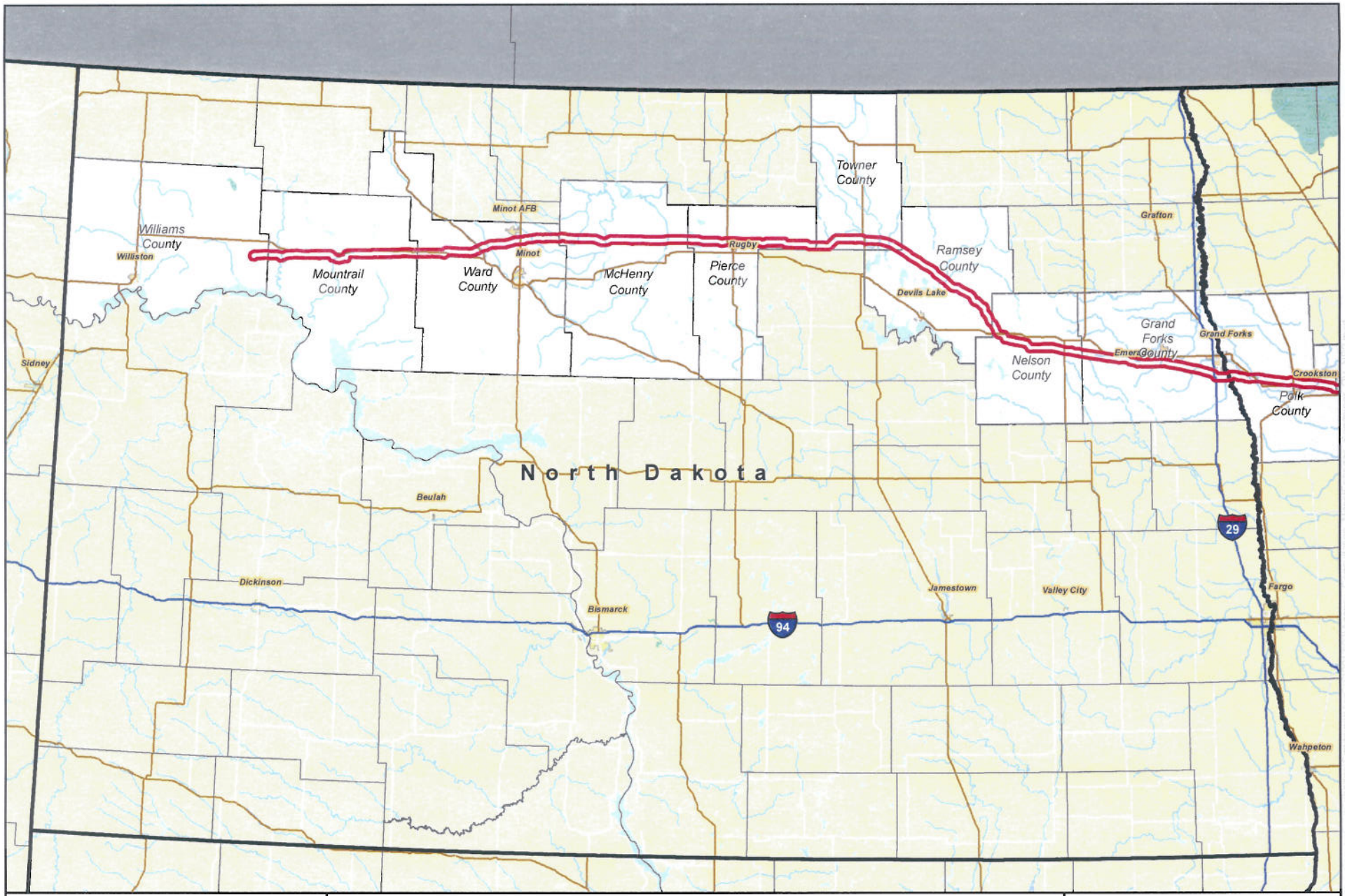
N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Williams County, North Dakota		
Township	**Range**	**Section(s)**
T155N	R95W	4, 5
T156N	R95W	33, 34, 35, 36

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Malinda P. Ferguson, District Conservationist
Natural Resources Conservation Service
Stanley Service Center
21 1st St SE
Stanley, ND 58784-4000

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Ms. Ferguson,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Mountrail County, North Dakota		
Township	**Range**	**Section(s)**
T155N	R94W	3
T156N	R88W	19, 20, 21, 22, 23, 24
T156N	R89W	19, 20, 21, 22, 23, 24
T156N	R90W	24, 25, 26, 27, 28, 29, 30
T156N	R91W	25, 26, 31, 32, 33, 34, 35
T156N	R92W	25, 26, 27, 28, 29, 30, 31, 36
T156N	R93W	31, 32, 33, 34, 35, 36
T156N	R94W	31, 32, 33, 34, 35, 36
T156N	R95W	36

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Jerald Wingenbach, District Conservationist
Natural Resources Conservation Service
Minot Service Center
1920 13th St SE
Minot, ND 58701-6059

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Wingenbach,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

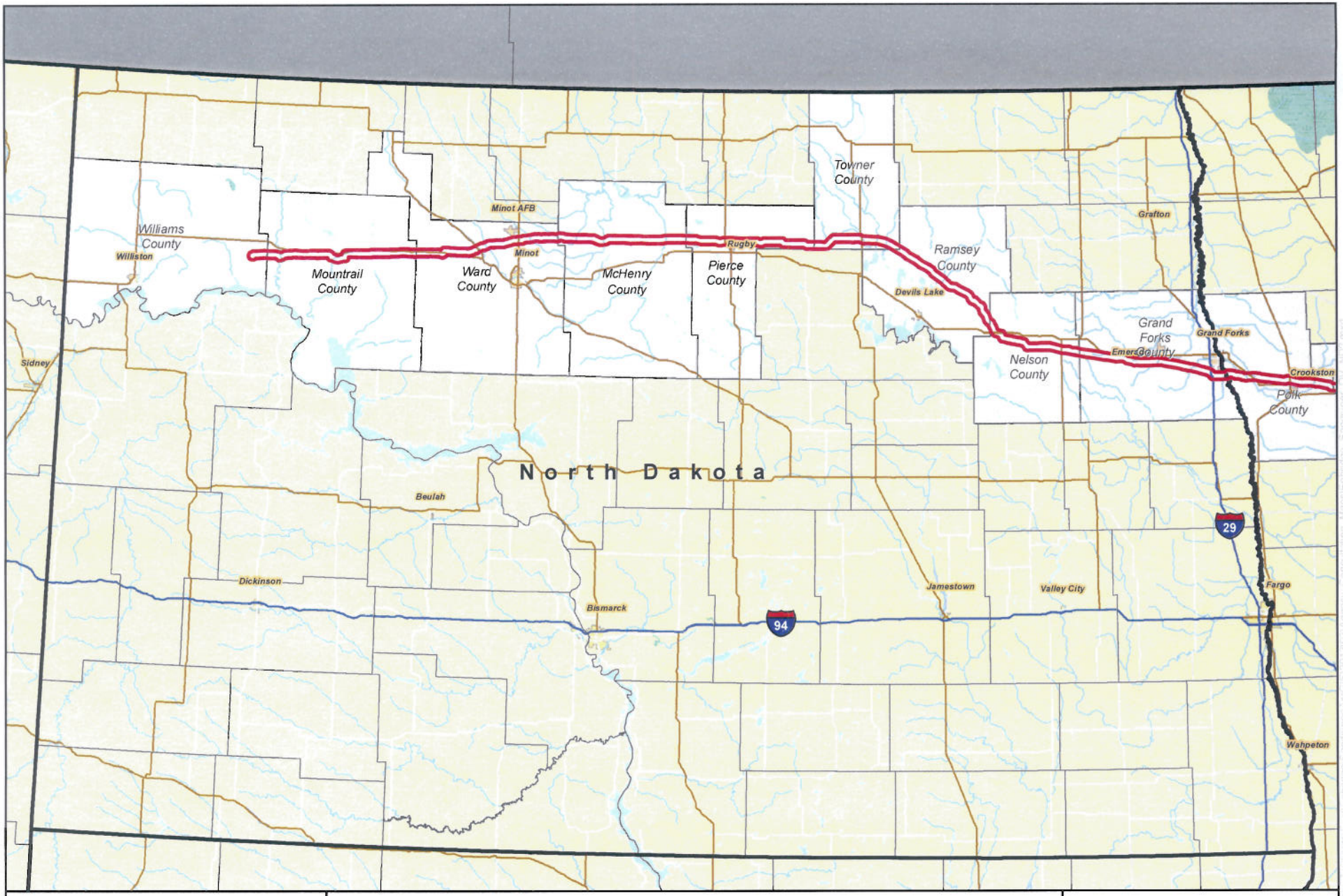
N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Ward County, North Dakota		
Township	**Range**	**Section(s)**
T156N	R83W	6
T156N	R84W	1, 2, 3, 4, 5, 6, 7, 8
T156N	R85W	11, 12, 14, 15, 16, 17, 18
T156N	R86W	13, 14, 15, 16, 17, 19, 20, 21
T156N	R87W	19, 20, 21, 22, 23, 24
T156N	R88W	24
T157N	R81W	24, 25, 26, 27, 28, 29, 30
T157N	R82W	25, 26, 27, 28, 31, 32, 33
T157N	R83W	34, 35, 36

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Douglas D. Dragseth, District Conservationist
Natural Resources Conservation Service
Towner Service Center
705 Main St S
Towner, ND 58788

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Dragseth,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

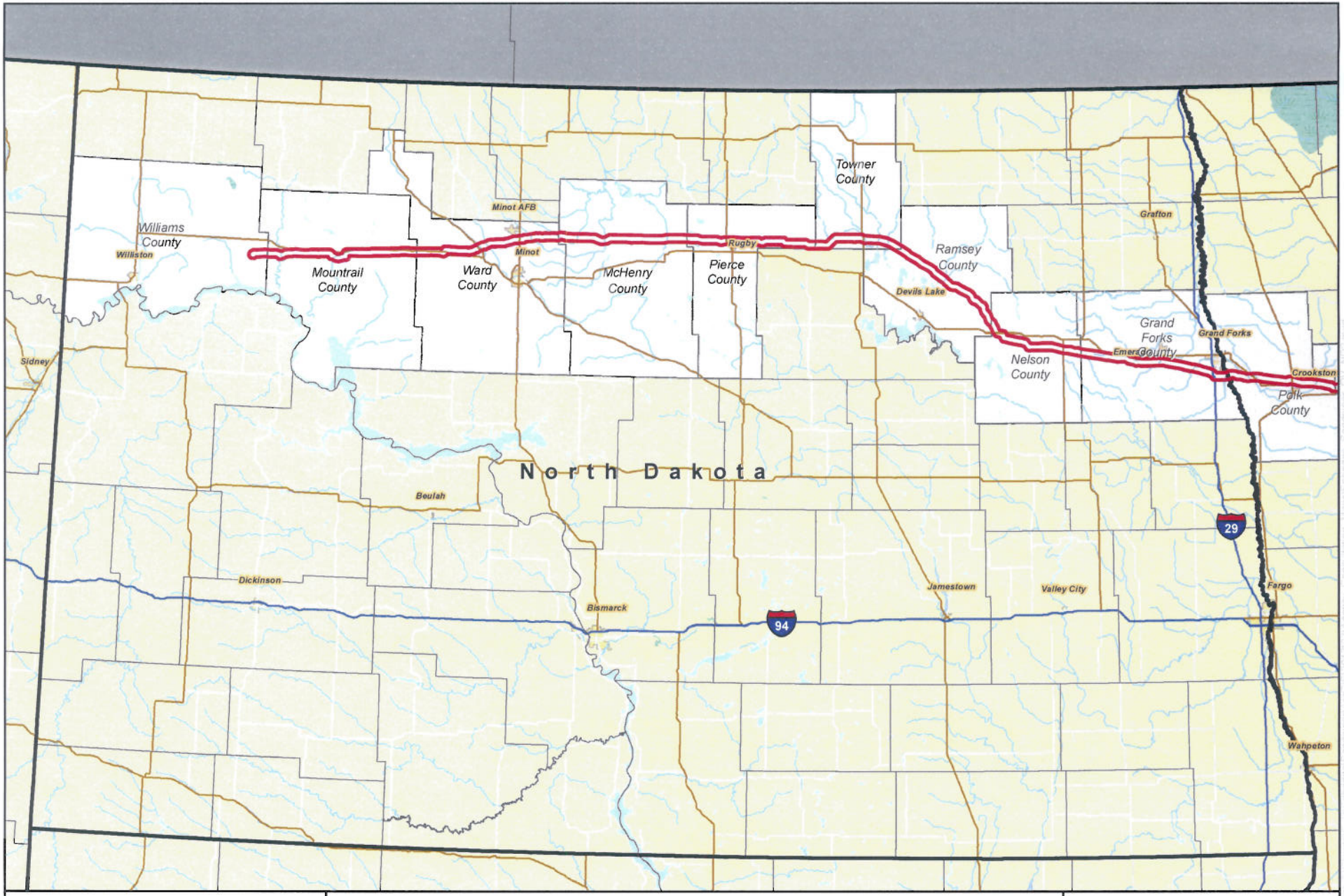
N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in McHenry County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R74W	19
T157N	R75W	19, 20, 21, 22, 23, 24
T157N	R76W	24, 25, 26, 27, 28, 29, 30
T157N	R77W	25, 26, 27, 28, 29, 30
T157N	R78W	25, 26, 27, 28, 29, 30
T157N	R79W	25, 26, 27, 28, 29, 30
T157N	R80W	19, 20, 25, 26, 27, 28, 29
T157N	R81W	24, 25

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Bradley S. Jacobs, District Conservationist
Natural Resources Conservation Service
Rugby Service Center
126 2nd Ave SW STE 103
Rugby, ND 58368

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Jacobs,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

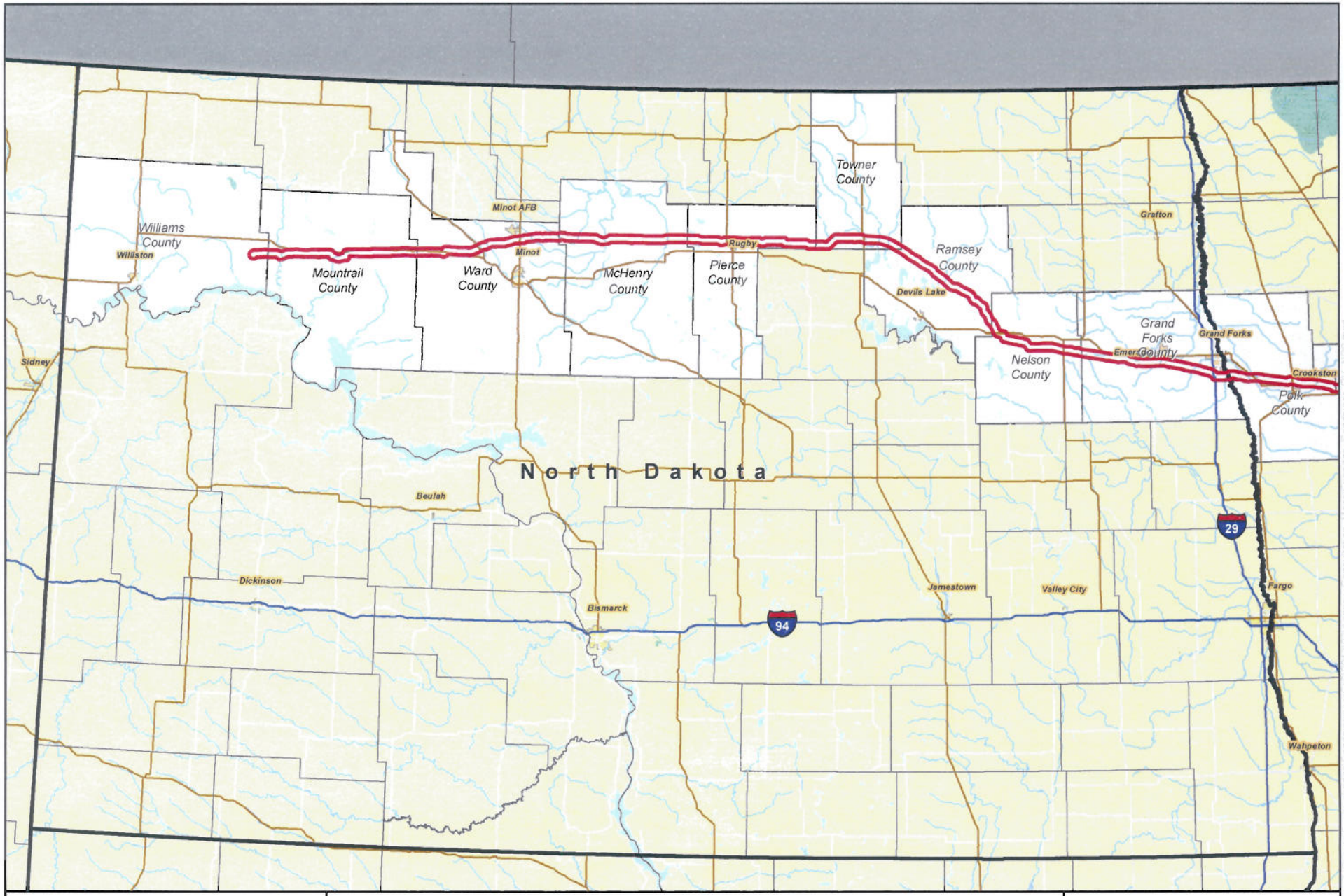
N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Pierce County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R68W	31
T157N	R69W	25, 26, 27, 28, 29, 30, 36
T157N	R70W	20, 21, 22, 25, 26, 27, 29, 30
T157N	R71W	21, 22, 23, 25, 26, 27, 28, 29, 30
T157N	R72W	25, 26, 27, 28, 29, 30
T157N	R73W	19, 25, 26, 27, 28, 29, 30
T157N	R74W	19, 20, 21, 22, 23, 24

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Brandon Schwab, District Conservationist
Natural Resources Conservation Service
Cando Service Center
1210 Highway 281 S
Cando, ND 58324-6616

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Schwab,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

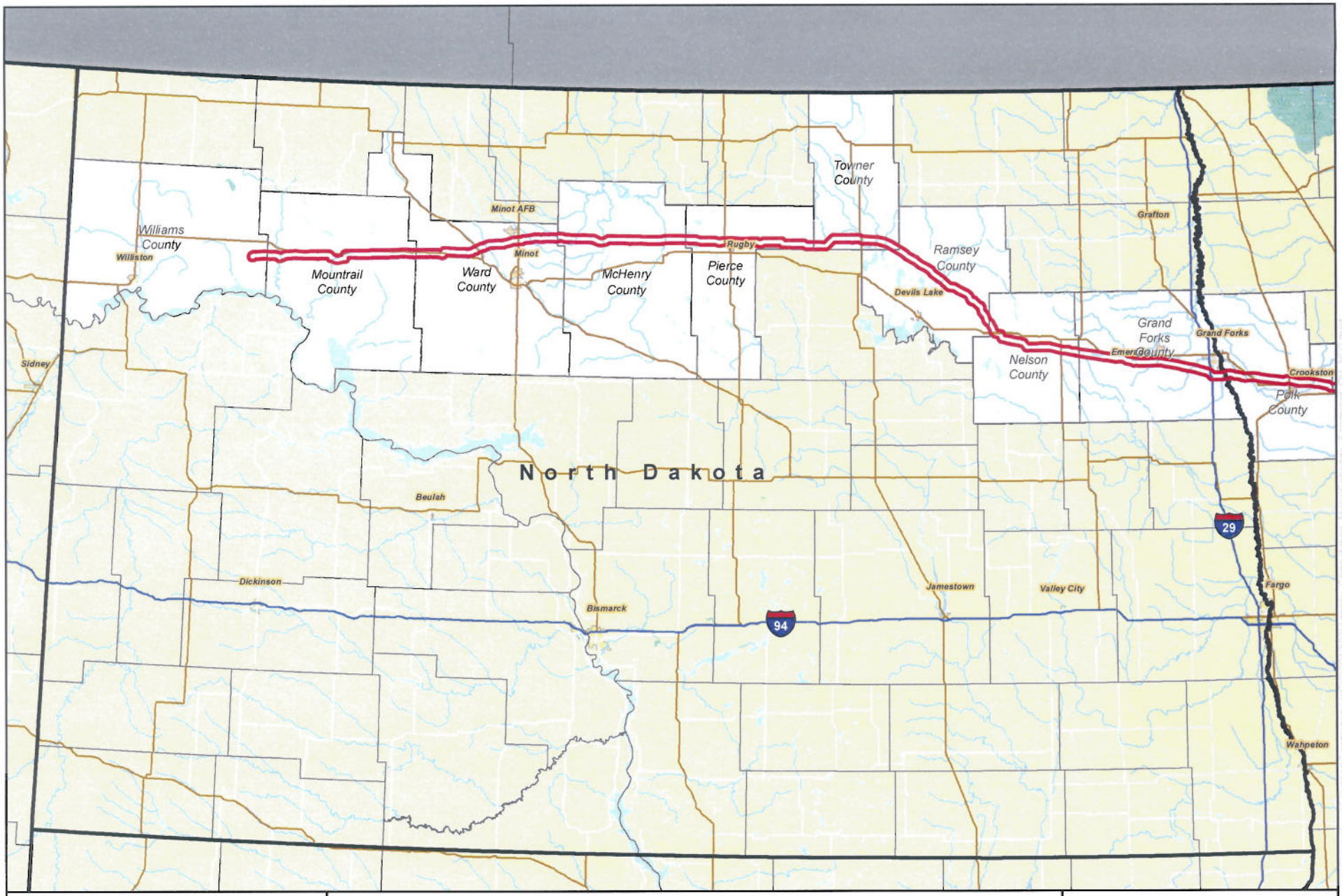
N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Towner County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R65W	19, 20, 26, 27, 28, 29, 35, 36
T157N	R66W	19, 20, 21, 22, 23, 24
T157N	R67W	19, 20, 21, 22, 23, 24
T157N	R68W	23, 24, 26, 27, 31, 32, 33, 34
T157N	R69W	25

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Paul J. Thompson, District Conservationist
Natural Resources Conservation Service
Devils Lake Service Center
706 8th Ave., SE
Devils Lake, ND 58301-3749

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Thompson,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

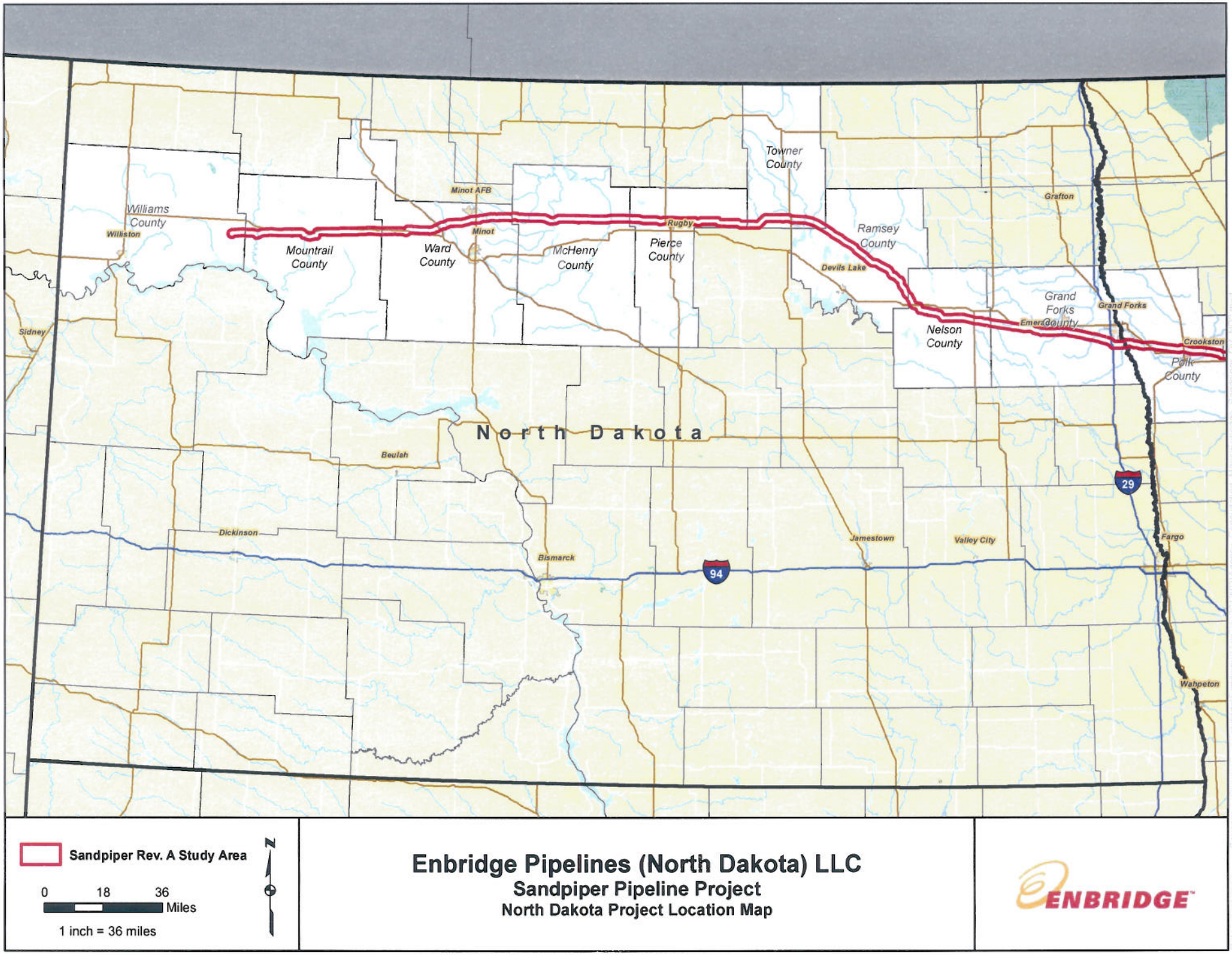
N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE


Towner County
Minot AFB
Williams County
Williston
Mountrail County
Ward County
Minot
McHenry County
Rugby
Pierce County
Ramsey County
Grafton
Devils Lake
Grand Forks
Grand Forks County
Nelson County
Crookston
Polk County
Sidney
North Dakota
Beulah
Dickinson
Bismarck
94
29
Jamestown
Valley City
Fargo
Wahpeton
Sandpiper Rev. A Study Area
0 18 36 Miles
1 inch = 36 miles
N
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
North Dakota Project Location Map
ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Ramsey County, North Dakota		
Township	**Range**	**Section(s)**
T153N	R60W	18, 19
T153N	R61W	1, 2, 12, 13
T154N	R61W	6, 7, 8, 15, 16, 17, 18, 21, 22, 26, 27, 34, 35, 36
T154N	R62W	1
T155N	R62W	19, 27, 28, 29, 30, 34, 35, 36
T155N	R63W	4, 5, 9, 10, 11, 13, 14, 24
T156N	R63W	30, 31, 32
T156N	R64W	1, 6, 7, 8, 15, 16, 17, 22, 23, 25, 26
T156N	R65W	2
T157N	R65W	35, 36

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Deann Galde, District Conservationist
Natural Resources Conservation Service
Lakota Service Center
208 4th Ave SW
Lakota, ND 58344

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Ms. Galde,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Nelson County, North Dakota		
Township	**Range**	**Section(s)**
T152N	R57W	19, 20, 21, 25, 26, 27, 28
T152N	R58W	19, 20, 21, 22, 23, 24
T152N	R59W	7, 8, 9, 15, 16, 22, 23, 24
T152N	R60W	2, 3, 4, 11, 12
T153N	R60W	7, 18, 19, 20, 29, 32, 33, 34
T153N	R61W	1, 12

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

April 22, 2013

Rafael Ricaurte, District Conservationist
Natural Resources Conservation Service
Grand Forks Service Center
4775 Technology Cir
Grand Forks, ND 58203-5635

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Natural Resources Conservation Service Administered Programs and Resource Information

Dear Mr. Ricaurte,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding the location and description of easements in Natural Resources Conservation Service (NRCS)-administered conservation/set-aside programs, known locations of noxious and invasive weeds, and any other resource/program and contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including NRCS-administered programs and resource information. To facilitate our environmental review of Sandpiper, we are requesting the following information for each county crossed that is within the 2-mile-wide study area in North Dakota:

- identification of Wetland Reserve Program (WRP), Conservation Reserve Program (CRP), Conservation Reserve Enhancement Program (CREP), and Grassland Reserve Program (GRP) easements/lands;
- known locations of noxious and/or invasive weed species along the proposed route; and
- identification of any lands/easements that may be enrolled in programs not described above.

We ask that your office provide the location, size, and shape of the easements (as a GIS shapefile) or the UTM location of the center point of the parcel. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize construction-related effects on soil and water resources.

To facilitate consultation regarding NRCS-administered programs within the project area in North Dakota, similar consultation letters have been sent to the NRCS District Conservationist for each of the other counties crossed by Sandpiper, and the State and County Executive Directors of the Farm Service Agency.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Grand Forks County, North Dakota		
Township	**Range**	**Section(s)**
T150N	R49W	6
T150N	R50W	1, 2, 3, 4, 5
T151N	R49W	31
T151N	R50W	30, 31, 32
T151N	R51W	19, 20, 22, 25, 26, 27
T151N	R52W	7, 14, 15, 16, 17, 18, 23, 24
T151N	R53W	7, 8, 9, 10, 11, 12
T151N	R54W	5, 6, 8, 9, 10, 11, 12
T151N	R55W	1, 2, 3, 4, 5
T152N	R55W	31, 32
T152N	R56W	29, 30 ,32, 33, 34, 35, 36
T152N	R57W	25

From:	Angie Durand
To:	SPPArchive
Subject:	FW: Enbridge - Sandpiper Pipeline Project - Request for Updated NDGF Review
Date:	Thursday, October 10, 2013 9:05:52 AM

From: Schumacher, John D. [mailto:jdschumacher@nd.gov]
Sent: Wednesday, October 09, 2013 9:20 AM
To: Angie Durand
Subject: RE: Enbridge - Sandpiper Pipeline Project - Request for Updated NDGF Review

Ms. Durand,

The North Dakota Game and Fish Department has reviewed this project as amended and has no additional concerns. Our original comments are still applicable. If you have any questions, please let me know.

JOHN SCHUMACHER
RESOURCE BIOLOGIST
ND GAME AND FISH DEPT
701.328.6321

From: Angie Durand [mailto:ADurand@Merjent.com]
Sent: Wednesday, September 11, 2013 4:12 PM
To: Link, Greg W.
Cc: Dyke, Steve R.; Schumacher, John D.; Sara.Ploetz@enbridge.com; Angela M. Ronayne; April Brehm; Paul M. Hartzheim
Subject: Enbridge - Sandpiper Pipeline Project - Request for Updated NDGF Review

Greg,

Your office provided comments to Enbridge regarding its Sandpiper Pipeline Project on May 1, 2013 (NDGF response letter is attached). Since that time, Enbridge has adjusted its Sandpiper Pipeline route in various locations in North Dakota. I am contacting you to provide a shapefile of the updated survey corridor for the project and to request an updated review/response from your department regarding wildlife concerns.

Please let me know if you have any questions or concerns. I look forward to hearing from you.

Sincerely,

Angela Durand

Angela Durand

TractorWorks Building
800 Washington Avenue N.
Suite 315
Minneapolis, MN 55401

612.746.3660 main
612.746.3666 direct
612.746.3679 fax

www.merjent.com
adurand@merjent.com

"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

May 1, 2013

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project
Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue
Superior, WI 54880

Dear Ms. Ploetz:

RE: Sandpiper Pipeline Project

Enbridge Pipelines (North Dakota) LLC is proposing to build a new pipeline from Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to a terminal in Superior, Wisconsin. 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 department manages several Wildlife Management Areas within or adjacent to the project corridor. A special use permit would be required to cross these lands. Information regarding property locations is available in various formats at http://gf.nd.gov/maps/. Mr. Scott Peterson, Wildlife Resource Management Section Leader, can be contacted at 701-774-4320 for additional information on permit requirements.

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.

The pipeline will cross several streams classified as valuable fisheries. These are the White Earth, Des Lacs, Souris, and Turtle Rivers, as well as Little Deep and Cut Bank Creeks, and

Mauvais Coulee. We recommend these streams be crossed by directional boring if possible. 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.

We do not believe this project will have any significant adverse effects on wildlife or wildlife habitat, including species of concern, provided these recommendations are implemented where appropriate.

Sincerely,

Greg Link
Chief
Conservation & Communication Division

js

From: Angie Durand
To: SPPArchive
Subject: FW: Enbridge - Sandpiper Pipeline Project - Wildlife Management Area Inquiry
Date: Thursday, September 12, 2013 2:27:58 PM
Attachments: image001.gif

---

merjent

Angela Durand

TractorWorks Building
800 Washington Avenue N.
Suite 315
Minneapolis, MN 55401

612.746.3660 main
612.746.3666 direct
612.746.3679 fax

www.merjent.com
adurand@merjent.com

From: Peterson, Scott A. [mailto:speterso@nd.gov]
Sent: Thursday, September 12, 2013 2:20 PM
To: Angie Durand
Subject: RE: Enbridge - Sandpiper Pipeline Project - Wildlife Management Area Inquiry

Angie: Since the closest your project will come to a WMA is .4 miles, you do not need to consult us further on this project.

Scott A. Peterson
Wildlife Resource Section Supervisor
ND Game and Fish Dept.
1871 23 Ave NE
Harvey, ND 58341
701-324-2211
speterso@nd.gov

From: Angie Durand [mailto:ADurand@Merjent.com]
Sent: Wednesday, September 11, 2013 12:30 PM
To: Peterson, Scott A.
Cc: Sara.Ploetz@enbridge.com; Bill J. Regan; Angela M. Ronayne; April Brehm; Paul M. Hartzheim
Subject: Enbridge - Sandpiper Pipeline Project - Wildlife Management Area Inquiry

Scott,

Enbridge received comments from the North Dakota Game and Fish Department regarding wildlife concerns related to the proposed Sandpiper Pipeline Project on May 1, 2013. In that letter, the Department directed Enbridge to contact you for additional information regarding Wildlife Management Areas (WMA) in the project area. Enbridge has reviewed the mapping information

related to WMAs in the project area (obtained from http://gf.nd.gov/maps) and has identified the following four WMAs within the vicinity of the project area:

Palermo – located approximately 1 mile from the survey corridor
Sand Hill – located approximately 1 mile from the survey corridor
Horseshoe Lake – located approximately 0.7 mile from the survey corridor
Crawford - located approximately 0.4 mile from the survey corridor

Enbridge has verified that these areas are outside the project survey corridor, and will not be impacted by construction or the need for permanent rights-of-way for the project. I am requesting confirmation that further consultation with your department is not required.

Thank you in advance for your time. If you have any additional information or data regarding WMAs within the proposed project area, please let us know.

Sincerely,

Angela Durand

Angela Durand

TractorWorks Building	612.746.3660 main
800 Washington Avenue N.	612.746.3666 direct
Suite 315 Minneapolis, MN 55401	612.746.3679 fax
www.merjent.com	adurand@merjent.com

From:	Leschisin, Douglas
To:	Bill J. Regan
Subject:	Re: Centerline shapefile data
Date:	Monday, August 19, 2013 12:54:07 PM
Attachments:	image001.gif nelson_expanded.pdf pierce_expanded.pdf ramsey_expanded.pdf towner_expanded.pdf

---

Bill,

I've attached expanded corridor information for U.S. Fish & Wildlife Service interests.

Doug Leschisin
Wildlife Refuge Specialist
Tewaukon National Wildlife Refuge
9754 143 1/2 Ave SE
Cayuga, ND 58013

701-724-3598, ext 114

On Thu, Aug 8, 2013 at 1:50 PM, Bill J. Regan <BRegan@merjent.com> wrote:

> Hello Doug,
>
> Enbridge is now ready to release the shapefile data for the proposed centerline of the Sandpiper Project and it is attached for your use. Enbridge still is, and will continue to evaluate the route and make changes in the location of the centerline, but the route is at the point where we need to start having specific discussions with agencies to gain site-specific feedback on locations and potential issues.
>
> As I explained in my email from last week, we still are interested in receiving map data in for a 4- and 8-mile area in two locations for bigger picture route planning use. Now with sharing the centerline shapefile here, we very much would appreciate NWR staff using this information to start field evaluating wetland easement properties to determine which wetlands you would consider jurisdictional. This information will help Engineering continue with routing evaluations at these features.
>
> Lastly, when we spoke as a group in early July, we mentioned we in the process of conducting a wetland delineation effort across the length of the pipeline. That work is progressing and we prioritized completing survey work on the FWS easement properties first. We have completed 92% of that survey work, and will start preparing reports of the survey work at the end of the field season. While I do remember from the July discussion that you are uncertain of the value to you in receiving our wetland information, I wanted to keep you posted that we will start to have wetland data available soon if you do think this may be useful to

you.

Thank you again for your help in our planning efforts for the project.

Bill

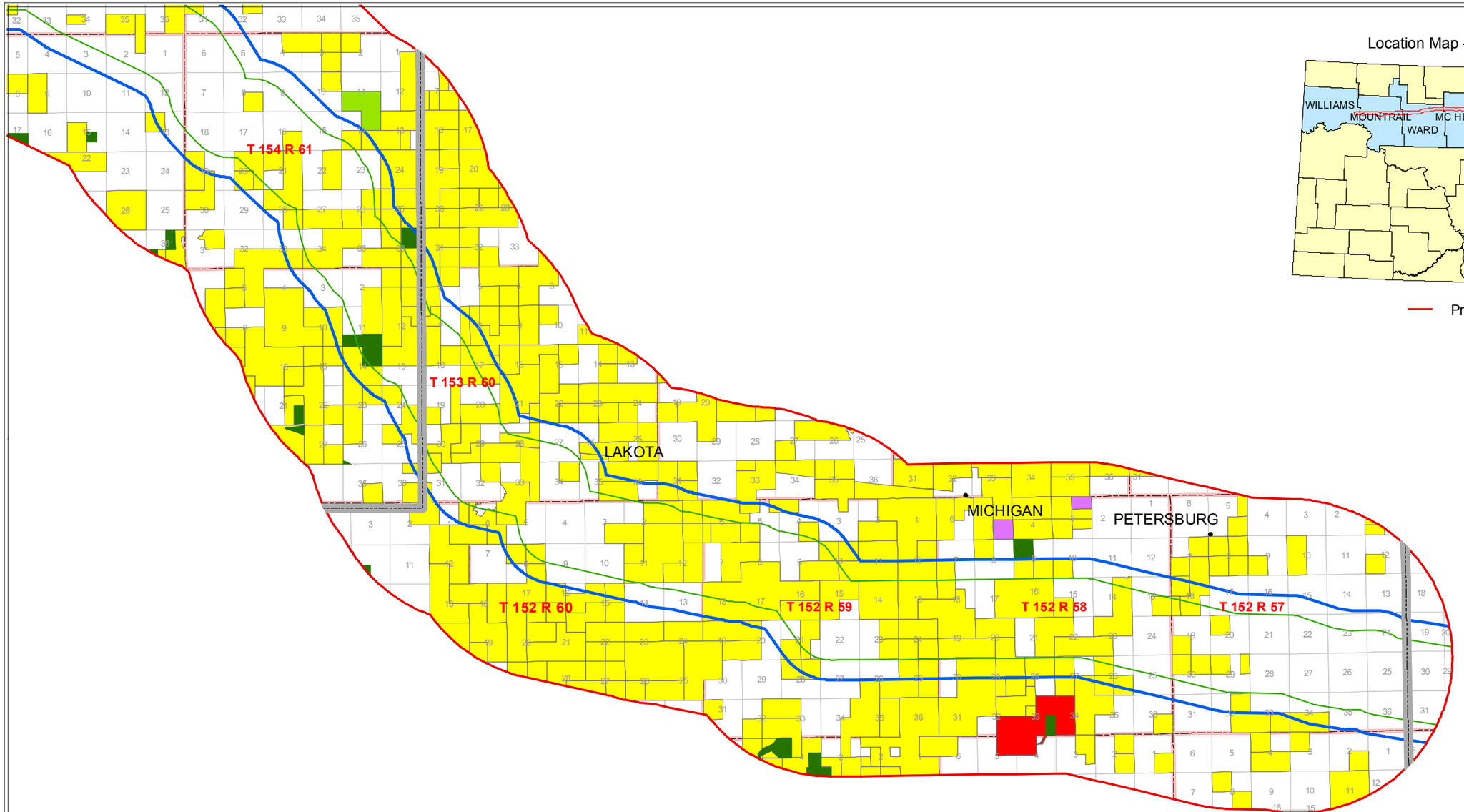
Bill Regan

TractorWorks Building	612.746.3660 main
800 Washington Avenue N.	612.746.3662 direct
Suite 315	612.708.9484 cell
Minneapolis, MN 55401	612.746.3679 fax
www.merjent.com	bregan@merjent.com

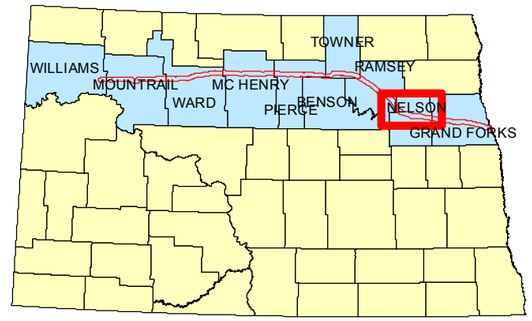
U.S. Fish & Wildlife Service

Sandpiper Expanded Study Area - Enbridge

Nelson County, North Dakota



Location Map - North Dakota



Project Location

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through Juner 2013. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 8/8/2013

Project location - D:/working/enbride/sandpiper_expanded.mxd

N

0 1.25 2.5 5 Kilometers

0 1.25 2.5 5 Miles

Legend

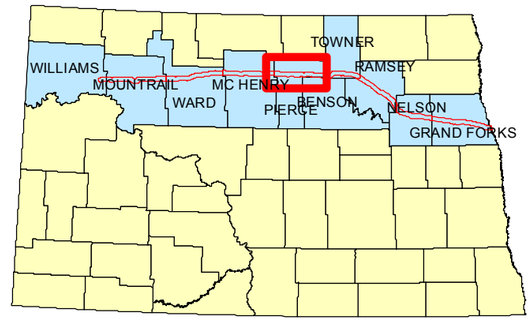
- Sandpiper Study Area
- Project Area
- Expanded Project Area (8/8/13)
- County Boundary
- Section
- Township
- Road
- National Wildlife Refuge
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Expanded Study Area - Enbridge

Pierce County, North Dakota

Location Map - North Dakota



Project Location

T 157 R 75 T 157 R 74 T 157 R 73 T 157 R 72 T 157 R 71 T 157 R 70 T 157 R 69

RUGBY

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through Juner 2013. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 8/8/2013

Project location - D:/working/enbride/sandpiper_expanded.mxd

N

0 1.25 2.5 5 Kilometers

0 1.25 2.5 5 Miles

Legend

- Sandpiper Study Area
- Project Area
- Expanded Project Area (8/8/13)
- County Boundary
- Section
- Township
- Road
- National Wildlife Refuge
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Expanded Study Area - Enbridge

Ramsey County, North Dakota

MAZA

T 156 R 64

T 155 R 63

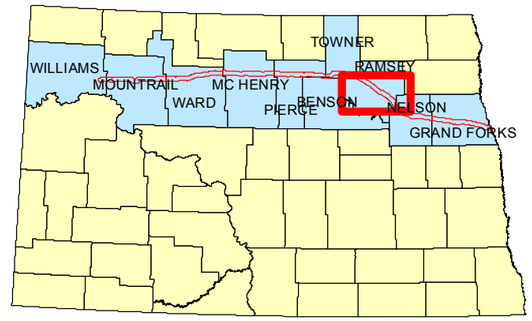
T 155 R 62

T 154 R 61

T 153 R 60

LAKOTA

Location Map - North Dakota



Project Location

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through Juner 2013. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 8/8/2013

Project location - D:/working/enbride/sandpiper_expanded.mxd

N

0 1.5 3 6 Kilometers

0 1.5 3 6 Miles

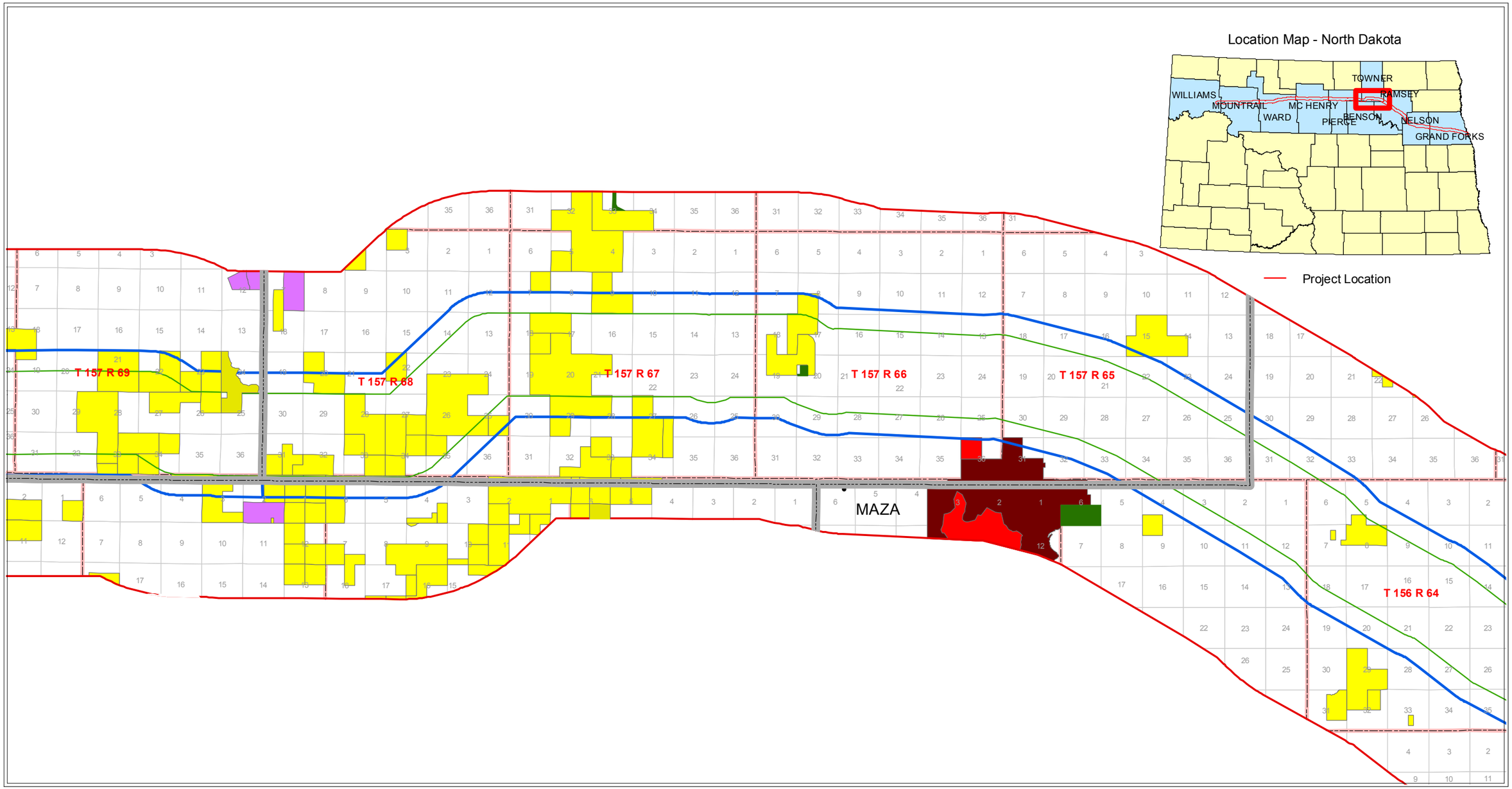
Legend

- Sandpiper Study Area
- Project Area
- Expanded Project Area (8/8/13)
- County Boundary
- Section
- Township
- Road
- National Wildlife Refuge
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Expanded Study Area - Enbridge

Towner County, North Dakota



DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through Juner 2013. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 8/8/2013

Project location - D:/working/enbride/sandpiper_expanded.mxd

N

0 1 2 4 Kilometers

0 1.25 2.5 5 Miles

Legend

- Sandpiper Study Area
- Project Area
- Expanded Project Area (8/8/13)
- County Boundary
- Section
- Township
- Road
- National Wildlife Refuge
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

From:	Leslie TeWinkel
To:	gayle.konik@enbridge.com; Bill J. Regan
Cc:	John W. Muehlhausen; Kristin Lenz
Subject:	FW: Sandpiper Pipeline Project: Follow-up from USFWS ND Office
Date:	Monday, July 22, 2013 4:27:43 PM

Please see email from Carol below. It looks like I can no longer work directly with the USFWS Twin Cities field office on issues for which Region 3 has lead. This is a change from the direction based on the conference call when Jessica Johnson was lead. Direction from that call was to work with the Twin Cities directly and cc the ND office in order to keep them in the loop. In my opinion, working through people to get to those you actually need to work with, typically does not facilitate info exchange or timely progress. I'll move forward as Carol has asked, until I receive different direction. Let me know if you would like to discuss.

--Leslie

Leslie TeWinkel

612.746.3660 main
612.965.6960 cell
612.746.3679 fax
ltewinkel@merjent.com

TractorWorks Building
800 Washington Avenue N.
Suite 315
Minneapolis, MN 55401
www.merjent.com

_____

From: Aron, Carol [carol_aron@fws.gov]
Sent: Monday, July 22, 2013 3:59 PM
To: Leslie TeWinkel
Cc: Andrew Horton; Carol Aron; Phil Delphey; Peter Fasbender
Subject: Fwd: Sandpiper Pipeline Project: Follow-up

Leslie,
As my supervisor notes in his June 19, 2013 e-mail, we appreciate Enbridge's desire to be proactive in beginning surveys and other planning aspects of the Sandpiper pipeline early. However, as also pointed out, in order for Ecological Services to engage, we need to have the lead federal agency identified. At that point, if the federal action agency designates Mergent and/or Enbridge as the designated non-federal representative for informal consultation and/or as preparers of the NEPA document, we will be better-prepared to fully engage

As noted below, I will be serving as the Service's point of contact for this project. In order for the process to run smoothly, please send all requests to me rather than to other Ecological Services' offices.

I appreciate your help on these matters. Please let me know if you have any questions.

Carol Aron
U.S. Fish and Wildlife Biologist
3425 Miriam Avenue
Bismarck, ND 58501
Telephone: (701) 355-8506
Fax: (701) 355-8513
E-mail: Carol_Aron@fws.gov<mailto:Carol_Aron@fws.gov>

"Anyone can love a mountain, but it takes a soul to love the prairie."
- Variously attributed

---------- Forwarded message ----------
From: Jeffrey Towner <jeffrey_towner@fws.gov<mailto:jeffrey_towner@fws.gov>>
Date: Wed, Jun 19, 2013 at 9:37 AM
Subject: RE: Sandpiper Pipeline Project: Follow-up
To: Leslie TeWinkel <LTeWinkel@merjent.com<mailto:LTeWinkel@merjent.com>>
Cc: gayle.konik@enbridge.com<mailto:gayle.konik@enbridge.com>, "Bill J. Regan" <BRegan@merjent.com<mailto:BRegan@merjent.com>>, Steve Elbert <SElbert@merjent.com<mailto:SElbert@merjent.com>>, Carol Aron <carol_aron@fws.gov<mailto:carol_aron@fws.gov>>, Jessica Johnson <jessica_n_johnson@fws.gov<mailto:jessica_n_johnson@fws.gov>>

Hi Leslie:

Since Jessica is going to be out on leave for a while, I am reassigning coordination on this project to Carol Aron, so please contact her for any questions.

I have some suggestions on coordination with FWS. I and the other involved field supervisors in Twin Cities and Green Bay had agreed that the NDFO would coordinate internally, and serve as a single POC. I'd suggest that we try to follow that process. I also suggest that you look to ES as the overall POC, rather than coordinating separately with the WMDs. Although the WMDs are the authorities for any effects to Service property interests, the coordination under all Service laws and regulations always seems to go more smoothly if ES is involved directly in the conversation.

It is positive that Merjent is trying to get out in front of the federal process; however, it seems to me that there needs to be a designated lead federal agency. This will simplify matters related to NEPA and Section 7 consultation. For the latter, if Merjent is going to conduct informal S. 7 consultation, we need written designation by the lead action agency of Merjent or a consultant as non-federal representative. I recognize the challenge of identifying a lead federal agency when there are various alternatives under consideration, but I think it would be worth the effort to have the conversation now with all the potentially-involved feds, and resolving the question of the lead. A conference call may be the best way to handle that.

No need to cc me or Heidi Riddle on emails to Carol.

Thanks for the contact.

Regards,
Jeff

Jeffrey K. Towner, Field Supervisor
Ecological Services
U.S. Fish & Wildlife Service
3425 Miriam Avenue
Bismarck ND 58501
Telephone: 701-250-4481 ext. 508
Fax: 701-355-8513

"In the long history of humankind (and animal kind, too), those who learned to collaborate and improvise most effectively have prevailed."

Charles Darwin

Enbridge Pipelines (North Dakota) LLC - Gayle Konik, Manager, Environment
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

May 14, 2013

Mr. Jeffrey Towner, Field Supervisor
U.S. Fish and Wildlife Service, North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Notification of Southern Route Request for Information Regarding Protected Species

Dear Mr. Towner,

In a letter dated April 2, 2013, Enbridge Pipelines (North Dakota) LLC (Enbridge) requested a meeting to discuss necessary survey protocols for federally listed species and critical habitat that may occur in North Dakota counties crossed by the Sandpiper Pipeline Project and potential options for compliance with the Endangered Species Act. We also requested to discuss project-specific recommendations related to the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act. Through an April 14, 2013 email from Peter Fasbender (U.S. Fish and Wildlife Service, Wisconsin Field Office) we understand that your office will be taking the lead on environmental review of the Sandpiper Pipeline Project.

We believe that early and frequent communication with regulatory agencies is important to the successful planning of a project, especially one of this size and scope. In particular, we believe that communication about environmental issues is essential to effectively addressing concerns early on. We understand that it is necessary to have an established lead federal agency in order to fully engage with you regarding our project. Despite the absence of a lead federal agency at this time, we are committed to keeping you informed.

Toward that end, the purpose of this letter is to let you know that we have developed a southern route in Minnesota in addition to the northern route described in our previous letter. The southern route would extend from Clearbrook, Minnesota to a point near the Minnesota-Wisconsin border through Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties. At this time, the Sandpiper Pipeline Project may follow either route. Thus, we will begin the survey and information gathering process soon for both routes. A project map of Minnesota counties crossed by the southern route and a shapefile of the southern route's 2-mile-wide study area are enclosed.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with the environmental review and permitting of the Sandpiper Pipeline Project, including protected species consultations and field surveys. Merjent is teaming with Midwest Natural Resources to develop survey protocols and conduct field surveys for protected species. To facilitate your environmental review of the southern route, Merjent has developed the enclosed list of federally listed species and critical habitat that may occur in Minnesota counties crossed by the southern route.

If you have any questions, would like a copy of the April 2, 2013 letter, or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Leslie TeWinkel at Merjent (612-965-6960; ltewinkel@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
Project Map of Minnesota Counties – both routes
List of Federally Listed Species in Minnesota – Southern Route
Shapefiles of the 2-mile-wide Study Area (divided into the following segments)

1. Beaver Lodge to Clearbrook
2. Clearbrook to Superior – Northern Route
3. Clearbrook to Superior – Southern Route

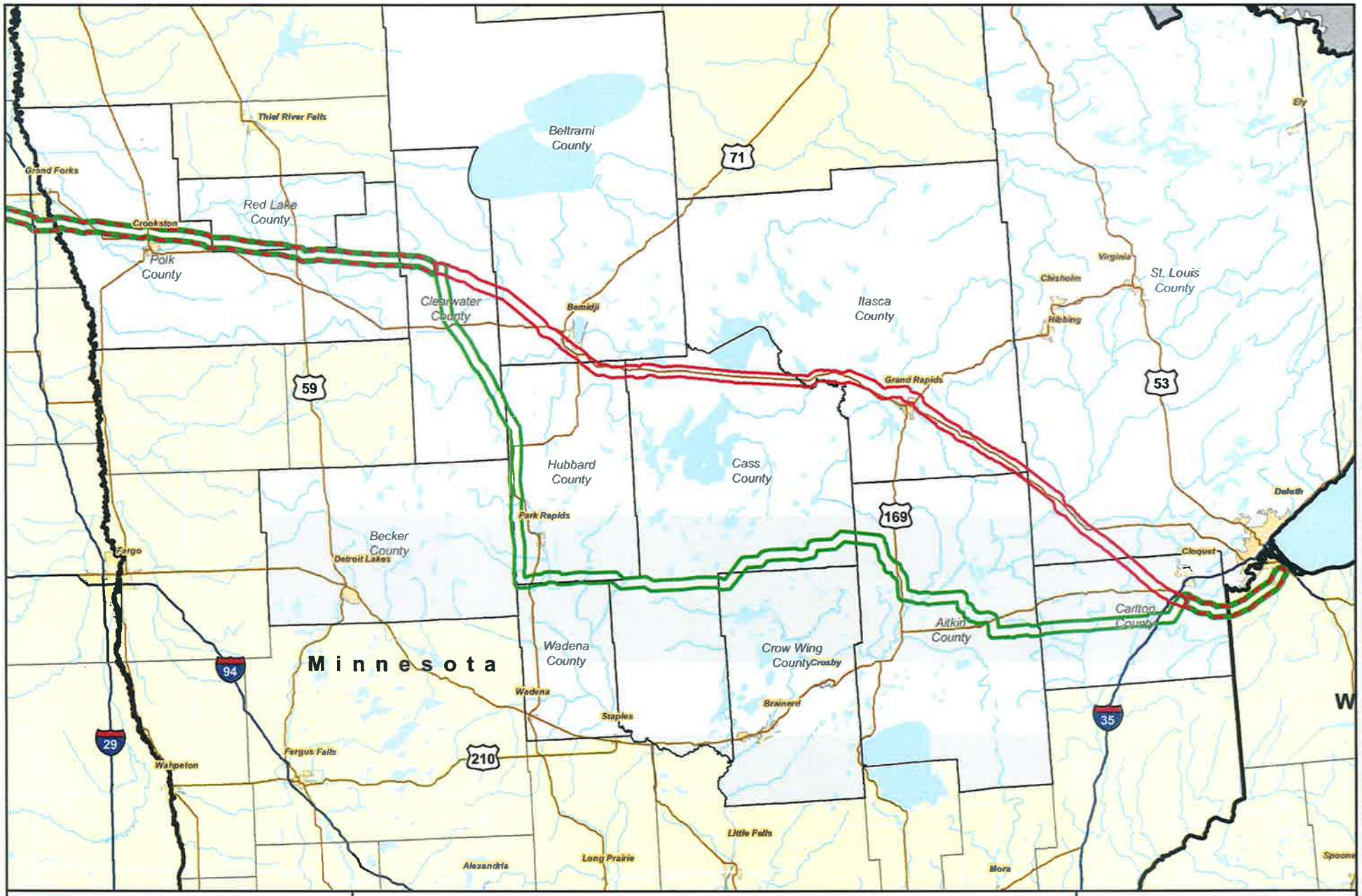
cc: Leslie TeWinkel, Merjent
Scott Milburn, Midwest Natural Resources

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

Northern Route Rev. A Study Area

Southern Route Rev. A Study Area

N

0 12.5 25

1 inch = 25 miles Miles

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Minnesota Project Location Map

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC
Federally Listed Species and Critical Habitat in Minnesota Counties Crossed by the
Sandpiper Pipeline Project – Southern Route

As of May 2, 2013

Species	Status	Habitat	Present in County(ies)
Canada lynx (*Lynx canadensis*)	Threatened	Northern forest	Clearwater, Cass, Aitkin, Carlton
Sprague's pipit (*Anthus spragueii*)	Candidate	Large (>350 acre) patches of grassland - prefer native grassland, but also use non-native planted grasslands.	Polk
Dakota skipper (*Hesperia dacotae*)	Candidate	Native prairie habitat	Polk
Western prairie fringed orchid (*Platanthera praeclara*)	Threatened	Wet prairies and sedge meadows	Polk, Red Lake

Source: http://www.fws.gov/midwest/endangered/lists/minnesot-cty.html

From:	Gayle Konik
To:	John W. Muehlhausen; Angela M. Ronayne; Kristin Lenz
Cc:	Sara Ploetz
Subject:	FW: Proposed Enbridge Sandpiper Pipeline
Date:	Monday, April 08, 2013 3:06:23 PM
Attachments:	grandforks_sa.pdf mchenry_sa.pdf mountrail_sa.pdf nelson_sa.pdf pierce_sa.pdf ramsey_sa.pdf towner_sa.pdf ward_sa.pdf

---

Please see the attached information for National Wildlife Refuge system owned/managed lands and easements. I will be very interested to learn how much FWS owned land Sandpiper proposes to cross. Please give me a preliminary indication as soon as that is known. Thanks, Gayle

From: Leschisin, Douglas [mailto:douglas_leschisin@fws.gov]
Sent: Monday, April 08, 2013 3:02 PM
To: Gayle Konik
Subject: Proposed Enbridge Sandpiper Pipeline

Gayle Konik,

Attached are maps of National Wildlife Refuge System interests in North Dakota, along the proposed Enbridge Sandpiper pipeline.

NWR System interests include:
- Waterfowl Production Areas: Federal lands owned by the U.S. Fish and Wildlife Service and managed for waterfowl habitat.
- USFWS Limited Interest National Wildlife Refuge: Privately owned land, with water management and hunting rights held by the U.S. Fish and Wildlife Service.
- USFWS Conservation Easement: Privately owned land, with wetlands and/or grasslands preserved for wildlife.
- USFWS Wetland Easement: Privately owned land, with wetlands preserved for wildlife.
- USFWS Grassland Easement: Privately owned land, with grasslands and wetlands preserved for wildlife.

Call, or email, if you have questions.

Doug Leschisin
Wildlife Refuge Specialist
Tewaukon National Wildlife Refuge
9754 143 1/2 Ave SE
Cayuga, ND 58013

701-724-3598, ext 114

---

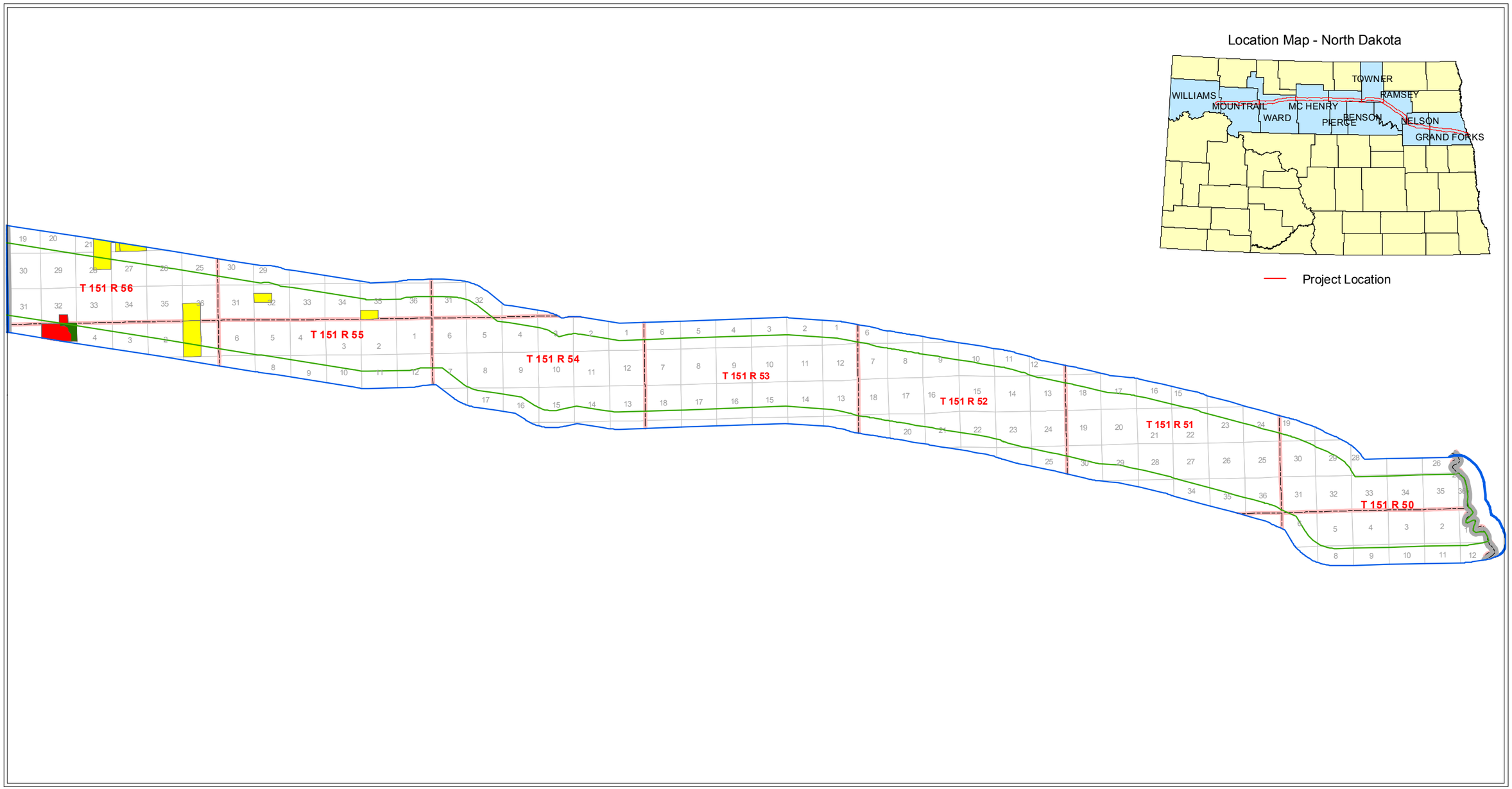
* IMPORTANT NOTICE* *

Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

Grand Forks County, North Dakota



DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 1.25 2.5 5 Kilometers

0 1.25 2.5 5 Miles

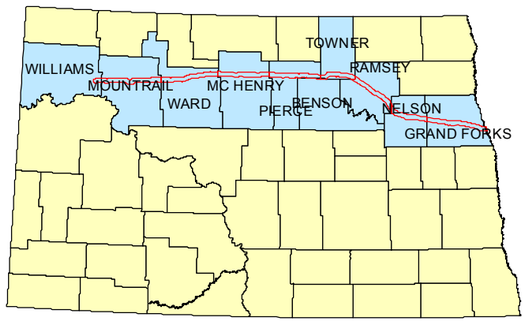
Legend

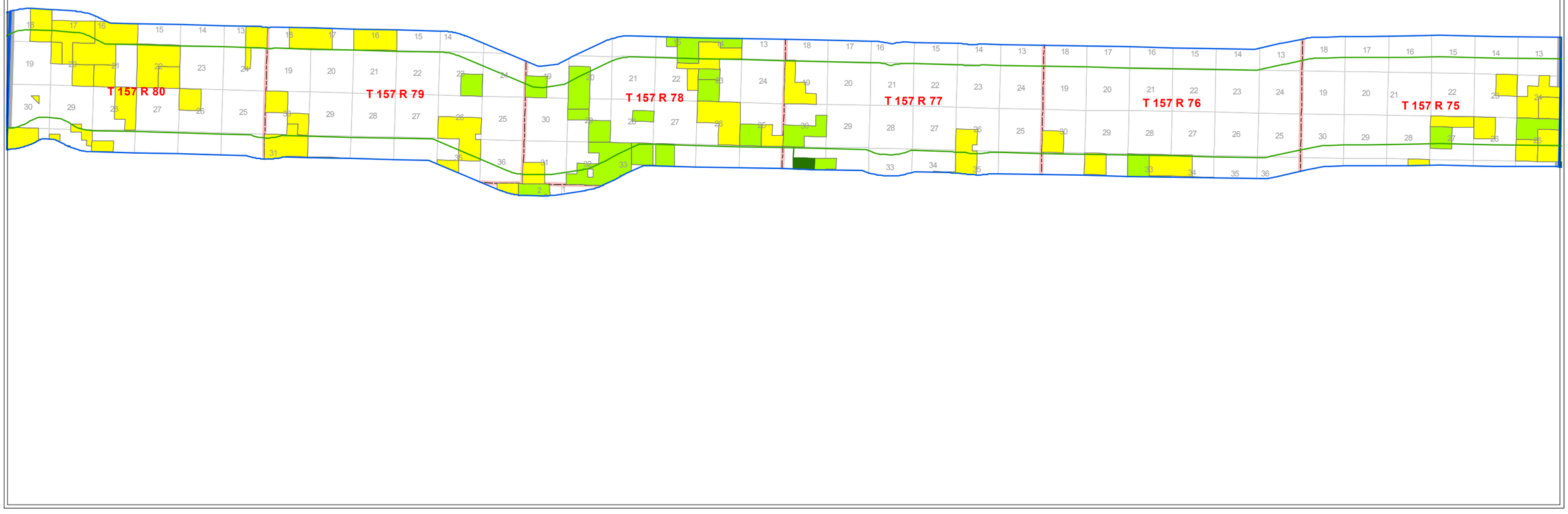
- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

McHenry County, North Dakota





DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 1 2 4 Kilometers

0 1.25 2.5 5 Miles

Legend

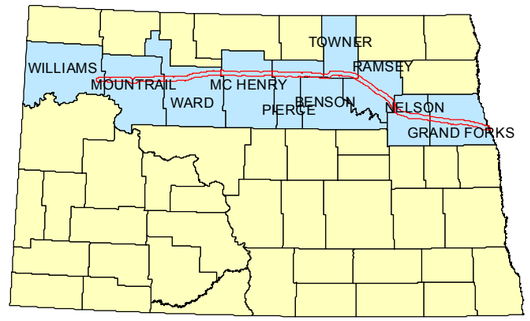
- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

Mountrail County, North Dakota

Location Map - North Dakota



Project Location

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 1.5 3 6 Kilometers

0 1.5 3 6 Miles

Legend

- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

Nelson County, North Dakota

Location Map - North Dakota

Project Location

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 0.75 1.5 3 Kilometers

0 0.75 1.5 3 Miles

Legend

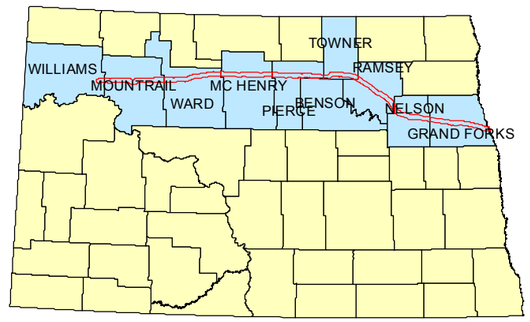
- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

Pierce County, North Dakota

Location Map - North Dakota



Project Location

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 1 2 4 Kilometers

0 1.25 2.5 5 Miles

Legend

- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

Ramsey County, North Dakota

T 156 R 64

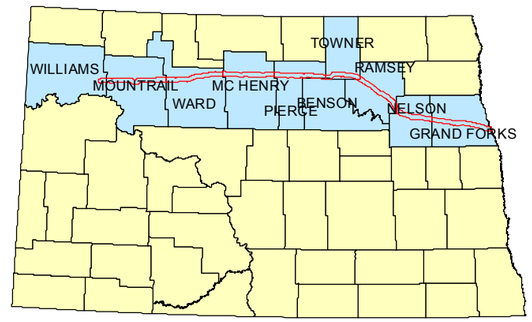
T 155 R 63

T 155 R 62

T 154 R 61

T 153 R 60

Location Map - North Dakota



Project Location

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 1.5 3 6 Kilometers

0 1.5 3 6 Miles

Legend

- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

Towner County, North Dakota

DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 0.75 1.5 3 Kilometers

0 0.75 1.5 3 Miles

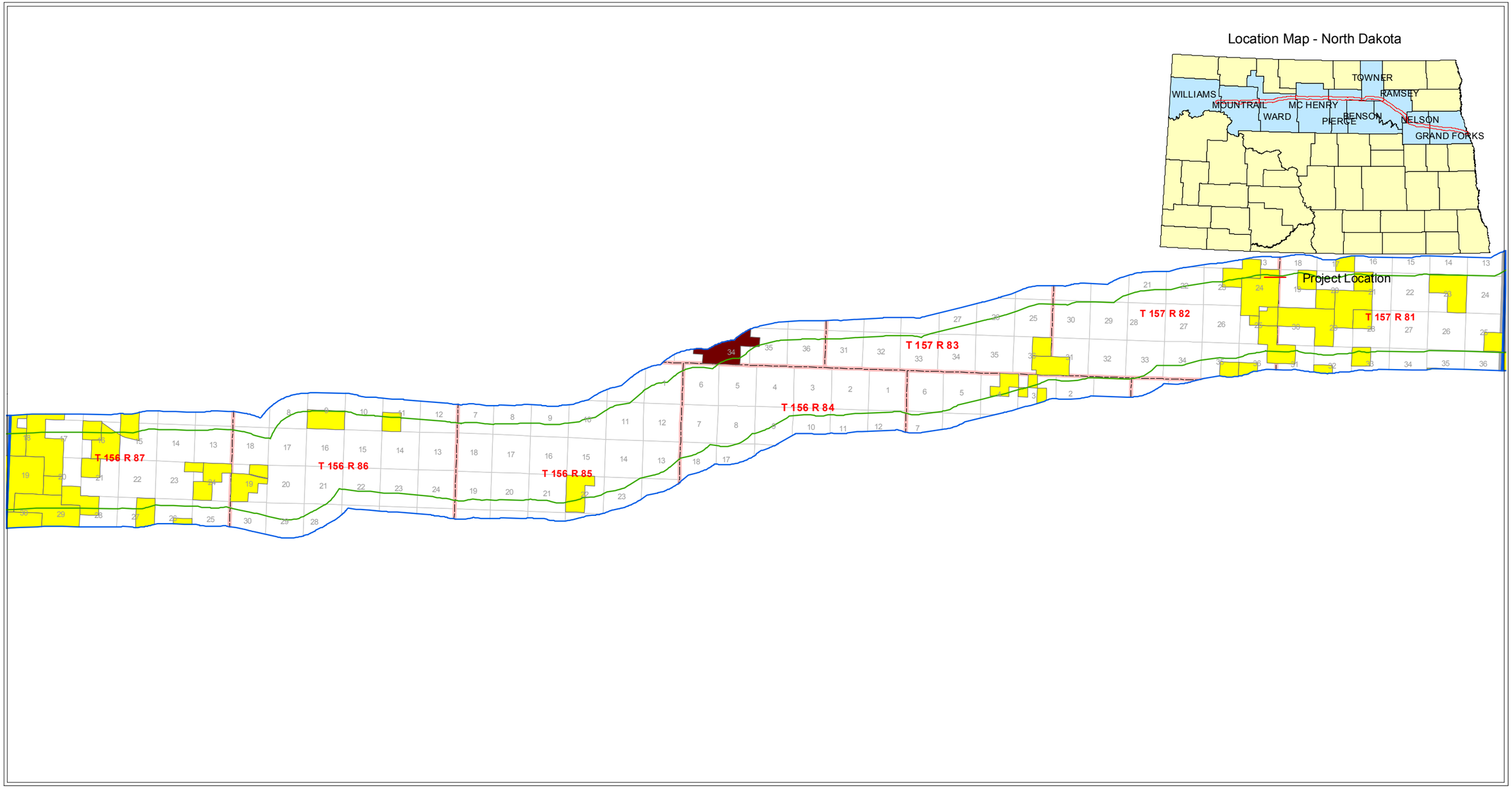
Legend

- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

U.S. Fish & Wildlife Service

Sandpiper Study Area - Enbridge

Ward County, North Dakota



DISCLAIMER:

The USFWS makes no claim as to the accuracy or completeness of the displayed information. Shaded areas depicting the location of USFWS WPA fee lands and limited interest easements are for illustrative purposes only and do not represent legal boundaries. For more detailed information, please contact one of the USFWS Realty Offices located in Bismarck and Minot, North Dakota, Aberdeen and Huron, South Dakota, or Great Falls, Montana.

The USFWS easement layer is current through October 2012. Please contact the appropriate Wetland Management District for any newly acquired easements.

Map was produced by the HAPET Office, Bismarck, ND - 4/4/2013

N

0 1.25 2.5 5 Kilometers

0 1.25 2.5 5 Miles

Legend

- Sandpiper Study Area
- Project Area
- County Boundary
- Section
- Township
- Road
- Waterfowl Production Area
- USFWS Limited Interest NWR
- USFWS Conservation Easement
- USFWS Wetland Easement
- USFWS Grassland Easement

From:	Gayle Konik
To:	John W. Muehlhausen; Angela M. Ronayne; Kristin Lenz
Cc:	Sara Ploetz; Leslie TeWinkel; Rob Mickelson
Subject:	FW: Proposed Enbridge Sandpiper Pipeline Project- Info from FWS
Date:	Friday, April 05, 2013 11:22:04 AM
Attachments:	crithab_nd1.dbf crithab_nd1.prj crithab_nd1.sbn crithab_nd1.sbx crithab_nd1.shp crithab_nd1.shx crithab_nd2.dbf crithab_nd2.prj crithab_nd2.sbn crithab_nd2.sbx crithab_nd2.shp crithab_nd2.shx

---

Please see below and attached from FWS. Let us know where this habitat as well as the FWS fee land (sent previously via separate e-mail) lies with respect to the Sandpiper survey corridor. Will be helpful to have a visual when communicating to the rest of the team. Thanks, Gayle

From: Leschisin, Douglas [mailto:douglas_leschisin@fws.gov]
Sent: Thursday, April 04, 2013 8:40 AM
To: Gayle Konik
Cc: Kirsten Brennan; Laurie Richardson
Subject: Proposed Enbridge Sandpiper Pipeline Project

Gayle Konik,

RE: Proposed Enbridge Sandpiper Pipeline Project

Attached is shapefile information for designated critical habitat for the threatened piping plover in NW North Dakota. Several alkaline lakes in Mountrail County, ND, within the proposed corridor for Sandpiper Pipeline, have records of breeding piping plovers and have been designated critical habitat. Please take this information in consideration during your company's planning process.

It is my understanding that your company is in contact with the U.S. Fish and Wildlife Service's Ecological Services office in Bismarck, ND. They can provide additional information about threatened and endangered species. Their contact information:

Jeffrey Towner, Field Supervisor
US Fish and Wildlife Service - North Dakota Field Office
701-250-4402

Doug Leschisin
Wildlife Refuge Specialist
Tewaukon National Wildlife Refuge
9754 143 1/2 Ave SE
Cayuga, ND 58013

701-724-3598, ext 114

---

* IMPORTANT NOTICE* *

* *

Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

From: Gayle Konik
To: douglas_leschisin@fws.gov
Subject: Enbridge Sandpiper Pipeline Project - FWS WMD Initial Consultation
Attachments: Sandpiper_RevA_Study_Area.zip
SPP_Final_FWS_WMD_Initial_Agency_Consultation_Letter_20130402.pdf

---

April 2, 2013

Mr. Doug Leschisin, Wildlife Refuge Specialist
Tewaukon National Wildlife Refuge
U.S. Fish and Wildlife Service
9754 143-1/2 Avenue Southeast
Cayuga, ND 58013

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information – Location of USFWS Lands within Project Area in North Dakota

Dear Mr. Leschisin,

With this letter, we are requesting the locations of the U.S. Fish and Wildlife Service (USFWS) Wetland Management Districts, National Wildlife Refuges, and Waterfowl Production Areas that are within the Sandpiper Pipeline Project ("Sandpiper") area in North Dakota. We are also requesting information on survey and permitting requirements for biological and cultural resources on these properties and any other lands managed by the USFWS in the Sandpiper project area.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow our existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at our Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to our terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route and a shapefile of a 2-mile-wide study area are enclosed.

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with the environmental review and permitting of Sandpiper, including protected species consultations and field surveys. Merjent is teaming with Midwest Natural Resources to develop survey protocols

and conduct field surveys for protected species. To assist in our environmental analysis of Sandpiper, Merjent has also requested Natural Heritage Inventory System data within the vicinity of Sandpiper from the North Dakota Parks and Recreation Department.

To facilitate consultation regarding protected species within the project area in North Dakota, the following federal and state agency staff have also been notified of the project: Jeffery Towner, Field Supervisor at the USFWS North Dakota Ecological Services Field Office; Steve Dyke, Conservation Supervisor at the North Dakota Game and Fish Department; and Kathy Duttenhefner, Natural Resources Management Coordinator at the North Dakota Parks and Recreation Department.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Leslie TeWinkel at Merjent (612-965-6960; ltewinkel@merjent.com). Thank you for your assistance. An original, signed copy of this correspondence will follow.

Sincerely,

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
Shapefile of a 2-mile-wide Study Area

cc: Leslie TeWinkel, Merjent
Scott Milburn, Midwest Natural Resources

ENBRIDGE

April 2, 2013

Mr. Jeffrey Towner, Field Supervisor
U.S. Fish and Wildlife Service, North Dakota Field Office
3425 Miriam Avenue
Bismarck, North Dakota 58501-7926

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Information Regarding Protected Species

Dear Mr. Towner,

With this letter, we are requesting to meet in early April to discuss necessary survey protocols for federally listed species and critical habitat that may occur in North Dakota counties crossed by the Sandpiper Pipeline Project ("Sandpiper") and potential options for achieving compliance with the Endangered Species Act. In particular, we would like information about survey requirements and conservation measures for the piping plover. We would also like to discuss project-specific recommendations related to the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow our existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at our Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to our terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route, a project map of North Dakota counties, and a shapefile of a 2-mile-wide study area are enclosed.

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with the environmental review and permitting of Sandpiper, including protected species consultations and field surveys. Merjent is teaming with Midwest Natural Resources to develop survey protocols and conduct field surveys for protected species. To facilitate your environmental review of Sandpiper, Merjent has developed the enclosed list of federally listed species and critical habitat that may occur in North Dakota counties crossed by Sandpiper.

We have also been in contact with Steve Dyke, Conservation Supervisor at the North Dakota Game and Fish Department, to introduce the Sandpiper Pipeline Project and request recommendations related to North Dakota species of concern.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Leslie TeWinkel at Merjent (612-965-6960; ltewinkel@merjent.com). Leslie TeWinkel will be contacting you to establish a time to meet to discuss survey needs and protocols. Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
Project Map of North Dakota Counties
Shapefile of a 2-mile-wide Study Area
List of Federally Listed Species in North Dakota

cc: Leslie TeWinkel, Merjent
Scott Milburn, Midwest Natural Resources

Enbridge Pipelines (North Dakota) LLC
Federally Listed Species and Critical Habitat in North Dakota Counties Crossed by the Sandpiper Pipeline Project

As of April 2, 2013

Species	Status	Habitat	Present in County(ies)
Gray wolf (*Canis lupus*)	Endangered	Habitats with low densities of roads and people	Williams, Mountrail, Ward
Piping Plover (*Charadrius melodus*)	Threatened	Barren sand and gravel shores of rivers and lakes	Williams, Mountrail, Ward, McHenry, Pierce
Piping Plover (*Charadrius melodus*)	Critical Habitat	Barren sand and gravel shores of rivers and lakes	Williams, Mountrail, Ward, McHenry, Pierce
Least Tern – Interior population (*Sterna antillarum*)	Endangered	Sparsely vegetated sandbars	Williams, Mountrail
Whooping crane (*Grus americana*)	Endangered	Uplands and shallow wetlands during migration	Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, Grand Forks
Sprague's pipit (*Anthus spragueii*)	Candidate	Large (>350 acre) patches of grassland - prefer native grassland, but also use non- native planted grasslands.	Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey
Pallid sturgeon (*Scaphirhynchus albus*)	Endangered	Large, shallow rivers with sand and gravel bars	Williams, Mountrail
Dakota skipper (*Hesperia dacotae*)	Candidate	Native prairie habitat	Mountrail, Ward, McHenry

Sources:
http://www.fws.gov/northdakotafieldoffice/endspecies/endangered_species.htm
http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action;jsessionid=100041240FEEE47FA77F7B5E573080C9
http://www.fws.gov/mountain-prairie/species/birds/pipingplover/

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

EXHIBIT H.4

From: Angie Durand
To: SPPArchive
Subject: FW: Sandpiper Pipeline - Ecological Community Information
Date: Tuesday, September 17, 2013 12:20:48 PM
Attachments: Mergent_Sandpiper Pipeline_info.docx

---

merjent

Angela Durand

TractorWorks Building
800 Washington Avenue N.
Suite 315
Minneapolis, MN 55401

612.746.3660 main
612.746.3666 direct
612.746.3679 fax

www.merjent.com
adurand@merjent.com

From: Duttenhefner, Kathy G. [mailto:kgduttenhefner@nd.gov]
Sent: Tuesday, September 17, 2013 12:18 PM
To: Angie Durand
Subject: Sandpiper Pipeline - Ecological Community Information

From: Duttenhefner, Kathy G.
Sent: Tuesday, September 17, 2013 11:11 AM
To: 'ADurand@Mergent.com'
Subject: Sandpiper Pipeline - Ecological Community Information

I apologize for the delay in getting this additional information out to regarding the Sandpiper Pipeline Route. There is no management plan for this site but we have attached some information regarding management of this particular community.

For additional information regarding this community please refer to NatureServe Explorer and searching for *Andropogon gerardii Panicum virgatum Muhlenbergia richardsonis Herbaceous*

At http://www.natureserve.org/explorer/

Kathy Duttenhefner
Coordinator/Biologist
North Dakota Parks and Recreation
Natural Resources Division
Nature Preserves/Natural Heritage Inventory/Natural Areas Registry
701-328-5370

1600 East Century Suite 3
Bismarck, ND 58503

From:	Stankiewicz, Kevin M.
To:	Paul M. Hartzheim
Cc:	Sara Ploetz; Angela M. Ronayne; Leslie TeWinkel; Tony Kaster; SPPArchive
Subject:	RE: Enbridge Sandpiper Project: LWCF recreational lands and ND Scenic Byways
Date:	Wednesday, May 01, 2013 1:48:51 PM
Attachments:	maps enbridge sandpiper project.pdf

Good afternoon Paul,

1. Either Enbridge or Merjent should have received maps with our response letter, my apology, perhaps they were accidentally omitted by us. I have attached better maps for you.
2. Your proposed project is not near the Sheyenne River Valley National Scenic Byway. That was a mistake on our part. Good catch and thank you for your attention to that particular information.

Enjoy your day-

Kevin Stankiewicz
North Dakota Parks and Recreation Department
Recreation & Trails Grant Coordinator
Scenic Byway Program Coordinator
Ph:701-328-5364
Fax:701-328-5363
Web: www.parkrec.nd.gov

From: Paul M. Hartzheim [mailto:PHartzheim@Merjent.com]
Sent: Tuesday, April 30, 2013 1:16 PM
To: Stankiewicz, Kevin M.
Cc: Sara Ploetz; Angela M. Ronayne; Leslie TeWinkel; Tony Kaster; SPPArchive
Subject: Enbridge Sandpiper Project: LWCF recreational lands and ND Scenic Byways

Mr. Stankiewicz –

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities (Sandpiper Pipeline Project or Project). In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

On behalf of Enbridge, Merjent conducted recent consultation with the North Dakota Parks and Recreation (NDPR) Department to identify agency interests within a 2 mile wide study area associated with the Project. In an April 16, 2013 response letter from NDPR, five Land and Water Conservation Fund (LWCF) projects were identified in the vicinity of the Project.

- Berthold Playground: Project Number 38-01164

- Berthold Walther Park: Project Number 38-00191
- Deering Multi-Purpose Court: Project Number 38-00806
- Grand Forks Golf Course: Project Number 38-01087
- Mouse River Forest Park: Project Number 38-00492

An overview map showing the general location of these LWCF projects was provided in the response letter (see page 4 of attached); however, it is difficult to discern the precise location/boundaries of these recreational lands. Could NDPR please provide detailed maps and/or shapefiles showing the boundaries of these five areas?

Additionally, the response letter states that the Project is located along the Sheyenne River Valley Scenic Byway. Based on recent review of the ND Scenic Byways and Backways on the NDPR website and the ND GIS hub online maps, the Sheyenne Scenic Byway is located in Barnes and Ransom Counties, approximately 50-60 miles from the project. Can NDPR also please confirm?

Thanks for your assistance. If you need to reach me directly, please try my phone at 612.746.1618.

Sincerely,
Paul Hartzheim

Paul Hartzheim

TractorWorks Building	612.746.3660 main
800 Washington Avenue N.	612.746.1618 direct
Suite 315	612.845.1641 cell
Minneapolis, MN 55401	612.746.3679 fax
www.merjent.com	phartzheim@merjent.com

Jack Dalrymple, Governor
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

April 16, 2013

Ms. Angela Durand
Mergent
Suite 315
800 Washington Ave. N
Minneapolis, MN 55401

Re: Enbridge Pipelines (North Dakota) LLC – Sandpiper Pipeline Project

Dear Ms. Durand,

The North Dakota Parks and Recreation Department (the Department) has reviewed the above referenced proposal to build a new pipeline that will generally follow existing line 81 pipeline and other existing utilities.

Our agency scope of authority and expertise covers recreation and biological resources (in particular rare plants and ecological communities). The project as defined does not affect state park lands that we manage but may affect state Land and Water Conservation Fund (LWCF) project sites that we manage. A map with LWCF project locations has been attached. All LWCF sites received assistance from the federal LWCF program and are under protection of section 6(f) of the LWCF Act. Any property taken from within the 6f boundary of these sites must be replaced with property of equal market value. Should any public or private utilities need to be added or relocated on the LWCF recreational lands, the NDPRD must be consulted prior to any action taken. Please contact Kevin Stankiewicz (701-328-5364 or kstankiewicz@nd.gov if additional LWCF information is needed.

The Department is also responsible for coordinating the ND's Scenic Byways and Backways Program. This proposed project is along the Sheyenne River Valley Scenic Byways and as such we recommend any project development be completed with the least amount of or no visual impact to the immediate and distant views from the above mentioned Backways/Byways. Please contact Kevin Stankiewicz(701-328-5364 or kstankiewicz@nd.gov) if additional Byways and Backways information is needed.

The North Dakota Natural Heritage biological conservation database has been reviewed to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within an approximate one-mile radius of the project area. Based on this review, several plants, animal and significant ecological community occurrences have been identified within or adjacent to the project areas. Please see the attached spreadsheet and maps for more specific information on these species. We defer further comments regarding animal species to the North Dakota Game and Fish Department and the United States Fish and Wildlife Service.

Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

The Department recommends that the project be accomplished with minimal impacts and that all efforts be made to ensure that critical habitats not be disturbed in the project area to help secure rare species conservation in North Dakota. Regarding any reclamation efforts, we recommend that any impacted areas be revegetated with species native to the project area.

It is our policy to charge requests for data services including data retrieval, data analysis, manual and computer searches, packaging and collection of data. An invoice for services provided has been enclosed.

We appreciate your commitment to rare plant, animal and ecological community conservation, management and inter-agency cooperation to date. For additional information please contact Kathy Duttenhefner (701-328-5370 or kgduttenhefner@nd.gov) of our staff. Thank you for the opportunity to comment on this proposed project.

Sincerely,

Jesse Hanson, Manager
Planning and Natural Resources Division

R.USNDNHI*2013_42KD4/16/2013DL4.19.2013

cc: Sara Ploetz, Enbridge Pipelines (North Dakota) LLC

ND Parks and Recreation Department
ND Natural Heritage Inventory
1600 East Century Ave., Suite 3
Bismarck, ND 58503-0649
(701) 328-5370 FAX: (701) 328-5363

INVOICE

INVOICE NO: 0160
DATE4/16/2013

Ms. Angela Durand
Mergent
Suite 315
800 Washington Ave. N

CONTACT	REFERENCE NO.	DATE SHIPPED	SHIPPED VIA	F.O.B. POINT	TERMS
K.Duttenhefner	NHI_2013_042	4/16/2013	usps		

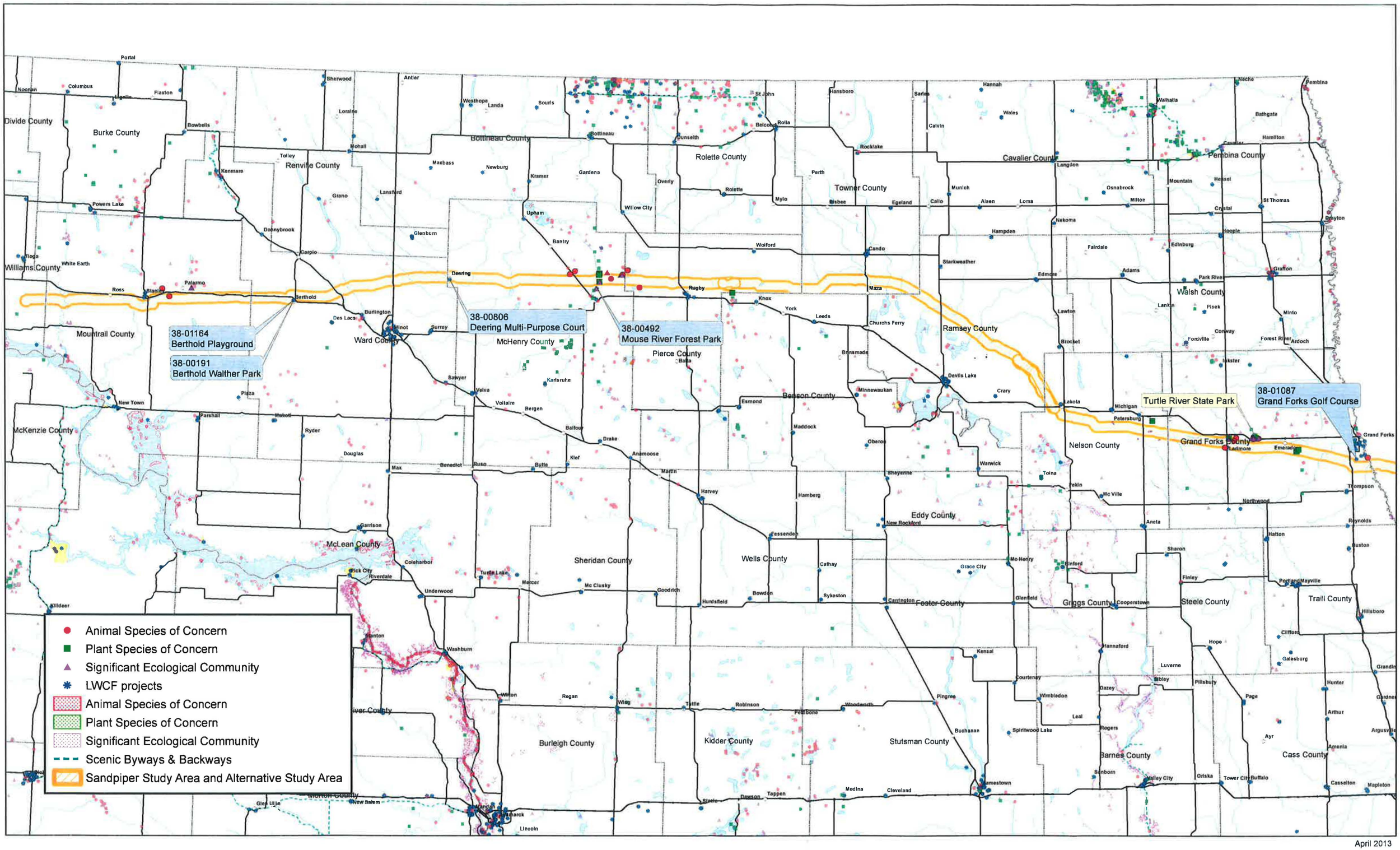
QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
1	Data retrieval, data analysis, manual and computer searches, packaging and collection of data. Project: Enbridge Pipelines (North Dakota) LLC – Sandpiper Pipleine Project	$ 60.00	$ 60.00
		SUBTOTAL	$ 60.00
		SALES TAX	
		SHIPPING & HANDLING	
		TOTAL DUE	$ 60.00

Make all checks payable to: ND Parks and Recreation Department
If you have any questions concerning this invoice, call: Kathy Duttenhefner, (701) 328-5370

THANK YOU FOR YOUR INTEREST IN RARE SPECIES CONSERVATION.

Entry Event	Fund	Dept.	Project	Activity
463021	398	1508	OR15082	15082

North Dakota Parks and Recreation Department
North Dakota Natural Heritage Inventory



April 2013

North Dakota Natural Heritage Inventory
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Cypripedium parviflorum	Small Yellow Lady's-slipper Orchid	S2	G5		156N071W - 04	Benson			S
Accipiter cooperii	Cooper's Hawk	SU	G5		152N054W - 36; 151N054W - 01	Grand Forks	1985-07-26		S
Andropogon gerardii - (sorghrastrum nutans - muhlenbergia richardsonis) tallgrass prairie	Mesic Tallgrass Prairie	S1	GNR		152N054W - 36; 151N054W - 01	Grand Forks	2010-06-16		S
Caprimulgus vociferus	Whip-poor-will	SU	G5		151N055W - 12; 151N054W - 06; 151N054W - 07; 151N055W - 13; 151N055W - 02; 151N054W - 18; 151N055W - 14; 151N055W - 01; 151N055W - 11	Grand Forks	1912-06		M
Carex lasiocarpa	Wiregrass Sedge	S3	G5		151N052W - 16; 151N052W - 21; 151N052W - 15; 151N052W - 10; 151N052W - 17; 151N052W - 09; 151N052W - 20; 151N052W - 08; 151N052W - 22; 151N052W - 14	Grand Forks	1963-07-15		M
Chlidonias niger	Black Tern	SNRB	G4		152N053W - 31	Grand Forks	1997-06-17		S
Cornus sericea - salix (bebbiana, discolor, petiolaris) thicket	Dogwood-willow Thicket	S2S3	GNR		152N054W - 31	Grand Forks	1986-07-06		S
Cypripedium candidum	White Lady's-slipper	S2	G4		151N052W - 16; 151N052W - 19; 151N053W - 23; 151N051W - 29; 151N052W - 25; 151N053W - 34; 152N052W - 31; 152N052W - 35; 151N052W - 34; 152N052W - 22; 151N051W - 30; 151N053W - 22; 151N052W - 29; 151N052W - 06; 150N052W - 02; 151N053W - 36; 151N053W - 27;	Grand Forks			G
Cypripedium parviflorum	Small Yellow Lady's-slipper Orchid	S2	G5		152N054W - 31; 151N055W - 03; 152N055W - 36; 152N054W - 28; 152N055W - 24; 152N055W - 15; 152N054W - 19; 152N054W - 33; 152N054W - 22; 152N055W - 12; 151N054W - 01; 152N054W - 32; 152N054W - 06; 152N054W - 25; 152N054W - 14; 152N055W - 32; 152N054W - 09;	Grand Forks	1961-06-12		G
Cypripedium parviflorum	Small Yellow Lady's-slipper Orchid	S2	G5		152N054W - 36	Grand Forks	2010-6-16		S
Cypripedium parviflorum	Small Yellow Lady's-slipper Orchid	S2	G5		152N054W - 36	Grand Forks	2010-06-16		S
Distichlis spicata - hordeum jubatum/puccinellia nuttalliana saline meadow	Saltgrass Saline Meadow	S2S3	GNR		151N052W - 16	Grand Forks	1982		S

North Dakota Natural Heritage Inventory
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Dryocopus pileatus	Pileated Woodpecker	S3	G5		151N050W - 26; 151N050W - 29; 150N050W - 02; 150N050W - 11; 151N050W - 02; 151N050W - 30; 151N050W - 07; 151N050W - 35; 151N050W - 25; 151N050W - 23; 151N050W - 28; 151N050W - 11; 150N050W - 01; 150N050W - 14; 150N050W - 22; 151N050W - 05; 151N050W - 33;	Grand Forks	1972		G
Fraxinus pennsylvanica - ulmus americana - (celtis occidentalis) forest	Eastern Mixed Floodplain Forest	S1S2	GNR		152N054W - 36; 152N053W - 31; 151N054W - 01; 151N054W - 12; 151N054W - 03; 152N054W - 35; 151N053W - 06; 151N054W - 11; 152N054W - 25; 152N054W - 26; 152N054W - 34; 151N054W - 02	Grand Forks	2010-06-16		M
Pascopyrum smithii - stipa comata prairie	Central Mixed Grass Prairie	S2	GNR		151N052W - 16	Grand Forks	1967		S
Phoxinus eos	Northern Redbelly Dace	S4	G5		152N054W - 32; 152N054W - 33; 152N054W - 30; 152N054W - 28; 152N054W - 29; 151N054W - 05; 151N054W - 03; 152N054W - 34; 151N054W - 04; 152N054W - 31; 151N054W - 06	Grand Forks	1979-06-12		M
Quercus macrocarpa - tilia americana/ostrya virginiana/symphoricarpos woodland	Eastern Bur Oak Woodland	S2	GNR		152N054W - 36	Grand Forks	2010-06-16		S
Quercus macrocarpa/prunus virginiana northern ravine woodland	Bur Oak Upland Woodland	S3	GNR		152N054W - 31; 151N054W - 06	Grand Forks	1986-07-06		S
Schizachyrium scoparium - bouteloua curtipendula - stipa spartea prairie	Dry Mesic Tallgrass Prairie	S1	GNR		151N052W - 16	Grand Forks	1971		S
Seiurus noveboracensis	Northern Waterthrush	S4	G5		151N054W - 04; 152N054W - 09; 151N054W - 17; 152N055W - 13; 152N055W - 22; 151N055W - 02; 151N054W - 01; 152N055W - 12; 152N054W - 22; 152N054W - 33; 151N055W - 01; 152N055W - 15; 152N055W - 24; 152N055W - 14; 152N055W - 27; 151N055W - 03; 152N055W - 36;	Grand Forks			G
Sporobolus airoides	Alkali Sacaton	S3	G5		151N052W - 16	Grand Forks	1960-07-29		S
Symphoricarpos occidentalis shrubland	Buckbrush Shrubland	S4	GNR		152N054W - 36; 152N053W - 31; 151N054W - 01; 151N054W - 12; 152N054W - 26; 152N054W - 35; 151N053W - 06; 151N054W - 11; 152N054W - 25; 152N053W - 30; 151N053W - 07; 151N054W - 02	Grand Forks	2010-06-10		M
Typha spp. inland great plains wetland	Cattail Deep Marsh	S3	GNR		152N053W - 31; 152N054W - 36; 151N053W - 07; 151N053W - 06; 152N053W - 30; 152N053W - 32; 151N053W - 05; 152N053W - 29; 151N054W - 01; 152N054W - 25	Grand Forks	2010-06-15		M

North Dakota Natural Heritage Inventory
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Urocyon cinereoargenteus	Common Gray Fox	SU	G5		151N054W - 01; 152N054W - 36; 152N053W - 30; 151N053W - 07; 151N054W - 02; 152N053W - 31; 151N054W - 12; 152N054W - 26; 152N054W - 35; 151N053W - 06; 151N054W - 11; 152N054W - 25	Grand Forks	1966-08-28		M
Vermivora celata	Orange-crowned Warbler	S4	G5		152N054W - 36	Grand Forks	1997-05-17		S
Accipiter cooperii	Cooper's Hawk	SU	G5		157N075W - 22; 157N075W - 28; 157N075W - 14; 157N075W - 20; 157N075W - 23; 157N075W - 26; 157N075W - 27; 157N075W - 16; 157N075W - 21; 157N075W - 15	McHenry	1981-05		M
Acorus americanus	Sweetflag	S4	G5		157N075W - 18	McHenry	1984-08-22		S
Ammodramus bairdii	Baird's Sparrow	SU	G4		157N075W - 13	McHenry	1993-07-30		S
Betula pumila/carex prairea seepage shrubland	Bog Birch Rich Fen	S2	GNR		157N075W - 18	McHenry	1982-08-09		S
Betula pumila/carex prairea seepage shrubland	Bog Birch Rich Fen	S2	GNR		157N075W - 30	McHenry	1986		S
Calamagrostis stricta - carex lanuginosa wet meadow	Northern Reedgrass Wet Meadow	S2S3	GNR		157N075W - 13	McHenry	1993-07-30		S
Calamovilfa longifolia/carex filifolia sand prairie	Sandreed Prairie	S2	GNR		157N075W - 16	McHenry	1984-05-30		S
Carex leptalea	Delicate Sedge	S3	G5		157N075W - 18	McHenry	1984-08-22		S
Carex sterilis	Sterile Sedge	S1	G4		157N075W - 30; 157N075W - 28; 157N076W - 24; 157N075W - 17; 157N076W - 36; 157N075W - 32; 157N075W - 19; 157N075W - 21; 157N076W - 25; 157N075W - 20; 157N075W - 29; 157N075W - 31; 157N075W - 18	McHenry	1986		M
Fraxinus pennsylvanica - celtis spp. - tilia americana - mixed forest	Eastern Hardwood Forest	S3	GNR		157N075W - 31	McHenry	1982-07-01		S
Galium labradoricum	Bog Bedstraw	S3	G5		157N075W - 18	McHenry	1982-08-09		S
Hesperia dacotae	Dakota Skipper	S2	G2	C	157N076W - 17	McHenry	1979	Medium	S
Hesperia dacotae	Dakota Skipper	S2	G2	C	157N076W - 18	McHenry	1998-07-13	Medium	S
Menyanthes trifoliata	Buckbean	S2	G5		157N075W - 18	McHenry	1984-08-22		S
Menyanthes trifoliata	Buckbean	S2	G5		157N075W - 30; 157N075W - 28; 157N076W - 24; 157N075W - 17; 157N076W - 36; 157N075W - 32; 157N075W - 19; 157N075W - 21; 157N076W - 25; 157N075W - 20; 157N075W - 29; 157N075W - 31; 157N075W - 18	McHenry	1986		M
Potentilla palustris	Purple Cinquefoil	S2	G5		157N075W - 18	McHenry	1984-08-22		S

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Scirpus maritimus - scirpus acutus/(triglochin maritima) wetland	Brackish Shallow Marsh	S3	GNR		157N075W - 13	McHenry	1993-07-30		S
Stipa comata - bouteloua gracilis/carex filifolia prairie	Needle-and-thread Mixed Grass Prairie	S2	GNR		157N075W - 13	McHenry	1993-07-30		S
Utricularia intermedia	Flat-leaved Bladderwort	S2	G5		157N075W - 18	McHenry	1982-09-10		S
Utricularia intermedia	Flat-leaved Bladderwort	S2	G5		157N075W - 30; 157N075W - 28; 157N076W - 24; 157N075W - 17; 157N076W - 36; 157N075W - 32; 157N075W - 19; 157N075W - 21; 157N076W - 25; 157N075W - 20; 157N075W - 29; 157N075W - 31; 157N075W - 18	McHenry	1986		M
Utricularia minor	Lesser Bladderwort	S2	G5		157N075W - 30; 157N075W - 32; 157N075W - 19; 157N075W - 21; 157N076W - 25; 157N075W - 20; 157N075W - 29; 157N075W - 31; 157N075W - 18; 157N075W - 28; 157N076W - 24; 157N075W - 17; 157N076W - 36	McHenry	1986		M
Ammodramus bairdii	Baird's Sparrow	SU	G4		157N074W - 07; 157N075W - 12; 157N074W - 18; 157N074W - 19; 157N074W - 06; 157N074W - 08; 157N074W - 17; 157N074W - 05; 157N075W - 01; 157N075W - 13	McHenry, Pierce	1981		M
Charadrius melodus	Piping Plover	S1S2	G3	LE,LT	156N090W - 20	Mountrail	1996-06-10	Medium	S
Charadrius melodus	Piping Plover	S1S2	G3	LE,LT	156N091W - 13	Mountrail	1996-06-10	Medium	S
Potamogeton pectinatus - ruppia maritima saline wetland	Saline Wetland	S3	GNR		156N090W - 12; 156N090W - 13	Mountrail	1983-06-10		S
Andropogon gerardii - (panicum virgatum) northern tallgrass prairie	Wet-mesic Tallgrass Prairie	S1	GNR		152N057W - 28; 152N057W - 21	Nelson	2002-06-24	Very High	S
Andropogon gerardii - (sorghrastrum nutans - muhlenbergia richardsonis) tallgrass prairie	Mesic Tallgrass Prairie	S1	GNR		152N057W - 35	Nelson	2002-06-23	Very High	S
Carex aquatilis - carex spp. wetland	Water Sedge Rich Fen	S1	GNR		152N058W - 18; 152N058W - 17	Nelson	2002-06-24	Very High	S
Carex aquatilis - carex spp. wetland	Water Sedge Rich Fen	S1	GNR		152N058W - 36	Nelson	2002-06-24	Very High	S
Eleocharis parvula	Dwarf Spikerush	S2	G5		152N057W - 09; 152N057W - 17; 152N057W - 04; 152N057W - 16; 152N057W - 03; 152N057W - 10; 152N057W - 22; 152N057W - 08; 152N057W - 14; 152N057W - 21; 152N057W - 11; 152N057W - 15	Nelson	1951-09-03		M

North Dakota Natural Heritage Inventory
Rare Animal and Plant Species and Significant Ecological Communities

State Scientific Name	State Common Name	State Rank	Global Rank	Federal Status	Township Range Section	County	Last Observation	Estimated Representation Accuracy	Precision
Bubulcus ibis	Cattle Egret	S4	G5		157N074W - 33; 157N074W - 27; 156N074W - 06; 157N074W - 32; 156N074W - 04; 157N074W - 29; 157N074W - 28; 157N074W - 26; 156N074W - 05; 157N074W - 35; 157N074W - 34	Pierce	1979-06-29		M

North Dakota Natural Heritage Inventory Biological and Conservation Data Disclaimer

The quantity and quality of data collected by the North Dakota Natural Heritage Inventory are dependent on the research and observations of many individuals and organizations. In most cases, this information is not the result of comprehensive or site-specific field surveys; many natural areas in North Dakota have never been thoroughly surveyed, and new species are still being discovered. For these reasons, the Natural Heritage Inventory cannot provide a definite statement on the presence, absence, or condition of biological elements in any part of North Dakota. Natural Heritage data summarize the existing information known at the time of the request. Our data are continually upgraded and information is continually being added to the database. This data should never be regarded as final statements on the elements or areas that are being considered, nor should they be substituted for on-site surveys.

Estimated Representation Accuracy

Value that indicates the approximate percentage of the Element Occurrence Representation (EO Rep) that was observed to be occupied by the species or community (versus buffer area added for locational uncertainty). Use of estimated representation accuracy provides a common index for the consistent comparison of EO reps, thus helping to ensure that aggregated data are correctly analyzed and interpreted.

Very high (>95%)
High (>80%, <= 95%)
Medium (>20%, <= 80%)
Low (>0%, <= 20%)
Unknown
(null) - Not assessed

Precision

A single-letter code for the precision used to map the Element Occurrence (EO) on a U.S. Geological Survey (USGS) 7.5' (or 15') topographic quadrangle map, based on the previous Heritage methodology in which EOs were located on paper maps using dots.

S - Seconds: accuracy of locality mappable within a three-second radius; 100 meters from the centerpoint
M - Minute: accuracy of locality mappable within a one-minute radius; 2 km from the centerpoint
G - General: accuracy of locality mappalbe to map or place name precision only; 8 km from centerpoint
U - Unmappable

Land and Water Conservation Fund Projects

Project Name	Project Number
Berthold Playground	38-01164
Berthold Walther Park	38-00191
Deering Multi-Purpose Court	38-00806
Grand Forks Golf Course	38-01087
Mouse River Forest Park	38-00492

Jack Dalrymple, Governor
Mark A. Zimmerman, Director

1600 East Century Avenue, Suite 3
Bismarck, ND 58503-0649
Phone 701-328-5357
Fax 701-328-5363
E-mail parkrec@nd.gov
www.parkrec.nd.gov

April 10, 2013

Angie Durand
Merjent
800 Washington Ave N., Suite 315
Minneapolis, MN 55401

Re: Enbridge Sandpiper Pipeline Project

Dear Ms. Durand:

Thank you for your interest in the North Dakota Parks & Recreation Department's (the Department) Natural Heritage Inventory biological conservation database. The Department conducted an environmental review for this project and will send a response to Enbridge separate from this letter. The information you will find in the attached zipped file represents only the plant and animal species of concern and the significant ecological communities. It does not include other lands and projects that are owned or managed by the Department such as: state parks, state nature preserves, Land and Water Conservation Fund projects, Recreational Trails Program projects, and Scenic Byways and Backways.

The North Dakota Natural Heritage Inventory (NDNHI) biological conservation database has been reviewed to determine if any current or historical plant or animal species of concern or other significant ecological communities are known to occur within one mile of the project area. Based on this review, several occurrences have been identified within or adjacent to the project area. Please see the attached shapefiles and documents for more information. We defer further comments regarding animal species to the North Dakota Game and Fish Department and the United States Fish and Wildlife Service. For a description of the significant ecological communities please see this NatureServe link http://www.natureserve.org/library/northdakotasubset.pdf. For more information regarding any species or community please visit this link to the NatureServe web site http://www.natureserve.org/index.jsp.

Because this information is not based on a comprehensive inventory, there may be species of concern or otherwise significant ecological communities in the area that are not represented in the database. The lack of data for any project area cannot be construed to mean that no significant features are present. The absence of data may indicate that the project area has not been surveyed, rather than confirm that the area lacks natural heritage resources.

Attached to this email message you will find the following documents:

- Shapefiles with heritage species and communities - points and polygons
  - The reason we have two shapefiles, a point and a polygon, is because several years ago we implemented a new software program called Biotics. Our data had always been point, but the new software allows polygons. We are in the process of changing our points to polygons but currently have a mix of the two shape types.
- *EORep_DS_fieldnames.xls* – a document to help explain field names in the heritage shapefiles
- *Methodology_guide_2012.doc* – a document with the NDNHI methodology and a guide to the species of concern lists
- *Animal SOC list 2012.xls* and *Plant SOC list 2012.xls* – NDNHI Species of Concern lists

The ND Parks & Recreation Department would appreciate being consulted during the public scoping and/or environmental assessment of the project. Thank you for the opportunity to provide preliminary data for the project site. Please contact me if additional information is needed.

Sincerely,

Kathy Duttenhefner
Coordinator/Biologist
Natural Resource Program

Natural Areas Registry/Natural Heritage Inventory
701-328-5370 (office)
701-220-3377 (cell)
kgduttenhefner@nd.gov

R13-20

EXHIBIT H.5

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715-398-4559
www.enbridgepartners.com

ENBRIDGE

April 22, 2013

Jodey Reinke, Assistant to the Commissioner
North Dakota Department of Agriculture
600 E Boulevard Ave.
Department 602
Bismarck, ND 58505-0020

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for Environmental Restoration Information

Dear Ms. Reinke,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request the North Dakota Department of Agriculture's environmental construction and restoration requirements for the purpose of assisting us in developing an Environmental Protection Plan (EPP) that will be used to minimize construction-related effects on soil and water resources.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The project will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. A project-wide map of the proposed pipeline route; project map of North Dakota counties crossed; a list of the Section, Township, Range crossed by the project; and a shapefile of a 2-mile-wide study area are enclosed.

Enbridge has contracted Merjent, Inc. (Merjent) to assist with environmental review and permitting of Sandpiper, including the development of the EPP.

If you have any questions or need further information in order to respond to this request, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Tony Dalbec at Merjent (621-746-3674; adalbec@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
County Route Map
Public Land Survey Section, Township, and Range List
Shapefile of a 2-mile-wide Study Area

cc: Tony Dalbec, Merjent

0 30 60 Miles

1 inch = 60 miles

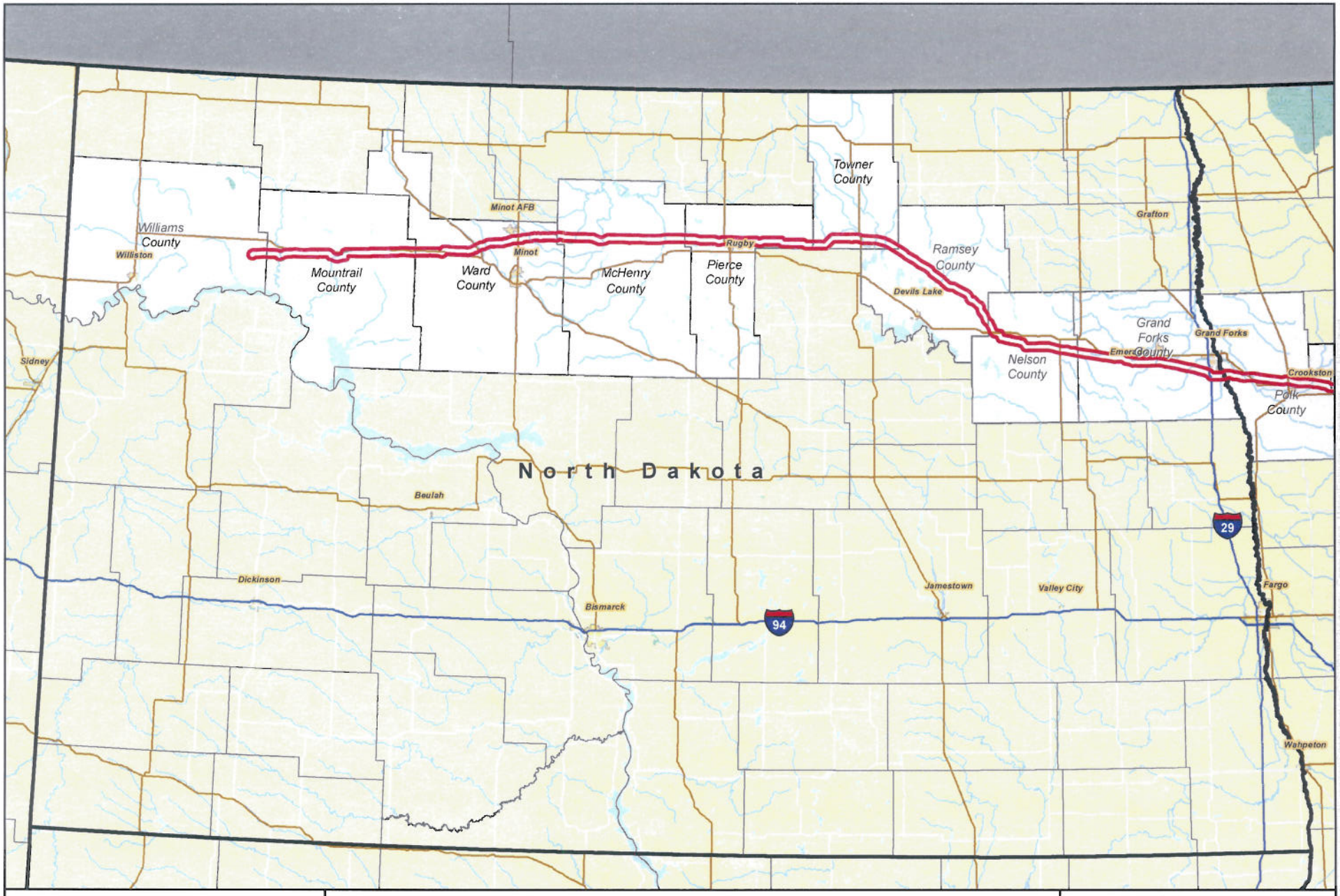
N W E S

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Sandpiper Pipeline Project Township, Range, and Sections Crossed in North Dakota			
County	**Township**	**Range**	**Section(s)**
Grand Forks	T150N	R49W	6
Grand Forks	T150N	R50W	1, 2, 3, 4, 5
Grand Forks	T151N	R49W	31
Grand Forks	T151N	R50W	30, 31, 32
Grand Forks	T151N	R51W	19, 20, 22, 25, 26, 27
Grand Forks	T151N	R52W	7, 14, 15, 16, 17, 18, 23, 24
Grand Forks	T151N	R53W	7, 8, 9, 10, 11, 12
Grand Forks	T151N	R54W	5, 6, 8, 9, 10, 11, 12
Grand Forks	T151N	R55W	1, 2, 3, 4, 5
Grand Forks	T152N	R55W	31, 32
Grand Forks	T152N	R56W	29, 30 ,32, 33, 34, 35, 36
Grand Forks	T152N	R57W	25
McHenry	T157N	R74W	19
McHenry	T157N	R75W	19, 20, 21, 22, 23, 24
McHenry	T157N	R76W	24, 25, 26, 27, 28, 29, 30
McHenry	T157N	R77W	25, 26, 27, 28, 29, 30
McHenry	T157N	R78W	25, 26, 27, 28, 29, 30
McHenry	T157N	R79W	25, 26, 27, 28, 29, 30
McHenry	T157N	R80W	19, 20, 25, 26, 27, 28, 29
McHenry	T157N	R81W	24, 25
Mountrail	T155N	R94W	3
Mountrail	T156N	R88W	19, 20, 21, 22, 23, 24
Mountrail	T156N	R89W	19, 20, 21, 22, 23, 24
Mountrail	T156N	R90W	24, 25, 26, 27, 28, 29, 30
Mountrail	T156N	R91W	25, 26, 31, 32, 33, 34, 35
Mountrail	T156N	R92W	25, 26, 27, 28, 29, 30, 31, 36
Mountrail	T156N	R93W	31, 32, 33, 34, 35, 36
Mountrail	T156N	R94W	31, 32, 33, 34, 35, 36
Mountrail	T156N	R95W	36
Nelson	T152N	R57W	19, 20, 21, 25, 26, 27, 28
Nelson	T152N	R58W	19, 20, 21, 22, 23, 24
Nelson	T152N	R59W	7, 8, 9, 15, 16, 22, 23, 24
Nelson	T152N	R60W	2, 3, 4, 11, 12
Nelson	T153N	R60W	7, 18, 19, 20, 29, 32, 33, 34
Nelson	T153N	R61W	1, 12
Pierce	T157N	R68W	31
Pierce	T157N	R69W	25, 26, 27, 28, 29, 30, 36
Pierce	T157N	R70W	20, 21, 22, 25, 26, 27, 29, 30
Pierce	T157N	R71W	21, 22, 23, 25, 26, 27, 28, 29, 30
Pierce	T157N	R72W	25, 26, 27, 28, 29, 30
Pierce	T157N	R73W	19, 25, 26, 27, 28, 29, 30

Sandpiper Pipeline Project Township, Range, and Sections Crossed in North Dakota			
County	**Township**	**Range**	**Section(s)**
Pierce	T157N	R74W	19, 20, 21, 22, 23, 24
Ramsey	T153N	R60W	18, 19
Ramsey	T153N	R61W	1, 2, 12, 13
Ramsey	T154N	R61W	6, 7, 8, 15, 16, 17, 18, 21, 22, 26, 27, 34, 35, 36
Ramsey	T154N	R62W	1
Ramsey	T155N	R62W	19, 27, 28, 29, 30, 34, 35, 36
Ramsey	T155N	R63W	4, 5, 9, 10, 11, 13, 14, 24
Ramsey	T156N	R63W	30, 31, 32
Ramsey	T156N	R64W	1, 6, 7, 8, 15, 16, 17, 22, 23, 25, 26
Ramsey	T156N	R65W	2
Ramsey	T157N	R65W	35, 36
Towner	T157N	R65W	19, 20, 26, 27, 28, 29, 35, 36
Towner	T157N	R66W	19, 20, 21, 22, 23, 24
Towner	T157N	R67W	19, 20, 21, 22, 23, 24
Towner	T157N	R68W	23, 24, 26, 27, 31, 32, 33, 34
Towner	T157N	R69W	25
Ward	T156N	R83W	6
Ward	T156N	R84W	1, 2, 3, 4, 5, 6, 7, 8
Ward	T156N	R85W	11, 12, 14, 15, 16, 17, 18
Ward	T156N	R86W	13, 14, 15, 16, 17, 19, 20, 21
Ward	T156N	R87W	19, 20, 21, 22, 23, 24
Ward	T156N	R88W	24
Ward	T157N	R81W	24, 25, 26, 27, 28, 29, 30
Ward	T157N	R82W	25, 26, 27, 28, 31, 32, 33
Ward	T157N	R83W	34, 35, 36
Williams	T155N	R95W	4, 5
Williams	T156N	R95W	33, 34, 35, 36

EXHIBIT H.6

redriver REGIONAL COUNCIL
MOVING IDEAS TO ACTIONS

Chase Building
516 Cooper Avenue, Suite 101
Grafton, ND 58237
T: 701.352.3550
F: 701.352.3015
E-mail: RRRC@nd.gov

October 10, 2013

Sara Ploetz
Enbridge Pipelines
1409 Hammond Ave, Second Floor
Superior, WI 54880

Dear Ms. Ploetz,

I am writing in response to your inquiry as to the effects of the Sandpiper pipeline as it relates to the Red River Riparian Project, one of many 319 projects funded through the North Dakota Department of Health. I have reviewed the GIS shape file that you sent and compared it our project sites. While the pipeline project does pass through the Red River Riparian project territory, it would not have an impact on past or present river restoration projects. Attached you will find two shape files. Within these files, the Red River Riparian Project is highlighted in blue, and the Turtle River Watershed is highlighted in green. The Turtle River watershed is the portion of the Red River Riparian Project area watershed traversed by the proposed pipeline.

It is important to note that whenever the pipeline construction passes through a riparian area, or the corridor area along a river, that disturbance should be remediated using sound riparian restoration methods. One such method of restoration involves re-vegetation using riparian plant species native to North Dakota that are suited for the riparian zone level being treated for disturbance. We are here as a resource if you should need any advice with riparian plant species in this region.

Thank you for your inquiry.

Sincerely,

Sarah Braaten

Sarah Braaten
Red River Riparian Project Manager
Red River Regional Council

Enc.

NORTH DAKOTA
DEPARTMENT *of* HEALTH

ENVIRONMENTAL HEALTH SECTION
Gold Seal Center, 918 E. Divide Ave.
Bismarck, ND 58501-1947
701.328.5200 (fax)
www.ndhealth.gov

August 22, 2013

Sara Ploetz
Environmental Analyst II
1409 Hammond Avenue, 2nd Floor
Superior, WI 54880

Re: Enbridge Pipeline (North Dakota) LLC, "Sandpiper Pipeline Project"
Information Request Regarding 303(d) Listed Waters and Stream Classification

Dear Ms. Ploetz:

Thank you for the opportunity to review the material on the Sandpiper Pipeline Project (Sandpiper). In brief your request is to confirm your assessment of 303(d) waters and stream classification in close proximity to Sandpiper's right-of-way.

The North Dakota Department of Health (NDDoH) has evaluated the material on 303(d) listed waters and stream classification and it does appear correct. Additionally, Sandpiper will cross or cross in close proximity to two Nonpoint Source Pollution (NPS) watershed projects (the Red River Riparian Project and the Turtle River Riparian Project). Both NPS Projects are in response to the 303(d) listing, and completion or currently being developed Total Maximum Daily Load (Attachment 1 & 2).

I would suggest that at some point you provide the NPS project coordinators in Sandpiper footprint information on activities in their prospective project areas. I make this suggestion to provide the local individuals an accurate description of Sandpiper and to provide your contacts with close ties to the agricultural and environmental community.

Contact information for the Red River and Turtle River Projects are:

Sara Baaten
Red River Riparian Council
56 Copper Avenue
Grafton, ND 58237
(701) 352-3550

Kristine Larsen
Eastern Grand Forts County SCD
477 Technology Circle, STE 1C
Grand Forks, ND 58203
(701) 772-2321

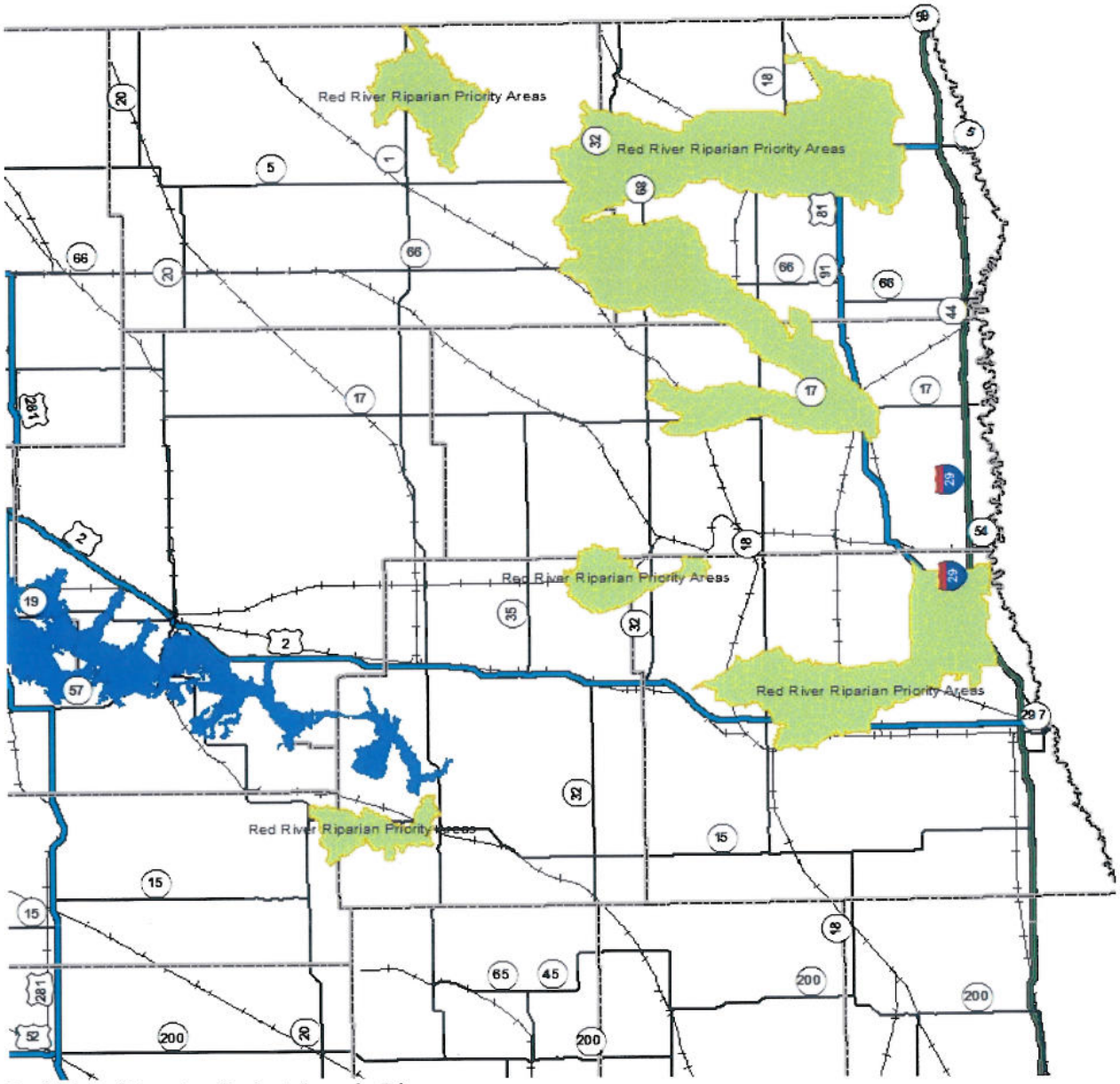
Should you have any questions, I can be reached at 701.328.5268.

Sincerely,

Peter N. Wax
Environmental Scientist
Division of Water Quality

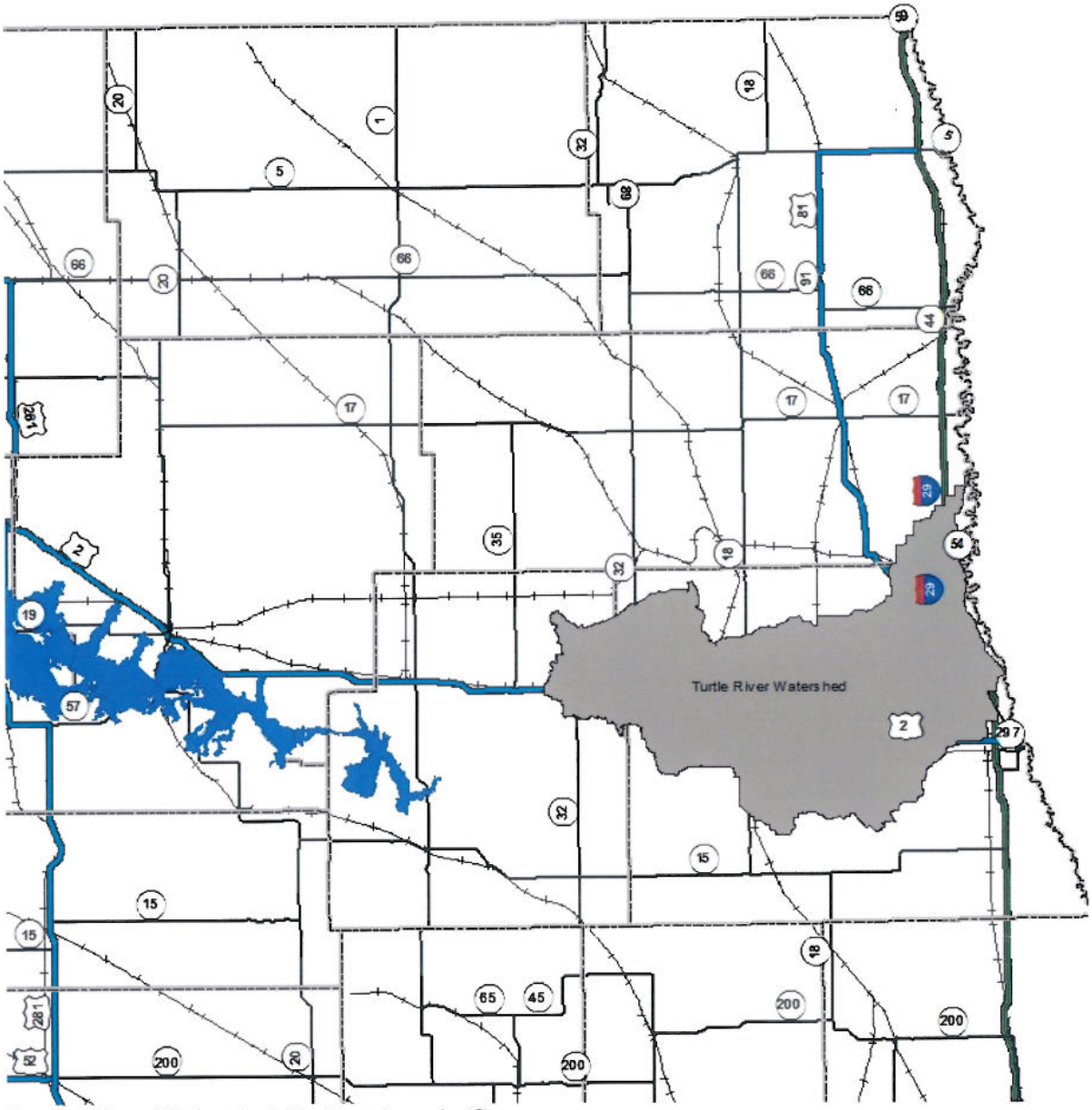
PNW:dlp
Attachments

Attachment 1. Red River Riparian Project.



Red River Riparian Project Area in Lime.

Attachment 2. Turtle River Watershed Project Area.



Turtle River Watershed Project Area in Grey.

September 23, 2013

Kristine Larson
Grand Forks County Soil Conservation District
4775 Technology Circle, STE 1C
Grand Forks, ND 58203

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding the Turtle River Watershed Project

Dear Ms. Larson,

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline called the Sandpiper Pipeline Project ("Sandpiper") that will begin at Enbridge's Beaver Lodge station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge recently contacted the North Dakota Department of Health ("NDDH") regarding Impaired Waters near the project and NDDH directed us to contact you regarding the Nonpoint Source Pollution Turtle River Watershed Project. Based on maps provided by the NDDH, it appears Sandpiper may cross the Turtle River Watershed Project in Nelson and Grand Forks counties. To better assist us in the environmental review of our project, we are interested in obtaining information on the watershed project.

We expect construction to start on the permitted route by fourth quarter of 2014 and end in first quarter of 2016, depending on regulatory approvals and final construction planning. Enbridge has contracted with Merjent, Inc. ("Merjent") to assist with environmental review and permitting on Sandpiper. To facilitate our environmental review, we are respectfully requesting the following information be provided:

- GIS shapefile (if possible) displaying the boundaries of the Turtle River Watershed Project area;
- location(s) of any completed or planned restoration projects in the vicinity of the Sandpiper route;
- any special requirements, restrictions, or specifications regarding constructing pipelines across the Turtle River Watershed Project area; and
- any additional information you deem relevant to Sandpiper.

To assist in your review of this request, we have enclosed the following information:

- a project map of the proposed pipeline route;
- a project map of North Dakota counties crossed;
- a county overview maps (Nelson and Grand Forks counties); and
- a shapefile of a 2-mile-wide study area and proposed centerline associated with the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County (Nelson and Grand Forks) Overview Maps
Shapefile of 2-mile-wide Sandpiper Study Area and Centerline

cc: Paul Hartzheim, Merjent

September 23, 2013

Sarah Braaten
Red River Regional Council
Chase Building
516 Cooper Avenue, Suite 101
Grafton, ND 58237

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding Red River Riparian Project

Dear Ms. Braaten,

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline called the Sandpiper Pipeline Project ("Sandpiper") that will begin at Enbridge's Beaver Lodge station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge recently contacted the North Dakota Department of Health ("NDDH") regarding Impaired Waters near the project and NDDH directed us to contact you regarding the Nonpoint Source Pollution Red River Riparian Project. Based on maps provided by the NDDH, it appears that the Sandpiper study area may cross the Red River Riparian watershed project in Grand Forks County. To assist us in the environmental review and planning of our project, we are interested in obtaining information on the watershed project.

We expect construction to start on the permitted route by fourth quarter of 2014 and end in first quarter of 2016, depending on regulatory approvals and final construction planning. Enbridge has contracted with Merjent, Inc. ("Merjent") to assist with environmental review and permitting on Sandpiper,

To facilitate our environmental review, we are respectfully requesting the following information be provided:

- GIS shapefile (if possible) displaying the boundaries of the Red River Riparian Project area;
- location(s) of any completed or planned restoration projects in the vicinity of the Sandpiper route;
- any special requirements, restrictions, or specifications regarding constructing pipelines across the Red River Riparian Project area; and
- any additional information you deem relevant to Sandpiper.

To assist in your review of this request, we have enclosed the following information:

- a project map of the proposed pipeline route;
- a project map of North Dakota counties crossed;

- a county overview map (Grand Forks County); and
- a shapefile of a 2-mile-wide study area and proposed centerline associated with the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County (Grand Forks) Overview Maps
Shapefile of 2-mile-wide Sandpiper Study Area and Centerline

cc: Paul Hartzheim, Merjent

EXHIBIT H.7

Claire Cunningham

From: Claire Cunningham
Sent: Friday, April 05, 2013 1:59 PM
To: 'mhaupt@nd.gov'
Subject: FW: PROPOSED ENBRIDGE SAND PIPER PIPELINE PROJECT

From: Claire Cunningham
Sent: Friday, April 05, 2013 1:56 PM
To: 'mhaupt@nd.gov'
Subject: PROPOSED ENBRIDGE SAND PIPER PIPELINE PROJECT

Hello again Mike,
Thank you for the conversation and all the information.

To recap:
My name is Claire Cunningham and I am the contract permitting agent on the Enbridge proposed Sand Piper pipeline, a 560 mile line that will bring No Dakota crude oil from the Beaver Lodge Station to a terminal in Superior, Wi.
The purpose of my call was to define the requirements for survey permissions from the North Dakota Land Trust. It appears that the proposed pipeline will cross 5 school land sections in Williams and Mountrail Counties.
I understand your Department wants to be involved in the routing process and the process begins with the application that requires a list of the proposed tracts and information on survey sub-contractors.
I am lacking some information to complete your application: not all subs have been brought on board and 30 year title is just being pulled.
I will also contact Trevor Seely, the Enbridge agent you have been working with.

Thank you again for your time and assistance.
Claire Cunningham

THANKS
Claire Cunningham
Senior Permitting Agent
Authorized Agent Enbridge Pipelines (North Dakota) LLC
3001 South Columbia Road, Suite E
Grand Forks, ND 58201
Cell 802-989-2489-C
Claire.cunningham@contractlandstaff.com

EXHIBIT H.8

Enbridge Pipelines (North Dakota) LLC - Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 9, 2013

Patrice Hess
North Dakota State Water Commission
900 East Boulevard Avenue, Dept. 770
Bismarck, ND 58505-0850

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding North Dakota sovereign lands

Dear Ms. Hess,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request recommendations for permitting and resource/program and agency contact information that may aid in the development of construction plans and procedures.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. The following items are enclosed to assist in your review of this request:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed; and
- a shapefile of a 2-mile-wide study area (on disc).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding state sovereign lands and potential permit requirements. Based on a desktop review of publicly available information, the Red River of the North is the only state sovereign land crossed by the project. Enbridge is currently evaluating its pipeline construction crossing methods for the Red River of the North. Among the crossing methods being considered is the Horizontal Directional Drill method, which would avoid direct impacts within the ordinary high water mark of the river.

To facilitate our environmental review, we are requesting the following information for state sovereign lands within the 2-mile-wide study area associated with the project:

- confirmation that the Red River of the North is the only state sovereign land located within the 2-mile-wide study area associated with the project;
- location(s) of existing permitted structures on the Red River of the North;
- any special requirements, restrictions, or specifications regarding constructing pipelines across state sovereign lands; and
- recommendations for streamlining the permitting process through your office, including identifying any supplemental materials that are not required on the application but that are helpful to your office for processing the permit, and a summary of the permitting steps and timeframes following permit submittal.

If additional state sovereign lands other than the Red River of the North are crossed by the project, please indicate the name of the waterbody and approximate location of the crossing in your response. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Project Enclosures: Project and State overview maps
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

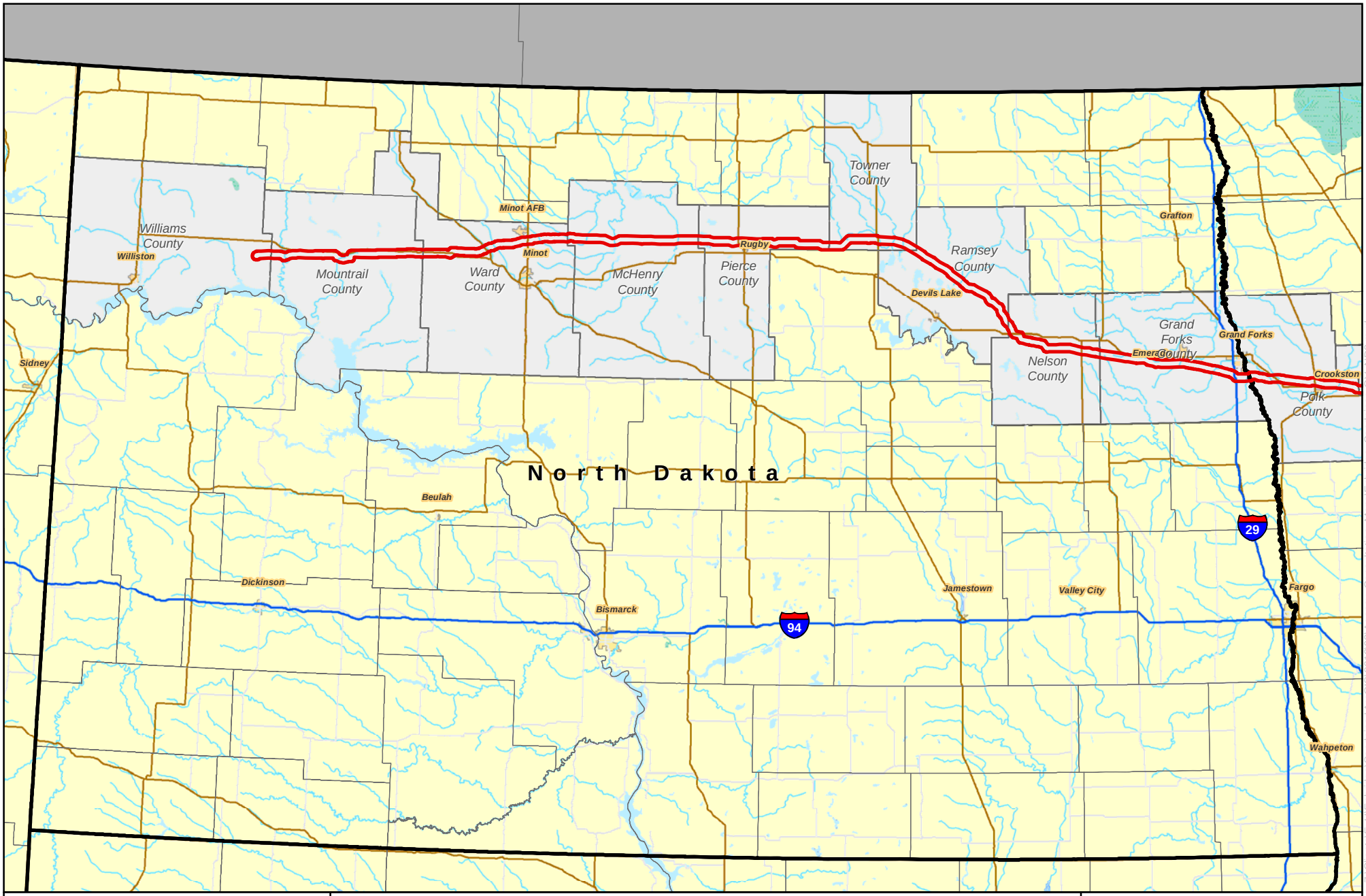
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

September 24, 2013

Bruce Engelhardt
Water Development Division Director
North Dakota State Water Commission
900 E. Boulevard Avenue
Bismarck, ND 58505-0850

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding NAWS and WAWS corridor intersection

Dear Mr. Engelhardt,

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline called the Sandpiper Pipeline Project ("Sandpiper") that will begin at Enbridge's Beaver Lodge station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

To better assist us in the environmental review and planning of our project, we are interested in obtaining information regarding the North Dakota State Water Commission's ("NDSWC") Northwest Area Water Supply ("NAWS") and Western Area Water Supply ("WAWS") projects in the vicinity of Sandpiper.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks counties. The following items are enclosed to assist in your review of this request in respective counties that the NAWS and WAWS projects are or will be implemented:

- project-wide map;
- project map of North Dakota counties crossed;
- county overview maps (Williams, Mountrail, Ward, McHenry, and Pierce) in the vicinity of NAWS/WAWS; and
- a shapefile of a 2-mile-wide study area and proposed centerline associated with the project (on CD-ROM).

Based on a review of NDSWC website[1] maps, it appears that Sandpiper may cross constructed and operational NAWS water supply pipelines in two locations—near the cities of Berthold and Minot. It is also possible that constructed or planned pipelines associated with the WAWS project in Williams and Mountrail counties may exist within the study corridor. Please verify the location(s) of any intersections of Sandpiper with either NAWS or WAWS. We respectfully request that your office provide a GIS shapefile of the NAWS and WAWS projects (if possible) to assist in locating potential crossings. If a shapefile is not available, please provide

[1] http://www.swc.state.nd.us/4dlink9/4dcgi/GetContentPDF/PB-214/A%20NAWS.pdf

geographic coordinates (e.g., latitude/longitude), Public Land Survey System sections, or a map marked with the location(s) of NAWS and/or WAWS projects that Sandpiper may encounter. If NDSWC has any special management plans, permitting, or conditions for crossing NAWS or WAWS, or has any specific concerns regarding this project, please provide that information with your response.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County Overview Maps
Shapefile of 2-mile-wide Sandpiper Study Area and Centerline

cc: Paul Hartzheim, Merjent

Sandpiper Rev. C Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

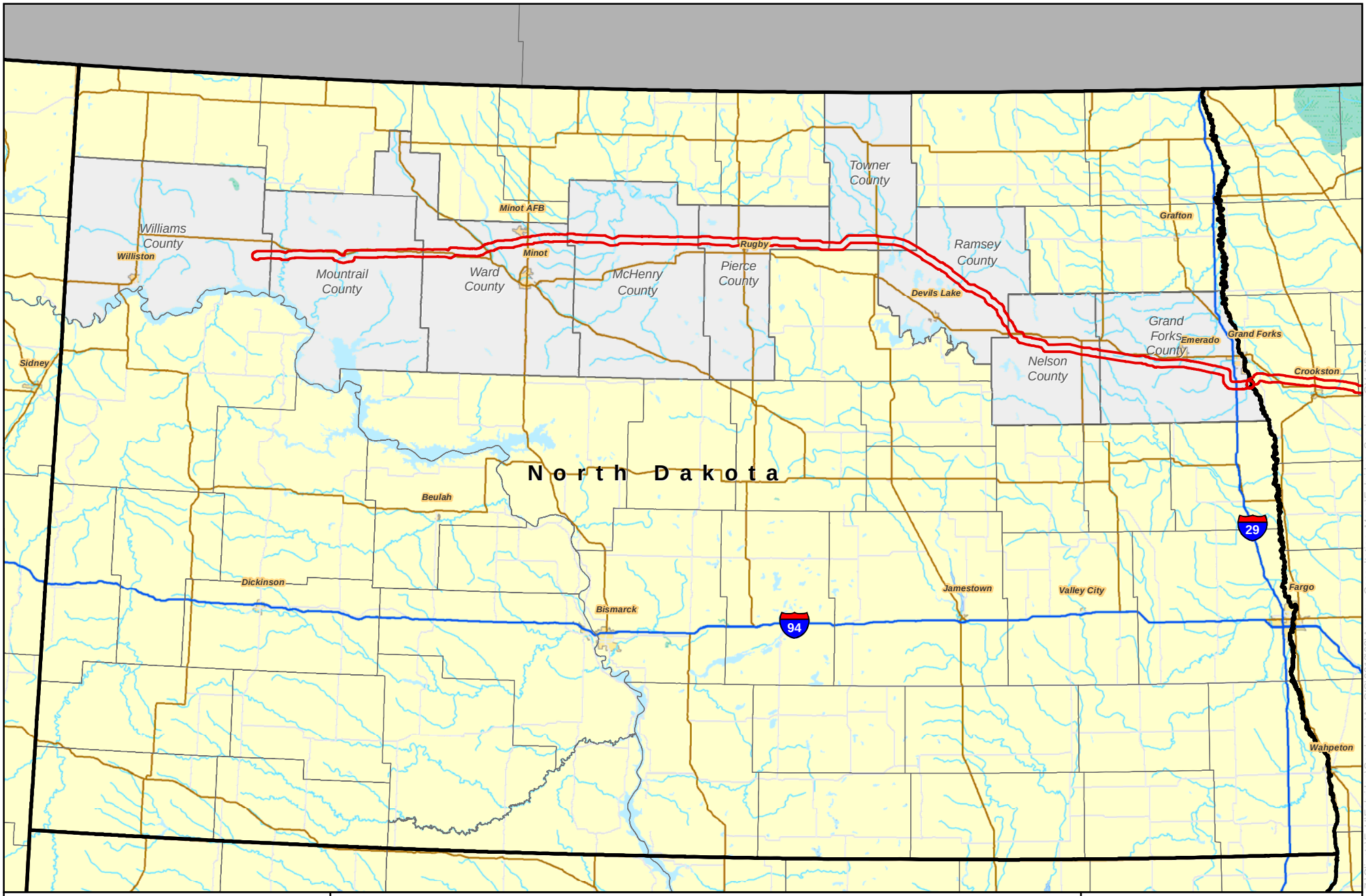
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\07\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (8/1/2013)



Sandpiper Rev. C Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

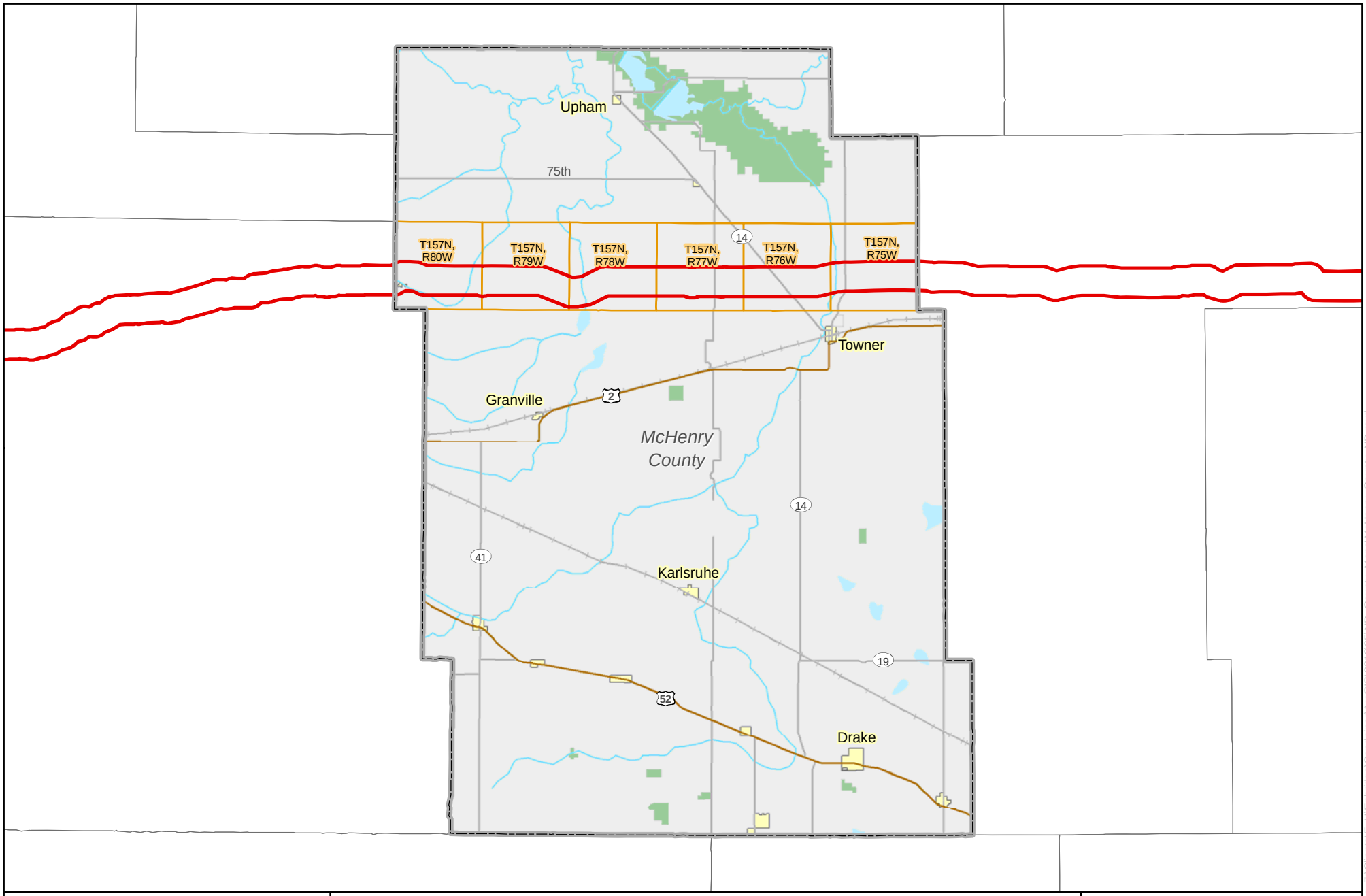
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (8/1/2013)



Sandpiper Rev. A Study Area

0 4.5 9 Miles

1 inch = 9 miles

N

Enbridge Pipelines (North Dakota) LLC

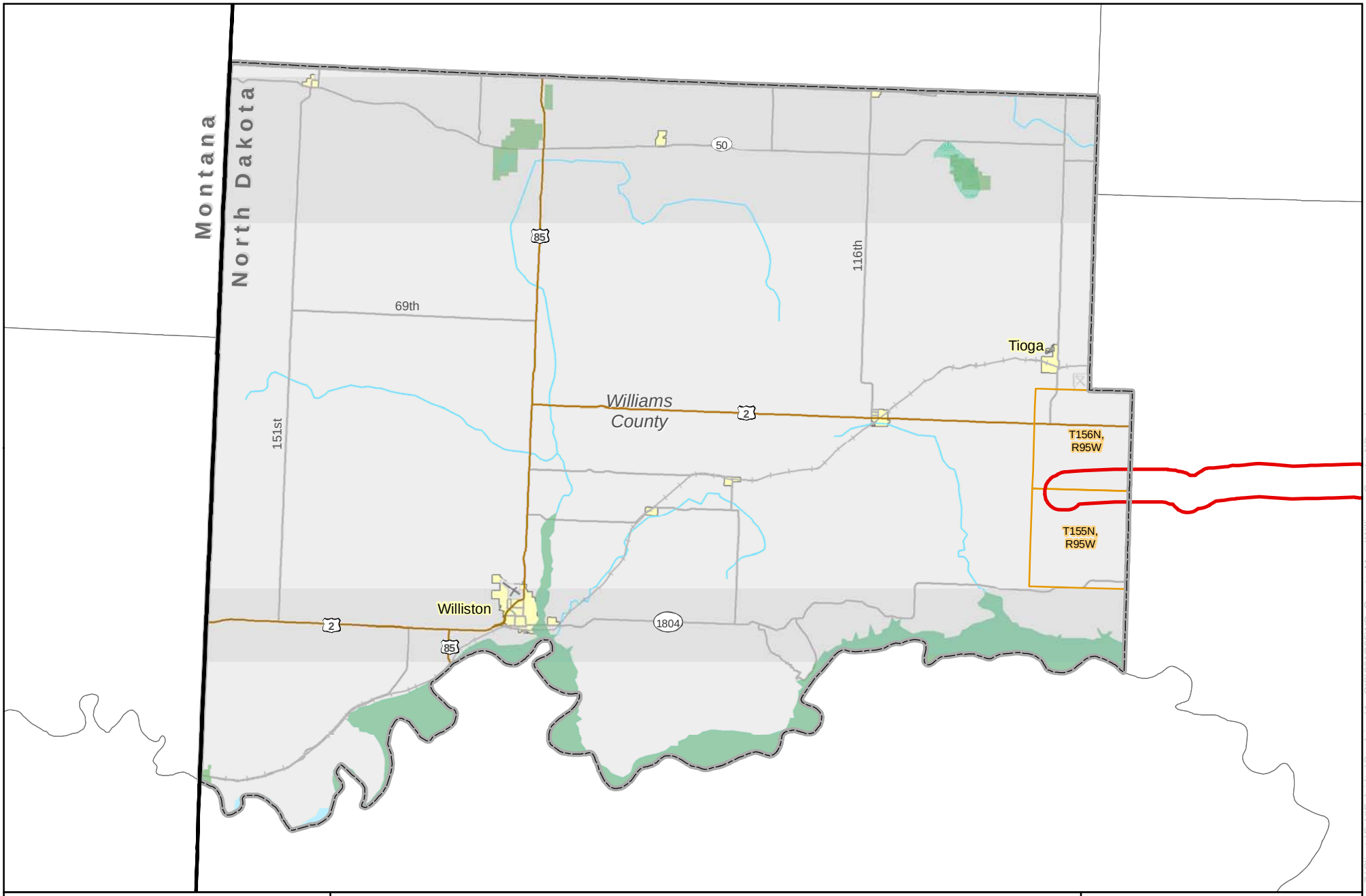
Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\McHenry_County_ND.mxd

Date: (5/29/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

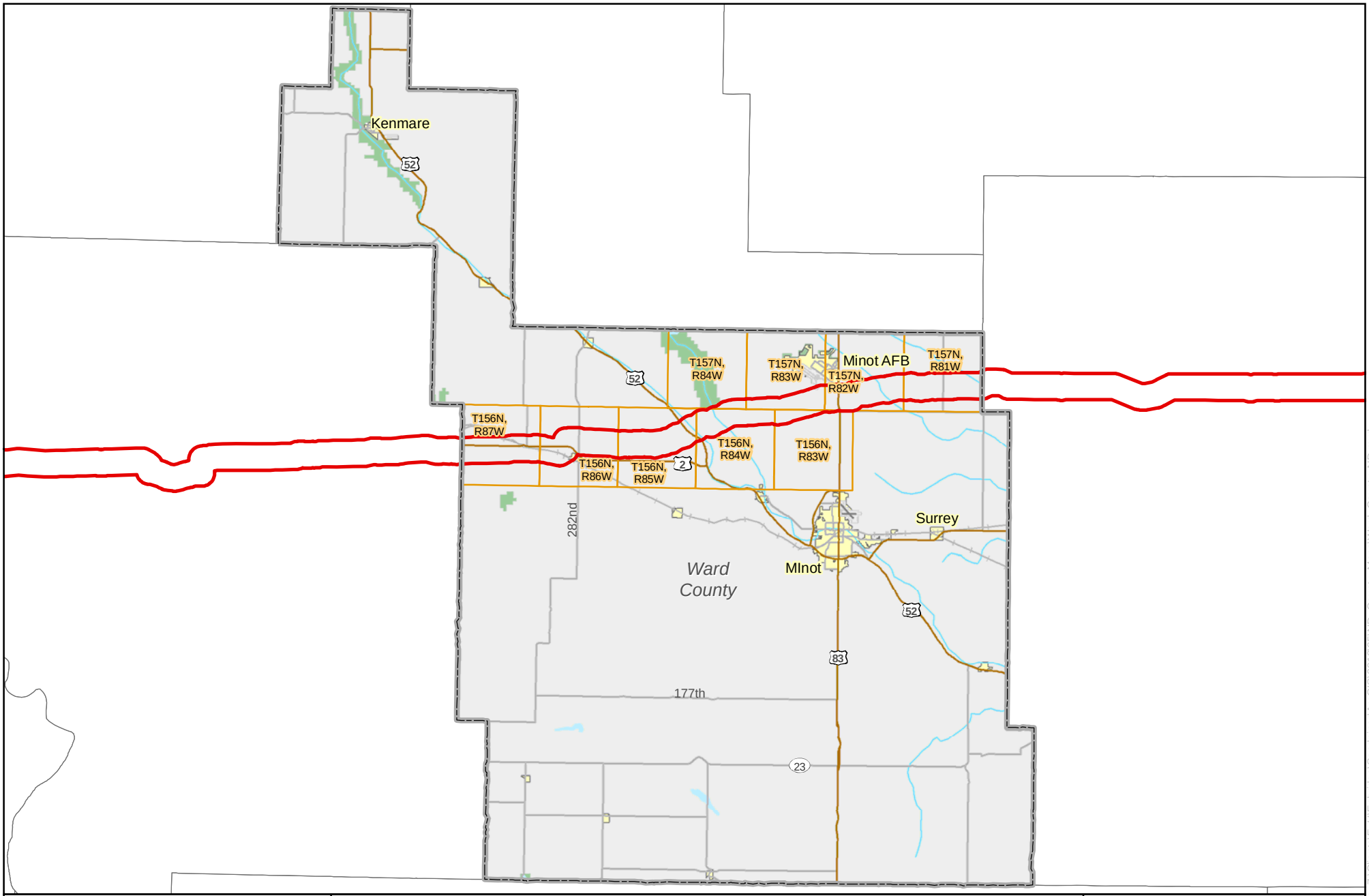
Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Williams_County_ND.mxd

Date: (5/29/2013)



Sandpiper Rev. A Study Area

0 5 10 Miles

1 inch = 10 miles

N

Enbridge Pipelines (North Dakota) LLC

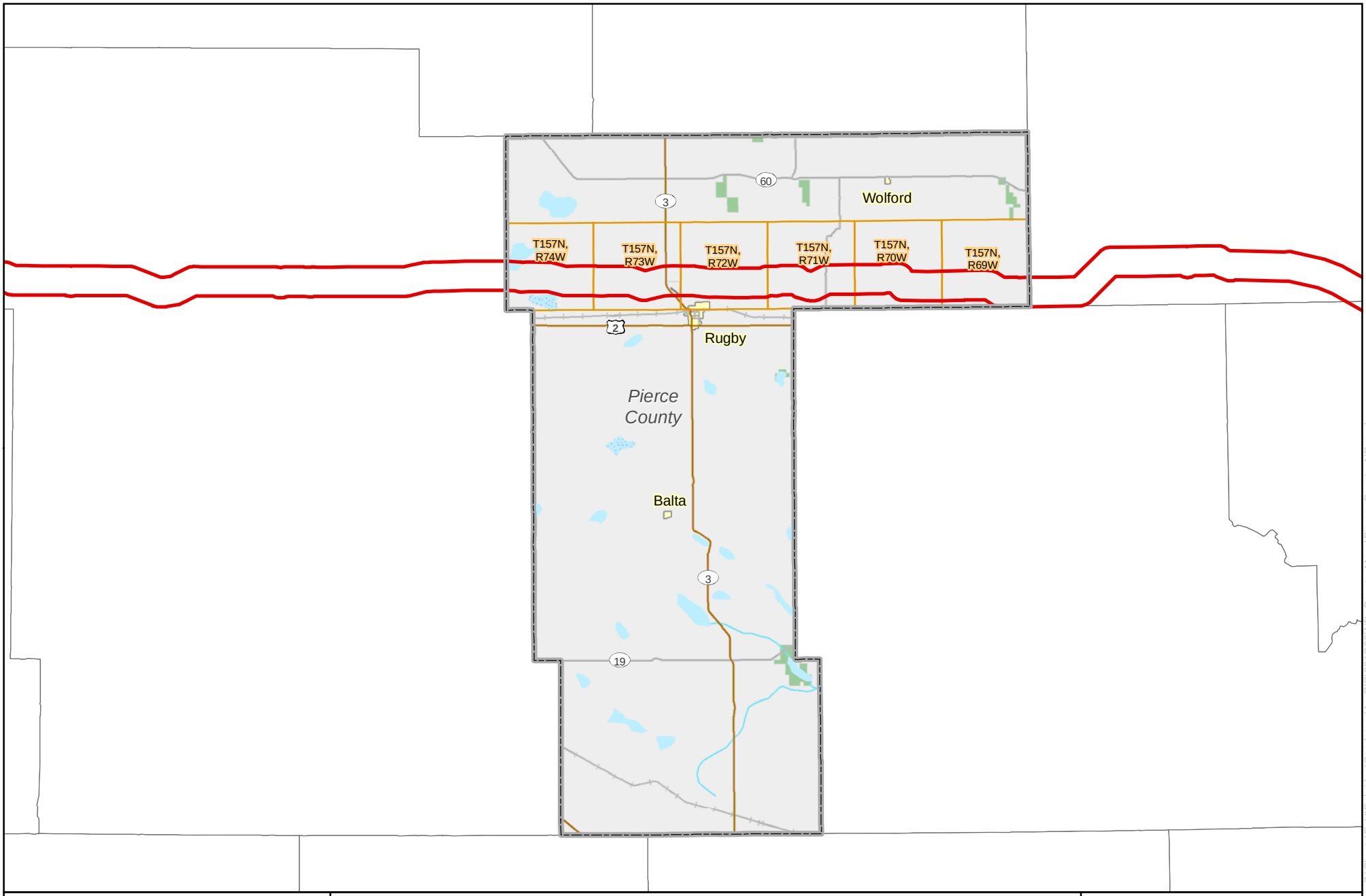
Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Ward_County_ND.mxd

Date: (5/29/2013)



Sandpiper Rev. A Study Area

0 4.5 9 Miles

1 inch = 9 miles

N

Enbridge Pipelines (North Dakota) LLC

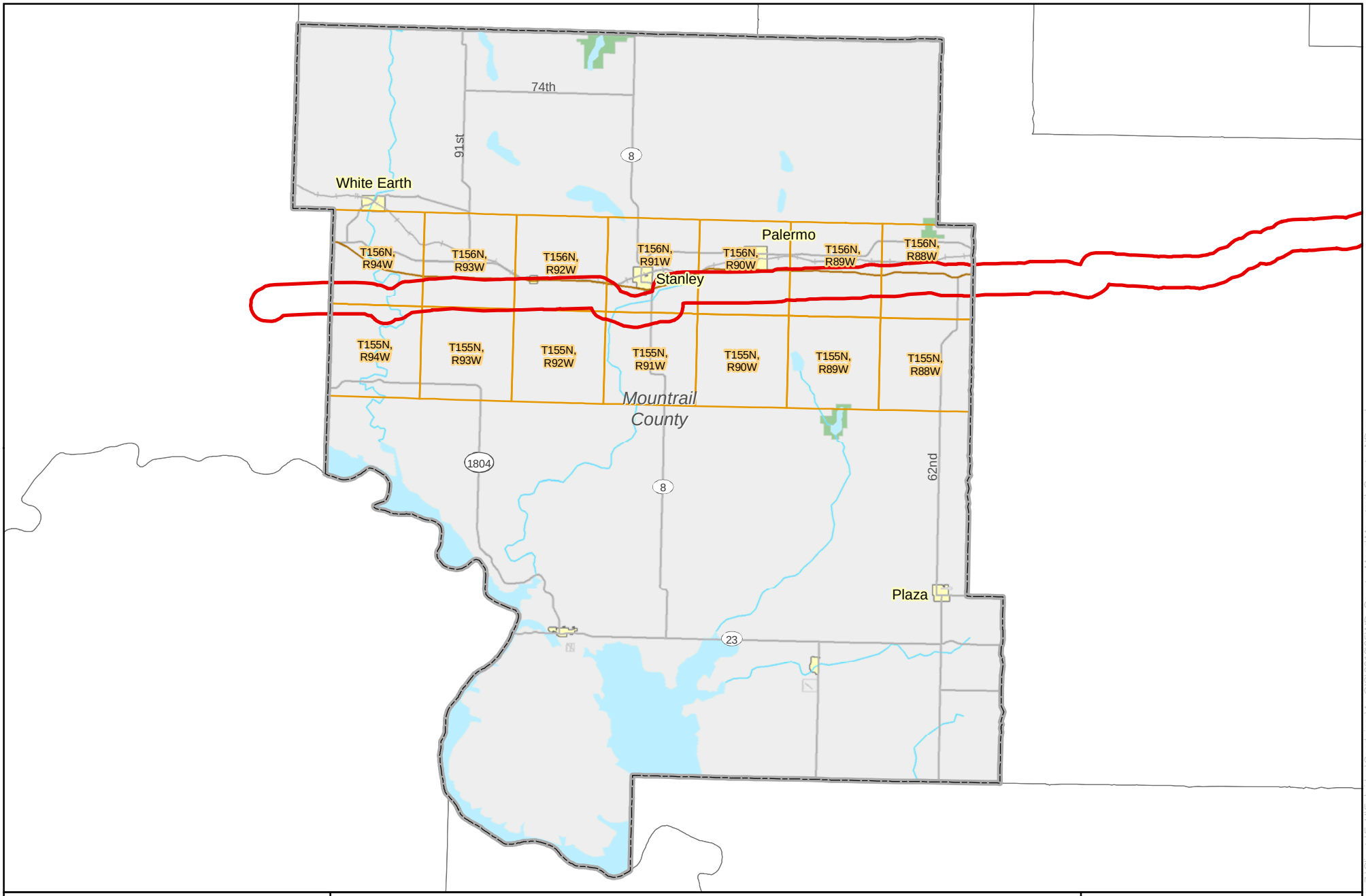
Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Pierce_County_ND.mxd

Date: (5/29/2013)



Sandpiper Rev. A Study Area

0 4.25 8.5 Miles

1 inch = 8.5 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Mountrail_County_ND.mxd

Date: (5/29/2013)

EXHIBIT H.9

USDA United States Department of Agriculture
Farm and Foreign Agricultural Services
Farm Service Agency
North Dakota State Office
1025 28th St S
Fargo, ND 58103

May 13, 2013

Control Number: 38-000-2013-000005

Gayle M Konik
Manager, Environment
Enbridge Pipelines (North Dakota) LLC
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880

Dear Ms. Konik:

This responds to your Freedom of Information Act (FOIA) request (copy attached) dated April 22, 2013, control number 27-000-2013-00015. This also responds to your FOIA requests sent to our counties of Williams, Mountrail, Ward, McHenry Pierce, Towner, Ramsey, Nelson, and Grand Forks in North Dakota.

In response to your request, we located 10 North Dakota County CRP layer shapefiles With respect to these files we are withholding all files in full, pursuant to 5 U.S.C. § 552 (b)(3) of the FOIA. Exemption 3 protects information included in FSA's records specifically exempted from disclosure by another Federal Statute.

In this instance, Section 1619(b) of the Food, Conservation and Energy Act of 2008 prohibits disclosure of the information contained in any type of USDA geospatial information system (GIS) with producer- provided information about agricultural land or operations.

The records you have requested include information that FSA has obtained from agricultural producers or landowners that concern their farming or agricultural operation- including farming practices, conservation practices, or the land itself. This information is required to be provided to FSA in order for the agricultural producers and landowners shown on these records to participate in FSA's farm programs.

Farm Service Agency does not maintain GIS shapefile layer for the information requested below. Therefore, we have found no records responsive to your request for GIS shapefiles for the UTM location of the center point of the parcel for the following lands:

- Subject to Debt for Nature Contracts and Easements
- subject to FSA (formerly FmHA) mortgages
- subject to restrictive easements to protect resources such as wetlands and threatened or endangered species
- Known locations of noxious and/or invasive weed species along the proposed route or

FSA USDA is an equal opportunity provider and employer.

- Identification of any lands/easements that may be enrolled in programs not described above.

If you believe our decision to withhold this information is incorrect, you may appeal it within forty-five (45) days of receipt of this letter. In so doing, please provide us with a brief explanation of why you believe this decision is in error. Please include a copy of your initial request letter in your appeal package, and clearly mark both your letter and its envelope with the words "Freedom of Information Act Appeal." Mail your appeal package to the following address:

Administrator
ATTN: Appeals and Litigation Staff
USDA FSA
1400 Independence Avenue, SW RM 5971-S
Stop Code 0570
Washington, D.C. 20250-0570

Sincerely,

For, Aaron Krauter
State Executive Director
North Dakota State FSA Office

Attachment

USDA is an equal opportunity provider and employer.

EXHIBIT H.10

Enbridge Pipelines (North Dakota) LLC - Gayle Konik, Manager, Environment
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

ENBRIDGE

May 14, 2013

Mr. Lowell Hassler, NRS
Bureau of Land Management, Lewistown Field Office
920 NE Main
Lewistown, MT 59457

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Notification of Southern Route

Dear Mr. Hassler,

As discussed during our call on April 16, 2013, Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. The Sandpiper Pipeline Project (Sandpiper) will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We believe that early and frequent communication with regulatory agencies is important to the successful planning of a project, especially one of this size and scope. In particular, we believe that communication about environmental issues is essential to effectively addressing concerns early on. We understand that it is necessary to have an established lead federal agency in order to fully engage with you regarding our project. Despite the absence of a lead federal agency at this time, we are committed to keeping you informed.

Toward that end, the purpose of this letter is to let you know that we have developed a southern route in Minnesota in addition to the northern route described during a previous call. The southern route would extend from Clearbrook, Minnesota to a point near the Minnesota-Wisconsin border through Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties. At this time, the Sandpiper Pipeline Project may follow either route. Thus, we will begin the survey and information gathering process soon for both routes. A project map of Minnesota counties crossed by the southern route and shapefiles of our 2-mile-wide study areas are enclosed.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

If you have any questions or need further information, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or John Muehlhausen at Merjent (612-746-3661; jmuehlhausen@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project-wide Map
Project Map of Minnesota Counties – both routes
Shapefiles of the 2-mile-wide Study Area (divided into the following segments)

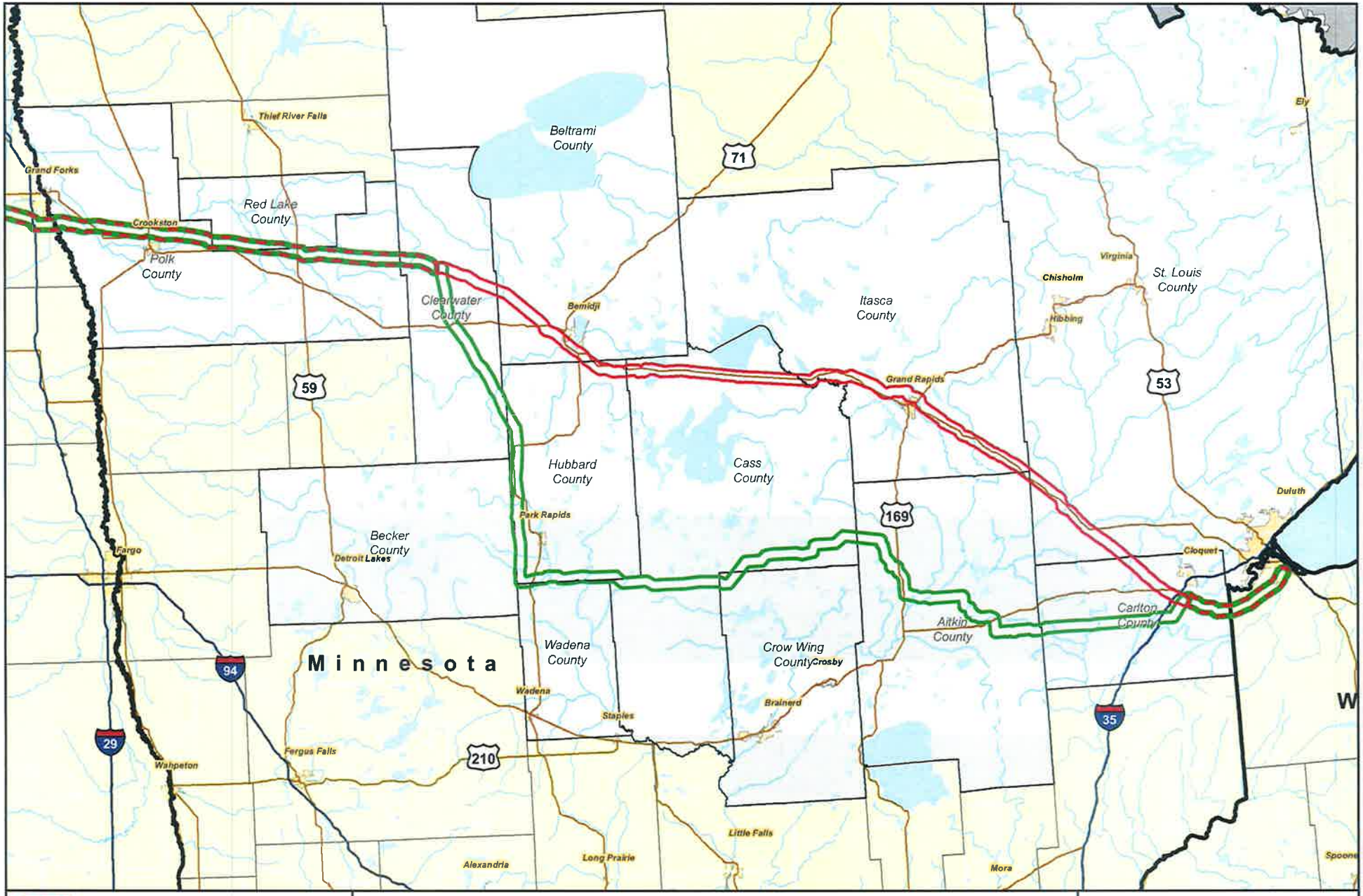
1. Beaver Lodge to Clearbrook
2. Clearbrook to Superior – Northern Route
3. Clearbrook to Superior – Southern Route

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. A Study Area

Northern Route Rev. A Study Area

Southern Route Rev. A Study Area

N

0 12.5 25

1 inch = 25 miles Miles

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Minnesota Project Location Map

ENBRIDGE

EXHIBIT H.11

From:	Gayle Konik
To:	Angela M. Ronayne; Bill J. Regan; John W. Muehlhausen; "sara.ploetz@mrjent.com"
Subject:	Fw: Sandpiper Pipeline Alignment Solicitation of Comments - 15 August 2013
Date:	Tuesday, August 20, 2013 11:26:38 AM

From: McPhillips, Kelly [mailto:kmcphillips@usbr.gov]
Sent: Tuesday, August 20, 2013 10:54 AM
To: Gayle Konik
Cc: Arden Freitag <afreitag@usbr.gov>; Richard Long <rlong@usbr.gov>; Danielle (Dani) Fettig <dfettig@usbr.gov>
Subject: Sandpiper Pipeline Alignment Solicitation of Comments - 15 August 2013

Gayle Konik,

I am responding on behalf of Richard L. Long, Area Manager, Dakotas Area Office, Bureau of Reclamation, Bismarck, North Dakota

Bureau of Reclamation staff have received your scoping notice for the Sandpiper Pipeline and reviewed your maps regarding the pipeline alignment. As stated in your letter and based on your approved pipeline alignment your project lies well north of Reclamation's closest facility, the Fort Berthold Rural Water System on the Fort Berthold Indian Reservation. It avoids Reclamation projects, facilities, and project lands.

However, be advised that the alignment depicted does traverse through the service area of State's, Northwest Area Water Supply (NAWS) project being constructed by State Water Commission.

Should you have additional environmental questions or should your project substantially change, please feel free to contact me as below.

Regards - Kelly

--

Mr. Kelly B. McPhillips

Envr. Spcl.

Bureau of Reclamation

Dakotas Area Office

PO Box 1017

Bismarck ND 58502

701-221-1287

EXHIBIT H.12		
Sandpiper Pipeline Project Agency Consultation Correspondence		
North Dakota County Water Resource Boards (WRB)		
North Dakota Counties	**Date of Initial Consultation Correspondence**	**Date of County's Reply Correspondence**
Williams	07-01-2013	07-03-2013
Mountrail	07-01-2013	No Response
Ward	07-01-2013	No Response
McHenry	07-01-2013	No Response
Pierce	07-01-2013	No Response
Towner	07-01-2013	No Response
Ramsey	07-01-2013	No Response
Nelson	07-01-2013	No Response
Grand Forks	07-01-2013	09-09-2013

GRAND FORKS COUNTY WATER RESOURCE DISTRICT

P. O. BOX 5757 - GRAND FORKS, ND 58206-5757

Phone (701) 780-8312 FAX (701) 787-8146

WATER MANAGERS

DAVID MIDDLETON
2146 29TH AVENUE NE
MANVEL, ND 58256

DARRELL NOTTESTAD
2110 WESTWARD DRIVE
GRAND FORKS, ND 58201

GORDON THOMPSON
691 9TH STREET NE
THOMPSON, ND 58278

KEN FARRELL
1693 36TH ST. NE
LARIMORE, ND 58251

RICHARD AXVIG
3905 SIMONVIEW CT
GRAND FORKS, ND 58201

SECRETARY-TREASURER

PAM AAKER
1637 15TH AVE NE
GRAND FORKS, ND 58201

ATTORNEY

DAN GAUSTAD
P.O. BOX 5758
GRAND FORKS, ND 58206

ENGINEER

JERRY PRIBULA
208 3RD AVE NE
EAST GRAND FORKS, MN 56721

September 9, 2013

Sara Ploetz, Environmental Analyst II
ENBRIDGE PIPELINES
1409 Hammond Avenue, Second Floor
Superior, WI 54880

Subject: County-level Drain Information

Dear Ms. Ploetz:

Enclosed please find your detailed county-level maps where I have provided locations of Legal Drains, Dams and Channels in Grand Forks County.

Sincerely,

Richard Axvig

Richard Axvig, Chairman

RA:pa
Encls.

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

ENBRIDGE®

August 13, 2013

PLEASE REMOVE FLAGS

Richard Axvig, Chairman
Grand Forks County Water Resource Board
P.O. Box 5757
Grand Forks, ND 58206

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Clarification Regarding County-level Drain Information Request

Dear Mr. Axvig,

Per your request, I am providing you with more detailed, county-level maps for Enbridge Pipelines (North Dakota) LLC's ("Enbridge") Sandpiper Pipeline Project. As stated in my earlier letter, I would appreciate receiving the following information specific to Grand Forks County:

- Locations of county-regulated drains, ditches, and/or other drainage features; ✓
- Special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features; 3ft Below bottom of our Ditch!
- Local ordinances or regulations related to drainage; and
- Permits issued through your office which may be applicable to the project, as well as a summary of the permitting process and anticipated timeframes. Written Permits when Crossing DRAINAGE CHANNELS by LOCATION or NAME!

I understand that your office can provide the locations of county-regulated drainage features marked on a hard copy map. Please use the aerial and topographic maps attached to this letter to assist you with this task. Also, please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz

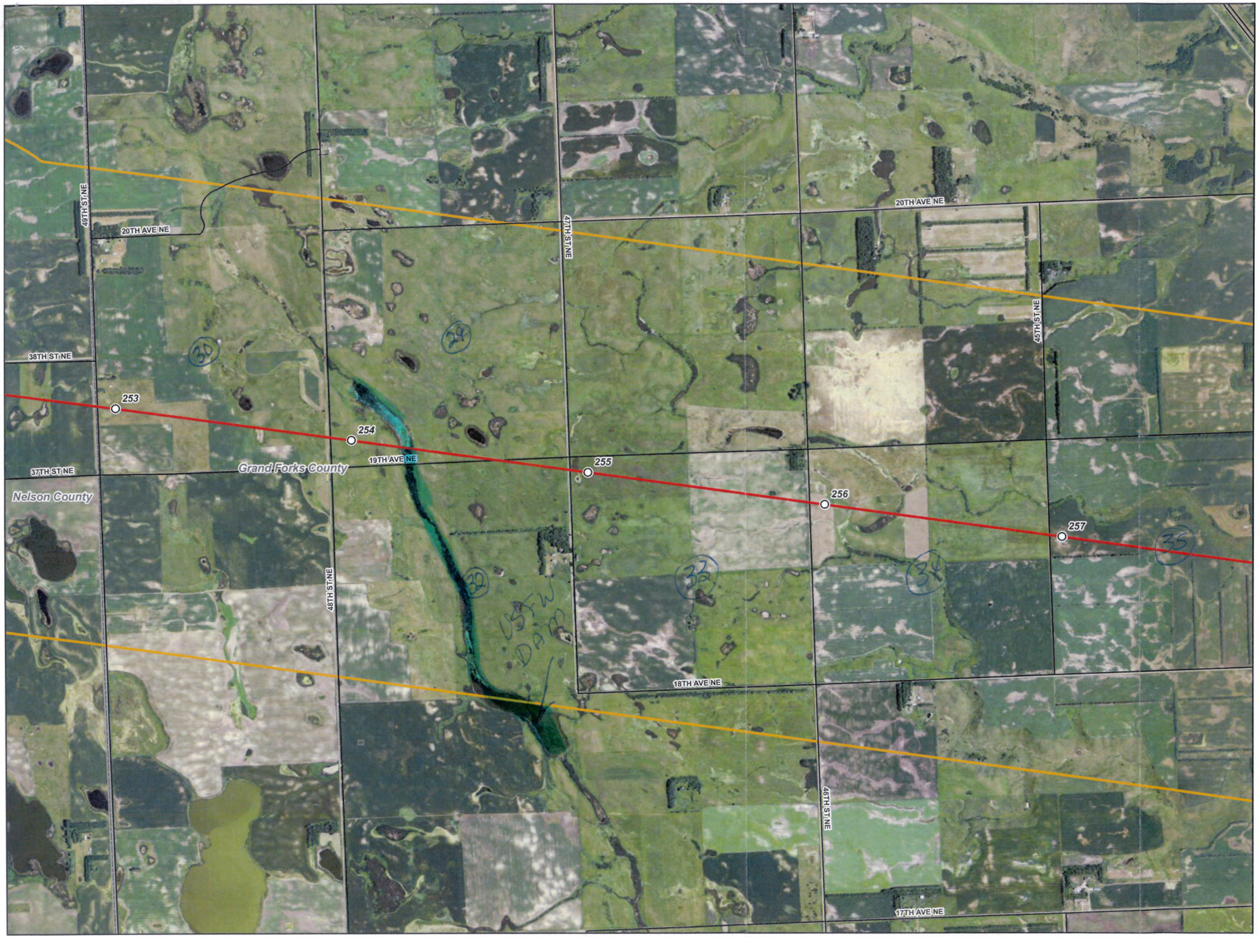
Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Project Enclosures: Detailed project route mapset for Grand Forks County

cc: Paul Hartzheim, Merjent

Aerial Route Maps
Grand Forks County, North Dakota

Topographic Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

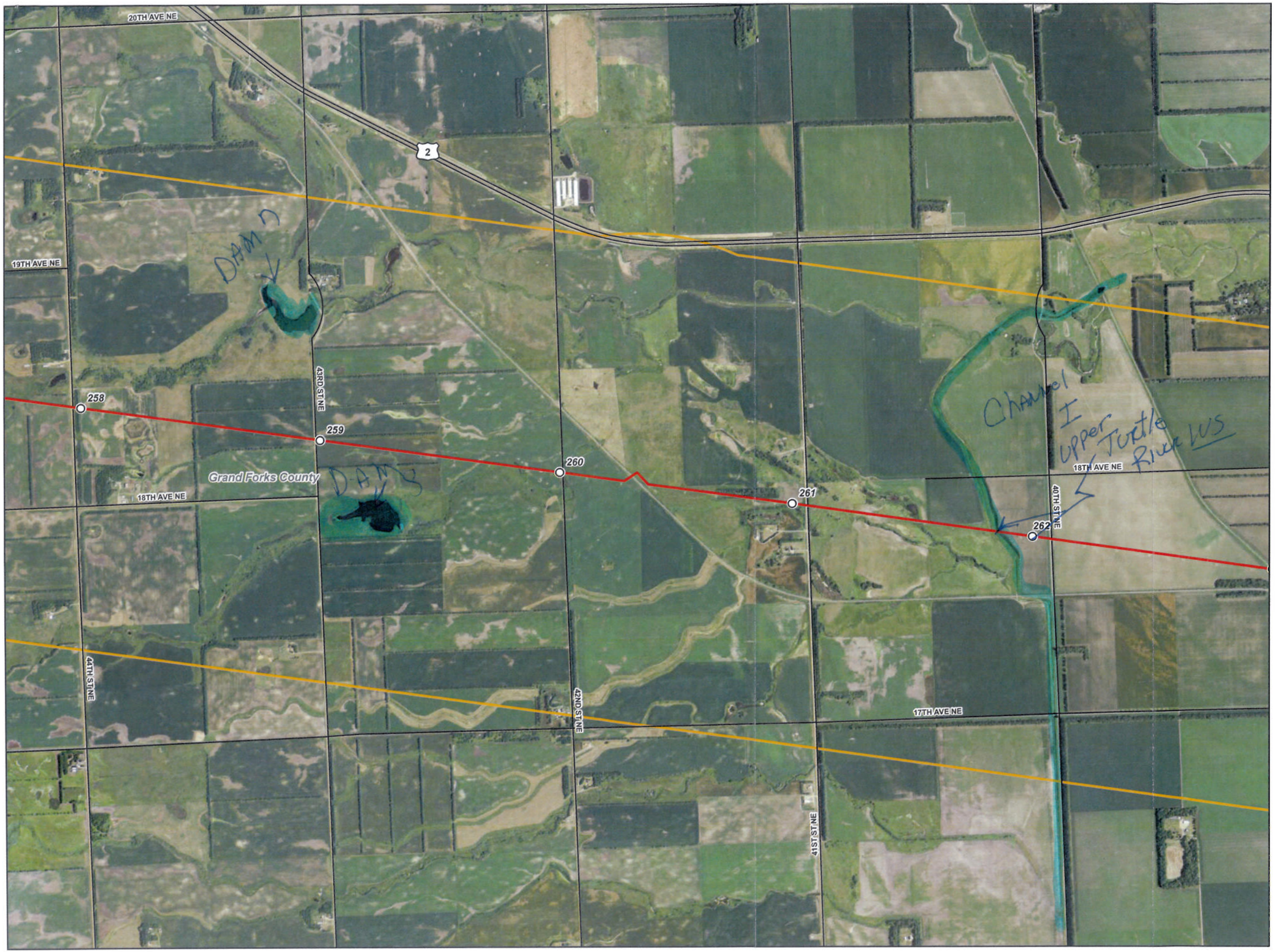
- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

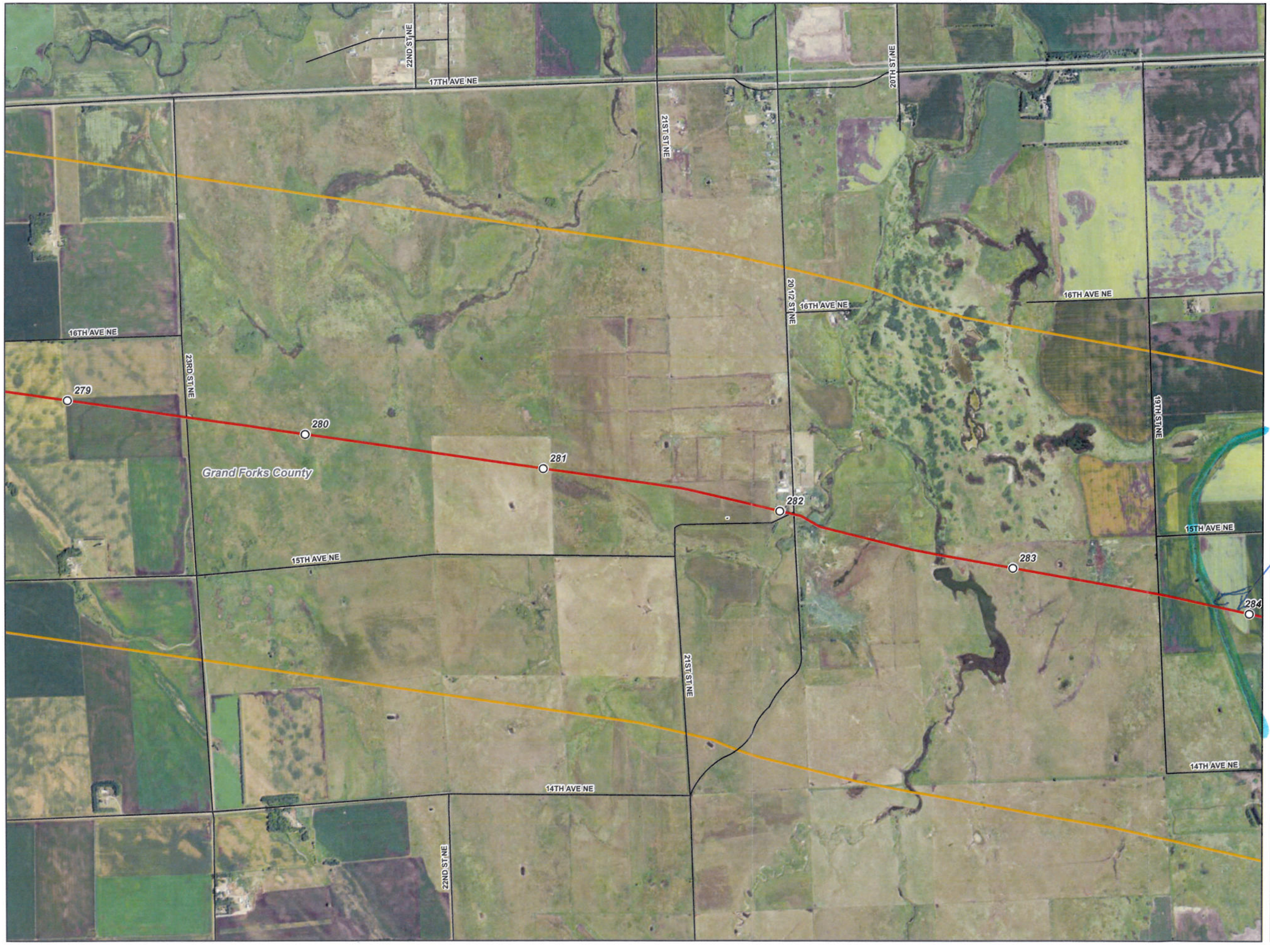
- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

English Coulee Diversion

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

0 1,000 2,000 Feet

1 inch = 2,000 feet

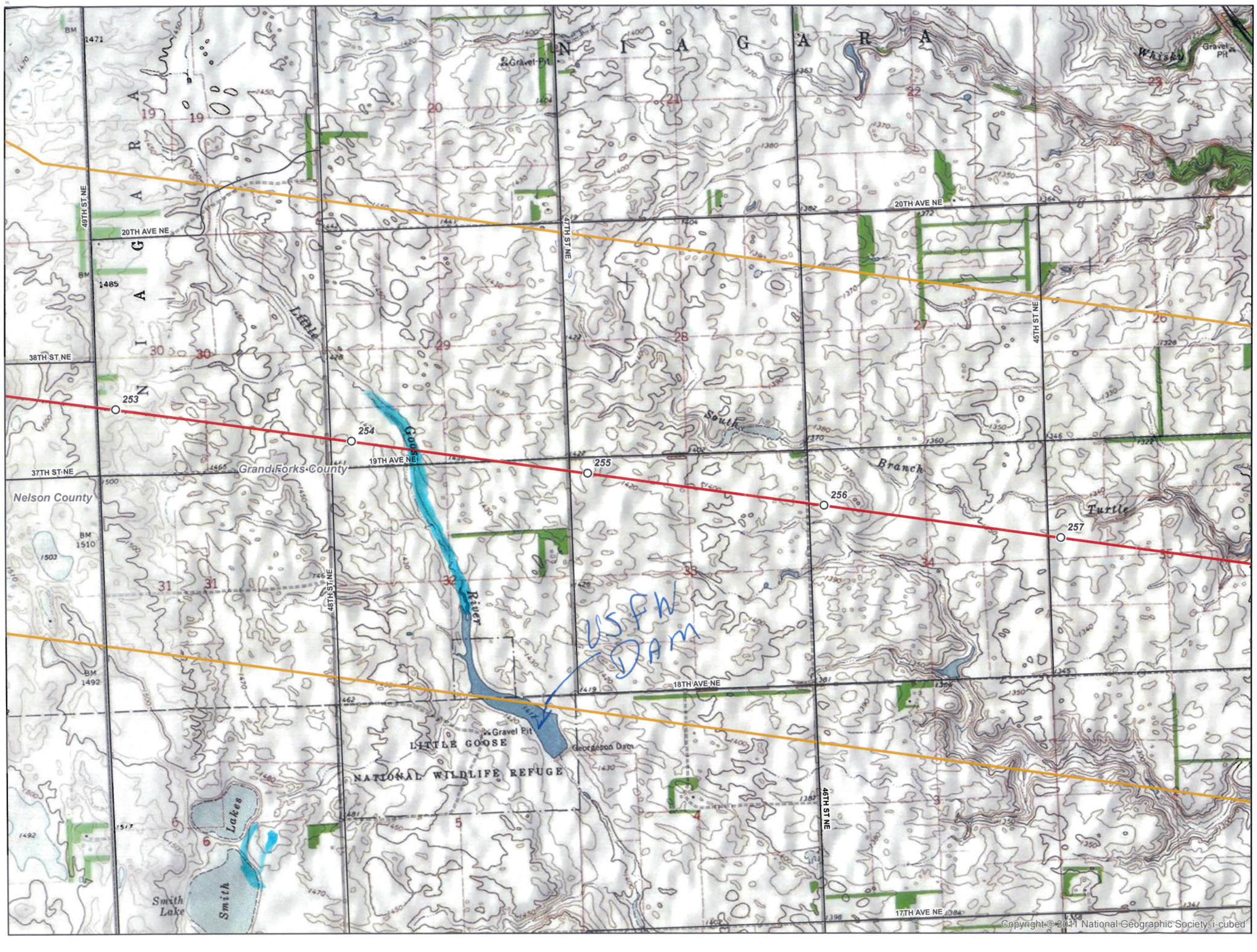
N
W E
S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

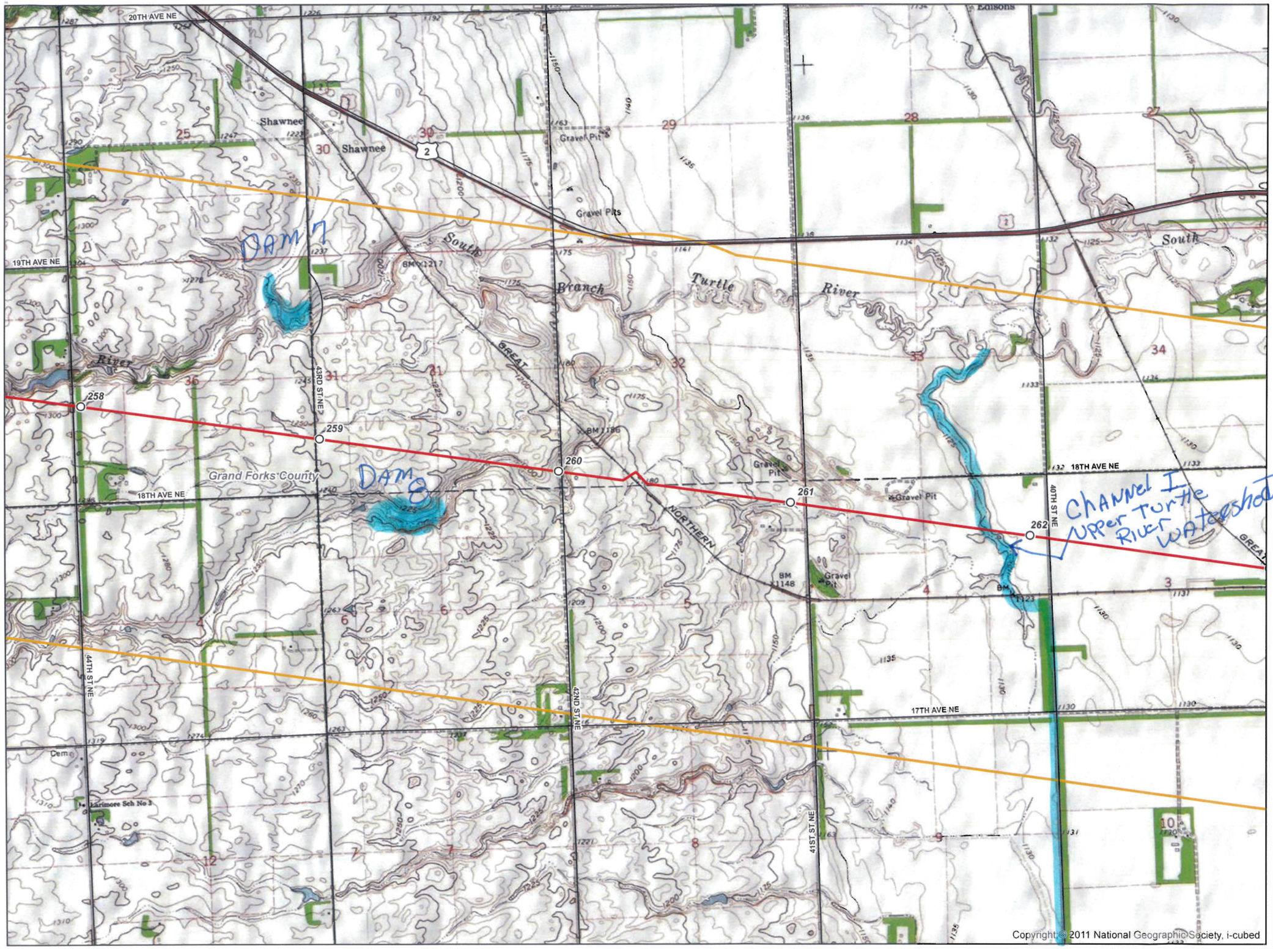
- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

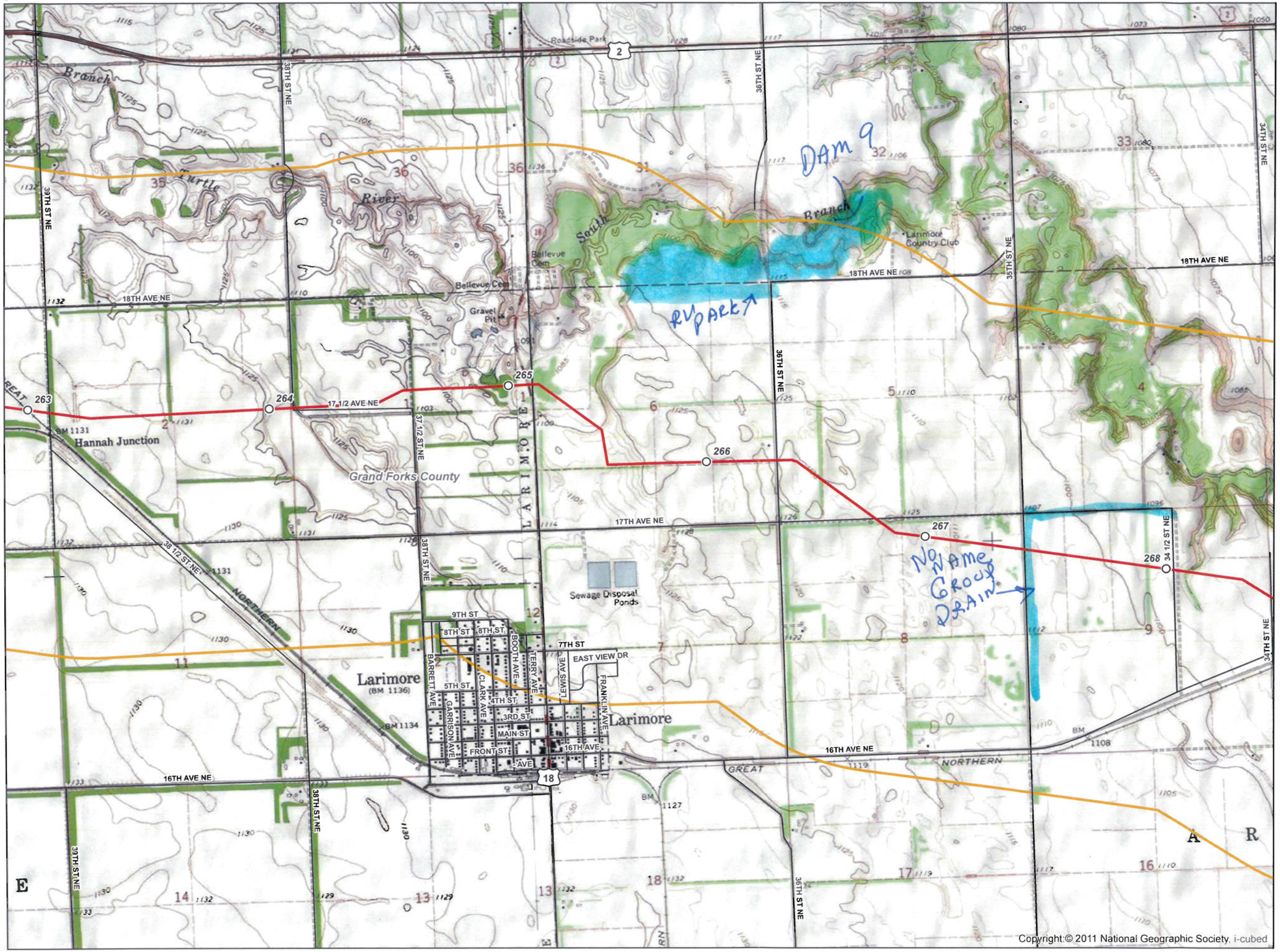
- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

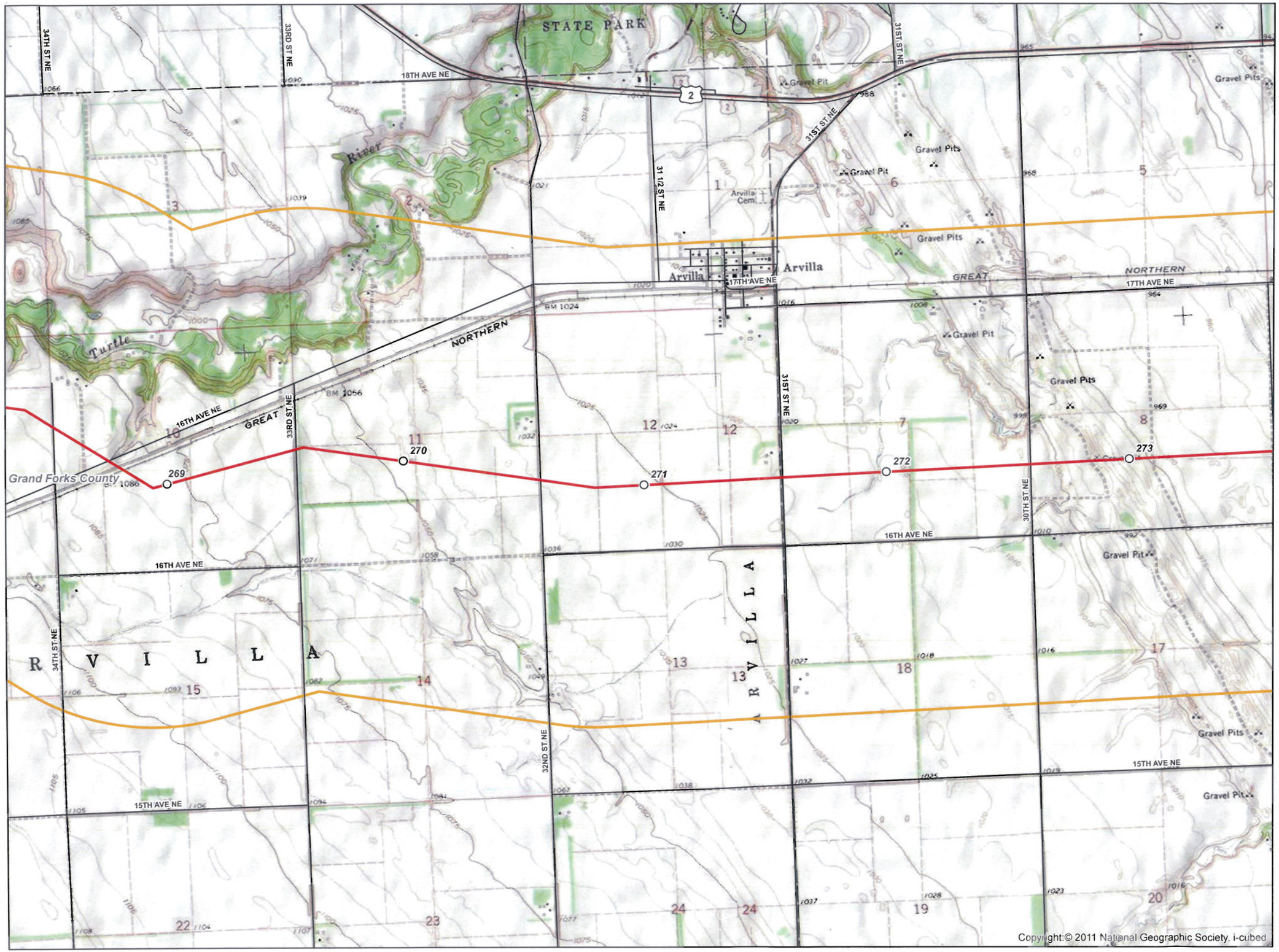
- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



Copyright © 2011 National Geographic Society, i-cubed

0 1,000 2,000 Feet

1 inch = 2,000 feet

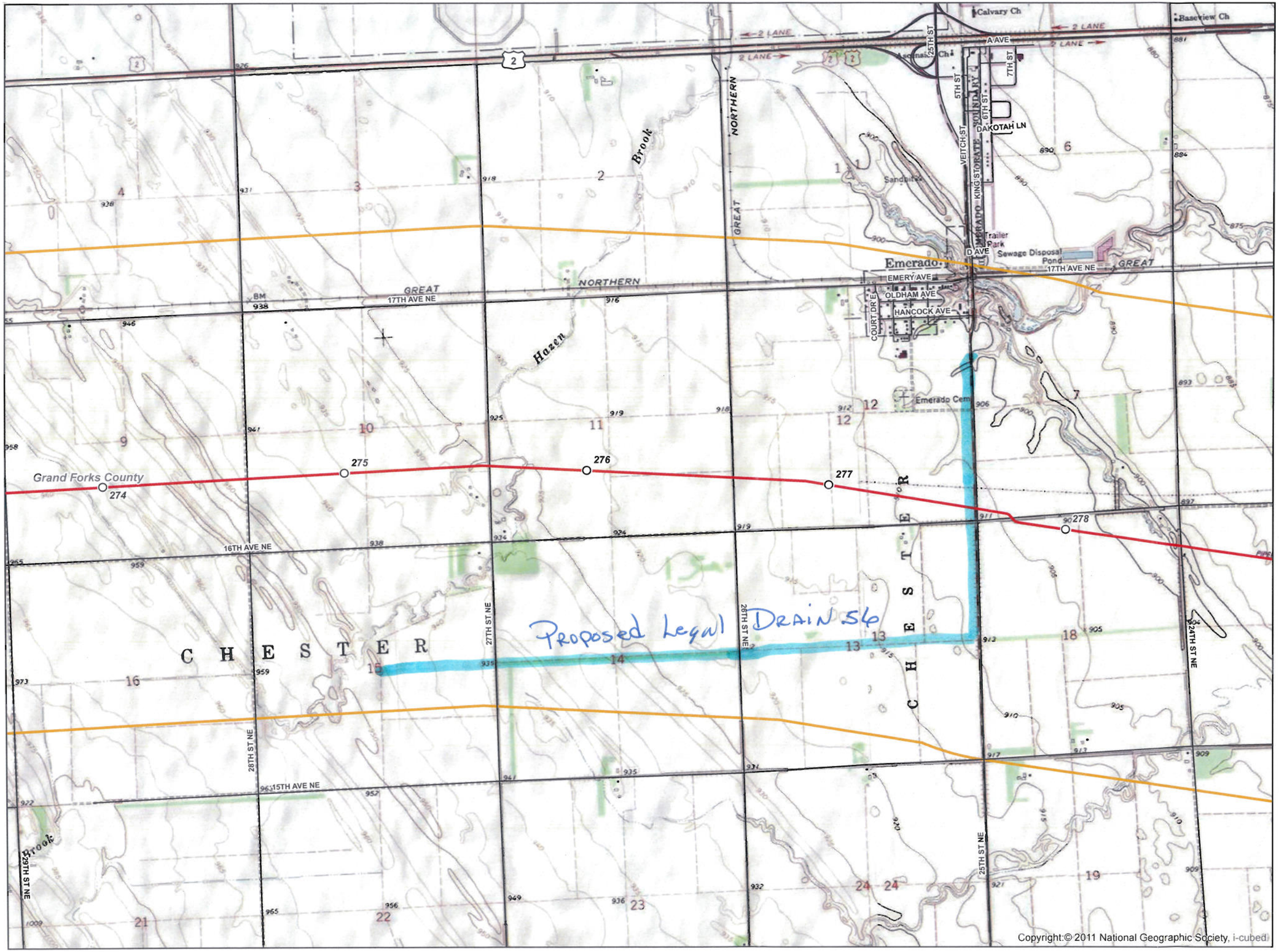
N
W E
S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



Copyright:© 2011 National Geographic Society, i-cubed

0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

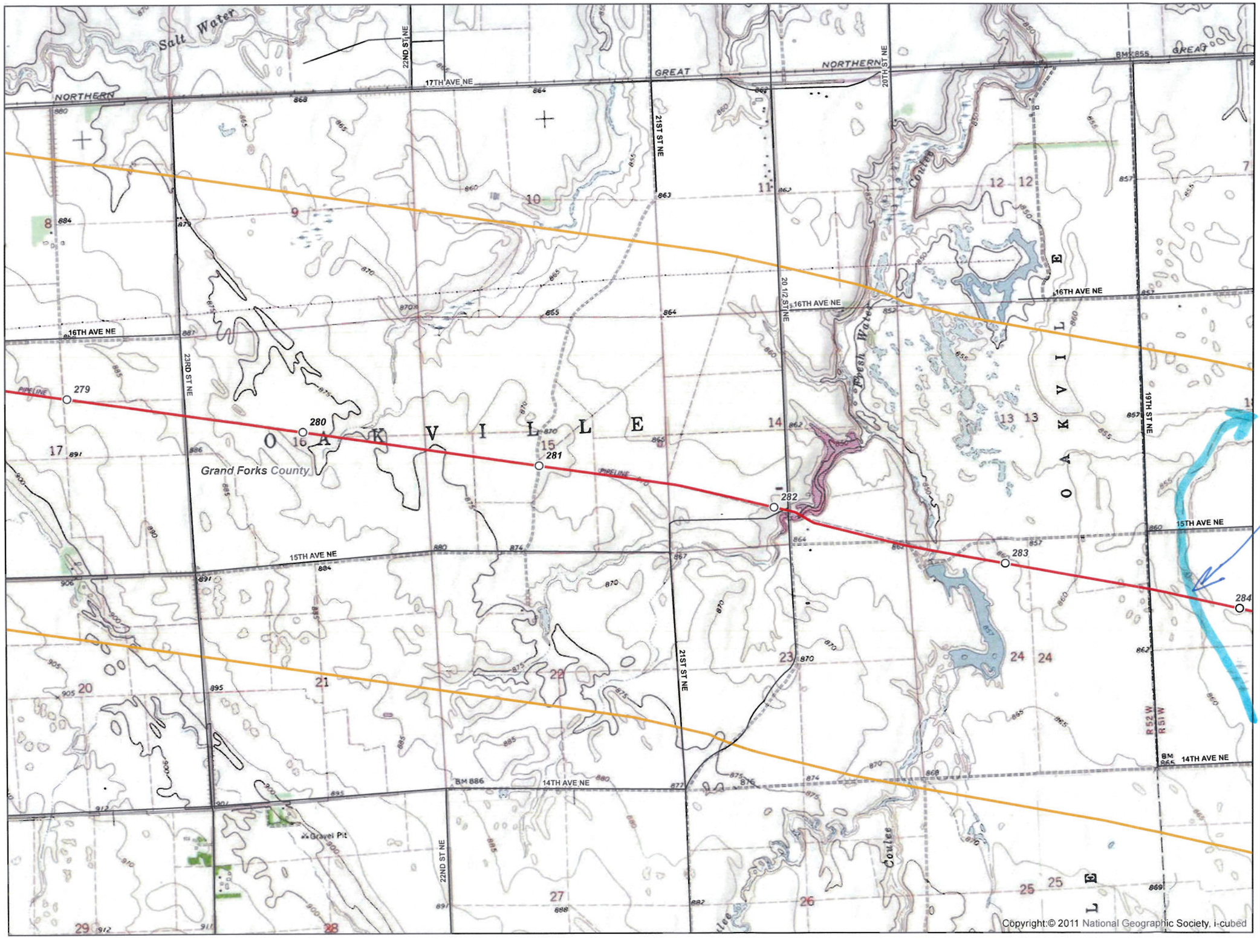
- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N W E S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

English Coulee Diversion

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

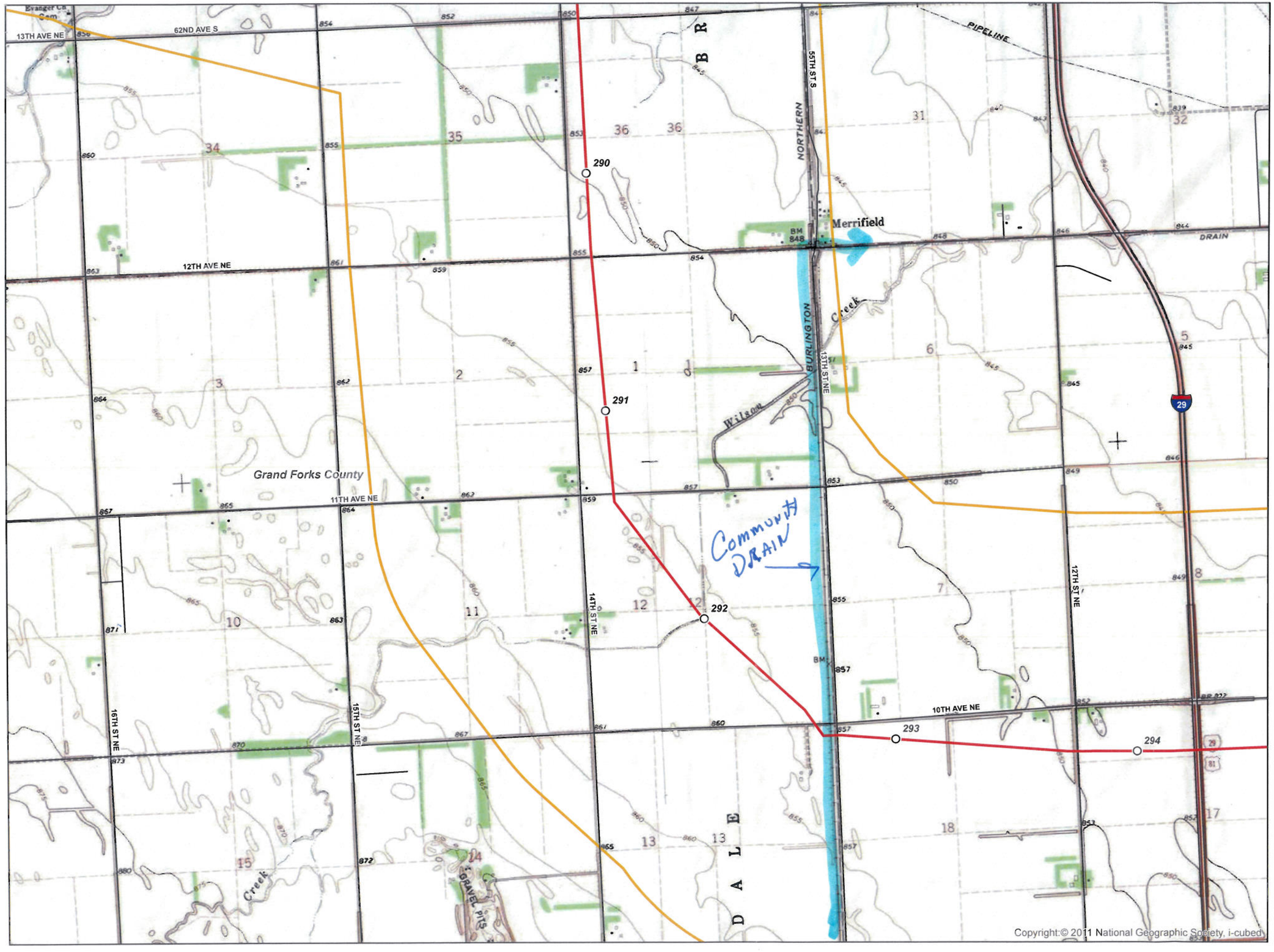
- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

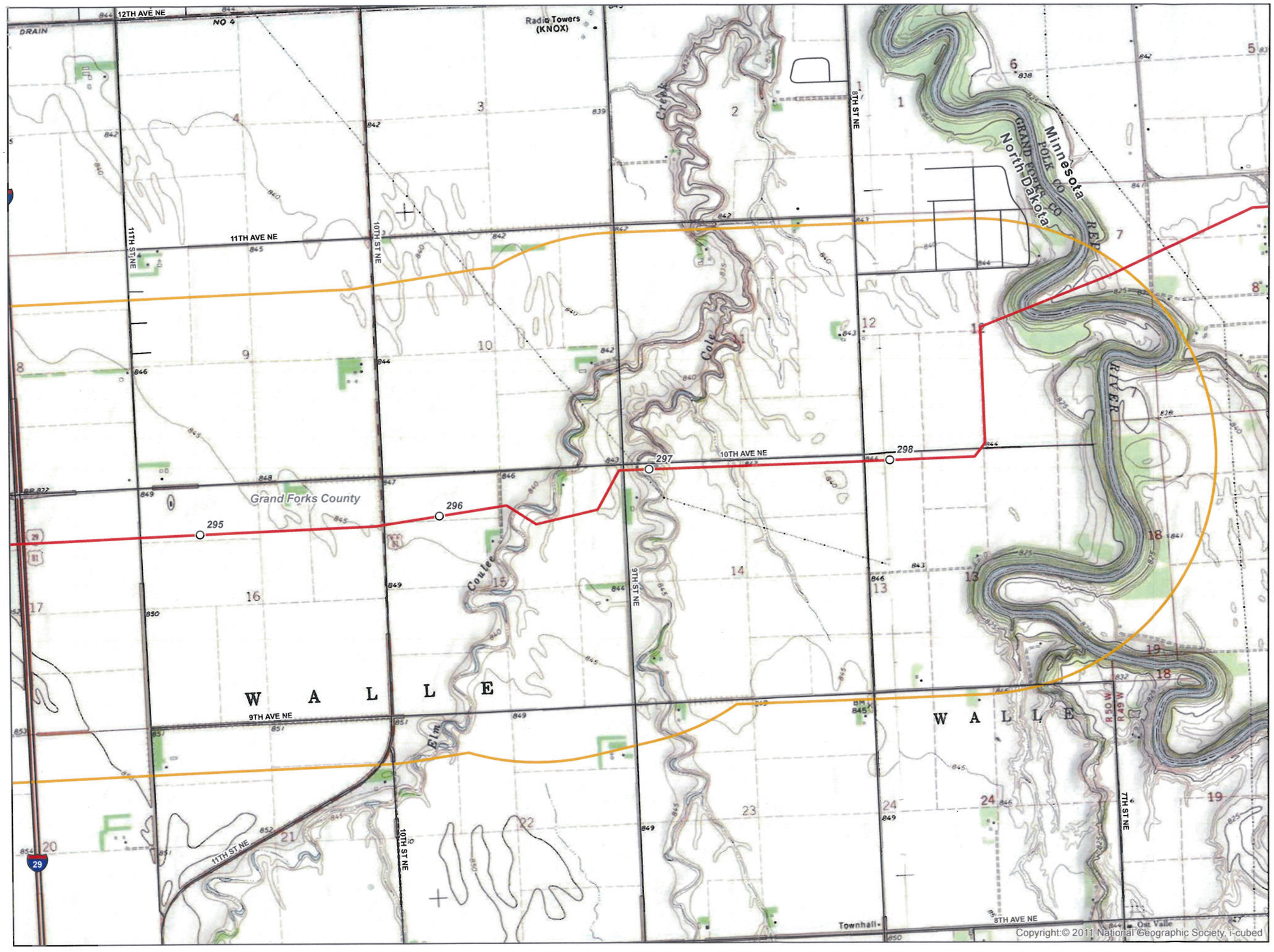
N
W E
S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota



0 1,000 2,000 Feet

1 inch = 2,000 feet

N
W E
S

- Milepost
- Sandpiper Centerline
- Sandpiper Study Area

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Route Maps
Grand Forks County, North Dakota

From: April Brehm
To: SPPArchive
Subject: FW: Enbridge Sandpiper Pipeline Project - Project Notification and Request for Information
Date: Friday, September 27, 2013 1:31:08 PM

From: Sara Ploetz [mailto:Sara.Ploetz@enbridge.com]
Sent: Friday, September 20, 2013 11:16 AM
To: April Brehm
Subject: FW: Enbridge Sandpiper Pipeline Project - Project Notification and Request for Information

---

From: Paryzek, Corey - FSA, Williston, ND [mailto:Corey.Paryzek@nd.usda.gov]
Sent: Wednesday, July 03, 2013 4:34 PM
To: Sara Ploetz
Subject: RE: Enbridge Sandpiper Pipeline Project - Project Notification and Request for Information

For the most part you will want to work with the Williams County Commissioners and County roads superintendent. There are issues dealing with what roads will be used by your equipment, what will be dug up during spring/winter when there is frost in the ground. The water board itself does not have any legal drains it maintains or controls.

http://www.williamsnd.com/ would be your starting point for contacts.

From: Sara Ploetz [mailto:Sara.Ploetz@enbridge.com]
Sent: Wednesday, July 03, 2013 1:22 PM
To: Paryzek, Corey - FSA, Williston, ND
Cc: Paul M. Hartzheim; spparchive@merjent.com
Subject: Enbridge Sandpiper Pipeline Project - Project Notification and Request for Information

Please do not open any attachments from organizations or people that you are not familiar with. Also, since it is possible for viruses to "spoof" or fake the sender's address, do not open emails with attachments from people you know, but from whom you were not expecting an attachment or if the attachment is a file type or file name that you customarily do not receive from this person.

July 1, 2013

Corey Paryzek, Chairman
Williams County Water Resource Board
Williams County Courthouse
PO Box 2047
Williston, ND 58802

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Request for information regarding County-level drainage issues

Dear Mr. Paryzek,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Williams County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area.

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g.,

latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

An original, signed copy of this correspondence will follow.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

---

* IMPORTANT NOTICE* *

Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

This electronic message contains information generated by the USDA solely for the intended recipients. Any unauthorized interception of this message or the use or disclosure of the information it contains may violate the law and subject the violator to civil or criminal penalties. If you believe you have received this message in error, please notify the sender and delete the email immediately.

---

* IMPORTANT NOTICE* *

Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Corey Paryzek, Chairman
Williams County Water Resource Board
Williams County Courthouse
PO Box 2047
Williston, ND 58802

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Paryzek,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Williams County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

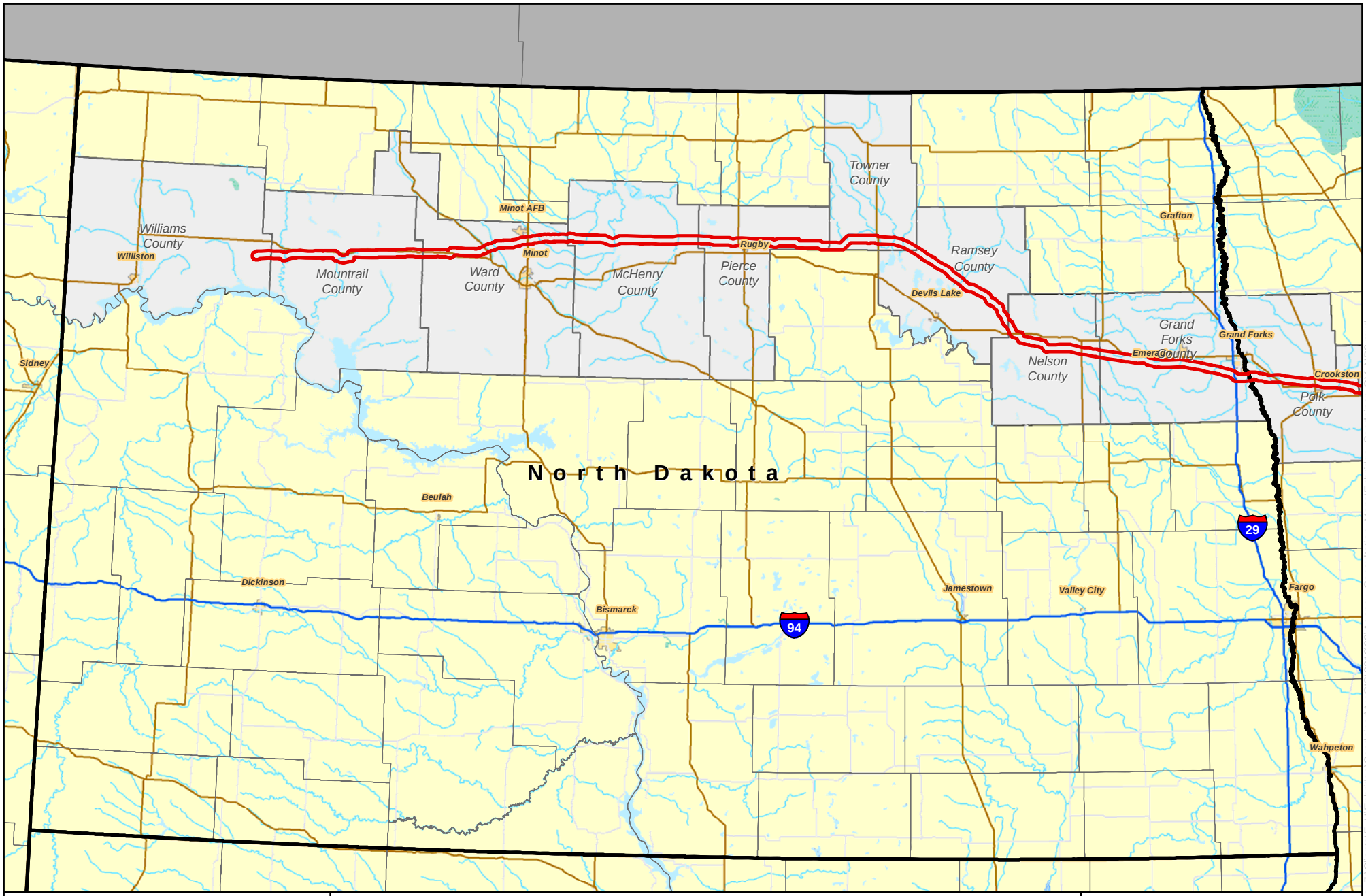
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

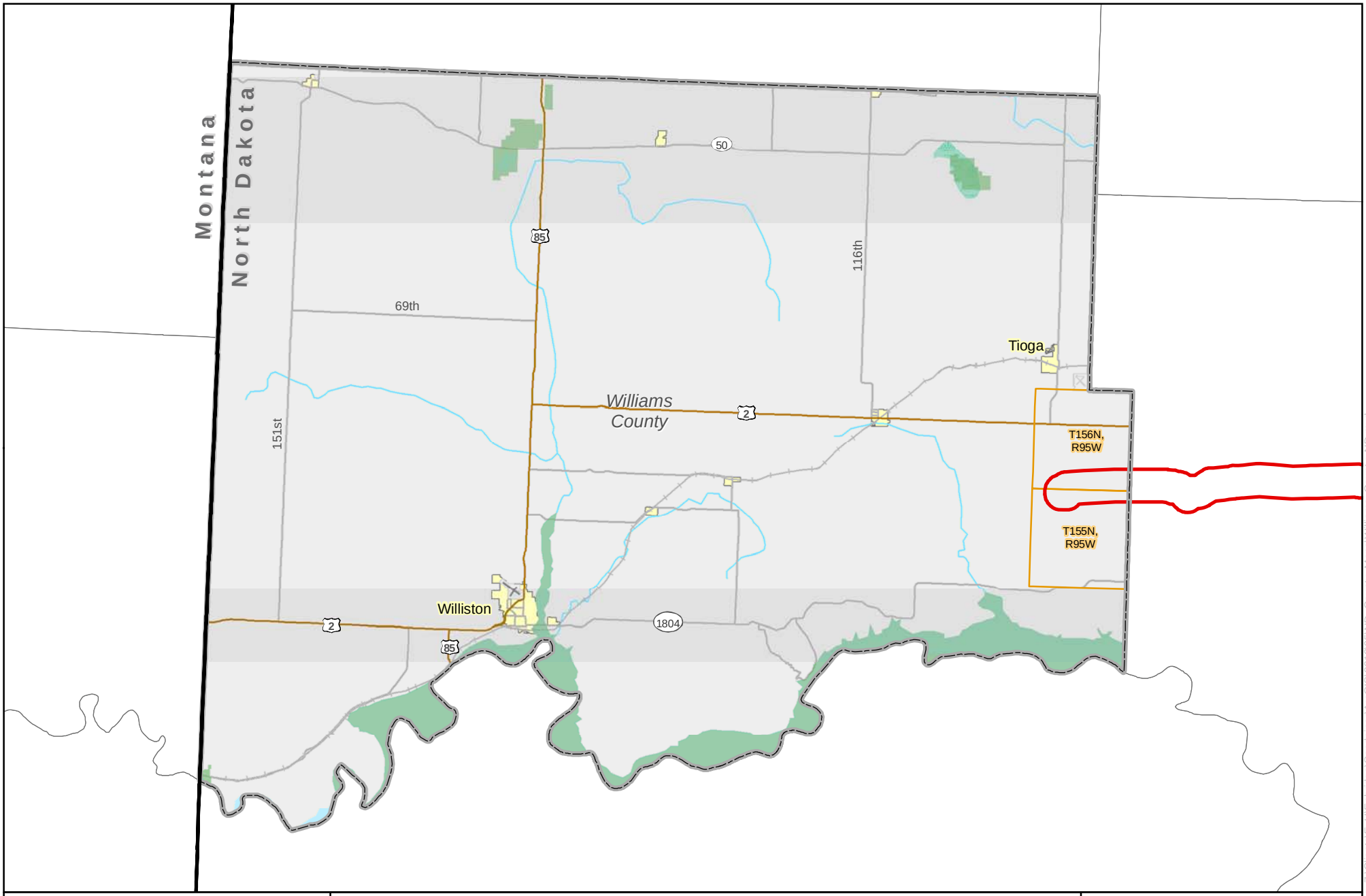
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Williams_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Williams County, North Dakota		
Township	**Range**	**Section(s)**
T155N	R95W	4, 5
T156N	R95W	33, 34, 35, 36

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Trudy Ruland, Chairwoman
Mountrail County Water Resource Board
PO Box 933
Stanley, ND 58784

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Ms. Ruland,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Mountrail County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

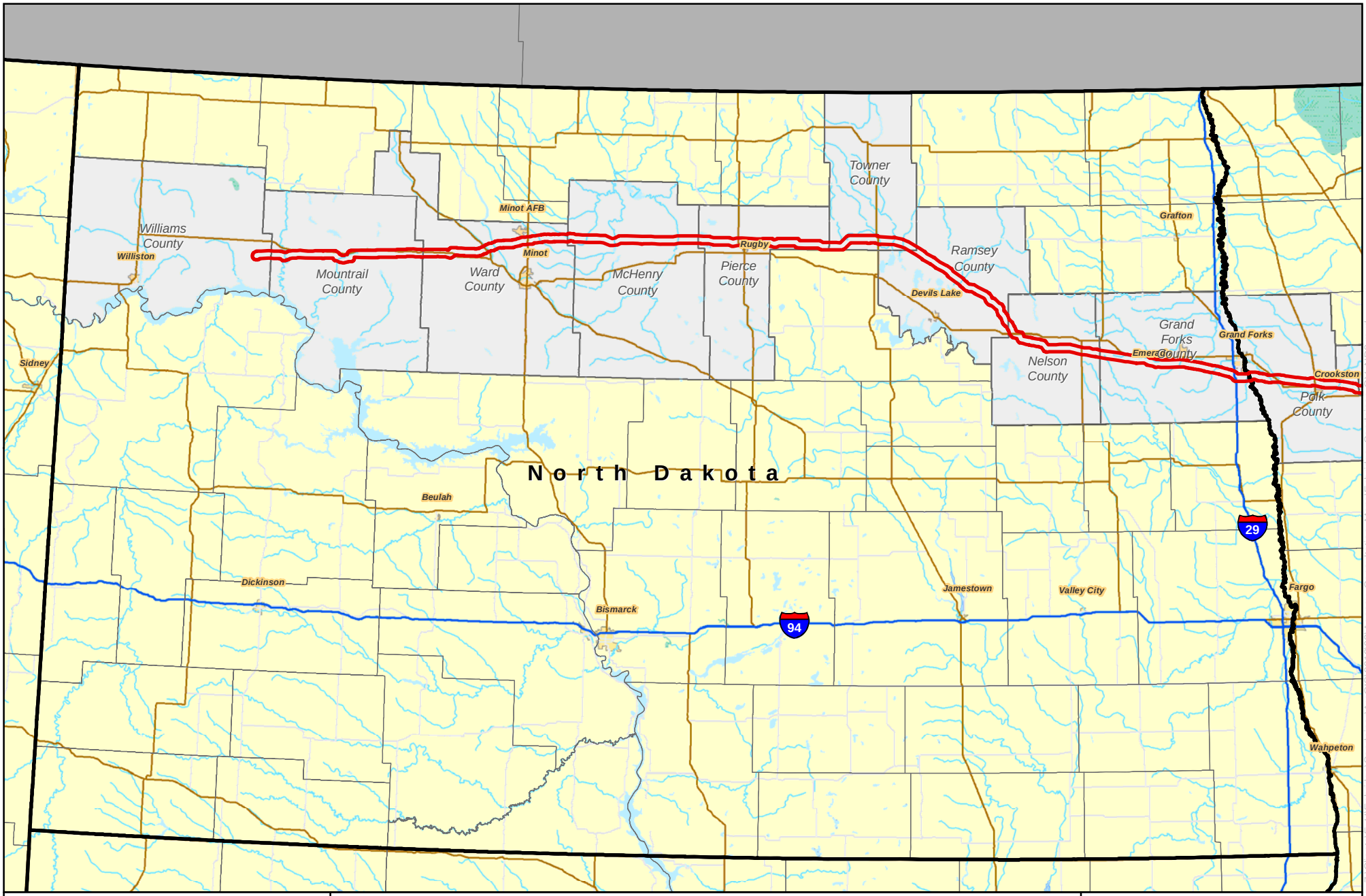
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

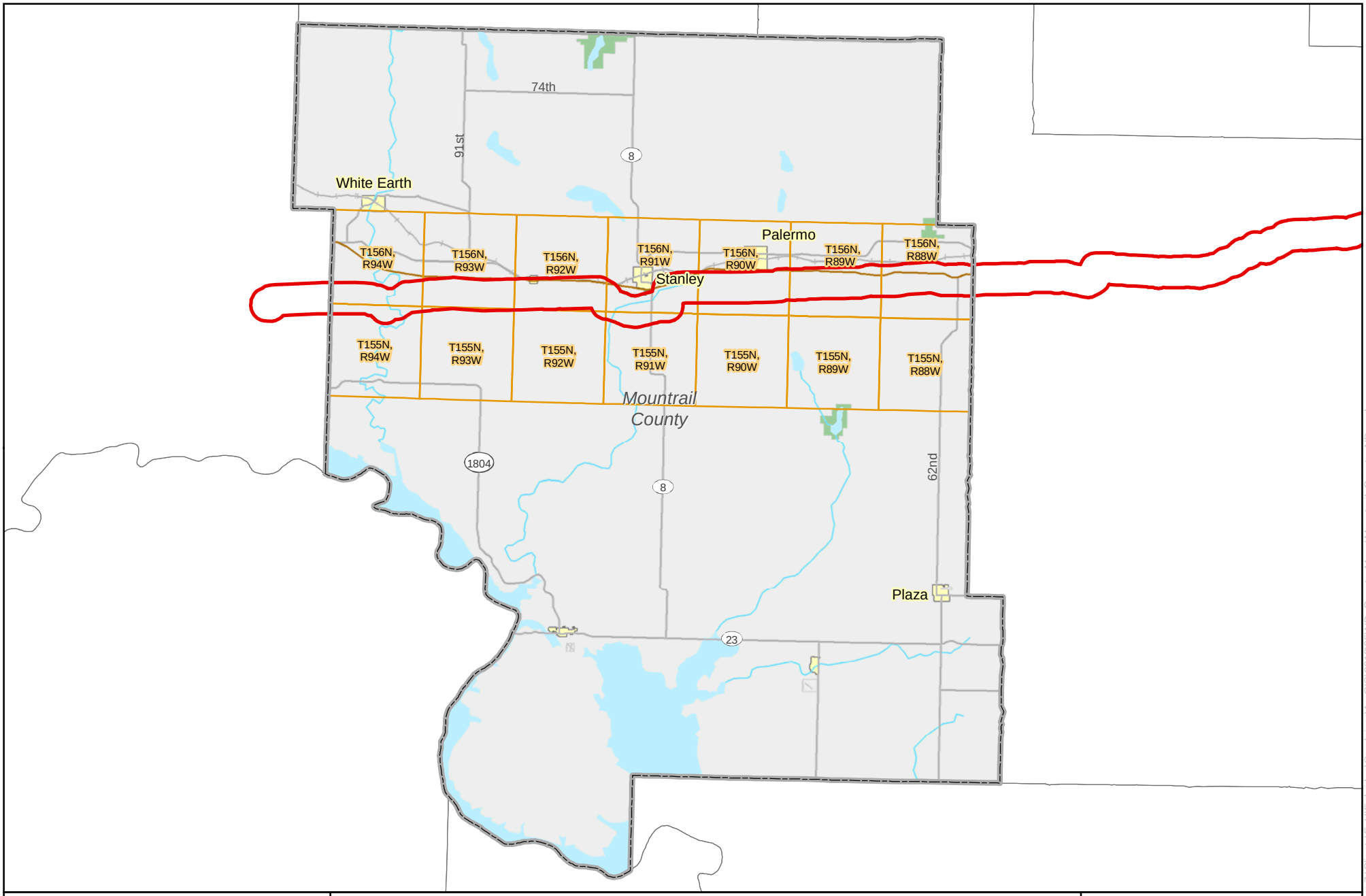
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4.25 8.5 Miles

1 inch = 8.5 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Mountrail_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Mountrail County, North Dakota		
Township	**Range**	**Section(s)**
T155N	R94W	3
T156N	R88W	19, 20, 21, 22, 23, 24
T156N	R89W	19, 20, 21, 22, 23, 24
T156N	R90W	24, 25, 26, 27, 28, 29, 30
T156N	R91W	25, 26, 31, 32, 33, 34, 35
T156N	R92W	25, 26, 27, 28, 29, 30, 31, 36
T156N	R93W	31, 32, 33, 34, 35, 36
T156N	R94W	31, 32, 33, 34, 35, 36
T156N	R95W	36

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Tom Klein, Chairman
Ward County Water Resource Board
Ward County Courthouse
315 3rd St. SE
Minot, ND 58701

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Klein,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Ward County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

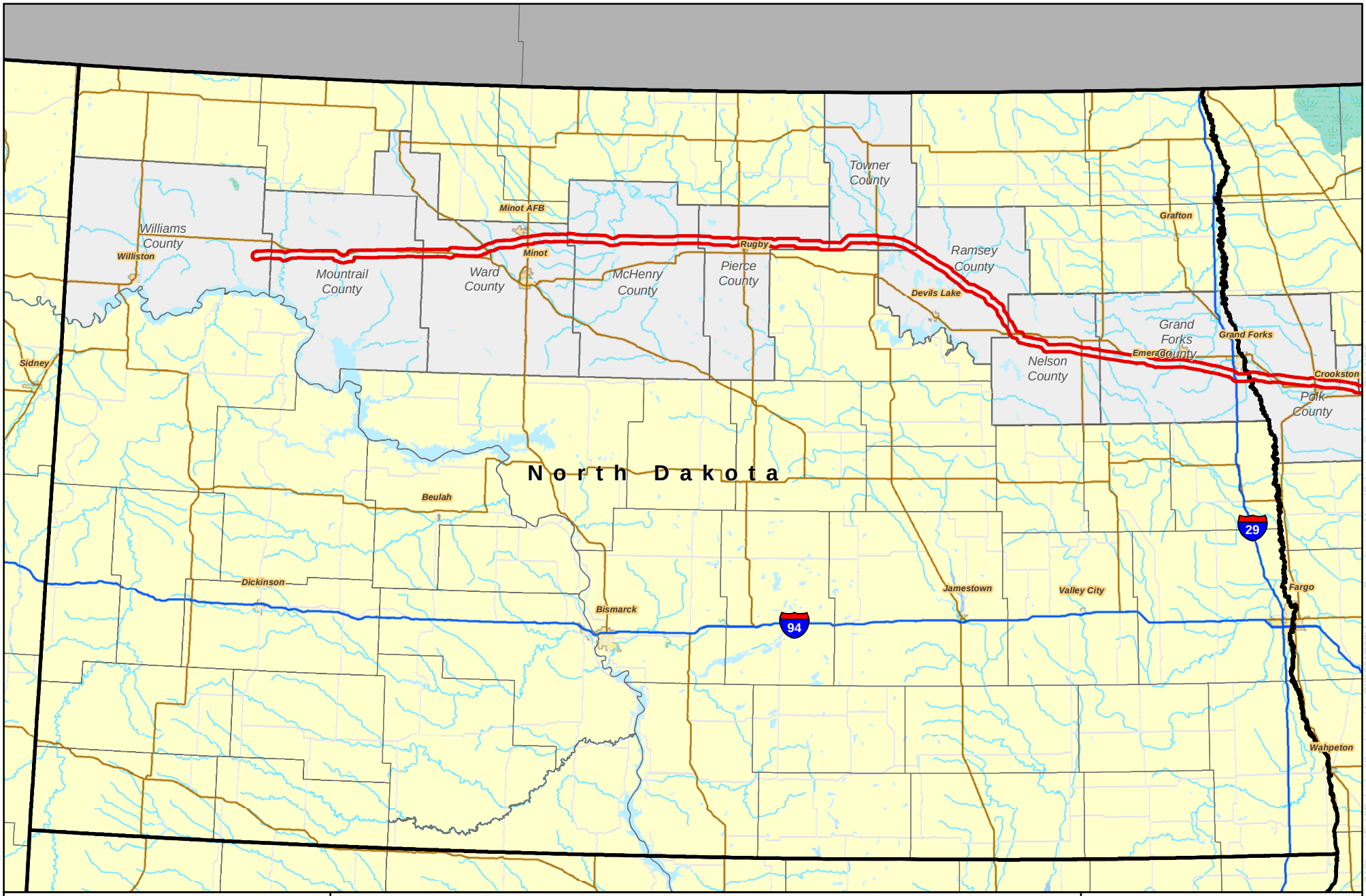
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

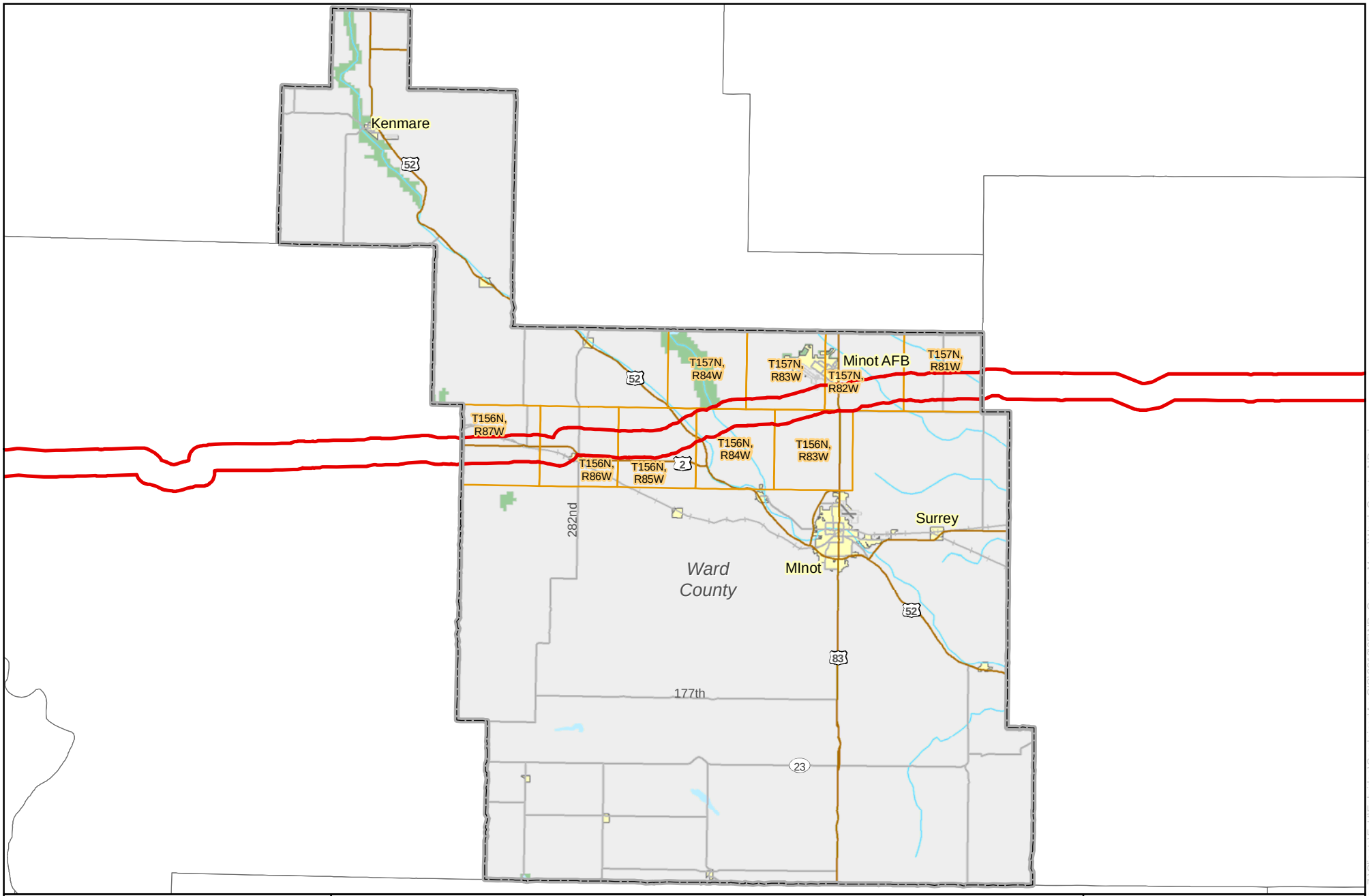
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 5 10 Miles

1 inch = 10 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Ward_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Ward County, North Dakota		
Township	**Range**	**Section(s)**
T156N	R83W	6
T156N	R84W	1, 2, 3, 4, 5, 6, 7, 8
T156N	R85W	11, 12, 14, 15, 16, 17, 18
T156N	R86W	13, 14, 15, 16, 17, 19, 20, 21
T156N	R87W	19, 20, 21, 22, 23, 24
T156N	R88W	24
T157N	R81W	24, 25, 26, 27, 28, 29, 30
T157N	R82W	25, 26, 27, 28, 31, 32, 33
T157N	R83W	34, 35, 36

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Greg Haga, Chairman
McHenry County Water Resource Board
206 Prospect St.
Velva, ND 58790

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Haga,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in McHenry County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

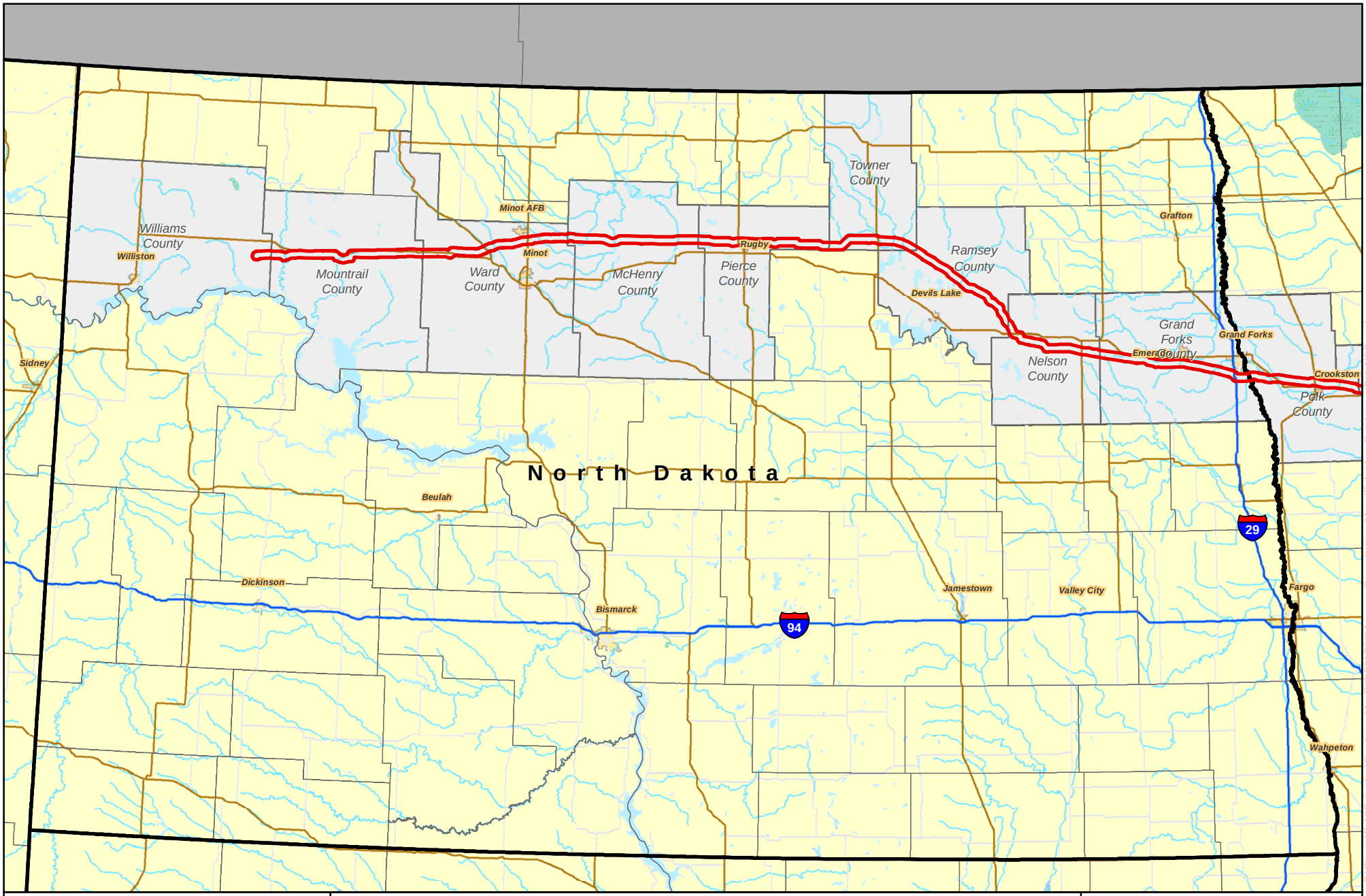
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

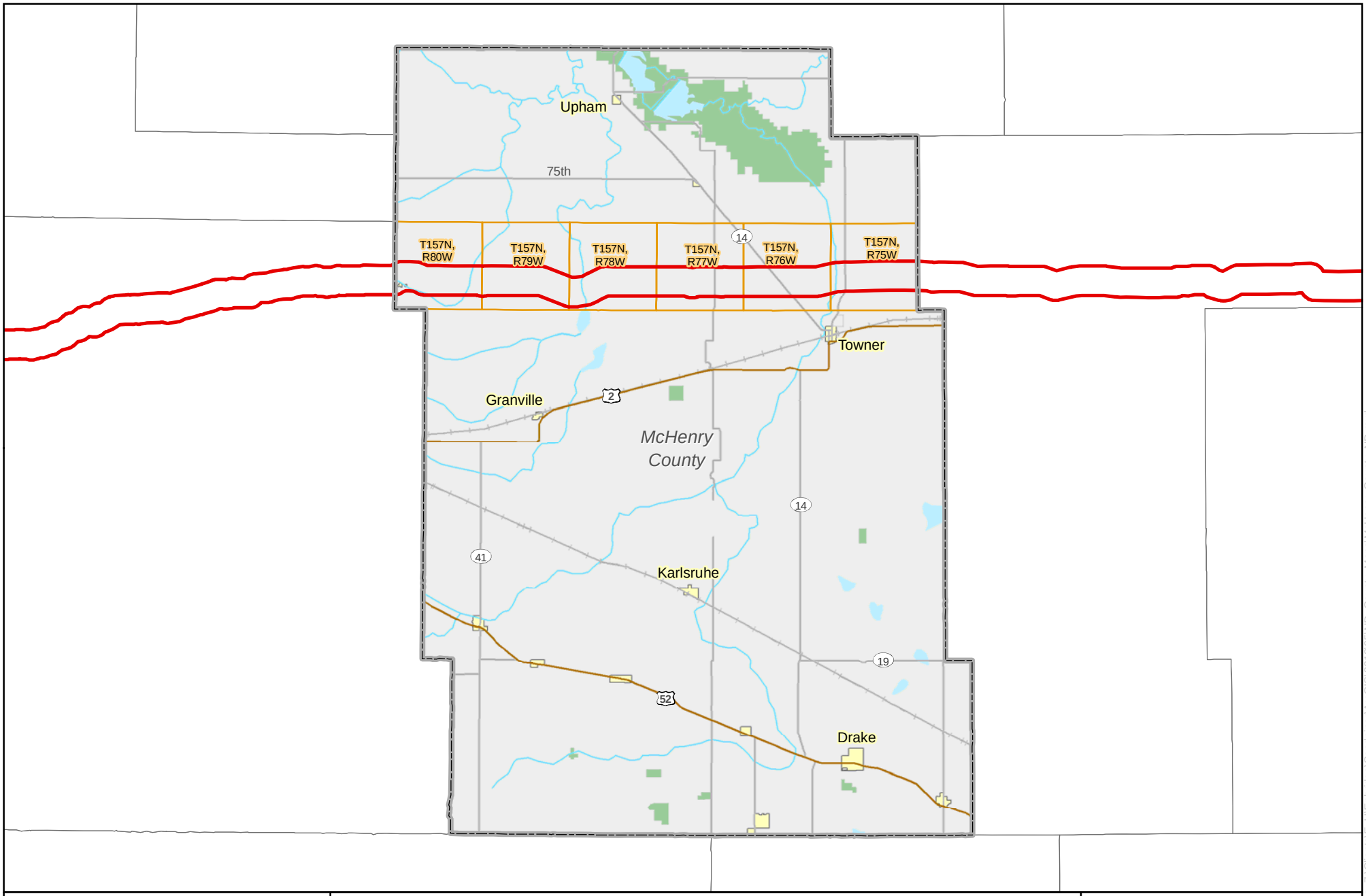
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4.5 9 Miles

1 inch = 9 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\McHenry_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in McHenry County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R74W	19
T157N	R75W	19, 20, 21, 22, 23, 24
T157N	R76W	24, 25, 26, 27, 28, 29, 30
T157N	R77W	25, 26, 27, 28, 29, 30
T157N	R78W	25, 26, 27, 28, 29, 30
T157N	R79W	25, 26, 27, 28, 29, 30
T157N	R80W	19, 20, 25, 26, 27, 28, 29
T157N	R81W	24, 25

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Ronald Kremer, Chairman
Pierce County Water Resource Board
4840 24th Ave.
Rugby, ND 58368

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Kremer,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Pierce County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

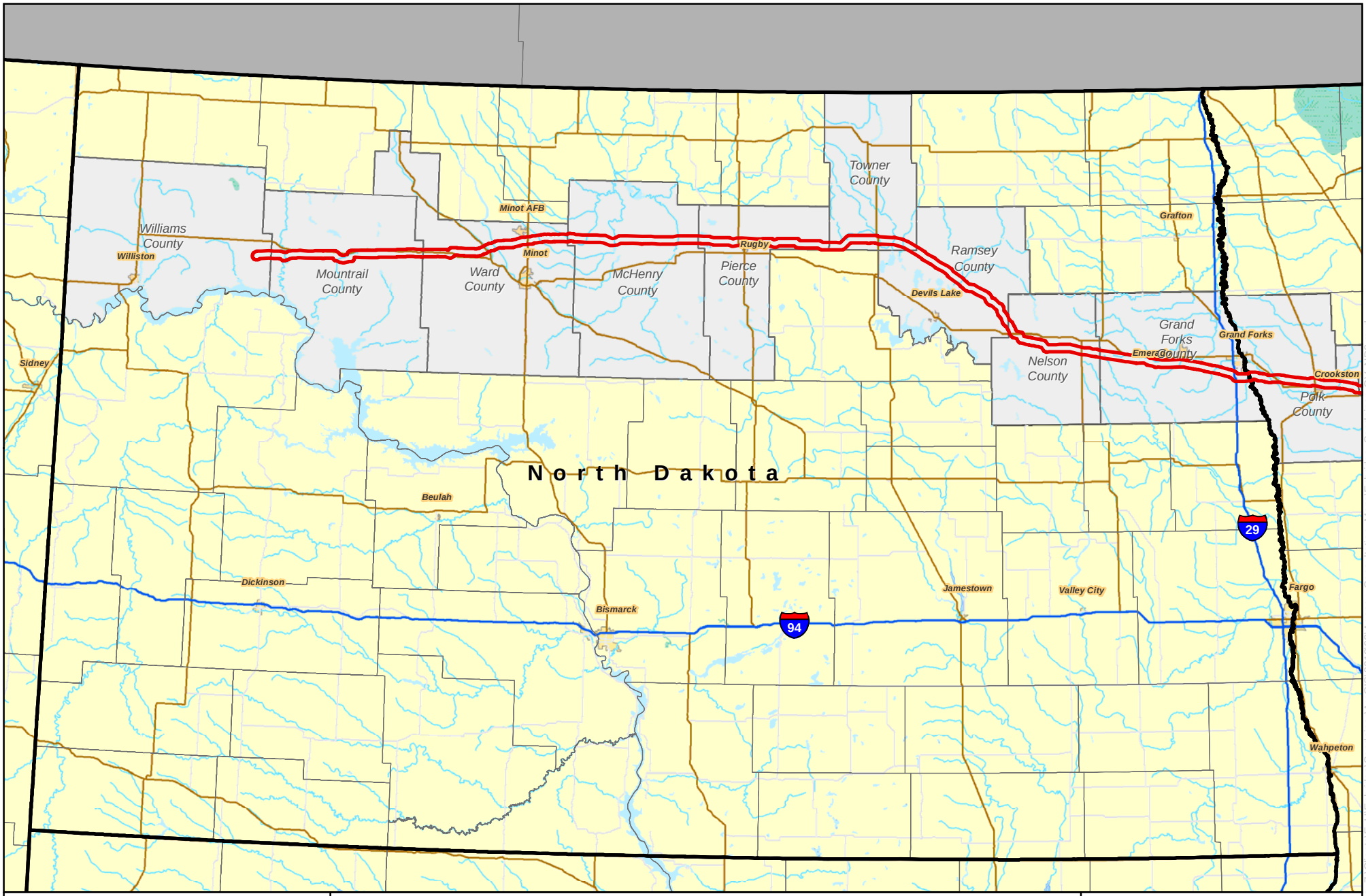
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

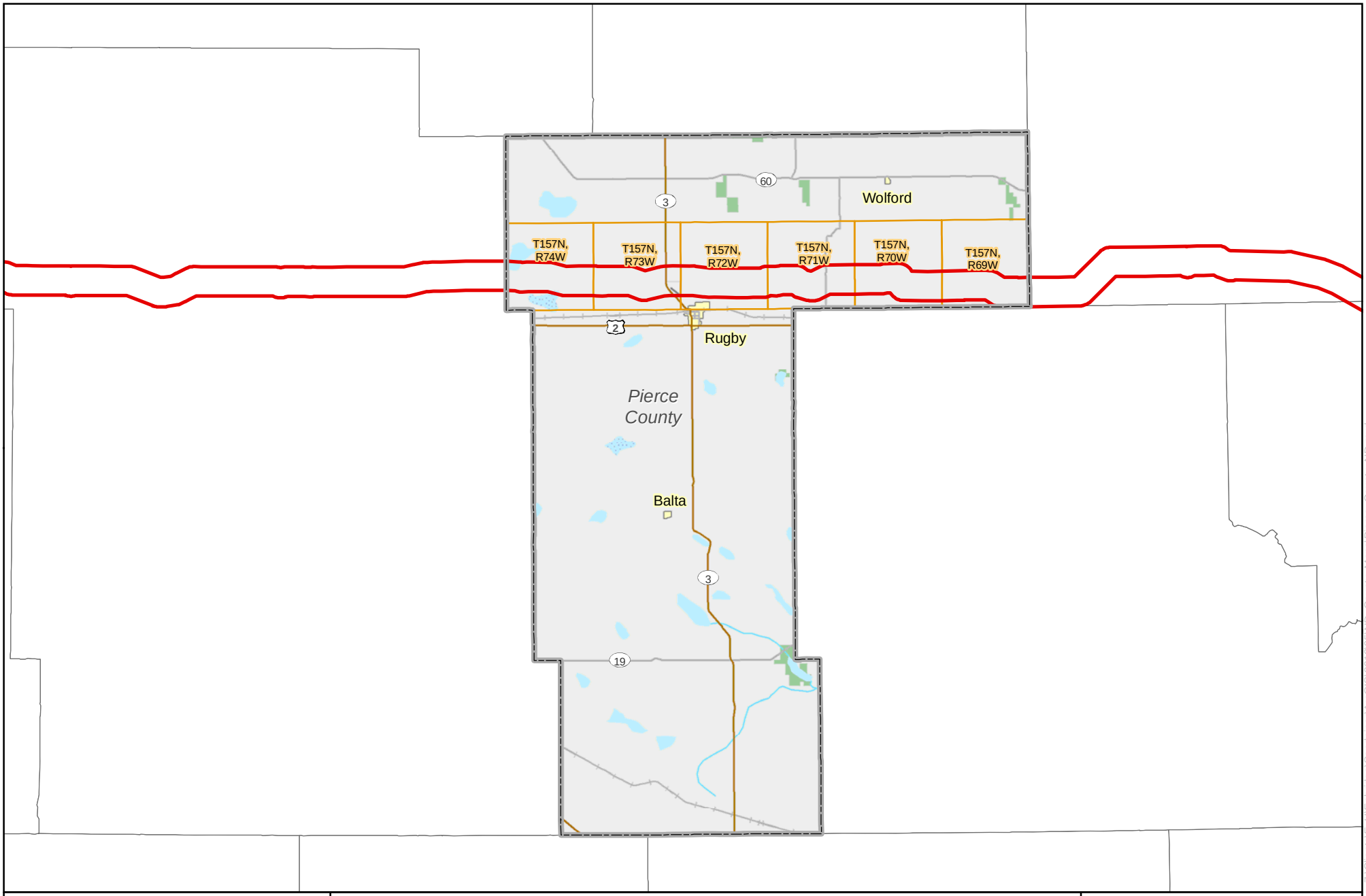
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4.5 9 Miles

1 inch = 9 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Pierce_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Pierce County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R68W	31
T157N	R69W	25, 26, 27, 28, 29, 30, 36
T157N	R70W	20, 21, 22, 25, 26, 27, 29, 30
T157N	R71W	21, 22, 23, 25, 26, 27, 28, 29, 30
T157N	R72W	25, 26, 27, 28, 29, 30
T157N	R73W	19, 25, 26, 27, 28, 29, 30
T157N	R74W	19, 20, 21, 22, 23, 24

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Kent Vesterso, Chairman
Towner County Water Resource Board
940 2nd Ave.
Cando, ND 58324

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Vesterso,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Towner County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

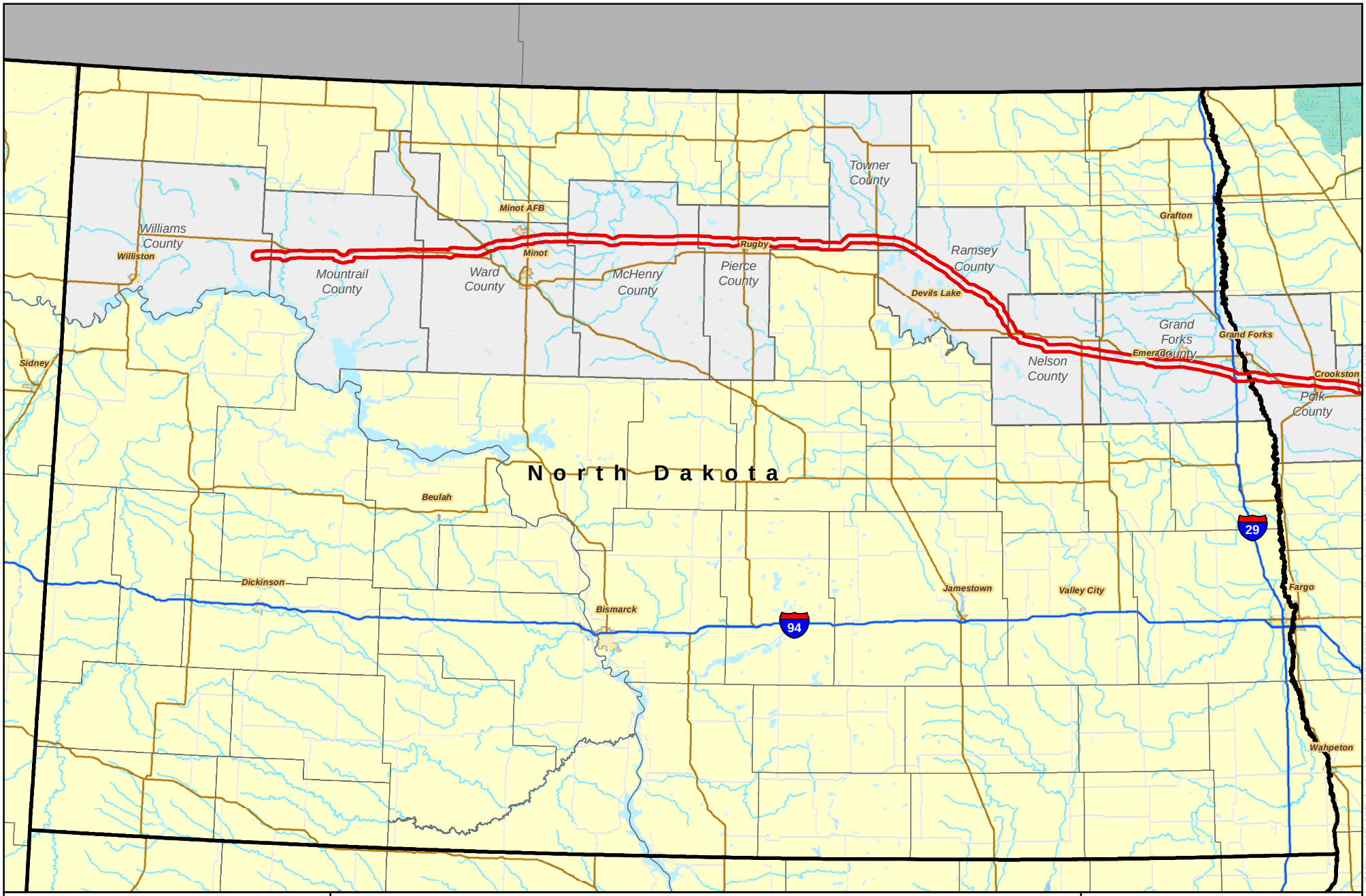
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

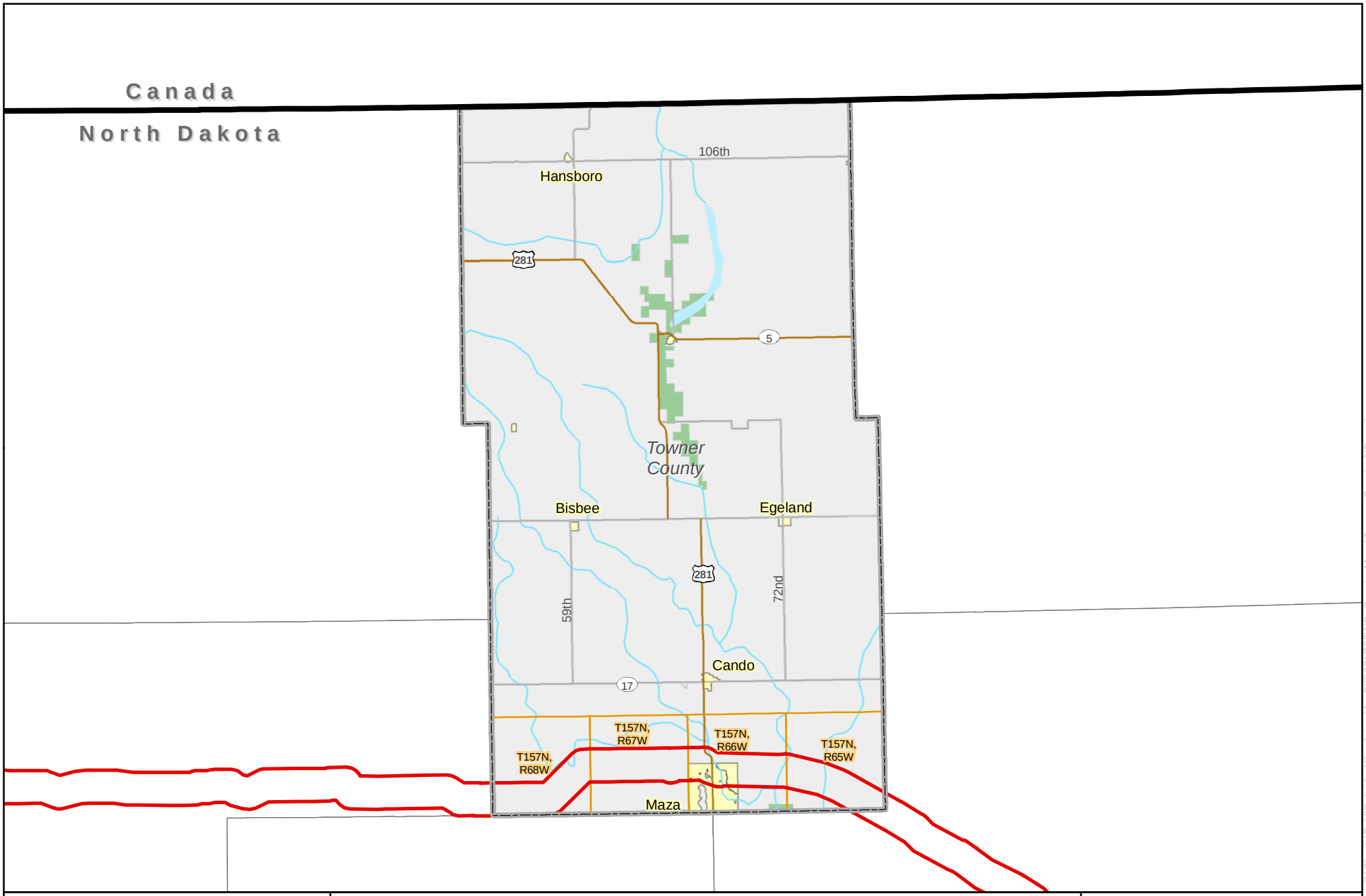
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Towner_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Towner County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R65W	19, 20, 26, 27, 28, 29, 35, 36
T157N	R66W	19, 20, 21, 22, 23, 24
T157N	R67W	19, 20, 21, 22, 23, 24
T157N	R68W	23, 24, 26, 27, 31, 32, 33, 34
T157N	R69W	25

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Jim Berg, Chairman
Ramsey County Water Resource Board
524 4th Avenue NE, Unit 12
Devils Lake, ND 58301

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Berg,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Ramsey County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

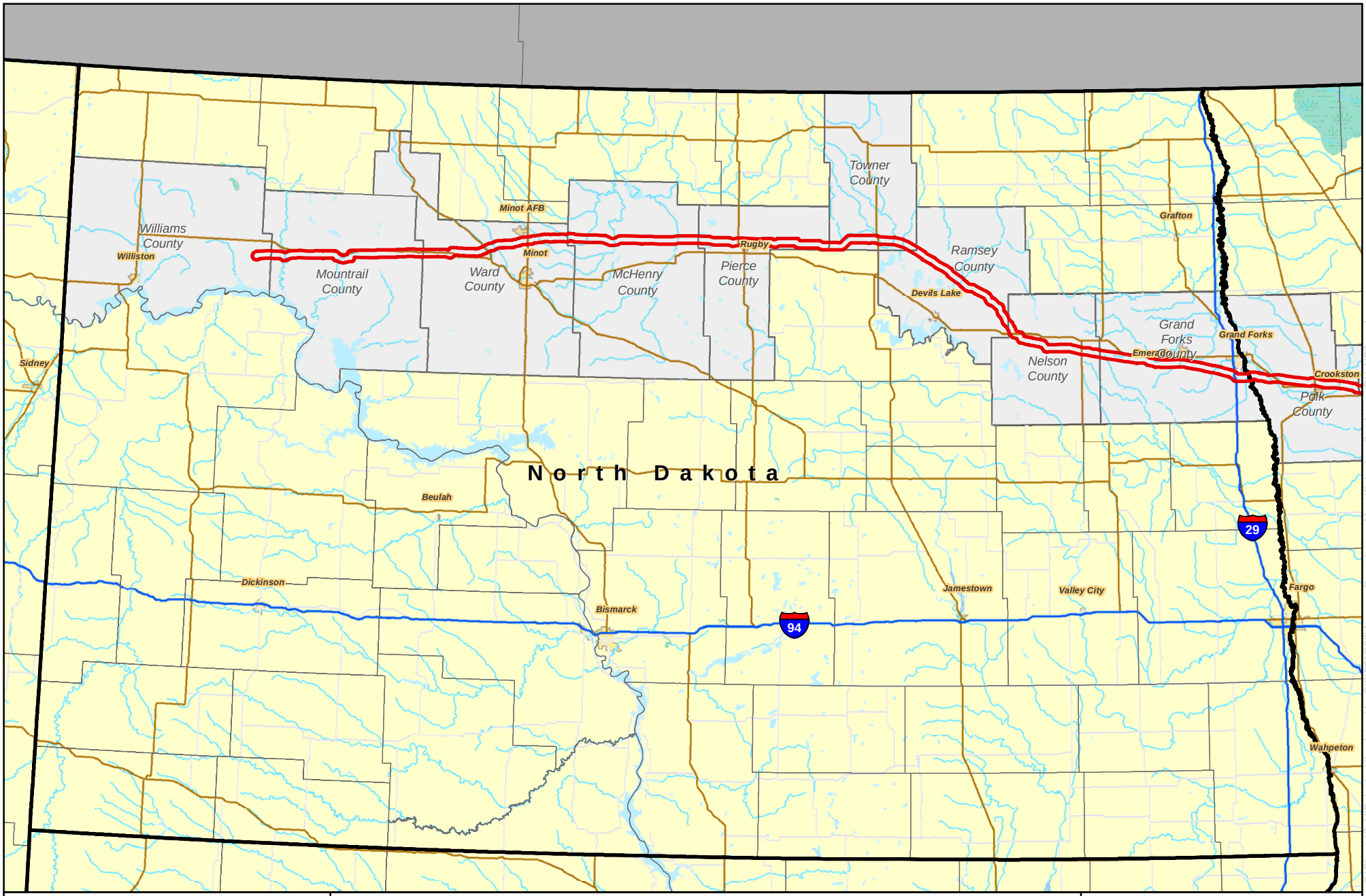
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

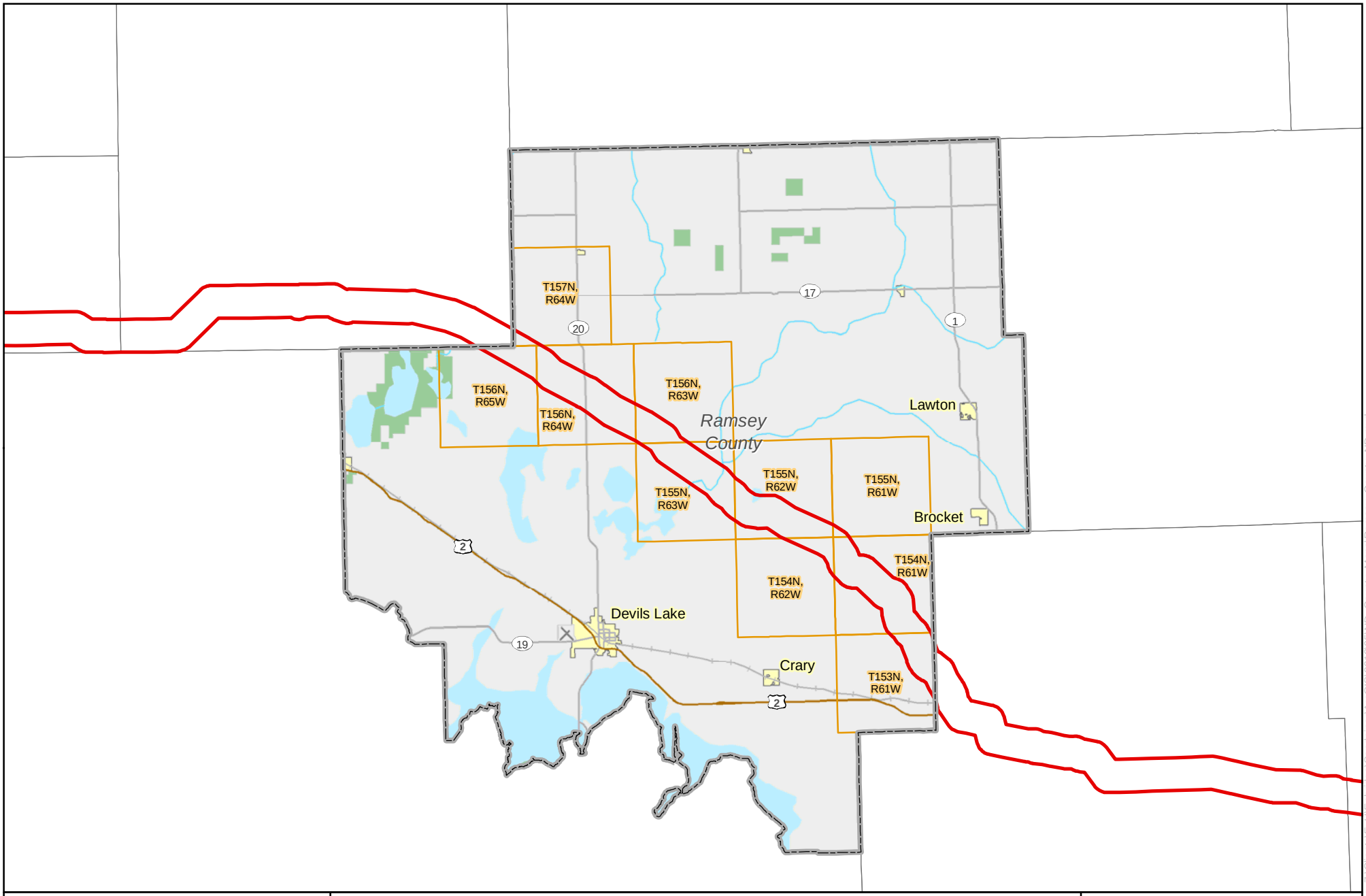
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Ramsey_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Ramsey County, North Dakota		
Township	**Range**	**Section(s)**
T153N	R60W	18, 19
T153N	R61W	1, 2, 12, 13
T154N	R61W	6, 7, 8, 15, 16, 17, 18, 21, 22, 26, 27, 34, 35, 36
T154N	R62W	1
T155N	R62W	19, 27, 28, 29, 30, 34, 35, 36
T155N	R63W	4, 5, 9, 10, 11, 13, 14, 24
T156N	R63W	30, 31, 32
T156N	R64W	1, 6, 7, 8, 15, 16, 17, 22, 23, 25, 26
T156N	R65W	2
T157N	R65W	35, 36

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Ben Varnson, Chairman
Nelson County Water Resource Board
PO Box 446
Lakota, ND 58344

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Varnson,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Nelson County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

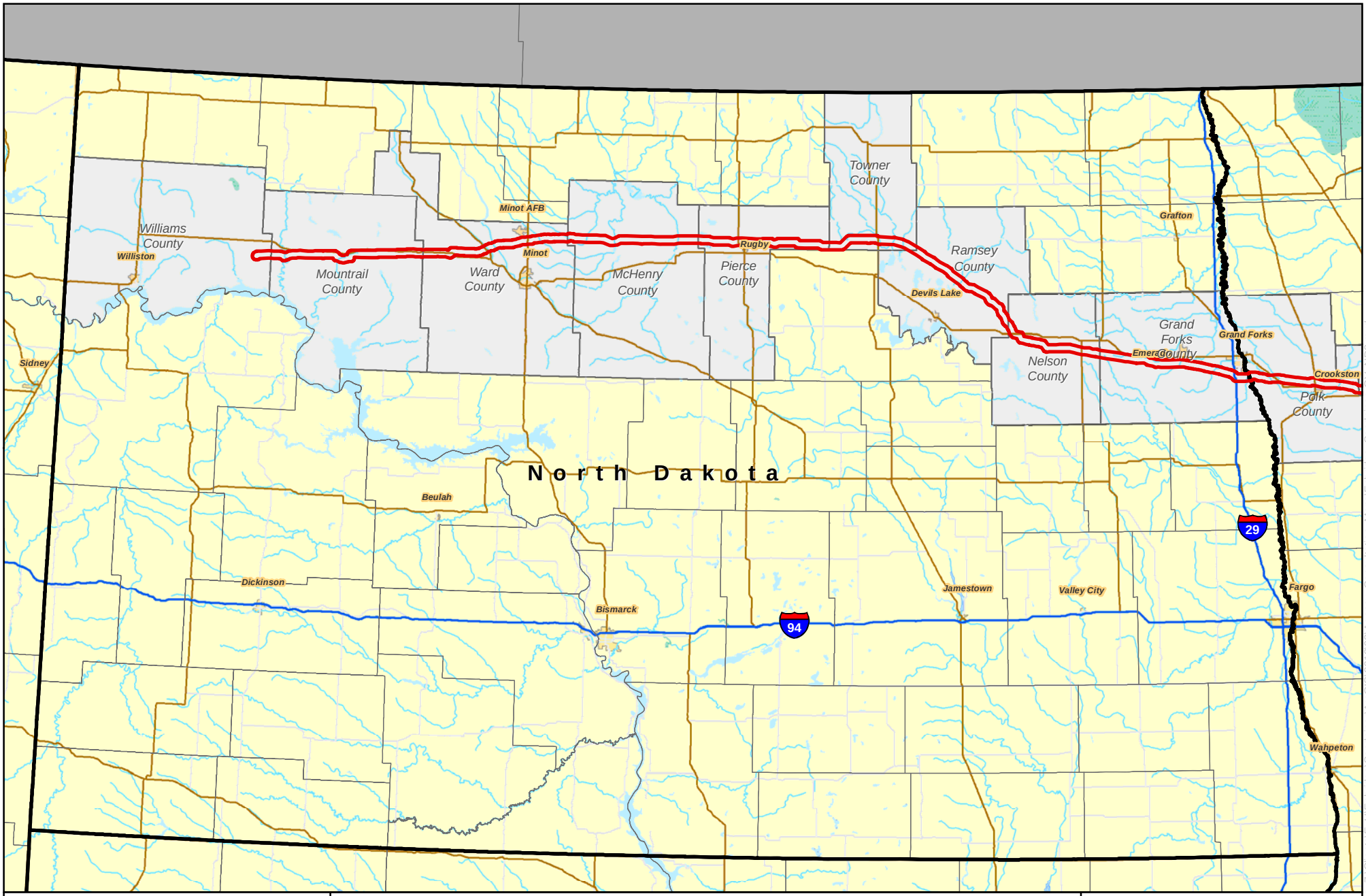
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

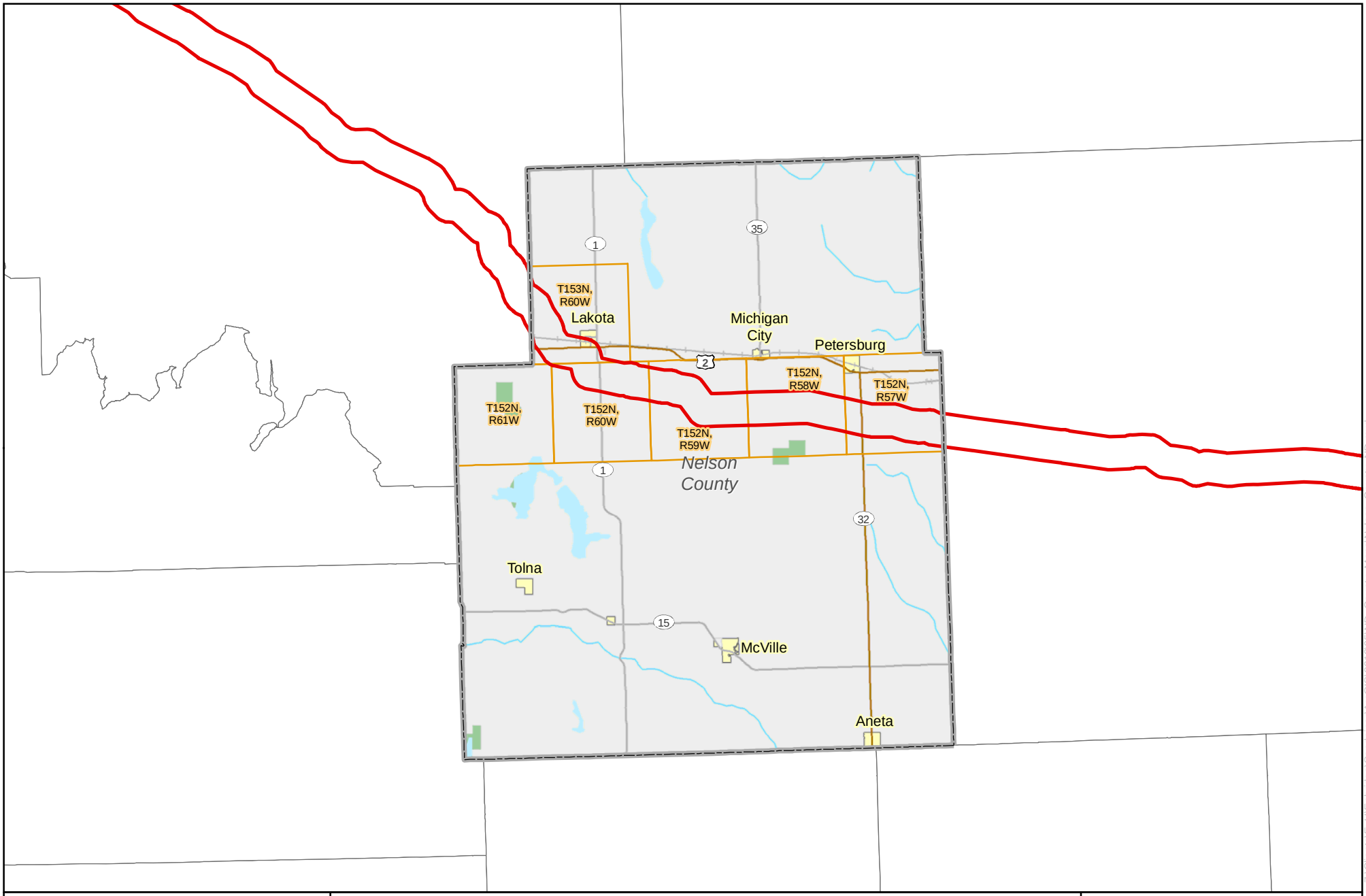
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Nelson_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Nelson County, North Dakota		
Township	**Range**	**Section(s)**
T152N	R57W	19, 20, 21, 25, 26, 27, 28
T152N	R58W	19, 20, 21, 22, 23, 24
T152N	R59W	7, 8, 9, 15, 16, 22, 23, 24
T152N	R60W	2, 3, 4, 11, 12
T153N	R60W	7, 18, 19, 20, 29, 32, 33, 34
T153N	R61W	1, 12

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Richard Axvig, Chairman
Grand Forks County Water Resource Board
PO Box 5757
Grand Forks, ND 58206

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding County-level drainage issues

Dear Mr. Axvig,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request information regarding drainage issues and potential local permits that may be required in Grand Forks County, and any other resource/program and county-level contact information that may aid in the development of construction plans and procedures to ensure compliance with applicable federal, state, and local regulations during the construction and operation of the pipeline.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map of the proposed pipeline route;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding local drainage concerns and potential permit requirements. To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- locations of county-regulated drains, ditches, and/or other drainage features;
- any special requirements, restrictions, or specifications regarding constructing pipelines across or under county-regulated drainage features;
- any local ordinances or regulations related to drainage; and
- any permits issued through your office which may be applicable to the project, and a summary of the permit process and anticipated timeframes.

We ask that your office provide the location(s) of county-regulated drainage features as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section, or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for adverse effects to local hydrology and drainage during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline

Project Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

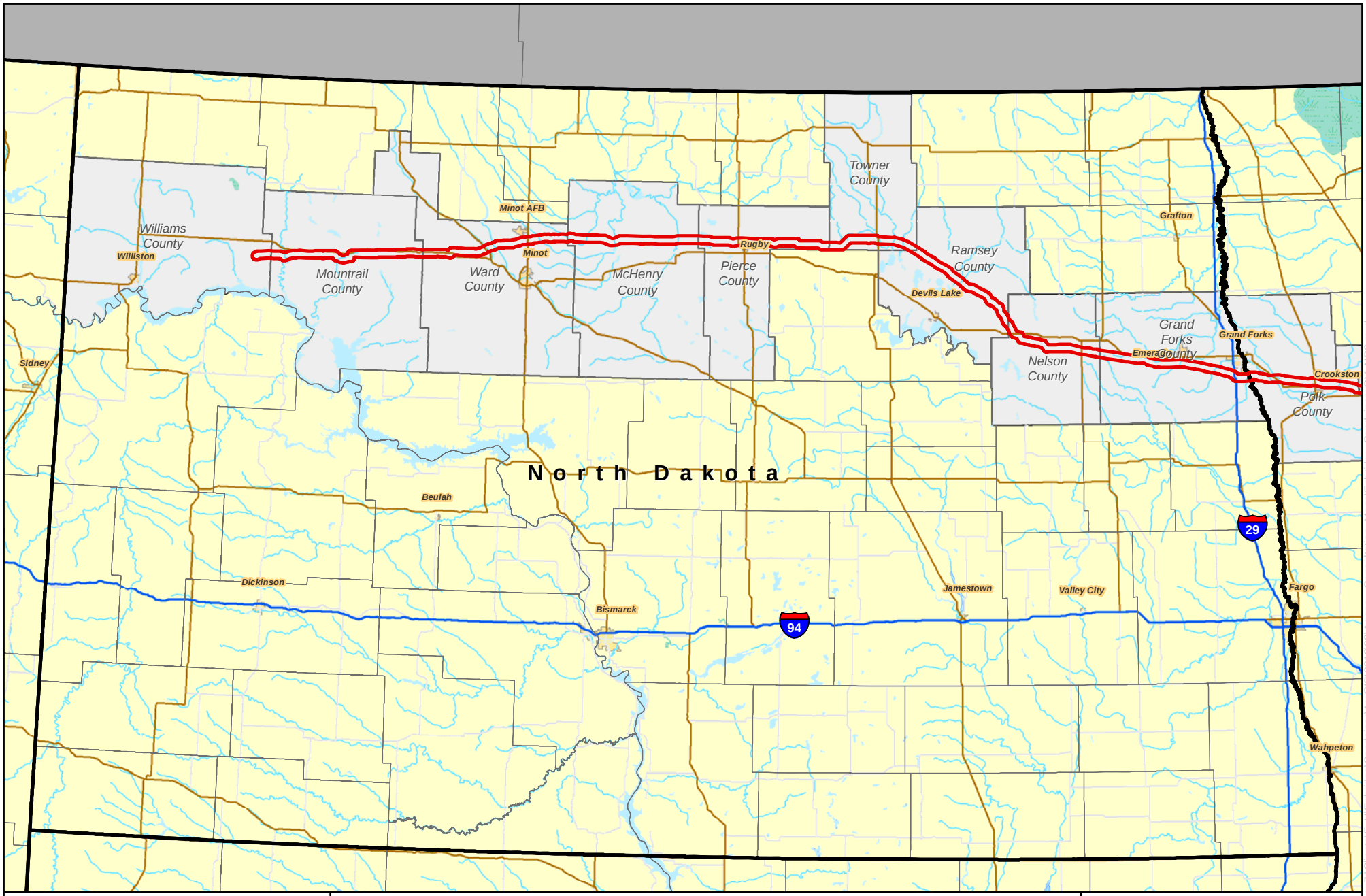
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

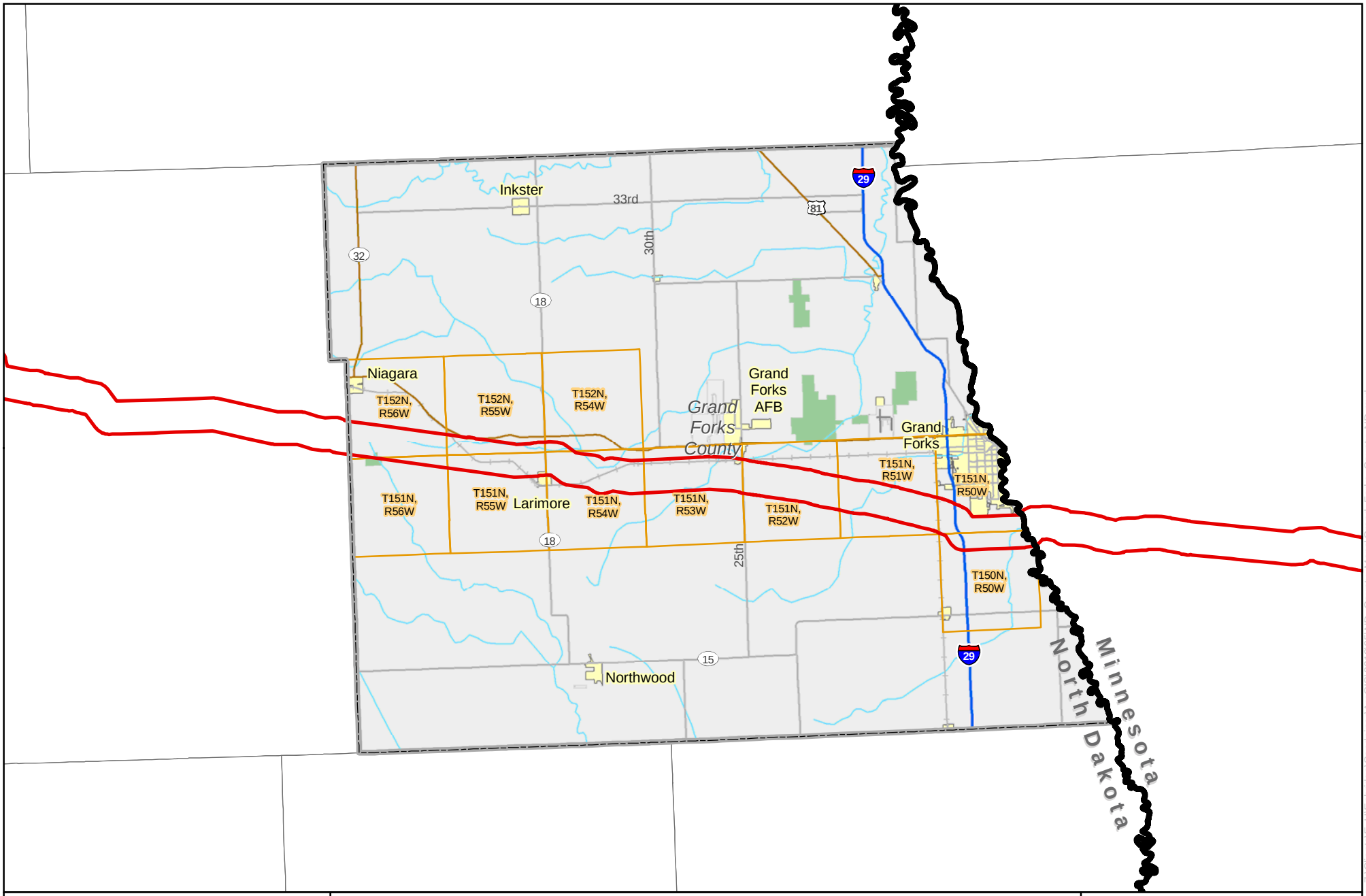
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Grand_Forks_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Grand Forks County, North Dakota		
Township	**Range**	**Section(s)**
T150N	R49W	6
T150N	R50W	1, 2, 3, 4, 5
T151N	R49W	31
T151N	R50W	30, 31, 32
T151N	R51W	19, 20, 22, 25, 26, 27
T151N	R52W	7, 14, 15, 16, 17, 18, 23, 24
T151N	R53W	7, 8, 9, 10, 11, 12
T151N	R54W	5, 6, 8, 9, 10, 11, 12
T151N	R55W	1, 2, 3, 4, 5
T152N	R55W	31, 32
T152N	R56W	29, 30 ,32, 33, 34, 35, 36
T152N	R57W	25

Phone Log – McHenry County Weed Board

Name: Lorinda Haman	**Name:** Sara Ploetz
Title: McHenry County, Weed Control Board, Admin Asst	**Title:** Environmental Analyst II
Contact : McHenry County Weed Board PO Box 175 Towner, ND 58788	
Telephone: 701-626-1512	**Telephone:** 715-398-4730

I received a call from Lorinda Haman at the McHenry County Weed Board on August 20, 2013. Ms. Haman was responding to the consultation letter sent on July 1 regarding Enbridge's request for information related to locations of known noxious and invasive weeds, as well as any recommendations regarding treatment of weeds prior to and during construction activities.

Ms. Haman indicated they have no formal system for tracking weeds. She was unclear if Enbridge was asking for the county weed board to go out and identify the weed locations. I assured her that we were not, but indicated if they did know where weeds are or have thoughts on how to handle them Enbridge would like to have that information to include for construction planning. I told her that we would send her pdf 11x17 maps they could mark up to indicate known concentrations.

Sara Ploetz
Environmental Analyst II

August 20, 2013

ENBRIDGE

EXHIBIT H.13		
Sandpiper Pipeline Project Agency Consultation Correspondence		
North Dakota County Weed Control Boards (WCB)		
North Dakota Counties	**Date of Initial Consultation Correspondence**	**Date of County's Reply Correspondence**
Williams	07-01-2013	No Response
Mountrail	07-01-2013	No Response
Ward	07-01-2013	No Response
McHenry	07-01-2013 08-29-2013	09-26-2013
Pierce	07-01-2013	No Response
Towner	07-01-2013	No Response
Ramsey	07-01-2013	07-23-2013
Nelson	07-01-2013	08-09-2013
Grand Forks	07-01-2013	No Response

Note: Original consultation letters are included for only those counties that did not provide a response. All original consultation letters included the same project description and differed only in the identification of county-specific weeds, the county overview maps, and the listing of township, range, and sections crossed by the project.

McHenry County Weed Control Board

PO Box 175 • Towner, N.D. 58788-0175
Phone 537-5458

Chairman:
Jerome Peerboom
Vice Chairman:
Marlow Kitzman
Members:
George Lemer
Jo Ashley
Tom Krumwiede

Secretary-Treasurer:
Lorinda Haman
Weed Control Officer:
Weed Board
Weed Supervisors:
Larry Haman
Joe J. Haman

September 26, 2013

Enbridge Pipelines (ND) LLC
Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880

Dear Ms. Ploetz,

The McHenry County Weed Control Board recently met and discussed your request for noxious and invasive weed locations, treatments and other information. The conclusion is that you will find a wide variety of weeds – noxious and invasive - across the entire county. There are very minimal spots that weeds will not be present. Therefore they will not attempt to highlight areas on the maps you sent. Enclosed you will find an ID booklet, a Weed Control Guide and the ND Noxious Weed Law and Regulation Book.

The Board expressed the need and attention to insuring your equipment is clean before entering the county and before leaving the county in order to reduce the possibility of spreading weeds.

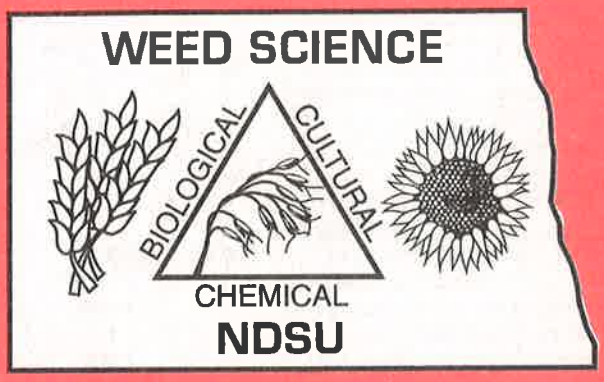
Sincerely,

Lorinda Haman

Lorinda Haman, Secretary
McHenry County Weed Control Board

W-253

2013 NORTH DAKOTA WEED CONTROL GUIDE



Compiled by:
Rich Zollinger Extension Weed Science
Contributors:

Mike Christoffers	Research Weed Science, Weed Genetics
Greg Endres	Extension Area Agronomist, Carrington
Greta Gramig	Research Weed Science, Weed Ecology
Kirk Howatt	Research Weed Science, Small Grains/Minor Crops
Brian Jenks	Research Weed Science, NCREC, Minot
Rod Lym	Research Weed Science, Noxious/Invasive Weeds
Mike Ostlie	Research Agronomist/Weed Science, Carrington
Andy Robinson	NDSU/U of MN Extension Agronomist, Potato
Jeff Stachler	NDSU/U of MN Extension Weed Science, Sugarbeet
Andrew Thostenson	Extension Pesticide Programs
Harlene H. Valenti	Research, High Value Crops

THIS PUBLICATION SUPERCEDES ALL PREVIOUS ISSUES OF W-253 SUBJECT TO CONDITIONS UNDER "WEED GUIDE INFORMATION"

www.ndsu.edu/weeds/

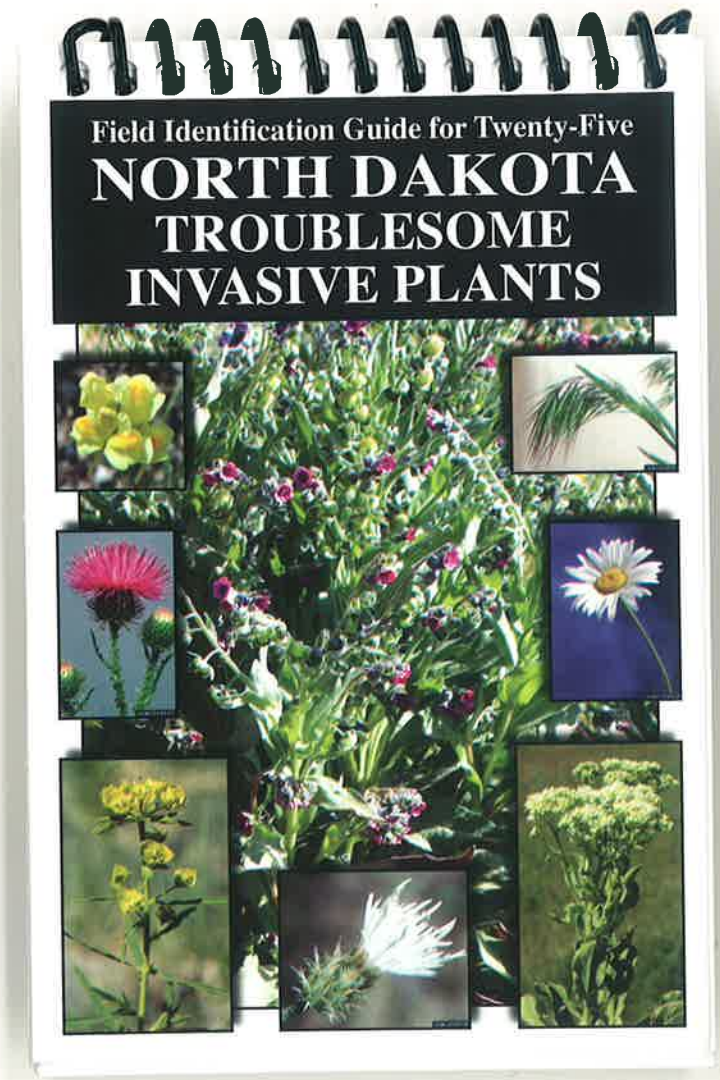
NDSU EXTENSION SERVICE

NDSU NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

JANUARY 2013

North Dakota's
Noxious Weed Law & Regulations

North Dakota Department of Agriculture
Doug Goehring - Commissioner


Field Identification Guide for Twenty-Five
NORTH DAKOTA
TROUBLESOME
INVASIVE PLANTS

From: Paul M. Hartzheim
To: SPPArchive; Angela M. Ronayne
Subject: Fwd: Nelson County Noxious Weeds
Date: Friday, August 09, 2013 1:16:21 PM
Attachments: nelsonhwy@gondtc.com_20130809_103225.pdf
ATT00001.htm

FYI

Paul Hartzheim

Begin forwarded message:

> **From:** Sara Ploetz <Sara.Ploetz@enbridge.com>
> **Date:** August 9, 2013, 1:06:22 PM CDT
> **To:** "Paul M. Hartzheim" <PHartzheim@Merjent.com>, "Angela M. Ronayne" <ARonayne@Merjent.com>
> **Subject: FW: Nelson County Noxious Weeds**
>
> FYI - I did ask her if she had any recommendations for controlling during construction.
>
> Sara Ploetz
> Environmental Analyst II, Sandpiper Project
>
> ENBRIDGE
> TEL: 715-398-4730 | FAX: 713-821-9927 | CELL: 715-718-1723
> 1409 Hammond Avenue, Superior, WI 54880
> www.enbridge.com
> Integrity. Safety. Respect.
>
> -----Original Message-----
> From: Nelson County Highway Department
> [mailto:nelsonhwy@gondtc.com]
> Sent: Friday, August 09, 2013 11:39 AM
> To: Sara Ploetz
> Subject: Nelson County Noxious Weeds
>
> Attached you will see a list of noxious weeds in the area of concern. I hope this is what you were looking for.
>
> Debbie
>
> ---
>
> * IMPORTANT NOTICE* *
> Unless otherwise indicated or obvious from the nature of the transmittal,

the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

NOXIOUS INVASIVE WEED LOCATIONS - NELSON COUNTY

TOWNSHIP	NORTHING	WESTING	TO	NORTHING	WESTING	WEED
LAKOTA	48.3.024	98.25.348		48.3.206	98.25.346	CANADA THISTLE
	48.3.495	98.25.258		48.3.713	98.25.105	CANADA THISTLE
	48.3.894	98.25.220		48.4.179	98.25.341	CANADA THISTLE
	48.4.253	98.25.340		48.4.604	98.25.339	CANADA THISTLE
	48.4.706	98.25.340				CANADA THISTLE
	48.5.608	98.25.255		48.5.610	98.25.086	MUSK THISTLE
	48.5.607	98.25.057		48.5.609	98.24.053	CANADA THISTLE
	48.5.458	98.24.044				CANADA THISTLE
	48.4.743	98.24.126				CANADA THISTLE
	48.3.003	98.25.231		48.3.005	98.24.895	CANADA THISTLE
	48.3.005	98.24.408		48.3.005	98.28.309	CANADA THISTLE
	48.3.008	98.22.226				
	48.2.022	98.24.053		48.1.585	98.24.055	CANADA THISTLE
	48.1.367	98.24.055				CANADA THISTLE
	48.1.270	98.20.227				CANADA THISTLE
	48.1.267	98.21.557				CANADA THISTLE
WILLIAMS	48.0.314	98.16.1				CANADA THISTLE
	48.0.326	98.16.05		48.0.325	98.15.831	CANADA THISTLE & LEAFY SPURGE
	48.0.068	98.14.846		47.59.895	98.14.848	CANADA THISTLE
	47.59.613	98.14.848				CANADA THISTLE
	47.58.774	98.13.549		47.59.202	98.13.549	CANADA THISTLE
	47.59.652	98.13.55		48.0.122	98.13.551	CANADA THISTLE
	48.0.329	98.13.553				CANADA THISTLE
	47.58.588	98.13.27		47.58.587	98.12.908	CANADA THISTLE
	48.0.314	98.12.255		47.59.862	98.12.256	CANADA THISTLE
	47.59.708	98.12.257		47.59.451	98.12.255	CANADA THISTLE
	47.59.375	98.12.254				CANADA THISTLE
	47.59.046	98.12.254				CANADA THISTLE
	47.58.776	98.12.254				CANADA THISTLE
	47.58.188	98.12.256				CANADA THISTLE
	47.58.586	98.11.618		47.58.587	98.11.252	CANADA THISTLE
	47.57.758	98.9.662		47.58.588	98.9.668	CANADA THISTLE
	47.58.59	98.9.872				CANADA THISTLE
	47.58.587	98.9.904				CANADA THISTLE
	47.58.584	98.10.069		47.58.587	98.10.307	CANADA THISTLE
	47.58.588	98.10.495				CANADA THISTLE
	47.58.587	98.9.129				CANADA THISTLE
ILLINOIS	48.0.334	98.23.779		48.0.332	98.23.114	CANADA THISTLE
	48.0.332	98.23.064		48.0.33	98.22.837	CANADA THISTLE
	48.0.329	98.22.837				LEAFY SPURGE
	48.0.33	98.22.745				CANADA THISTLE
	48.0.334	98.24.00		48.0.335	98.24.238	CANADA THISTLE
	48.0.336	98.24.461		48.0.340	98.25.105	CANADA THISTLE

SURVEYED AUGUST 6-8, 2013

NOXIOUS INVASIVE WEED LOCATIONS - NELSON COUNTY

	48.0.331	98.25.11	47.59.752	98.25.109	CANADA THISTLE
	47.59.683	98.25.109	47.59.466	98.25.096	CANADA THISTLE
	47.59.467	98.25.1	47.59.467	98.24.943	CANADA THISTLE
	47.59.467	98.24.797	47.59.467	98.24.402	CANADA THISTLE
DODDS	48.00.329	98.20.139	48.00.330	98.20.641	CANADA THISTLE
	48.01.268	98.17.408			CANADA THISTLE
	48.00.327	98.18.757			CANADA THISTLE
	48.00.324	98.17.564			CANADA THISTLE
	48.00.324	98.15.989			CANADA THISTLE
	47.59.617	98.14.845			CANADA THISTLE
	48.00.167	98.16.099			CANADA THISTLE
	47.59.468	98.17.395	48.00.325	98.17.378	CANADA THISTLE
MICHIGAN	47.58.585	98.7.999			CANADA THISTLE
	47.58.586	98.8.219			CANADA THISTLE
	47.58.487	98.5.829	47.58.320	98.5.826	CANADA THISTLE
	47.58.095	98.5.828			CANADA THISTLE
	47.57.719	98.5.847	47.57.72	98.6.278	CANADA THISTLE
	47.57.721	98.6.348	47.57.720	98.6.478	CANADA THISTLE
	47.57.721	98.6.599			CANADA THISTLE
	47.57.72	98.6.768	47.57.721	98.7.11	CANADA THISTLE
	47.57.72	98.7.00			LEAFY SPURGE
	47.57.77	98.07.116			CANADA THISTLE
	47.57.993	98.7.119			CANADA THISTLE
	47.58.29	98.7.118	47.58.581	98.7.121	LEAFY SPURGE & CANADA THISTLE
	47.57.721	98.04.568			CANADA THISTLE
	47.57.720	98.04.845	47.57.722	98.05.826	CANADA THISTLE
	47.57.814	98.05.825			CANADA THISTLE
	47.58.038	98.05.826			CANADA THISTLE
	47.58.251	98.05.828			CANADA THISTLE
	47.57.739	98.04.525	47.58.136	98.4.528	CANADA THISTLE
	47.58.383	98.04.527	47.58.461	98.4.527	CANADA THISTLE
	47.58.014	98.3.234			CANADA THISTLE
	47.58.274	98.03.235			CANADA THISTLE
	47.58.551	98.3.234			CANADA THISTLE
	47.58.201	98.1.943			CANADA THISTLE
	47.58.112	98.1.943	47.57.935	98.01.941	CANADA THISTLE
	47.57.718	98.01.906	47.57.718	98.01.424	CANADA THISTLE
	47.57.718	98.1.268	47.57.719	98.0.657	CANADA THISTLE
PETERSBURG	47.57.766	98.0.650			CANADA THISTLE
	47.58.320	98.0.646			CANADA THISTLE
	47.58.583	98.0.727			LEAFY SPURGE & CANADA THISTLE
	47.58.583	98.01.137			CANADA THISTLE
	47.58.584	98.01.318	47.58.586	98.01.569	LEAFY SPURGE
	47.58.587	98.01.633			CANADA THISTLE

SURVEYED AUGUST 6-8, 2013

NOXIOUS INVASIVE WEED LOCATIONS - NELSON COUNTY

	47.58.585	98.00.493	47.58.591	97.59.919	LEAFY SPURGE & CANADA THISTLE
	47.58.591	97.59.672			CANADA THISTLE
	47.58.594	97.59.380	47.583.594	97.56.806	CANADA THISTLE & MUSK THISTLE
	47.58.577	97.58.103			LEAFY SPURGE & CANADA THISTLE
	47.58.420	97.58.098	47.57.099	97.58.092	CANADA THISTLE & MUSK THISTLE
	47.57.041	97.58.093			CANADA THISTLE
	47.56.855	97.58.072	47.56.855	97.57.949	CANADA THISTLE
	47.56.852	97.57.357	47.56.852	97.57.250	CANADA THISTLE
	47.56.860	97.56.804			CANADA THISTLE
	47.57.505	97.56.802			CANADA THISTLE
	47.57.736	97.56.803			CANADA THISTLE
	47.57.918	97.56.802			CANADA THISTLE
	47.57.287	97.56.758	47.57.287	97.54.901	CANADA THISTLE
	47.57.287	97.54.629	47.57.285	97.54.234	CANADA THISTLE
	47.57.287	97.53.206	47.57.287	97.52.932	CANADA THISTLE
	47.57.346	97.52.921	47.57.546	97.52.923	MUSK THISTLE
	47.57.210	97.52.923	47.56.852	97.52.934	CANADA THISTLE
	47.57.434	97.54.212	47.57.722	97.54.212	CANADA THISTLE
	47.57.267	97.55.508	47.56.583	97.55.504	CANADA THISTLE & MUSK THISTLE
	47.57.317	97.55.511	47.58.022	97.55.507	CANADA THISTLE

SURVEYED AUGUST 6-8, 2013

Telephone Log

Date:
July 23, 2013

To:
Roger Gunderson

Agency:
Ramsey County, Weed Control Officer

Phone Number:
(701) 662-7330

From:
Sara Ploetz

Company:
Enbridge

Phone Number:
715-398-4730

Subject:
Noxious and Invasive Weeds Locations

I received a call from Roger Gunderson at the Ramsey County Weed Board on Tuesday, July 23. Mr. Gunderson was responding to the consultation letter sent on July 1 regarding Enbridge's request for information related to locations of known noxious and invasive weeds, as well as any recommendations regarding treatment of weeds prior to and during construction activities.

Mr. Gunderson indicated there were no real concentrations of weeds all the way through the county but we would run into sprinklings of them throughout the entire project corridor. The species discussed were:

- Canadian thistle
- Abisnth wormwood
- Leafy Spurge
- Common Milkweed

We briefly discussed that Enbridge typically sprays prior to construction as well as provide equipment cleaning measures to the contractor when dealing with known locations of noxious and invasive weeds. Mr. Gunderson had a few other questions about the project regarding pipe size, certainty, but no further discussion regarding weed control took place.

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Jim Basaraba, Weed Control Officer
Williams County Weed Board
109 Main St.
Williston, ND 58438-0002

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding noxious and invasive weeds

Dear Mr. Basaraba,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request help in obtaining information regarding the known locations of noxious and invasive weeds in Williams County, any recommendations regarding treatment of weeds prior to and/or during construction activities, as well as any other resource/program and contact information that may aid in the development of construction plans and procedures.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding noxious and invasive weeds. As part of pre-project planning, we have been in consultation with numerous state, local, and federal agencies to introduce the project to seek input and to identify agency concerns. In a response to our initial consultation with the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), Lisa Lund (USDA-NRCS North Dakota Administrative Officer) recommended contacting you to determine known locations of noxious and invasive weeds in your county.

Based on a review of the North Dakota Century Code 4.1-47-02 and North Dakota Department of Agriculture guidance documents, the following noxious weeds are currently listed in Williams County:

- Absinth wormwood
- Canadian thistle
- Diffuse knapweed
- Leafy spurge
- Musk thistle
- Purple loosestrife
- Russian knapweed
- Spotted knapweed
- Yellow toadflax
- Dalmation toadflax
- Saltcedar

To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- confirmation that the list of noxious weeds above is correct and current;
- known locations of noxious and/or invasive weed species along the proposed route; and
- guidance and/or recommendations for weed control, pesticide use, and non-chemical treatment options.

We ask that your office provide the location, size, and extent of noxious/invasive weeds as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section(s), or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for the project to spread noxious or invasive weeds during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

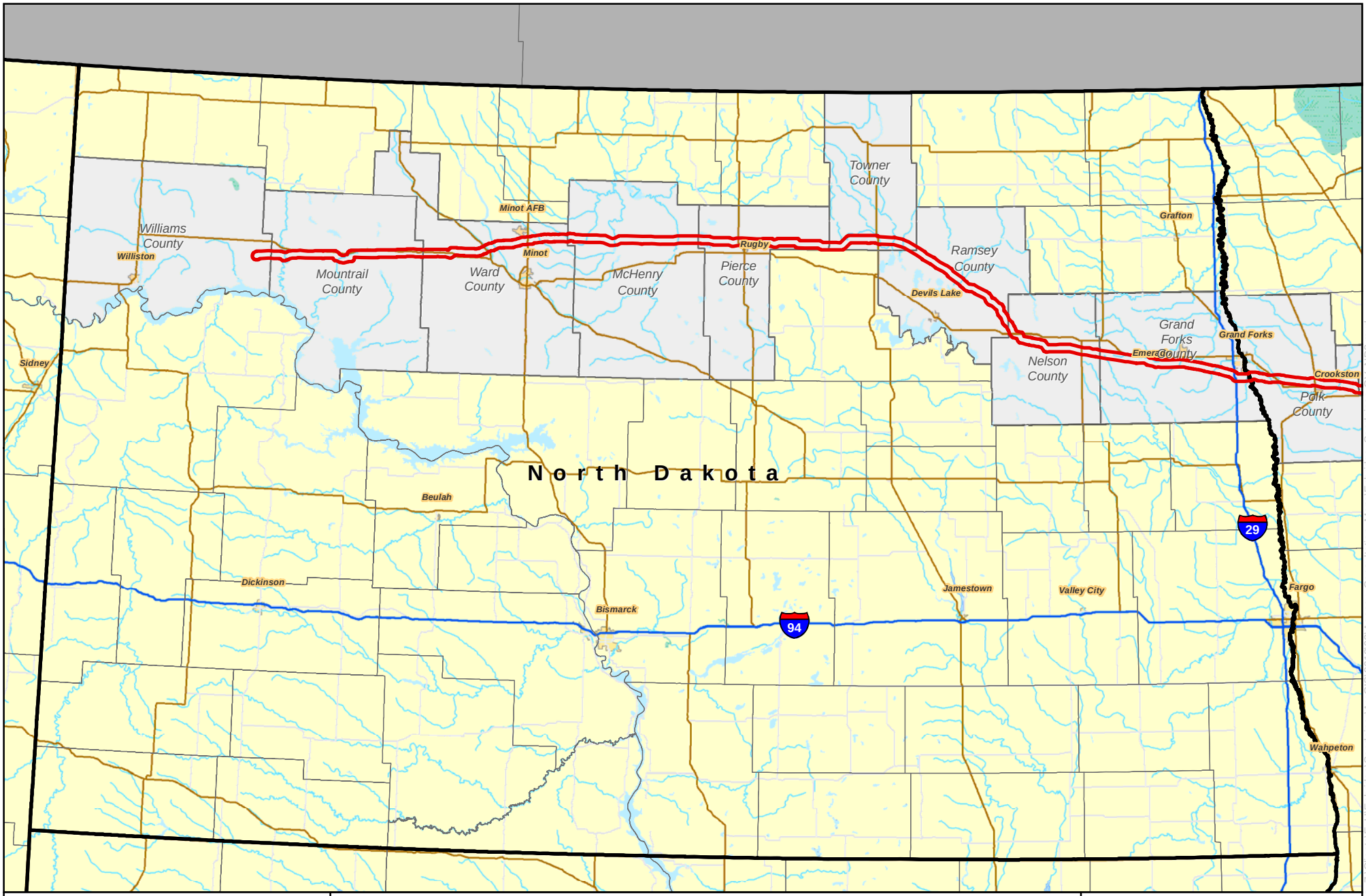
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

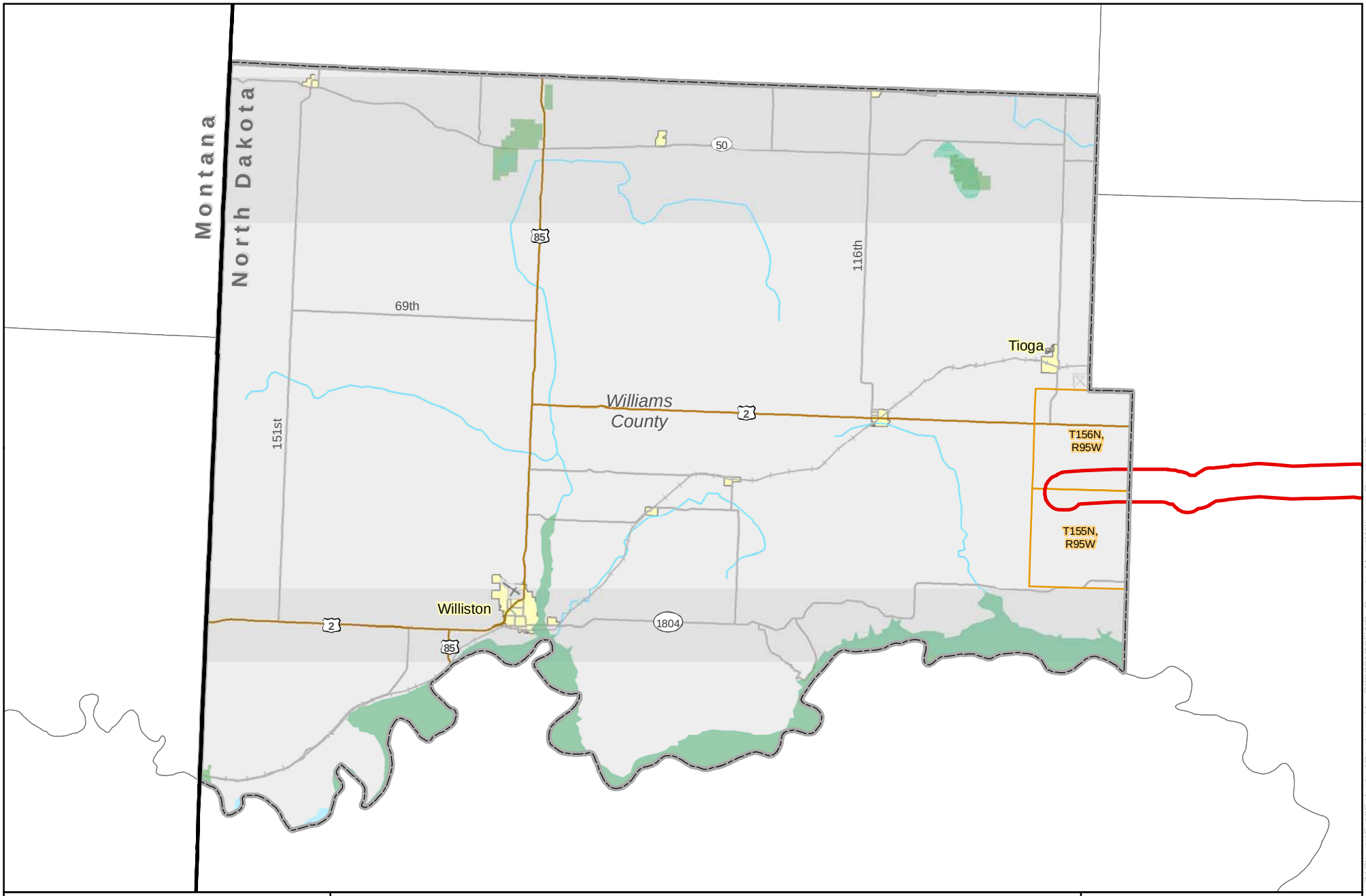
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Williams_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Williams County, North Dakota		
Township	**Range**	**Section(s)**
T155N	R95W	4, 5
T156N	R95W	33, 34, 35, 36

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Jim Hennessy, Weed Control Officer
Mountrail County Weed Board
PO Box 40
Stanley, ND 58784-004

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding noxious and invasive weeds

Dear Mr. Hennessy,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request help in obtaining information regarding the known locations of noxious and invasive weeds in Mountrail County, any recommendations regarding treatment of weeds prior to and/or during construction activities, as well as any other resource/program and contact information that may aid in the development of construction plans and procedures.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding noxious and invasive weeds. As part of pre-project planning, we have been in consultation with numerous state, local, and federal agencies to introduce the project to seek input and to identify agency concerns. In a response to our initial consultation with the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), Lisa Lund (USDA-NRCS North Dakota Administrative Officer) recommended contacting you to determine known locations of noxious and invasive weeds in your county.

Based on a review of the North Dakota Century Code 4.1-47-02 and North Dakota Department of Agriculture guidance documents, the following noxious weeds are currently listed in Mountrail County:

- Absinth wormwood
- Canadian thistle
- Diffuse knapweed
- Leafy spurge
- Musk thistle
- Purple loosestrife
- Russian knapweed
- Spotted knapweed
- Yellow toadflax
- Dalmation toadflax
- Saltcedar
- Common tansy
- Houndstounge

To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- confirmation that the list of noxious weeds above is correct and current;
- known locations of noxious and/or invasive weed species along the proposed route; and
- guidance and/or recommendations for weed control, pesticide use, and non-chemical treatment options.

We ask that your office provide the location, size, and extent of noxious/invasive weeds as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section(s), or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for the project to spread noxious or invasive weeds during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

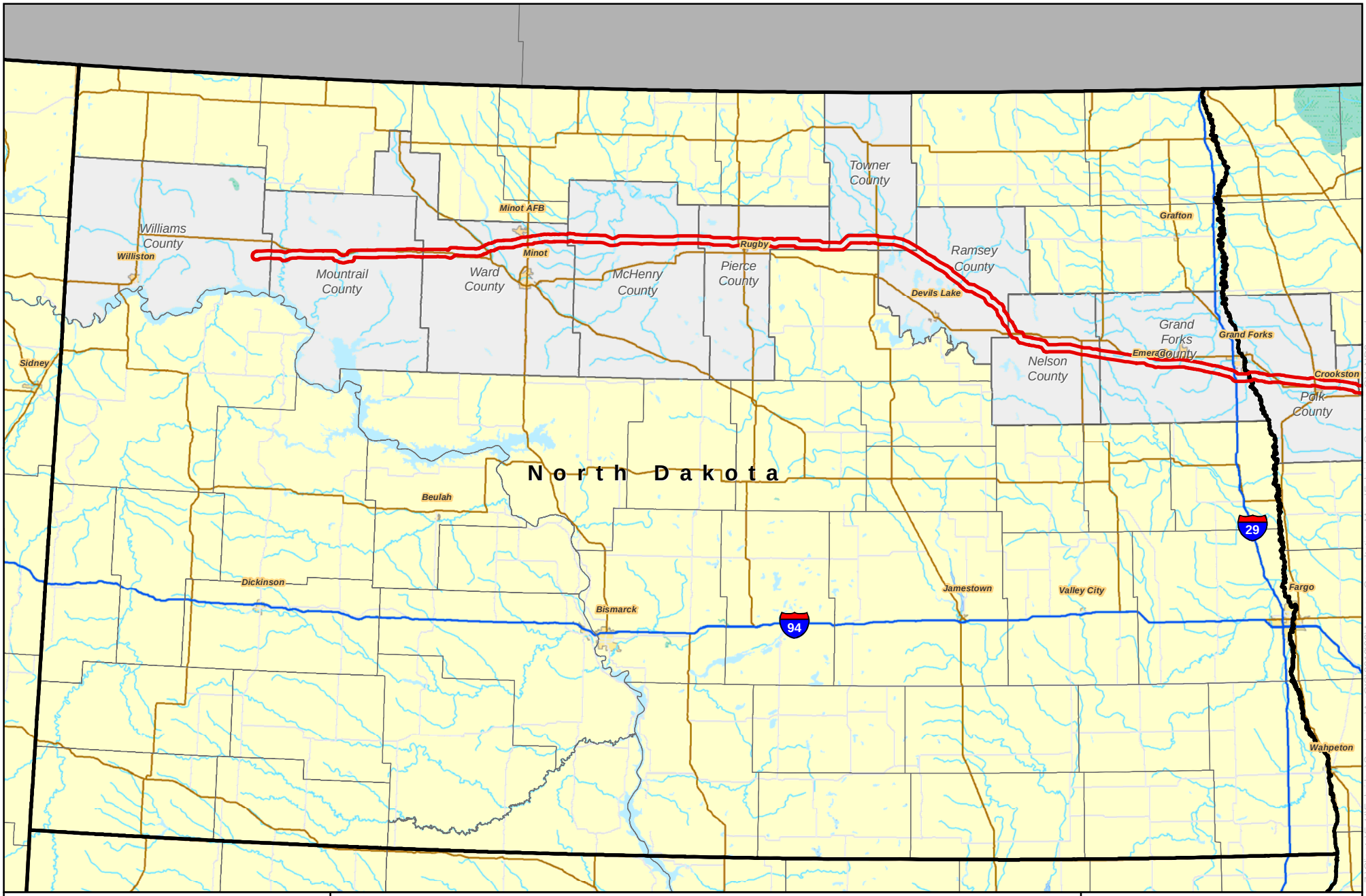
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

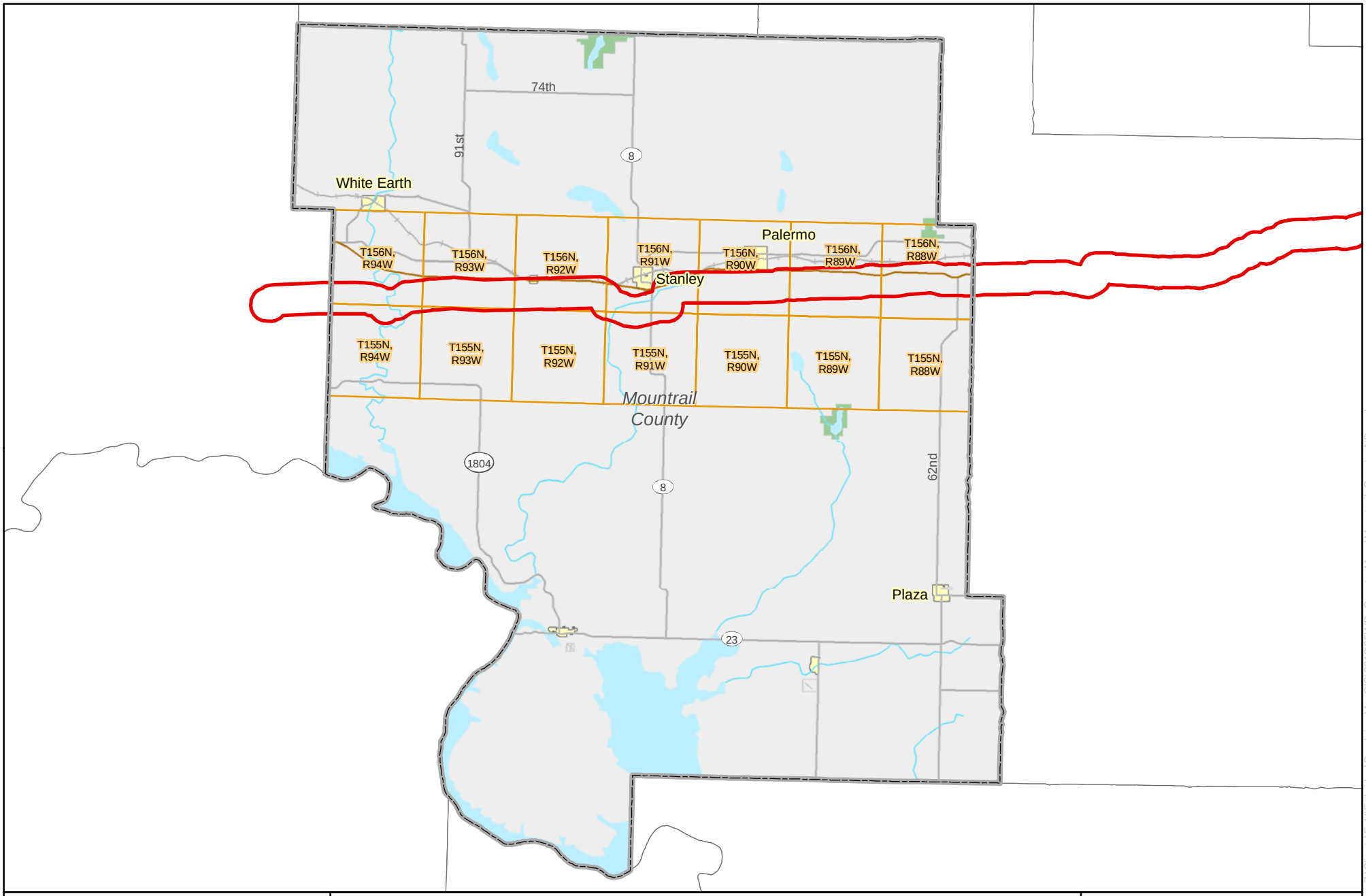
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4.25 8.5 Miles

1 inch = 8.5 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Mountrail_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Mountrail County, North Dakota		
Township	**Range**	**Section(s)**
T155N	R94W	3
T156N	R88W	19, 20, 21, 22, 23, 24
T156N	R89W	19, 20, 21, 22, 23, 24
T156N	R90W	24, 25, 26, 27, 28, 29, 30
T156N	R91W	25, 26, 31, 32, 33, 34, 35
T156N	R92W	25, 26, 27, 28, 29, 30, 31, 36
T156N	R93W	31, 32, 33, 34, 35, 36
T156N	R94W	31, 32, 33, 34, 35, 36
T156N	R95W	36

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Derrill Fick, Weed Control Officer
Ward County Weed Board
PO Box 5005
Minot, ND 58702-5005

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding noxious and invasive weeds

Dear Mr. Fick,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request help in obtaining information regarding the known locations of noxious and invasive weeds in Ward County, any recommendations regarding treatment of weeds prior to and/or during construction activities, as well as any other resource/program and contact information that may aid in the development of construction plans and procedures.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding noxious and invasive weeds. As part of pre-project planning, we have been in consultation with numerous state, local, and federal agencies to introduce the project to seek input and to identify agency concerns. In a response to our initial consultation with the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), Lisa Lund (USDA-NRCS North Dakota Administrative Officer) recommended contacting you to determine known locations of noxious and invasive weeds in your county.

Based on a review of the North Dakota Century Code 4.1-47-02 and North Dakota Department of Agriculture guidance documents, the following noxious weeds are currently listed in Ward County:

- Absinth wormwood
- Canadian thistle
- Diffuse knapweed
- Leafy spurge
- Musk thistle
- Purple loosestrife
- Russian knapweed
- Spotted knapweed
- Yellow toadflax
- Dalmation toadflax
- Saltcedar
- False chamomile
- Houndstounge

To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- confirmation that the list of noxious weeds above is correct and current;
- known locations of noxious and/or invasive weed species along the proposed route; and
- guidance and/or recommendations for weed control, pesticide use, and non-chemical treatment options.

We ask that your office provide the location, size, and extent of noxious/invasive weeds as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section(s), or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for the project to spread noxious or invasive weeds during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

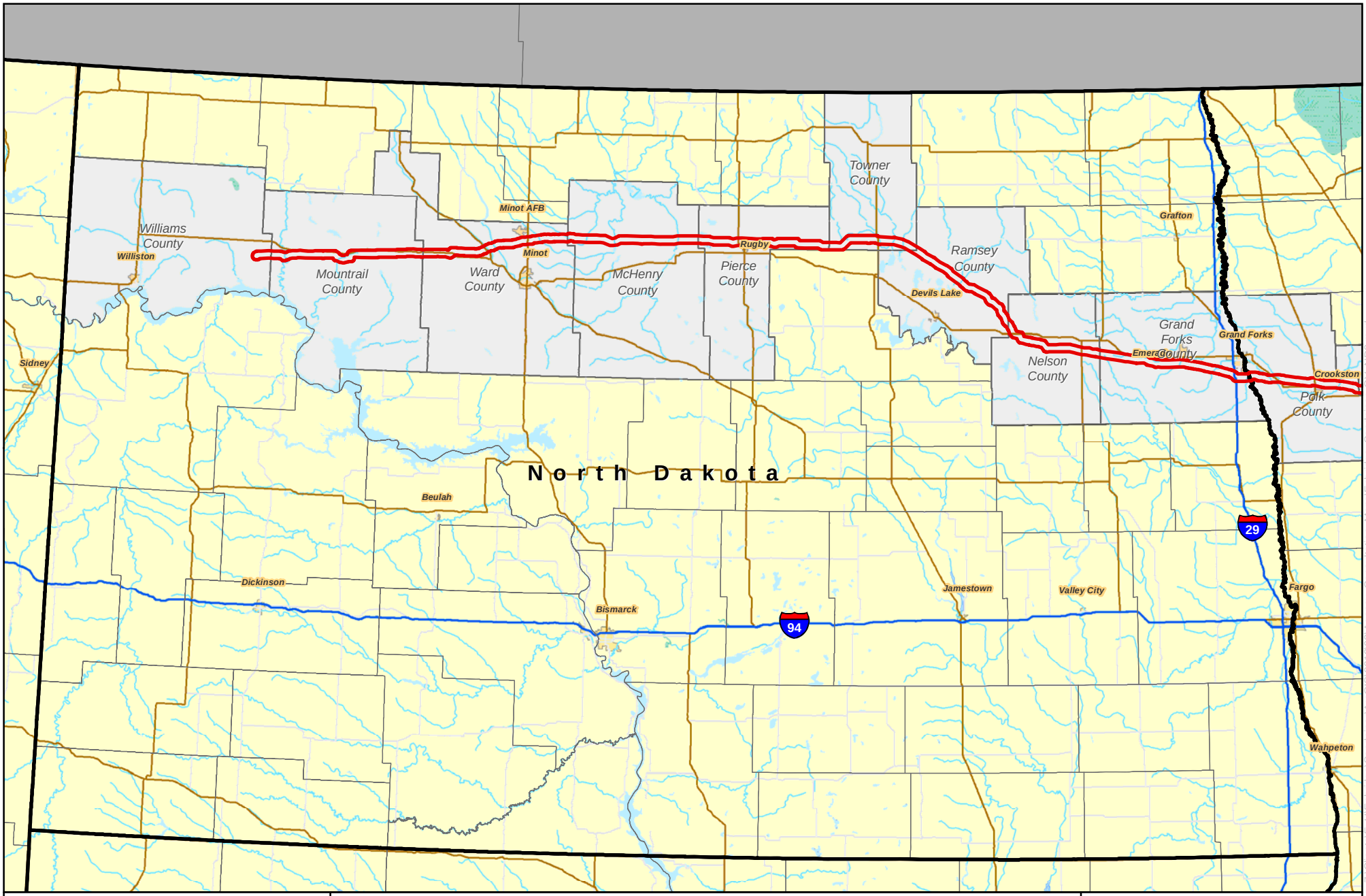
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

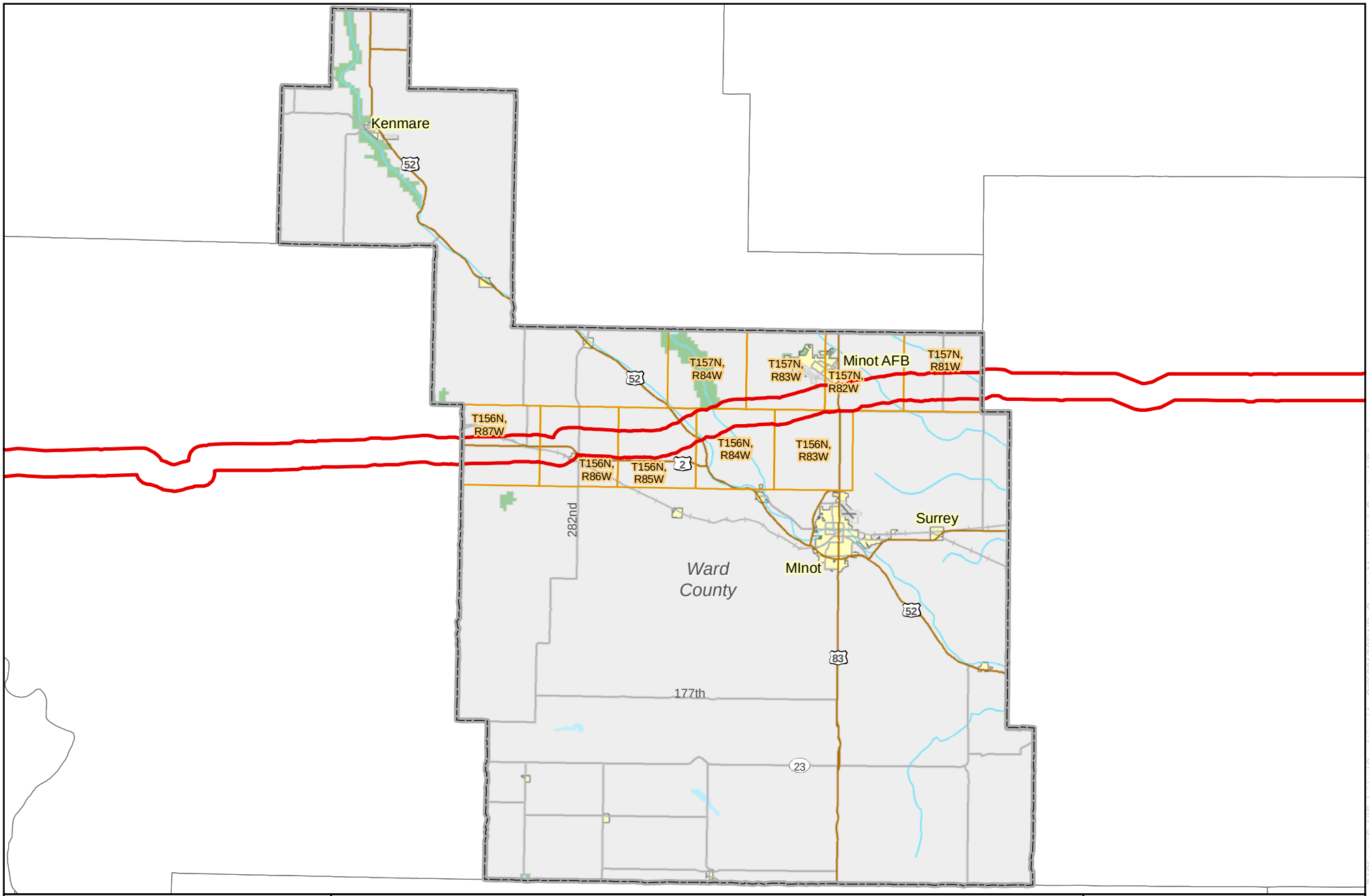
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 5 10 Miles

1 inch = 10 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Ward_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Ward County, North Dakota		
Township	**Range**	**Section(s)**
T156N	R83W	6
T156N	R84W	1, 2, 3, 4, 5, 6, 7, 8
T156N	R85W	11, 12, 14, 15, 16, 17, 18
T156N	R86W	13, 14, 15, 16, 17, 19, 20, 21
T156N	R87W	19, 20, 21, 22, 23, 24
T156N	R88W	24
T157N	R81W	24, 25, 26, 27, 28, 29, 30
T157N	R82W	25, 26, 27, 28, 31, 32, 33
T157N	R83W	34, 35, 36

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

B.R. Hornstein, Weed Control Officer
Pierce County Weed Board
716 3rd Ave. SE, Apt. A
Rugby, ND 58369

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding noxious and invasive weeds

Dear Mr. Hornstein,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request help in obtaining information regarding the known locations of noxious and invasive weeds in Pierce County, any recommendations regarding treatment of weeds prior to and/or during construction activities, as well as any other resource/program and contact information that may aid in the development of construction plans and procedures.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding noxious and invasive weeds. As part of pre-project planning, we have been in consultation with numerous state, local, and federal agencies to introduce the project to seek input and to identify agency concerns. In a response to our initial consultation with the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), Lisa Lund (USDA-NRCS North Dakota Administrative Officer) recommended contacting you to determine known locations of noxious and invasive weeds in your county.

Based on a review of the North Dakota Century Code 4.1-47-02 and North Dakota Department of Agriculture guidance documents, the following noxious weeds are currently listed in Pierce County:

- Absinth wormwood
- Canadian thistle
- Diffuse knapweed
- Leafy spurge
- Musk thistle
- Purple loosestrife
- Russian knapweed
- Spotted knapweed
- Yellow toadflax
- Dalmation toadflax
- Saltcedar

To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- confirmation that the list of noxious weeds above is correct and current;
- known locations of noxious and/or invasive weed species along the proposed route; and
- guidance and/or recommendations for weed control, pesticide use, and non-chemical treatment options.

We ask that your office provide the location, size, and extent of noxious/invasive weeds as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section(s), or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for the project to spread noxious or invasive weeds during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

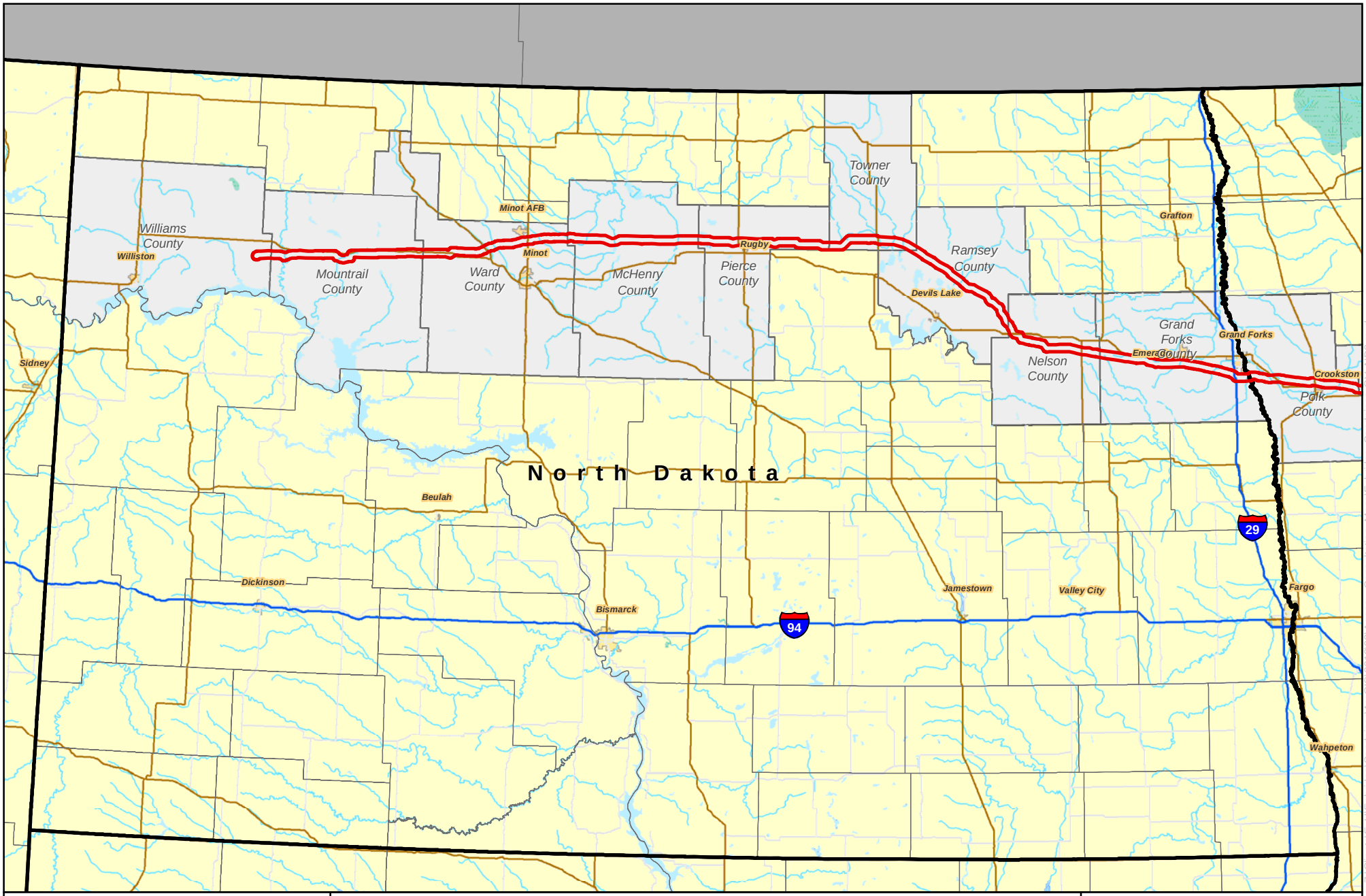
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

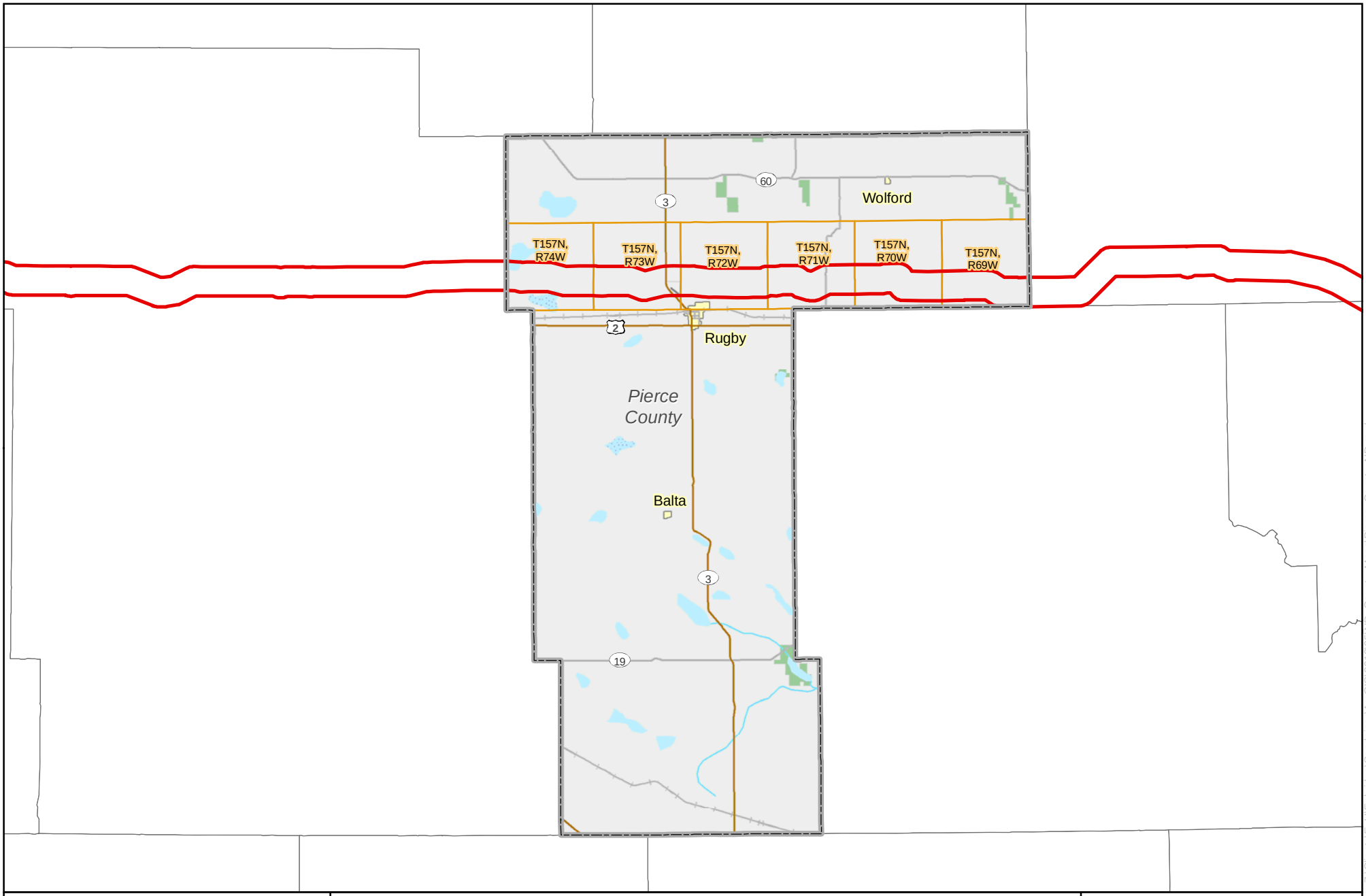
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4.5 9 Miles

1 inch = 9 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Pierce_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Pierce County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R68W	31
T157N	R69W	25, 26, 27, 28, 29, 30, 36
T157N	R70W	20, 21, 22, 25, 26, 27, 29, 30
T157N	R71W	21, 22, 23, 25, 26, 27, 28, 29, 30
T157N	R72W	25, 26, 27, 28, 29, 30
T157N	R73W	19, 25, 26, 27, 28, 29, 30
T157N	R74W	19, 20, 21, 22, 23, 24

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Roger Copeland, Weed Control Officer
Towner County Weed Board
7383 67th St. NE
Starkweather, ND 58377-9639

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding noxious and invasive weeds

Dear Mr. Copeland,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request help in obtaining information regarding the known locations of noxious and invasive weeds in Towner County, any recommendations regarding treatment of weeds prior to and/or during construction activities, as well as any other resource/program and contact information that may aid in the development of construction plans and procedures.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding noxious and invasive weeds. As part of pre-project planning, we have been in consultation with numerous state, local, and federal agencies to introduce the project to seek input and to identify agency concerns. In a response to our initial consultation with the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), Lisa Lund (USDA-NRCS North Dakota Administrative Officer) recommended contacting you to determine known locations of noxious and invasive weeds in your county.

Based on a review of the North Dakota Century Code 4.1-47-02 and North Dakota Department of Agriculture guidance documents, the following noxious weeds are currently listed in Towner County:

- Absinth wormwood
- Canadian thistle
- Diffuse knapweed
- Leafy spurge
- Musk thistle
- Purple loosestrife
- Russian knapweed
- Spotted knapweed
- Yellow toadflax
- Dalmation toadflax
- Saltcedar

To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- confirmation that the list of noxious weeds above is correct and current;
- known locations of noxious and/or invasive weed species along the proposed route; and
- guidance and/or recommendations for weed control, pesticide use, and non-chemical treatment options.

We ask that your office provide the location, size, and extent of noxious/invasive weeds as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section(s), or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for the project to spread noxious or invasive weeds during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

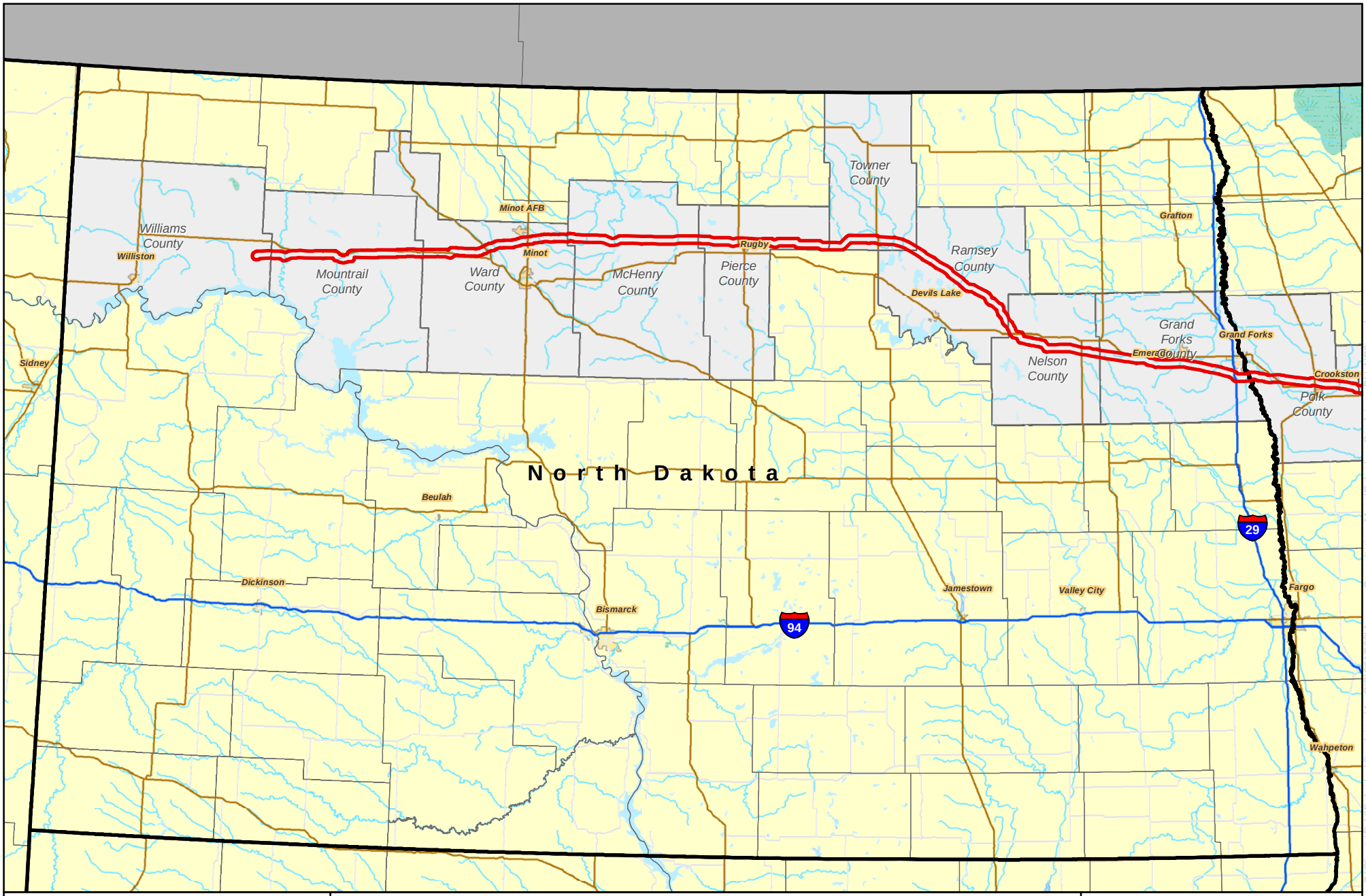
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

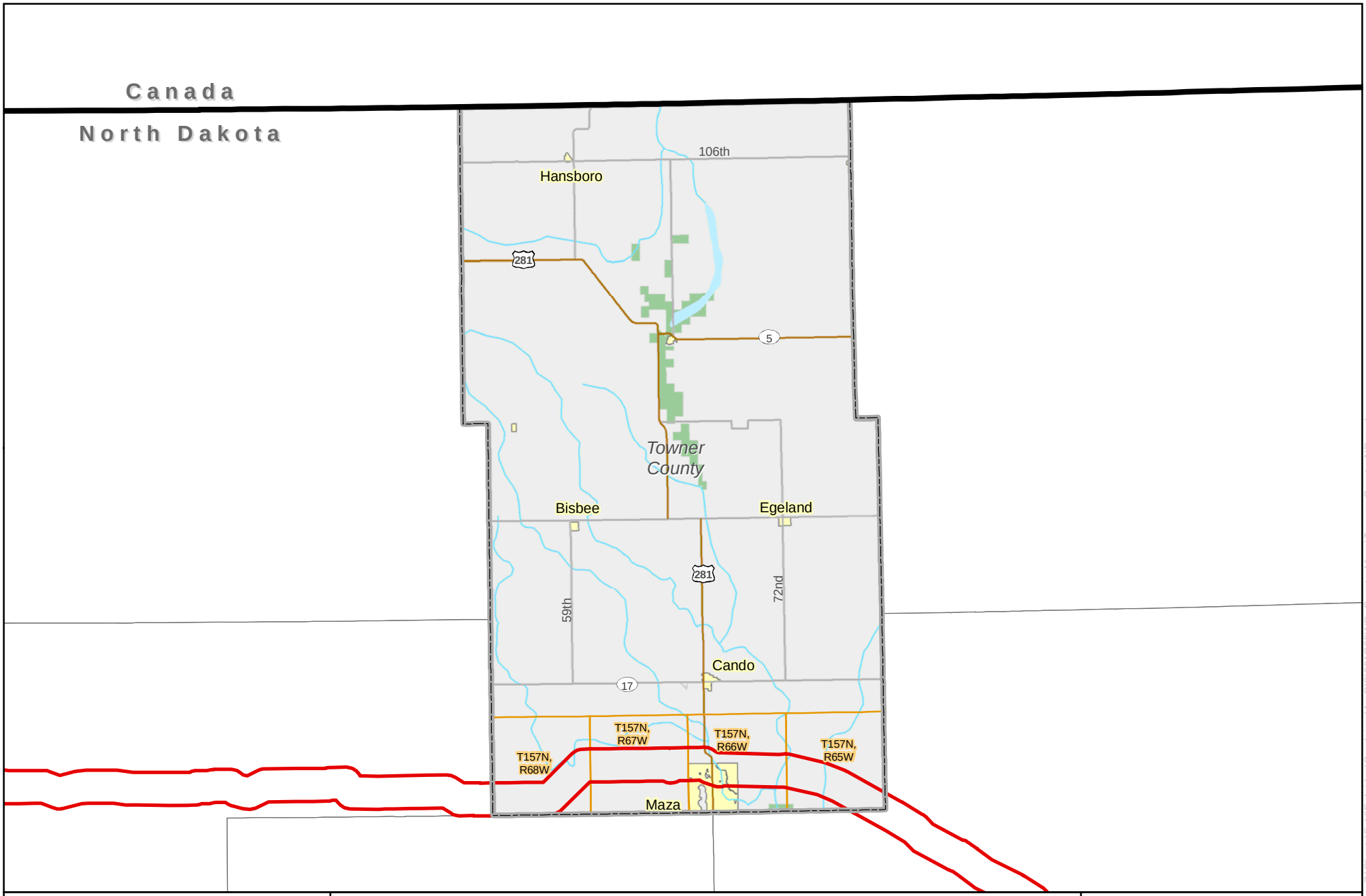
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Towner_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Towner County, North Dakota		
Township	**Range**	**Section(s)**
T157N	R65W	19, 20, 26, 27, 28, 29, 35, 36
T157N	R66W	19, 20, 21, 22, 23, 24
T157N	R67W	19, 20, 21, 22, 23, 24
T157N	R68W	23, 24, 26, 27, 31, 32, 33, 34
T157N	R69W	25

Enbridge Pipelines (North Dakota) LLC – Sara Ploetz, Environmental Analyst II
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

July 1, 2013

Joel Anderson, Weed Control Officer
Grand Forks County Weed Board
415 Westbend Lane
Alvarado, ND 56710

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Request for information regarding noxious and invasive weeds

Dear Mr. Anderson,

With this letter, I am writing to introduce the Sandpiper Pipeline Project (Sandpiper) and request help in obtaining information regarding the known locations of noxious and invasive weeds in Grand Forks County, any recommendations regarding treatment of weeds prior to and/or during construction activities, as well as any other resource/program and contact information that may aid in the development of construction plans and procedures.

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow its existing Line 81 pipeline and other existing utilities. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. Sandpiper will begin at Enbridge's Beaver Lodge Station south of Tioga, North Dakota, extend to Clearbrook, Minnesota, and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to our Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Towner, Ramsey, Nelson, and Grand Forks Counties. The following items are enclosed to assist in your review of this request in your respective county:

- project-wide map;
- project map of North Dakota counties crossed;
- a county overview map;
- a list of the Section(s), Township, Range crossed by the project; and
- a shapefile of a 2-mile-wide study area (on CD-ROM).

Enbridge has contracted with Merjent, Inc. (Merjent) to assist with environmental review and permitting on Sandpiper, including obtaining information regarding noxious and invasive weeds. As part of pre-project planning, we have been in consultation with numerous state, local, and federal agencies to introduce the project to seek input and to identify agency concerns. In a response to our initial consultation with the U.S. Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS), Lisa Lund (USDA-NRCS North Dakota Administrative Officer) recommended contacting you to determine known locations of noxious and invasive weeds in your county.

Based on a review of the North Dakota Century Code 4.1-47-02 and North Dakota Department of Agriculture guidance documents, the following noxious weeds are currently listed in Grand Forks County:

- Absinth wormwood
- Canadian thistle
- Diffuse knapweed
- Leafy spurge
- Musk thistle
- Purple loosestrife
- Russian knapweed
- Spotted knapweed
- Yellow toadflax
- Dalmation toadflax
- Saltcedar
- Kochia

To facilitate our environmental review, we are requesting the following information for each county crossed that is within the 2-mile-wide study area associated with the project:

- confirmation that the list of noxious weeds above is correct and current;
- known locations of noxious and/or invasive weed species along the proposed route; and
- guidance and/or recommendations for weed control, pesticide use, and non-chemical treatment options.

We ask that your office provide the location, size, and extent of noxious/invasive weeds as a GIS shapefile (if possible), geographic coordinates (e.g., latitude/longitude), Public Land Survey System Section(s), or marked on a map. Please note that Enbridge is not requesting any personal landowner information. The information you provide will assist us in developing an Environmental Protection Plan that will be used to minimize the potential for the project to spread noxious or invasive weeds during construction of the project.

If you have any questions or need further information in order to respond to this request, please contact Sara Ploetz at Enbridge (715-398-4730; Sara.Ploetz@enbridge.com) or Paul Hartzheim at Merjent (612-746-1618; phartzheim@merjent.com). Thank you for your assistance.

Sincerely,

Sara Ploetz
Environmental Analyst II
Sandpiper Pipeline Project

Enclosures: Project, State, and County overview maps
Public Land Survey System Section, Township, and Range List
Shapefile of 2-mile-wide Study Area

cc: Paul Hartzheim, Merjent

Sandpiper Rev. A Study Area

0 30 60 Miles

1 inch = 60 miles

N

Enbridge Pipelines (North Dakota) LLC

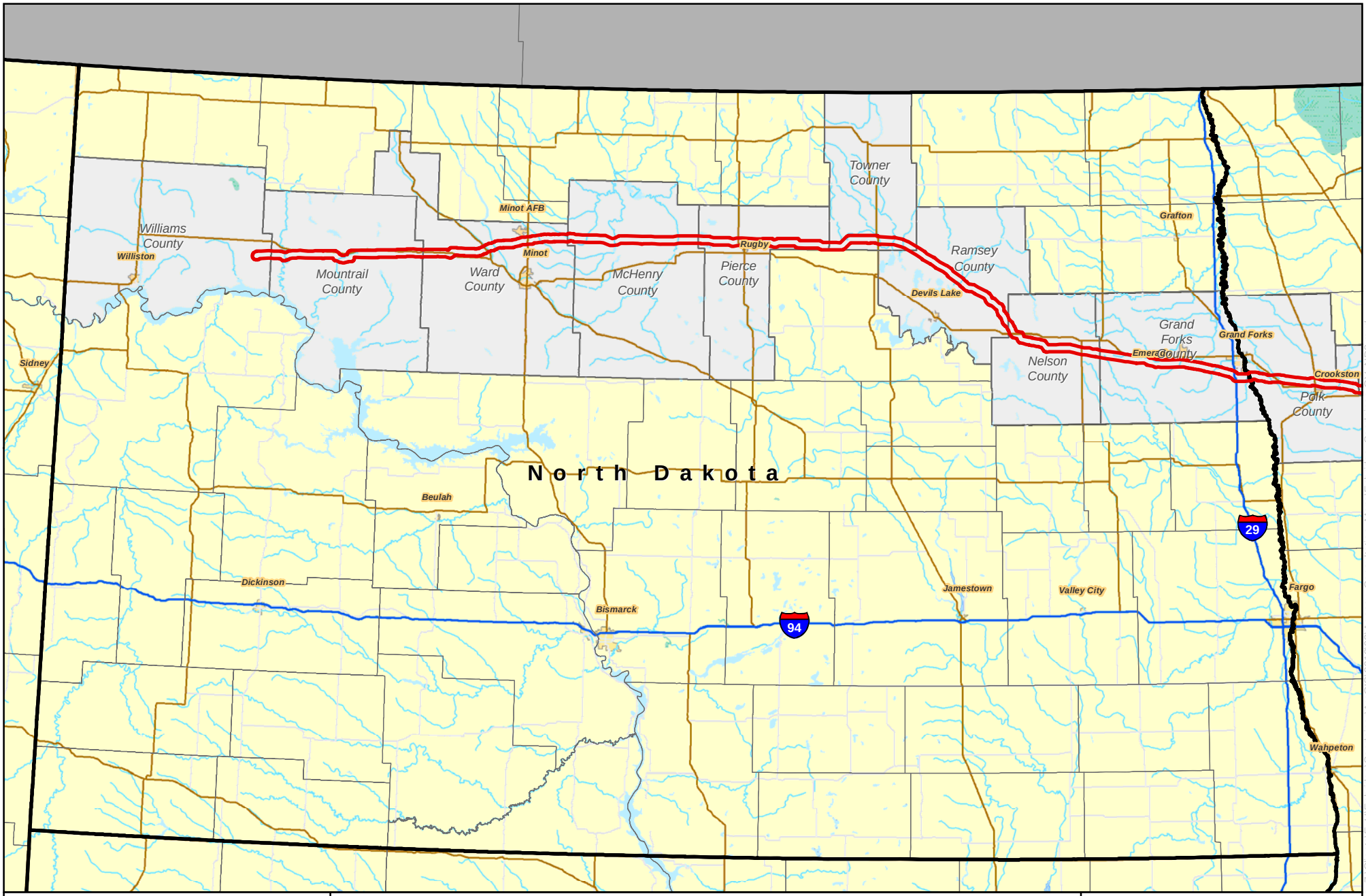
Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\Sandpiper\ArcGIS\2013\06\New_Overview_Maps\Enbridge_Sandpiper_OV.mxd

Date: (6/6/2013)



Sandpiper Rev. A Study Area

0 18 36 Miles

1 inch = 36 miles

N

Enbridge Pipelines (North Dakota) LLC

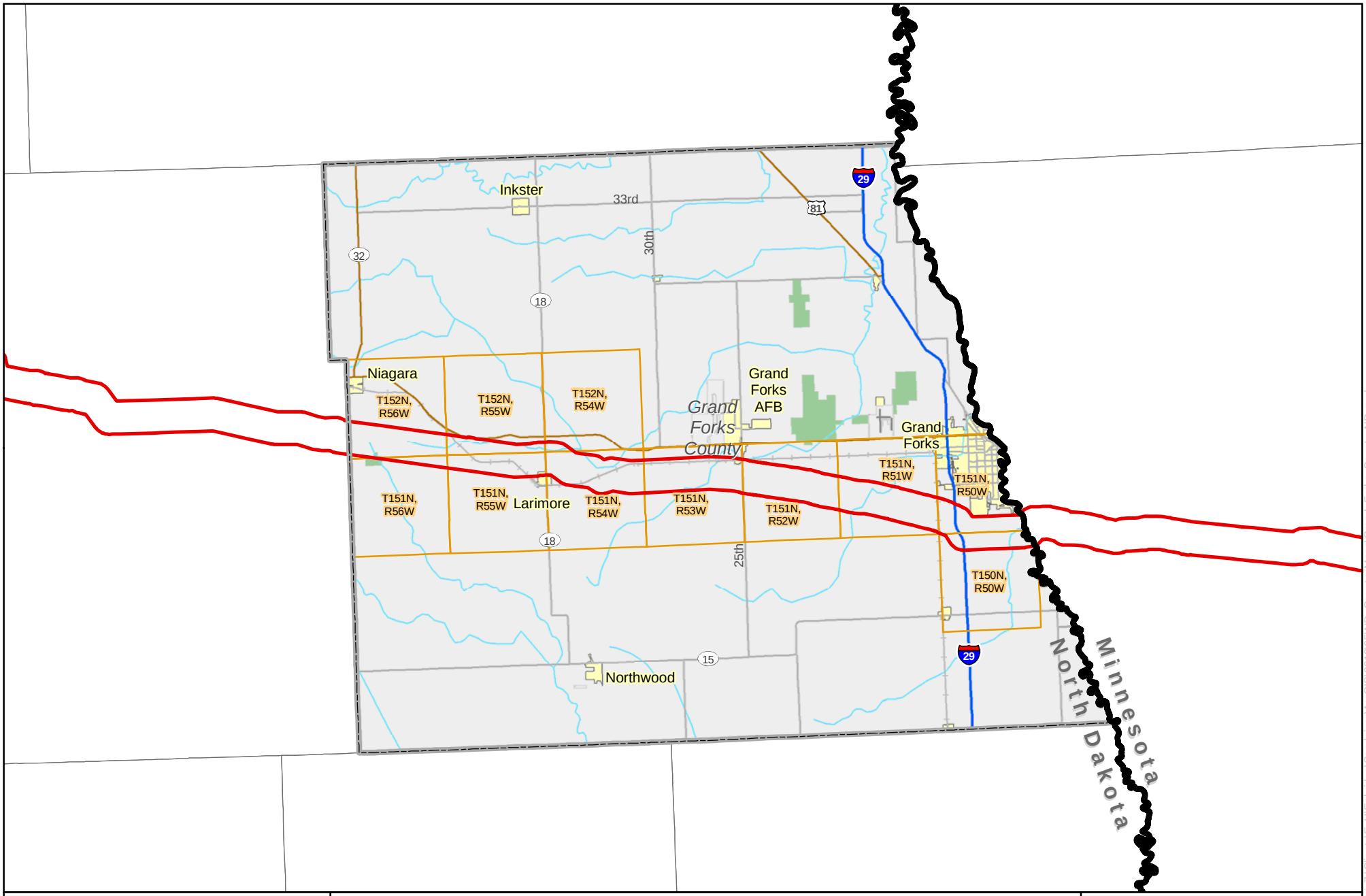
Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\03\Agency_Consultation_Maps\Enbridge_Sandpiper_OV_ND2.mxd

Date: (3/22/2013)



Sandpiper Rev. A Study Area

0 4 8 Miles

1 inch = 8 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

County Overview Map

ENBRIDGE

Source: Z:\Clients\E_H\Enbridge\SandpiperArcGIS\2013\05\ND_County_Maps\Grand_Forks_County_ND.mxd

Date: (5/29/2013)

Sandpiper Pipeline Project Township, Range, and Sections Crossed in Grand Forks County, North Dakota		
Township	**Range**	**Section(s)**
T150N	R49W	6
T150N	R50W	1, 2, 3, 4, 5
T151N	R49W	31
T151N	R50W	30, 31, 32
T151N	R51W	19, 20, 22, 25, 26, 27
T151N	R52W	7, 14, 15, 16, 17, 18, 23, 24
T151N	R53W	7, 8, 9, 10, 11, 12
T151N	R54W	5, 6, 8, 9, 10, 11, 12
T151N	R55W	1, 2, 3, 4, 5
T152N	R55W	31, 32
T152N	R56W	29, 30 ,32, 33, 34, 35, 36
T152N	R57W	25

EXHIBIT H.14

From:	Gayle Konik
To:	Matthew Davis; McCusker, Jeffrey; Britta A. Bergland
Cc:	Weaver, Mark; Andrea Ketchmark
Subject:	RE: FW: Enbridge Sandpiper Pipeline Project - Project Notification and Request for Information
Date:	Tuesday, September 10, 2013 10:39:41 AM
Attachments:	NCT Crossing Hubbard County.png

Hello Matt: Thank you for your response to our August 12, 2013 letter regarding Enbridge Pipelines (North Dakota) LLC's (EPND) Sandpiper Pipeline Project (Sandpiper) and the crossings of the North Country Trail (NCT). Thanks also for the clarification regarding the map sources and the appropriate designation for the segment of the MCT in Hubbard County, Minnesota. In response to your questions:

1) *Sandpiper would cross the NCT near milepost 416.3 in Hubbard County (an aerial photo of this location is attached). At this crossing, Sandpiper would be collocated with Koch Pipeline Company's MinnCan Pipeline (the MinnCan pipeline corridor is visible in the photo – running top to bottom in the photo frame). During construction, EPND will establish a 120-foot-wide construction right-of-way directly alongside the Koch easement to accommodate construction activities Vegetation will be cleared from the construction right-of-way as necessary. Once construction is complete, EPND will retain a 50-foot-wide operational, or permanent, right-of-way. The remaining 70 feet will be allowed to re-vegetate.*

2) *EPND is in the process of developing an Environmental Protection Plan (EPP) that will be used during and after pipeline construction. Among other things, the EPP will address best management practices for construction and post-construction activities, including revegetation of the right-of-way and control of invasive species. The EPP will be filed with the Minnesota Public Utilities Commission as part of Sandpiper's Certificate of Need and Pipeline Routing Permit. These applications will be available for review and public comment, and we would welcome your review and comment at that time. In the meantime, we would appreciate any specific suggestions you might have regarding native species that would be beneficial for revegetation at this crossing of the NCT.*

3) *Aerial review of the trail crossing indicates that the area of crossing is in an upland. Pipeline construction across the trail would take approximately one to two months. The period where there will be on open trench would be a subset of the overall construction time period and be approximately 2 to 3 days. Construction activity in the area of the trail would rise and fall over this period.*

4) *We appreciate your comments on avoiding trail interruptions, and EPND is committed to working with you to identify the solution that will best meet the needs of the NCT and the project. As project planning progresses to a more detailed phase, we will work with you to develop crossing plan that will minimize impacts on the NCT and its recreational users.*

Regarding the NCT in Douglas County, Wisconsin, we would appreciate your help in locating exactly where the Sandpiper 2-mile-wide study area crosses the NCT. Do you have any more detailed maps of this location, or can you provide any GIS information on this? We would also be interested in management recommendations and information explaining the meaning of the Temporary

Connector designation of the NTC at this location.

We are interested in learning more about your future plans for a backcountry campsite and would appreciate any additional information you could share, including the desired location and estimated funds necessary to develop the site. Please do not hesitate to contact me with any other questions.

Thanks again for your time and comments.

Sincerely,

Gayle M. Konik
Manager Environment, Sandpiper Project

ENBRIDGE
TEL: 715-398-4559 | FAX: 713-821-9927 | CELL: 715-718-1732
409 Hammond Avenue, Superior, WI 54880
www.enbridge.com
Integrity. Safety. Respect.

From: Matthew Davis [mailto:mdavis@northcountrytrail.org]
Sent: Thursday, August 29, 2013 10:06 AM
To: Gayle Konik; McCusker, Jeffrey; bbergland@merjent.com
Cc: Weaver, Mark; Andrea Ketchmark
Subject: Re: FW: Enbridge Sandpiper Pipeline Project - Project Notification and Request for Information

Gayle,

Thanks for the opportunity to share information about the North Country National Scenic Trail (NCT) near this pipeline project. Here is some info and questions for you:

The North Country National Scenic Trail is completed and certified in the vicinity of this project near Itasca State Park. I'm not sure where you found the GIS data that says the Trail is "Temporary Connector" in that location. That is true for the crossing of the segment south of Duluth. I have included a map showing the NCT in this area. If you need GIS data, it is available at http://northcountrytrail.org/trail/data/#Minnesota. This should be up-to-date.

Because this pipeline would cross an existing segment of "on the ground Trail," we do have some concerns/questions...

1) What is the plan is for this new pipeline segment across the NCT near Itasca State Park. Will it utilize the existing pipeline ROW? Will there be any additional clearing - e.g. making the ROW wider? If so, by how much?

2) What is the plan for reclamation of the site following the completion of construction? Certain species of native vegetation make for a better trail tread than others and tall vegetation (which we often see in these forest openings) makes maintaining the NCT difficult. What about control of invasive species?

3) Approximately how long would you anticipate construction taking on this segment?

4) Since use of the North Country National Scenic Trail outside of the State Park is unregulated (i.e. users don't have to pre-register or obtain any permits) we won't know if/when users will be out there hiking the NCT on that particular location during the period of pipeline construction. Now that it is contiguous, the 160-mile NCT segment in northcentral Minnesota is getting more and more use. We will be publishing a guidebook for this segment next spring. The affected trail segment is remote with no road access between U.S. Hwy 71 and Spider Lake Trail. Due to those facts, it would be ideal for your company to mitigate the trail interruption problem. This mitigation could include:

a) providing a safe passage route continuously across the site during the duration of construction (preferred)

b) providing an on call shuttle service around this disruption for NCT hikers who could either 1) call ahead from CR-4/Spider Lake Trail and/or U.S. Hwy 71 or 2) make arrangements on site (less ideal)

c) signing the NCT as closed during the extent of the construction period and temporarily marking the 7.7 mile roadwalk alternative - http://goo.gl/maps/1aoCQ (even less ideal)

If your company is interested in leaving the NCT better off than before this project, we do have future plans for a backcountry campsite in this vicinity. Itasca State Park has requested we do this but we don't currently have funds for the planned campsite (e.g. to purchase a backcountry toilet, purchase a fire ring, and install a well with water pump).

Please let me know if you have any questions about any of this. Thanks again!

Take care,
Matt

On Mon, Aug 26, 2013 at 3:56 PM, McCusker, Jeffrey <jeff_b_mccusker@nps.gov> wrote:
Gayle,

I'm forwarding the information you sent us on your proposed pipeline project to Matt Davis, the Regional Trail Coordinator for the North Country Trail Association, our main partner on trail development. He should be able to get back with you on any issues he sees regarding the status of the trail in that area.

Matt: See the attached and let us know what you think. With all the new trail work in that area, I'm not sure if this proposed pipeline would have an impact on our newly developed trail or not.

Jeff

On Mon, Aug 26, 2013 at 2:39 PM, Weaver, Mark <mark_weaver@nps.gov> wrote:
Does this apply to one of the hardcopy letters I passed to you recently?

MARK WEAVER, Superintendent
North Country National Scenic Trail
PO Box 288
Lowell, MI 49331
616 430 3495
mark_weaver@nps.gov

---------- Forwarded message ----------
From: **Gayle Konik** <Gayle.Konik@enbridge.com>
Date: Mon, Aug 12, 2013 at 12:06 PM
Subject: FW: Enbridge Sandpiper Pipeline Project - Project Notification and Request for Information
To: "mark_weaver@nps.gov" <mark_weaver@nps.gov>

Please do not open any attachments from organizations or people that you are not familiar with. Also, since it is possible for viruses to "spoof" or fake the sender's address, do not open emails with attachments from people you know, but from whom you were not expecting an attachment or if the attachment is a file type or file name that you customarily do not receive from this person.

August 12, 2013

Mark Weaver

National Park Service

North Country National Scenic Trail

P.O. Box 288

Lowell, Michigan 49331

Subject: Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Notification and Request for Information

Dear Mr. Weaver,

With this letter, we are providing notification regarding the Sandpiper Pipeline Project (Sandpiper). We are requesting that you confirm the locations where Sandpiper appears to cross segments of the North Country Trail (NCT) and provide information to help us understand the permitting requirements for these potential crossings, if necessary.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will begin at Enbridge's Beaver Lodge station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Benson, Ramsey, Nelson, and Grand Forks counties. In Minnesota, Sandpiper would cross Polk, Red Lake, Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties. In Wisconsin, Sandpiper would cross Douglas County. Enbridge has contracted with Merjent, Inc. (Merjent) to assist with the field surveys, environmental review, and permitting of Sandpiper. An overall Project Location Map, state maps that present the North Dakota, Minnesota, and Wisconsin counties crossed by the Sandpiper route, and a shapefile of the 2-mile-wide study area are enclosed.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

Based on a review of publicly available NCT Association GIS data[1], Enbridge has identified one crossing in Hubbard County, Minnesota and one crossing in Douglas County, Wisconsin within the 2-mile-wide study area. Both of these areas appear to be portions of the trail identified as "temporary connectors." Enbridge did not identify any crossings within the 2-mile-wide study area in North Dakota. We request your concurrence that our assessment of the trail crossings is accurate.

In addition, we would appreciate any information regarding special requirements,

restrictions, or specifications regarding construction of pipelines across these “temporary connector” segments of the trail (if any) in addition to shapefiles that may contain additional identifying information that differs from the publicly available GIS data, if applicable.

If you have any questions or have other information that should be considered as we continue to refine project plans, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Britta Bergland at Merjent (612-746-3673; bbergland@merjent.com). Thank you for your assistance. An original, signed copy of this correspondence will follow.

Sincerely,

Gayle M. Konik

Manager, Environment

Sandpiper Pipeline Project

Enclosures: Project Location Map

North Dakota Project Location Map

Minnesota Project Location Map

Wisconsin Project Location Map

Shapefile of the Sandpiper Pipeline Project 2-mile-wide Study Area

cc: Britta Bergland, Merjent

---

[1] http://northcountrytrail.org/trail/states/

---

* IMPORTANT NOTICE* *

Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

--
Jeff McCusker, Trail Manager
National Park Service
North Country National Scenic Trail
P.O. Box 288
Lowell, MI 49331
office/cell: (616) 340-2004

--
Matthew Davis
Regional Trail Coordinator for MN & ND
North Country Trail Association

PO Box 1805
Detroit Lakes MN 56502-1805
(701) 388 -1883 cell
davis@northcountrytrail.org
www.northcountrytrail.org

Join us in Building, Maintaining, and Promoting the longest hiking trail in the U.S.!

Take action on the NCT's Arrowhead Re-route by visiting http://northcountrytrail.org/get-involved/advocacy/arrowhead-re-route/take-action-on-the-arrowhead-re-route/!

Follow us on Facebook, Twitter, YouTube, and/or via our Blue Blazes Bulletin e-newsletter or Insight blog!

Facebook: NCTinMN, NCTinND, ArrowheadReRoute & northcountrytrail
Twitter: nctrail
YouTube: youtube.com/user/NorthCountryTrail
Blog: northcountrytrail.org/insight/

---

* IMPORTANT NOTICE* *

Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

Enbridge Pipelines (North Dakota) LLC - Gayle Konik, Manager, Environment
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

ENBRIDGE®

August 12, 2013

Mark Weaver
National Park Service
North Country National Scenic Trail
P.O. Box 288
Lowell, Michigan 49331

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Project Notification and Request for Information

Dear Mr. Weaver,

With this letter, we are providing notification regarding the Sandpiper Pipeline Project (Sandpiper). We are requesting that you confirm the locations where Sandpiper appears to cross segments of the North Country Trail (NCT) and provide information to help us understand the permitting requirements for these potential crossings, if necessary.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will begin at Enbridge's Beaver Lodge station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Benson, Ramsey, Nelson, and Grand Forks counties. In Minnesota, Sandpiper would cross Polk, Red Lake, Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties. In Wisconsin, Sandpiper would cross Douglas County. Enbridge has contracted with Merjent, Inc. (Merjent) to assist with the field surveys, environmental review, and permitting of Sandpiper. An overall Project Location Map, state maps that present the North Dakota, Minnesota, and Wisconsin counties crossed by the Sandpiper route, and a shapefile of the 2-mile-wide study area are enclosed.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

Based on a review of publicly available NCT Association GIS data[1], Enbridge has identified one crossing in Hubbard County, Minnesota and one crossing in Douglas County, Wisconsin within the 2-mile-wide study area. Both of these areas appear to be portions of the trail identified as "temporary connectors." Enbridge did not identify any crossings within the 2-mile-wide study area in North Dakota. We request your concurrence that our assessment of the trail crossings is accurate.

[1] http://northcountrytrail.org/trail/states/

In addition, we would appreciate any information regarding special requirements, restrictions, or specifications regarding construction of pipelines across these "temporary connector" segments of the trail (if any) in addition to shapefiles that may contain additional identifying information that differs from the publicly available GIS data, if applicable.

If you have any questions or have other information that should be considered as we continue to refine project plans, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Britta Bergland at Merjent (612-746-3673; bbergland@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project Location Map
North Dakota Project Location Map
Minnesota Project Location Map
Wisconsin Project Location Map
Shapefile of the Sandpiper Pipeline Project 2-mile-wide Study Area

cc: Britta Bergland, Merjent

Sandpiper Rev. C Study Area

0 30 60 Miles

1 inch = 60 miles

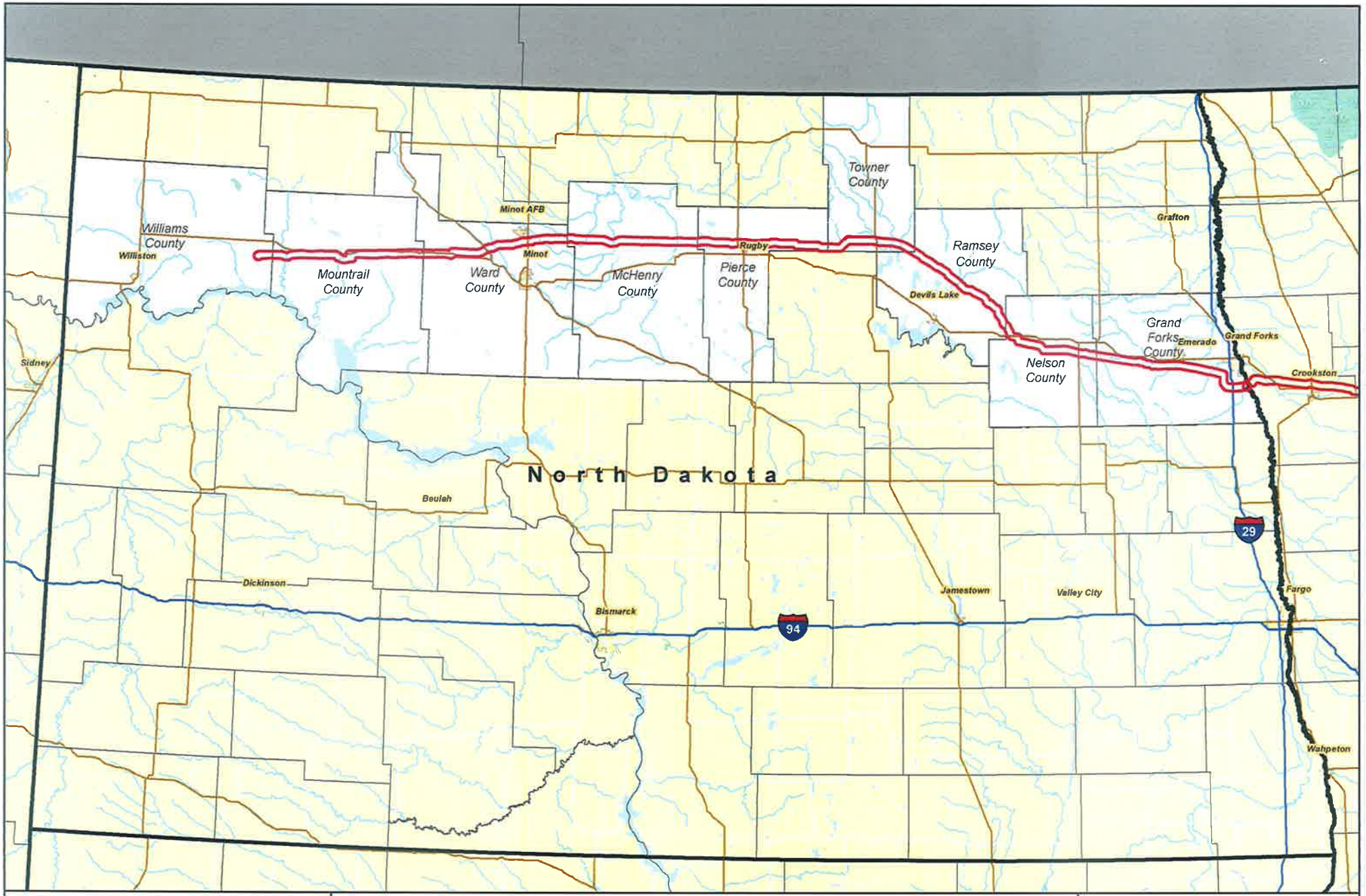
N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE

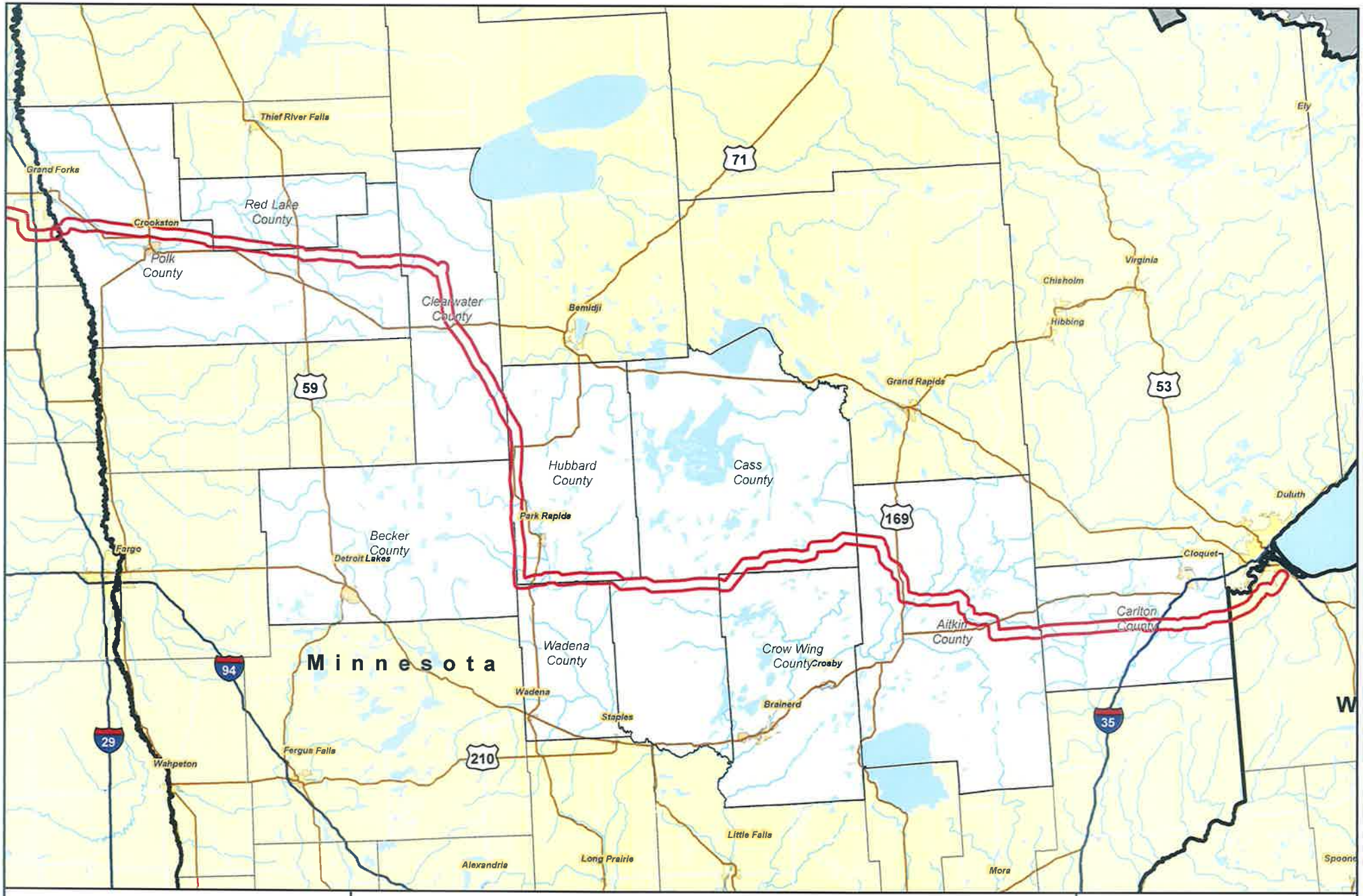


Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE

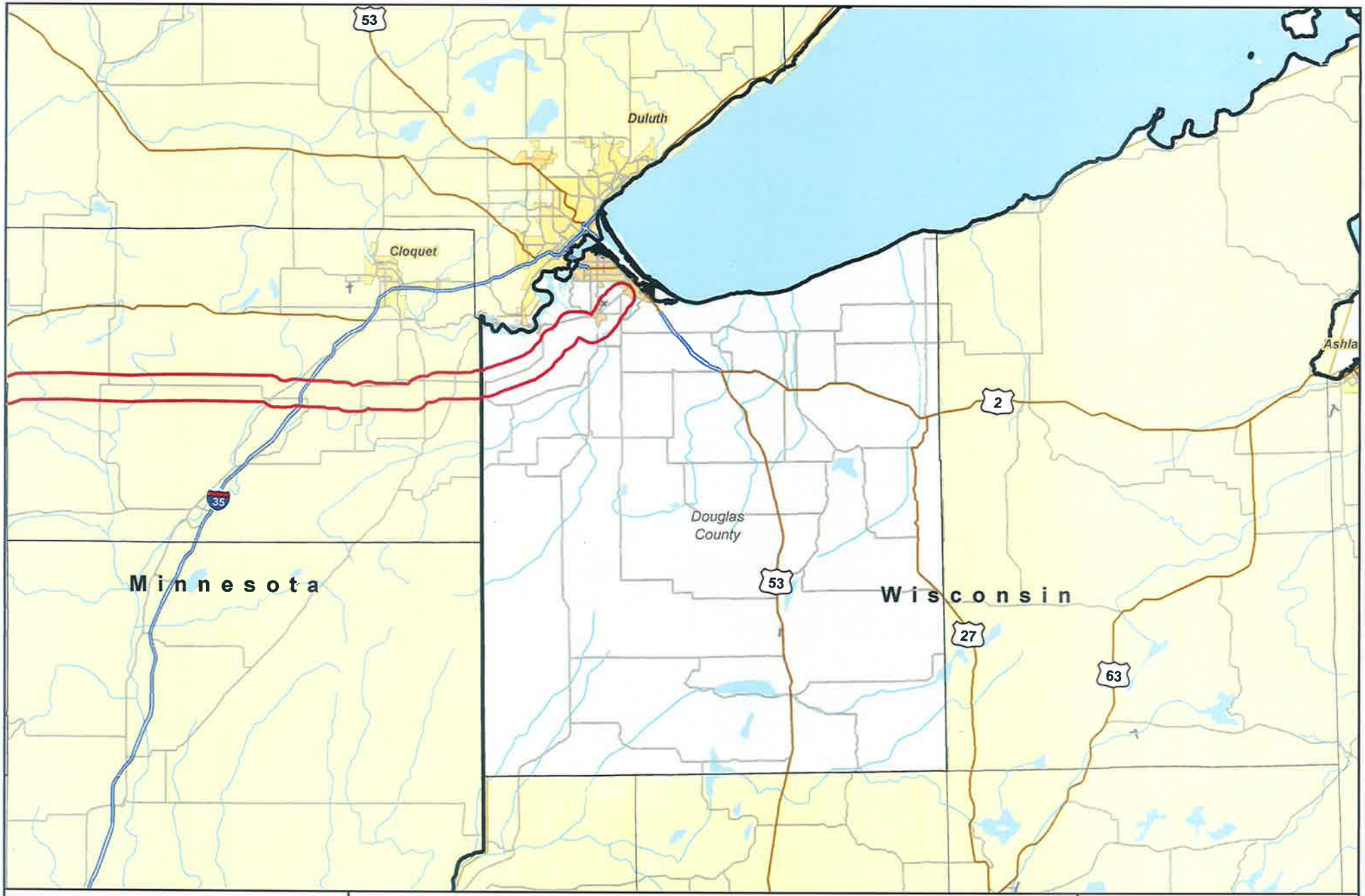


Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Minnesota Project Location Map

ENBRIDGE



Sandpiper Rev. C Study Area

0 5 10 Miles

1 inch = 10 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Wisconsin Project Location Map

ENBRIDGE

Enbridge Pipelines (North Dakota) LLC - Gayle Konik, Manager, Environment
1409 Hammond Avenue, Second Floor
Superior, Wisconsin 54880
Tel 715 398 4559
www.enbridgepartners.com

ENBRIDGE

August 12, 2013

Hector Santiago
National Park Service
Midwest Regional Office
601 Riverfront Drive
Omaha, Nebraska 68102

Subject: Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project
Project Notification and Request for Information

Dear Mr. Santiago,

With this letter, we are providing notification regarding the Sandpiper Pipeline Project (Sandpiper). We hope that you might confirm the presence of specific river segments of National Rivers Inventory (NRI)-listed rivers within the project study area and provide management information regarding these segments. We also are interested in obtaining information on any Land and Water Conservation Fund lands within the project study area. This information will assist us in our environmental review of Sandpiper.

Enbridge Pipelines (North Dakota) LLC (Enbridge) is proposing to build a new pipeline that will begin at Enbridge's Beaver Lodge station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to Enbridge's terminal in Superior, Wisconsin. The project will transport growing supplies of North Dakota crude petroleum to Superior terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

In North Dakota, Sandpiper would cross Williams, Mountrail, Ward, McHenry, Pierce, Benson, Ramsey, Nelson, and Grand Forks counties. In Minnesota, Sandpiper would cross Polk, Red Lake, Clearwater, Hubbard, Cass, Crow Wing, Aitkin, and Carlton counties. In Wisconsin, Sandpiper would cross Douglas County. Enbridge has contracted with Merjent, Inc. (Merjent) to assist with the field surveys, environmental review, and permitting of Sandpiper. An overall Project Location Map, state maps that present the North Dakota, Minnesota, and Wisconsin counties crossed by the Sandpiper route, and a shapefile of the 2-mile-wide study area are enclosed.

We expect construction to start on the permitted route by Q4 2014 and end in Q1 2016, depending on regulatory approvals and final construction planning.

Based on a review of publicly available NRI GIS data, Enbridge has identified four NRI river segments in Minnesota within the 2-mile-wide study area: the Red Lake River in Polk County, the Clearwater River in Clearwater County, the Moose River in Cass County, and the Willow River in Aitkin County. Enbridge did not identify any NRI-listed rivers within the 2-mile-wide study area in North Dakota or Wisconsin. We request your concurrence that our assessment of affected river segments is accurate.

In addition, we would appreciate any information regarding special requirements, restrictions, or specifications regarding construction of pipelines across NRI river segments and any shapefiles that may contain additional identifying information that differs from the publicly available GIS data, if applicable.

Finally, we would like to know if any Land and Water Conservation Fund lands are located within the study area. We were unable to find a specific contact for this information on the National Park Service website; in the event that you are not the appropriate contact for this information, we would appreciate information regarding the appropriate contact.

If you have any questions or have other information that should be considered as we continue to refine project plans, please contact Gayle Konik at Enbridge (715-398-4559; Gayle.Konik@enbridge.com) or Britta Bergland at Merjent (612-746-3673; bbergland@merjent.com). Thank you for your assistance.

Sincerely,

Gayle M. Konik

Gayle M. Konik
Manager, Environment
Sandpiper Pipeline Project

Enclosures: Project Location Map
North Dakota Project Location Map
Minnesota Project Location Map
Wisconsin Project Location Map
Shapefile of the Sandpiper Pipeline Project 2-mile-wide Study Area

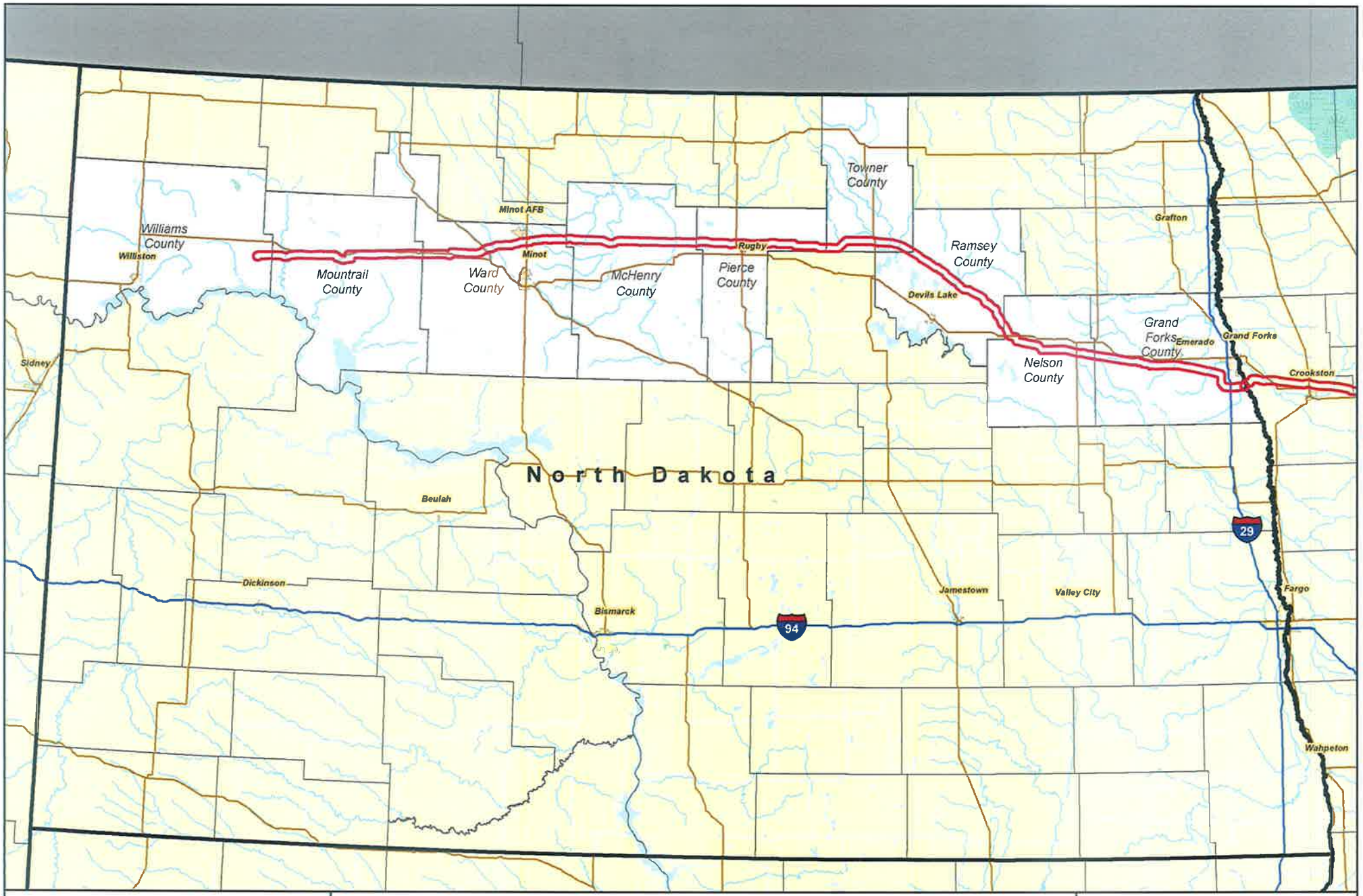
cc: Britta Bergland, Merjent

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Project Location Map

ENBRIDGE



Sandpiper Rev. C Study Area

0 18 36 Miles

1 inch = 36 miles

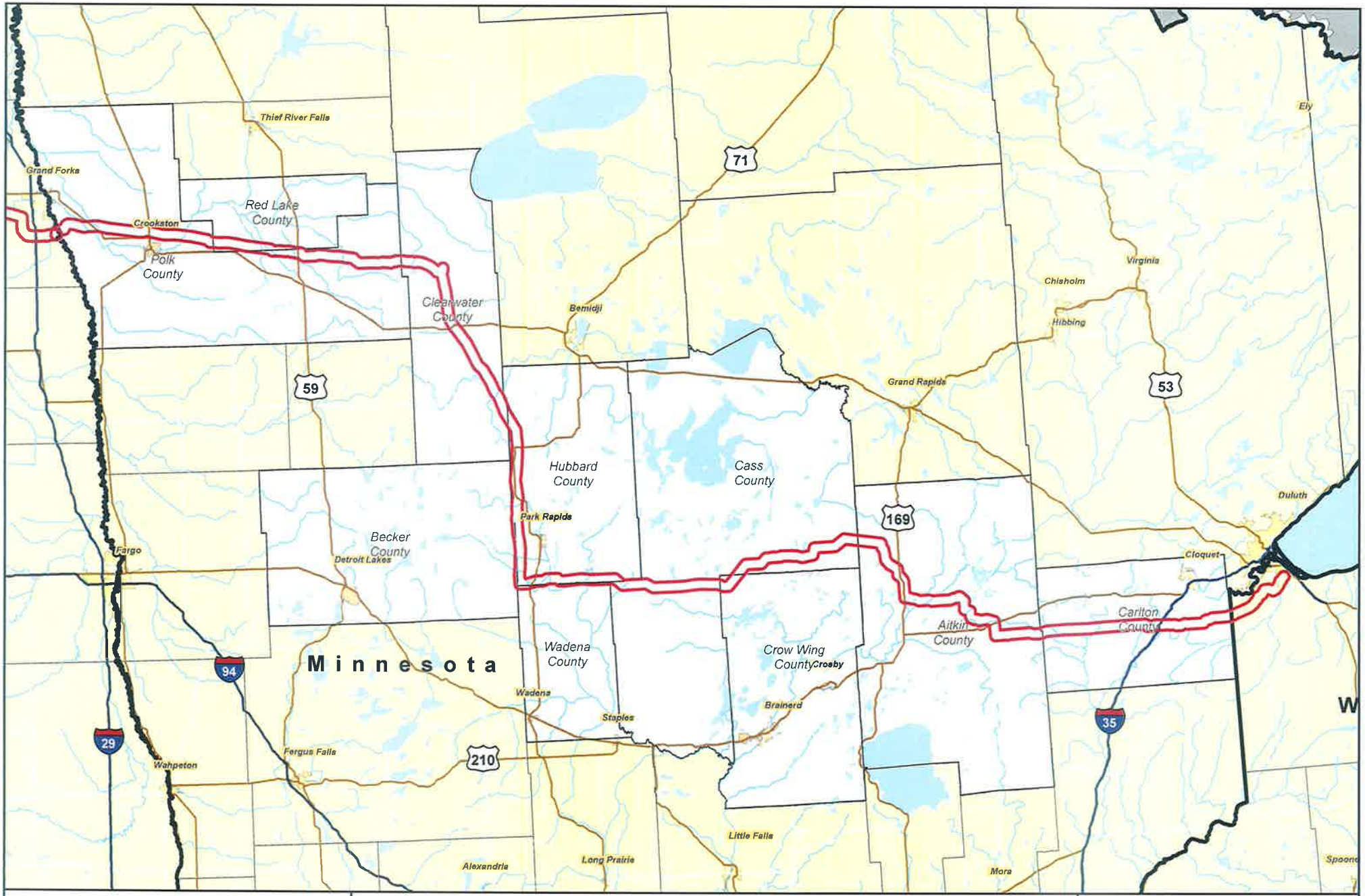
N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

North Dakota Project Location Map

ENBRIDGE



Sandpiper Rev. C Study Area

0 12.5 25 Miles

1 inch = 25 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Minnesota Project Location Map

ENBRIDGE

Sandpiper Rev. C Study Area

0 5 10 Miles

1 inch = 10 miles

N

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Wisconsin Project Location Map

ENBRIDGE

EXHIBIT H.15

From: April Brehm
To: SPP Archive
Subject: FW: Double Check Alignment
Date: Tuesday, October 22, 2013 11:44:23 AM

From: Christopher DePaulis [mailto:Christopher.DePaulis@enbridge.com]
Sent: Friday, October 18, 2013 8:07 AM
To: Nick D'Aloia
Cc: Barry Simonson
Subject: Fwd: Double Check Alignment

Begin forwarded message:

> **From:** "LARSEN, JAMES A GS-11 USAF AFGSC 91 MMXS/MMXSFK" <james.larsen.3@us.af.mil>
> **Date:** October 18, 2013 7:50:59 AM CDT
> **To:** Christopher DePaulis <Christopher.DePaulis@enbridge.com>
> **Cc:** "MUNOS, CY I GS-09 USAF AFGSC 91 MMXS/MMXSFK" <cy.munos@us.af.mil>
> **Subject: RE: Double Check Alignment**
>
> Chris:
>
> I loaded up the attached shapefiles and looked closely at the Sandpiper route through our missile field. The proposed route is clear of our ROW except where the pipeline will actually cross our cable. The crossing locations have adequate clearance from any buried splices and won't be a problem.
>
> One area west of Berthold shows the pipeline will parallel our cable for at least a mile, the pipeline gets as close as 28' in one location and averages about 30' for that area. This is closer than we normally see but it is outside our easement and beyond our control.
>
> No areas of the pipeline encroach on Restricted Easement areas surrounding our missile sites.
>
> I didn't see any conflicts (other than crossings) between the proposed route and our cable system. Crossing angles meet our specifications.
>
> If you would like maps of specific areas please let me know.
>
> Thanks;
>
> Jim Larsen
> USAF Cable Affairs
> 701-723-6053

-----Original Message-----
From: Christopher DePaulis
[mailto:Christopher.DePaulis@enbridge.com]
Sent: Thursday, October 17, 2013 2:41 PM
To: LARSEN, JAMES A GS-11 USAF AFGSC 91 MMXS/MMXSFK
Cc: Nick D'Aloia
Subject: Double Check Alignment

Hi Jim-

Say, I was wondering if you could take another look at our proposed route as a double check that we are in compliance with your regulations regarding separation distances from your cables and missile sites. We are getting ready to submit our application to the PUC and wanted to make sure all of our bases were covered. I would greatly appreciate any and all of your effort that you could provide us in this matter.

Please find the attached shape files.

Respectfully Submitted-

Christopher DePaulis, PLS

Field Survey Coordinator, Major Projects

ENBRIDGE

TEL: 218-341-6480

1409 Hammond Ave., Superior, WI

www.enbridgeUS.com <http://www.enbridgeUS.com/>

Integrity. Safety. Respect.

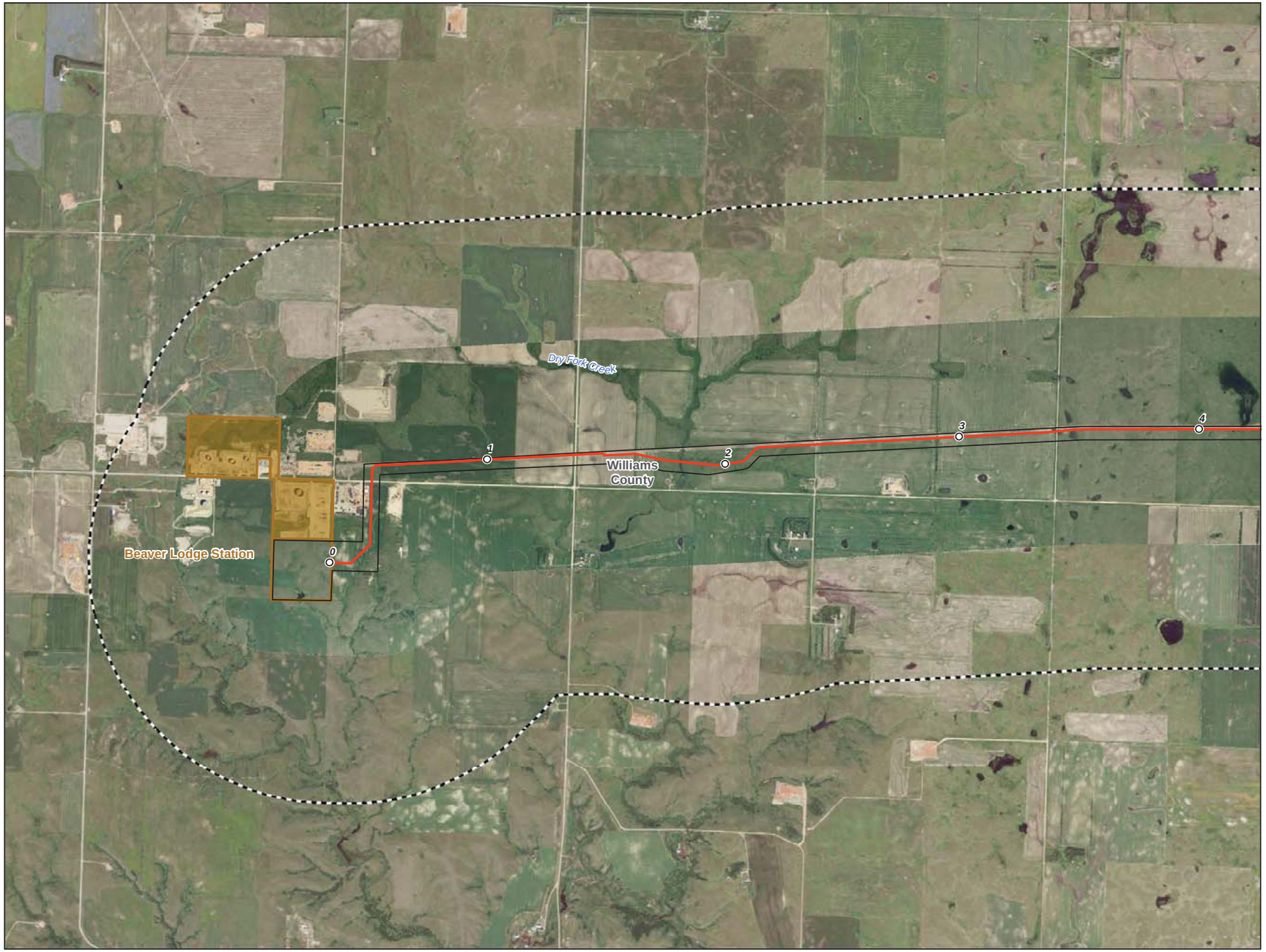
---

* IMPORTANT NOTICE* Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this email message is CONFIDENTIAL information intended for the use of the individual or entity named herein. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please immediately notify the sender using the above contact information or by return email and delete this message and any copies from your computer system. Thank you.

SANDPIPER PIPELINE PROJECT
TABLE OF CONTENTS

Exhibit I	Routing Selection Criteria Maps
Exhibit I.1	Exclusion Areas
Exhibit I.2	Avoidance Areas
Exhibit I.3	Other Criteria Considered

Exhibit I.1



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W
E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

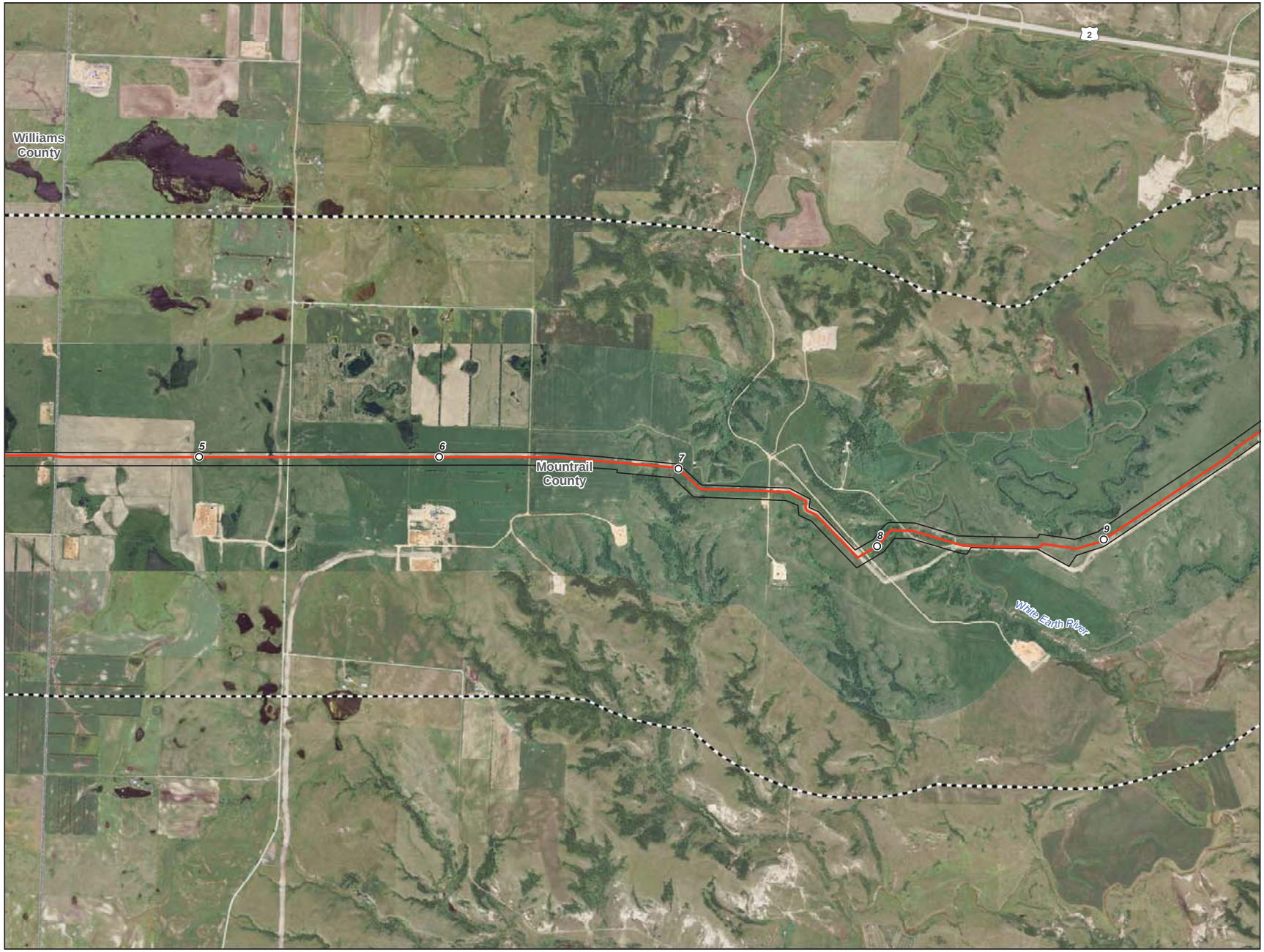
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

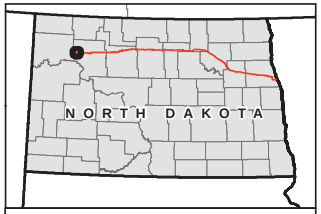
Exclusion Areas

Williams County

ENBRIDGE

Rev. D 12/16/2013





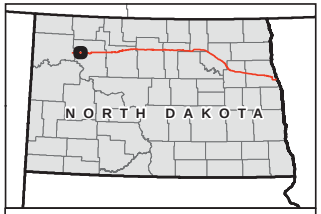
- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 3 of 61
Mountrail County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

ENBRIDGE

Rev. D 12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

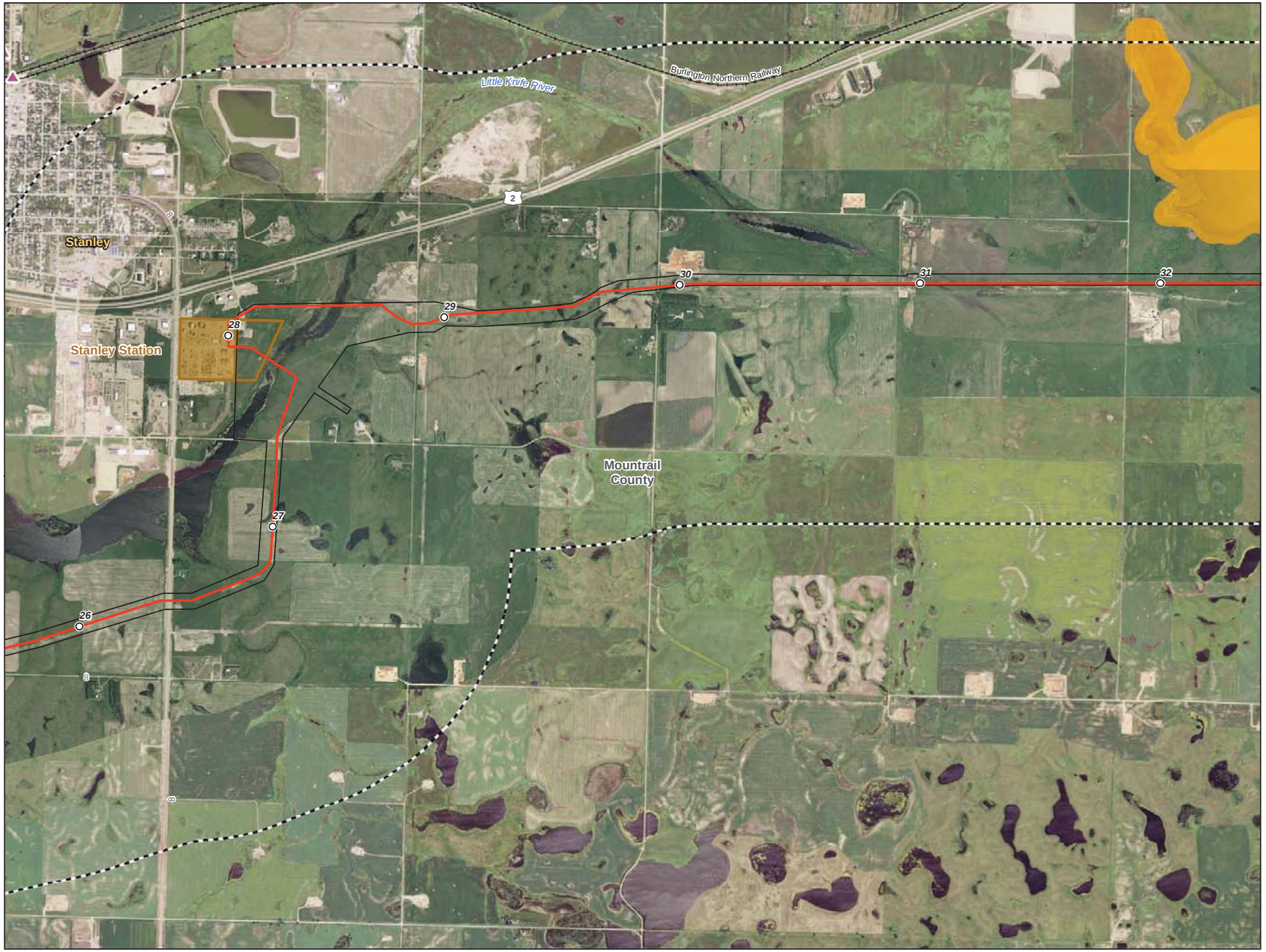
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Mountrail County

ENBRIDGE

Rev. D
12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 6 of 61
Mountrail County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Mountrail County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Mountrail County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

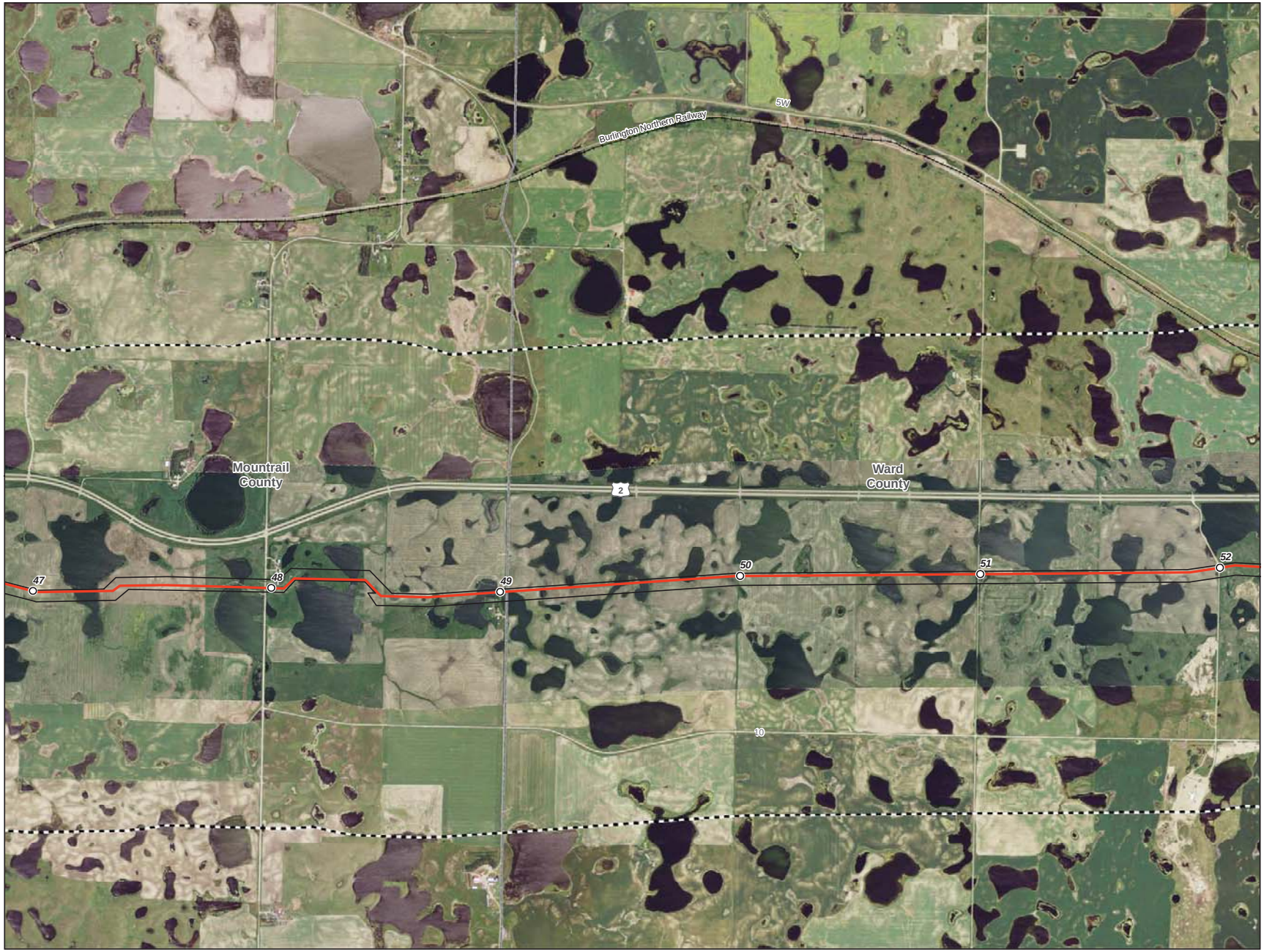
Exclusion Areas

Page 9 of 61
Mountrail County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 10 of 61
Mountrail County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

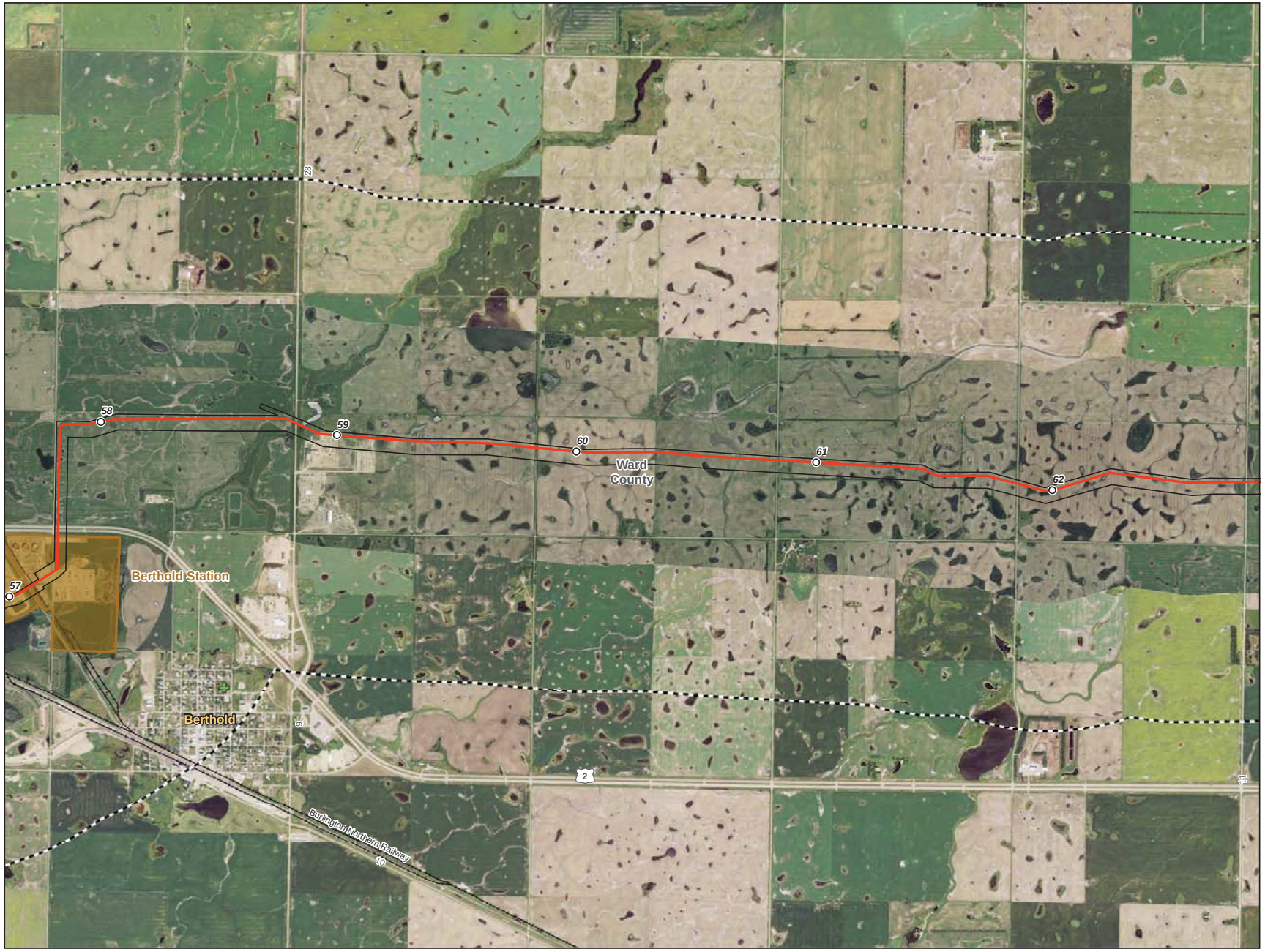
Sandpiper Pipeline Project

Exclusion Areas

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Exclusion Areas

Page 12 of 61
Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

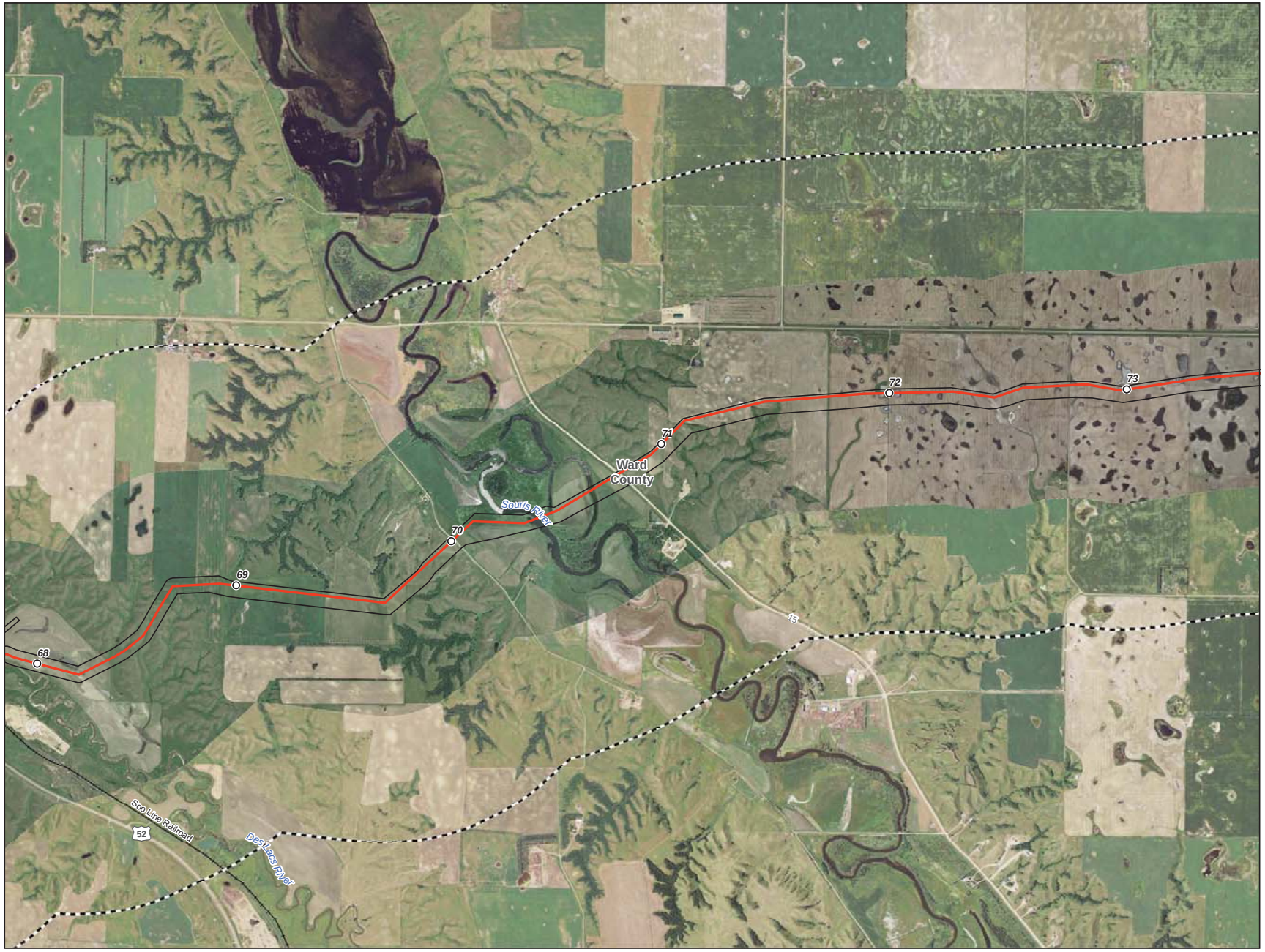
Exclusion Areas

Ward County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Exclusion Areas

Page 14 of 61

Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Exclusion Areas

Page 15 of 61
Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Exclusion Areas

Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

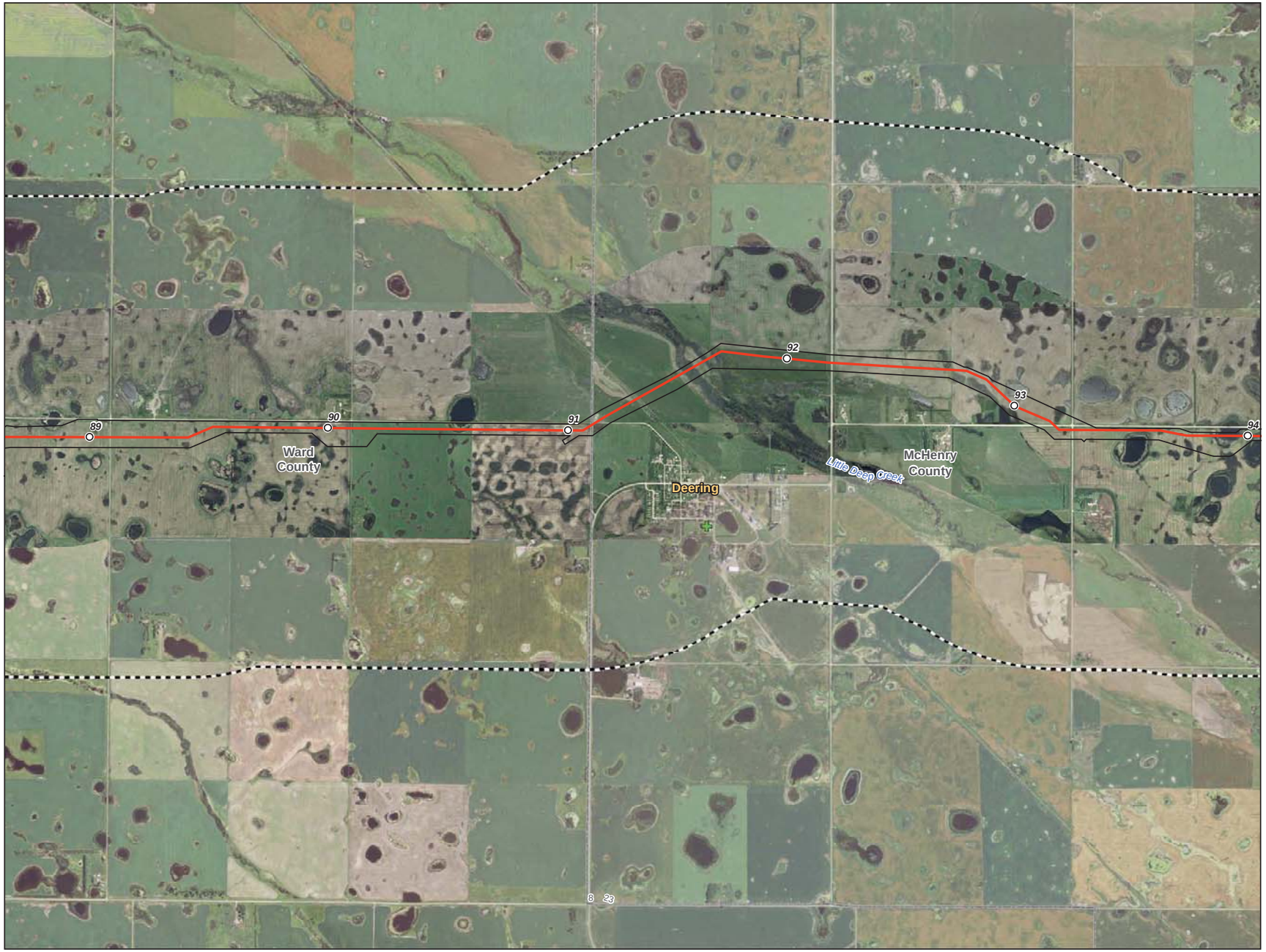
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 17 of 61
Ward County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Ward County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

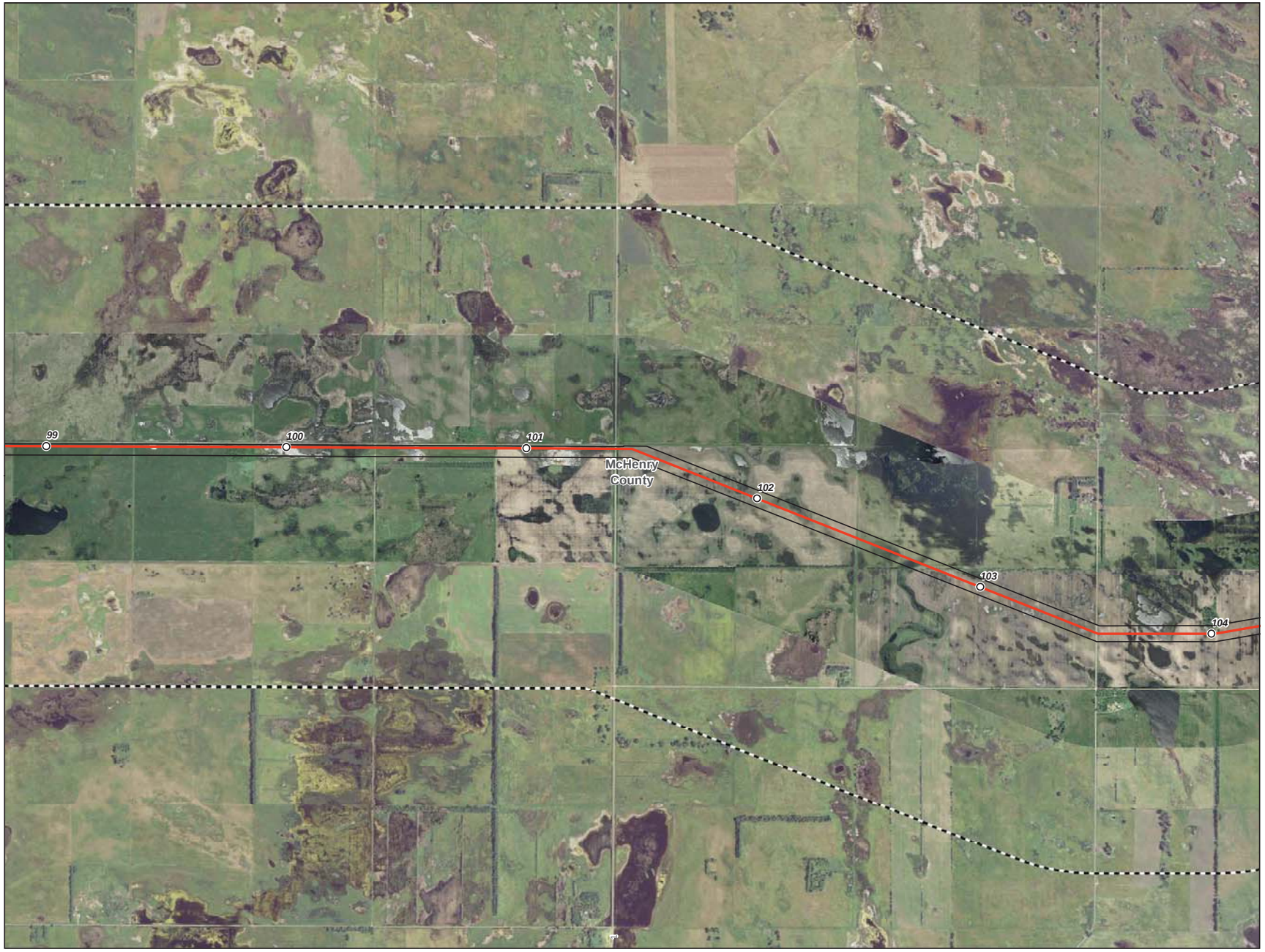
Exclusion Areas

Page 19 of 61
McHenry County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

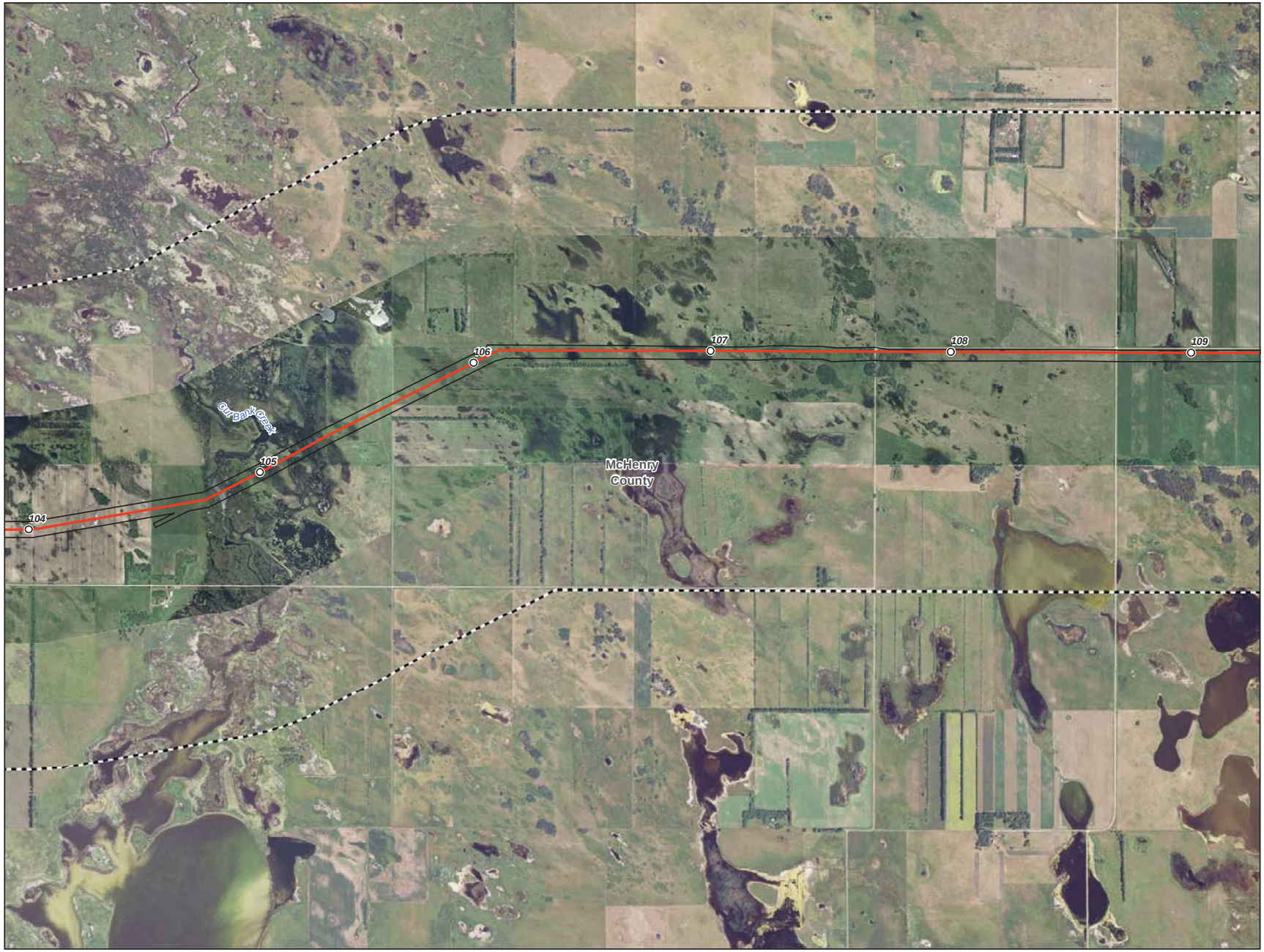
Exclusion Areas

Page 20 of 61
McHenry County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 21 of 61
McHenry County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

McHenry County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 23 of 61
McHenry County

ENBRIDGE

Rev. D

12/16/2013

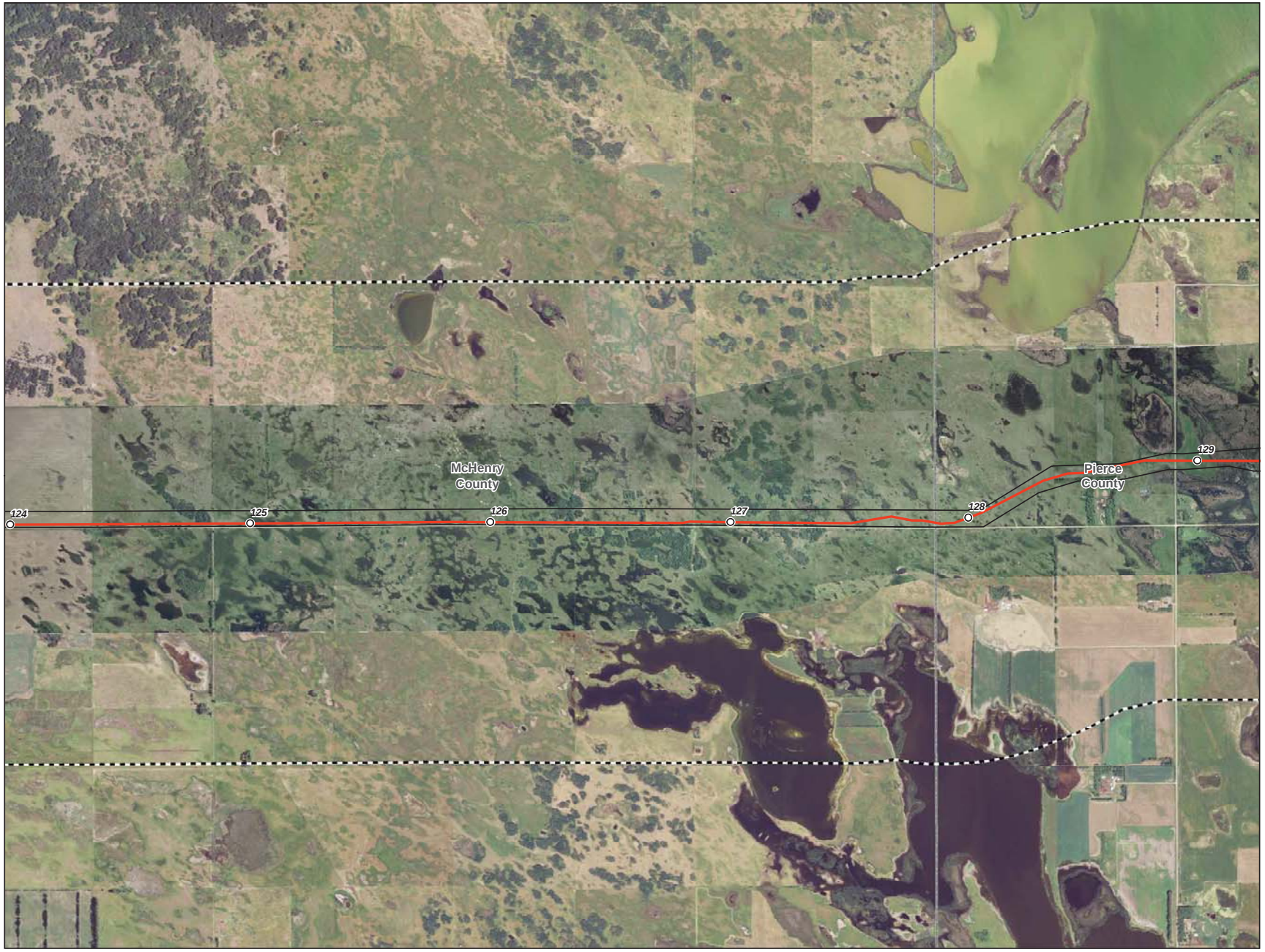
- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

ENBRIDGE

Rev. D 12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Exclusion Areas

McHenry County

ENBRIDGE

Rev. D

12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

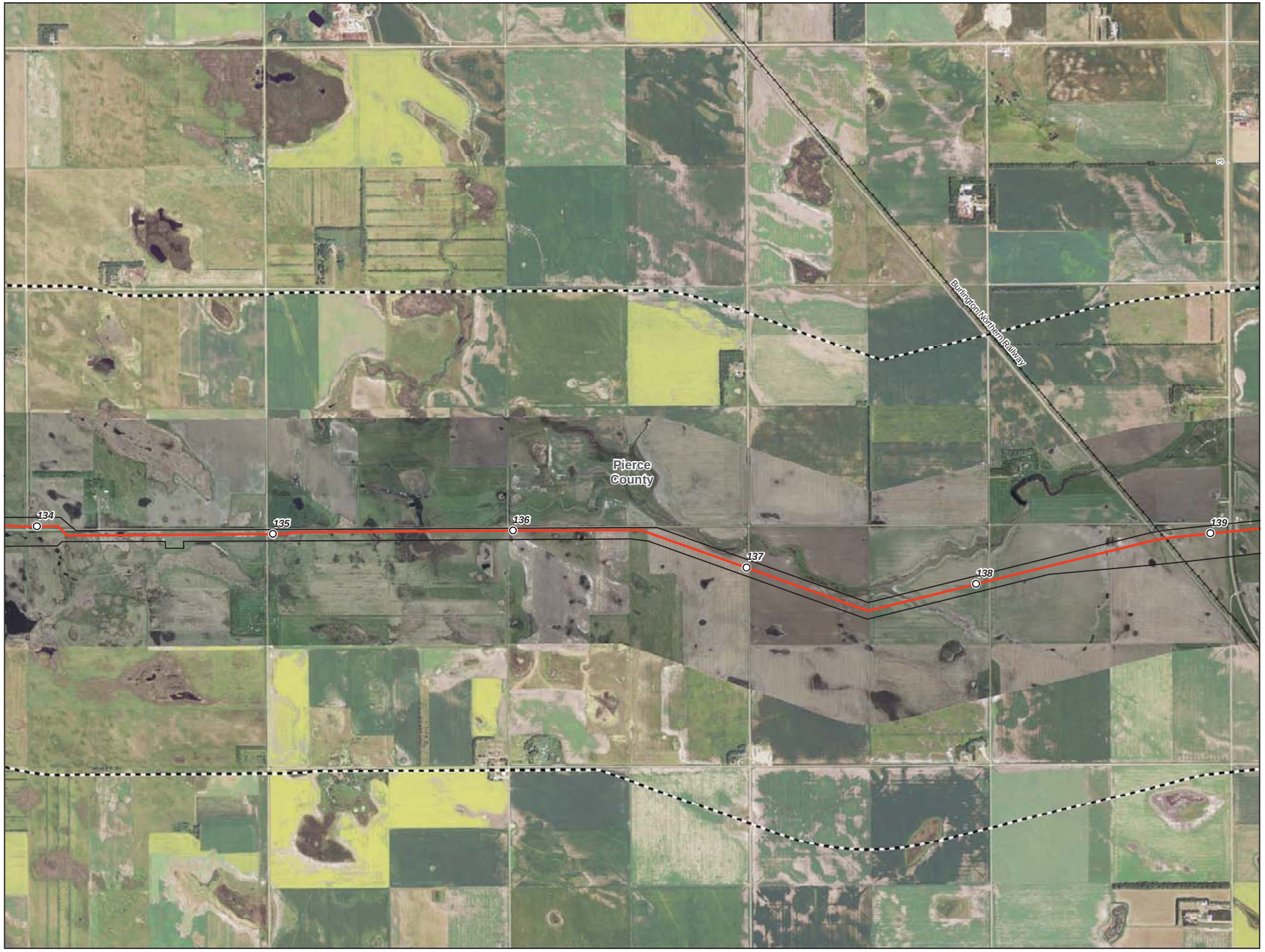
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 26 of 61
Pierce County

ENBRIDGE

Rev. D
12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

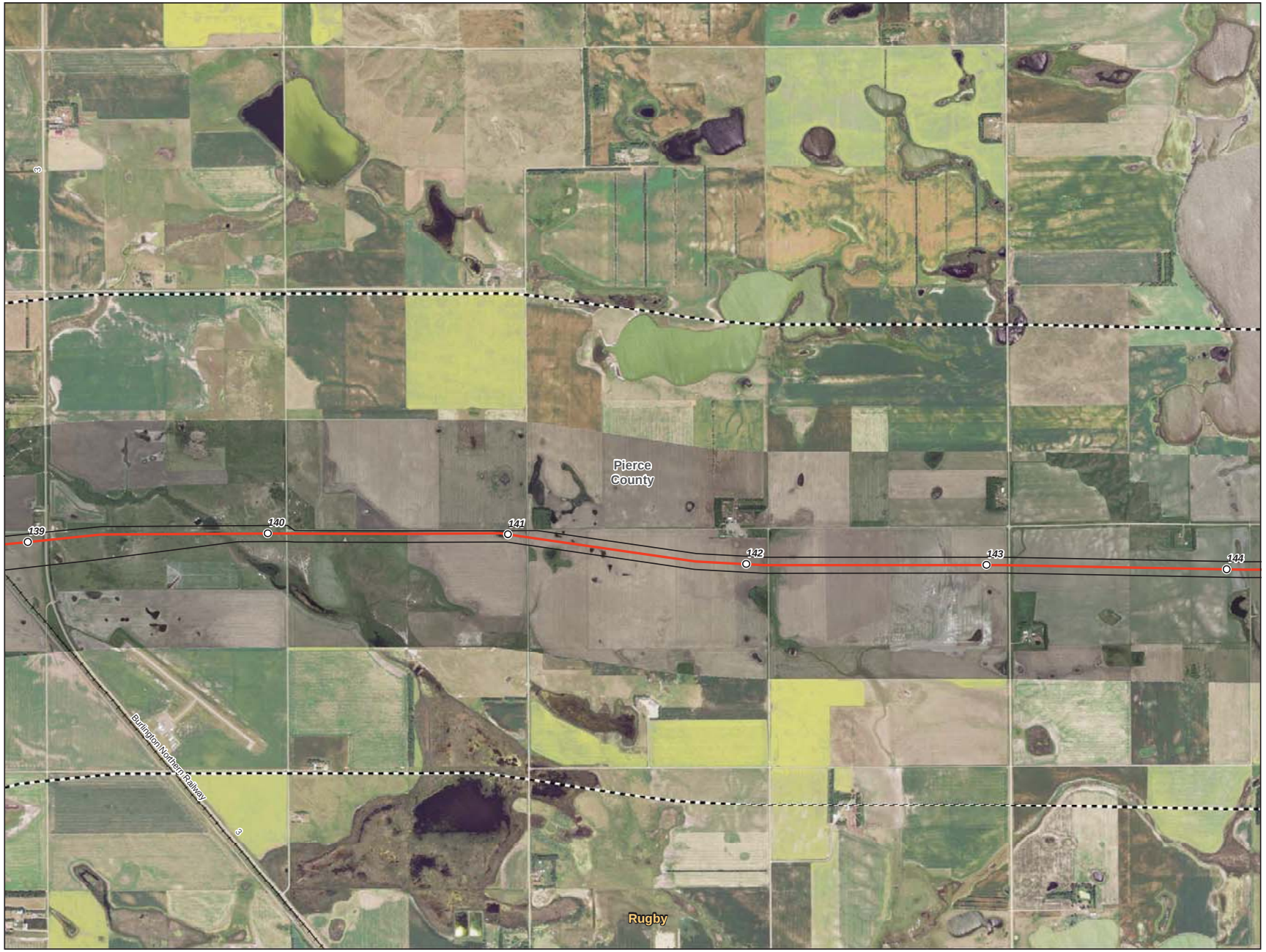
Exclusion Areas

Page 27 of 61
Pierce County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

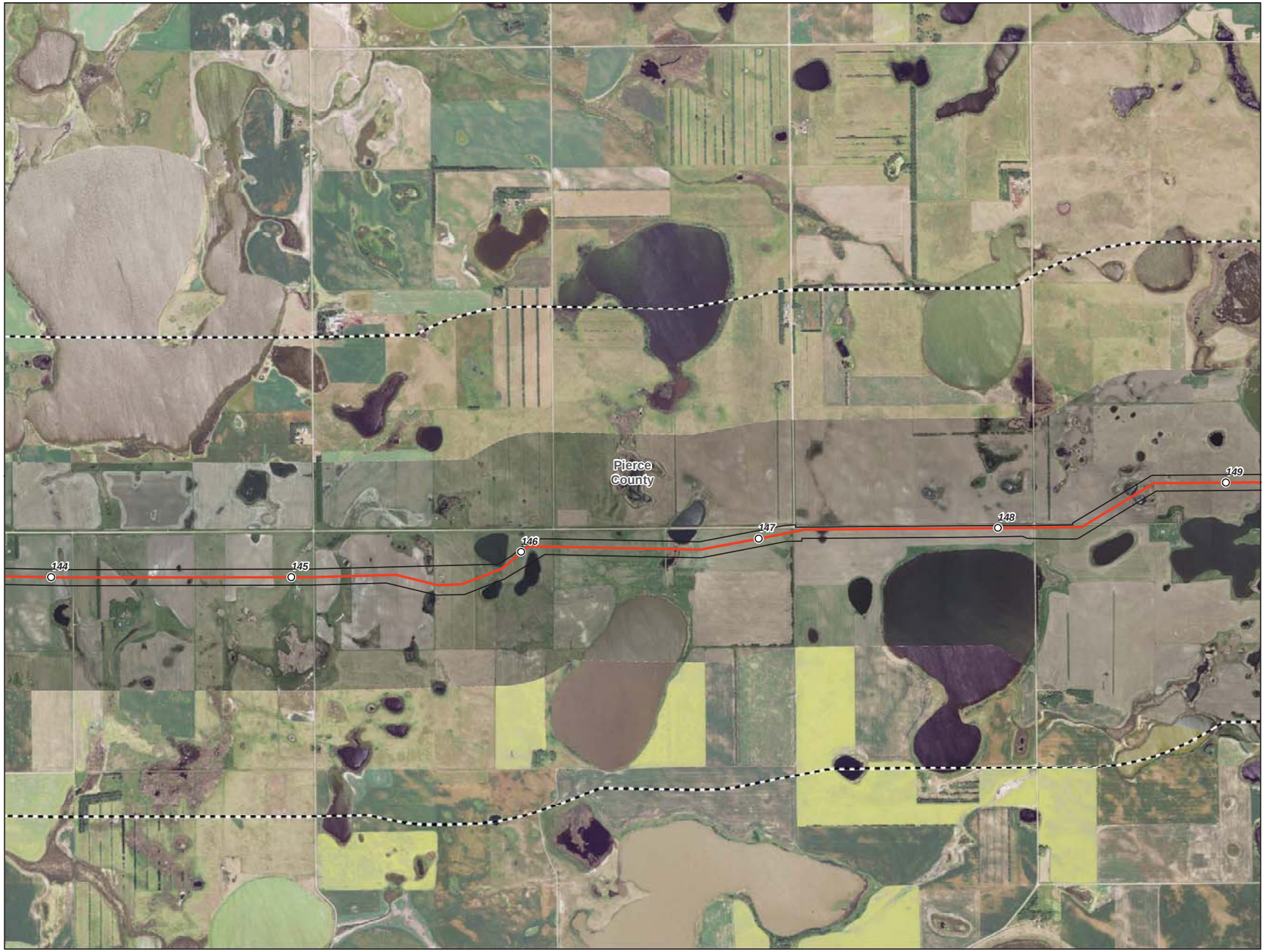
Sandpiper Pipeline Project

Exclusion Areas

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

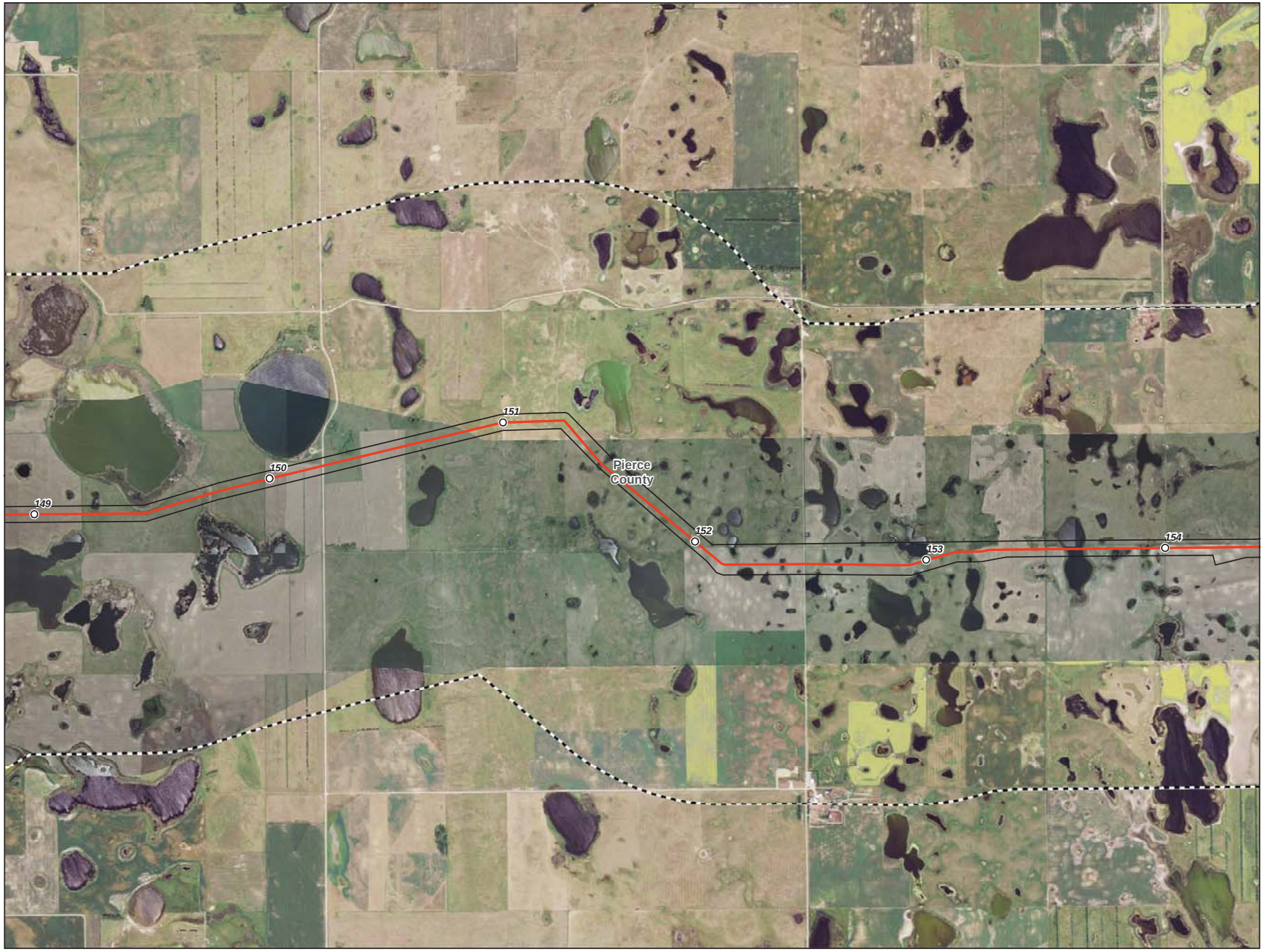
Exclusion Areas

Page 29 of 61
Pierce County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

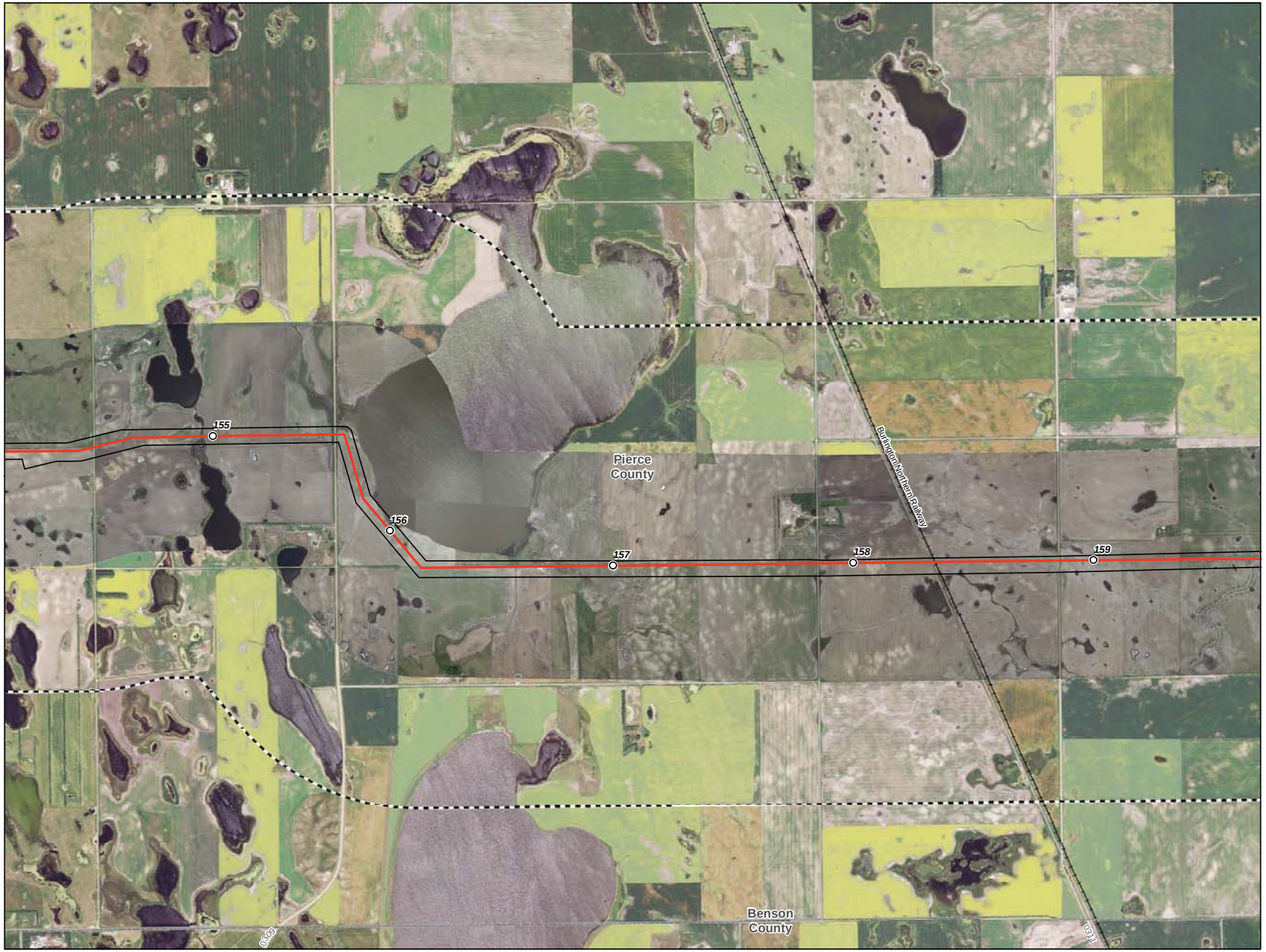
Exclusion Areas

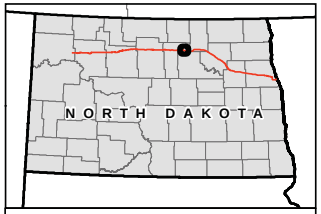
Page 30 of 61
Pierce County

ENBRIDGE

Rev. D

12/16/2013





- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

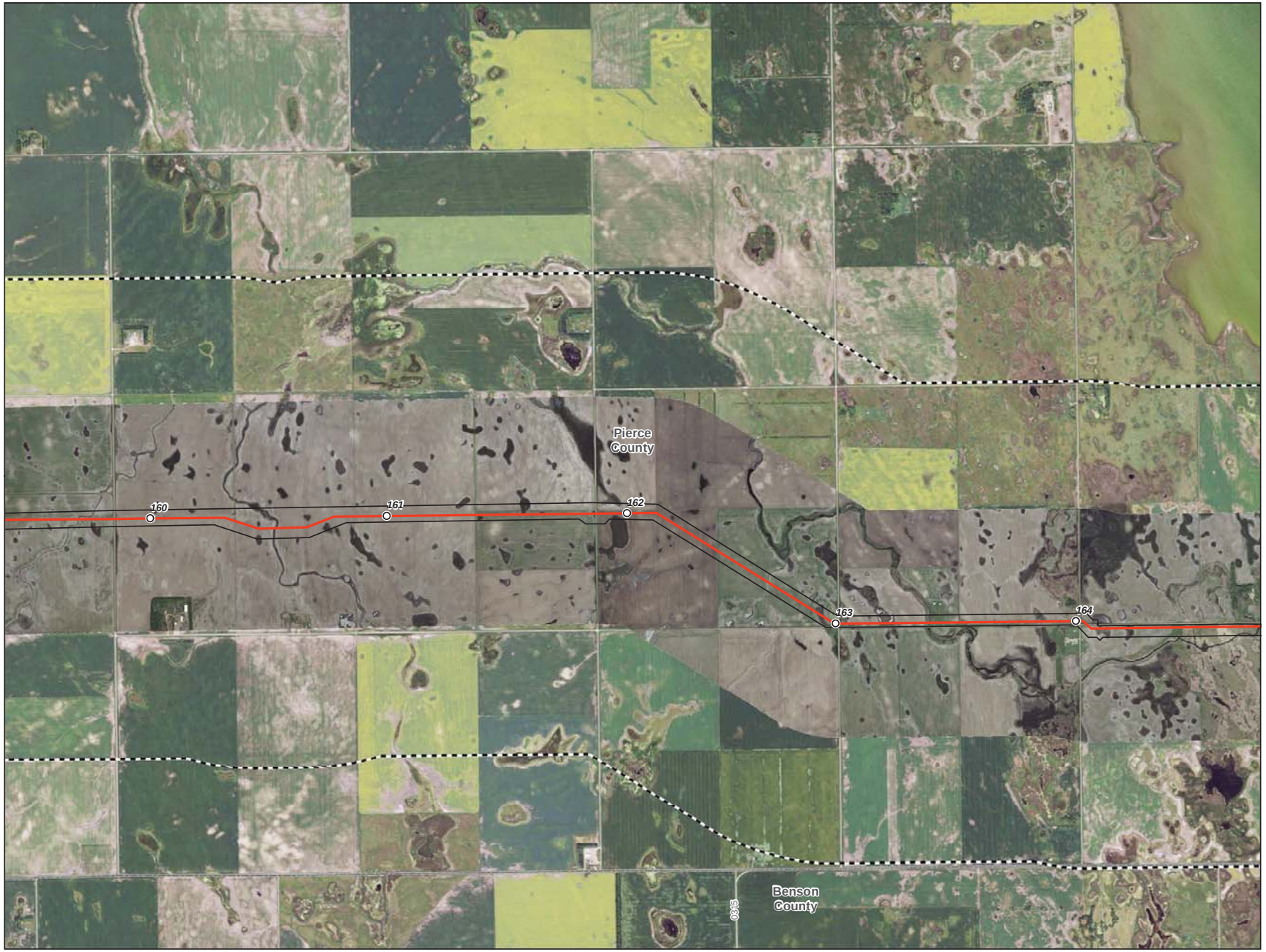
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 31 of 61
Pierce County

ENBRIDGE

Rev. D 1/14/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

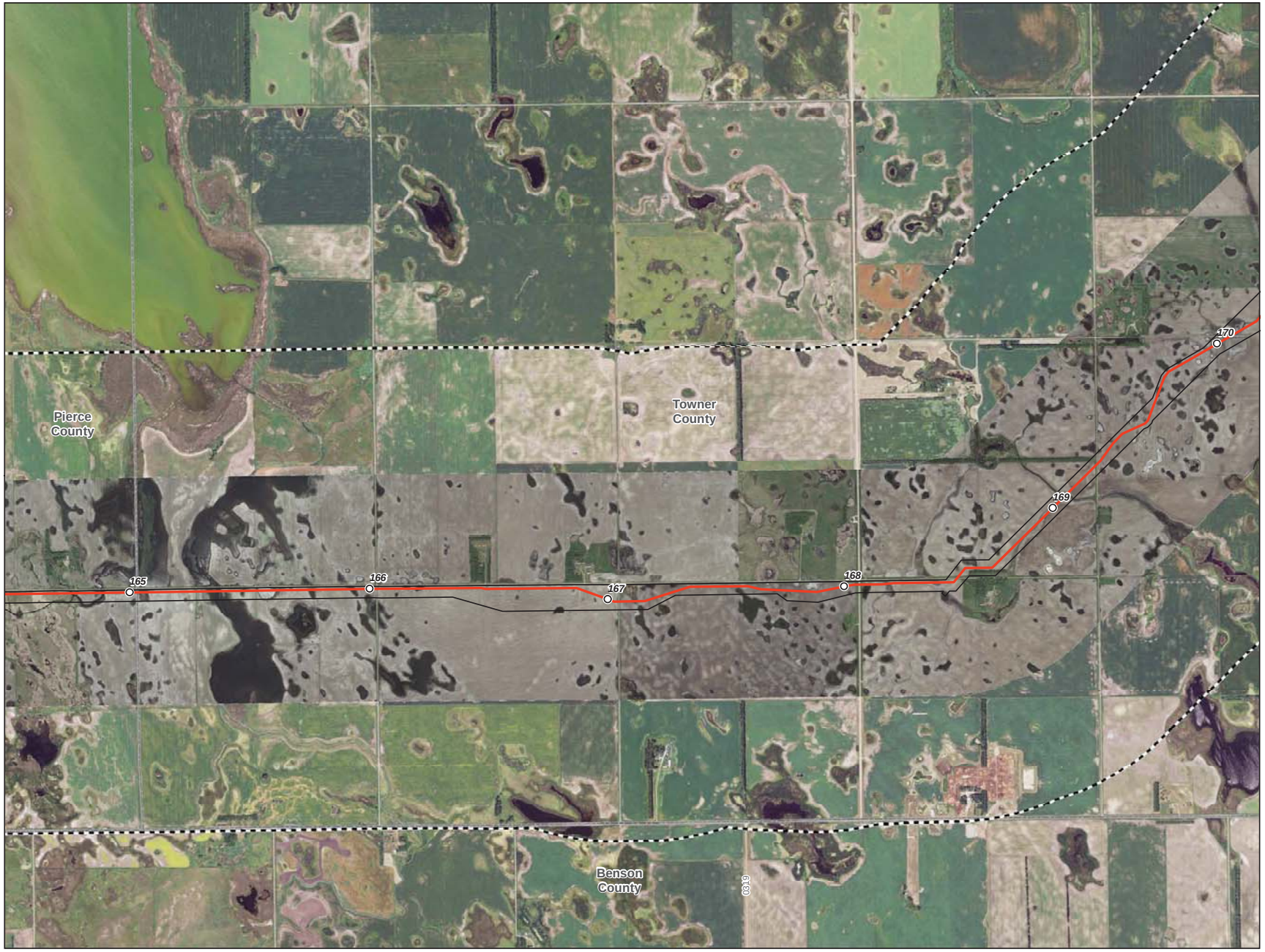
Sandpiper Pipeline Project

Exclusion Areas

ENBRIDGE

Rev. D

12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

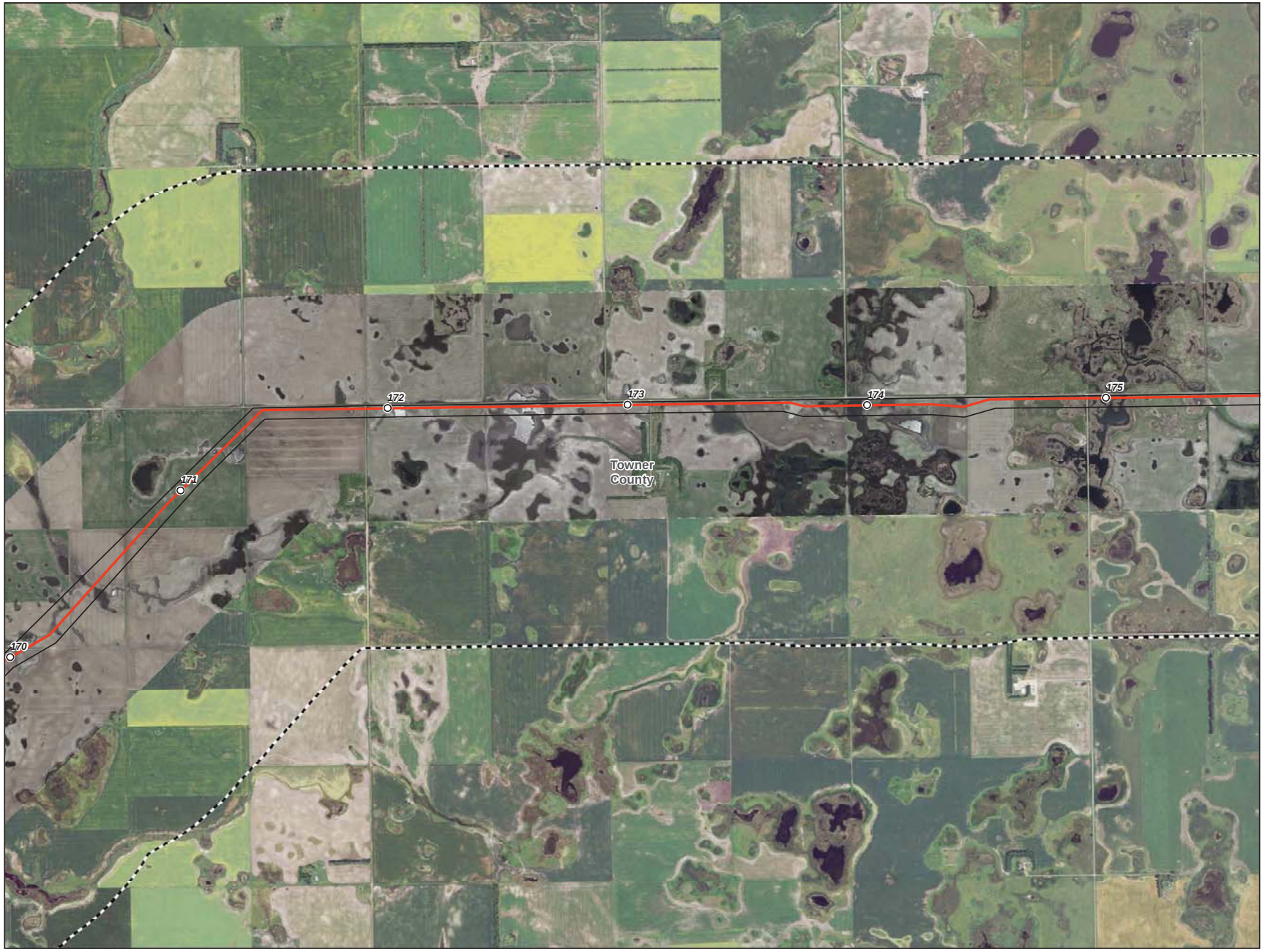
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Towner County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Exclusion Areas

Page 35 of 61

Towner County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

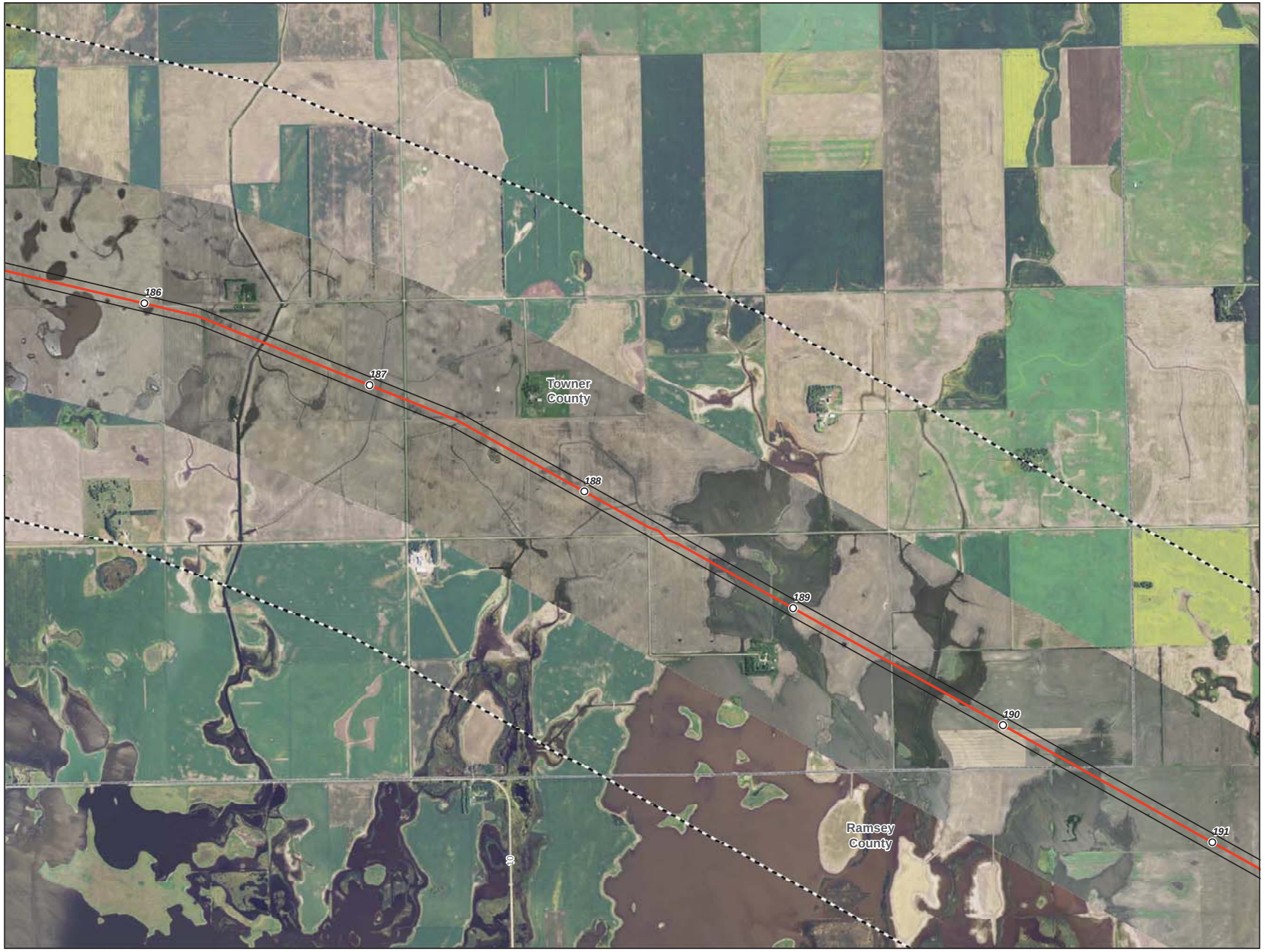
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Towner County

ENBRIDGE

Rev. D 12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

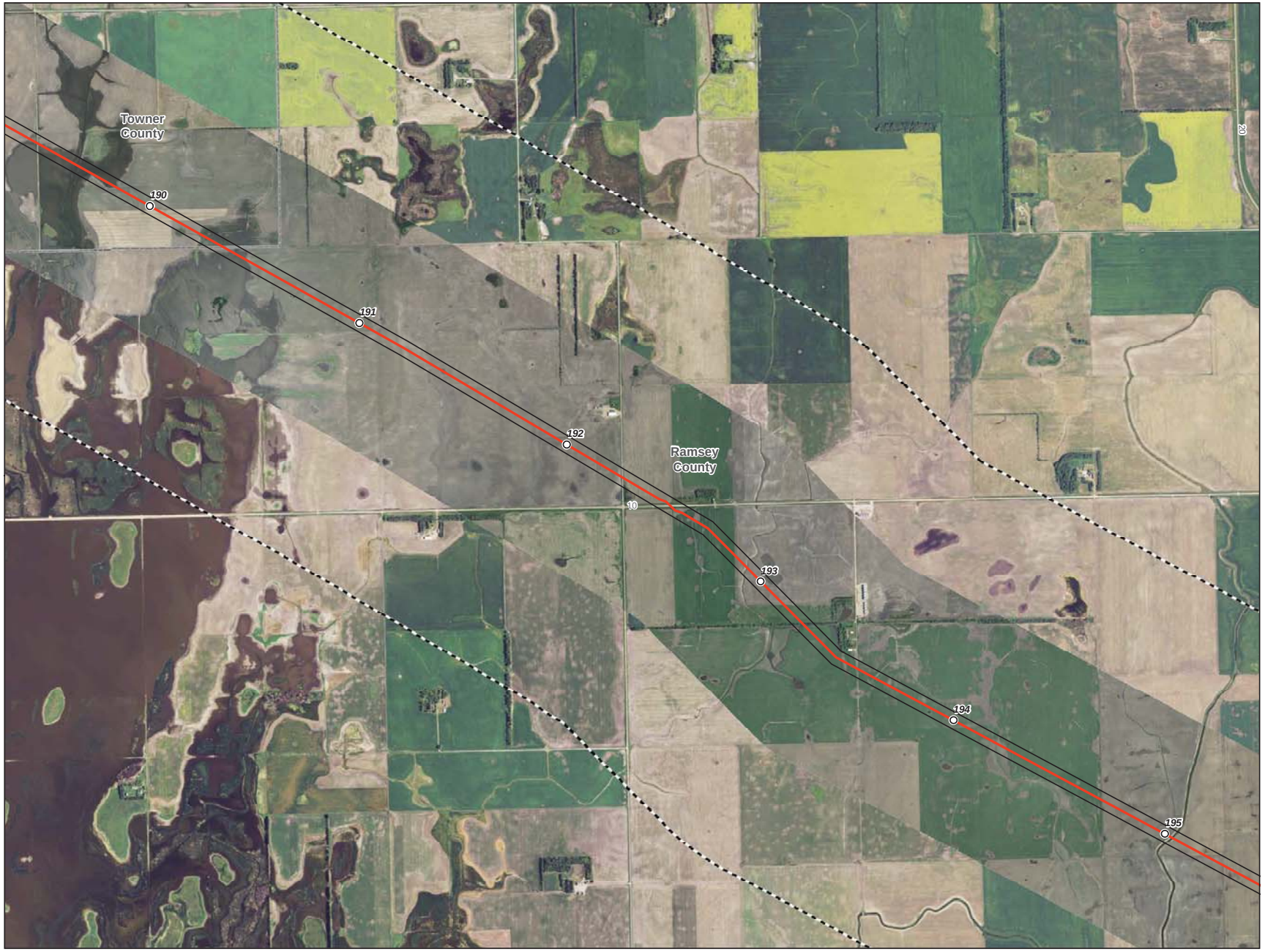
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Towner County

ENBRIDGE

Rev. D
12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 38 of 61
Ramsey County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 39 of 61
Ramsey County

ENBRIDGE

Rev. D

12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 40 of 61
Ramsey County

ENBRIDGE

Rev. D 12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Ramsey County

ENBRIDGE

Rev. D
12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

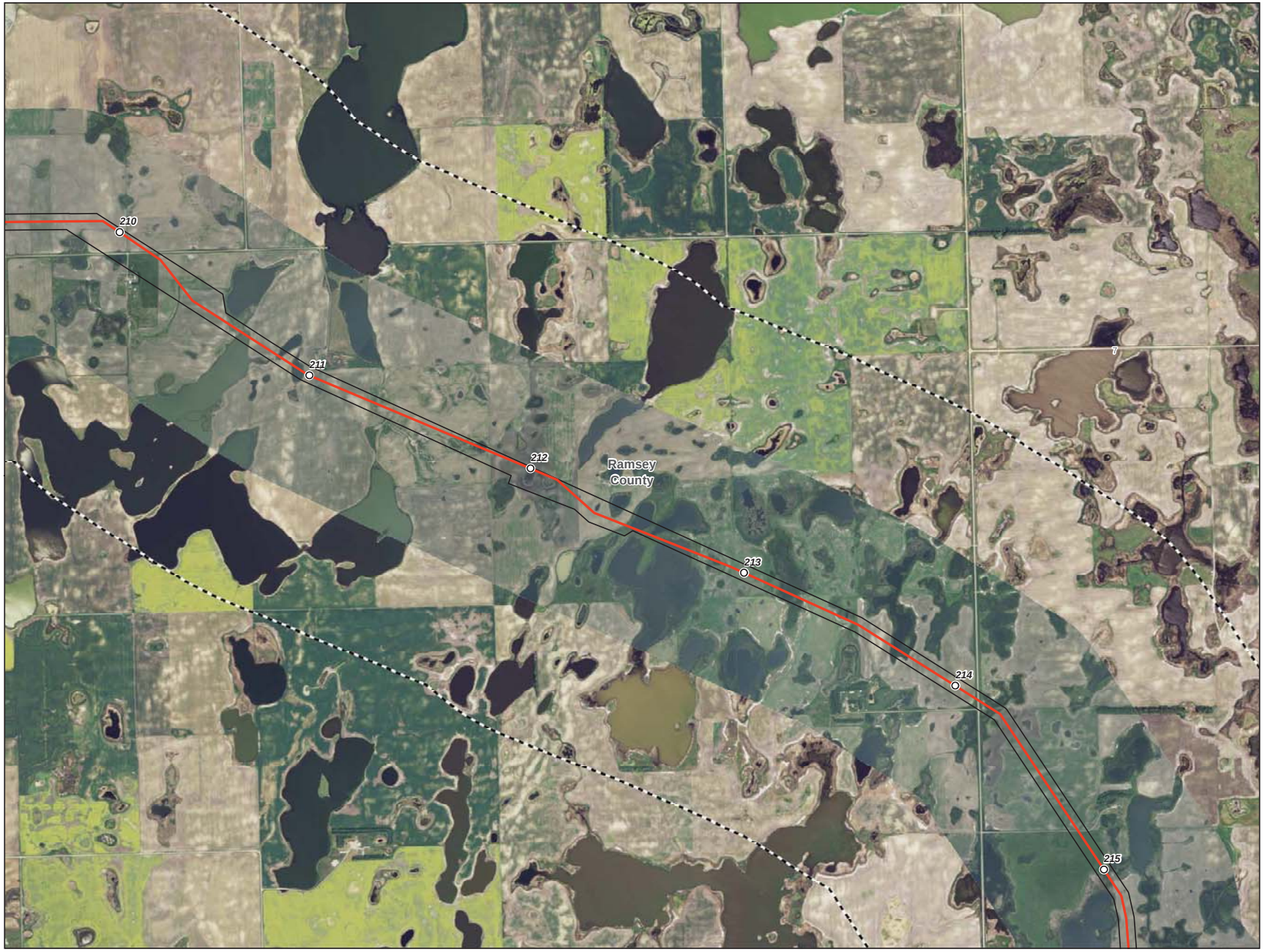
Exclusion Areas

Page 42 of 61
Ramsey County

ENBRIDGE

Rev. D

12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

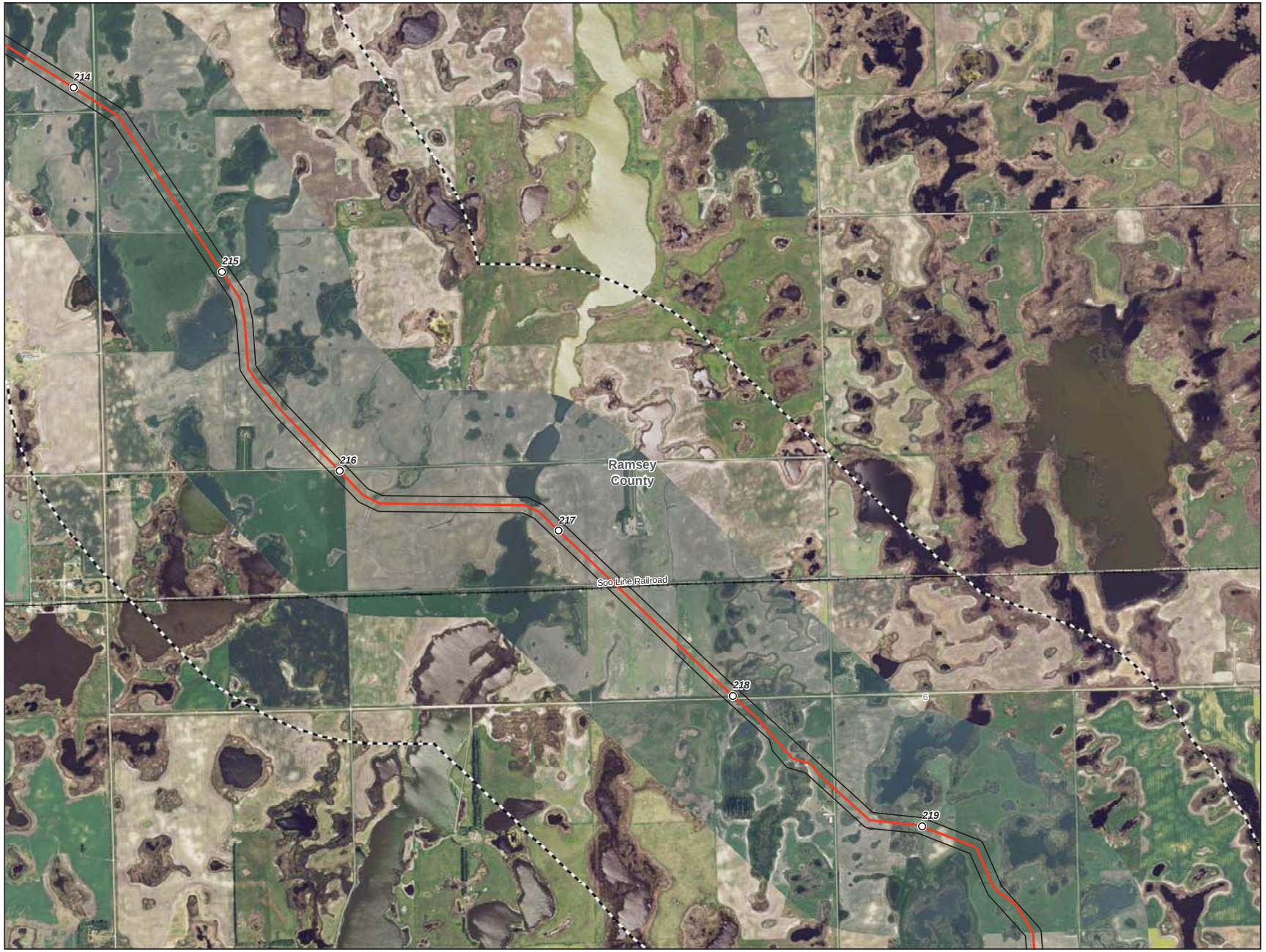
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

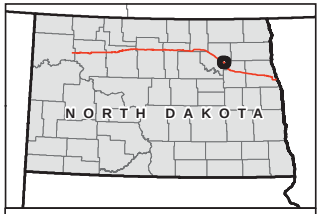
Exclusion Areas

Page 43 of 61
Ramsey County

ENBRIDGE

Rev. D
12/16/2013





- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

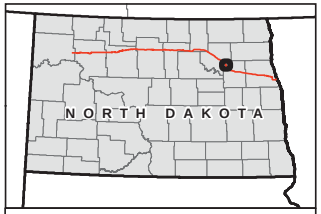
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Ramsey County

ENBRIDGE

Rev. D
12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

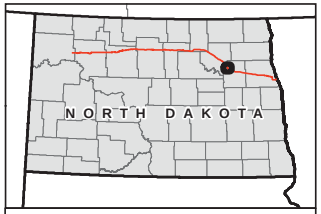
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 45 of 61
Ramsey County

ENBRIDGE

Rev. D
12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Ramsey County

ENBRIDGE

Rev. D
12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

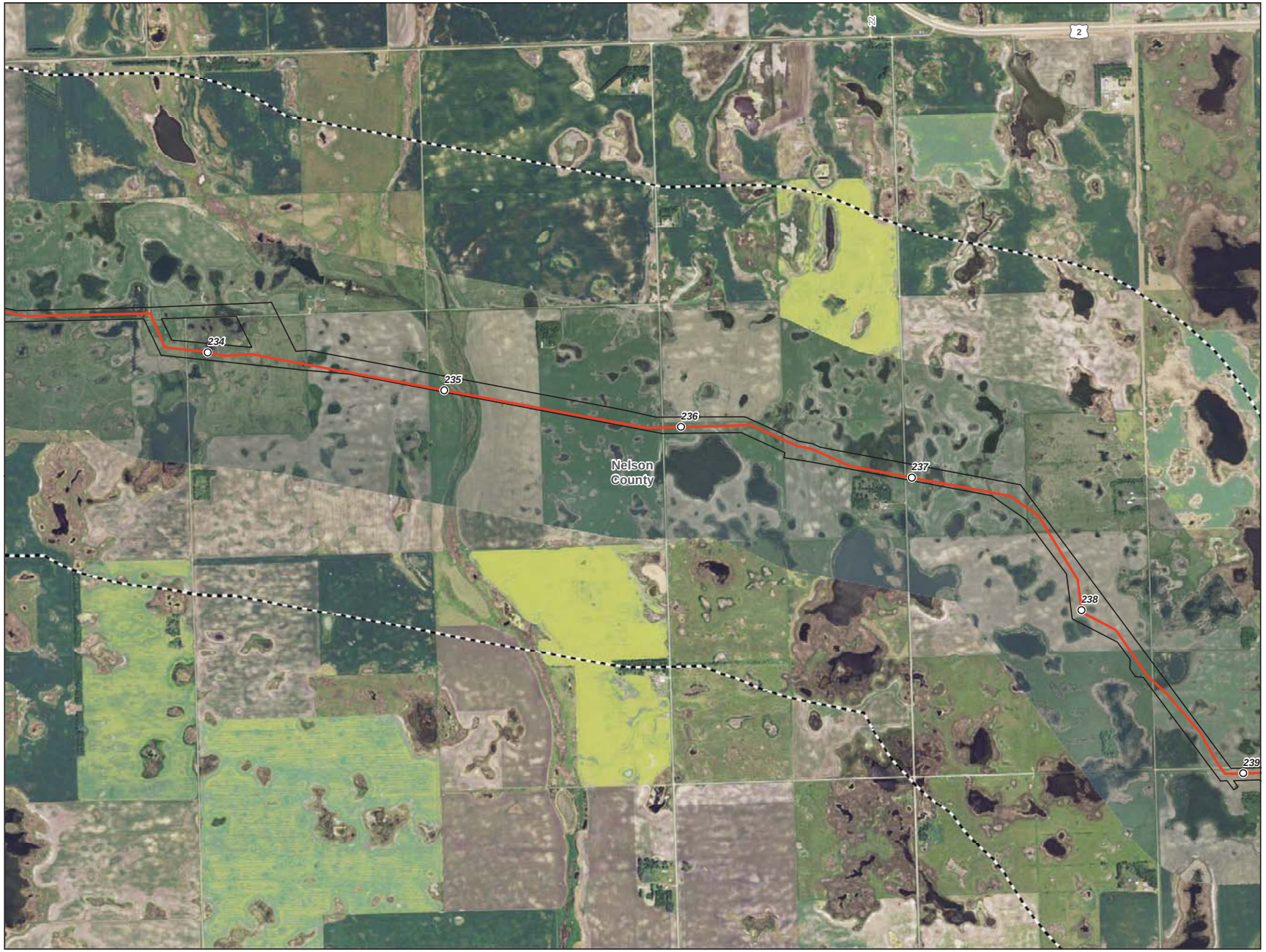
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 47 of 61
Nelson County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

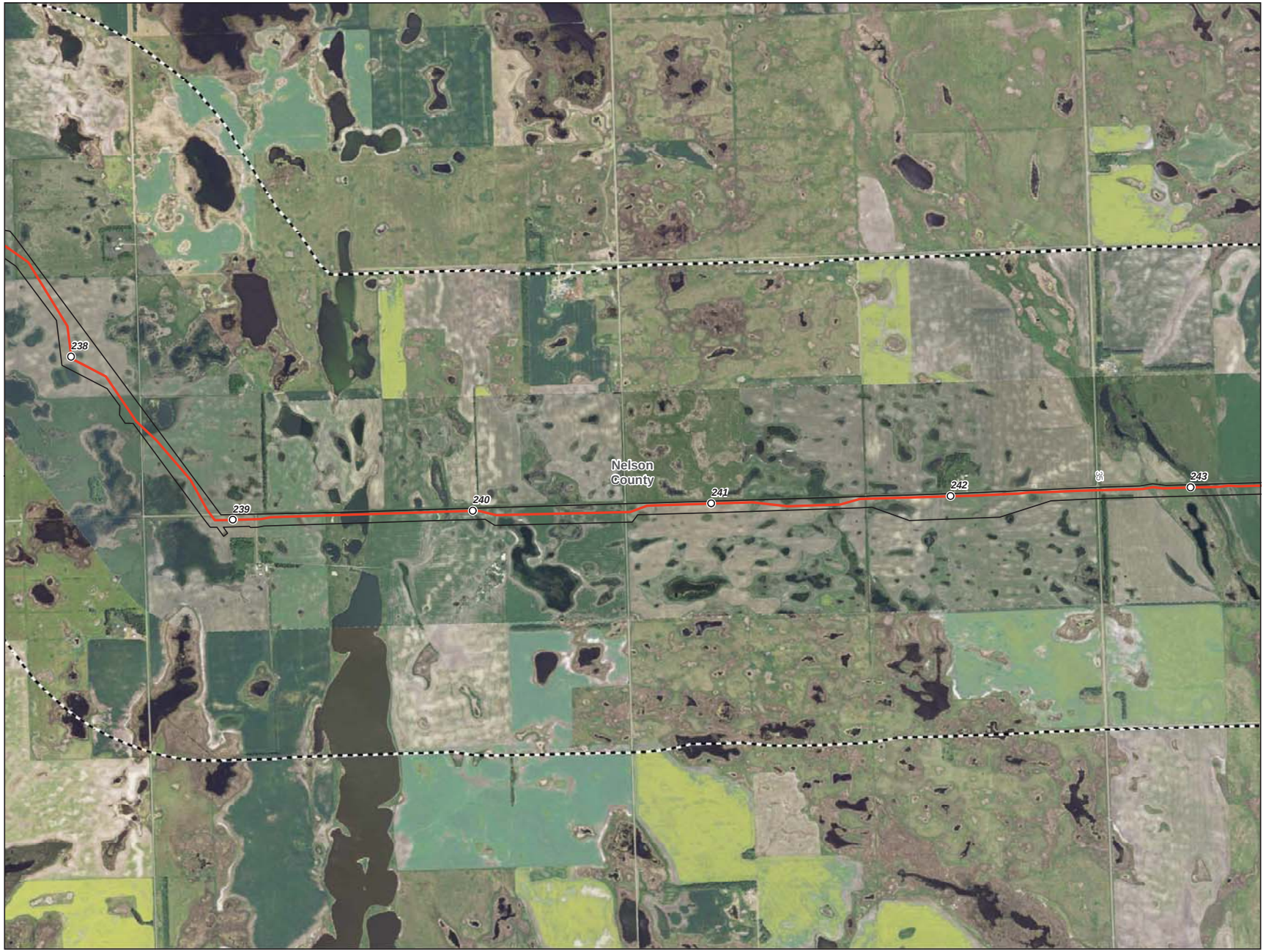
Exclusion Areas

Nelson County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

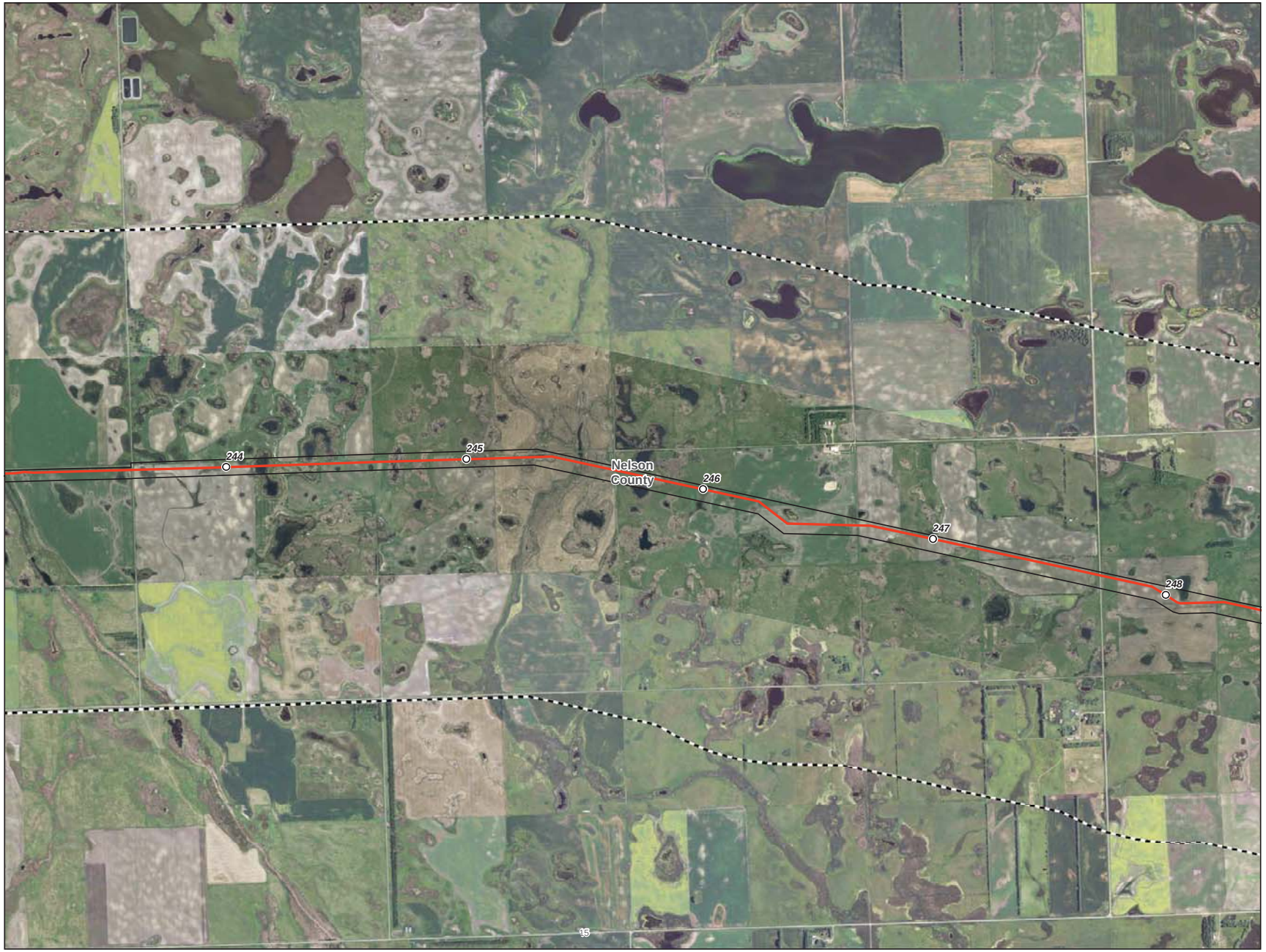
Exclusion Areas

Page 49 of 61
Nelson County

ENBRIDGE

Rev. D

12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

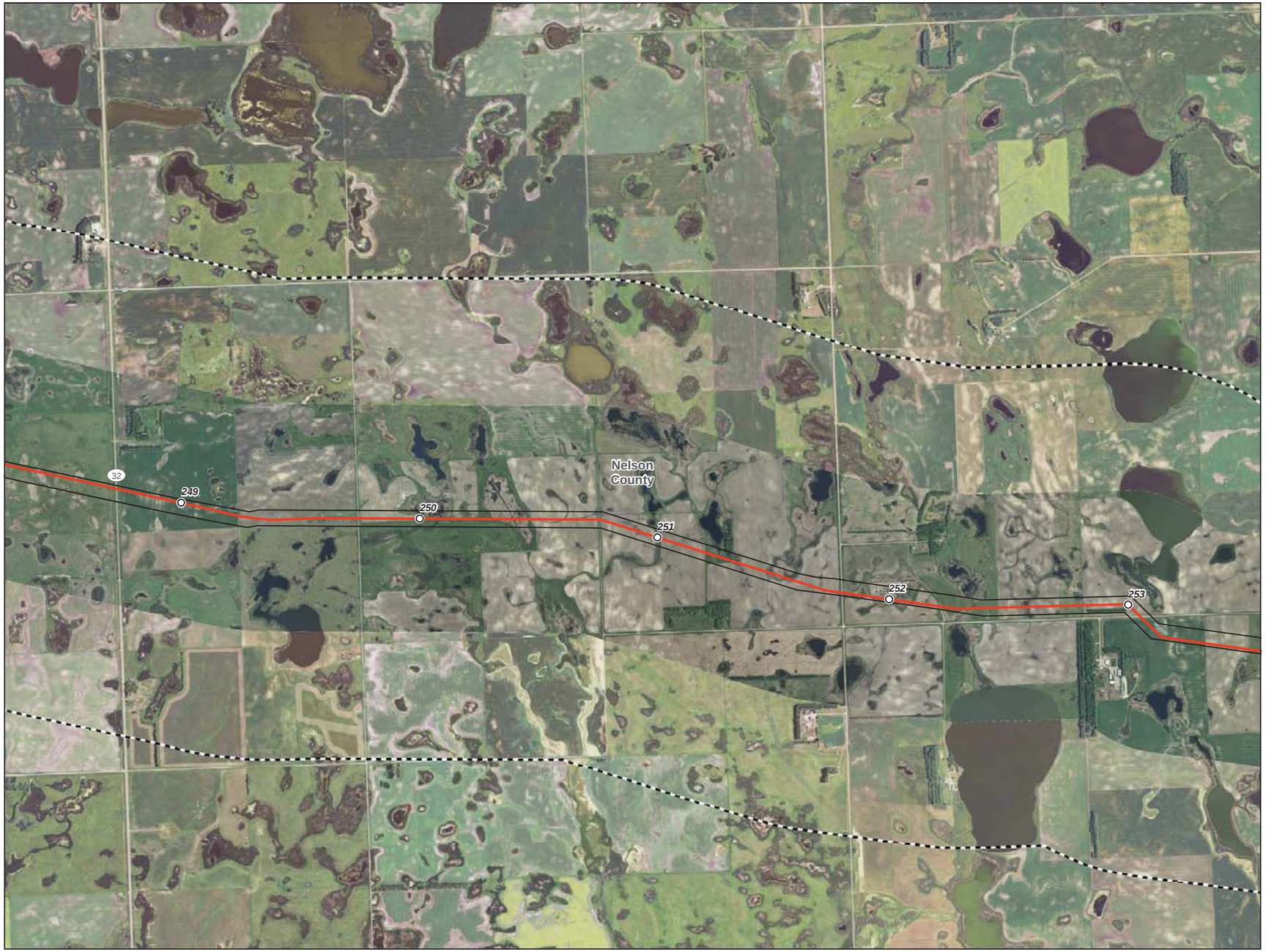
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Nelson County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Page 51 of 61
Nelson County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

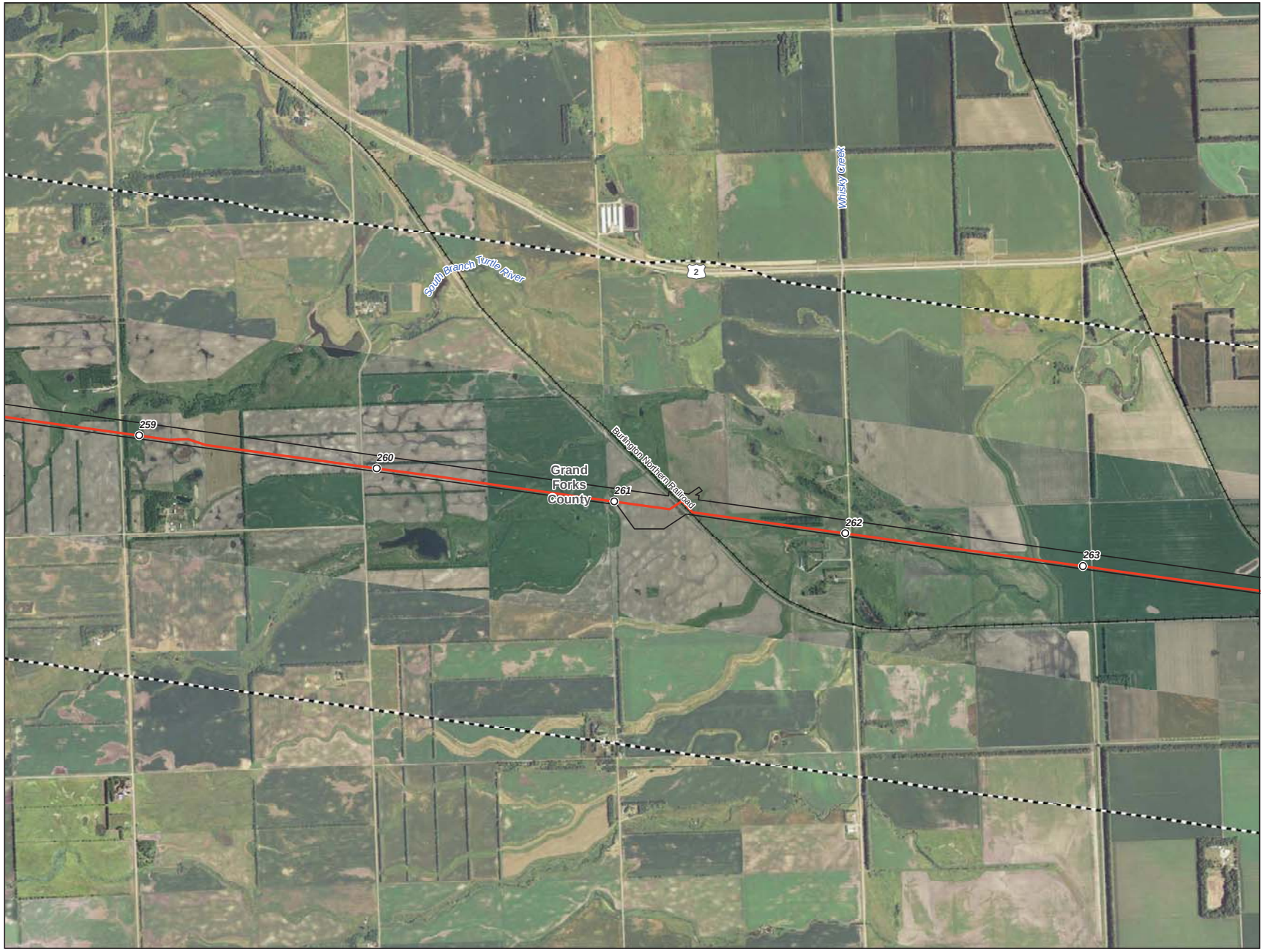
Exclusion Areas

Page 52 of 61
Grand Forks County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D

12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

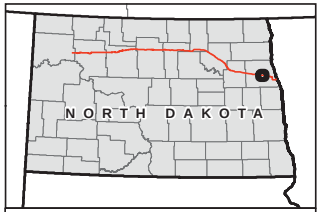
Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

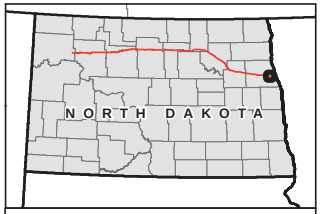
Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D

12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

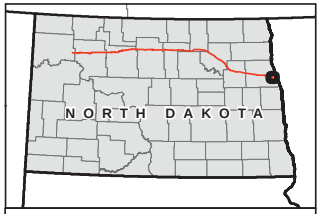
Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D

12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

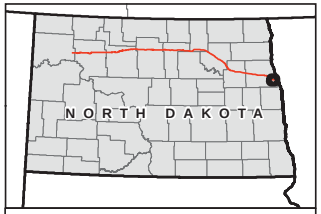
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

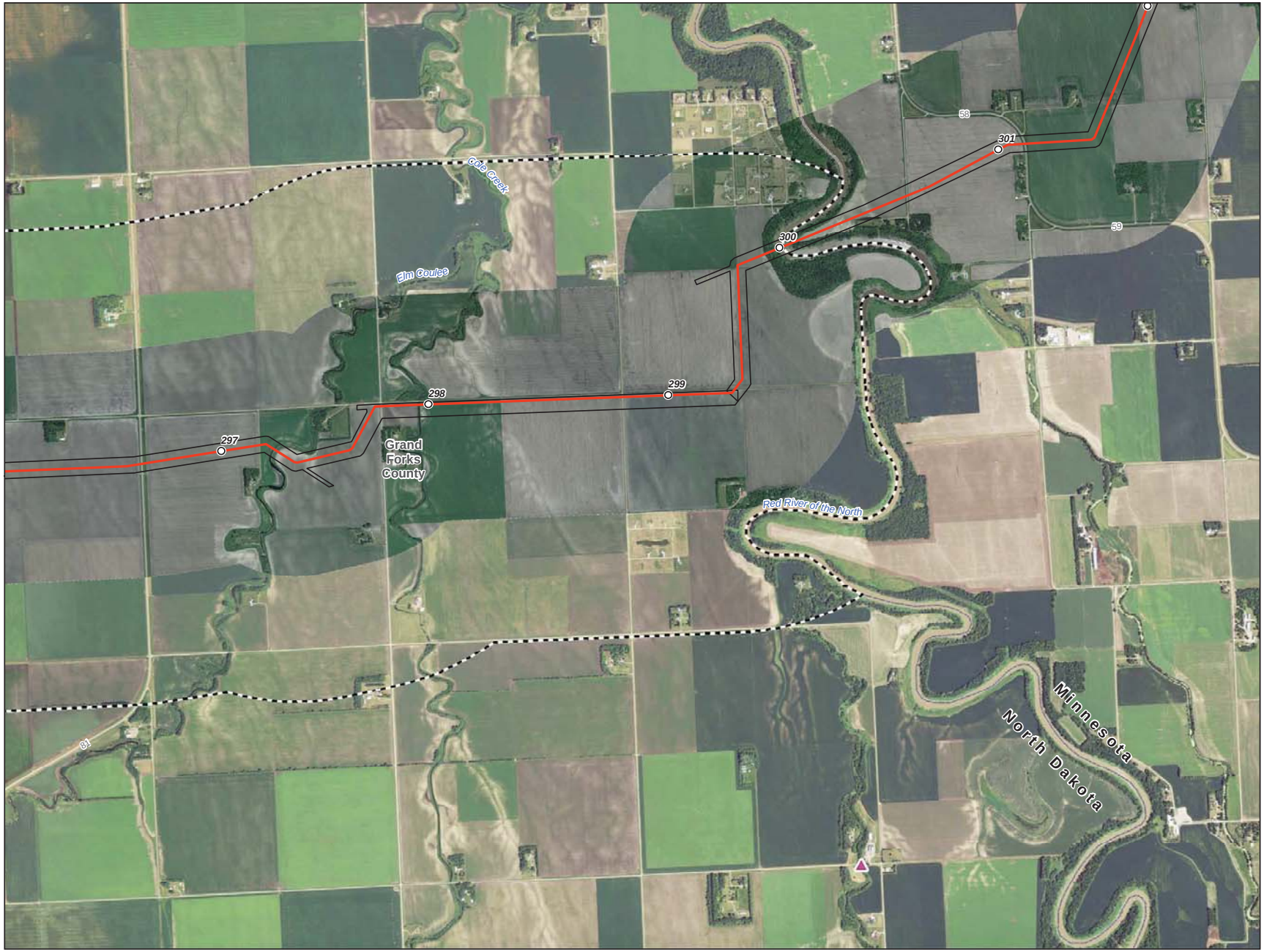
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

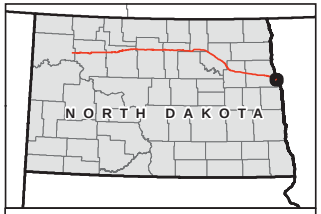
Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D
12/16/2013





- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Land and Water Conservation Fund Lands
- NRHP Historic Place
- USFWS-critical habitat

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

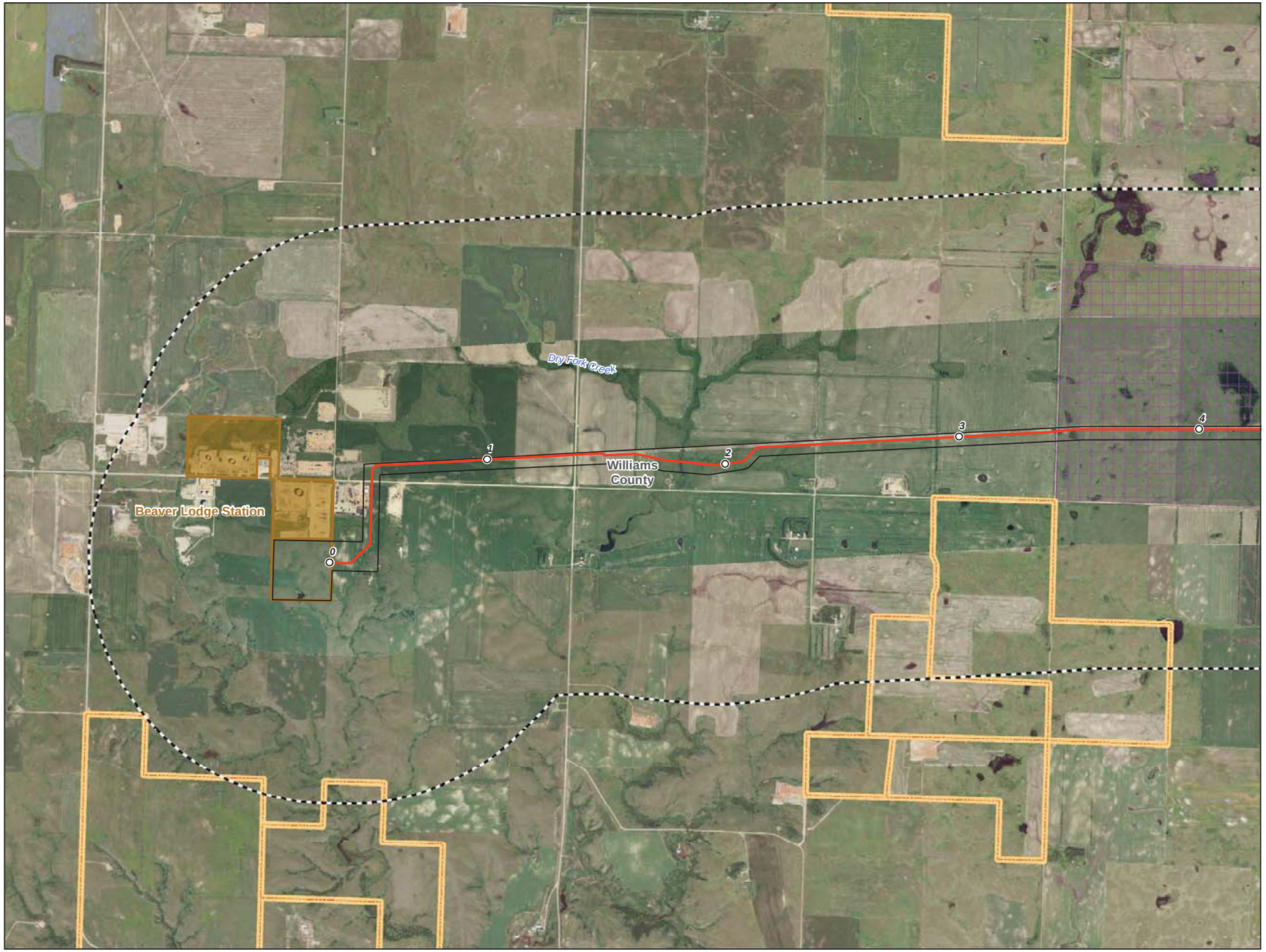
Exclusion Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013

Exhibit I.2



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W
E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

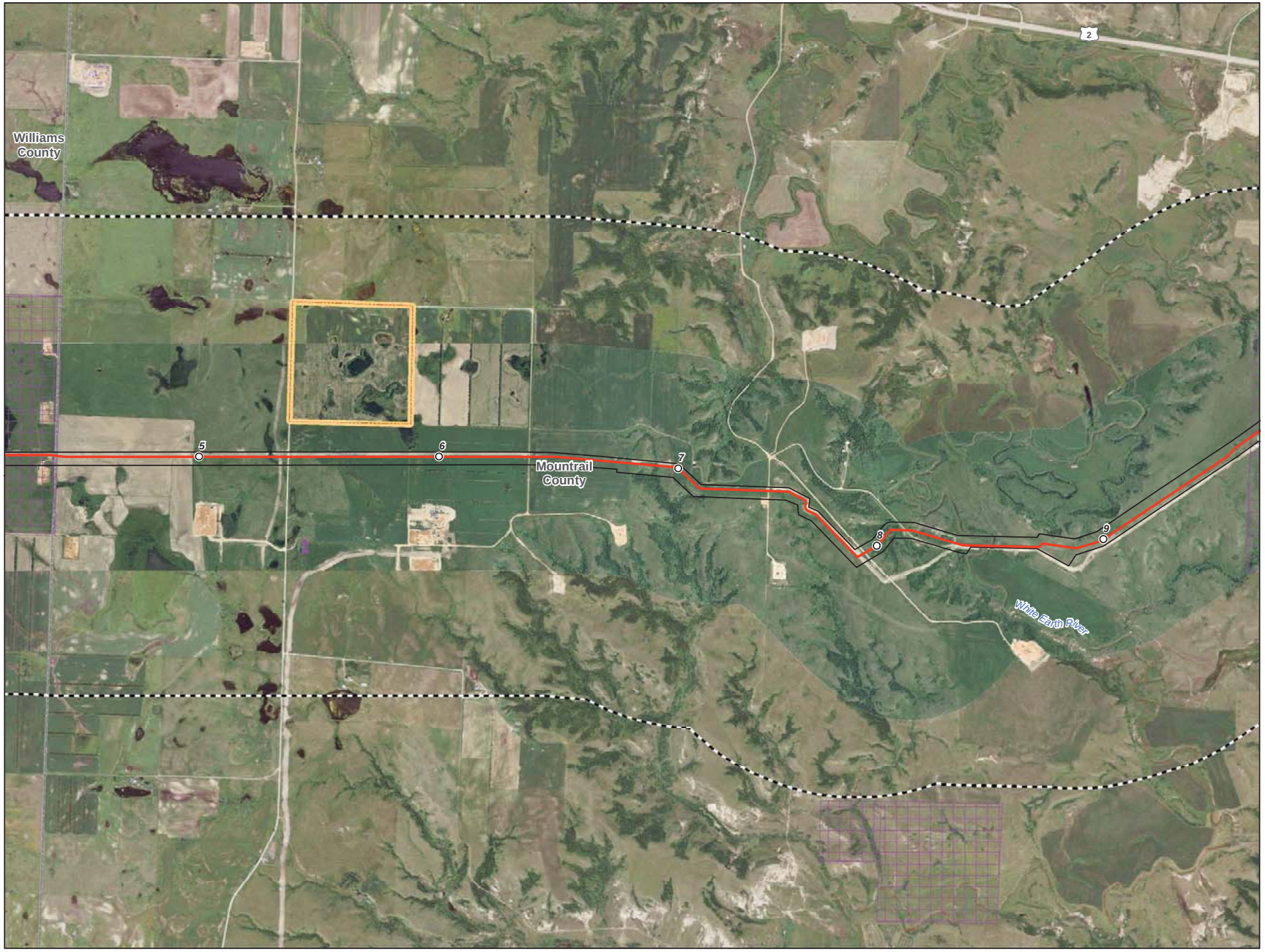
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

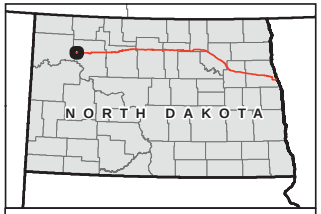
Avoidance Areas

Page 1 of 61
Williams County

ENBRIDGE

Rev. D 12/16/2013





- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

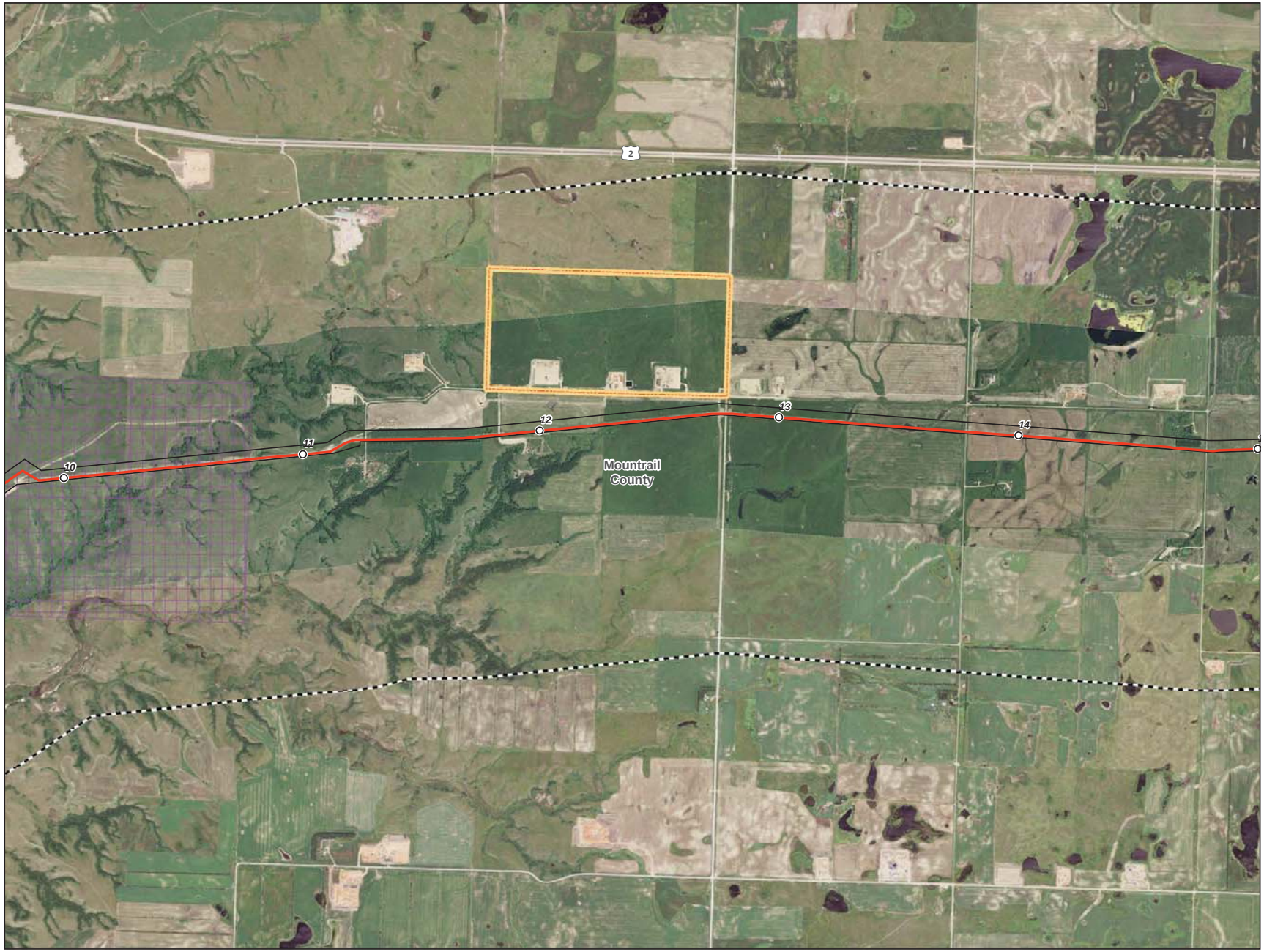
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

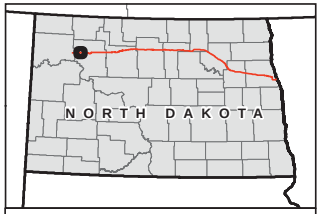
Avoidance Areas

Page 2 of 61
Mountrail County

ENBRIDGE

Rev. D 12/16/2013





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Mountrail County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Mountrail County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

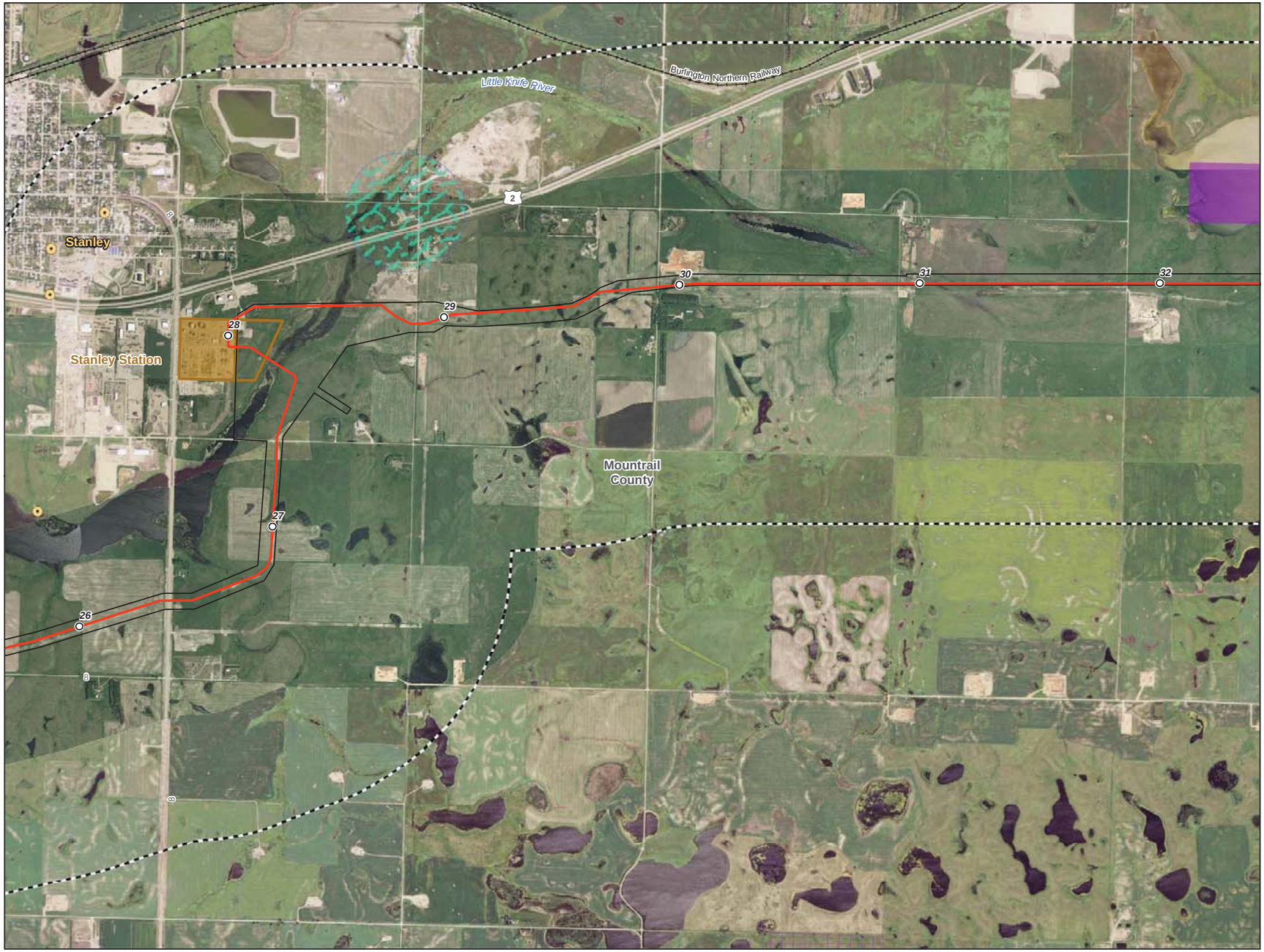
Avoidance Areas

Mountrail County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Mountrail County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

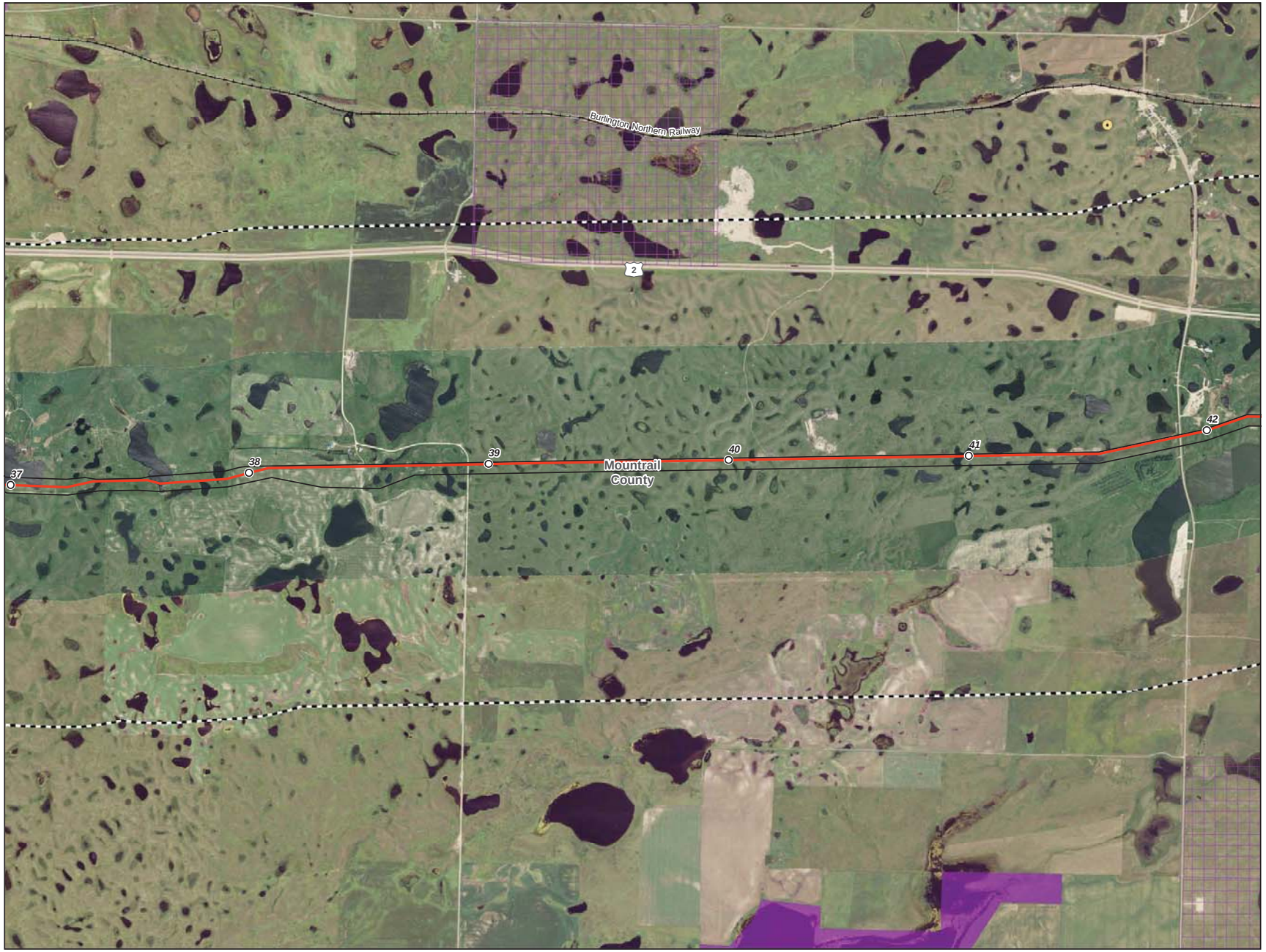
Sandpiper Pipeline Project

Avoidance Areas

Page 7 of 61
Mountrail County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

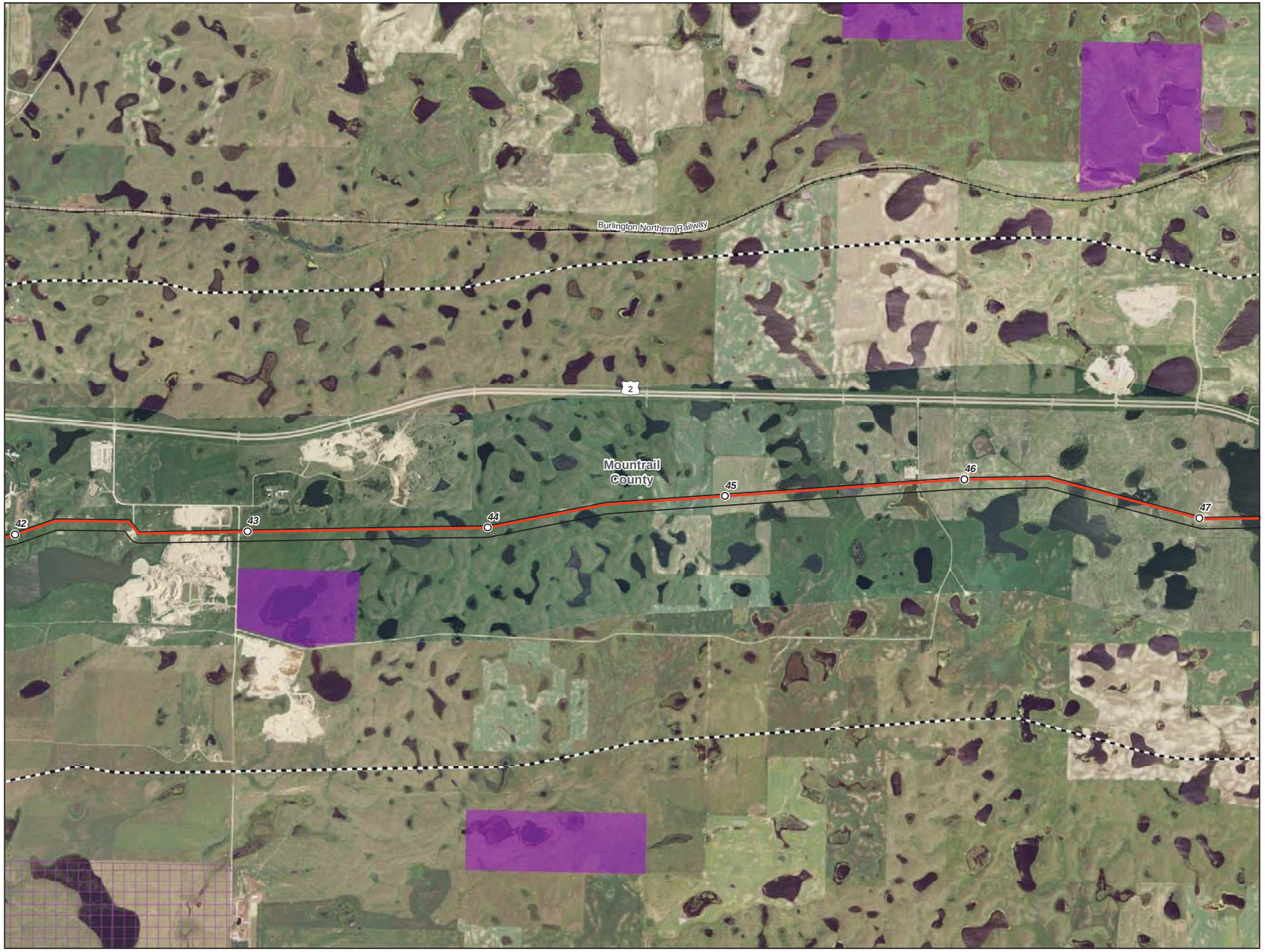
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 8 of 61
Mountrail County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

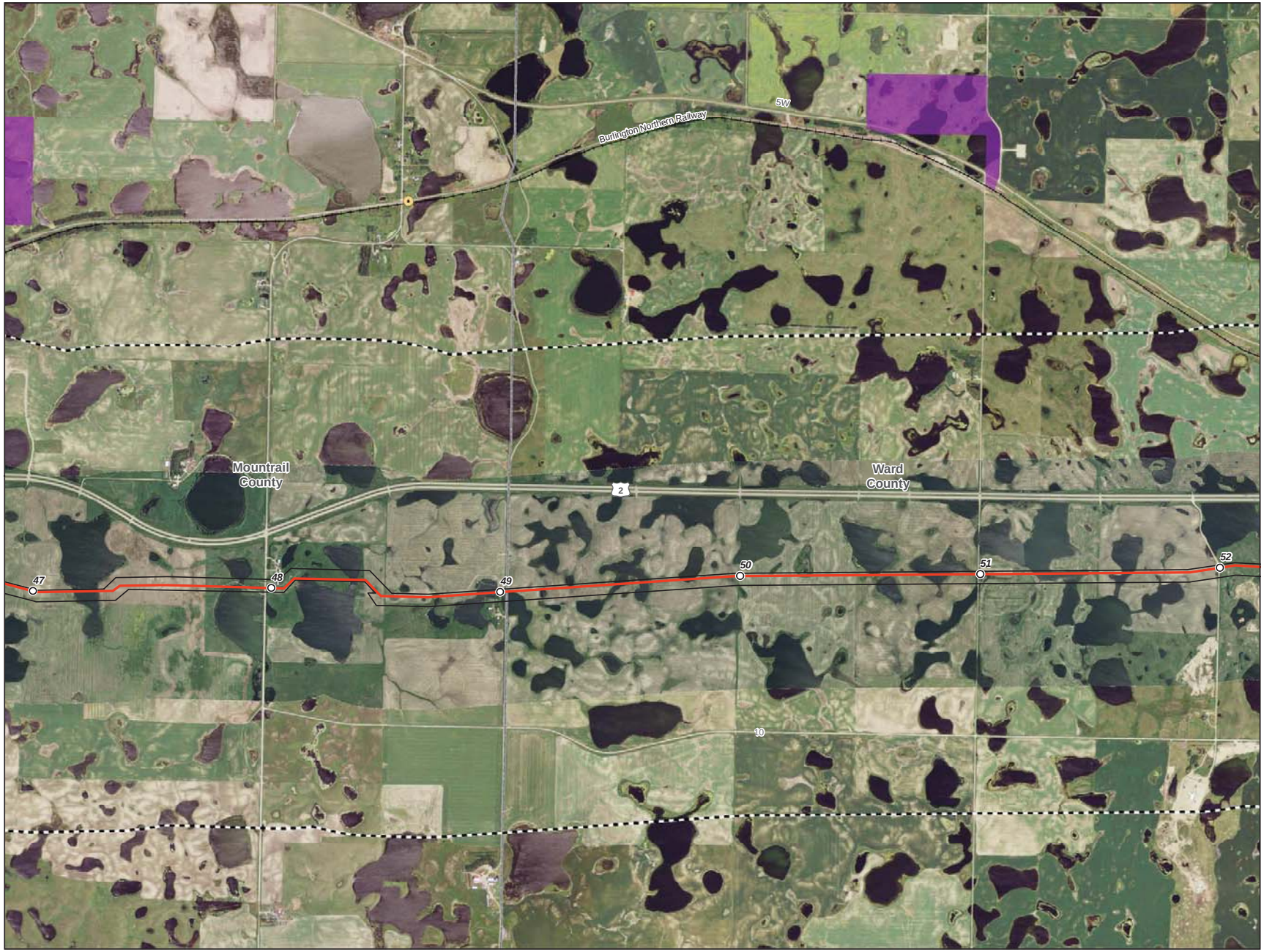
Sandpiper Pipeline Project

Avoidance Areas

Mountrail County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Page 10 of 61
Mountrail County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

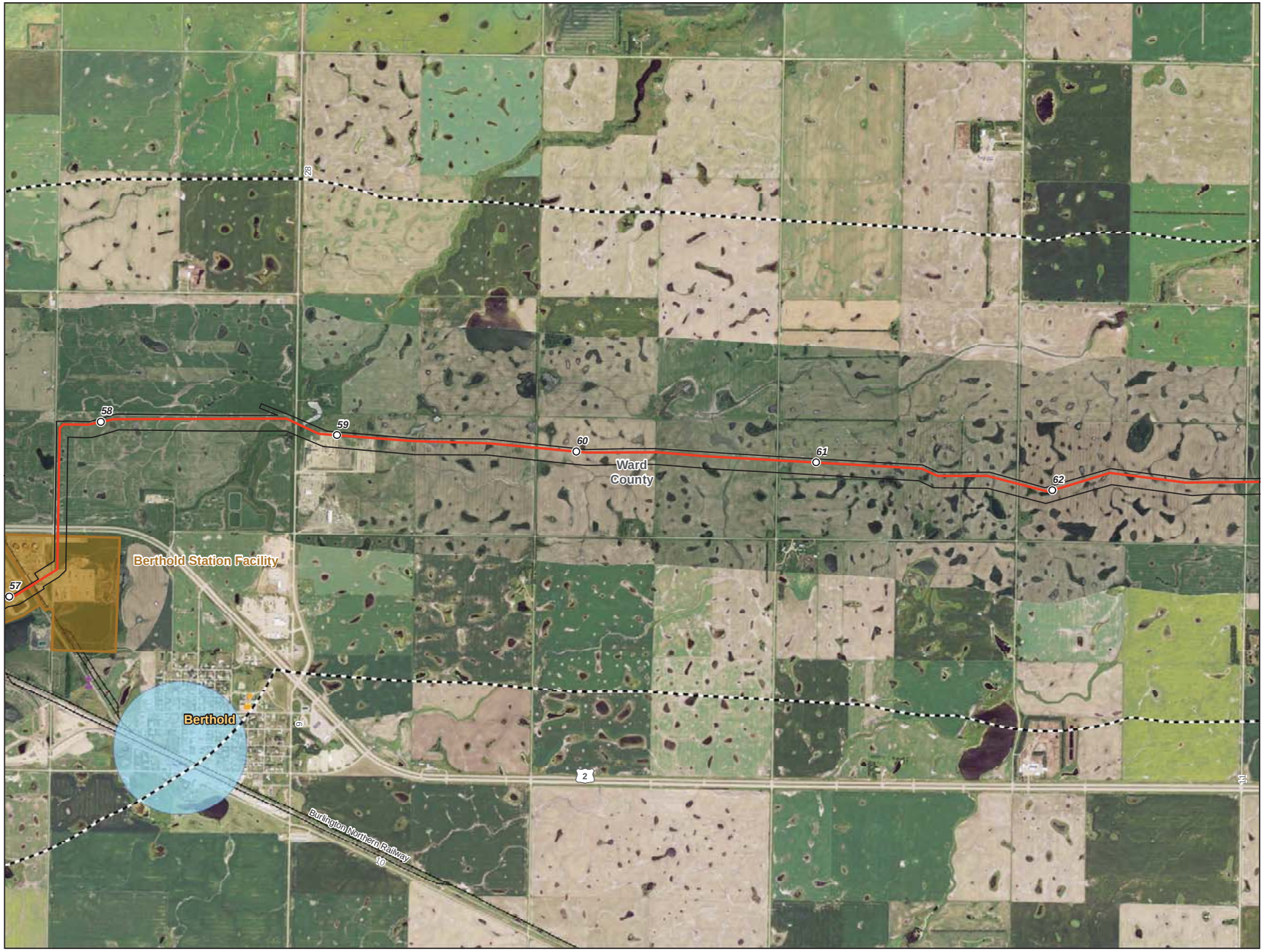
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

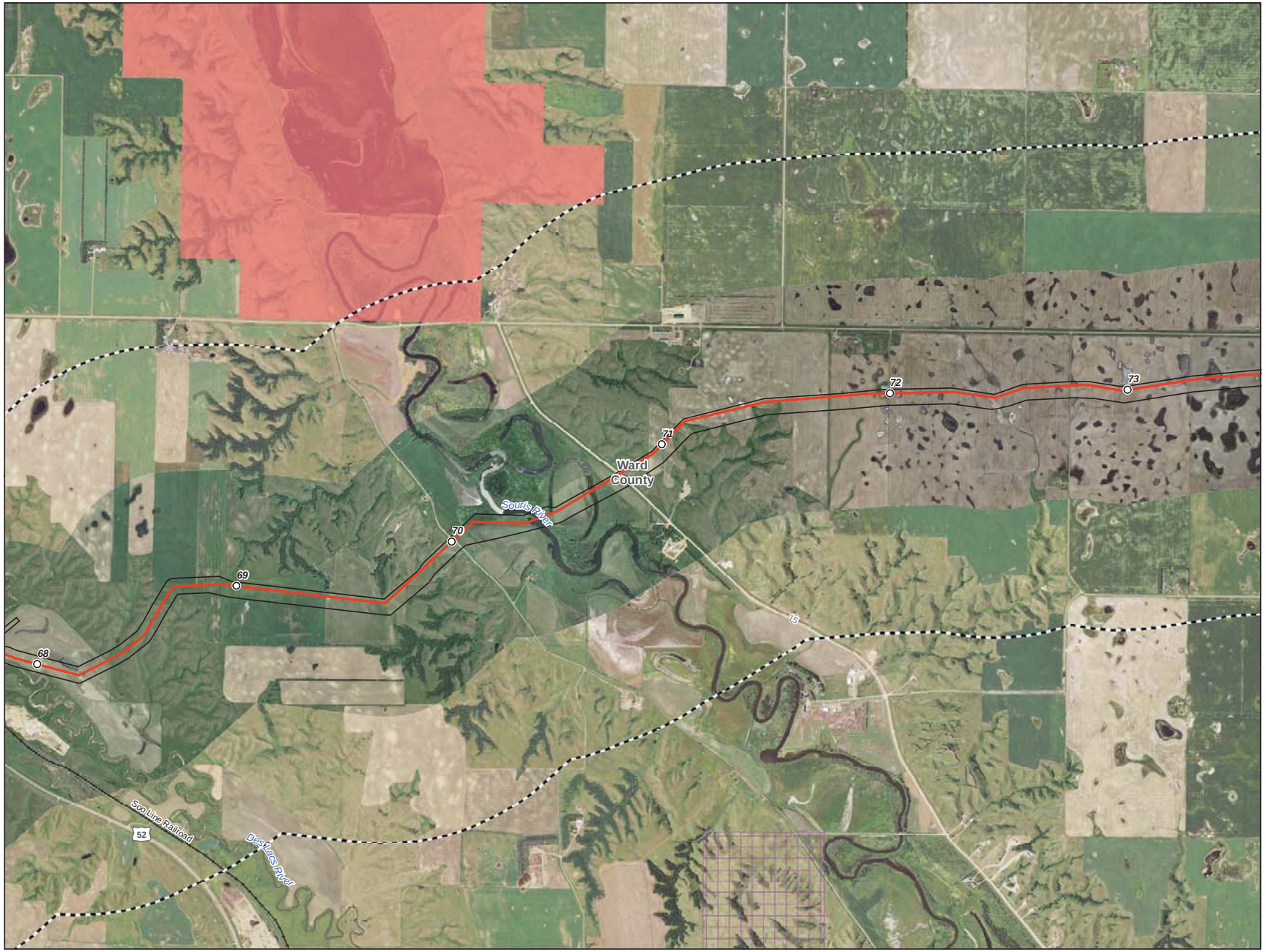
Sandpiper Pipeline Project

Avoidance Areas

Ward County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Page 15 of 61
Ward County

ENBRIDGE

Rev. D 12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Page 17 of 61

Ward County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

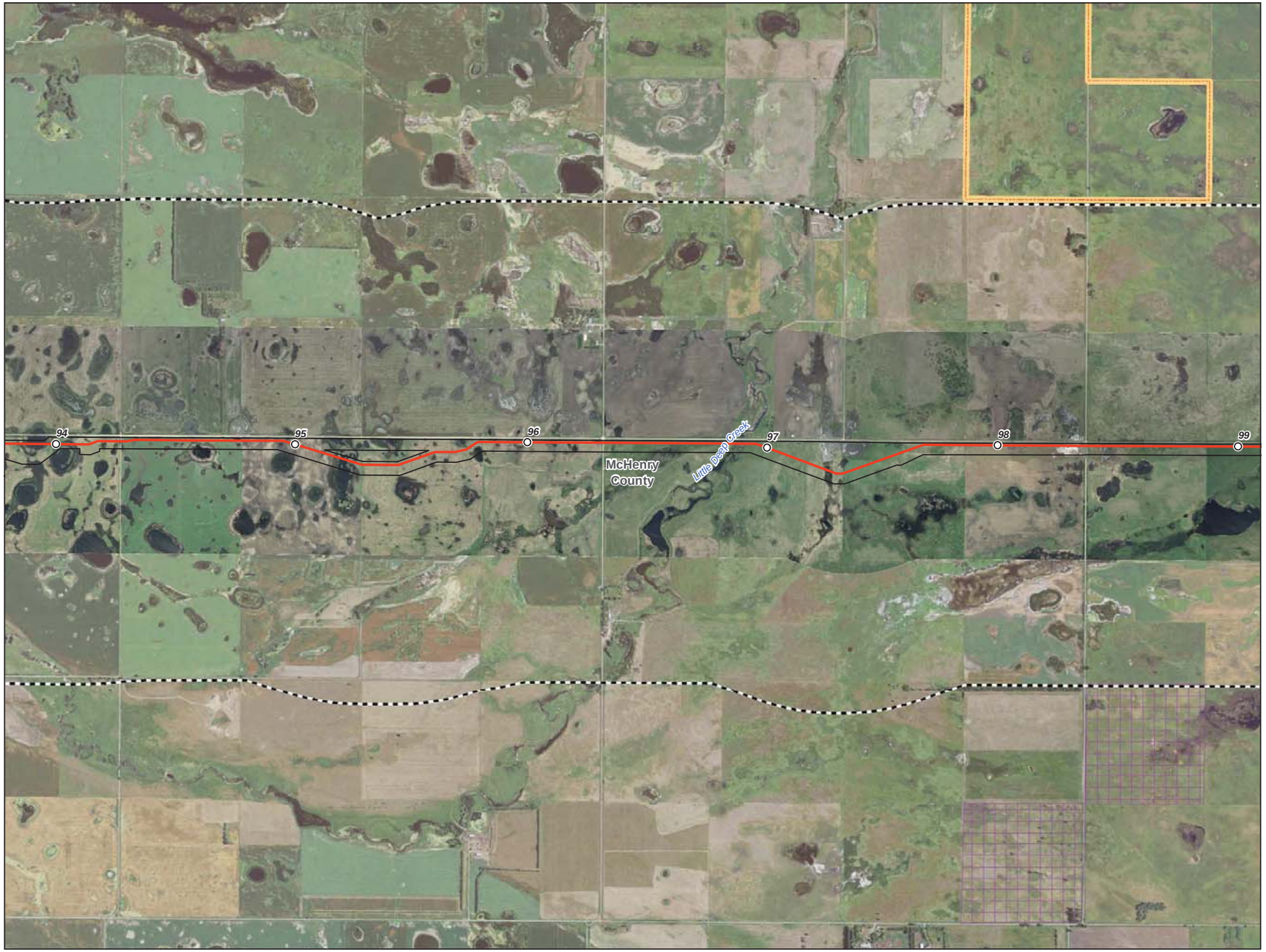
Avoidance Areas

Ward County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

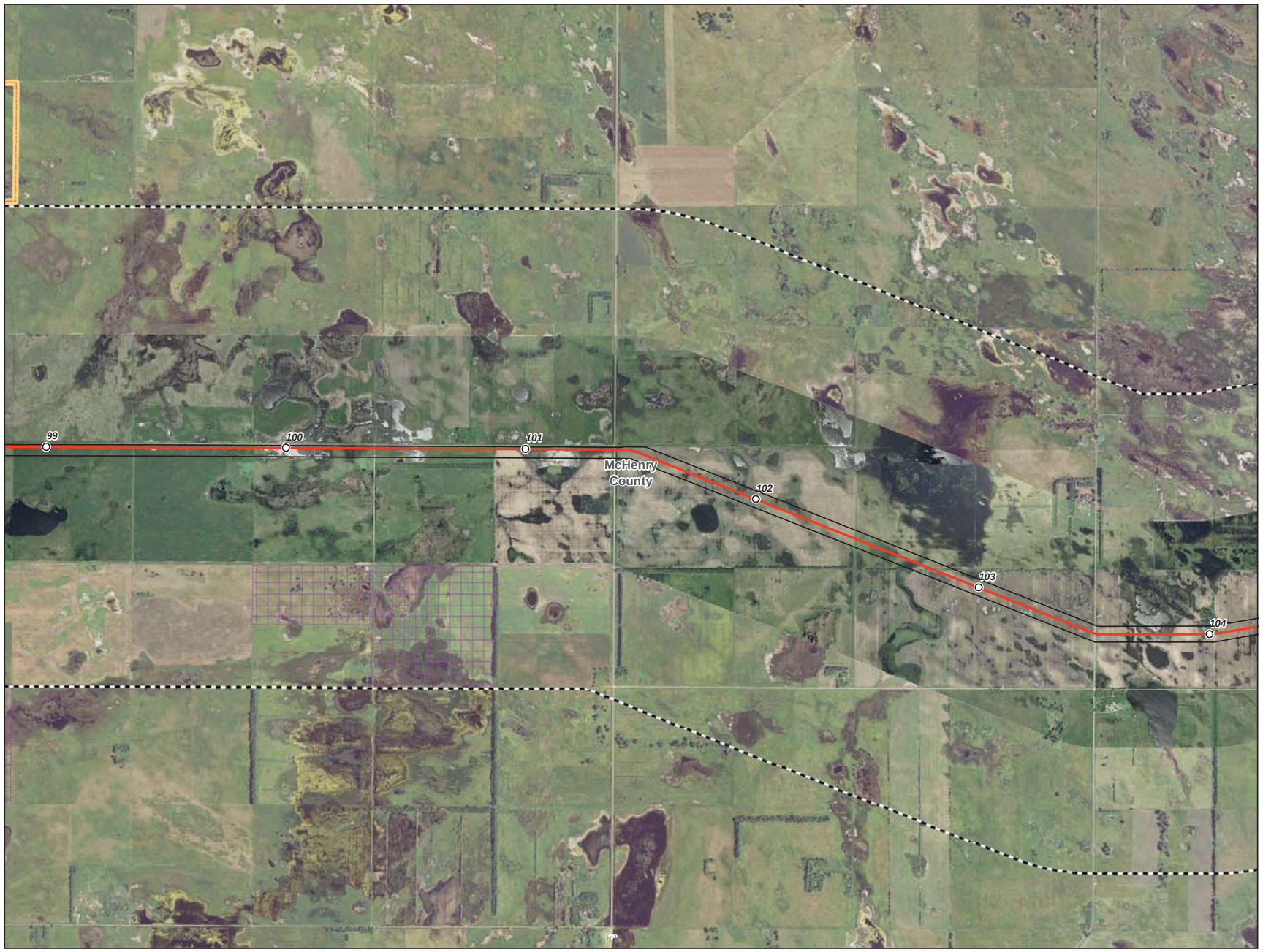
Avoidance Areas

McHenry County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

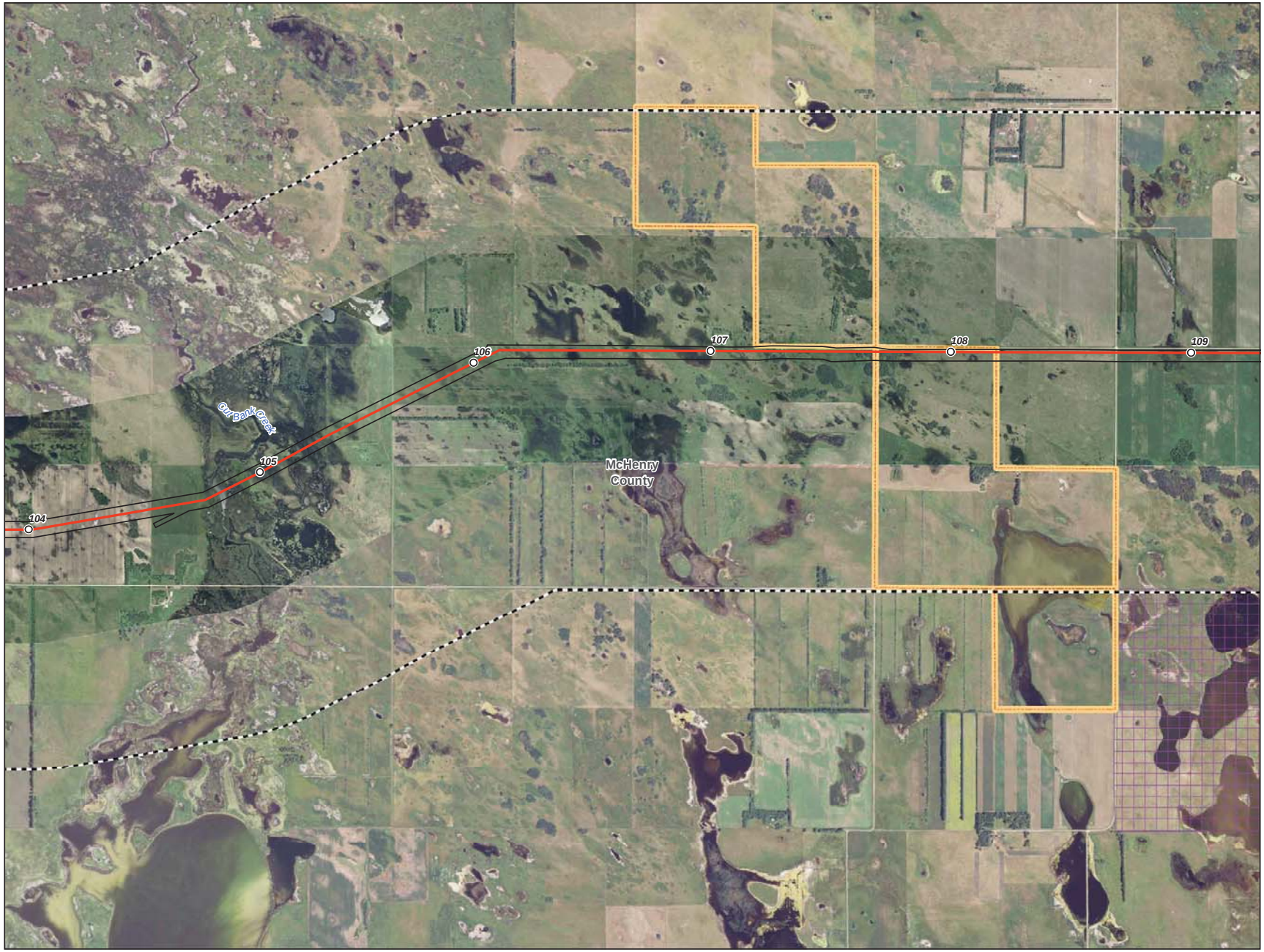
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 20 of 61
McHenry County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

McHenry County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Page 22 of 61
McHenry County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Page 23 of 61
McHenry County

ENBRIDGE

Rev. D 12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

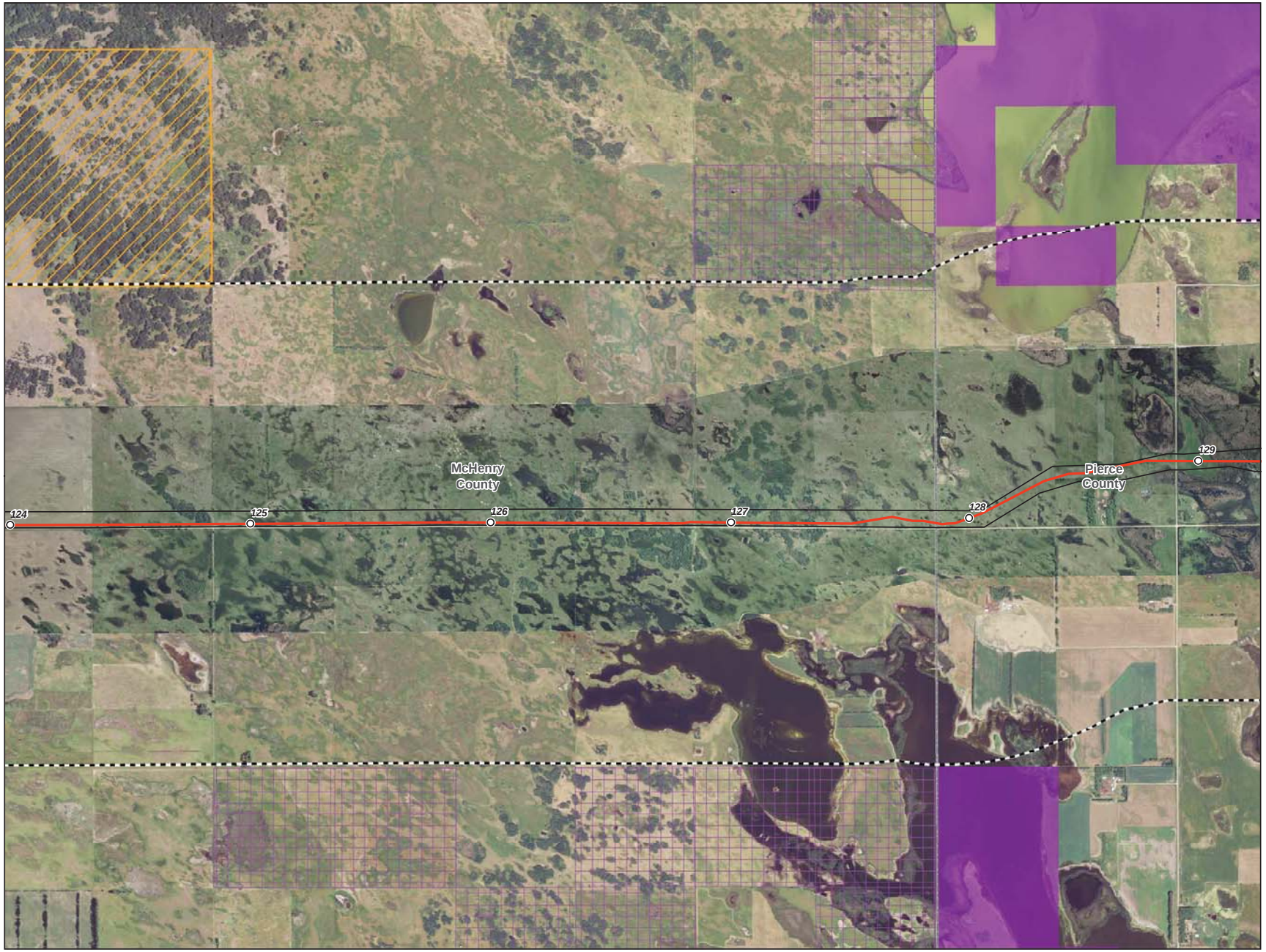
Avoidance Areas

McHenry County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

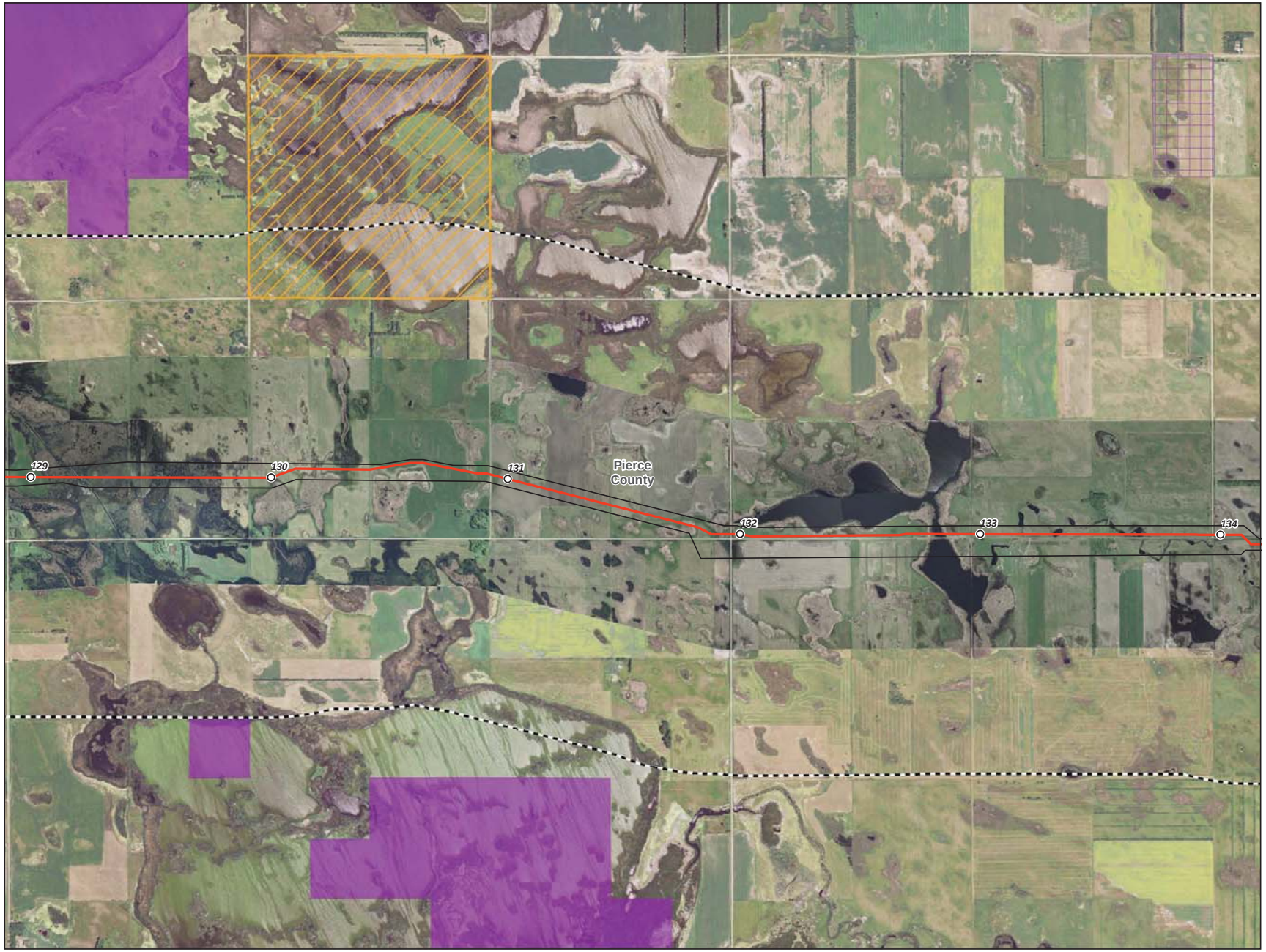
Avoidance Areas

McHenry County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

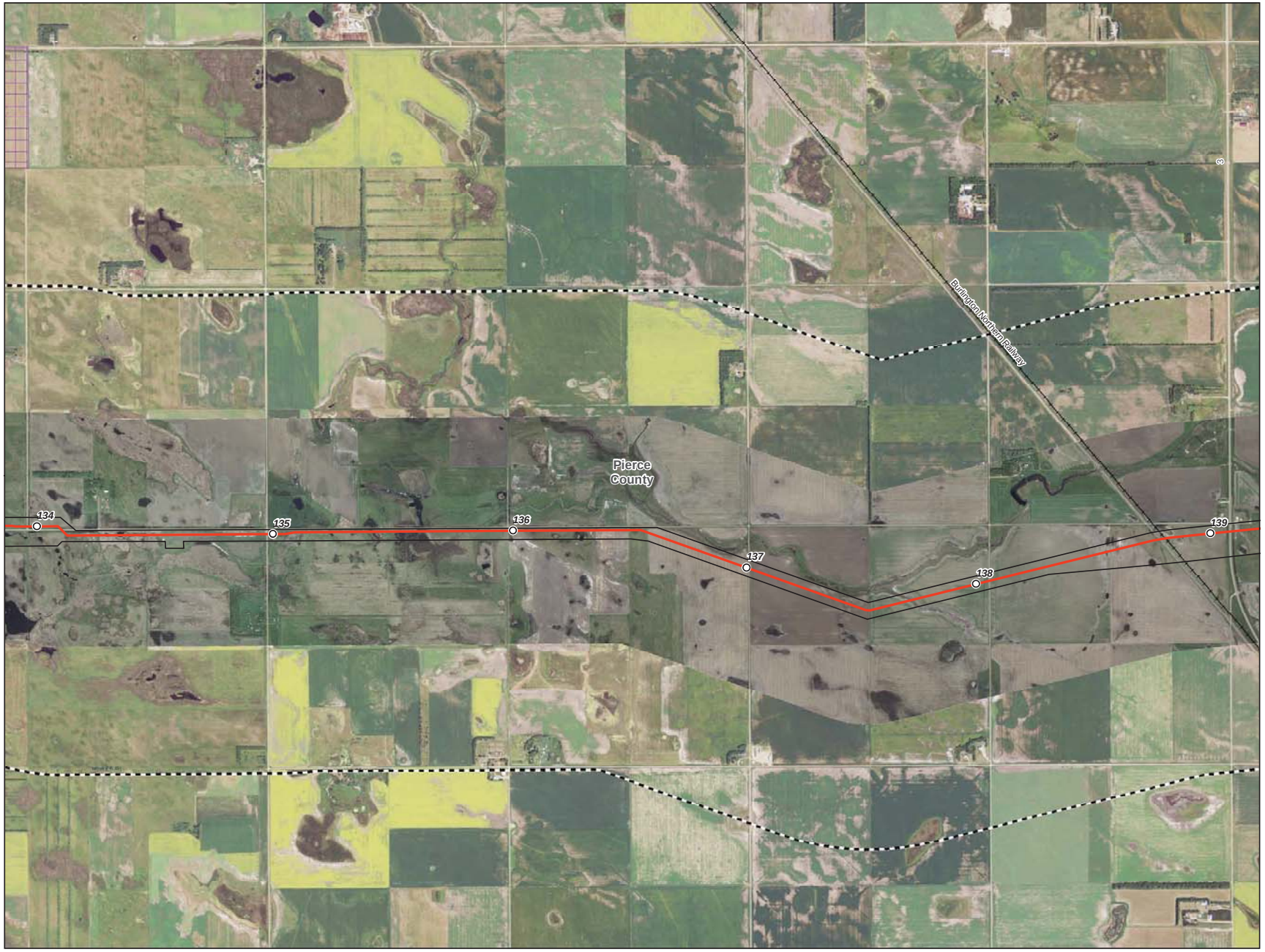
Sandpiper Pipeline Project

Avoidance Areas

Pierce County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

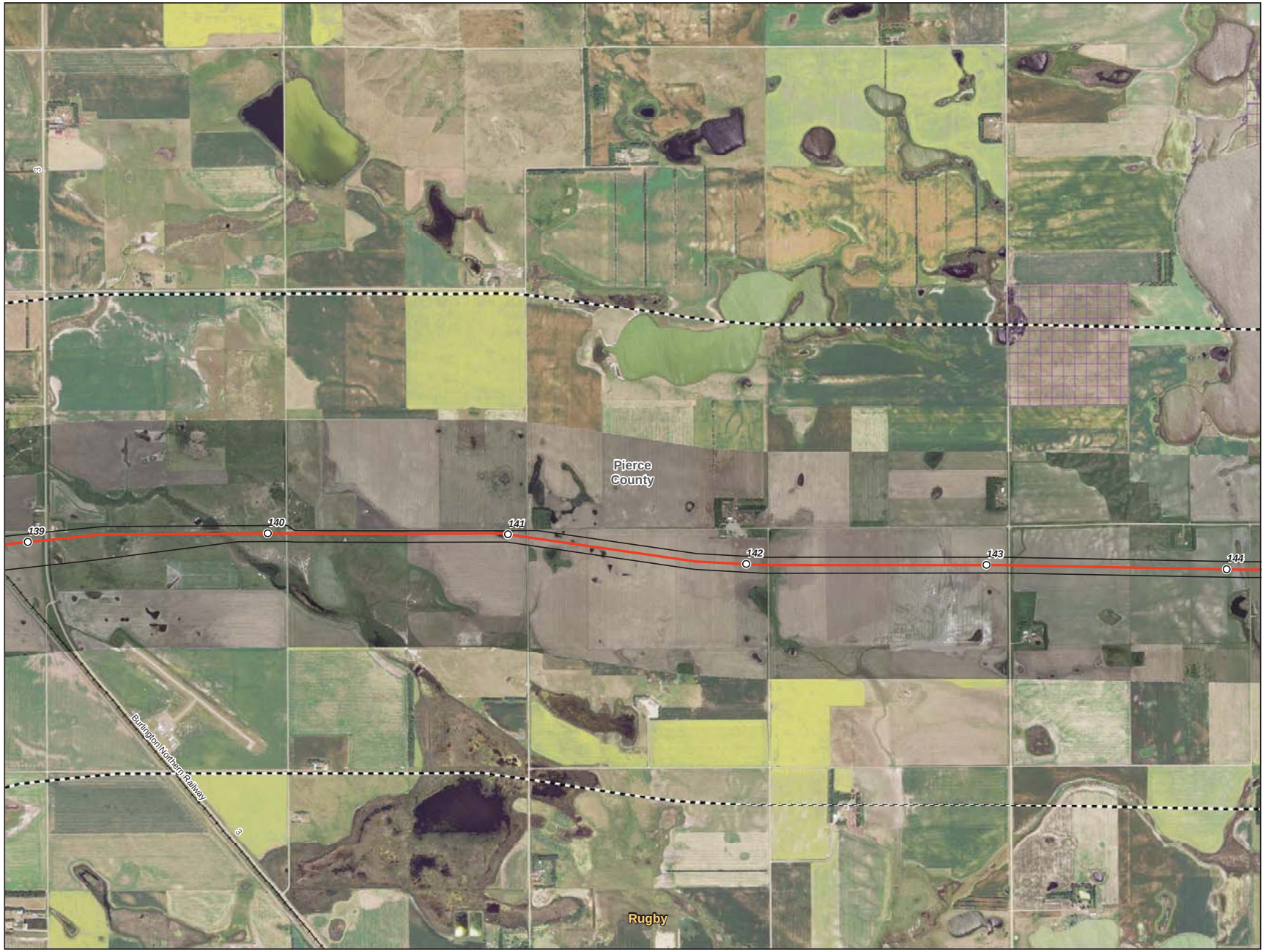
Sandpiper Pipeline Project

Avoidance Areas

Page 27 of 61
Pierce County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

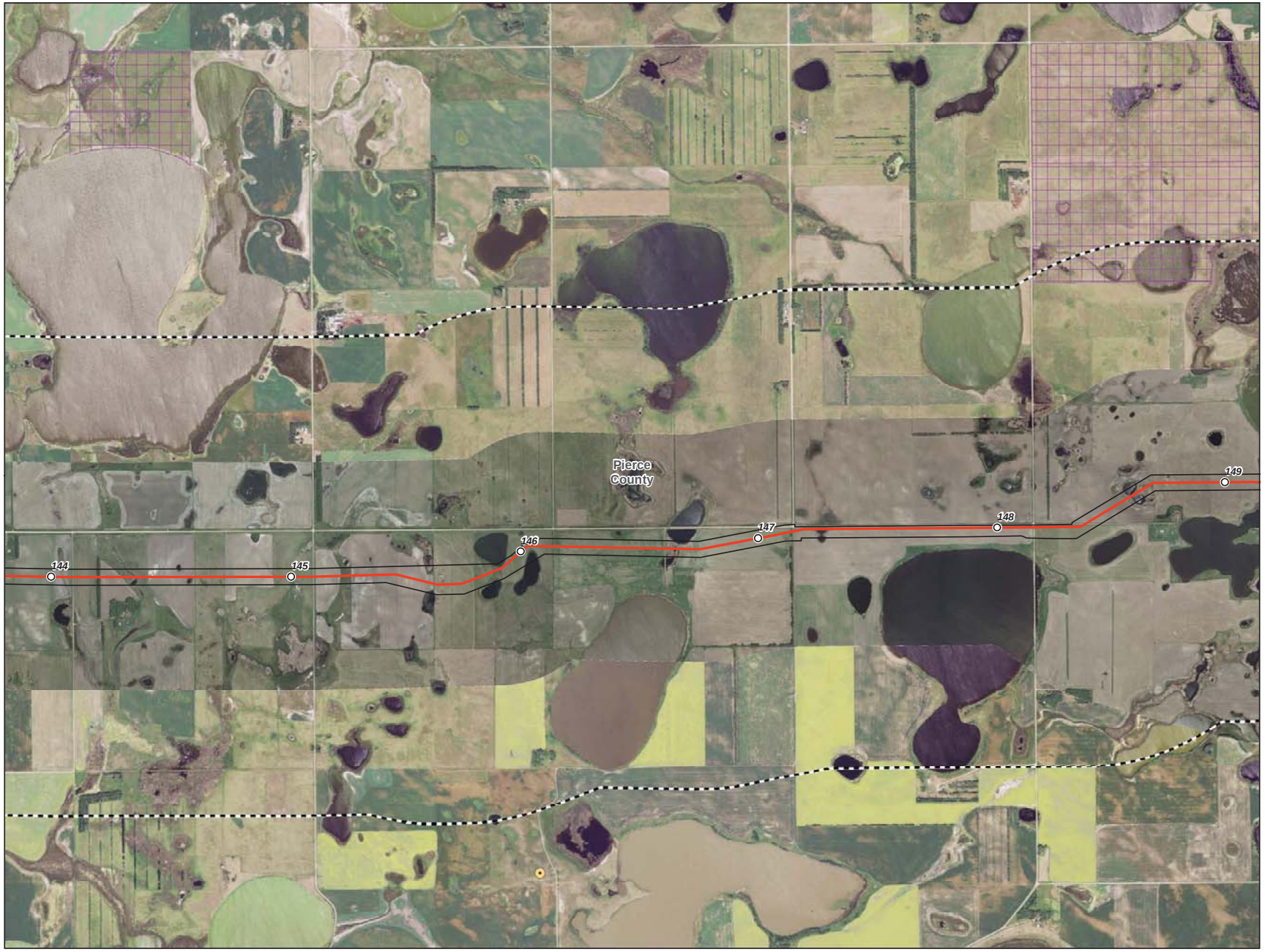
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

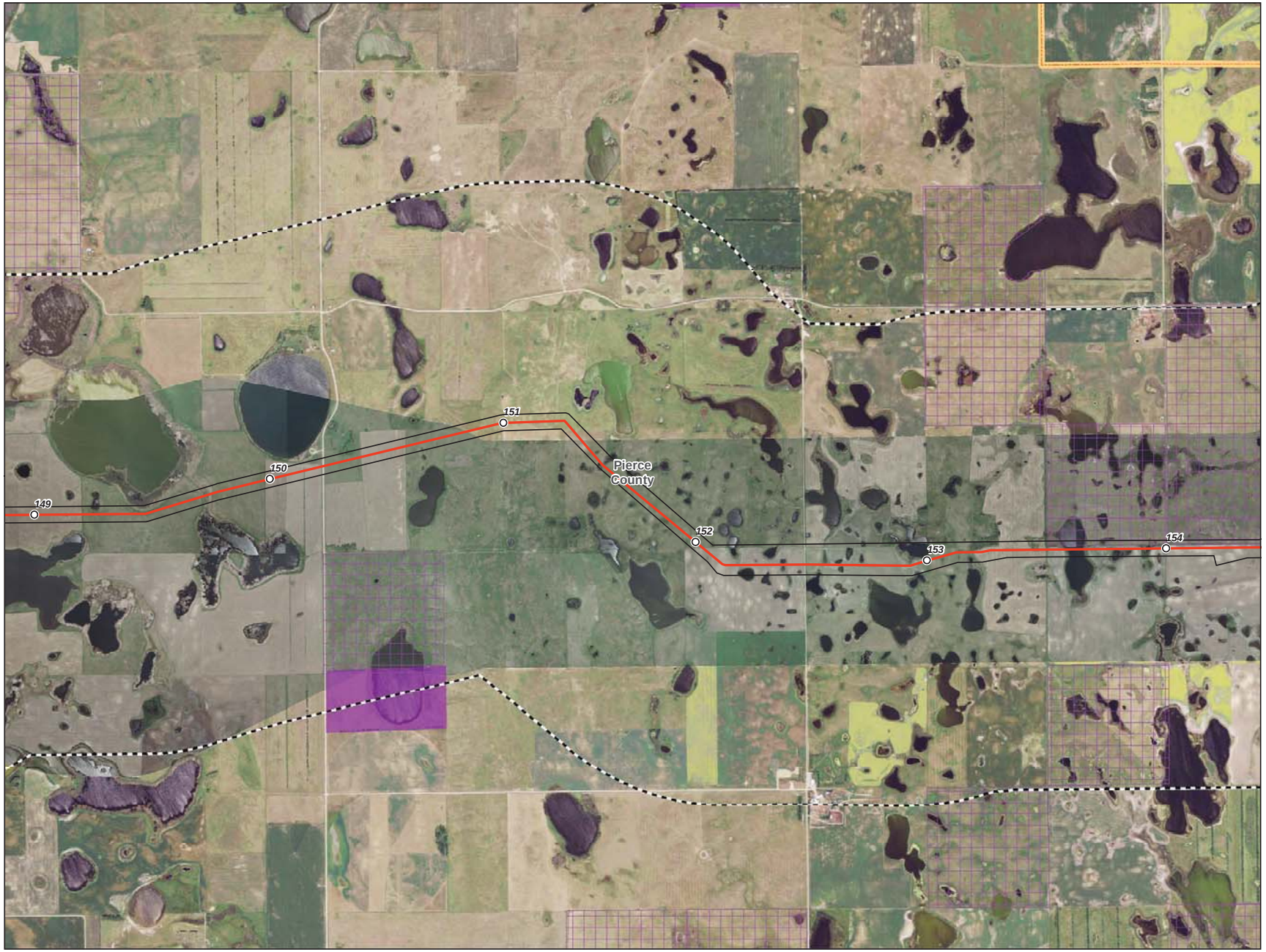
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 29 of 61
Pierce County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

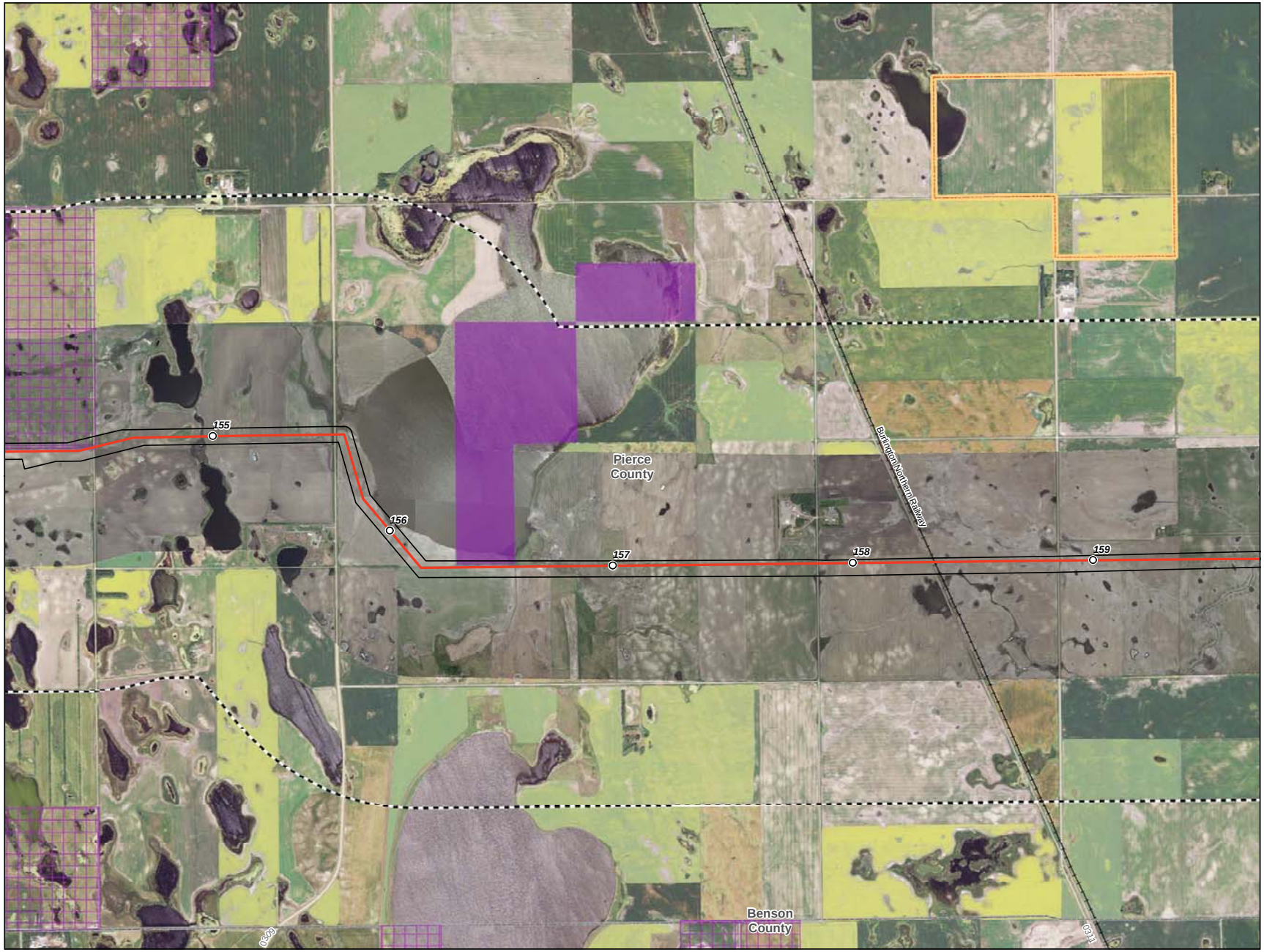
Sandpiper Pipeline Project

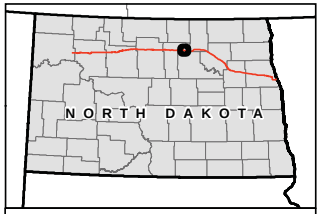
Avoidance Areas

Page 30 of 61
Pierce County

ENBRIDGE

Rev. D 12/16/2013





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

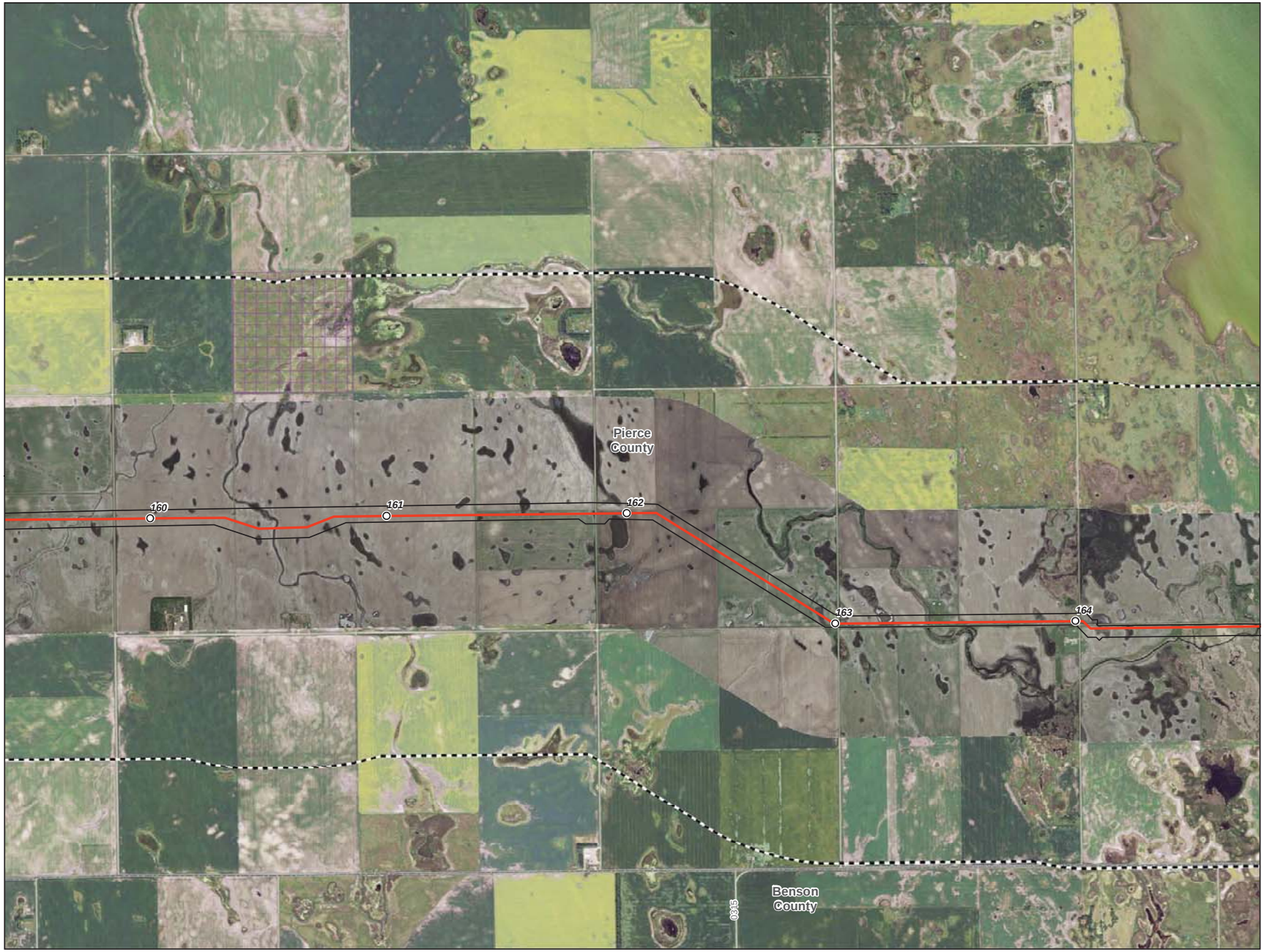
Avoidance Areas

Pierce County

ENBRIDGE

Rev. D

1/14/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

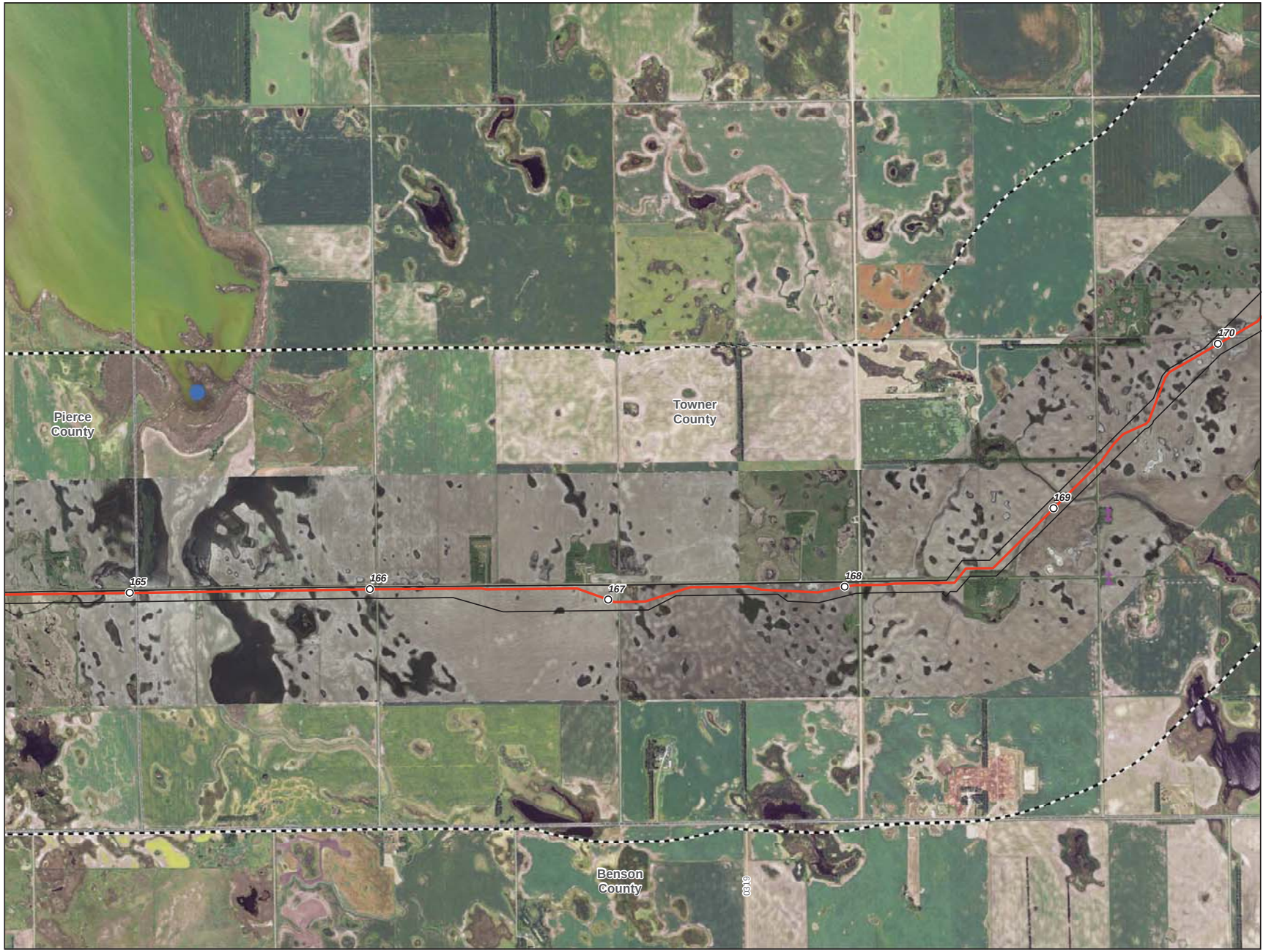
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 32 of 61
Pierce County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

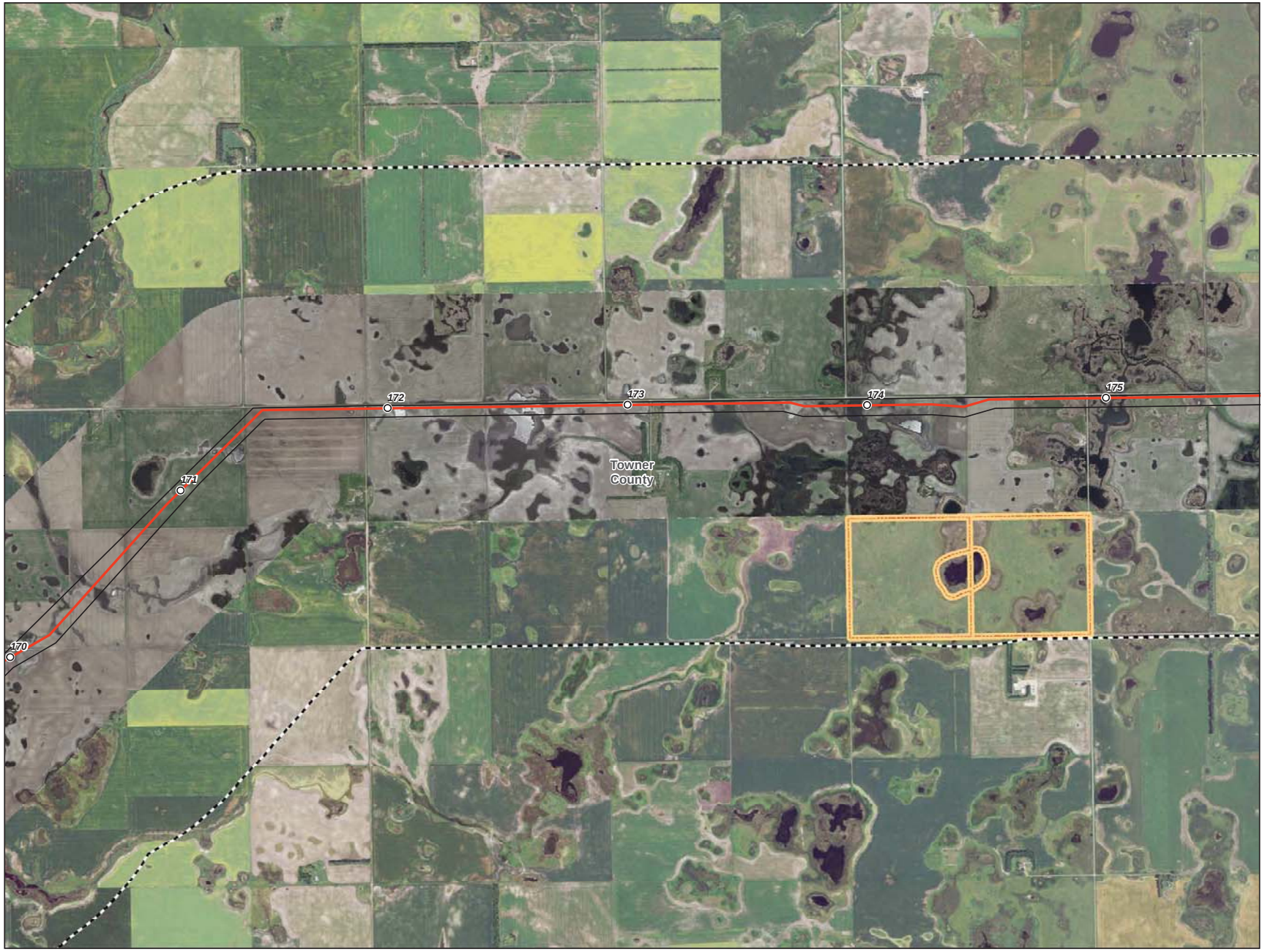
Avoidance Areas

Pierce County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

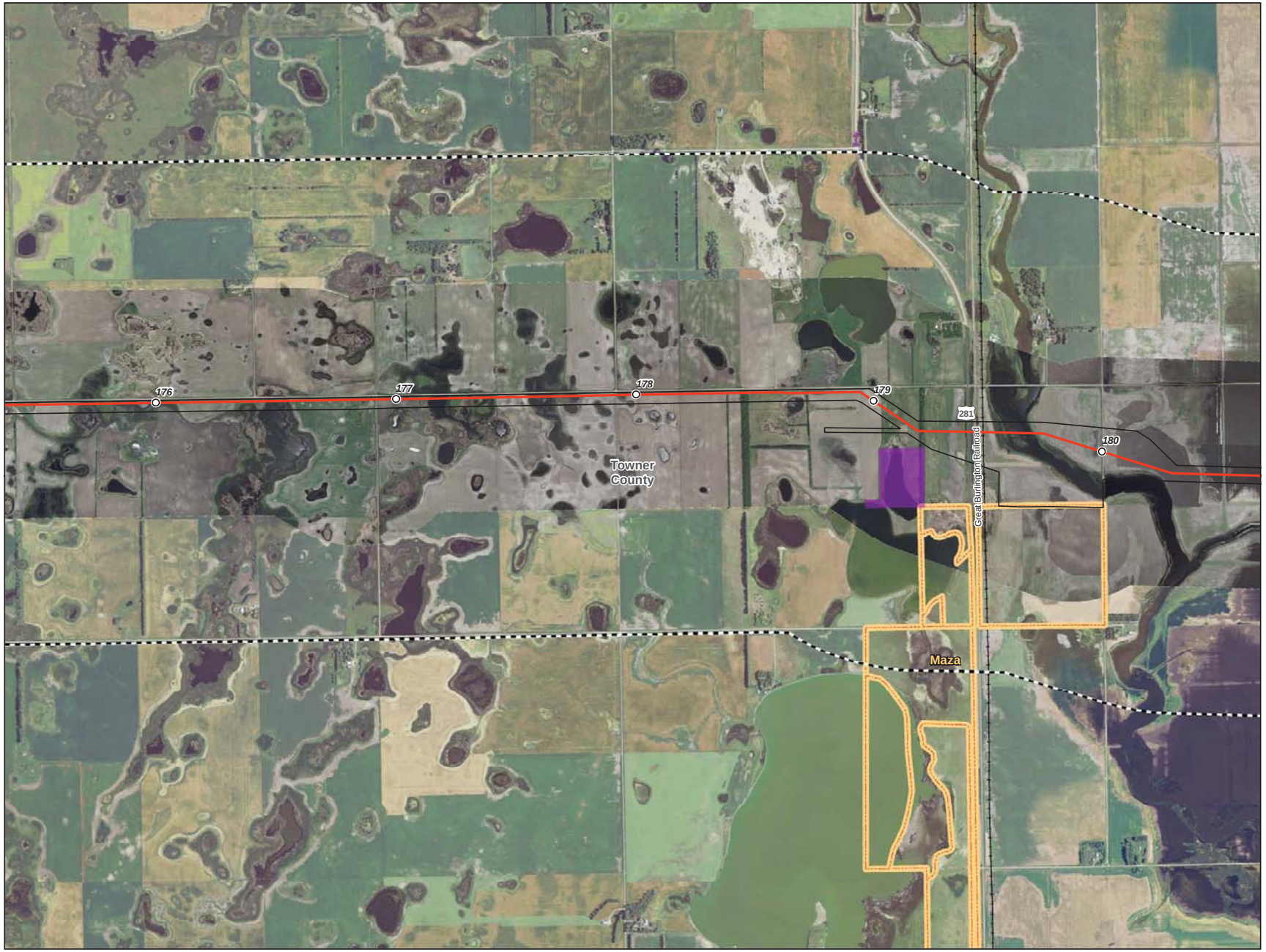
Avoidance Areas

Page 34 of 61

Towner County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

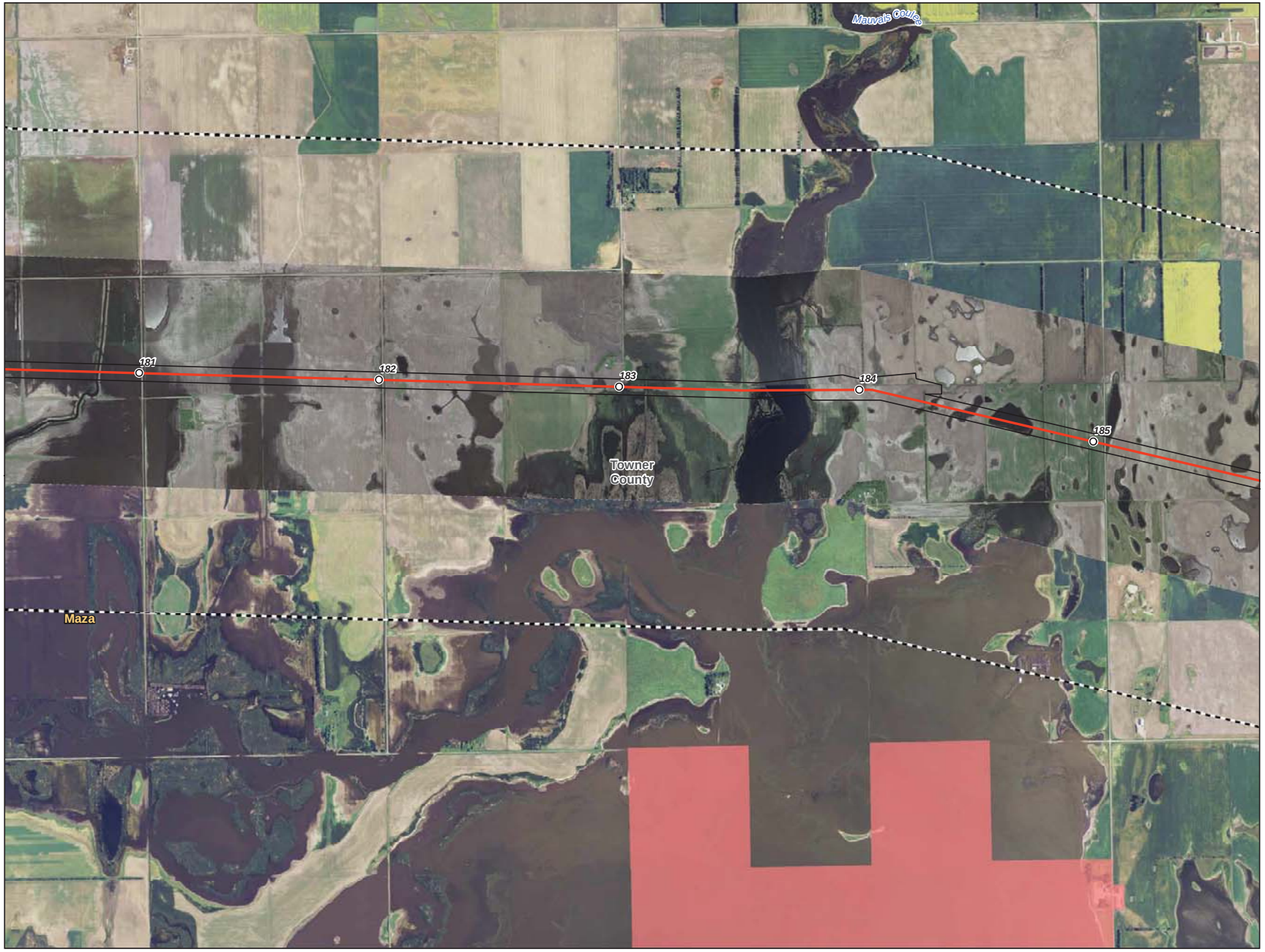
Avoidance Areas

Towner County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Towner County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

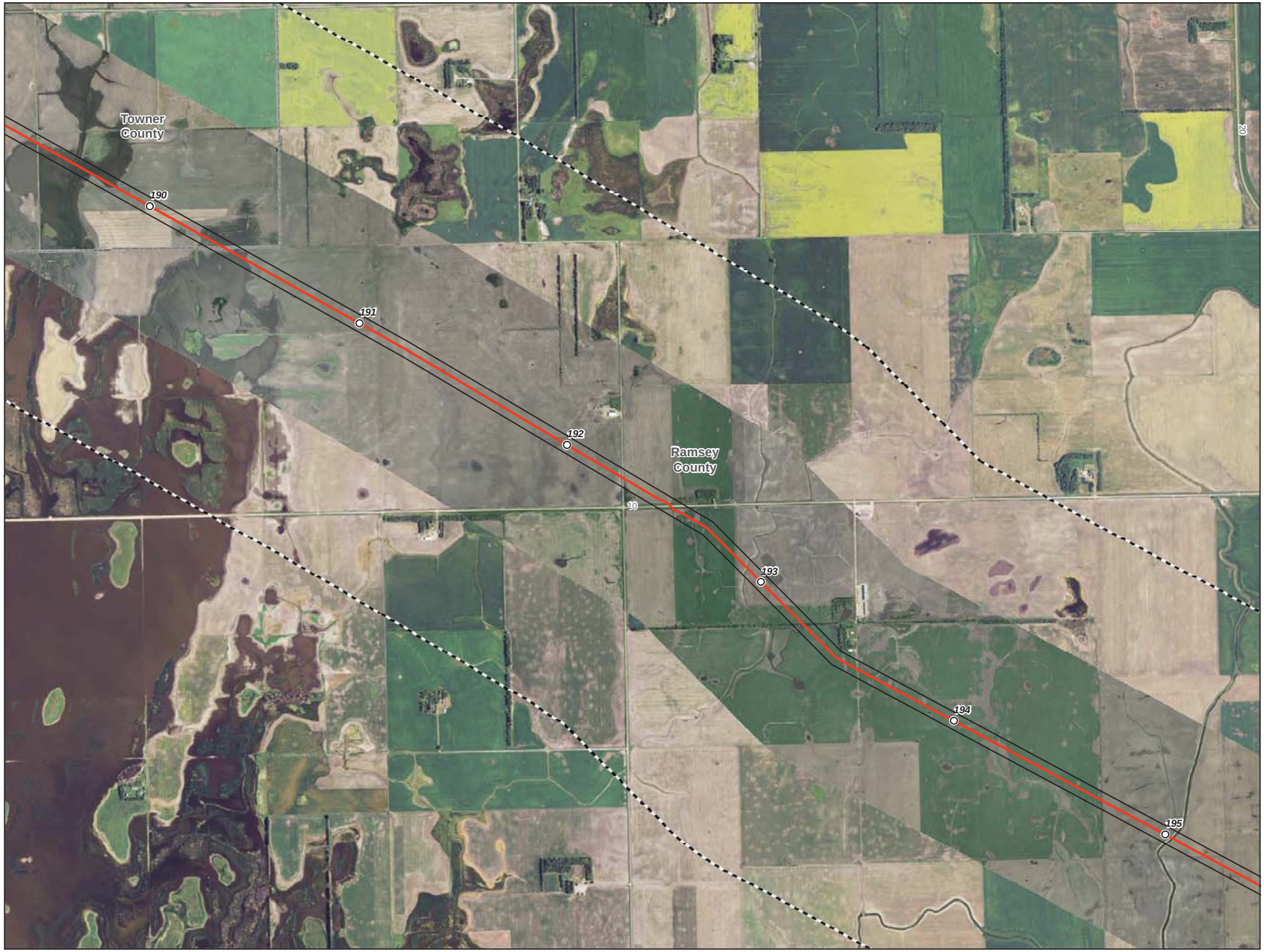
Avoidance Areas

Towner County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Ramsey County

ENBRIDGE

Rev. D

12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Ramsey County

ENBRIDGE

Rev. D

12/16/2013

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Ramsey County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 41 of 61
Ramsey County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

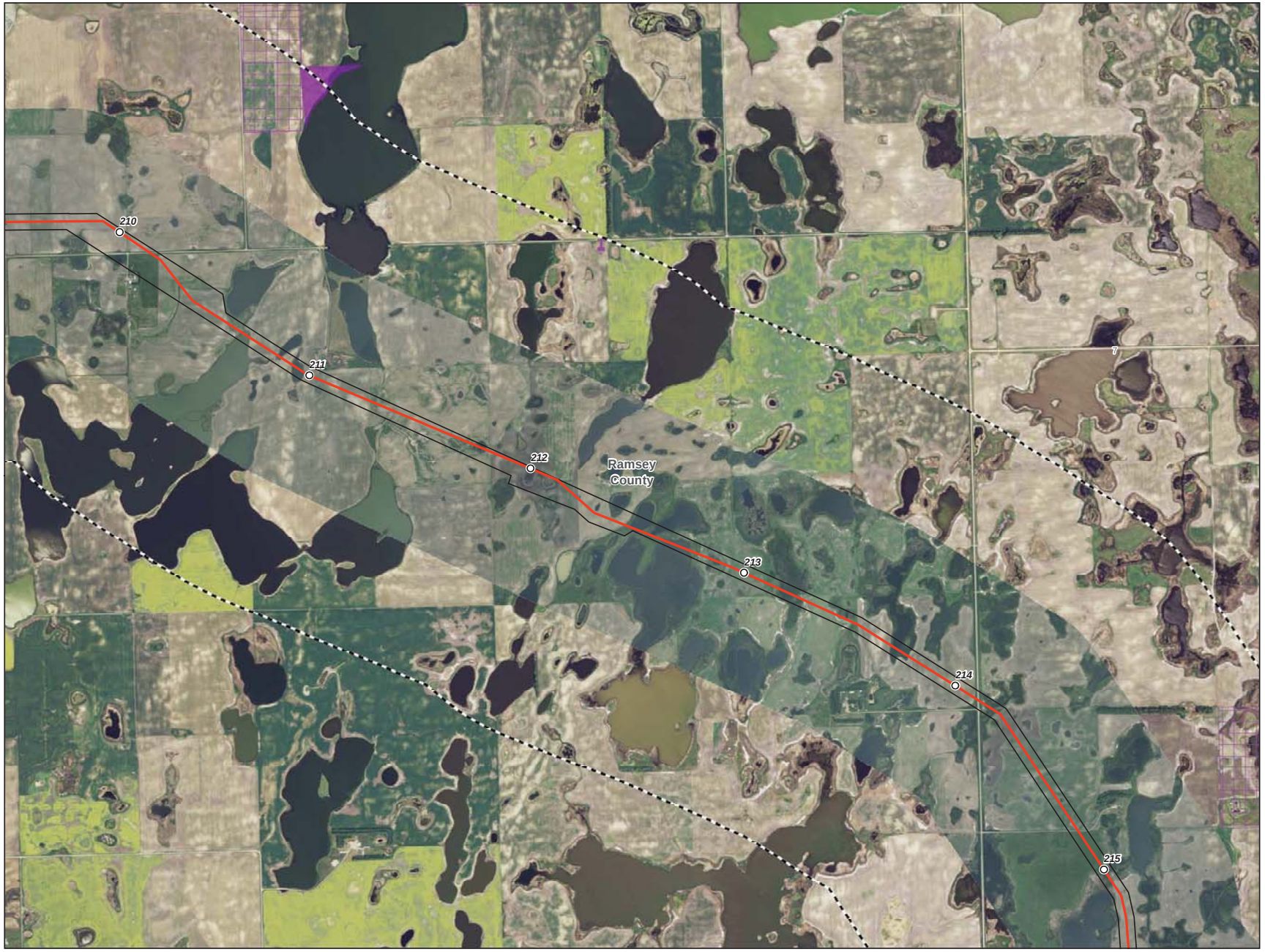
Avoidance Areas

Ramsey County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

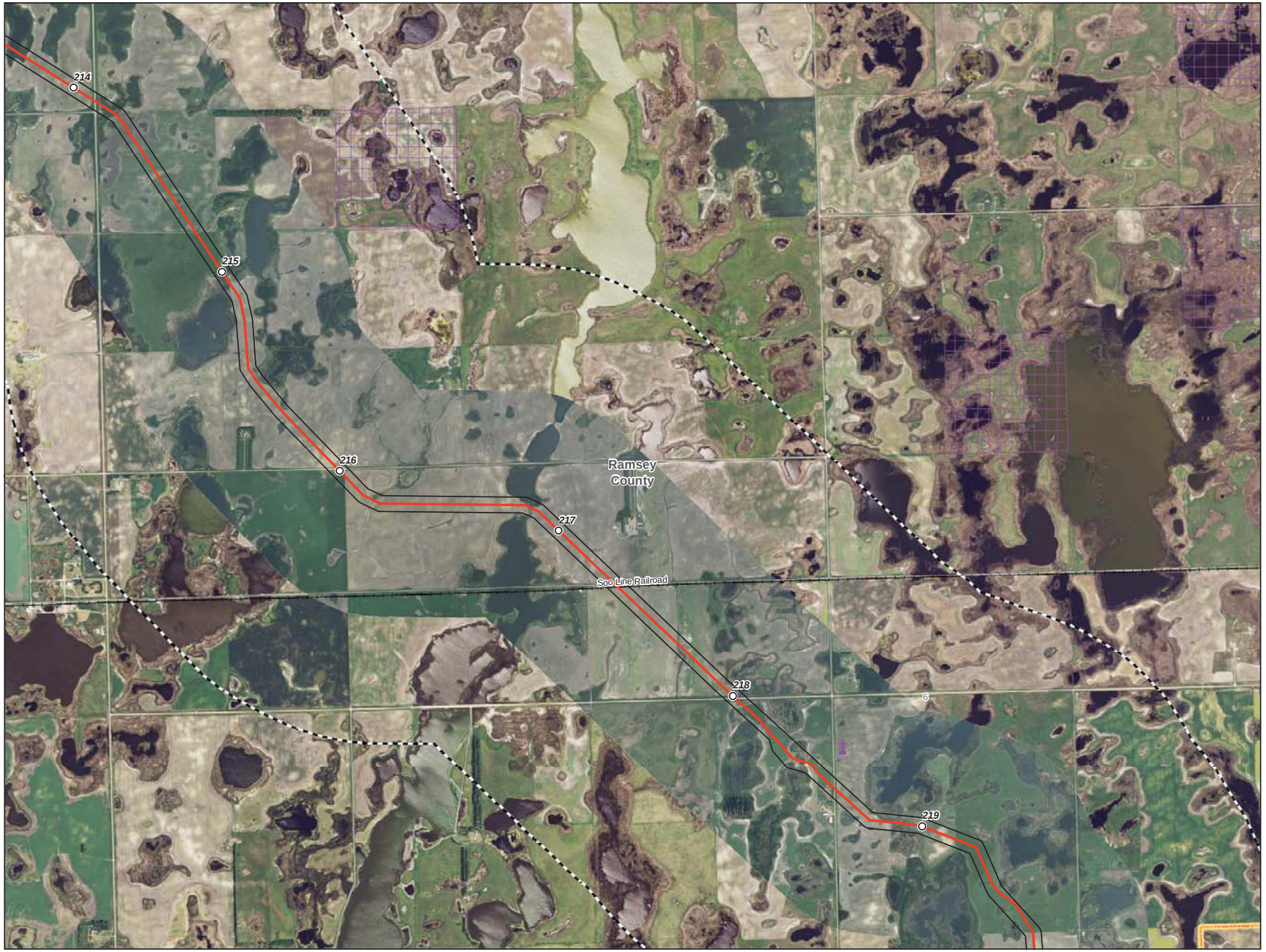
Avoidance Areas

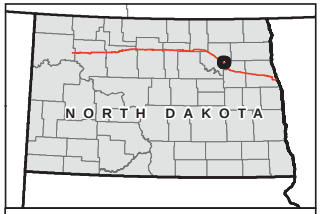
Ramsey County

ENBRIDGE

Rev. D

12/16/2013





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

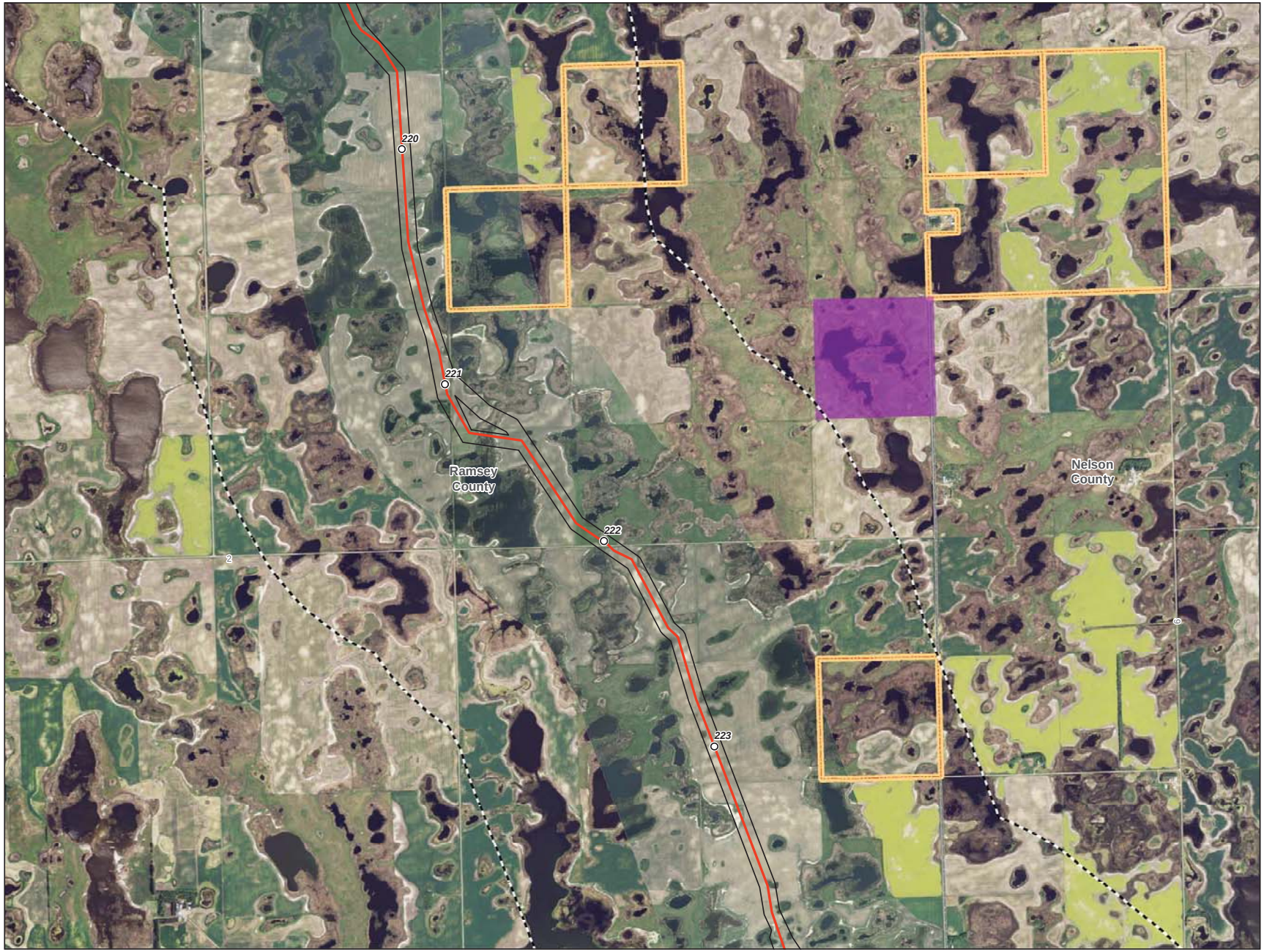
Avoidance Areas

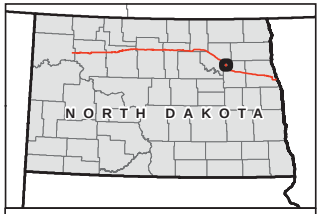
Ramsey County

ENBRIDGE

Rev. D

12/16/2013





- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

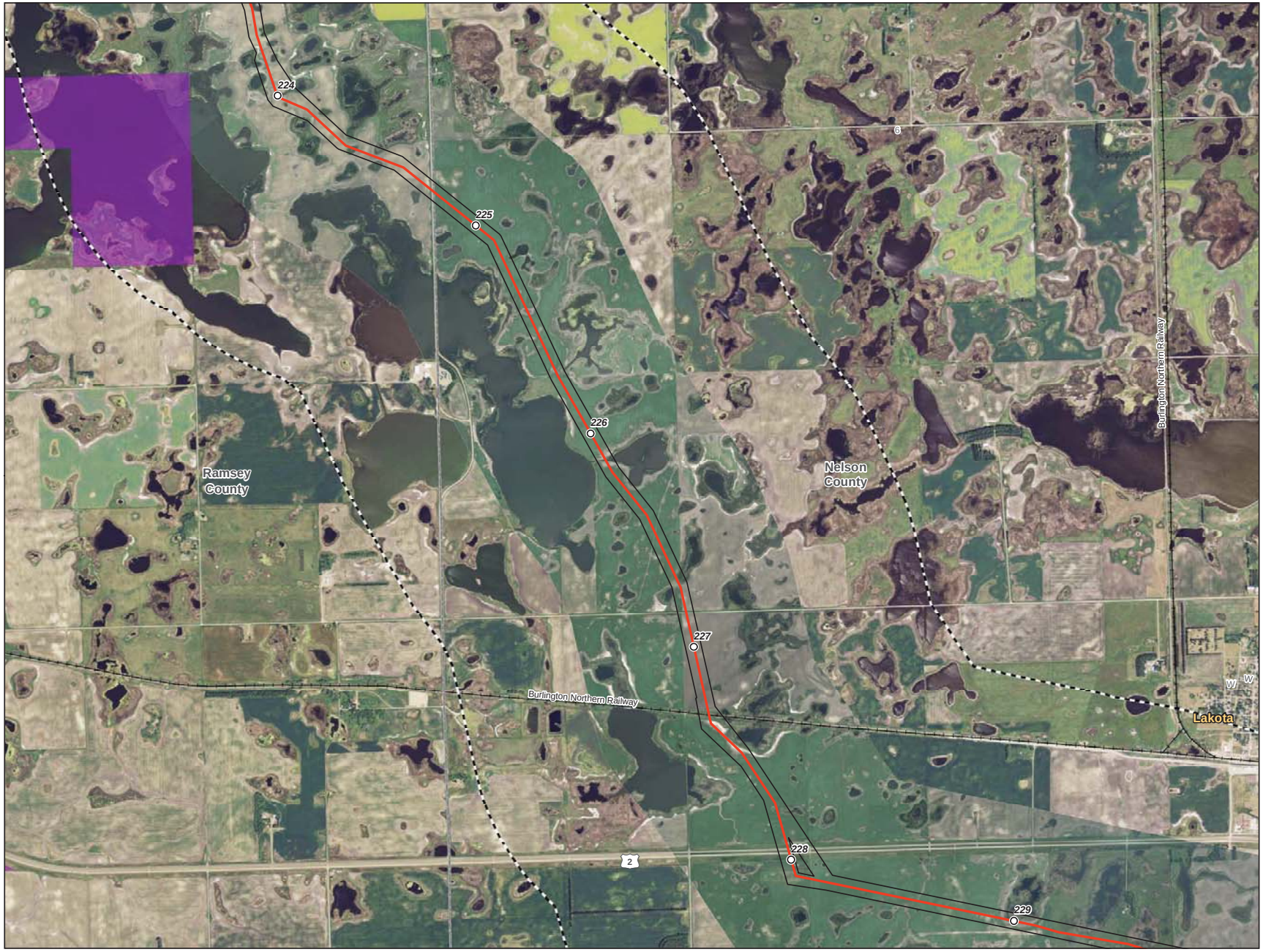
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

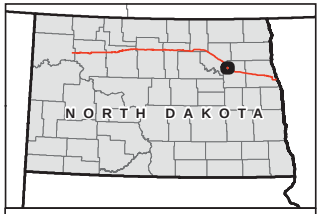
Avoidance Areas

Page 45 of 61
Ramsey County

ENBRIDGE

Rev. D 12/16/2013





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 46 of 61
Ramsey County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

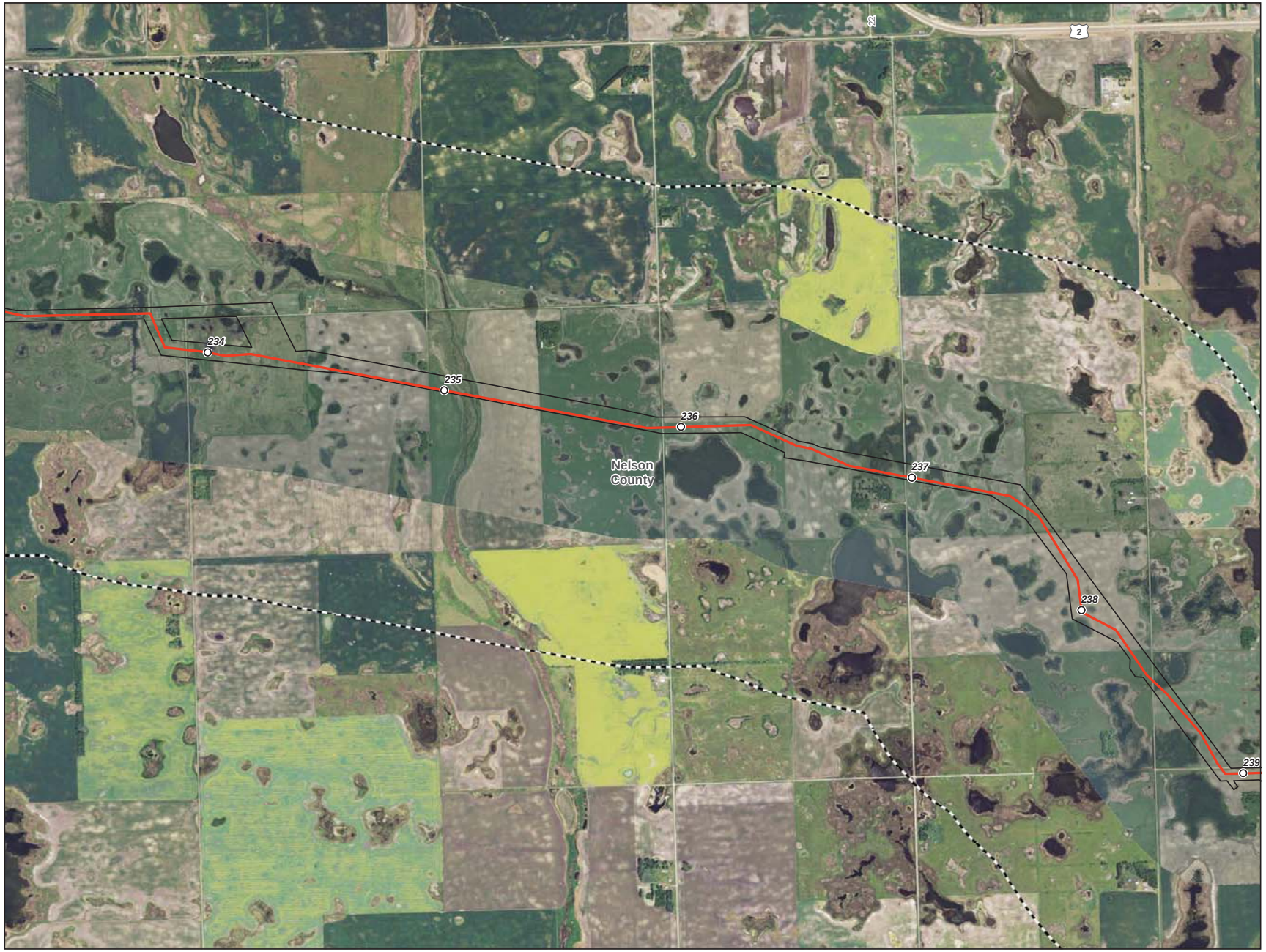
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Nelson County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

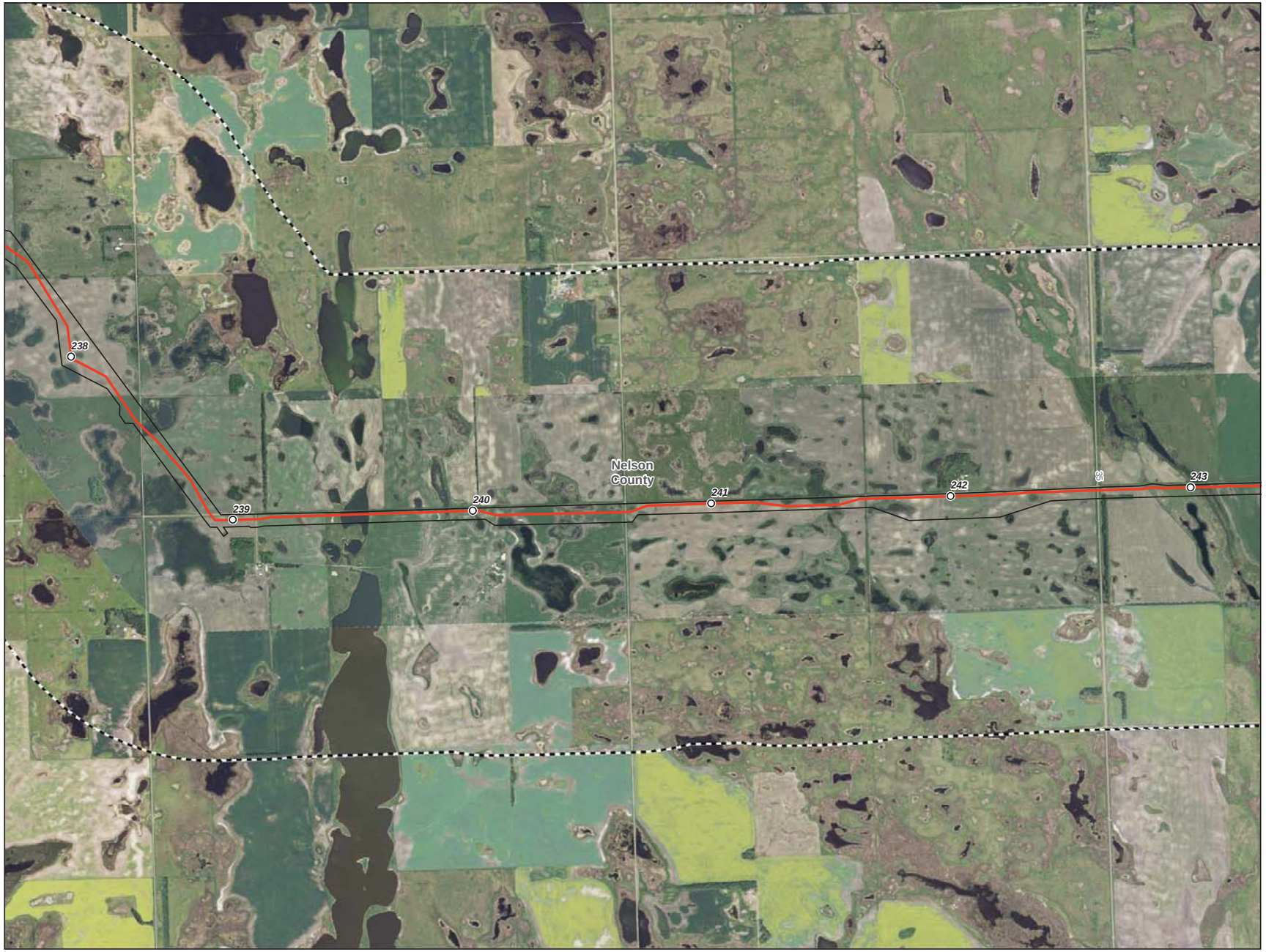
Avoidance Areas

Page 48 of 61

Nelson County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

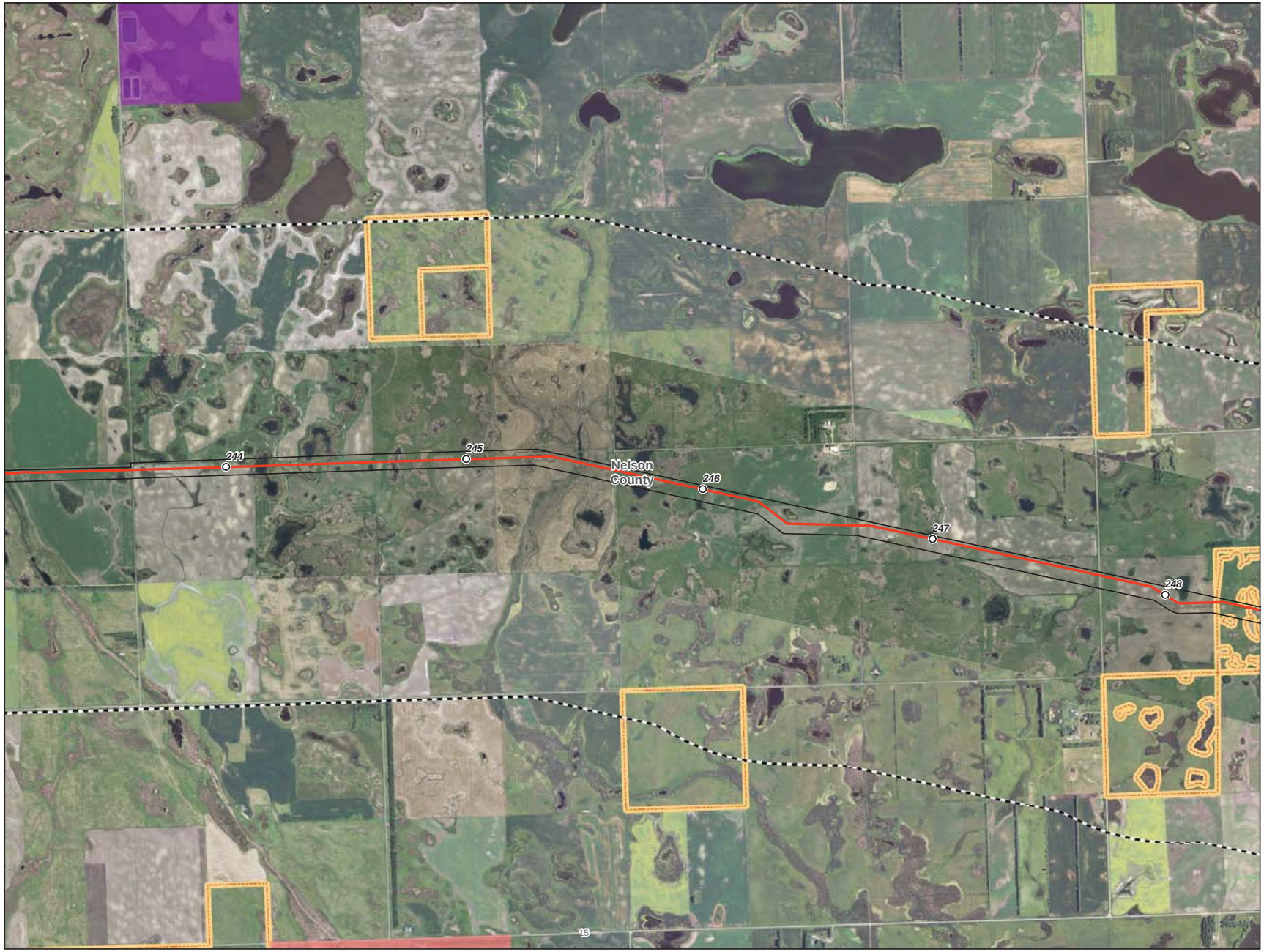
Sandpiper Pipeline Project

Avoidance Areas

Nelson County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

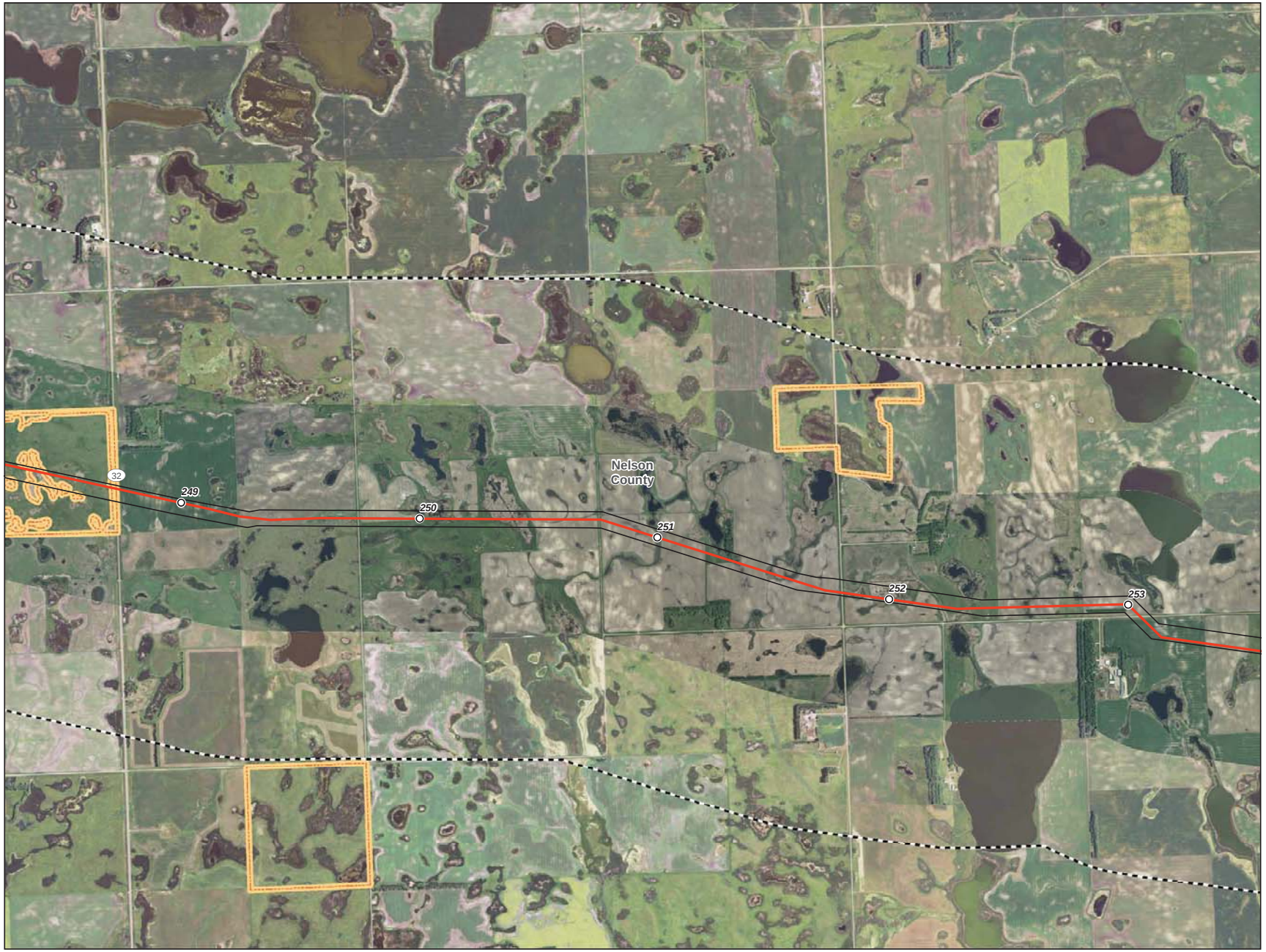
Avoidance Areas

Nelson County

ENBRIDGE

Rev. D

12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

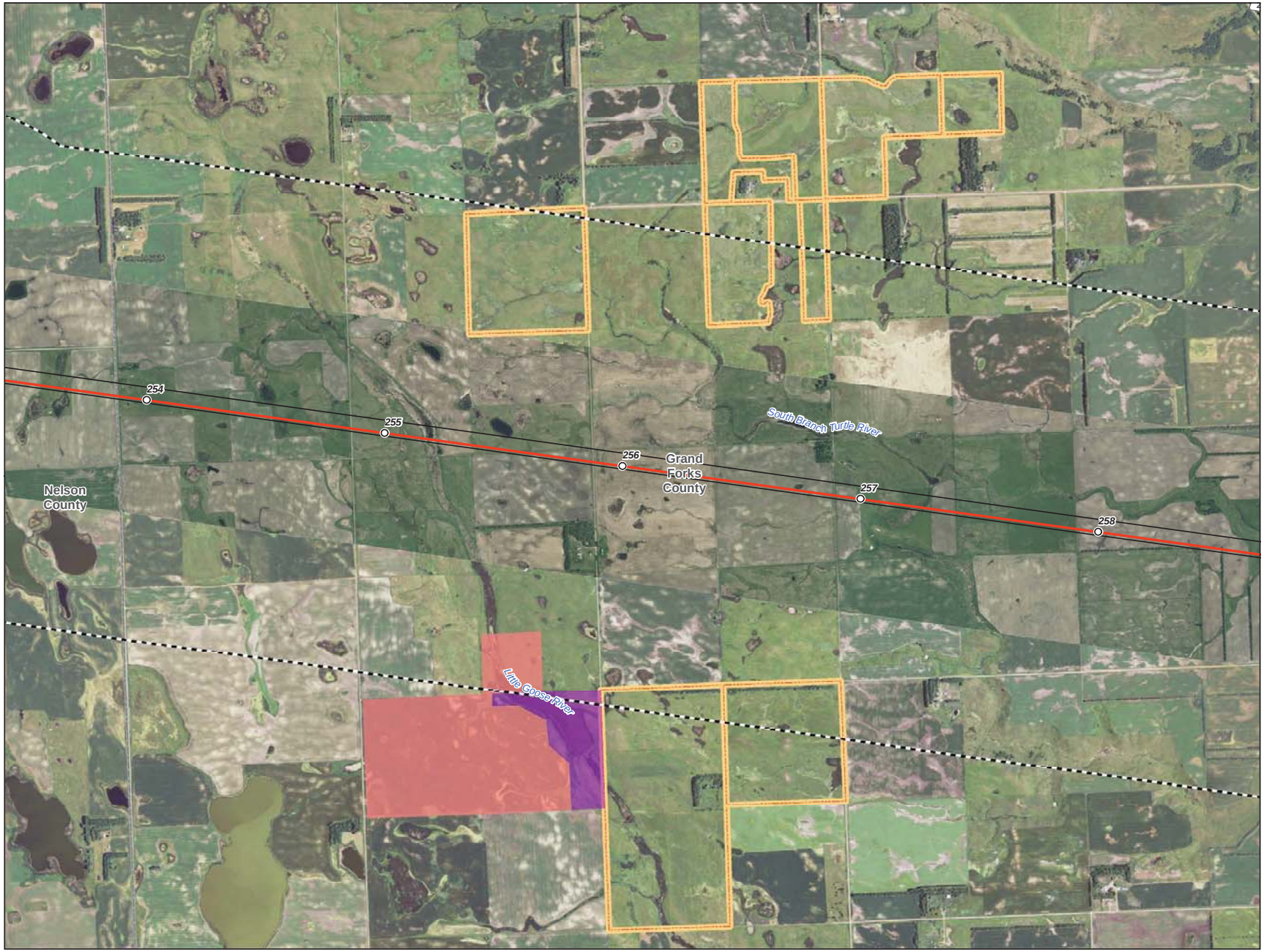
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 51 of 61
Nelson County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

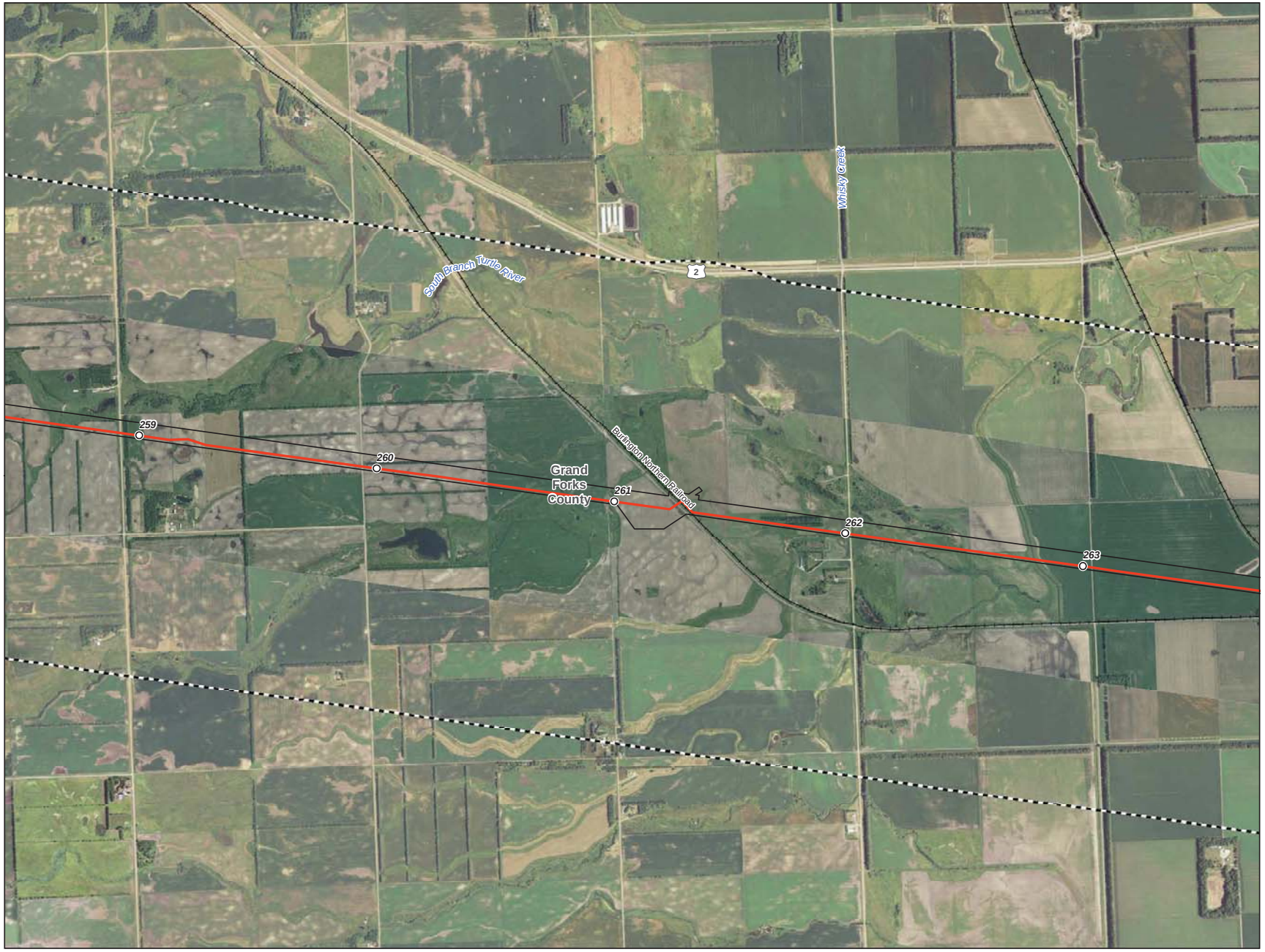
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Page 52 of 61
Grand Forks County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Grand Forks County

ENBRIDGE

Rev. D

12/16/2013

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

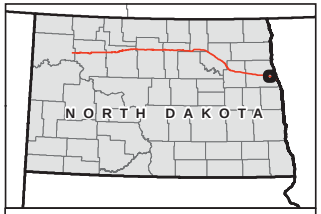
Avoidance Areas

Page 57 of 61

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

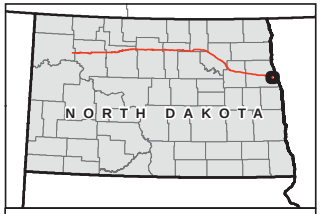
Sandpiper Pipeline Project

Avoidance Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

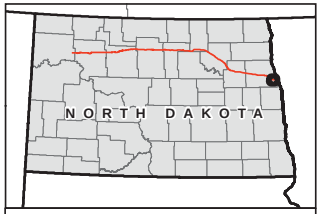
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

Avoidance Areas

Grand Forks County

ENBRIDGE

Rev. D 12/16/2013



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

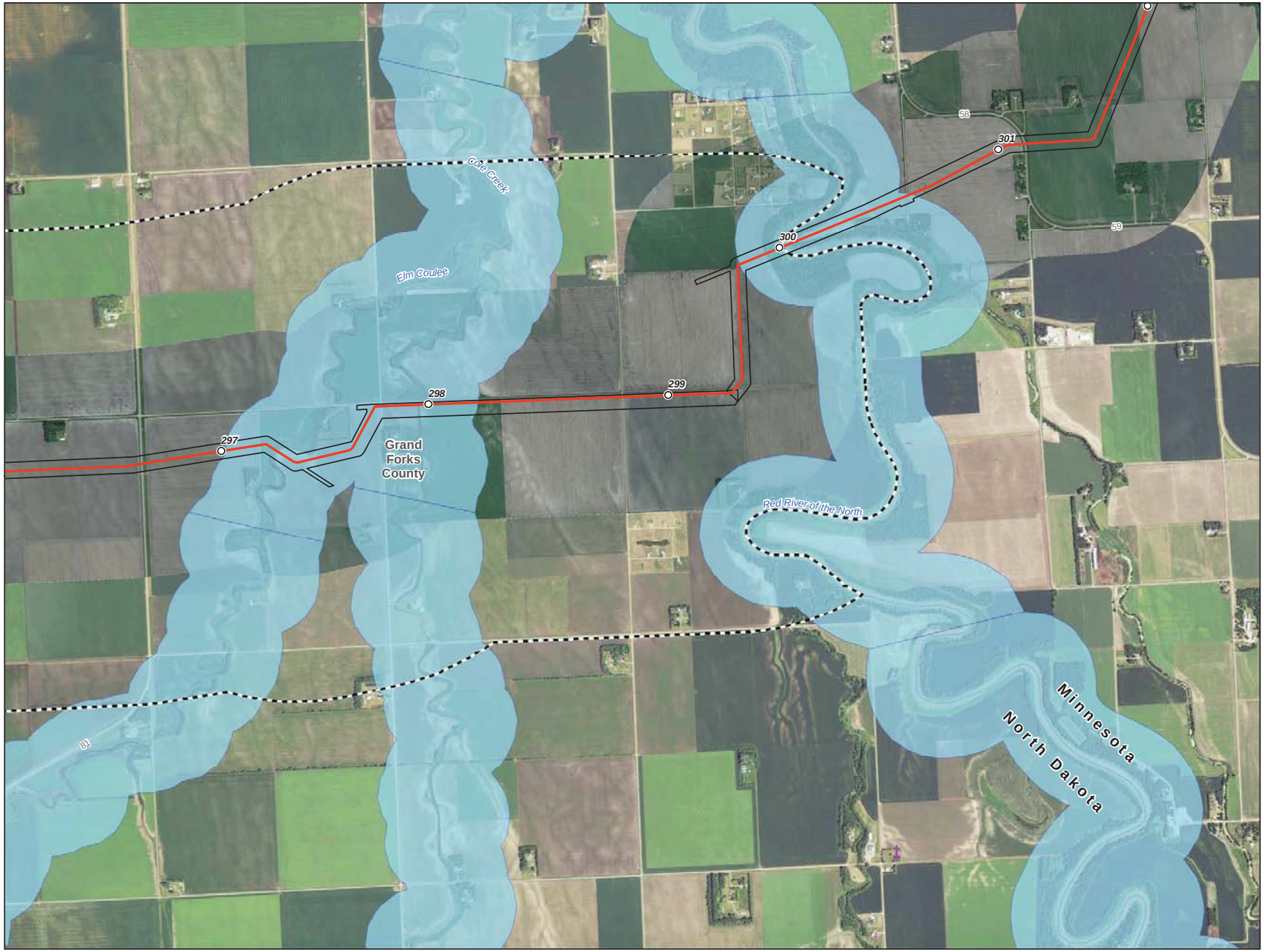
Page 60 of 61

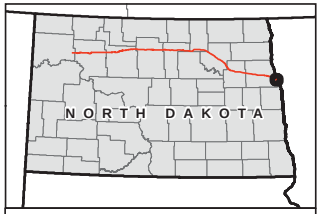
Grand Forks County

ENBRIDGE

Rev. D

12/16/2013





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- School
- Reservoir
- Municipal Water Supply
- Cemetery
- NDGF - Wildlife Management Area
- USFWS - National Wildlife Refuge
- USFWS - Waterfowl Production Area
- NDGF - PLOTS Land
- NDDTL - School Trust Land
- Wellhead Community Protection Area
- Wellhead Non-Community Protection Area

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Avoidance Areas

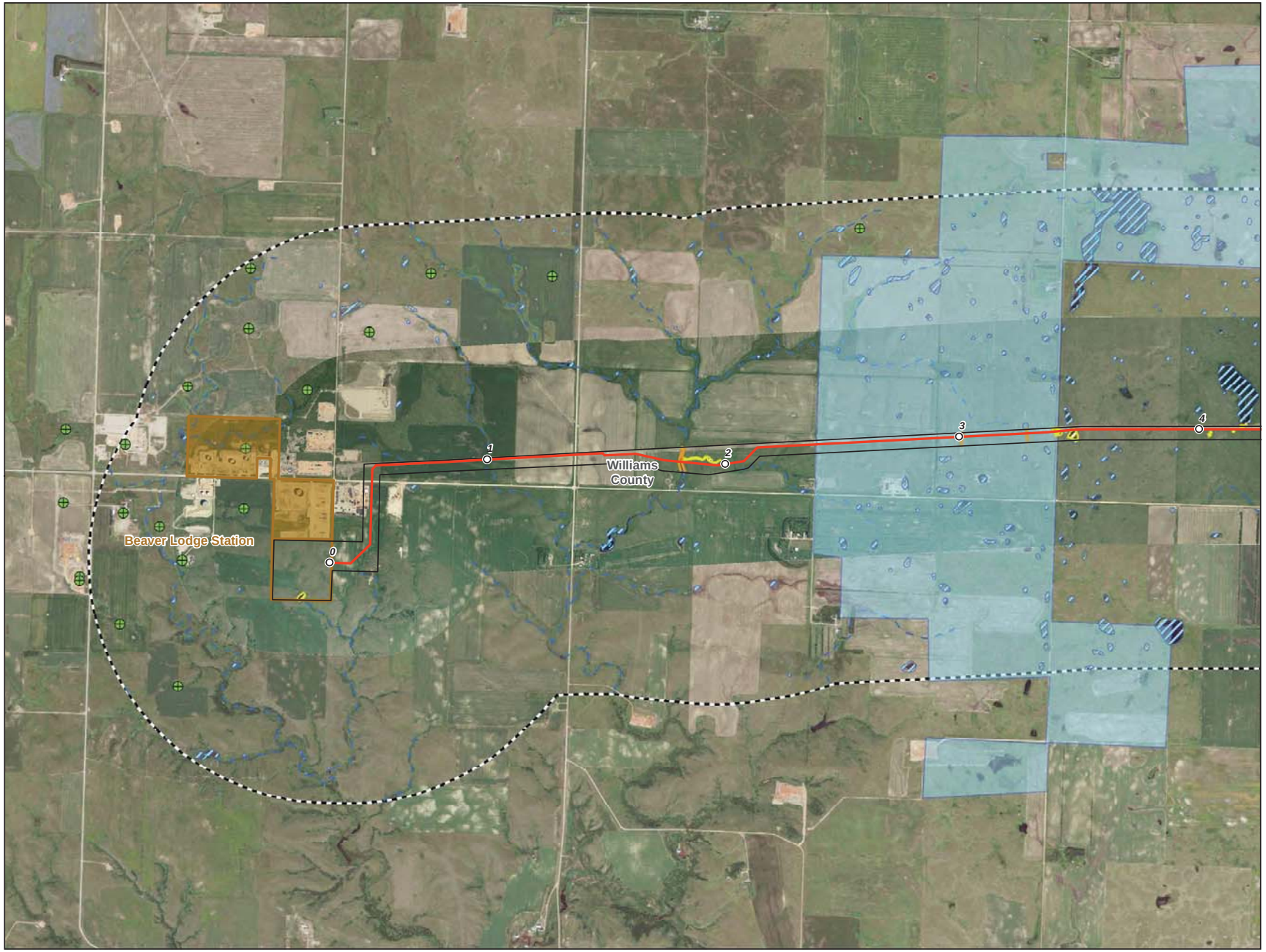
Grand Forks County

ENBRIDGE

Rev. D

12/16/2013

Exhibit I.3



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

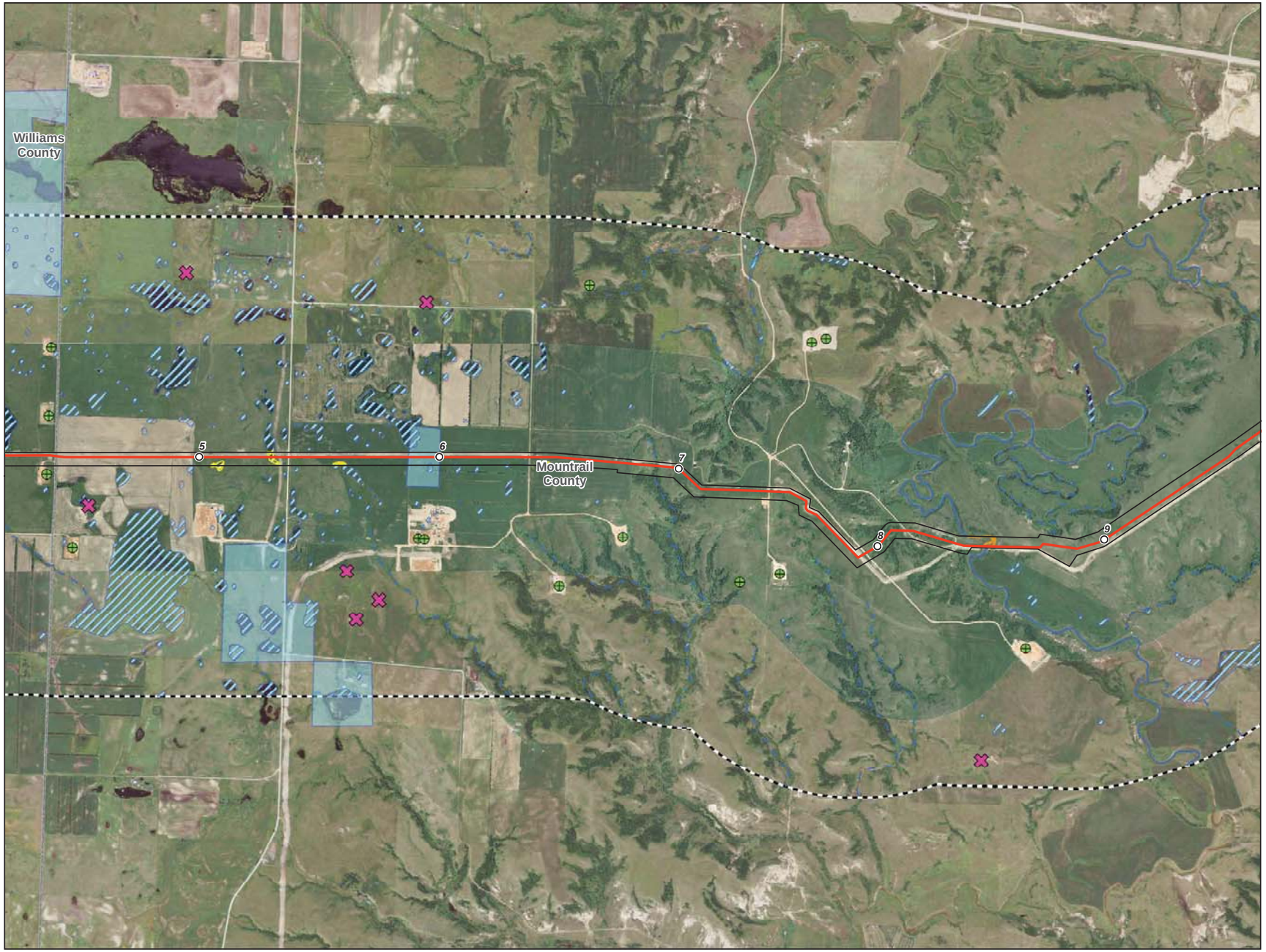
Enbridge Pipelines (North Dakota) LLC
Sandpiper Pipeline Project

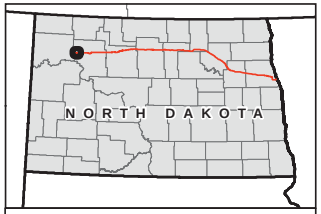
Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Date: 1/20/2014 | Source: ArcMap_Projects\Sandpiper\ArcMXD\2013\DND_PSC\Avoidance_Features_OtherSandpiper_Rev0_MP_Other.mxd





- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

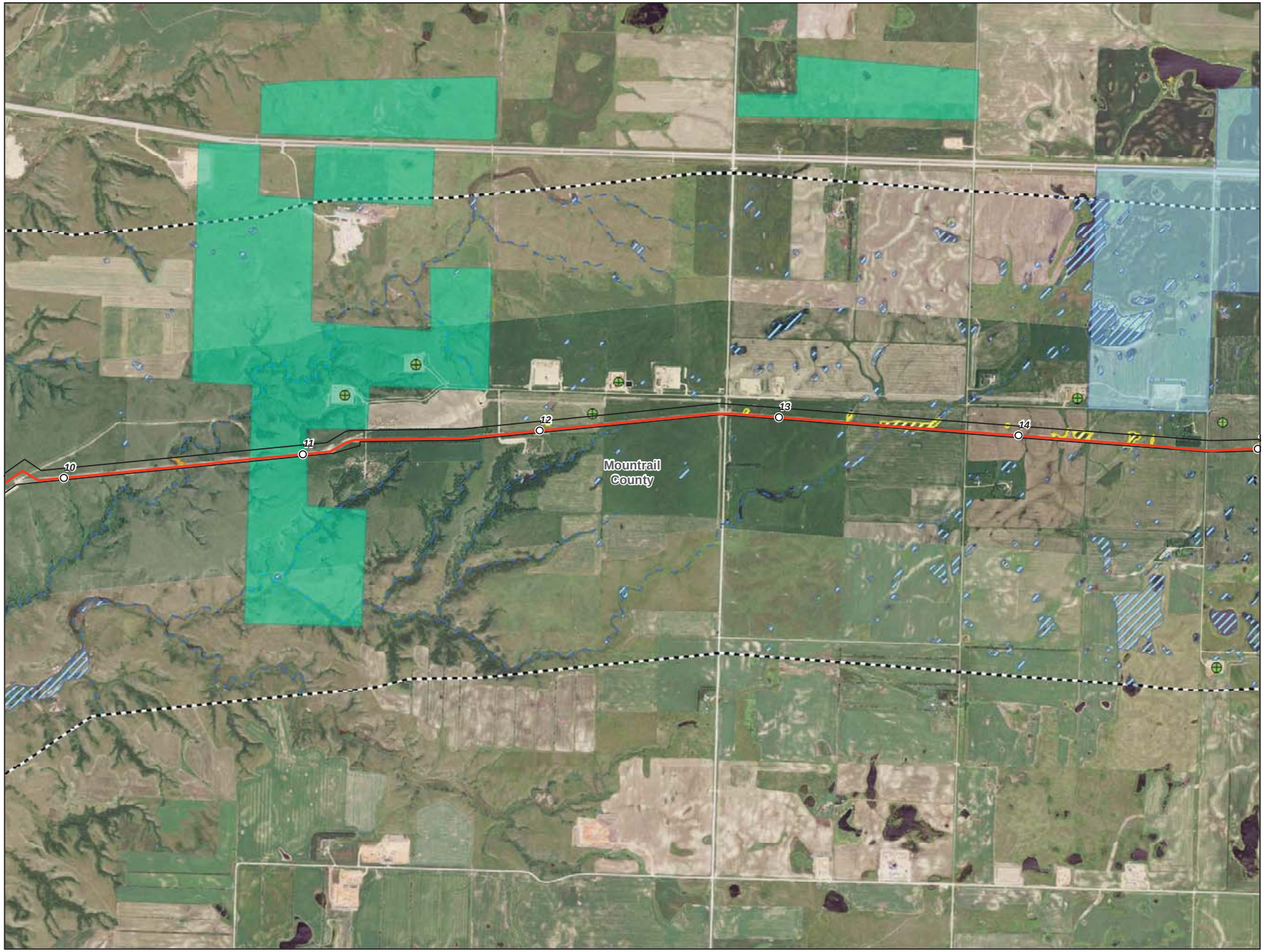
Enbridge Pipelines (North Dakota) LLC

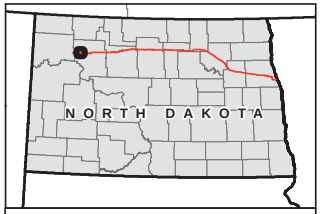
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

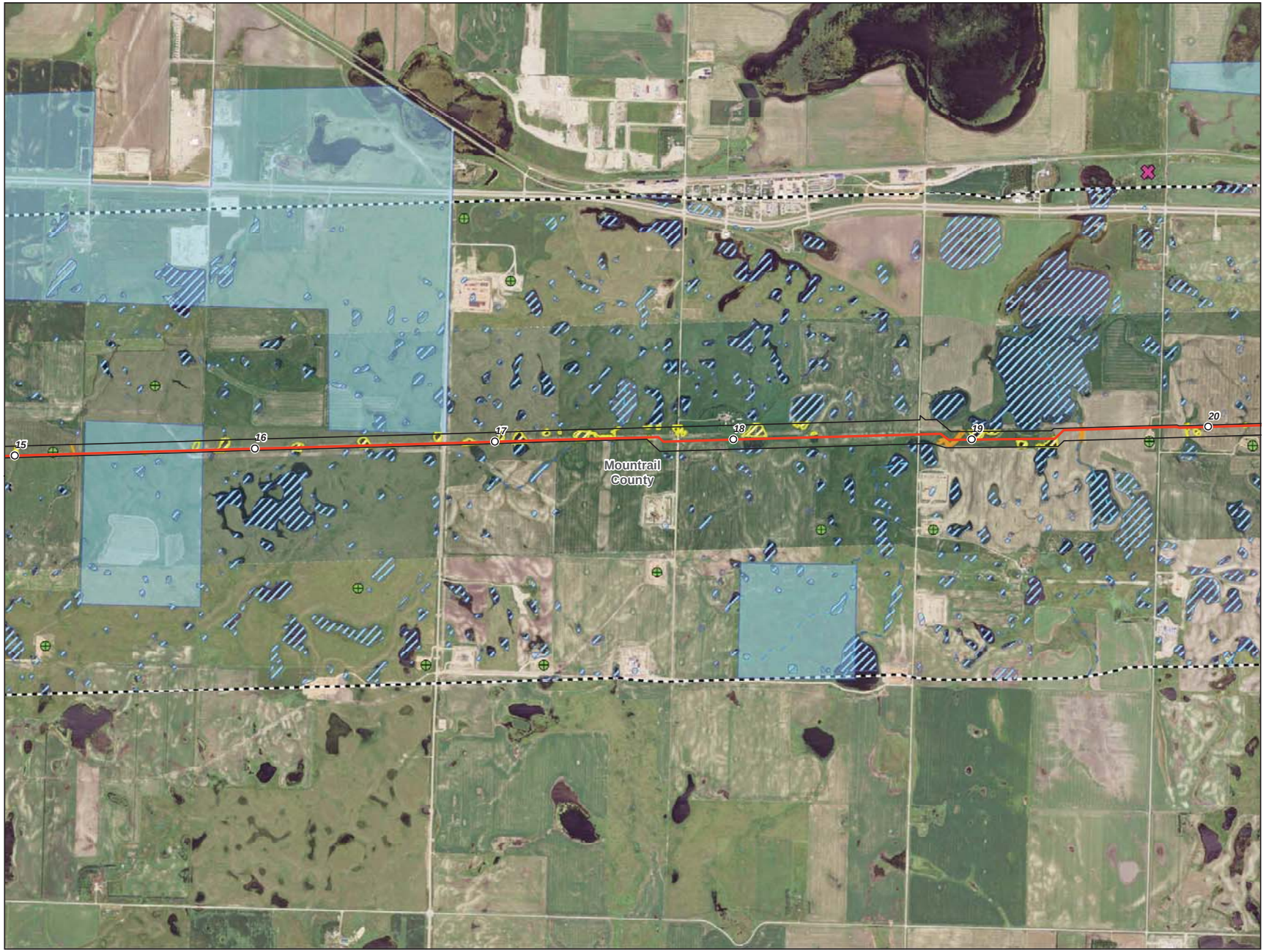
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\DND_PSC\Avoidance_Features_Other\Sandpiper_Rev0_MD_Other.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

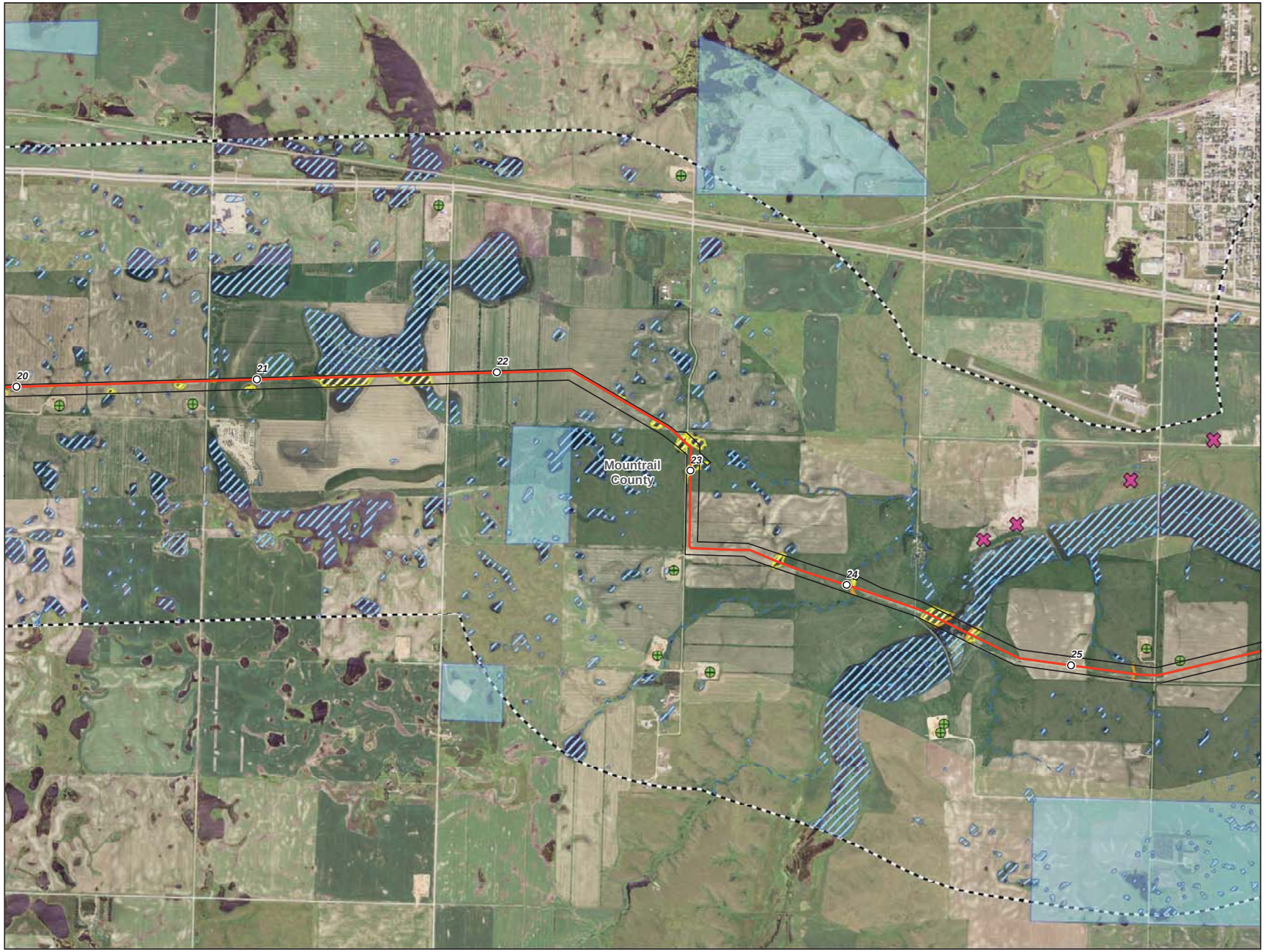
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

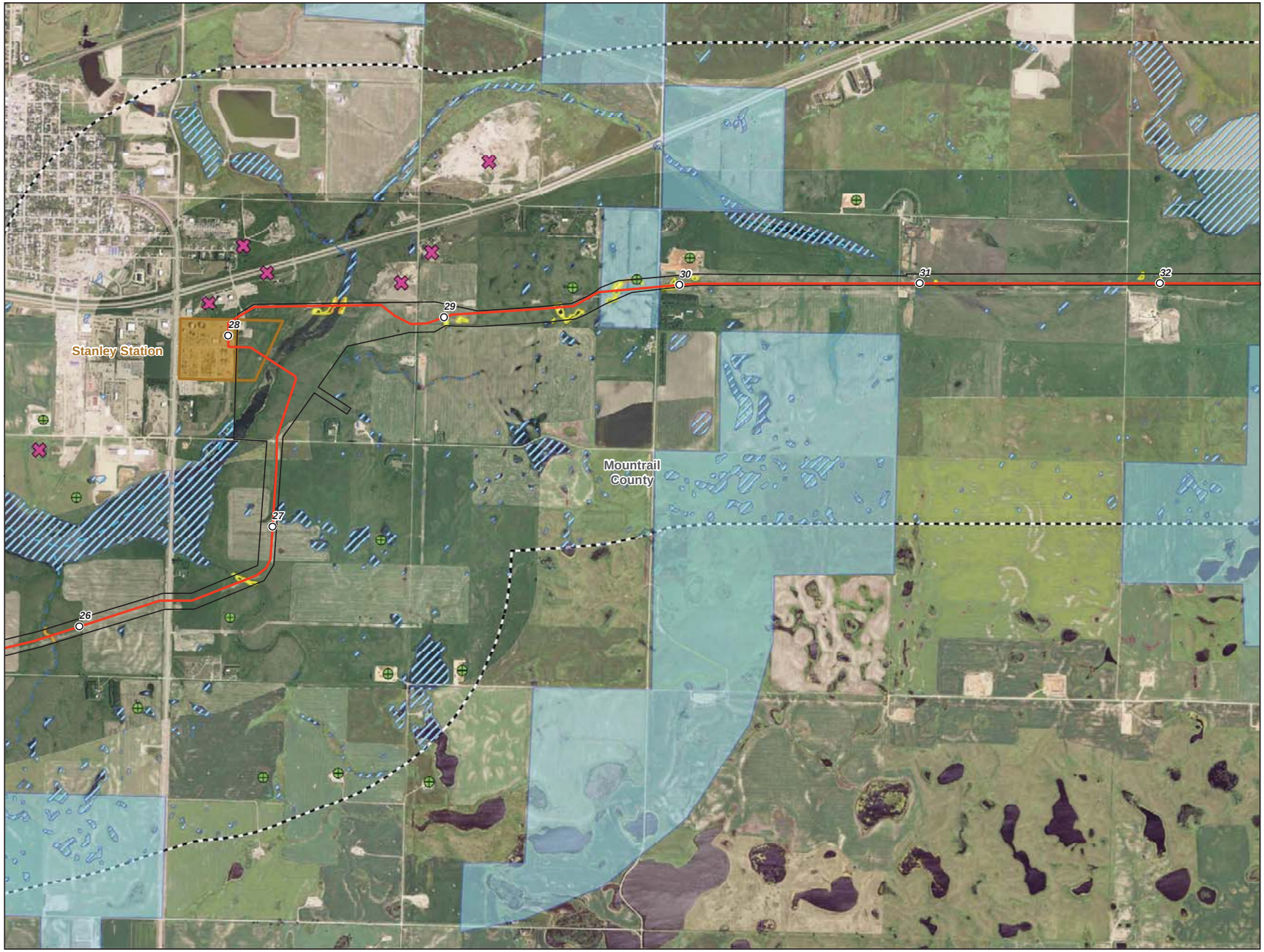
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

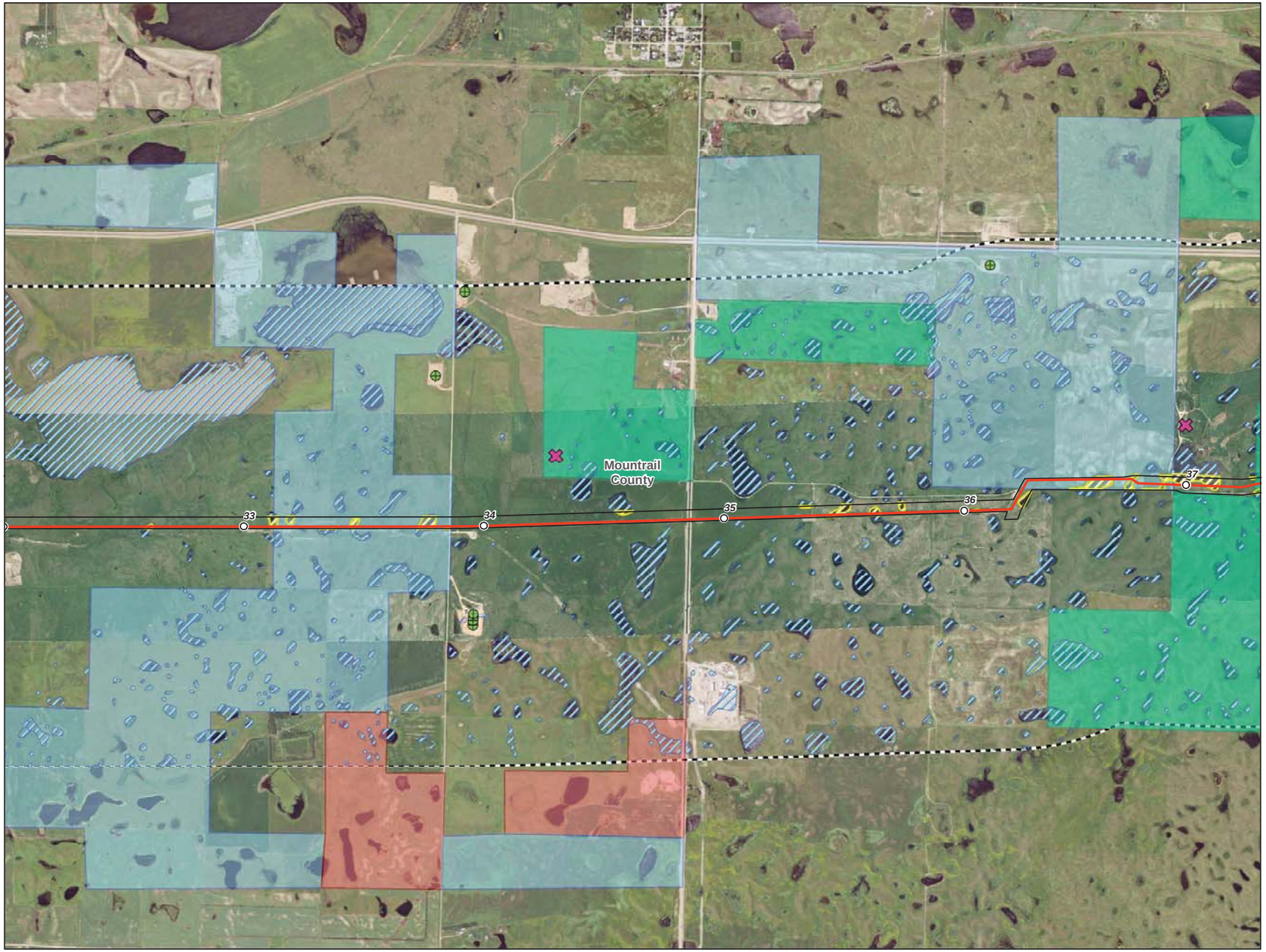
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

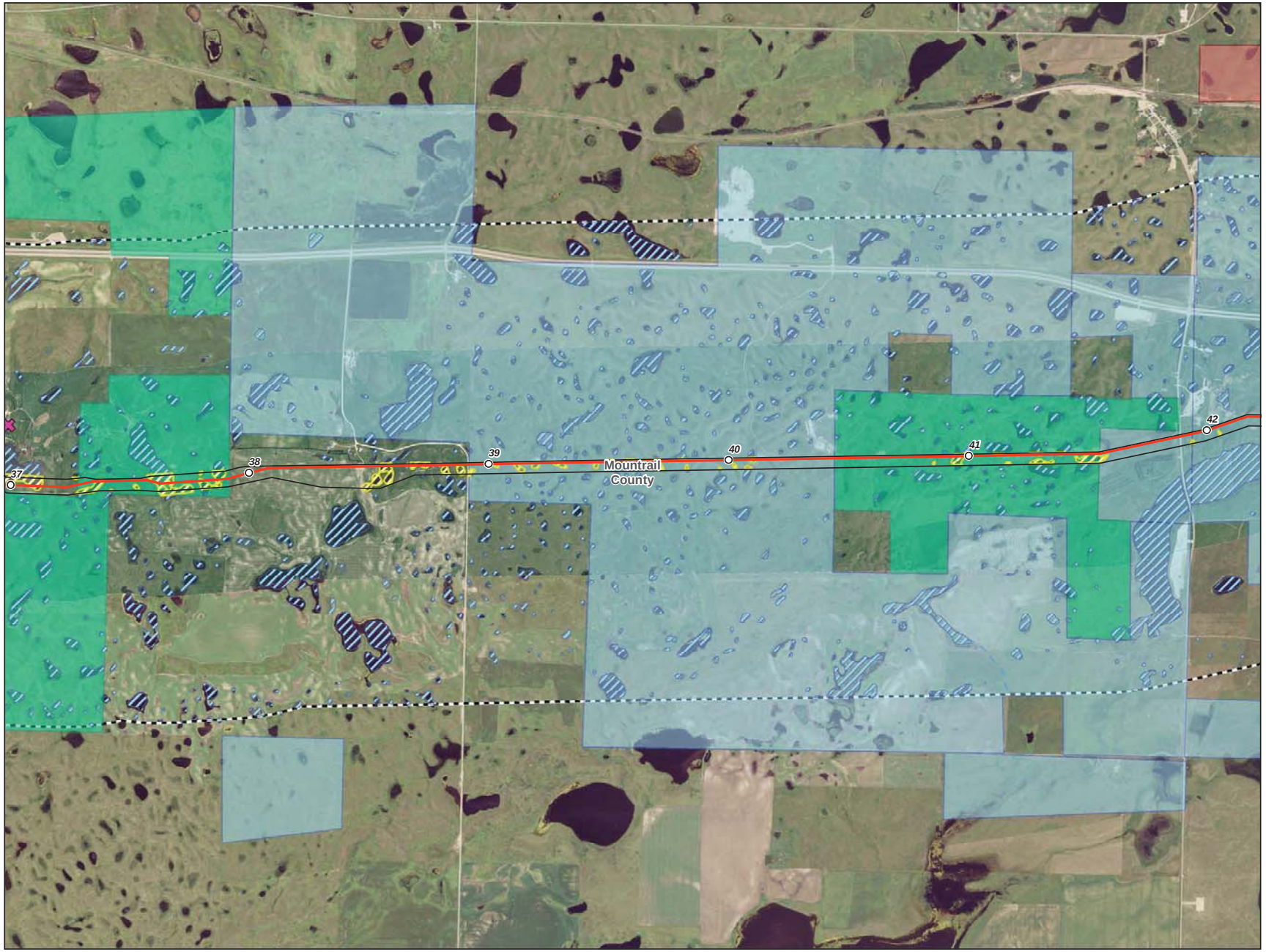
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

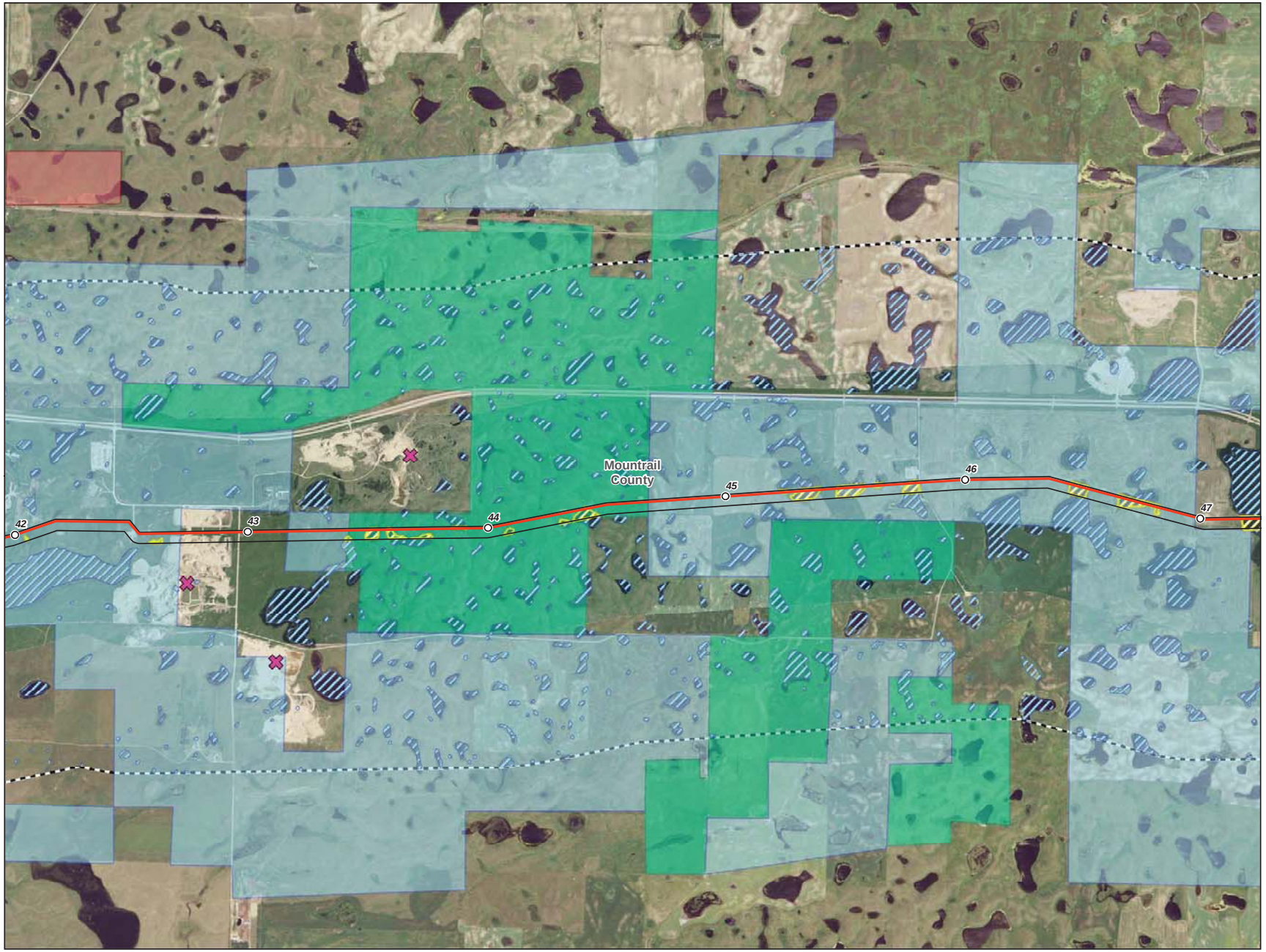
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: Aerial_Mountrail_Sandpiper_Area_2012_HQ_FSA_Wetland_Easement_SiteSandpiper_Rev0_NAD_UTM.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

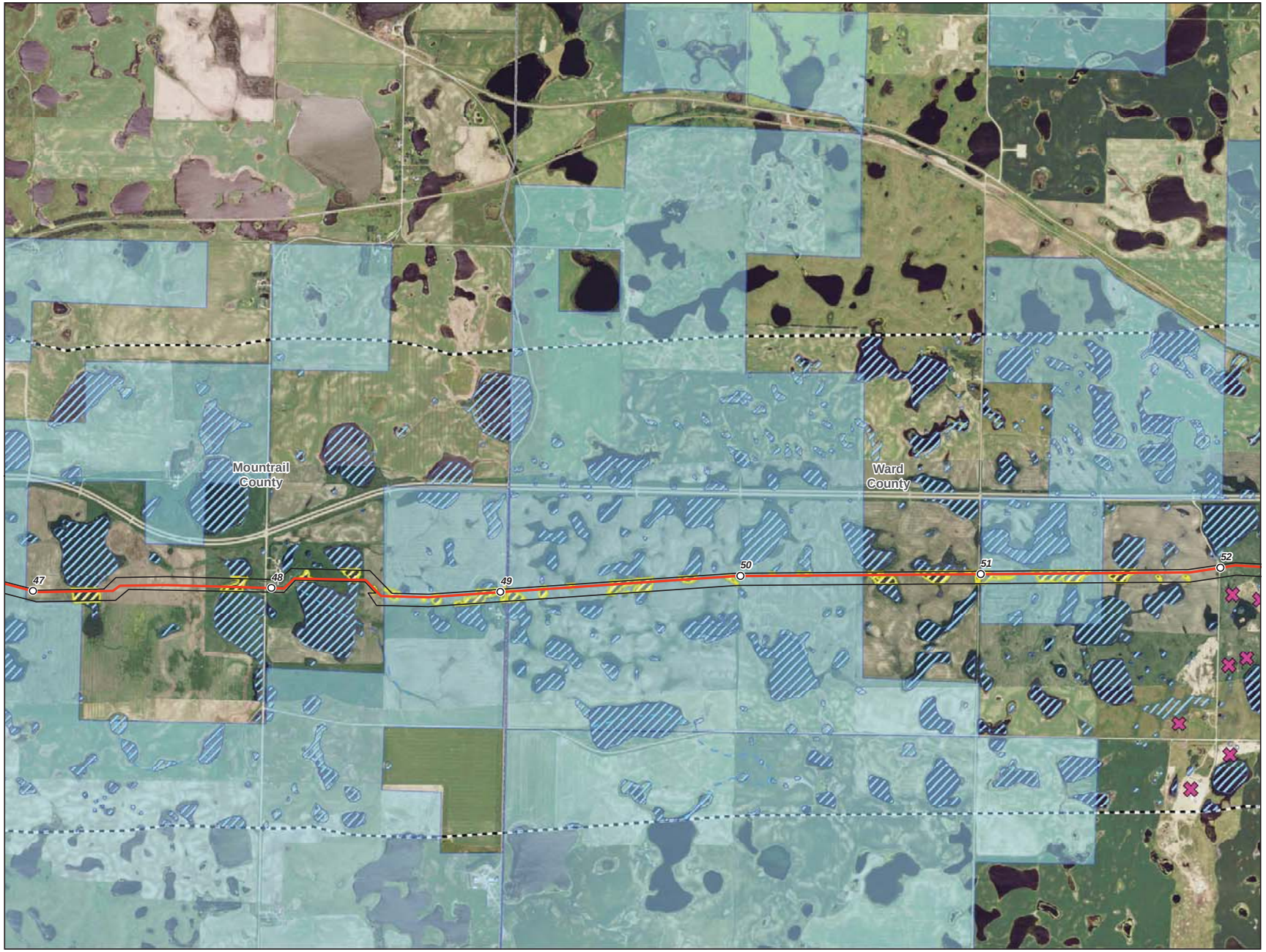
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

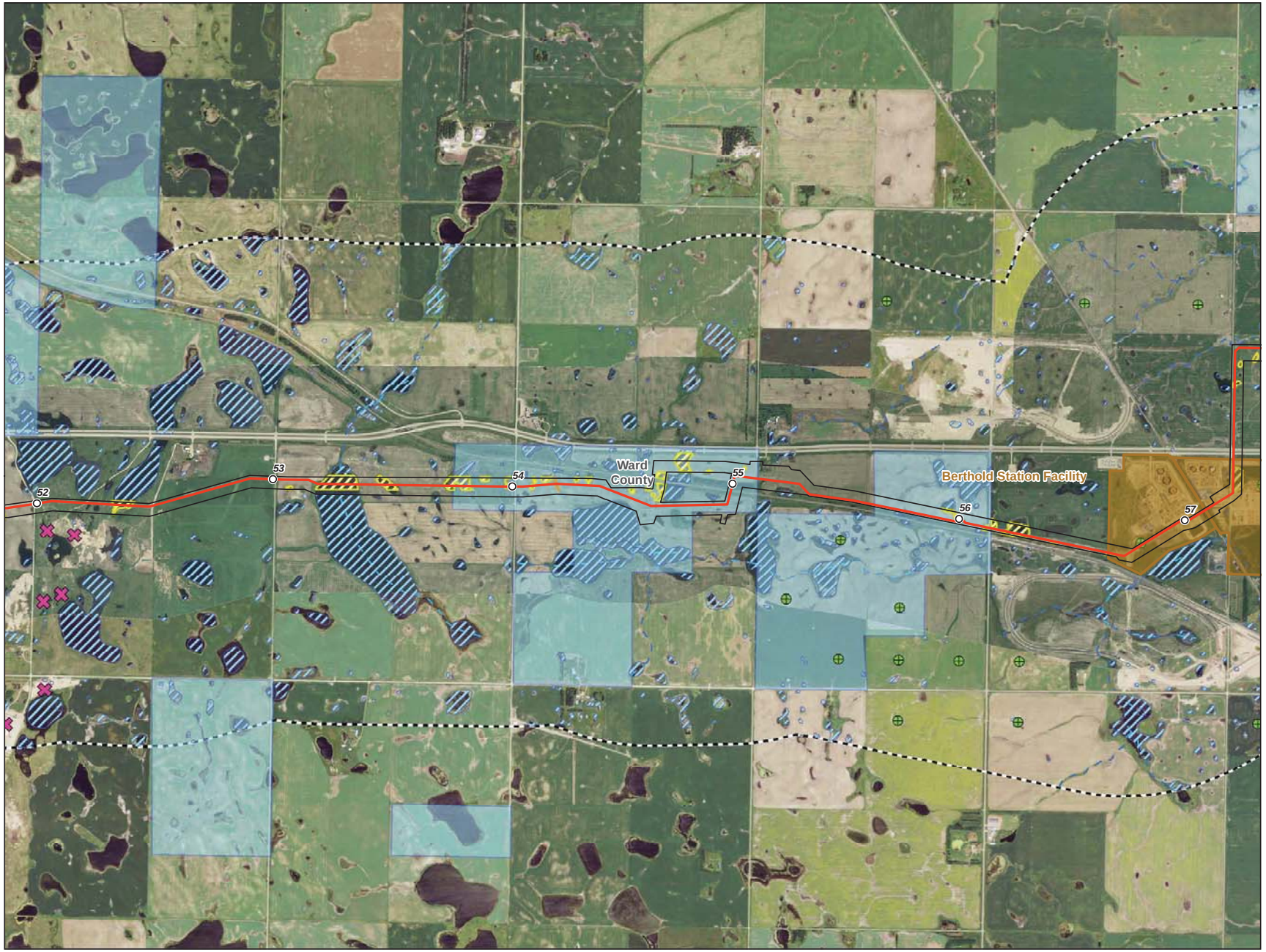
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

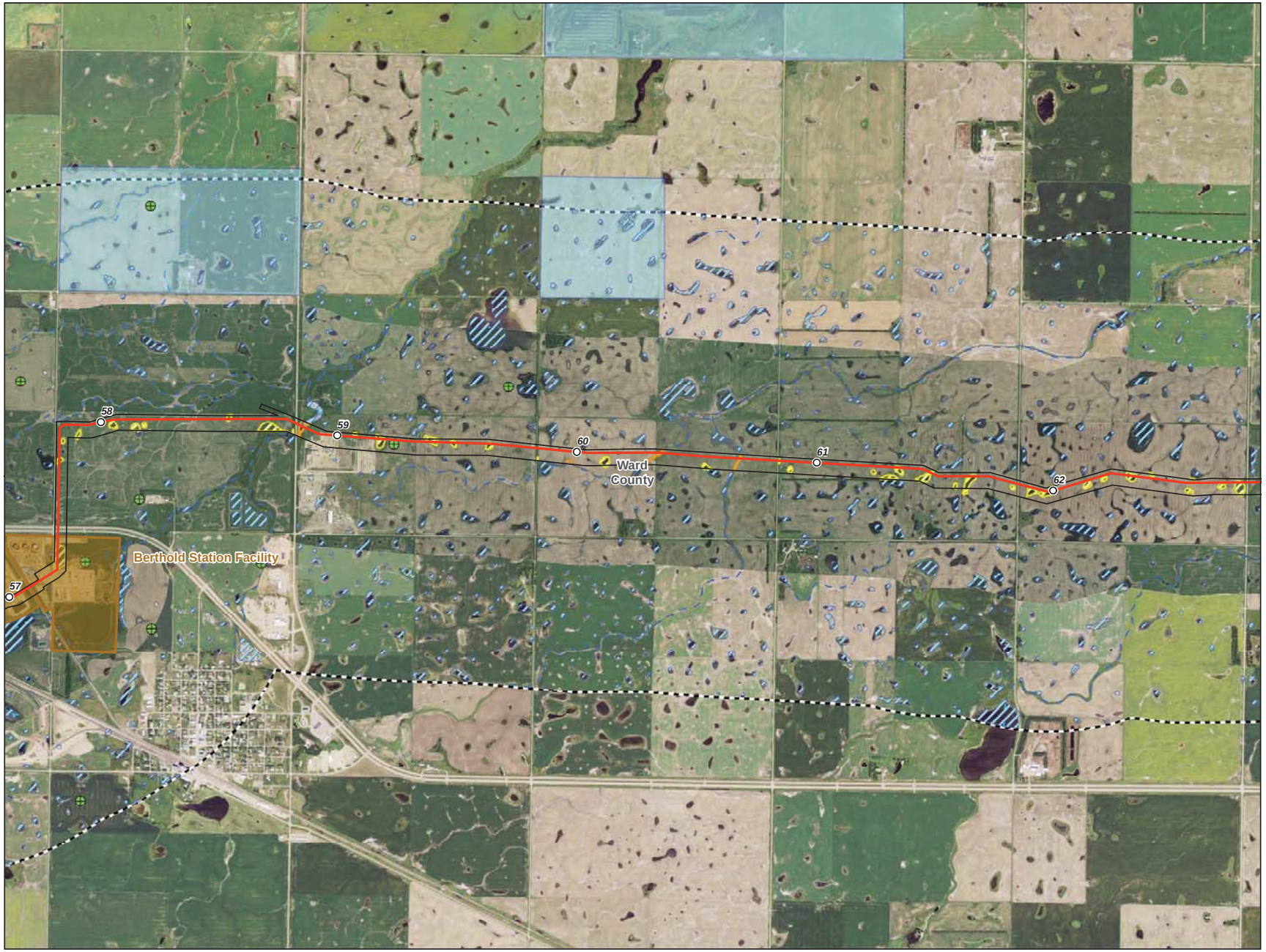
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

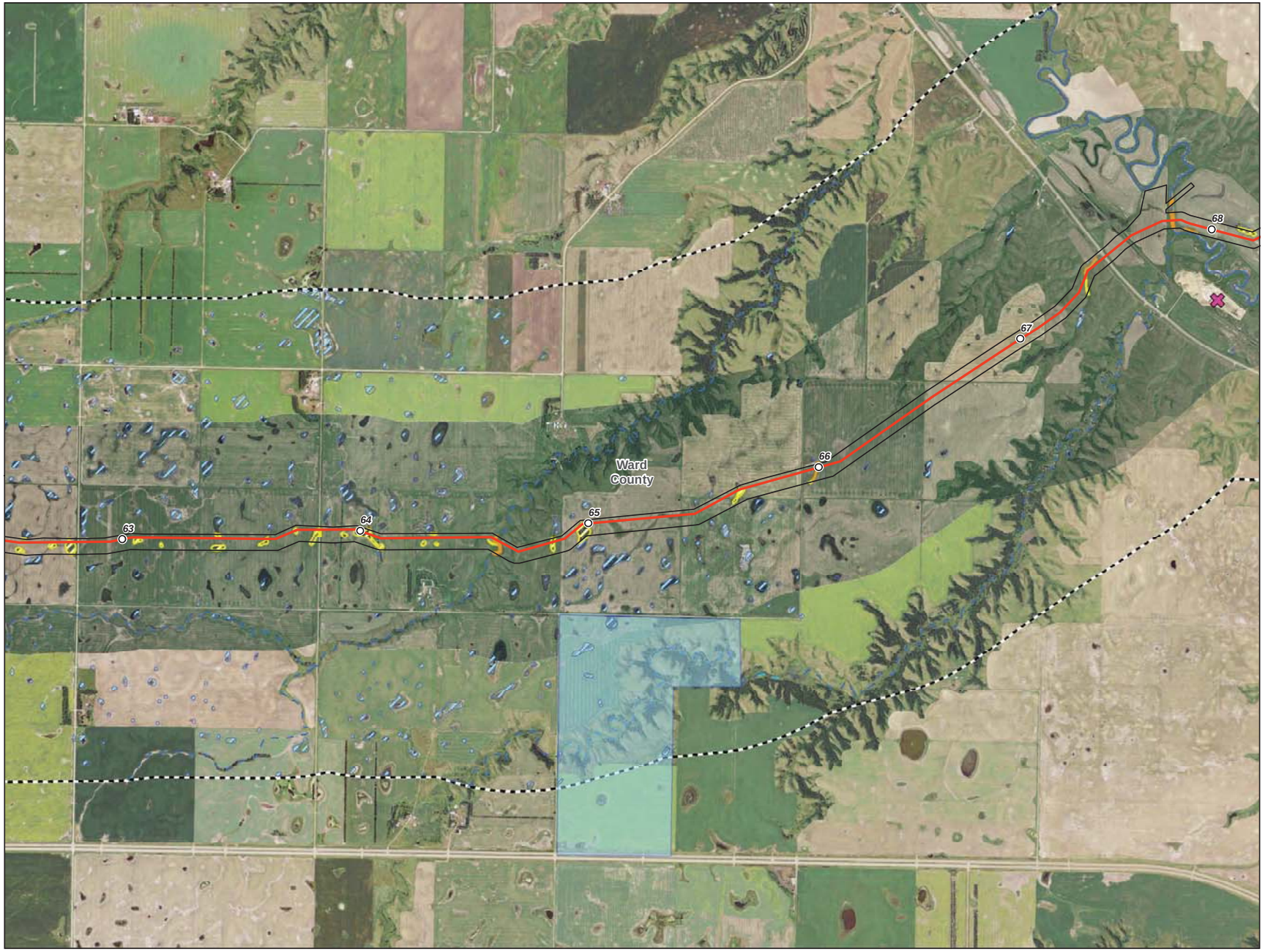
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

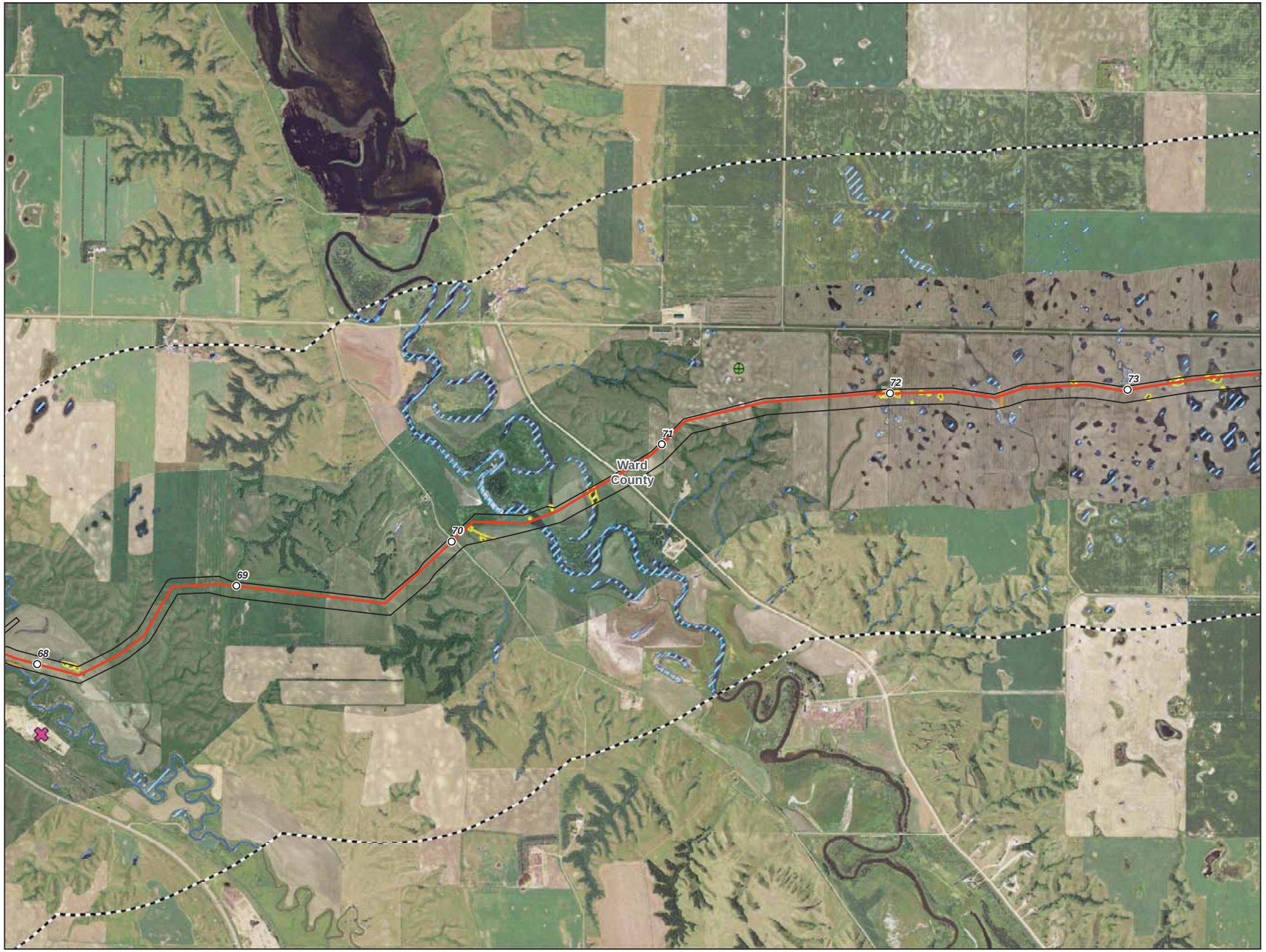
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

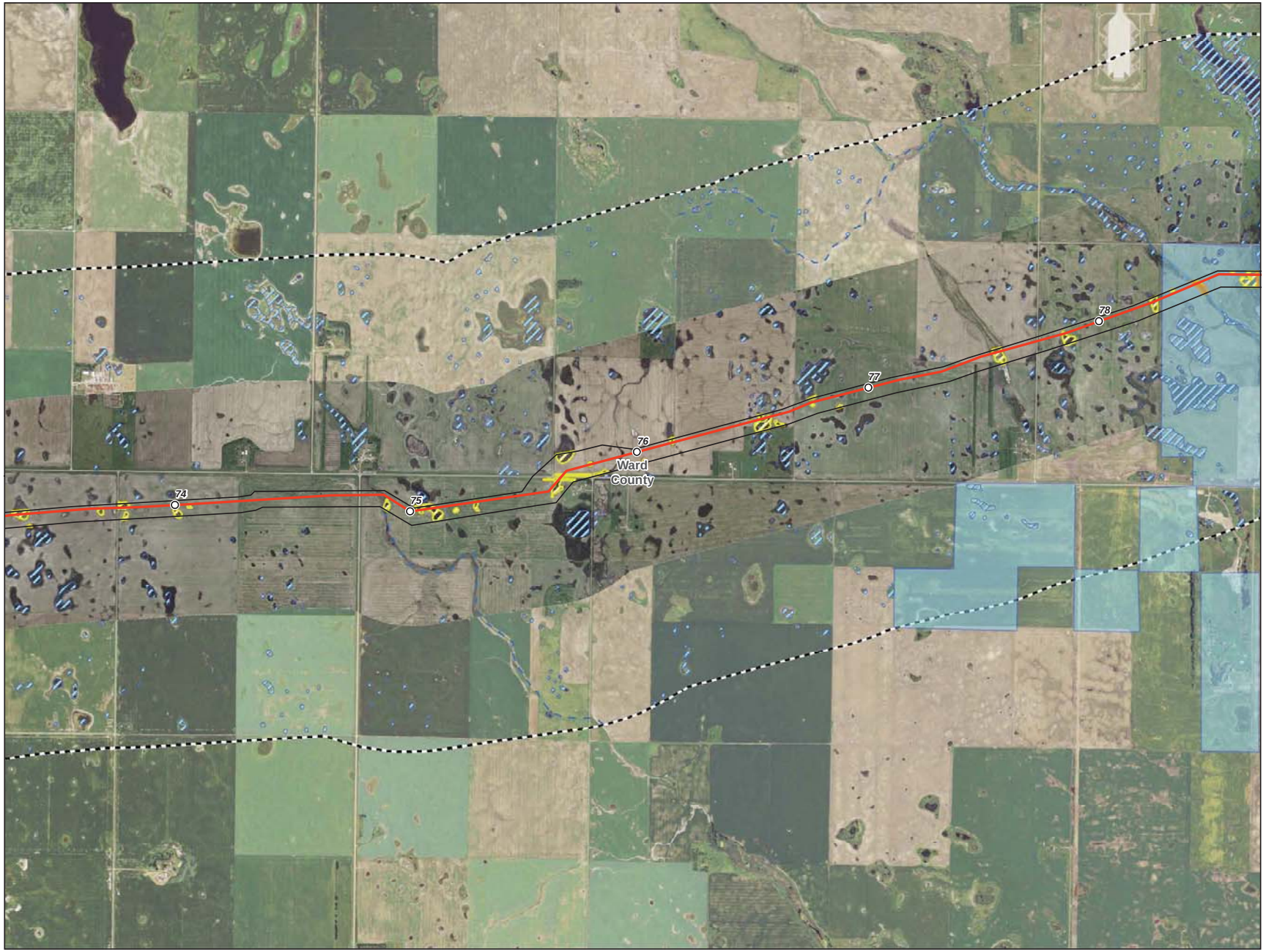
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

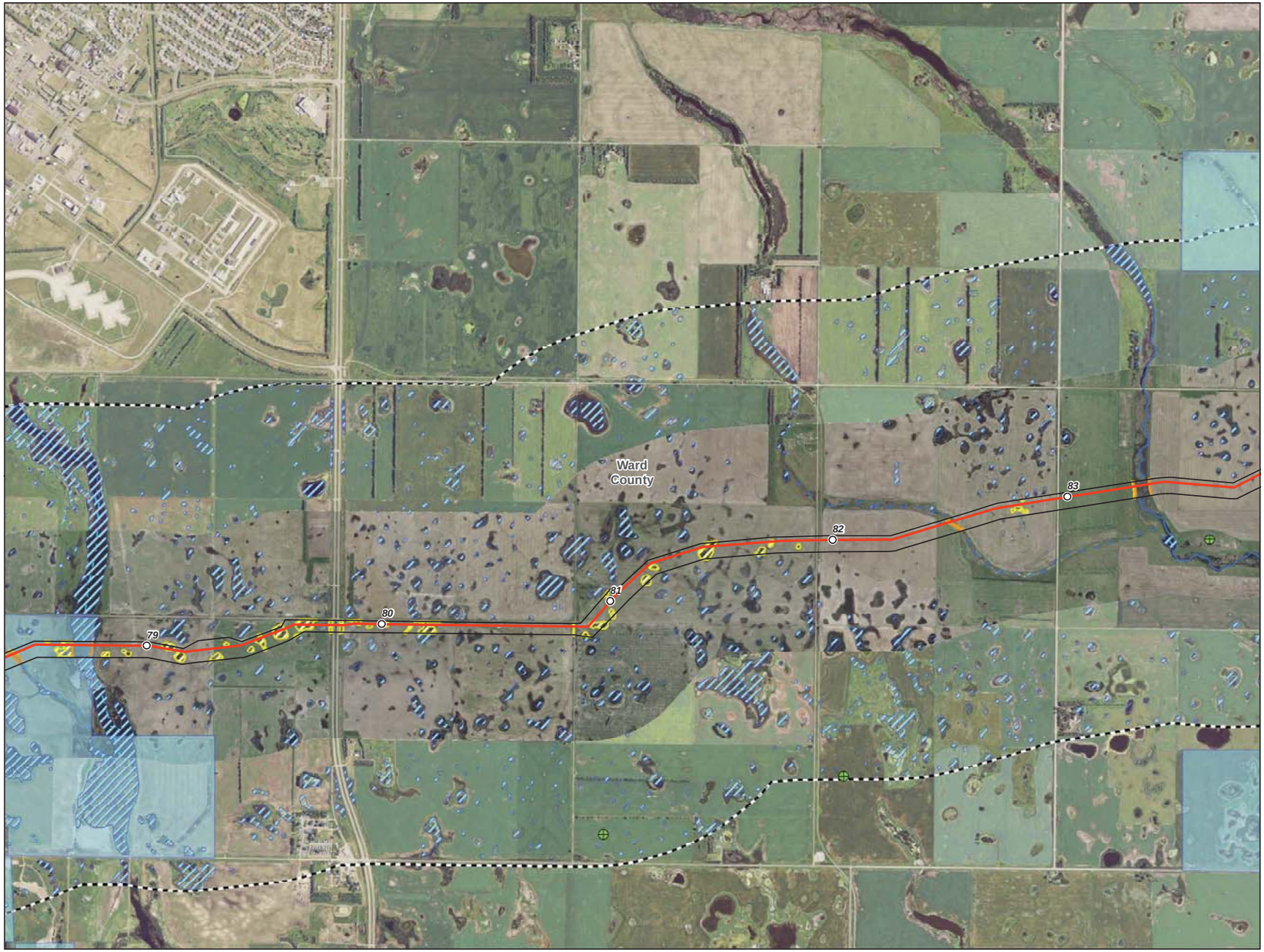
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

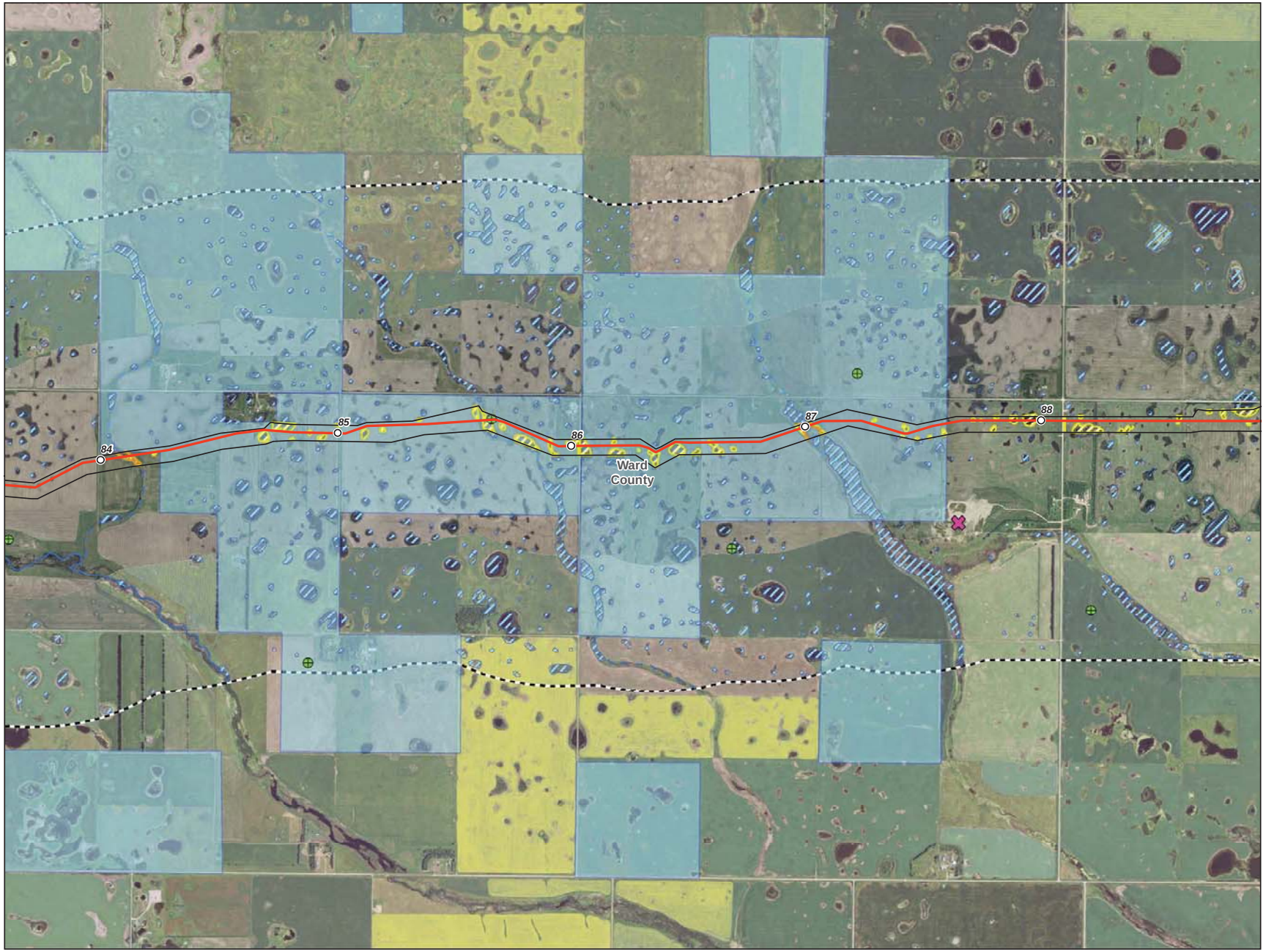
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

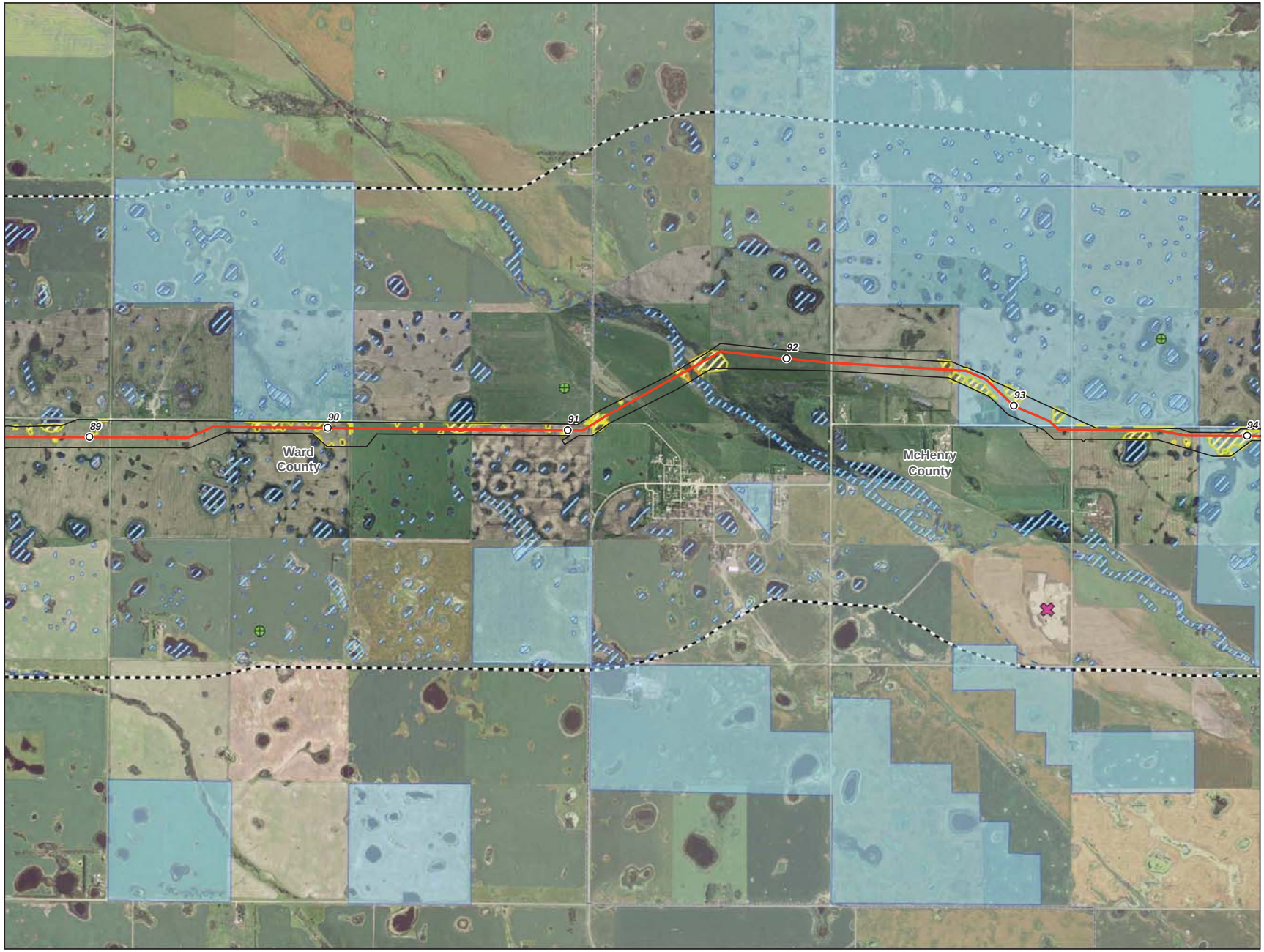
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

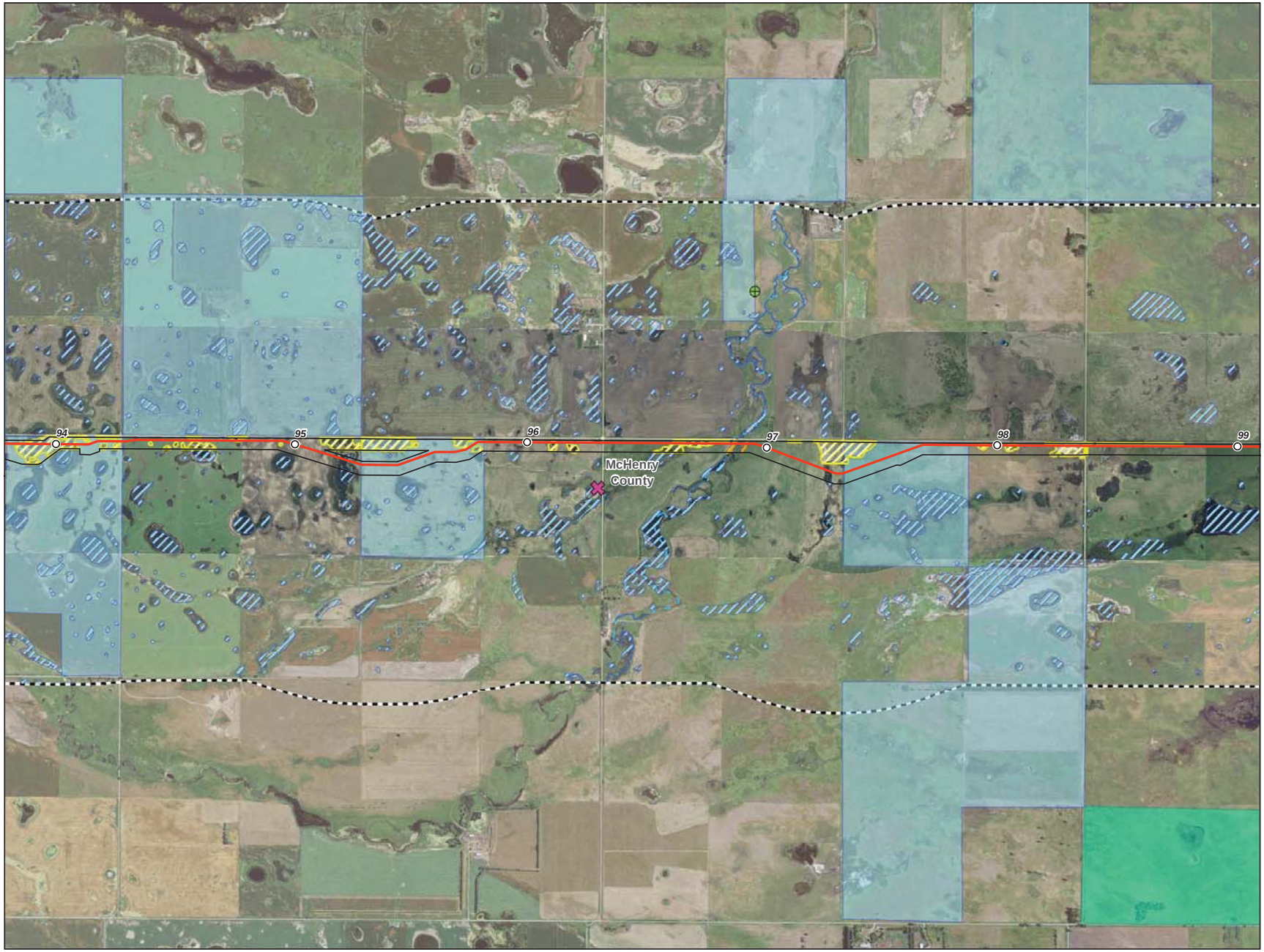
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\DND_PSC\Avoidance_Features\Sandpiper_Ward_Alt_Other.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

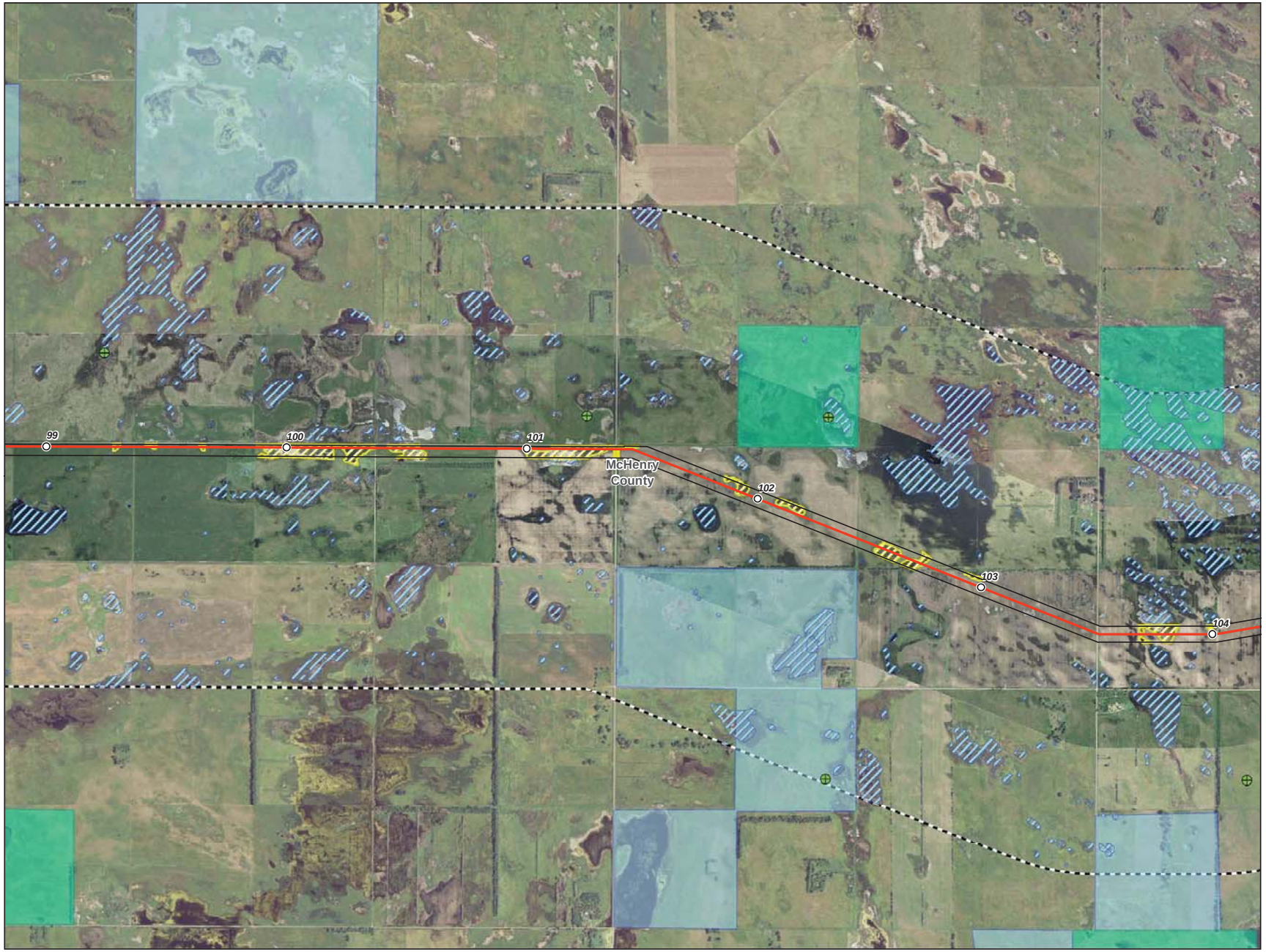
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

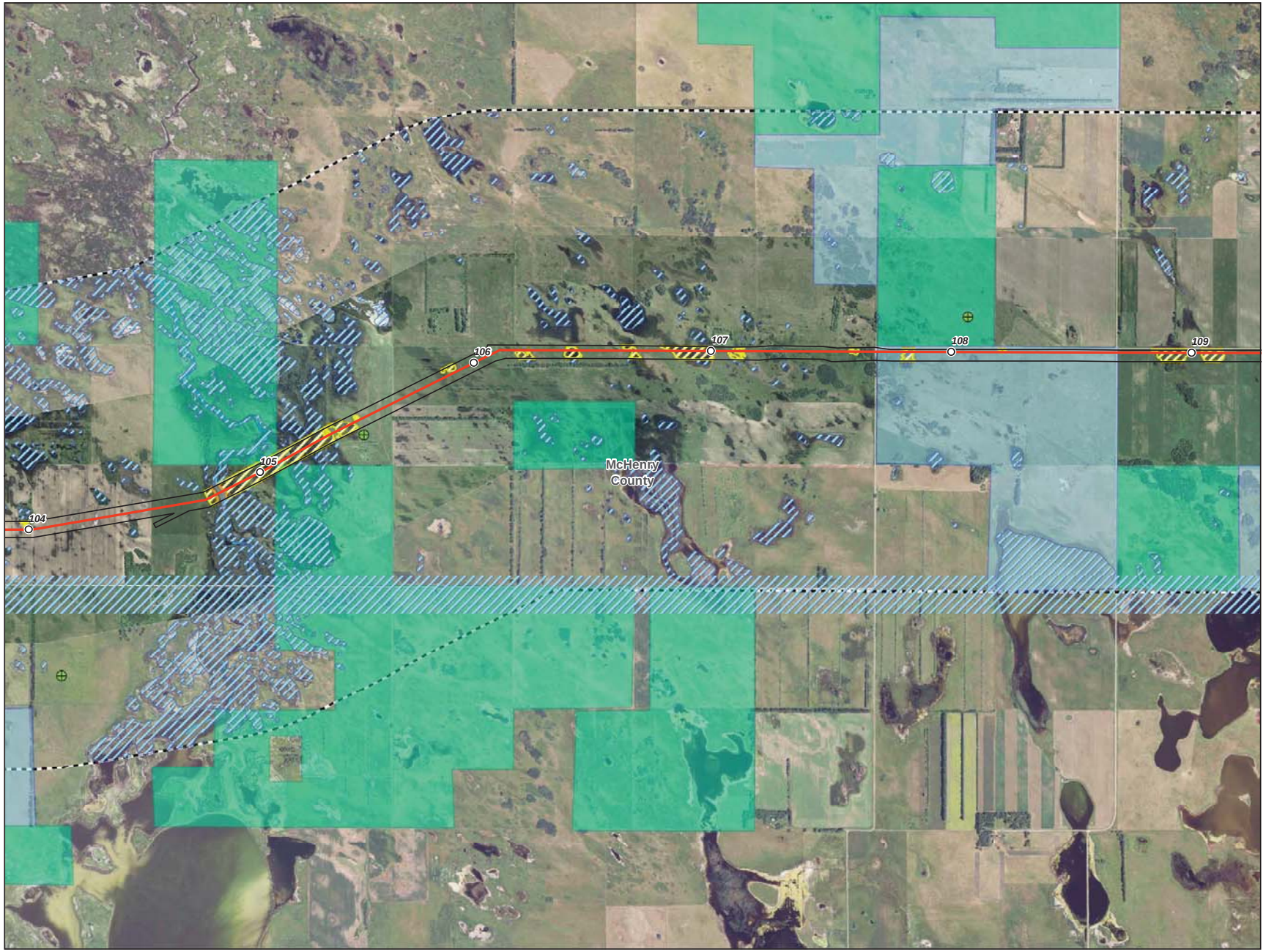
Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: Aerials_Enbridge_Sandpiper_Aerials_2013_DIGITALGLOBE_FSA_Avoidance_Features_SiteSandpiper_Rev0_NAD_UTM.mxd

Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

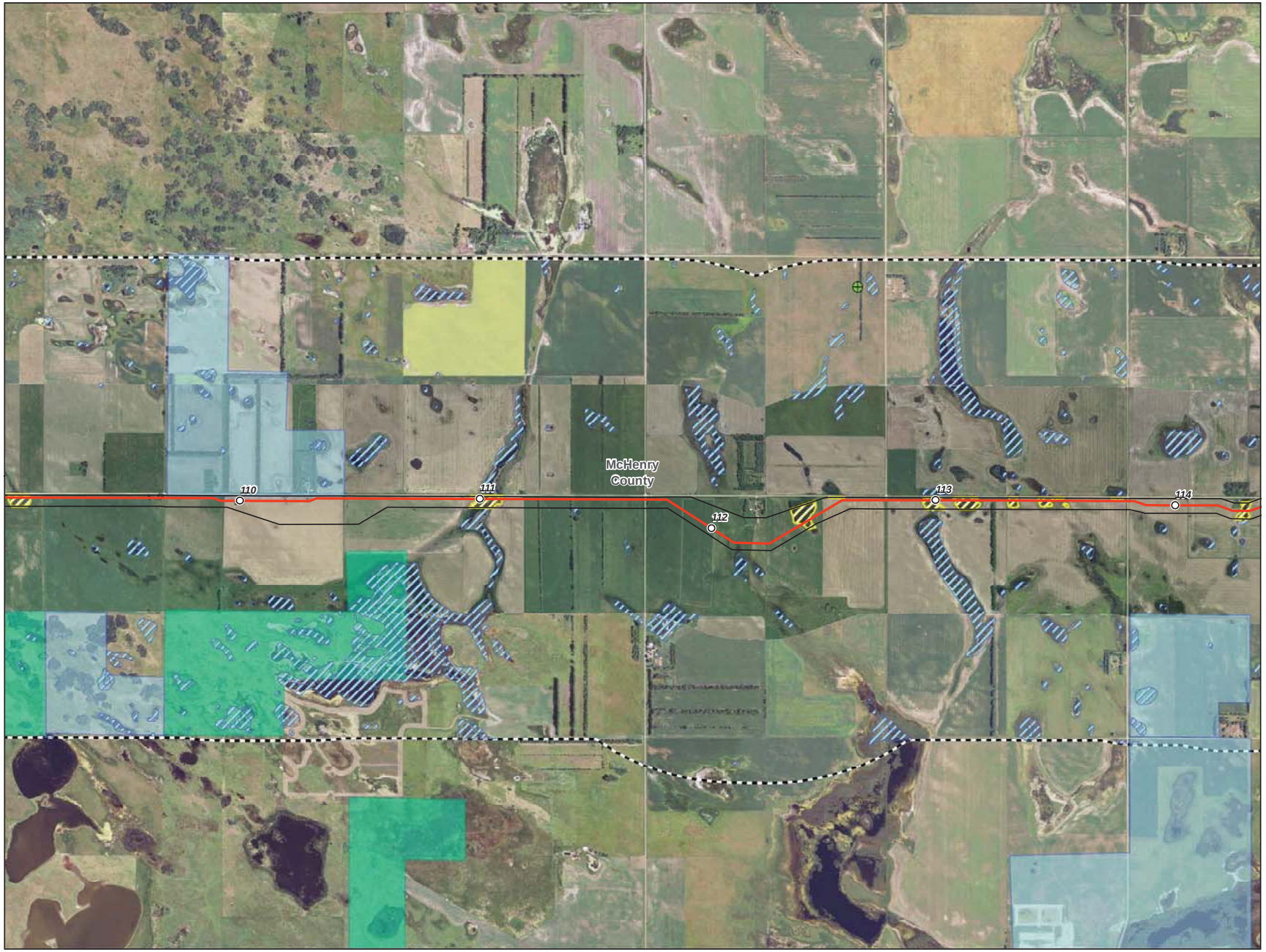
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

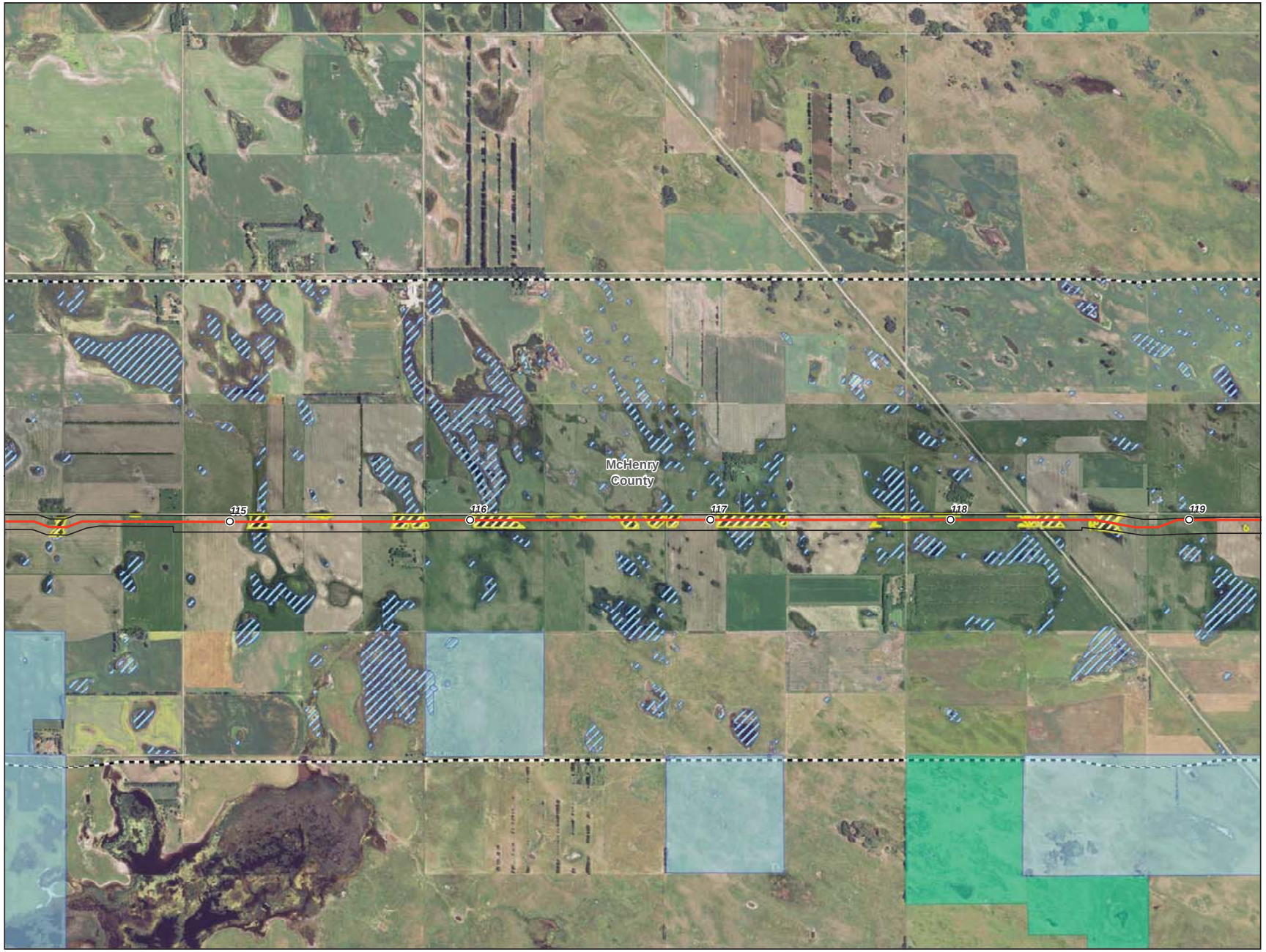
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

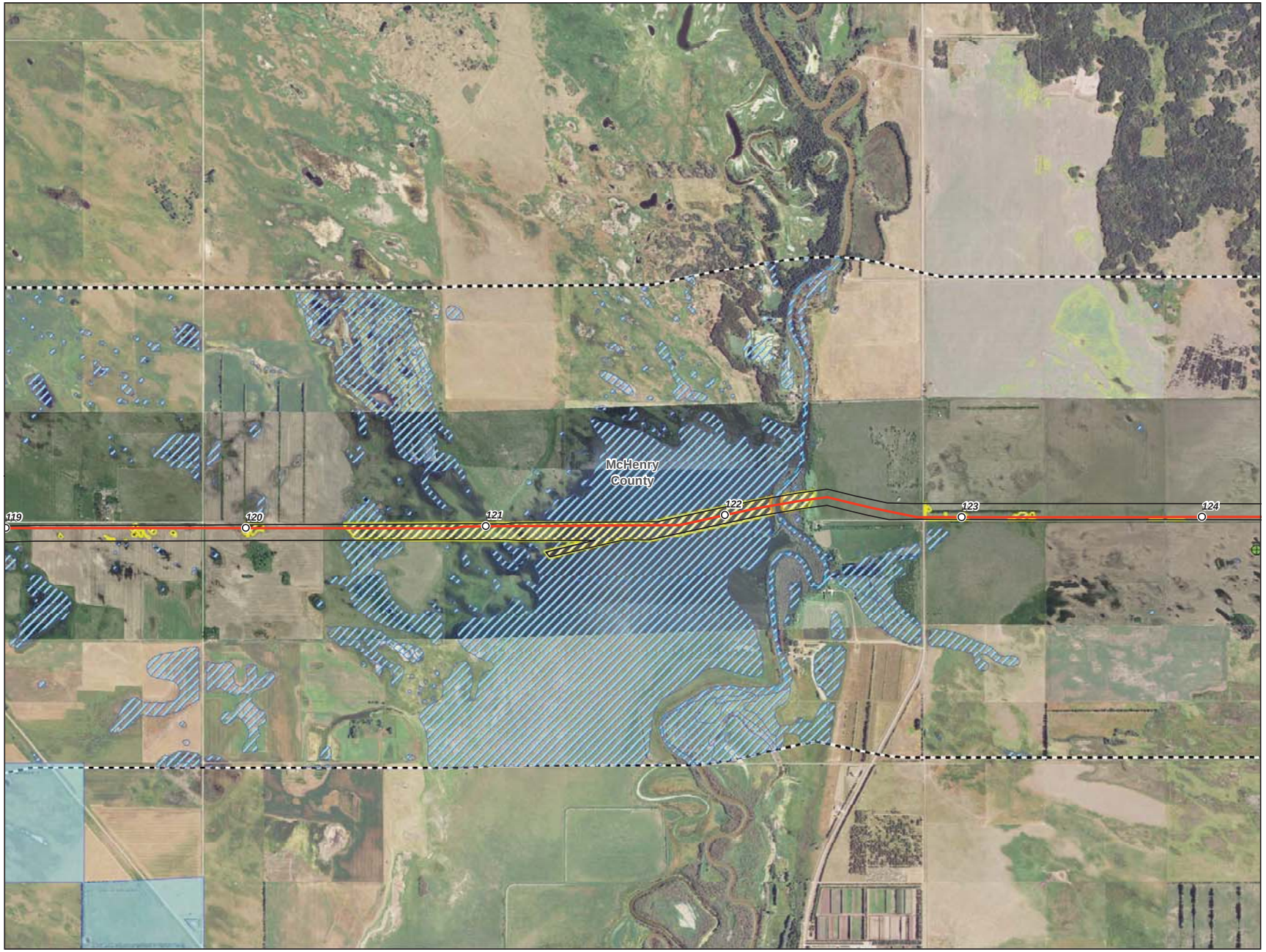
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

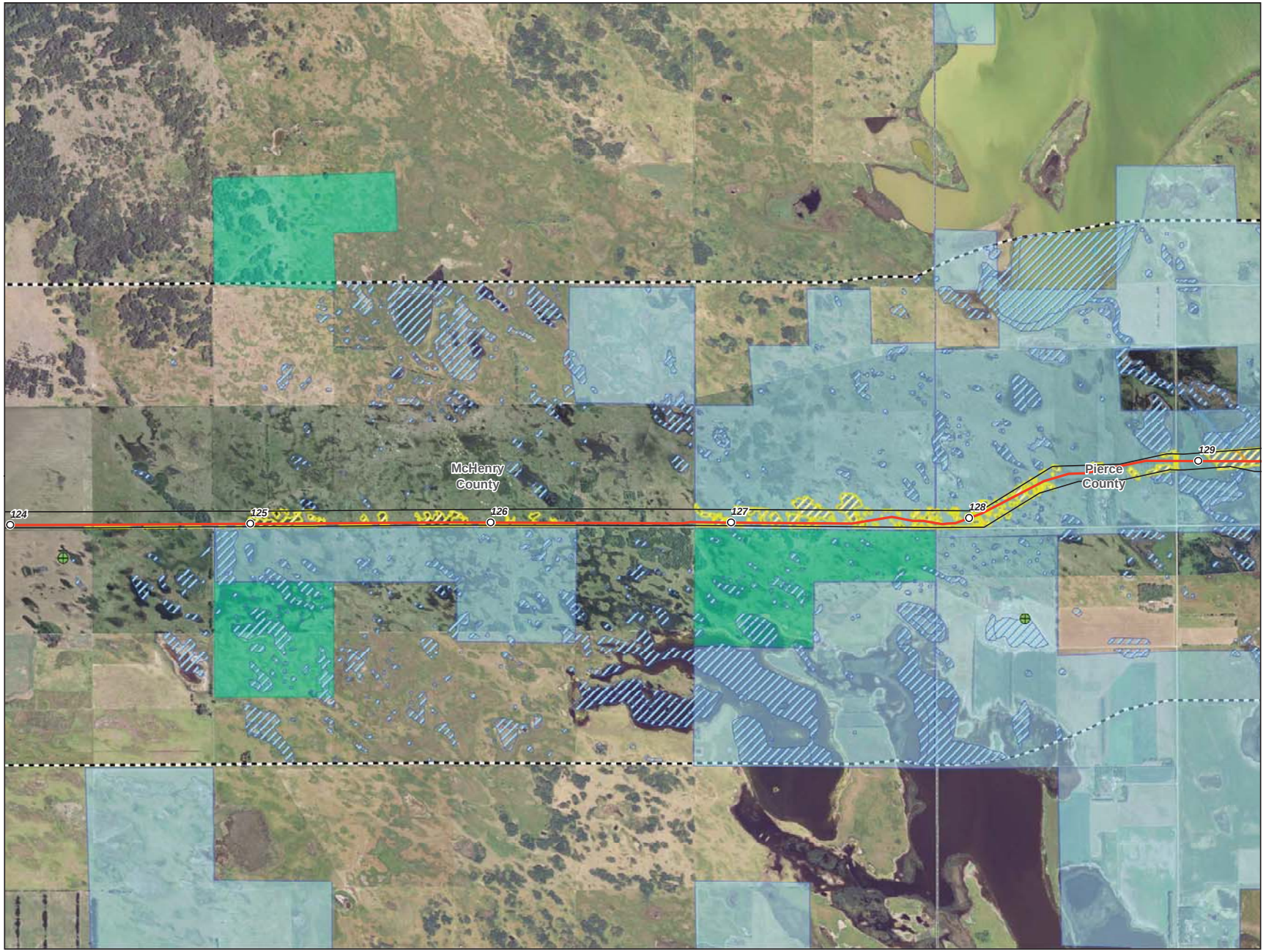
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

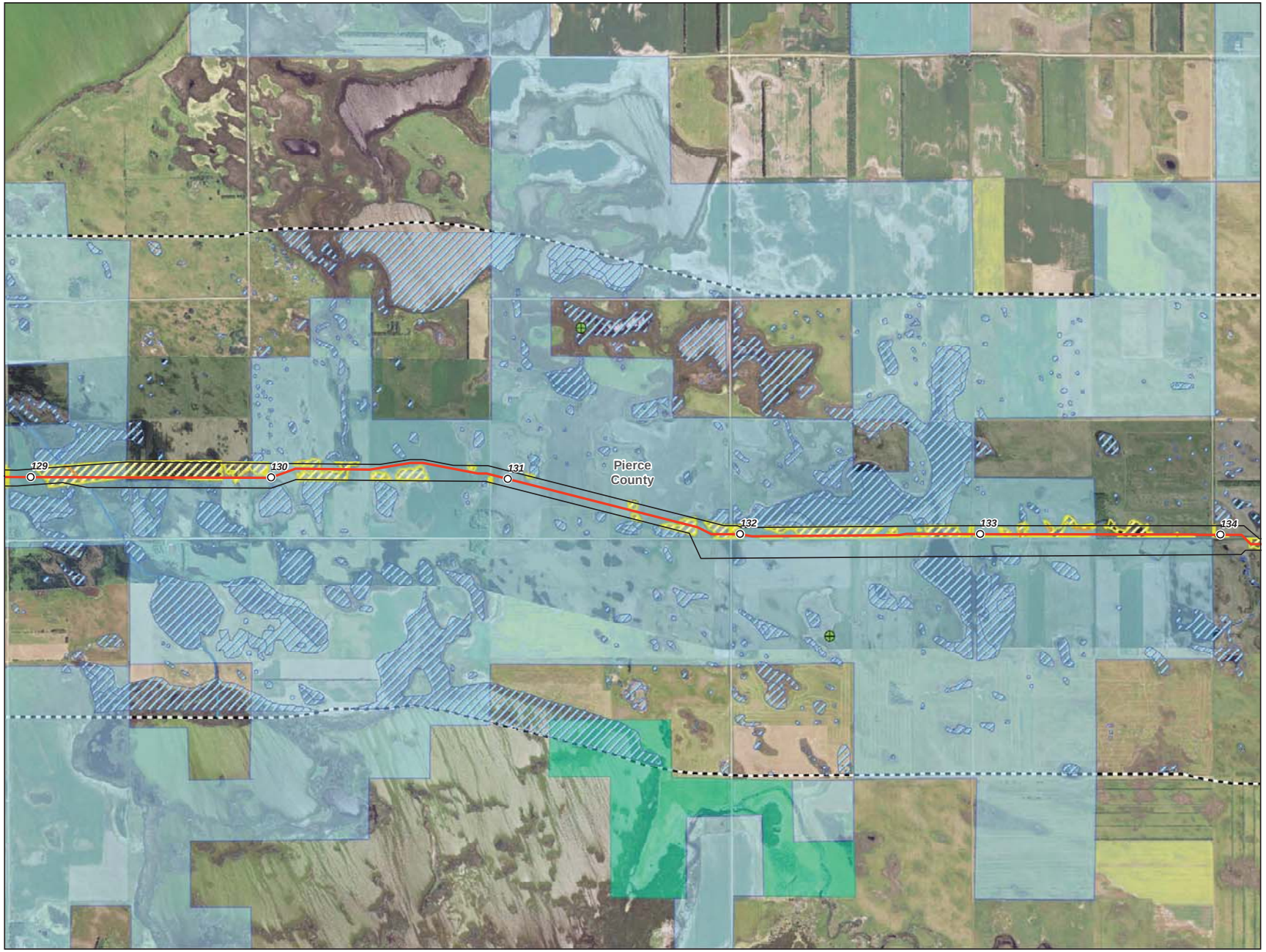
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

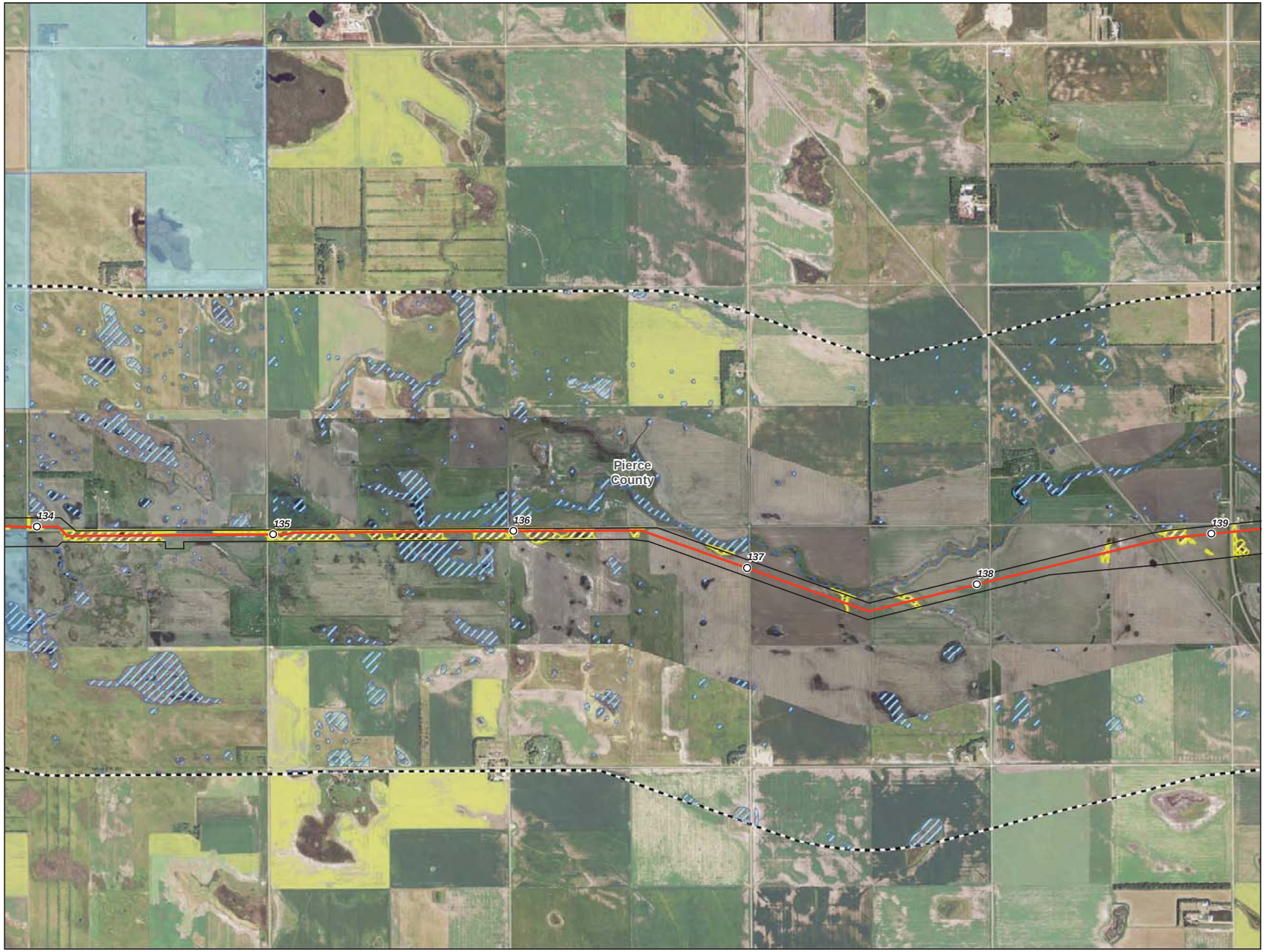
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\ND_PSC\Avoidance_Features_Sites\Sandpiper_North_ND_Other.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

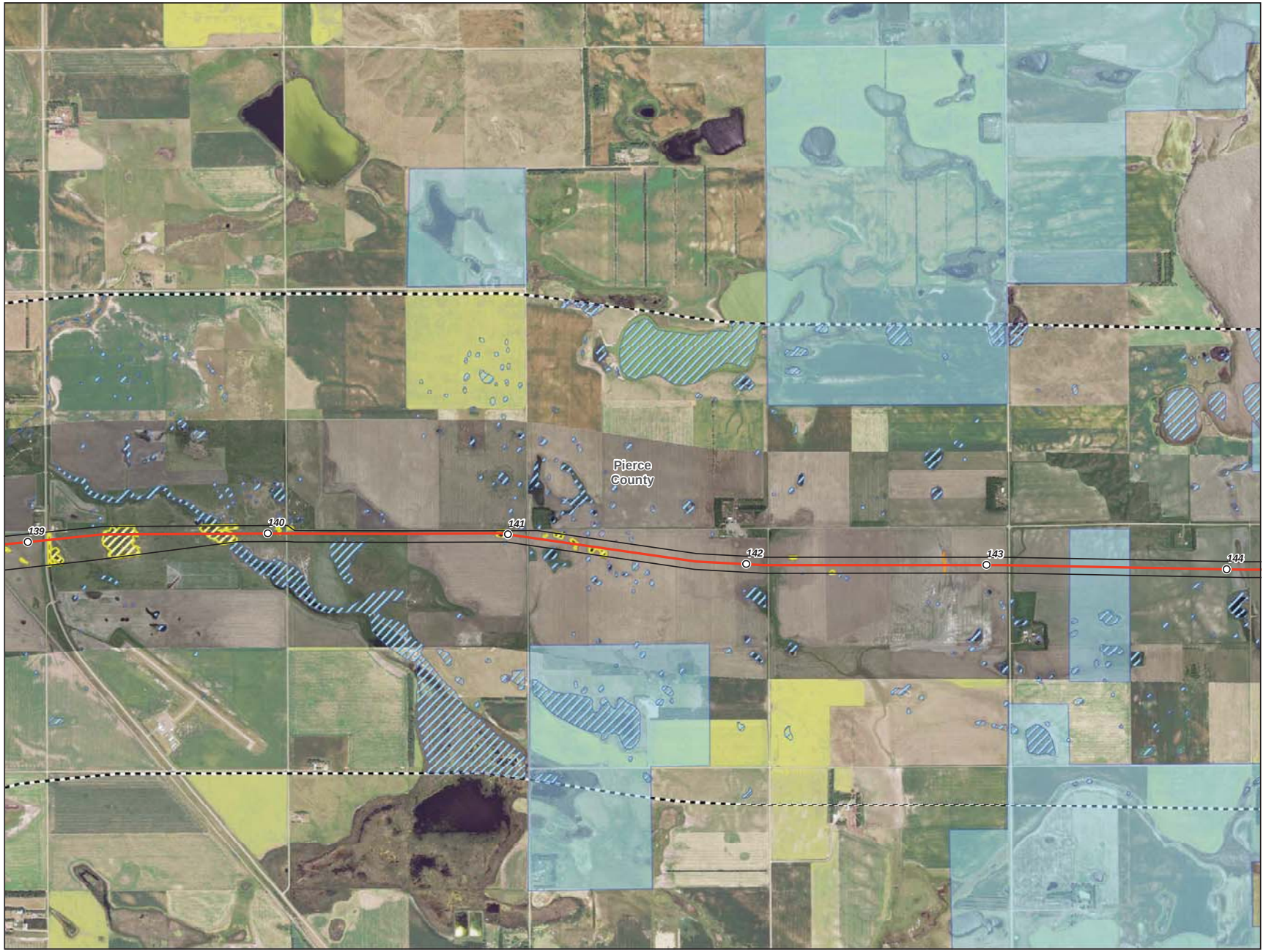
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Date: 1/20/2014 Source: Xcelsius_Presentation\Sandpiper\ArcGIS\2013\MND_PSC\Avoidance_Features_Other\Sandpiper_Rev0_Alt_Other.mxd



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

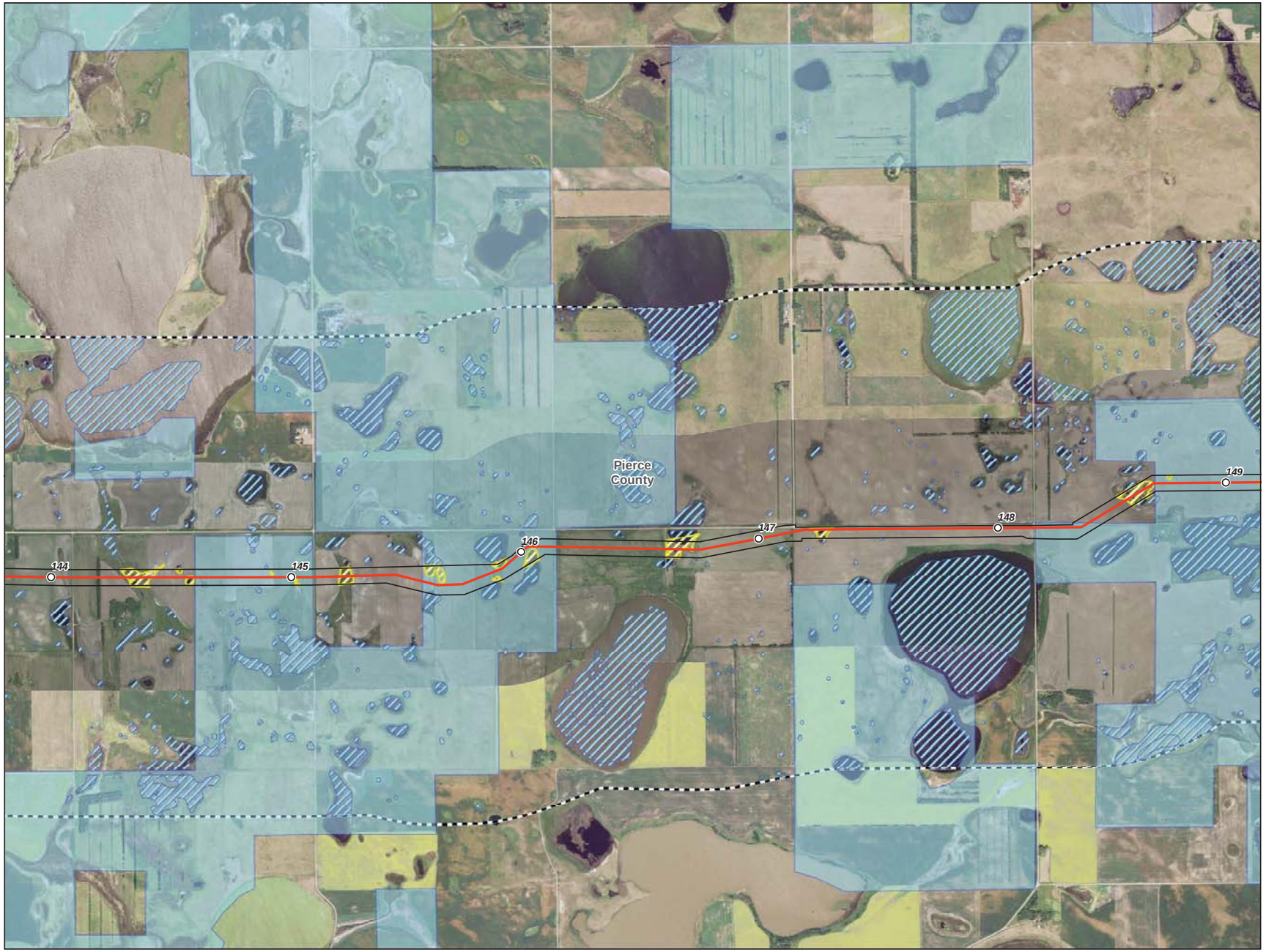
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

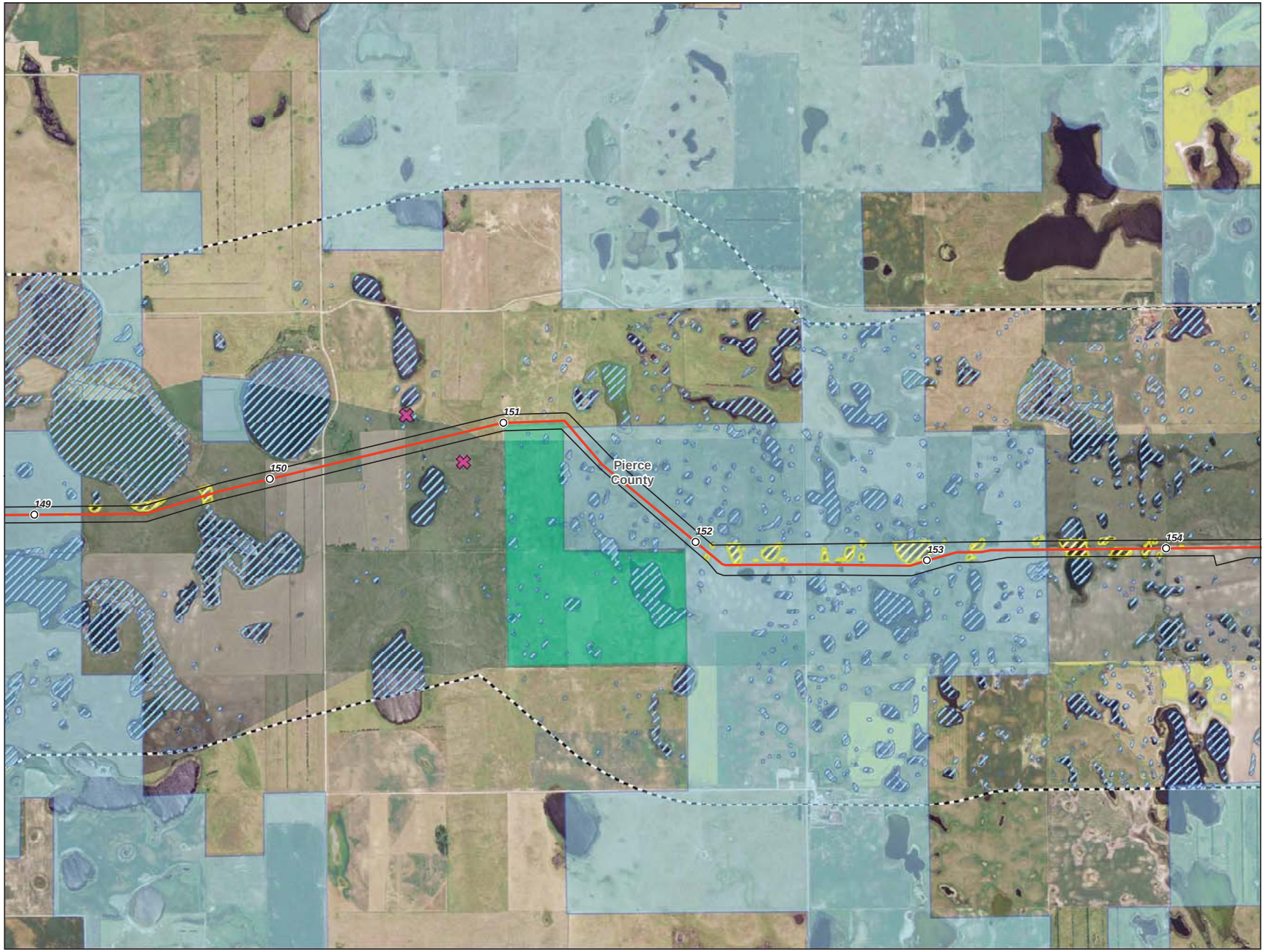
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Date: (1/20/2014) Source: K:\Sandpiper_Project\gis\arcgis\projects\2012\NDG_PSC\Avoidance_Reduced_Corridor\pipe_Rev0_Alt_Other.mxd



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

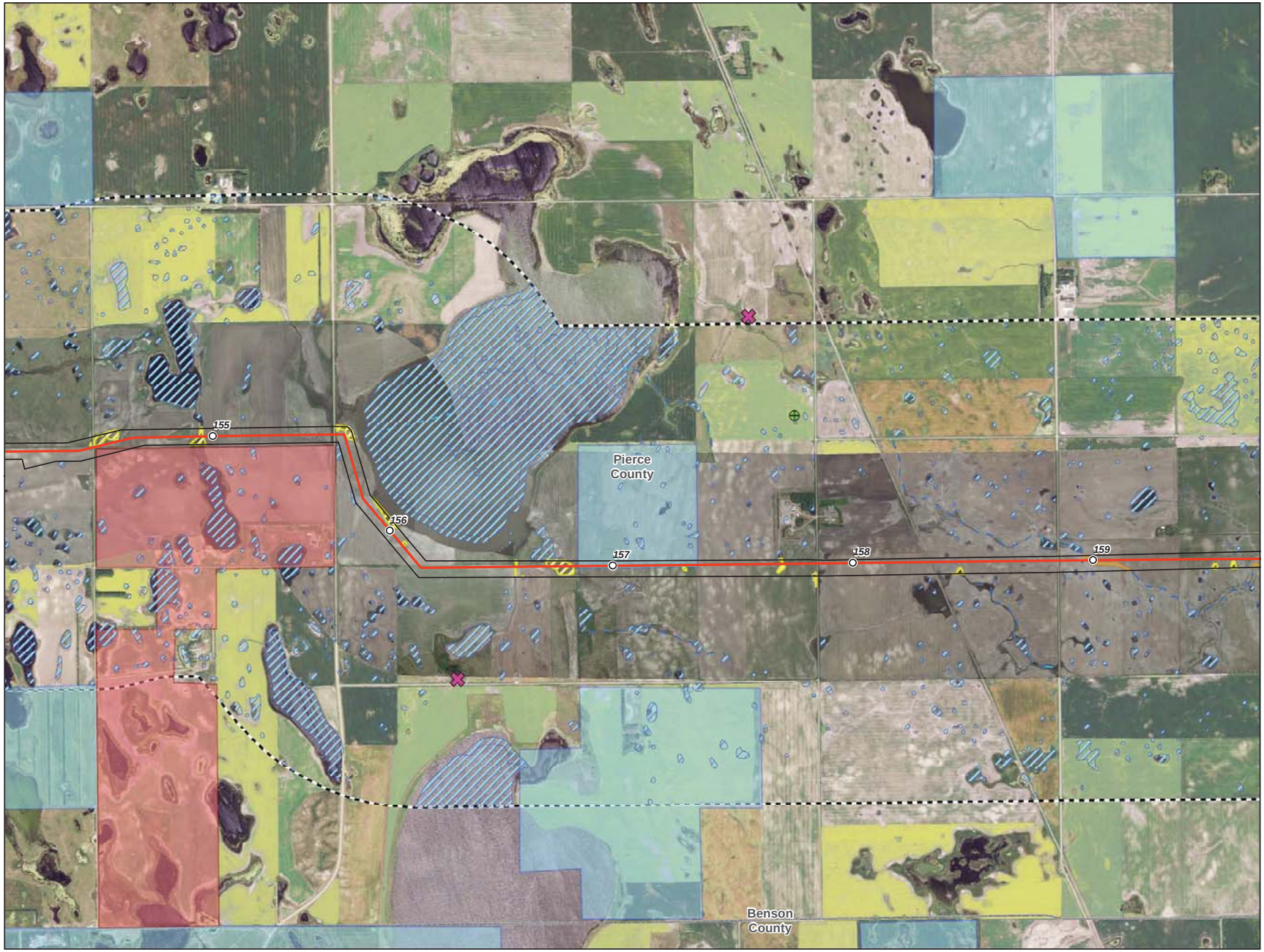
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcMXD\2012\ND_PSC\Avoidance_Features_CrossSandpiper_North_NP_Other.mxd
Date: (1/20/2014)



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

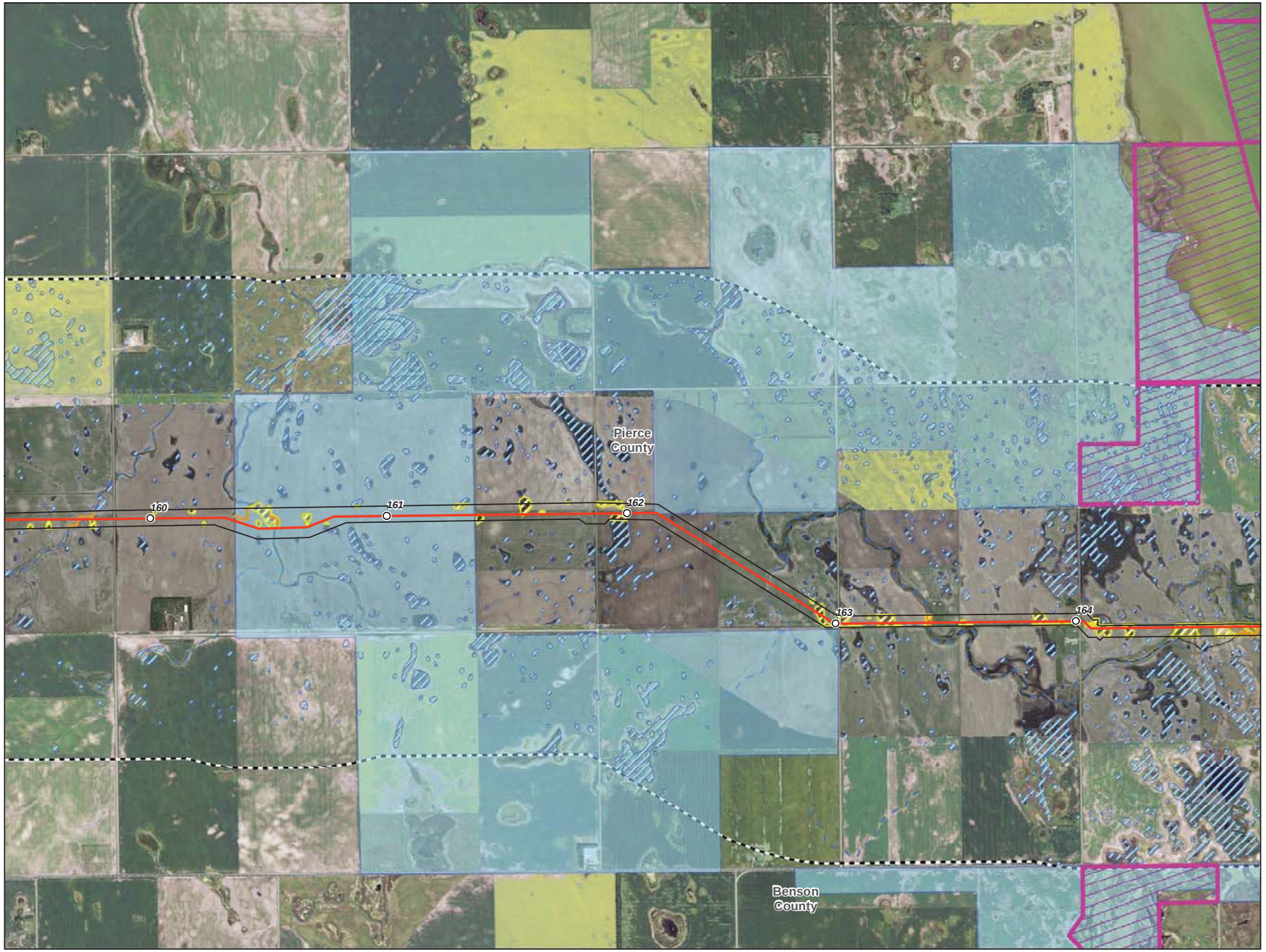
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

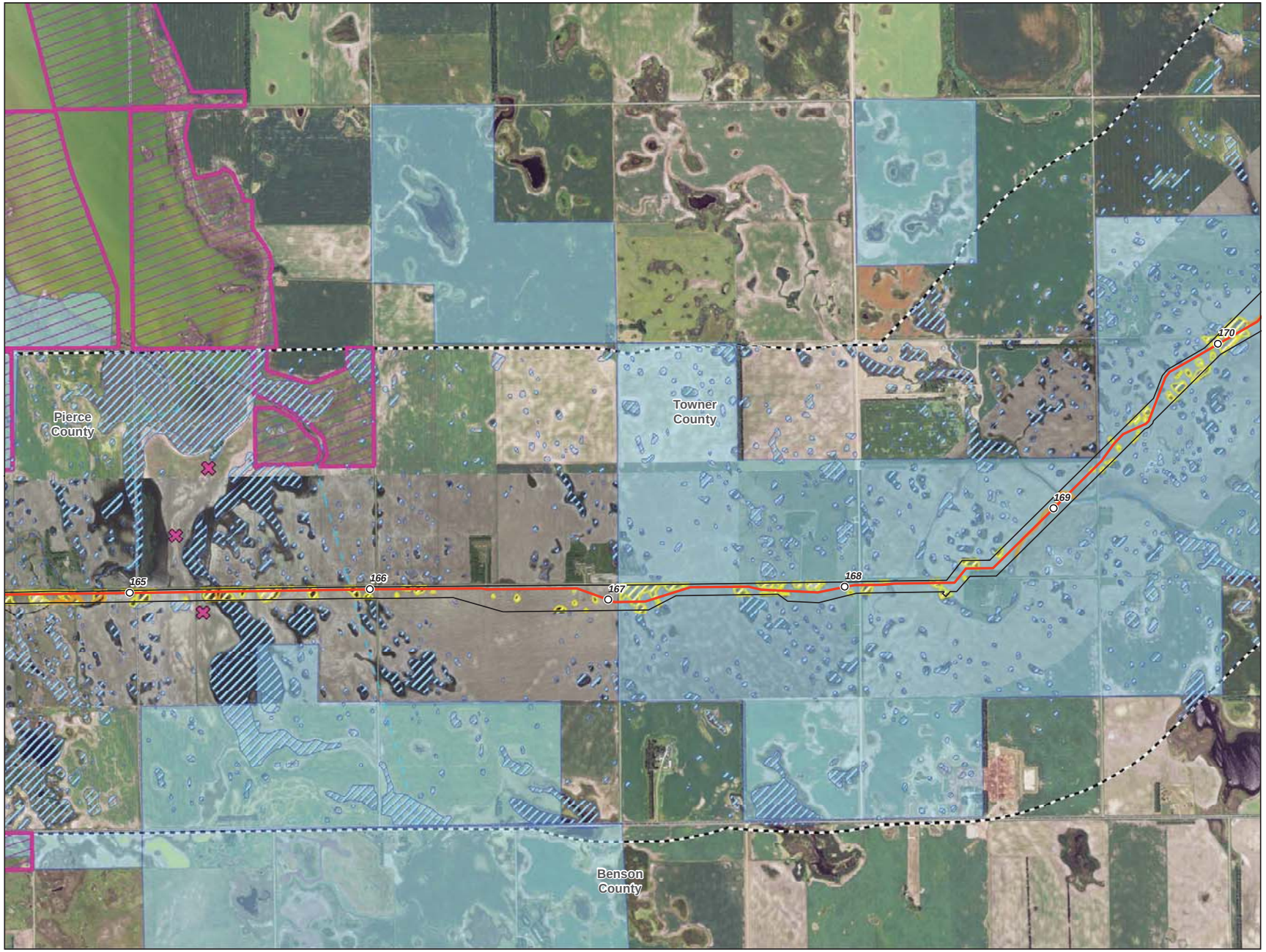
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

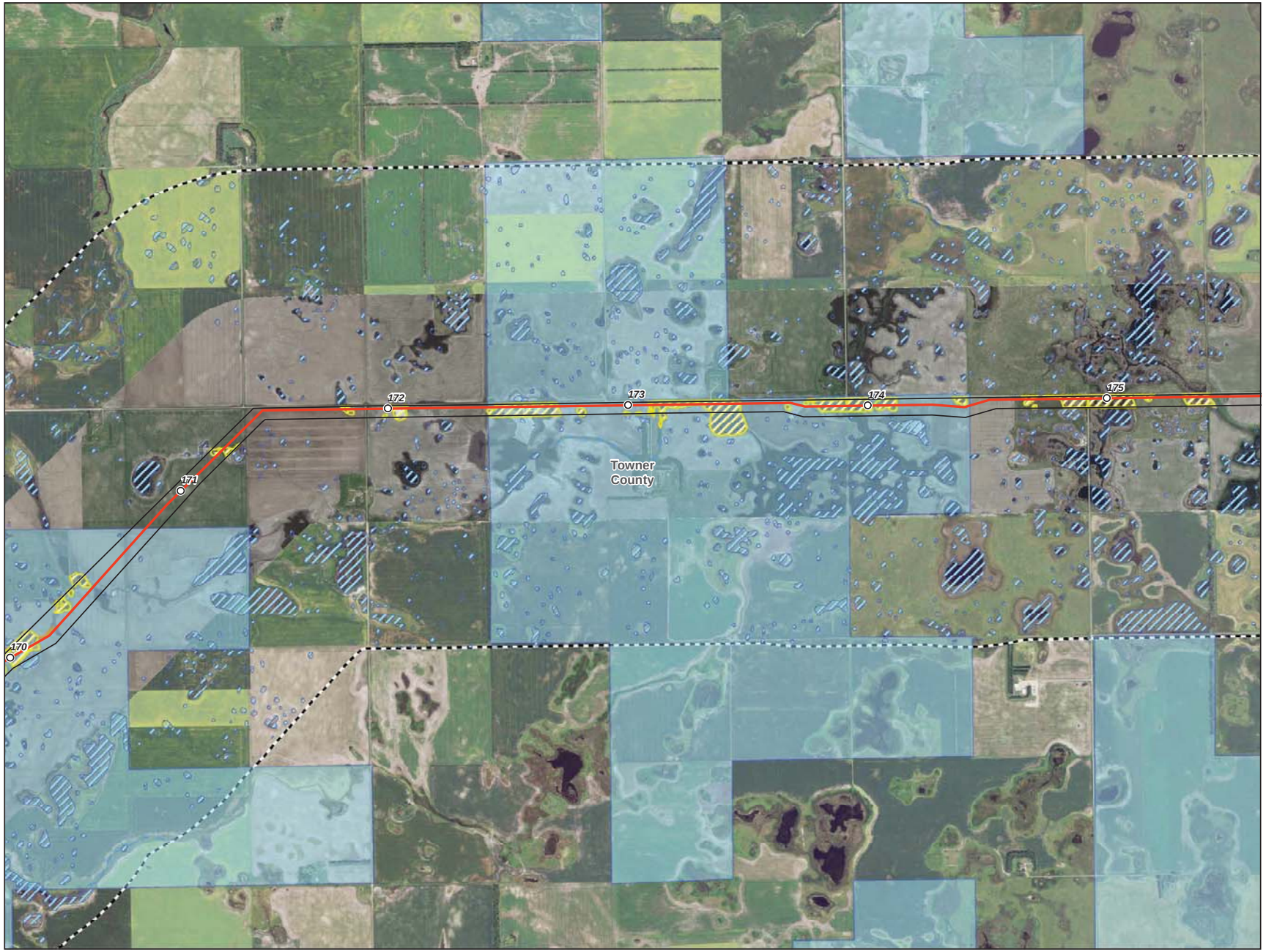
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

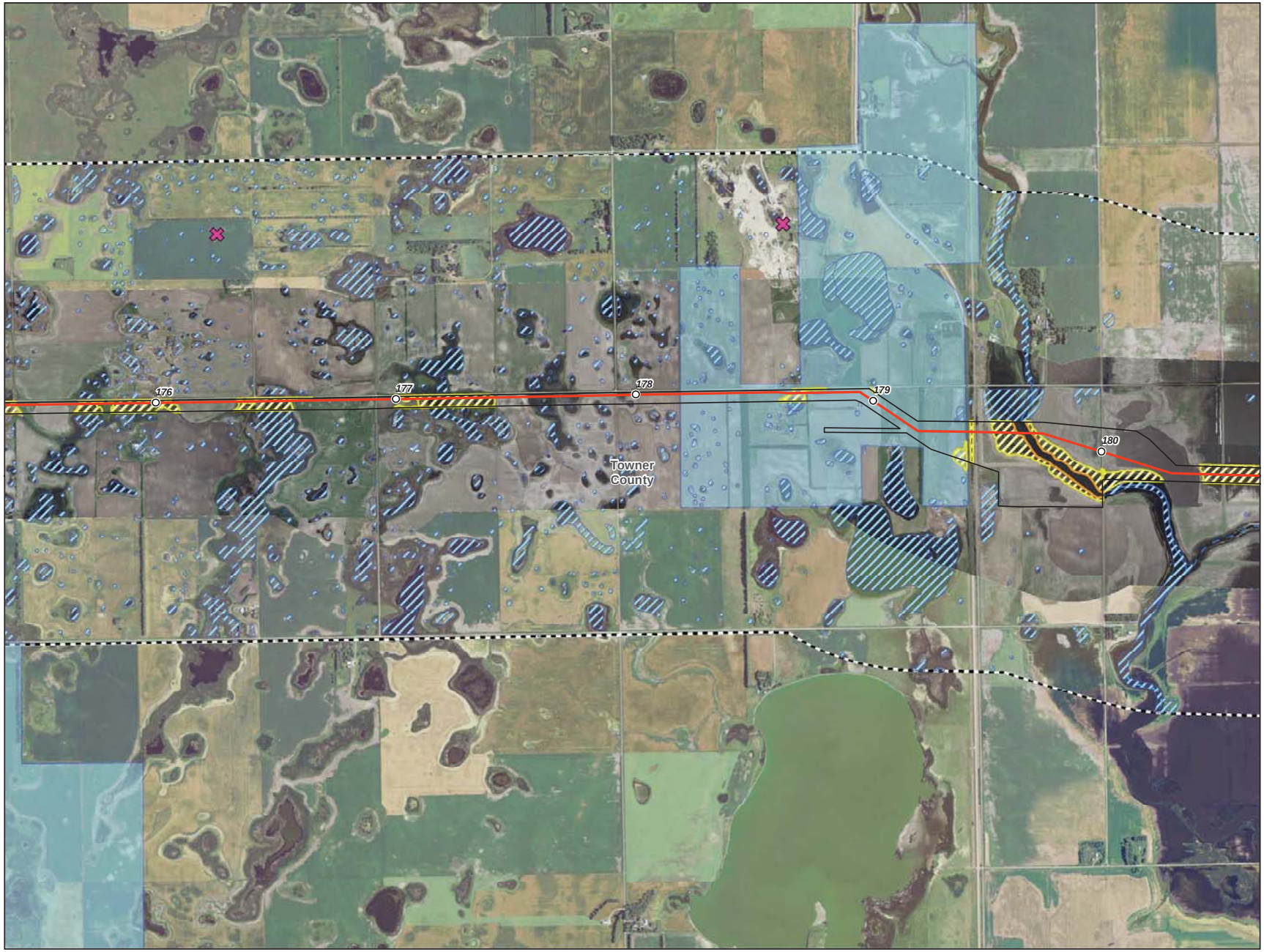
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

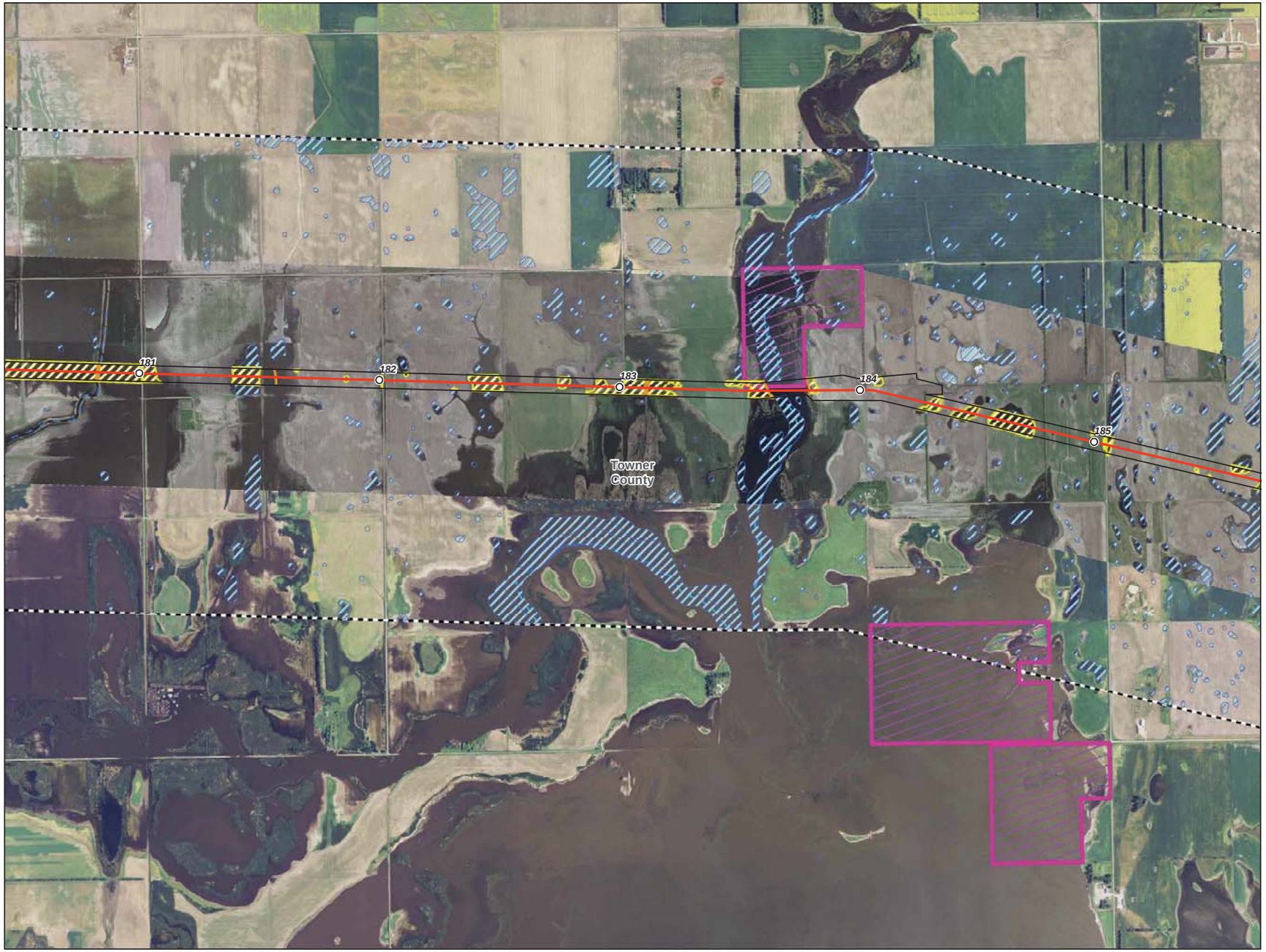
Sandpiper Pipeline Project

Other Criteria Considered

Page 35 of 61
Towner County

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

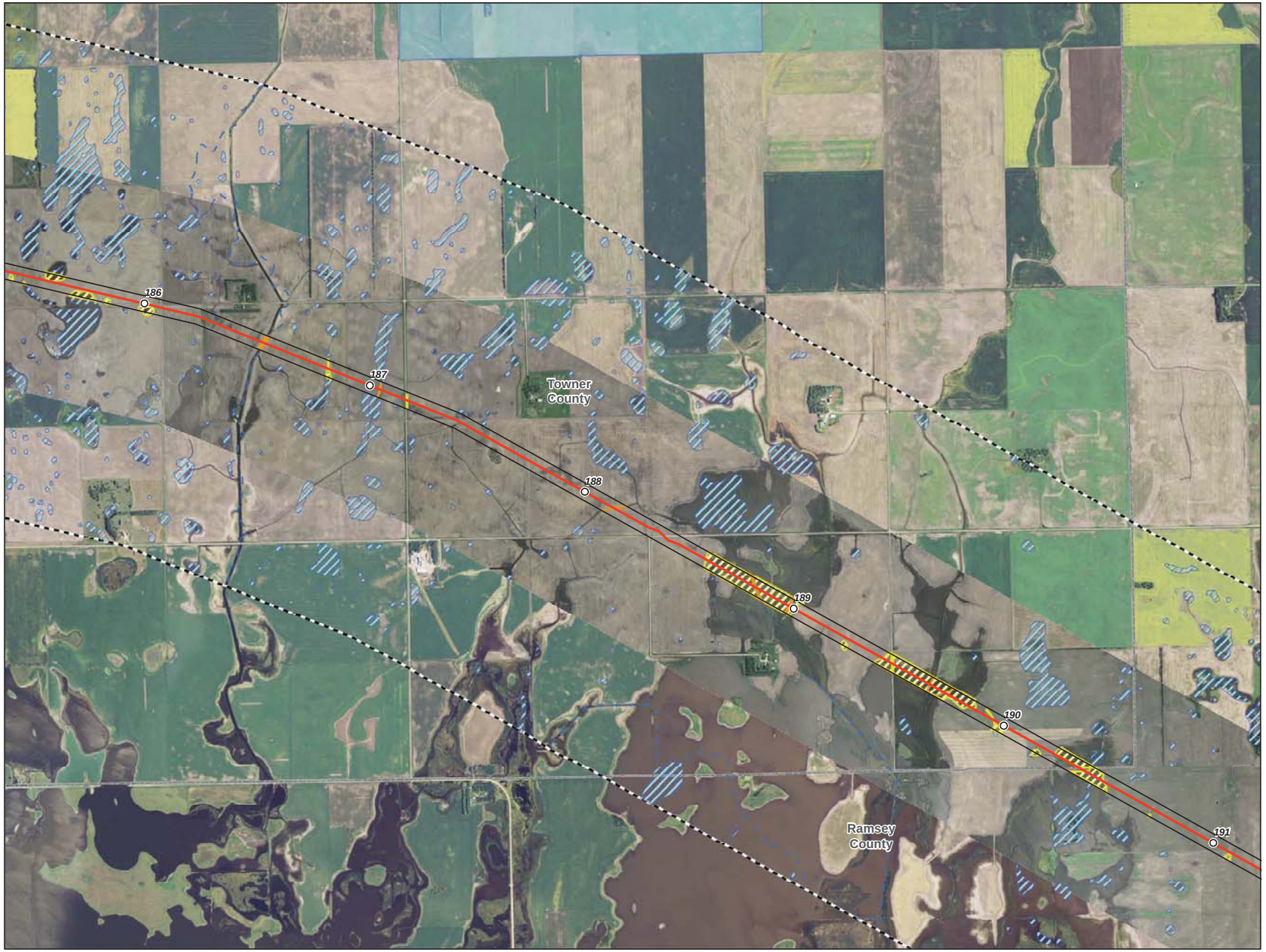
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

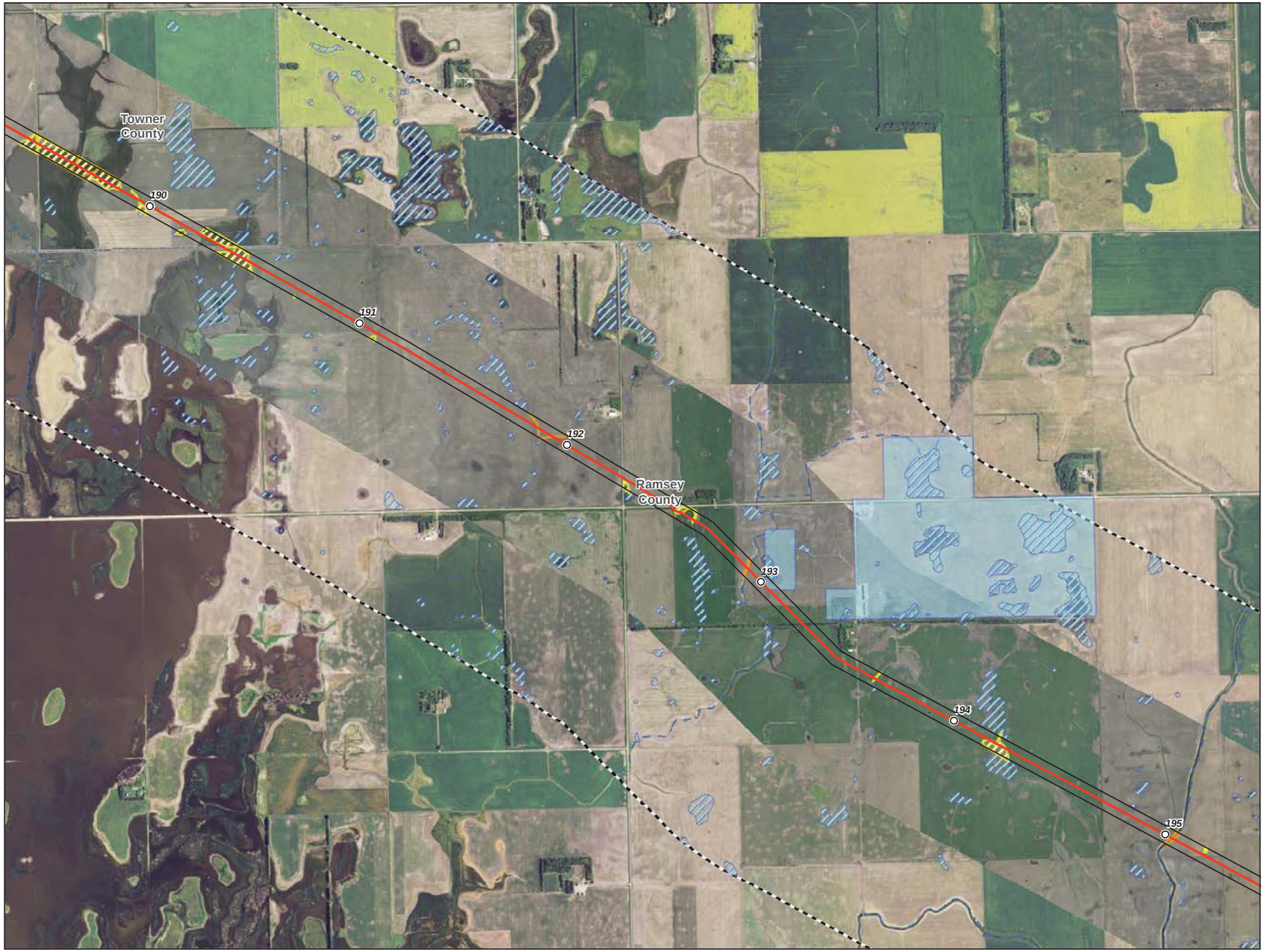
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

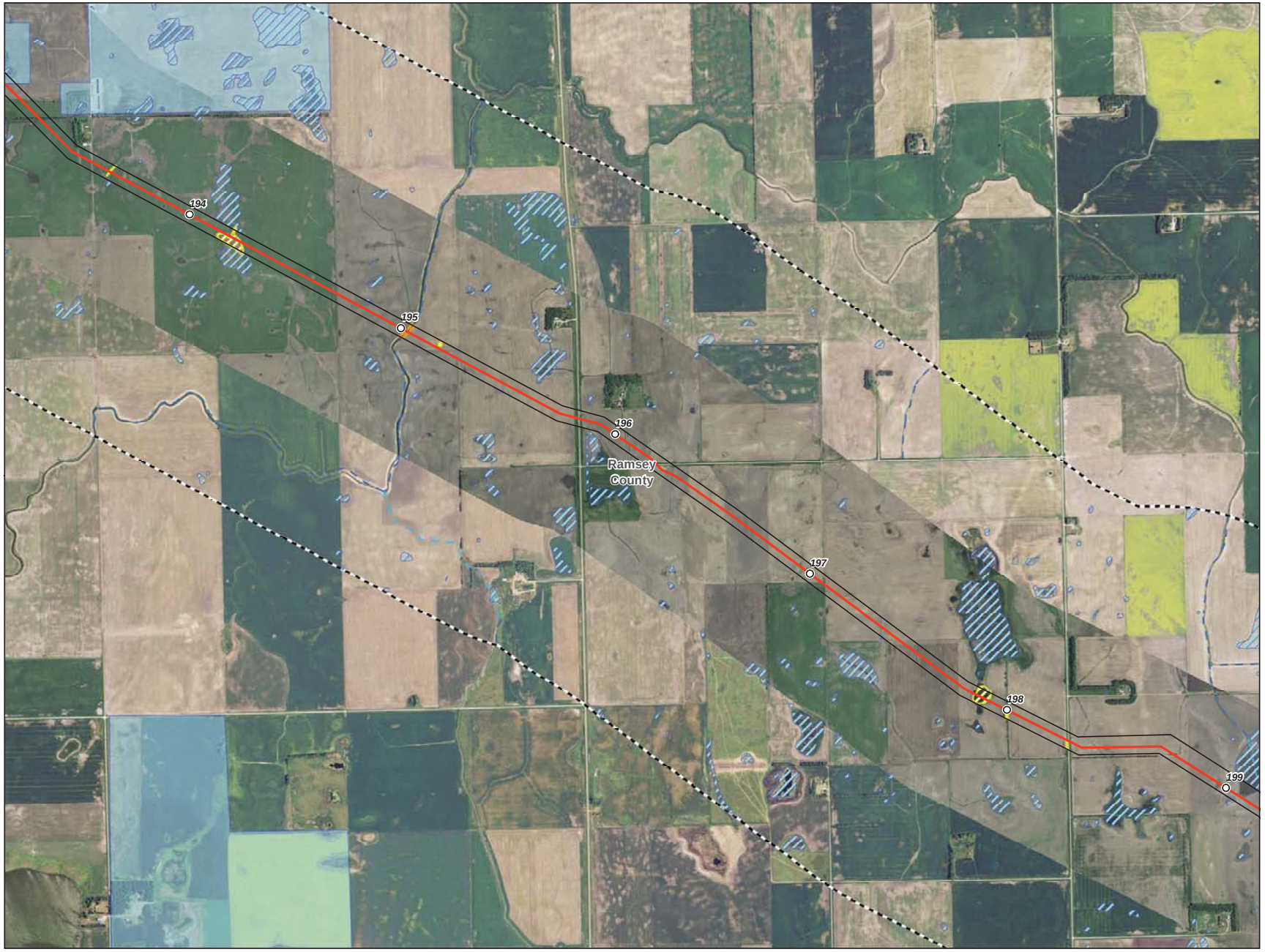
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

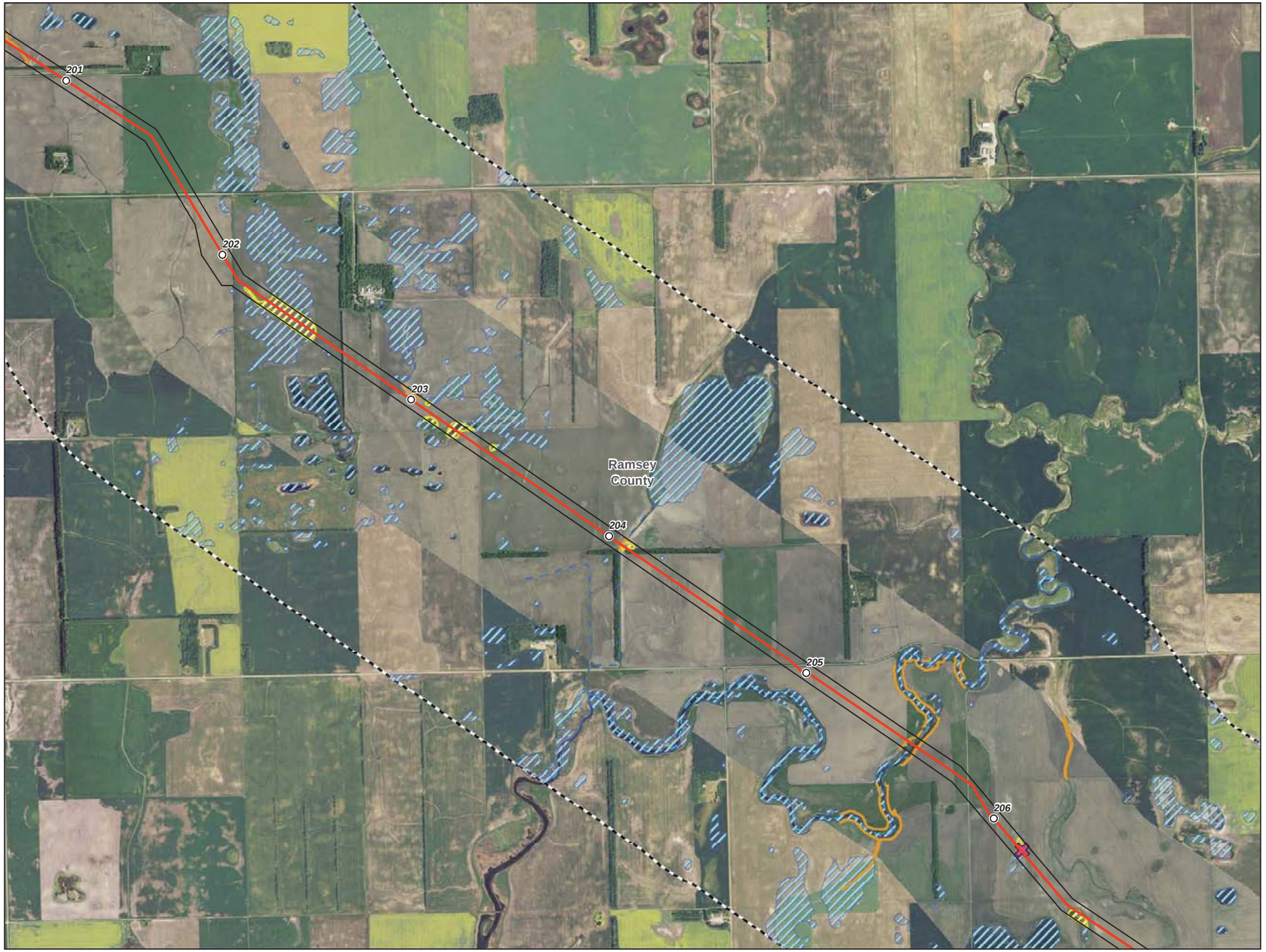
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Date: (1/20/2014) Source: K:\Sandpiper_Project\gis\arcgis\10.1\MXD_PSC\Avoidance_Features_Other\Sandpiper_Rev0_Alt_Other.mxd



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

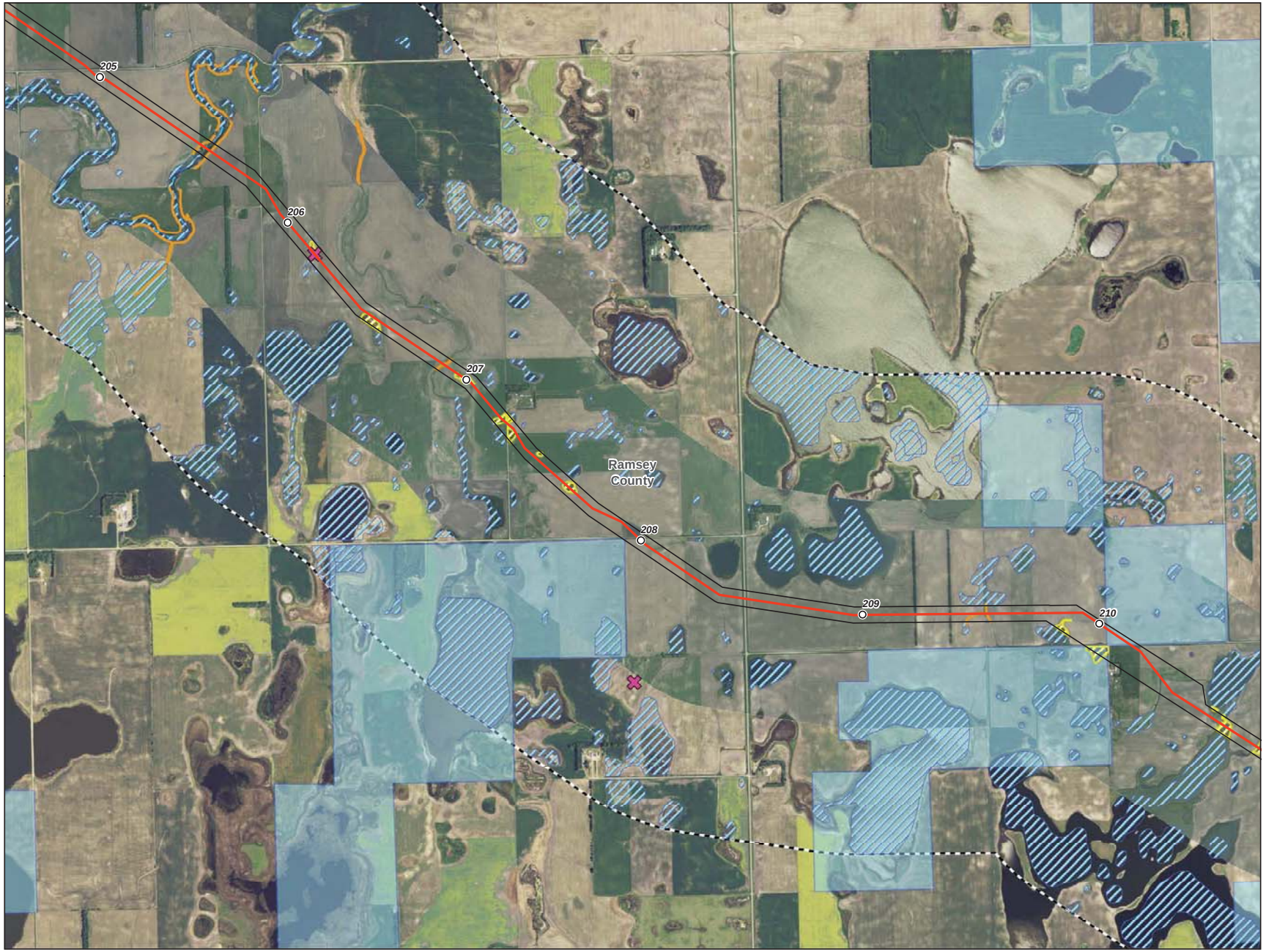
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

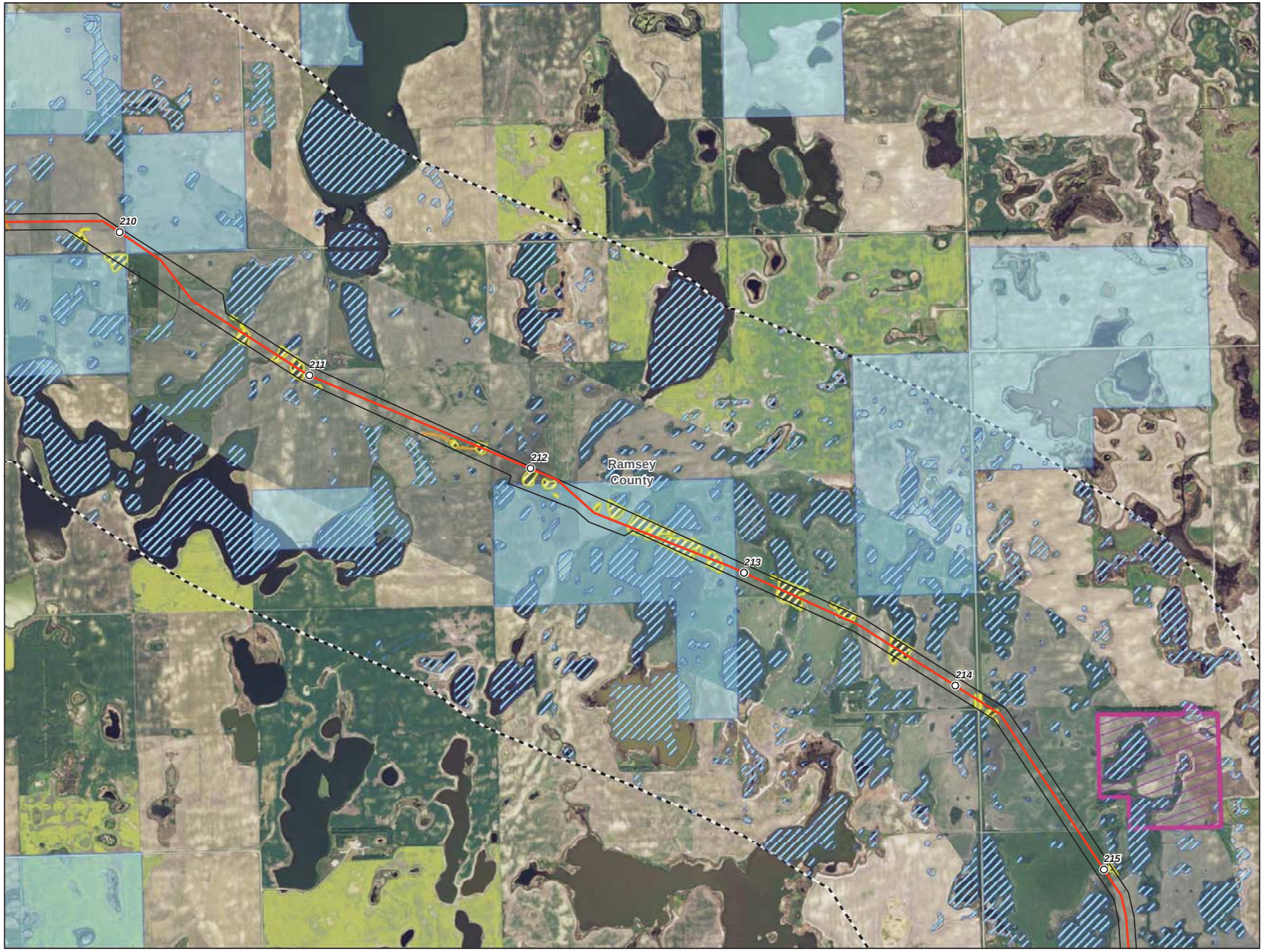
Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: Enbridge_Pipelines_NorthDakota_Sandpiper_ArcGIS_10_1_DVD_PDS_Avoidance_Features_RamseyCounty_Sandpiper_Rev0_Alt_Other.mxd

Date: (1/20/2014)



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

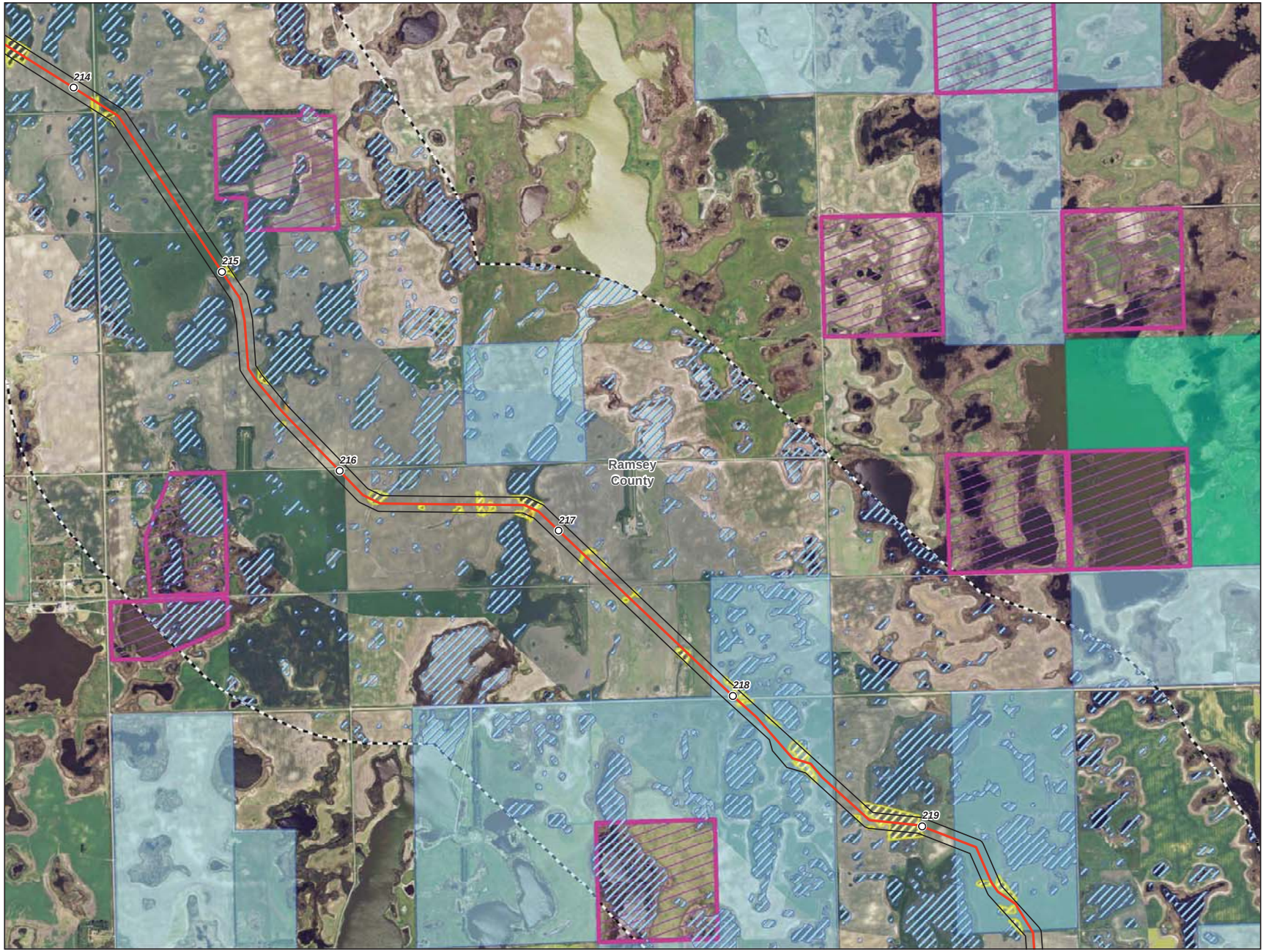
Enbridge Pipelines (North Dakota) LLC

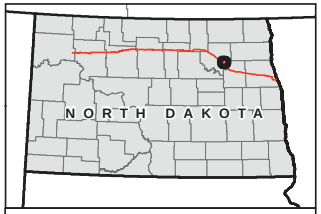
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

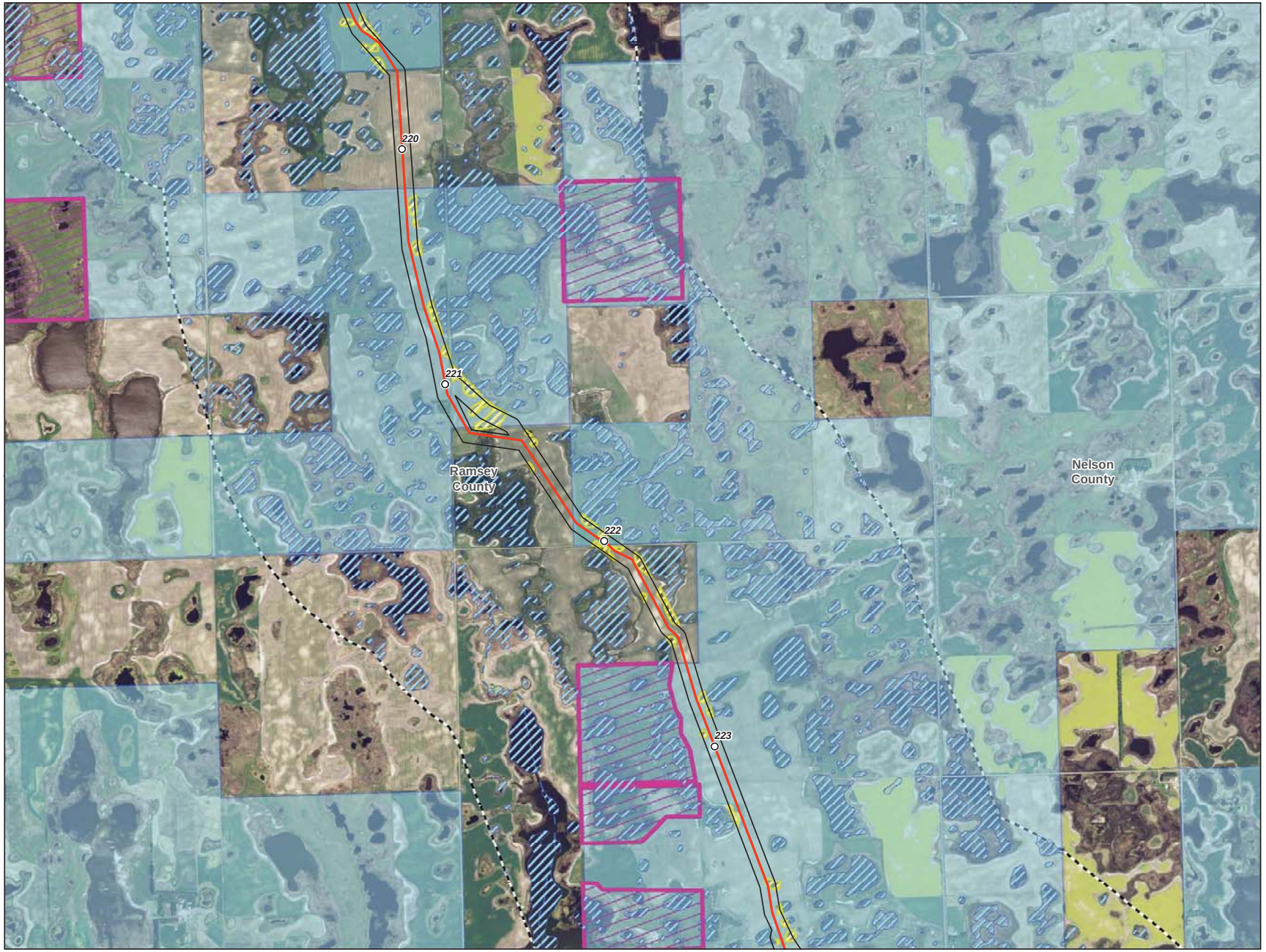
Enbridge Pipelines (North Dakota) LLC

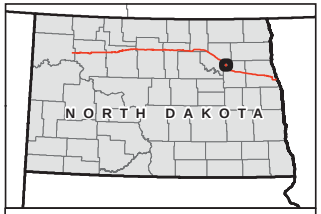
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

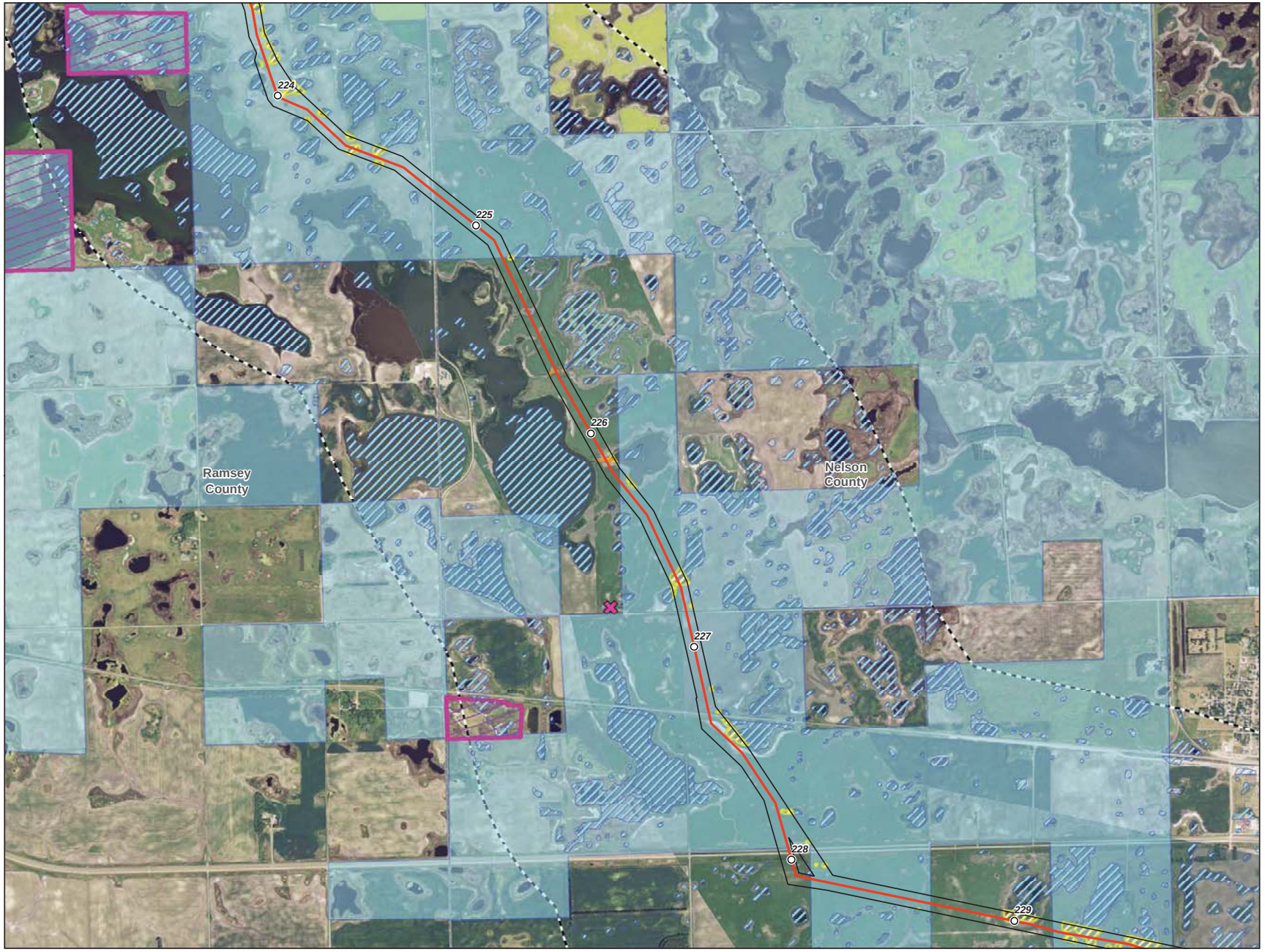
Enbridge Pipelines (North Dakota) LLC

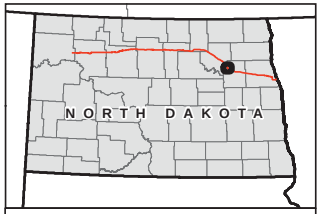
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014





0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

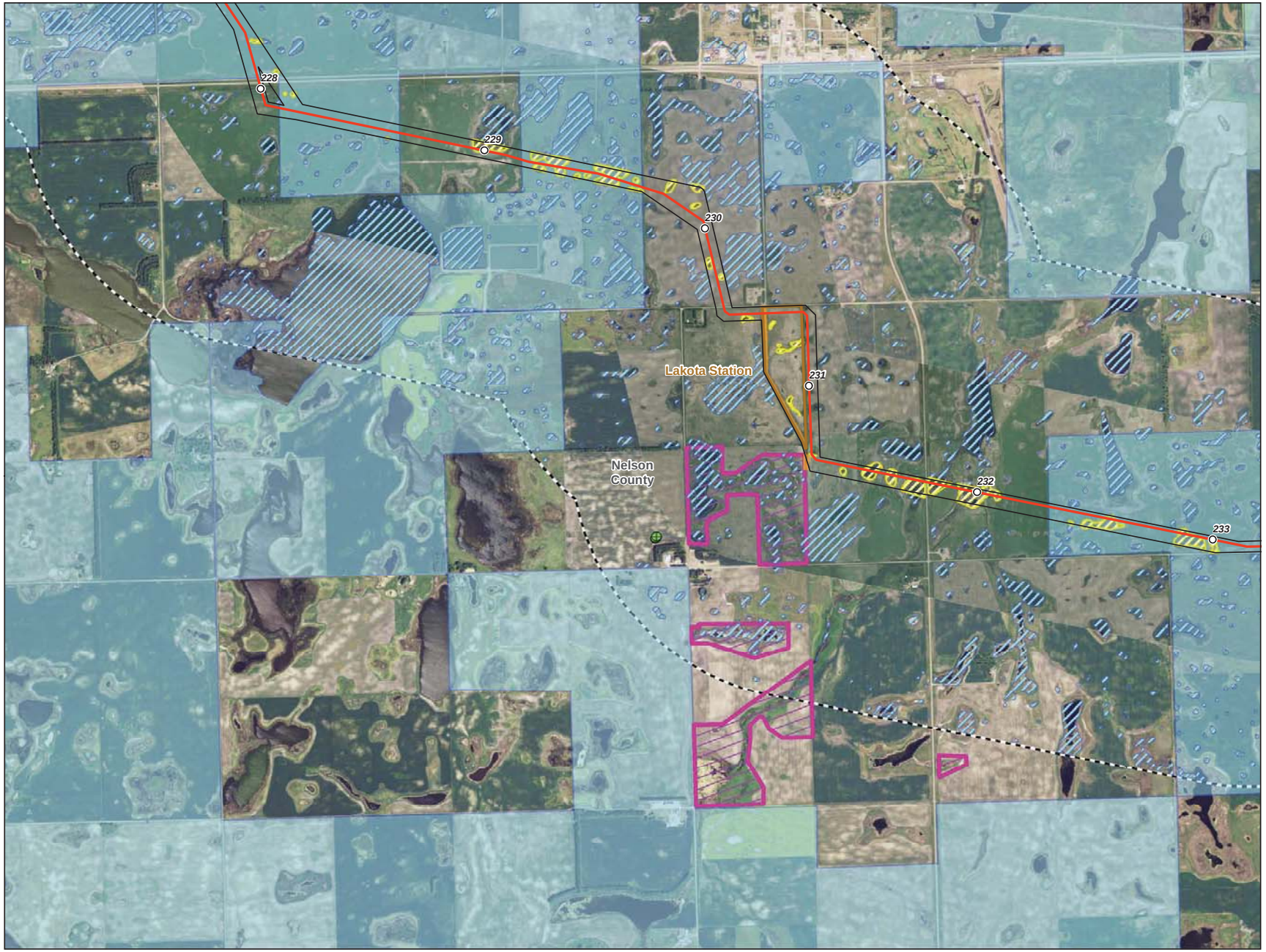
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

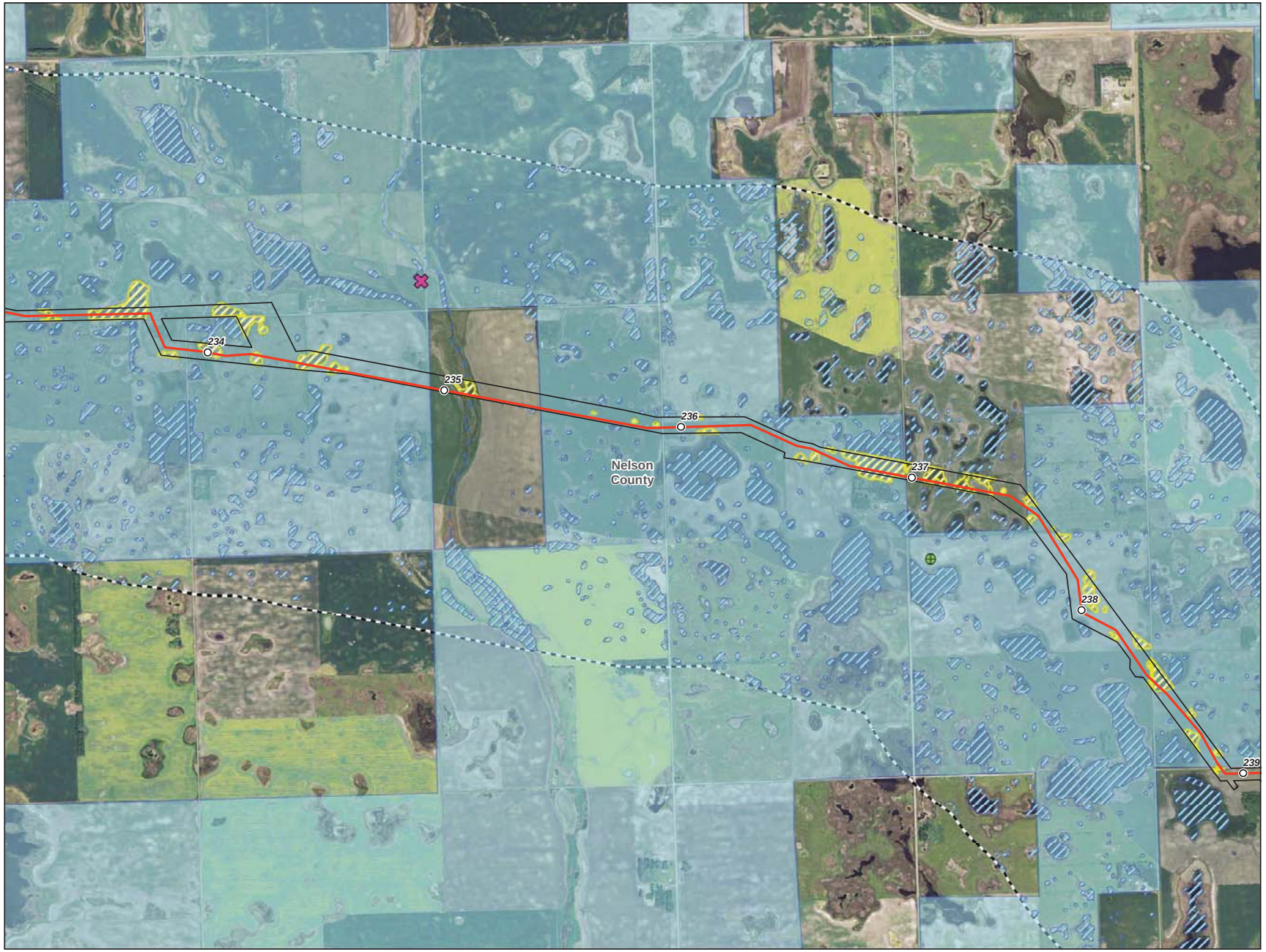
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

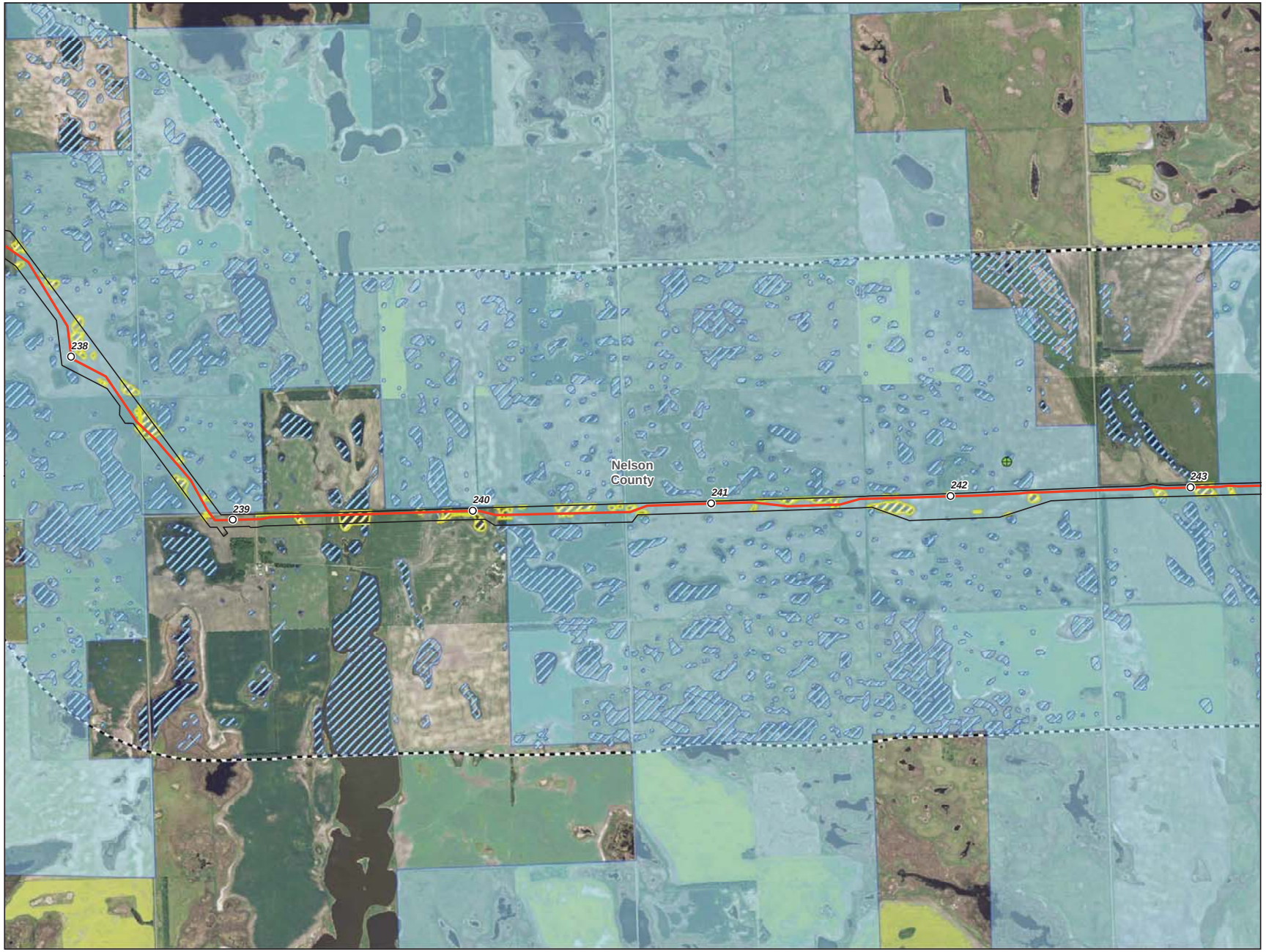
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\ND_PSC\Avoidance_Features\Other_Criteria\Sandpiper_ND_Alt_Other.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

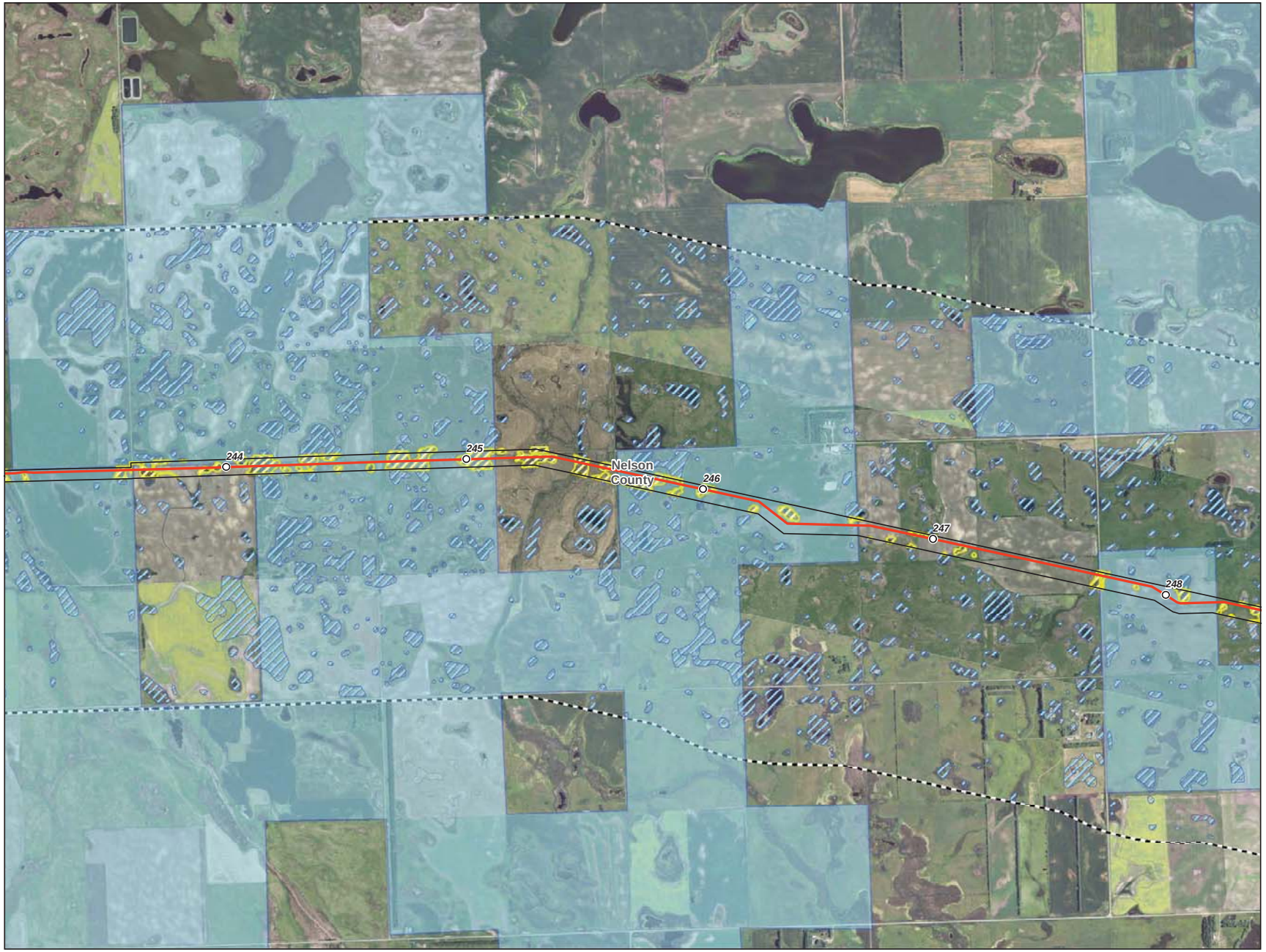
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\ND_PSC\Avoidance_Features_Sheets\Sandpiper_North_ND_Other.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

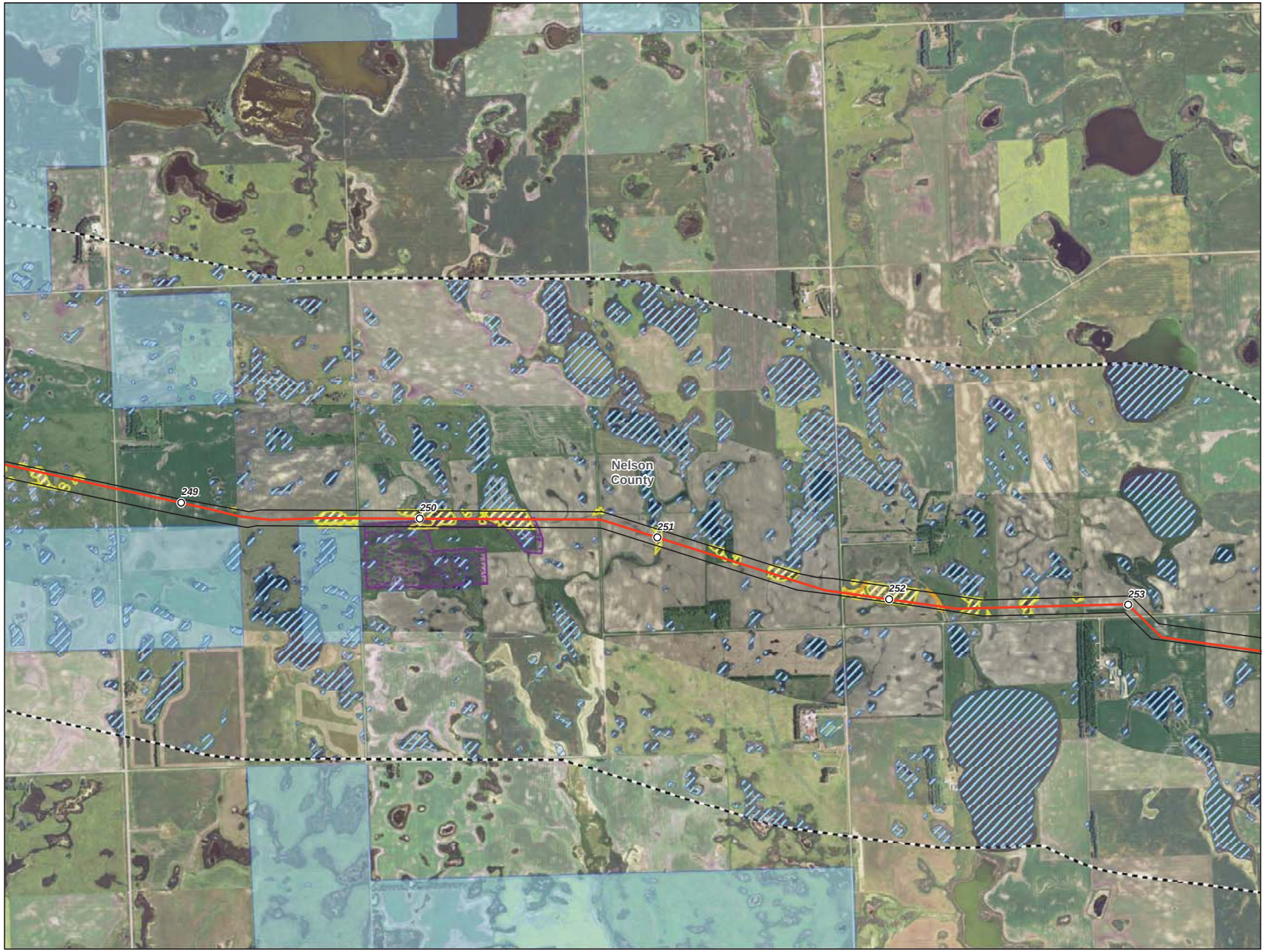
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Date: 1/20/2014 | Source: K:\Sandpiper\ArcGIS\2013\ND_PSC\Avoidance_Features_Other\Sandpiper_Rev0_Alt_Other.mxd



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

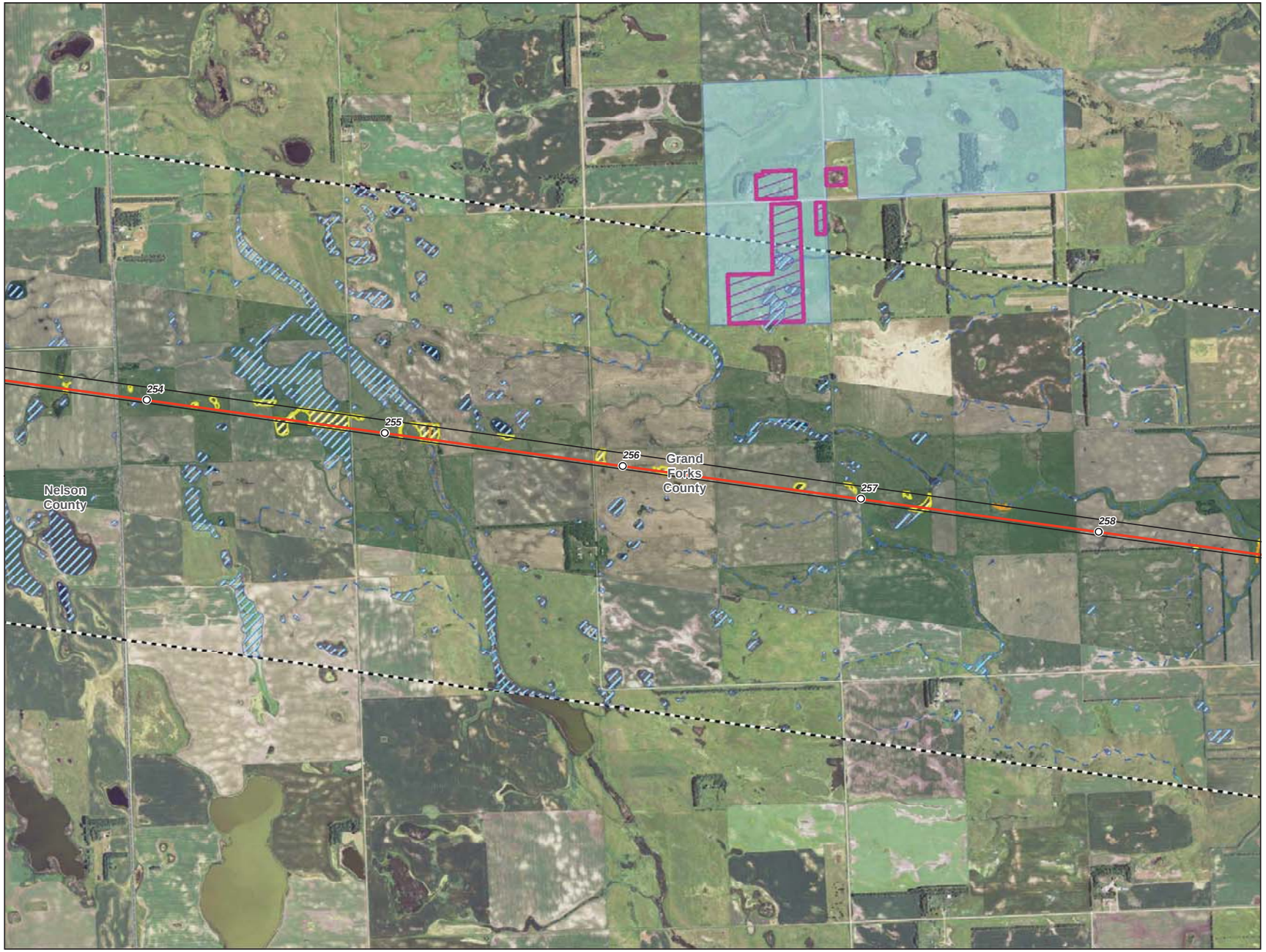
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

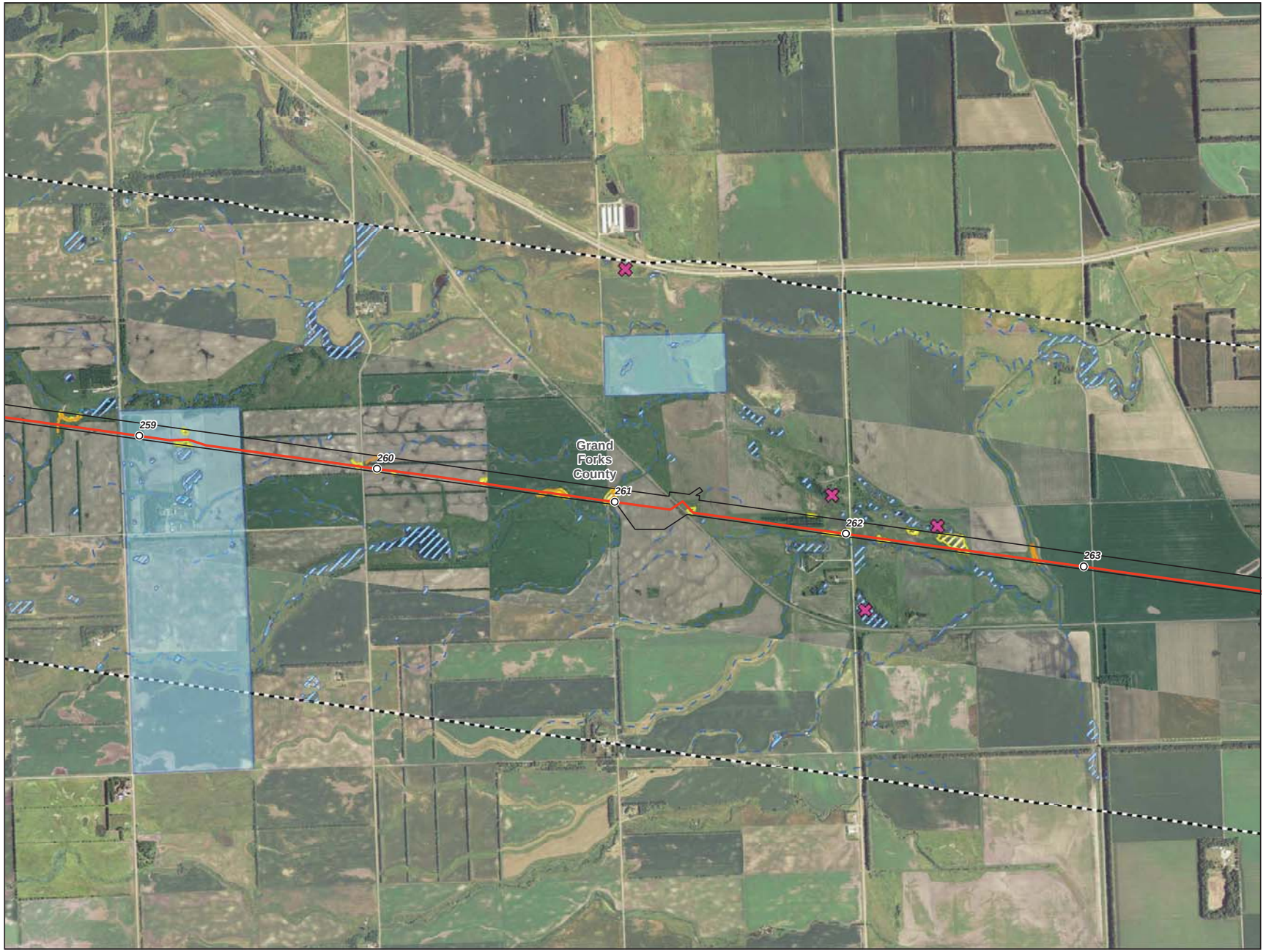
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

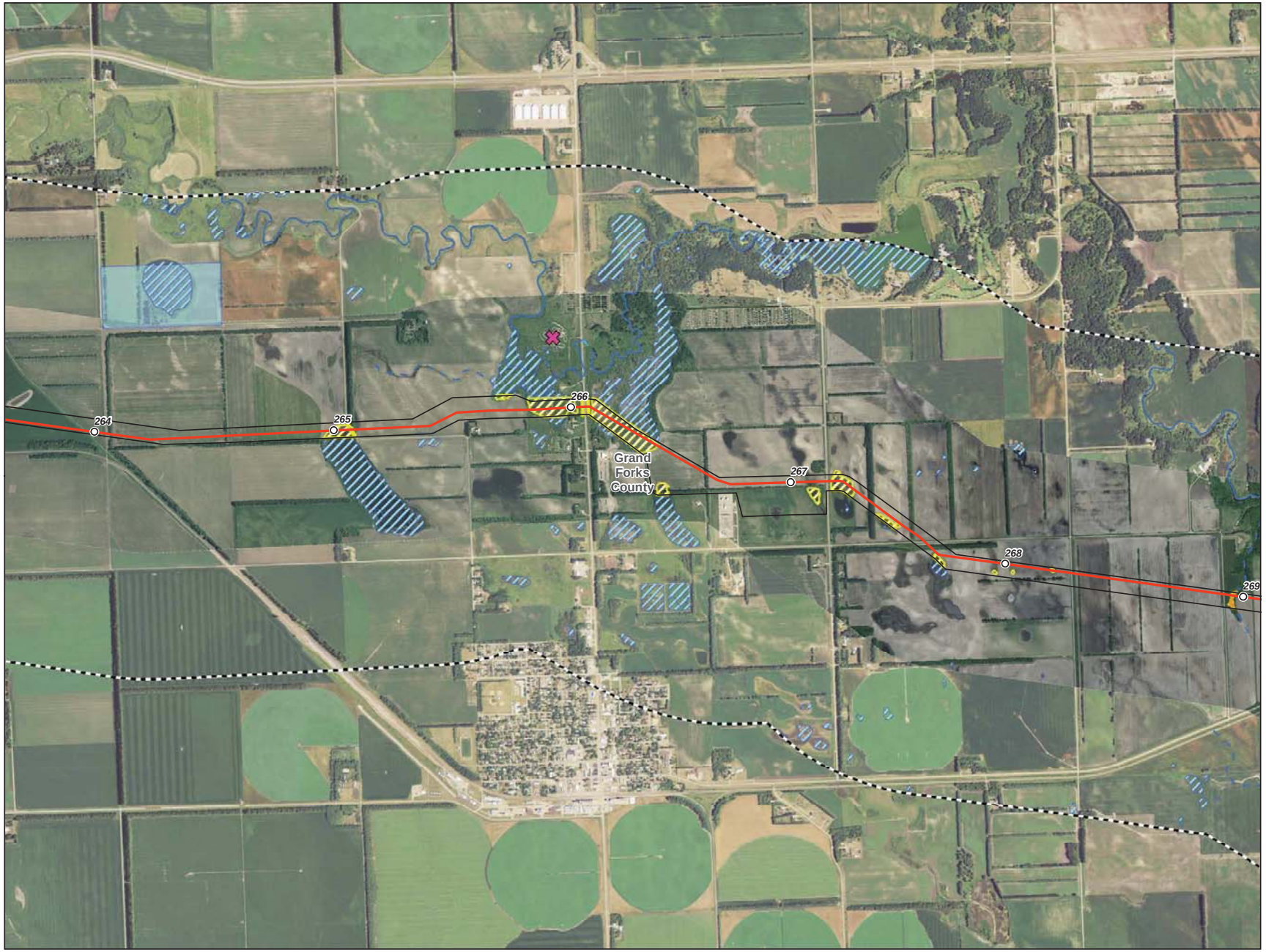
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: Aerial_Enbridge_Sandpiper_Grand_Forks_County_ND_20131205_FSA_Compliance_Reduced_GrandForks_ND_Other.mxd
Date: 1/20/2014

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\DND_PSC\Avoidance_Features_Sites\Sandpiper_NorthDakota_Other.mxd
Date: (1/20/2014)

0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

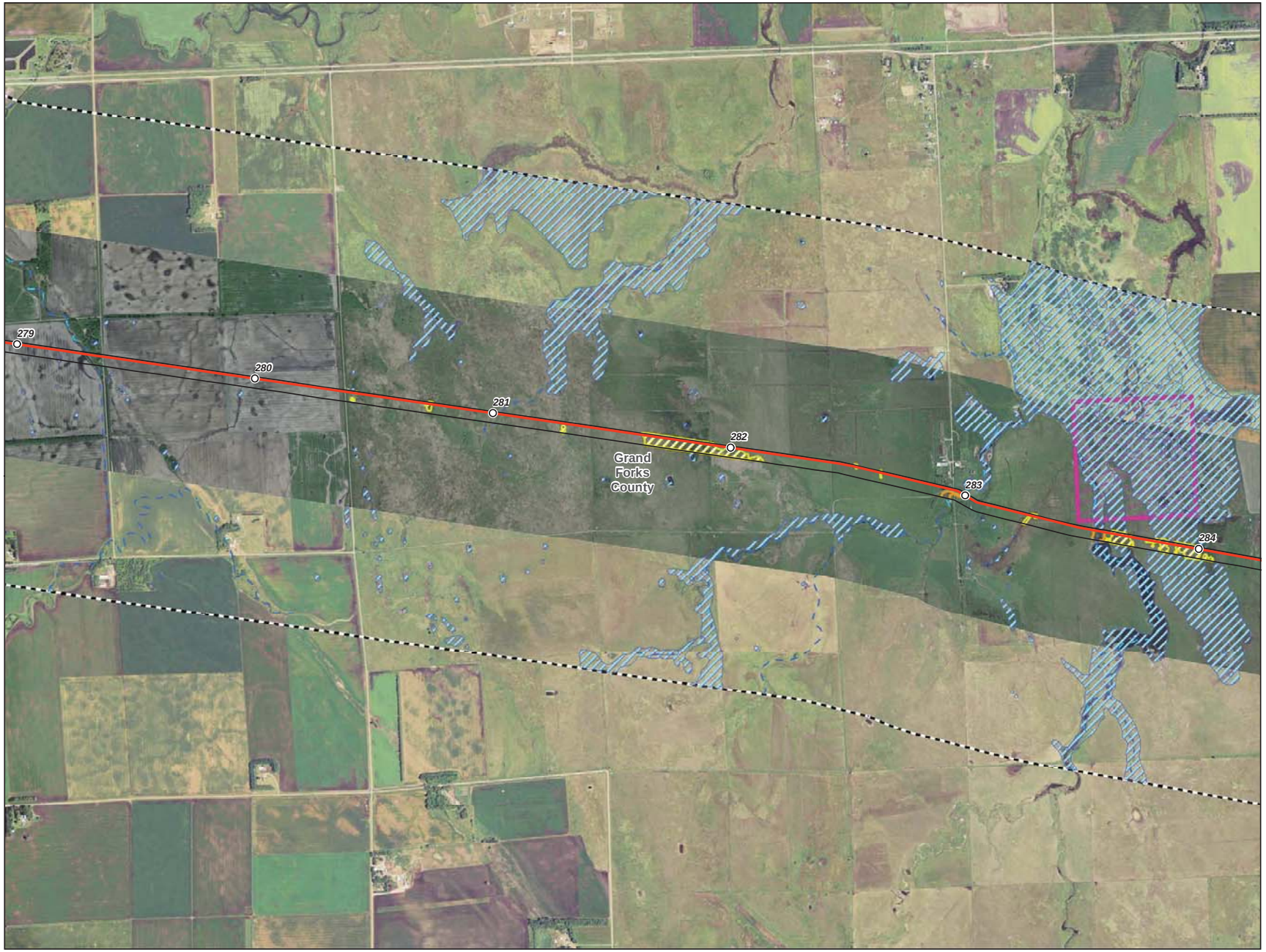
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Alternatives_Sandpiper\ArcGIS\2013\ND_PSC\Variance_Request_GrandForks_Sandpiper_Rev0_MD_Other.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

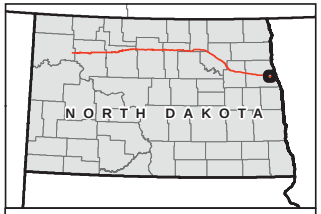
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\ND_PSC\Avoidance_Features\GrandForks\Sandpiper_GrandForks_ND_Other.mxd
Date: (1/20/2014)



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

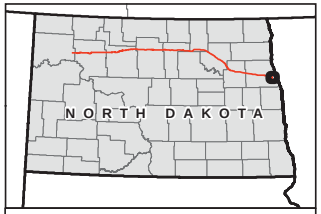
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\2NND_PSC\Avoidance_Features\GrandForks\Sandpiper_NorthDakota_Other.mxd
Date: (1/20/2014)



- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

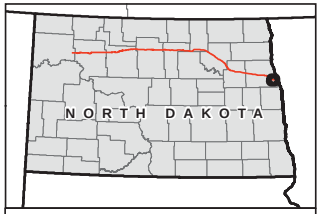
Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

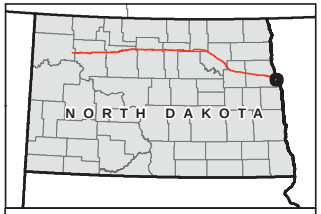
Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Figures\Sandpiper\ArcMXD\2013\DND_PSC\Avoidance_Features_GrandForks\Sandpiper_ND_GF_Other.mxd
Date: 1/20/2014



0 1,000 2,000 Feet

1 inch = 2,000 feet
1:24,000

N
W E
S

- Milepost
- Centerline
- Survey Corridor
- 2-mile Study Area
- Facility
- Previously Sited Facility
- County Boundary
- Oil and Gas Well
- Sand and Gravel Resource
- Delineated Waterbody
- Delineated Wetland
- NWI Wetland
- NCRS WRP Easement
- NDNHI Wet-mesic Tallgrass Prairie

USGS Streams

- Intermittent Stream
- Perennial Stream
- Ephemeral Stream
- Canal Ditch

USFWS Easement

- Grassland
- Wetland
- Conservation

Enbridge Pipelines (North Dakota) LLC

Sandpiper Pipeline Project

Other Criteria Considered

ENBRIDGE

Rev. D 1/20/2014

Source: ArcMap_Projects\Sandpiper\ArcGIS\2013\DND_PSC\Avoidance_Features_GrandForks\Sandpiper_ND_GF_Other.mxd
Date: (1/20/2014)

Enbridge Pipelines (North Dakota) LLC
Sandpiper Environmental Services
Sandpiper Pipeline Project

ENVIRONMENTAL PROTECTION PLAN

October 2013

ENBRIDGE

merjent

ENVIRONMENTAL PROTECTION PLAN

TABLE OF CONTENTS

INTRODUCTION 1
1.0 GENERAL MITIGATION MEASURES 3
1.1 IDENTIFICATION OF AVOIDANCE AREAS 3
1.2 CONSTRUCTION LINE LIST AND PERMITS 3
1.3 WET WEATHER SHUTDOWN 3
1.4 RIGHT-OF-WAY ACCESS 3
1.5 RIGHT-OF-WAY REQUIREMENTS 4
1.6 CONTROLLING SPREAD OF UNDESIRABLE SPECIES 4
1.6.1 Prevention and Control Measures 5
1.7 POTHOLING/HYDROVAC SLURRY 6
1.8 UPLAND CLEARING 6
1.8.1 Disposal of Non-Merchantable Timber 6
1.8.2 Disposal of Merchantable Timber 6
1.8.3 Upland Grading and Stump Removal 6
1.9 TEMPORARY EROSION AND SEDIMENT CONTROLS 7
1.9.1 Temporary Stabilization 7
1.9.2 Erosion Control Blanket 7
1.9.3 Mulch 8
1.9.4 Cat Tracking 8
1.9.5 Temporary Slope Breakers 8
1.10 UPLAND TOPSOIL SEGREGATION 9
1.11 UPLAND TRENCHING 10
1.11.1 Timing 10
1.12 FOAM PILLOW INSTALLATION 10
1.13 TRENCH BREAKERS 10
1.14 DRAIN TILE INLET PROTECTION AND TILE REPAIRS 11
1.15 UPLAND BACKFILLING 11
1.16 CLEANUP AND ROUGH/FINAL GRADING 11
1.16.1 Timing 12
1.17 PERMANENT EROSION AND SEDIMENT CONTROLS 12
1.18 SOIL COMPACTION TREATMENT 12

1.19 STONE REMOVAL 12
1.20 REPAIR OF DAMAGED CONSERVATION PRACTICES 13
1.21 LAND LEVELING FOLLOWING CONSTRUCTION 13
2.0 STREAM AND RIVER CROSSING GENERAL REQUIREMENTS 14
2.1 TIME WINDOW FOR CONSTRUCTION 14
2.2 CLEARING AND GRADING 14
2.2.1 Impaired Waters 15
2.3 ADDITIONAL TEMPORARY WORKSPACE 15
2.4 BRIDGES 15
2.4.1 Types of Bridges 15
2.4.2 Bridge Design and Maintenance 16
2.5 STREAM AND RIVER CROSSING CONSTRUCTION METHODS 16
2.5.1 Wet Trench Method 17
2.5.2 Dam and Pump Method 18
2.5.3 Flume Method 19
2.5.4 Directional Drill and/or Guided Bore Method 20
2.6 PERMANENT RESTORATION 21
2.6.1 Vegetative Bank Restoration 21
2.6.2 Supplemental Bank Stabilization 21
2.6.3 Bridge Removal 21
2.6.4 Swales 22
3.0 WETLAND CROSSING GENERAL REQUIREMENTS 23
3.1 WETLAND ACCESS 23
3.2 CLEARING 23
3.3 ADDITIONAL TEMPORARY WORKSPACE IN WETLANDS 23
3.4 GRADING IN A WETLAND 24
3.5 RIGHT-OF-WAY STABILIZATION 24
3.6 TRENCHING 24
3.6.1 Topsoil Segregation 24
3.6.2 Trench Breakers 25
3.7 PIPELINE INSTALLATION 25
3.7.1 Push/Pull Method 25
3.7.2 Temporary Erosion and Sediment Controls 25
3.7.3 Concrete Coating 25
3.8 BACKFILLING 25
3.9 ROUGH GRADING, CLEANUP, AND TEMPORARY RESTORATION 26
3.9.1 Timing 26
3.9.2 Temporary Stabilization 26
4.0 HIGHWAY, ROAD and RAIL CROSSINGS 27
4.1 ADDITIONAL WORKSPACE 27
4.2 MAINTENANCE 27

4.3 TEMPORARY EROSION AND SEDIMENT CONTROLS....27
5.0 CONSTRUCTION DEWATERING....28
5.1 TRENCH DEWATERING....28
5.1.1 Flow Measurement and Water Sampling....29
5.1.2 Regulatory Notification and Reporting....29
5.2 HYDROSTATIC TEST DISCHARGES....29
5.2.1 Refueling....29
5.2.2 Siting of Test Manifolds....29
5.2.3 Water Sampling....29
5.2.4 Best Management Practices....29
5.2.5 Flow Measurement....30
6.0 WATER APPROPRIATION....31
6.1 GENERAL....31
6.2 WATER SOURCES....31
6.3 FLOW MEASUREMENT....31
6.4 WATER SAMPLING....31
6.5 REGULATORY NOTIFICATION AND REPORTING....31
7.0 REVEGETATION & MONITORING....32
7.1 PROJECT SEED SPECIFICATIONS....32
7.2 TEMPORARY REVEGETATION....32
7.3 TIMING FOR TEMPORARY VEGETATION....33
7.4 MULCH....33
7.5 PERMANENT REVEGETATION....33
7.6 UPLAND CONSTRUCTION AREAS....34
7.7 PERMANENT SEEDING OF WETLAND AREAS....34
7.7.1 Unsaturated Wetland Areas....34
7.7.2 Saturated/Standing Water Wetlands....34
7.7.3 Forested Wetland Restoration....34
7.8 PERMANENT SEEDING OF WATERBODY BANKS....34
7.9 SPECIALIZED SEED MIXES....34
7.10 CONSERVATION RESERVE PROGRAM (CRP) PROPERTIES....35
7.11 SEED BED PREPARATION AND SEEDING PROCEDURES....35
7.12 SEEDING METHODS....35
7.12.1 Drill Seeding....35
7.12.2 Broadcast Seeding....35
7.12.3 Hydroseeding....36
7.13 SOIL AMENDMENTS....36
7.14 SEEDING PERIODS....36
7.15 TIMING OF FINAL SEEDING....36

7.16 EROSION & SEDIMENT CONTROL 36
7.17 DORMANT SEEDING....37
7.18 MONITORING 37
8.0 WINTER CONSTRUCTION....38
9.0 WASTE MANAGEMENT 39
9.1 HAZARDOUS WASTES 39
9.2 ABRASIVE BLAST DEBRIS 39
10.0 SPILL PREVENTION, CONTAINMENT, AND CONTROL MEASURES 40
10.1 PLANNING AND PREVENTION....40
10.2 ROLES AND RESPONSIBILITIES....40
10.2.1 Spill Coordinator....40
10.2.2 Environmental Inspector....40
10.2.3 Authorized Personnel 41
10.2.4 Construction Superintendent 41
10.2.5 Construction Personnel 41
10.3 TRAINING....41
10.4 EQUIPMENT 41
10.5 SUPERVISION AND INSPECTION 42
10.6 STORAGE AND HANDLING OF FUELS/HAZARDOUS LIQUIDS 42
10.6.1 Fuel Storage - General....42
10.6.2 Refueling....42
10.6.3 Refueling, Maintenance, and Fuel Storage Near Wetlands and Waterbodies....42
10.6.4 Overnight parking....43
10.6.5 Concrete Washout Handling....43
10.7 INITIAL SPILL MANAGEMENT....43
10.7.1 Immediate Response....43
10.7.2 Mobilization 44
10.8 SPILL NOTIFICATION RESPONSIBILITIES....44
10.8.1 Notification Volumes....44
10.8.2 Spill Report Form 44
10.8.3 Agency Notification....44
10.9 SPILL CONTAINMENT AND CLEANUP....45
10.9.1 Spill Control - Upland Areas 45
10.10 SPILL CONTROL - WETLANDS AND WATERBODIES 45
10.11 STORAGE AND DISPOSAL OF CONTAMINATED MATERIALS....46
11.0 DRILLING FLUID RESPONSE, CONTAINMENT, & NOTIFICATION PROCEDURES ..47
11.1 ON-SITE OBSERVATION DURING CONSTRUCTION 47
11.2 CONTAINMENT, RESPONSE, AND CLEAN-UP EQUIPMENT....47
11.3 RESPONSE....48
11.3.1 Upland Locations....48

11.3.2 Wetland and Waterbody Locations 48
11.4 NOTIFICATION AND RESUMPTION OF SUSPENDED HDD OPERATIONS ... 49
11.5 CLEAN-UP 49
11.6 RESTORATION AND POST-CONSTRUCTION MONITORING 50

FIGURES[1]

Figure 1 Typical Topsoil Segregation – Modified Ditch Plus Spoil Side
Figure 2 Typical Topsoil Segregation – Full Right-of-Way
Figure 3 Typical Topsoil Segregation – Trench Line Only
Figure 4 Typical Temporary or Permanent Berms – Perspective View
Figure 5 Typical Temporary or Permanent Berms – Elevation View
Figure 6 Typical Silt Fence Installation
Figure 7 Typical Straw Bale Installation
Figure 8 Typical Erosion Control Blanket Installation
Figure 9 Typical Staple Pattern for Erosion Control Fabric
Figure 10 Typical Bio-log Installation
Figure 11 Typical Cat Tracking
Figure 12 Typical Trench Breakers – Perspective View
Figure 13 Typical Trench Breakers – Plan and Profile Views
Figure 14 Permanent Slope Breakers – Perspective View
Figure 15 Typical Waterbody Crossing – Wet Trench Method
Figure 16 Typical Waterbody Crossing – Dam and Pump Method
Figure 17 Typical Waterbody Crossing – Flume Method
Figure 18 Typical Waterbody Crossing – Directional Drill Method
Figure 19 Typical Span Type Bridge With and Without Support (Timber Mat Bridge)
Figure 20 Typical Rock and Flume Bridge
Figure 21 Typical Dewatering Measures
Figure 22A Typical Straw Bale Dewatering Structure
Figure 22B Typical Straw Bale Dewatering Structure
Figure 22C Typical Straw Bale Dewatering Structure
Figure 23 Typical Final Stream Bank Stabilization – Rip Rap & Erosion Control
Figure 24 Typical Wetland Crossing
Figure 25 Typical Improved Road Crossing-Directional Bore
Figure 26 Typical Stream Bank Stabilization Bio-log
Figure 27 Typical Root Wad
Figure 28 Typical Natural Material Revetment

APPENDICES

Appendix A Noxious and Invasive Weed Species
Appendix B Equipment Cleaning Log
Appendix C Seed Mixes
Appendix D EPND Environment Hydrostatic Test Discharge Authorization & Documentation
Appendix E Emergency Response Contractors/Disposal and Treatment Facilities
Appendix F Spill Report Form
Appendix G Spill Reporting-Agency Contacts

[1] **Site-specific plans supersede any design presented in the typical details.**

INTRODUCTION

This Environmental Protection Plan (EPP) outlines construction-related environmental policies, procedures, and protection measures developed by EPND Pipelines (North Dakota) LLC (EPND) as a baseline for construction of the Sandpiper Pipeline Project (Sandpiper or Project). This EPP was developed based on EPND's experience implementing Best Management Practices (BMPs) during construction as well as the Federal Energy Regulatory Commission's (FERC's) Upland Erosion Control, Revegetation, and Maintenance Plan (May 2013 Version) and Wetland and Waterbody Construction and Mitigation Procedures (May 2013 Version). It is intended to meet or exceed federal, state, tribal, and local environmental protection and erosion control requirements, specifications and practices. The EPP is designed to address typical circumstances that may be encountered along the Project. Project-specific permit conditions and/or landowner agreements may supersede general practices described in this document.

This document includes the following sections:

- Section 1.0 describes general mitigation measures, including soil erosion and sedimentation control procedures, to be implemented during upland construction and upland restoration;
- Section 2.0 describes stream and river construction, crossing, and restoration;
- Section 3.0 describes practices for wetland construction, crossings, and restoration;
- Section 4.0 describes highway, road, and rail crossings;
- Section 5.0 describes construction dewatering;
- Section 6.0 outlines water appropriation practices;
- Section 7.0 addresses revegetation measures;
- Section 8.0 addresses winter construction issues;
- Section 9.0 addresses waste management issues;
- Section 10.0 addresses construction equipment-related spill prevention, containment and controls; and
- Section 11.0 addresses containment, response, and notification procedures for inadvertent releases of drilling fluid.

Alternative construction procedures implemented in lieu of this EPP will provide an equal or greater level of protection to the environment, and will be approved in writing by EPND. Modifications for the construction of dual pipelines are highlighted below in the appropriate sections.

Unless otherwise specified, the construction Contractor (Contractor) is responsible for implementing the requirements of this EPP.

EPND will provide appropriate construction oversight to confirm and document compliance with the measures of this EPP and requirements of applicable federal, state, tribal, and local permits. EPND's Environmental Inspectors (EIs) will assist the Contractor in interpreting and implementing the requirements of the EPP, and verify compliance with these procedures for

EPND. EPND will employ experienced EIs to manage unforeseen situations that are not directly addressed by the Project documents. EPND relies on the experience and judgment of the EIs, through coordination and consultations with Project management staff, to address unforeseen situations should they occur in the field. The EIs will be expected to use judgment in the field to interpret environmental conditions and requirements, but will not be authorized to make major modifications or changes without the prior written approval of EPND. The EI, in consultation with EPND Environment staff, will have the authority to stop activities and order corrective mitigation for actions that are not in compliance with the measures in this EPP, landowner agreements, or environmental permit requirements. The EI will maintain appropriate records to document compliance with these and other applicable environmental permit conditions.

1.0 GENERAL MITIGATION MEASURES

1.1 IDENTIFICATION OF AVOIDANCE AREAS

The EI will post signs for environmental features such as wetlands, waterbodies, drainages/drain tiles, buffer zones, rare plant or ecological community sites, invasive species and noxious weed locations, regulated wildlife habitat, cultural resources, and erosion-prone or steep slopes.

1.2 CONSTRUCTION LINE LIST AND PERMITS

EPND will provide the Contractor with a Construction Line List (CLL) that describes special requirements (e.g., timber salvage, topsoil segregation, restoration measures, fencing requirements, etc.) as agreed upon with landowners provided the conditions conform to the Project permits. The Contractor will comply with these special requirements and/or permit conditions.

The CLL identifies requirements and comments provided by Landowners; however it is not a comprehensive list of construction requirements. The CLL will be considered in conjunction with other Project documents and permits.

1.3 WET WEATHER SHUTDOWN

During construction, certain activities may be suspended in wet soil conditions, based on consideration of the following factors:

- extent of surface ponding;
- extent and depth of rutting and mixing of soil horizons;
- areal extent and location of potential rutting and compaction (i.e., can traffic be rerouted around wet area); and
- type of equipment and nature of the construction operations proposed for that day.

The Contractor will cease work in the applicable area until EPND determines that site conditions are such that work may continue. The EIs, in collaboration with EPND construction management, will ultimately decide if wet weather shutdown is necessary in a given location.

1.4 RIGHT-OF-WAY ACCESS

Access to the right-of-way (ROW) will be from public roadways and EPND-approved private access roads only. EPND is responsible for posting signs or other methods to identify approved access roads in the field and to ensure that access is confined to only the approved roads. Vehicle tracking of soil from the construction site will be minimized by installation and implementation of best management practices (BMPs) such as stone pads, timber mats, reducing equipment/vehicle access to the construction ROW where practicable (off-ROW parking), or equivalent. Installation of stone or timber mat access pads will be in accordance with applicable permits and state/federal specifications. If such BMPs are not adequately preventing sediment from being tracked onto public roads, street sweeping, or other equivalent means of collecting sediment, will be used. If soil is tracked onto a roadway, the contractor will remove accumulated material from the road and returned to the construction ROW within an upland area as soon as possible, but in no circumstances more than 24 hours after discovery.

In addition, soil on roadways cannot be broomed, washed, and/or graded into the road ditch or onto the shoulder.

1.5 RIGHT-OF-WAY REQUIREMENTS

All construction equipment and vehicles will be confined to the approved construction ROW and additional temporary workspace. Prior to commencement of clearing operations, the outer limits of the construction ROW and additional temporary workspace areas will be marked with distinctive stakes and flagging by EPND. Construction activities are restricted to the approved designated areas.

The construction ROW (i.e., construction workspace) for the Project will vary and may include a portion of EPND's existing corridor, new permanent corridor, permitted temporary workspace, and site-specific extra workspaces as defined below and shown in Figures 1 through 3. The construction ROW width will be reduced in selected locations (e.g., wetlands, waterbodies, and forested shelterbelts), in accordance with applicable permit conditions, as indicated on the Project construction alignment sheets and in the field by the use of staking.

(a) ROW (Permanent)

EPND's existing permanent ROW varies in width. Additional footage may be added, depending on the location of the new pipeline(s) in relation to the existing pipelines. The ROW is maintained to facilitate access and aerial inspection of the pipeline system.

(b) Temporary Workspace

In addition to the ROW/permanent corridor, construction will require Temporary Workspaces (TWS). The TWS will be located adjacent to and contiguous with the proposed ROW/permanent corridor and will be identified on the construction alignment sheets and by distinctive staking of construction limits prior to clearing.

(c) Additional Temporary Workspace

Site-specific additional temporary workspace (ATWS) locations, (construction work areas beyond the permanent corridor and TWS previously described), will be required at select locations such as steep slopes, road, waterbody, railroad, some wetland crossings, and where it is necessary to cross under the existing pipelines or foreign utilities. ATWS will typically be located in uplands adjacent to the construction ROW and set at least 50-feet back from sensitive resource boundaries where site-specific field conditions allow. However, to complete work safely, EPND may need to locate ATWS within a wetland or within the 50-foot setback from a wetland or waterbody based on site-specific conditions. ATWS adjacent to waterbodies and/or wetlands is addressed further in Sections 2.0 and 3.0, respectively.

1.6 CONTROLLING SPREAD OF UNDESIRABLE SPECIES

It is EPND's intent to minimize the potential introduction and/or spread of undesirable species (i.e., invasive species, noxious weeds, or crop diseases) along the construction ROW due to pipeline construction activities. However, it is not practicable for EPND to eradicate undesirable

species that are adjacent to the construction ROW. EPND will minimize the potential for the establishment of undesirable species by minimizing the time duration between final grading and permanent seeding.

In consultation with the applicable agencies, EPND will identify plant species that are consider noxious weeds and/or invasive plants that may occur within the counties being crossed by the pipeline corridor (refer to Appendix A).

1.6.1 Prevention and Control Measures

To prevent the introduction of the noxious weeds and invasive species identified into the Project area from other construction sites, construction equipment will be cleaned prior to arriving at the Project site. This cleaning consists of removing visible dirt from the equipment and blowing loose material from equipment using compressed air. Equipment designated for use within waterbodies will be washed and dried prior to use. Purge and clean all pumps before proceeding from one location to the next if designated noxious weeds or invasive species (e.g. zebra mussels, Eurasian milfoil, etc.) are known to be present in the area. The Contractor(s) will keep logs documenting the cleaning history of each piece of equipment and make the logs available to the EI upon request. Contractors may use the equipment cleaning log provided in Appendix A or an equivalent form approved by EPND. Equipment found to be in non-compliance with the cleaning requirement will not be allowed on the Project site until it has been adequately cleaned.

Prior to clearing and grading of the construction right-of-way and pending landowner permission, major infestation areas identified during surveys or by EPND's EIs may be treated with the recommended herbicides or their equivalents as identified through consultation with local authorities. All proposed herbicides will be reviewed and approved by EPND's Environment Department prior to use. Alternatively, full construction ROW topsoil segregation may be implemented for weed control to allow equipment to work through the area after topsoil has been stripped, as long as equipment stays on the subsoil (clearing, grading, and restoration equipment will still be cleaned). The Contractor(s) will obtain necessary permits and/or certifications for the use of the applicable herbicides, is responsible to limit off-ROW overspray, and will comply with state laws regarding the use of those herbicides. Contractor(s) will keep proper documentation of the locations where the herbicides have been used and provide such documentation to EPND within 3 days of completing the work. Weed control spraying will be restricted near certified organic farms and prohibited on certified organic farms.

Treatment of known infestation areas will be completed in accordance with applicable chemical contact times (as specified by the manufacturer) in advance of clearing and grading within the construction ROW. Treatment may be restricted in areas that are not readily accessible, such as areas where access is limited by topography or other site conditions such as saturated/inundated soils. In the event that an area is determined to be inaccessible, the EI will be notified and a site-specific alternative treatment method will be developed.

If additional noxious weed infestations are identified subsequent to herbicide applications, mechanical means (scrape down/blow down) may be used to remove weeds from tracked equipment prior to leaving the infested area. High pressure water wash stations may be established in select areas if the above measures do not adequately remove soil and vegetation debris from construction equipment. EPND will determine where this practice will be implemented. The Contractor(s) will keep logs documenting the cleaning history of each piece

of equipment and make the logs available to the EI or other EPND Representative upon request. Any equipment found to be in noncompliance with the cleaning requirement will be removed from the Project site until it has been adequately cleaned.

To prevent the spread of noxious weeds and invasive species during construction, mulch used on the Project will be composed of weed-free material. Certified weed-free mulch may also be required at site-specific locations. The Contractor(s) will be responsible for identifying and acquiring sources of weed-free and certified weed-free mulch. Sources will be approved by EPND prior to purchase.

1.7 POTHOLING/HYDROVAC SLURRY

Hydrovac excavation is used to positively identify pipelines and other buried utilities. The Contractor will construct an unlined but bermed containment area or identify comparable containment (e.g., open top tank) to hold the hydrovac slurry in an EPND and landowner-approved upland area within the construction workspace or dispose of the material off-site at a licensed disposal facility. Once the slurry is drained and dry, it may be incorporated with the subsoil in an EPND and landowner-approved upland area within the construction workspace. Discharging hydrovac slurry on to topsoil is not permitted as the material will degrade the quality of the topsoil and potentially affect revegetation.

1.8 UPLAND CLEARING

The initial stage of construction involves the clearing of brush, trees, and tall herbaceous vegetation from the ROW. Clearing may be accomplished with chain saws, mowers, and hydraulic tree-cutting equipment.

1.8.1 Disposal of Non-Merchantable Timber

Unless otherwise directed by EPND, non-merchantable timber and slash will be disposed of by mowing, chipping, grinding, and/or hauling off site to an approved disposal facility or used in stabilizing erodible slopes or construction entrances. In non-agricultural, non-wetland areas, chips, mulch, or mechanically cut woody debris may be uniformly broadcast across the ROW where the material would ultimately be incorporated into the topsoil layer during grading activities, with landowner approval (coordinated through EPND ROW agents). Burning of non-merchantable wood may be allowed only where the Contractor has acquired all applicable permits and approvals (e.g. agency, tribal, and landowner) and in accordance with all tribal, state, and local regulations. The Contractor will provide EPND with copies of these permits and/or approvals prior to initiating burning.

1.8.2 Disposal of Merchantable Timber

All merchantable timber will be managed in accordance with EPND contract specifications.

1.8.3 Upland Grading and Stump Removal

To facilitate proper cleanup and restoration in upland areas, tree stumps outside the ditch line will be ground below normal ground surface or completely removed and hauled off to an approved disposal facility. Stumps in the ditch line will be completely removed, ground, and/or hauled off to an approved disposal facility.

1.9 TEMPORARY EROSION AND SEDIMENT CONTROLS

Temporary erosion and sediment controls (ECDs) include, but are not limited to, slope breakers, sediment barriers (i.e. silt fence, straw bales, bio-logs, etc.), stormwater diversions, trench breakers, mulch, and revegetation subsequent to seeding of exposed soils (refer to Figures 4 through 11). The Contractor will maintain erosion and sediment control structures as required in Project construction documents and as required by all applicable permits. Non-functional erosion and sediment controls will be repaired, replaced, or supplemented with functional materials within 24 hours after discovery, or as otherwise specified in the Project permits. ECDs will be installed after initial clearing but before grading activities, and will be replaced by permanent erosion controls as restoration is completed.

Temporary ECDs will be installed after clearing and prior to grubbing and grading activities at the base of sloped approaches to streams, wetlands, and roads. Temporary ECDs will also be installed at the edge of the construction ROW as needed, and/or in other areas determined by the EI to slow water leaving the site and prevent siltation of waterbodies and wetlands down slope or outside of the construction ROW (e.g., swales and side slopes). Temporary ECDs will be placed across the entire construction ROW at the base of slopes greater than 5 percent where the base of the slope is less than 50 feet from tile line inlets, drainage ways, wetlands, and/or waterbodies until the area is revegetated and there is no potential scouring or sediment transport to surface waters. Adequate room will be available between the base of the slope and the sediment barrier to accommodate ponding of water and sediment deposition.

If silt fence is used, when the depth of sediment reaches about one-third of the height, the sediment will be removed. Non-functional ECDs will be repaired, replaced, or supplemented with functional structures within 24 hours after discovery, or as otherwise specified in the Project permits.

Temporary ECDs installed across the travel lane may be removed during active daytime construction; however, ECDs will be properly reinstalled after equipment passage, or activities in the area are completed for the day. These ECDs will also be repaired and/or replaced prior to inclement weather when forecasted.

1.9.1 Temporary Stabilization

Installation of temporary seeding, mulch (straw or hydromulch), and erosion control mats may be required by EPND in certain locations (including topsoil piles) if there are construction delays within a spread of at least 14 days. The Contractor may be required by EPND to install temporary stabilization materials sooner based on site conditions, or as required in Project permits.

1.9.2 Erosion Control Blanket

The appropriate class of erosion control blanket will be installed in accordance with manufacture recommendations and/or state Department of Transportation (DOT) specifications on slopes greater than 5 percent that would be exposed over the winter and drain to surface waters (refer to Figures 8 and 9). The Contractor will attempt to install erosion control blankets on the exposed slopes prior to snowfall; however, construction progress and/or seasonal weather variations may prevent installation prior to the first snowfall. Installation of erosion control blankets and additional BMPs, as applicable based on site conditions, is required after the first

snowfall to protect slopes prior to spring melt and runoff. Erosion control blankets will be installed running parallel (up and down) with the direction of the slope (not perpendicular).

1.9.3 Mulch

Mulch (weed-free straw, wood fiber hydromulch, or a functional equivalent) will be applied to disturbed areas (except for actively cultivated land and wetlands) if requested by the landowner or land managing agency, if specified by the applicable permits or licenses, or as required by EPND. Mulch will specifically be required on:

- Slopes greater than 5 percent; and
- Dry, sandy areas that can blow or wash away (field decision).

Mulch will be free of noxious weeds as listed in applicable state laws. Certified weed-free mulch may also be required at site-specific locations. The Contractor will be responsible for identifying and acquiring sources of weed-free and certified weed-free mulch. Sources will be approved by EPND prior to purchase.

Mulch will be applied at a rate of 2 tons per acre to cover at least 75 percent of the ground surface unless otherwise stipulated by permit conditions. Mulch will be uniformly distributed by a mechanical mulch blower, or by hand in areas not accessible to the mulch blower. Mulch will be anchored/crimped using a mulch-anchoring tool or disc set in the straight position to minimize loss by wind and water, as site conditions allow. In areas not accessible to a mulch-anchoring tool or too steep for safe operation, the mulch may be anchored by liquid tackifiers, with advance written approval from EPND. The manufacturer's recommended method and rate of application will be followed.

Hydro-mulch and liquid tackifier can be used in place of straw or weed-free hay mulch with prior approval from EPND. All hydromulch and liquid tackifier products used will be on the applicable state DOT product list. Application rates will be at the manufacturer's recommended rate, equal to or greater than 2 tons per acre of straw mulch.

1.9.4 Cat Tracking

Cat tracking, also known as horizontal slope grading, may be implemented based on site conditions (sandy or silt soils) to reduce erosion potential. Cat tracking is achieved by driving a bulldozer vertically up and down the slope which results in the tracks being oriented horizontally; creating small speed bumps for water (refer to Figure 11).

1.9.5 Temporary Slope Breakers

Temporary slope breakers will be installed to minimize concentrated or sheet flow runoff in disturbed areas in accordance with the following maximum allowable spacing unless otherwise specified in permit conditions.

Slope (%)	Approximate Spacing (ft)
3-5	250
5-15	200
15-25	150
>25	<100

If the length of the slope is less than the distance of the required spacing, slope breakers are not required unless a sensitive resource area (e.g., wetland or public roadway) is located immediately down slope, or as requested by the EI. Temporary slope breakers may be constructed using earthen subsoil material, silt fence, straw bales, or in non-agricultural land, rocked trenches may be used. On highly erodible slopes, slope breakers in the form of earthen berms will be used whenever possible.

Temporary slope breakers will be constructed according to the following specifications (refer to Figures 4 and 5):

- straw bales used as slope breakers will be trenched in and staked so as to not allow spacing between bales or allow flow underneath the bales;

- the outfall of temporary slope breakers will be directed off the construction ROW into a stable well-vegetated upland area or into an appropriate energy-dissipating sediment control device (e.g., silt fence, straw bales, rock aprons) to prevent the discharge of sediments (refer to Figure 4);

- proper slope breaker outfalls will be established where topsoil segregation and/or grading has created a barrier at the edge of the construction workspace; and

- gaps will be created through spoil piles where necessary to allow proper out letting of temporary berms.

1.10 UPLAND TOPSOIL SEGREGATION

Upland areas where topsoil will be stripped includes cropland, hay fields, pasture, residential areas, and other areas as requested by the Landowner or as specified in the Project plans, commitments, and/or permits. Topsoil will not be used to construct berms, trench breakers, temporary slope breakers, improving or maintaining roads, or to pad the pipe. Berms used for stacking pipe in pipe yards may be constructed using topsoil if landowner permission and necessary approvals are obtained. Gaps will be left and ECDs installed where stockpiled topsoil and spoil piles intersect with water conveyances (i.e., ditches, swales, and waterways) to maintain natural drainage.

Topsoil Segregation Methods

The following topsoil segregation methods may be employed during construction:

- Modified Ditch-Plus-Spoil Side (refer to Figure 1)

- Full Construction ROW (refer to Figure 2)

- Trench-Line-Only (refer to Figure 3)

A Modified Ditch-Plus-Spoil topsoil segregation technique will typically be used in active cropland, which will consist of stripping topsoil from the spoil storage area, ditch line, and the primary travel lane. The Trench-Line-Only topsoil segregation method may be used where EPND determines that the width of the construction ROW is insufficient for other methods to be used. EPND may also use the Trench-Line-Only topsoil segregation method in areas where

there is a thick sod layer such as in hay fields, pastures, golf courses, and residential areas, unless otherwise requested by the landowner. Alternative topsoil segregation methods may be used on a site-specific basis or as requested by the landowner. Topsoil is not typically segregated in standing water wetlands unless specifically requested by the landowner and/or managing land agency in accordance with applicable permit conditions.

Depth of Upland Topsoil Stripping

In deep soils (more than 12 inches of topsoil), topsoil will be stripped to a minimum depth of 12 inches, unless otherwise specified/requested by other plans, permit conditions, or the landowner. Additional space may be needed for spoil storage if more than 12 inches of topsoil are segregated. If less than 12 inches of topsoil are present, the Contractor will attempt to segregate to the depth that is present.

1.11 UPLAND TRENCHING

Trenching in uplands is typically accomplished with a backhoe excavator or a rotary wheel ditching machine. Excavated material will be side cast (stockpiled) within the approved construction ROW separate from topsoil, and stored such that the area subject to erosion is minimized. EPND will coordinate with landowners to minimize disruption of access caused by the trench during construction. Where deemed appropriate by EPND, the Contractor will leave plugs of subsoil in the ditch or will construct temporary access bridges across the trench for the landowner to move livestock or equipment. Trenches may also be sloped where started and ended to allow ramps for wildlife to escape. Spacing of plugs and ramps will be determined in the field.

1.11.1 Timing

The length of time a trench is left open will be minimized to ensure that installation of the pipe and restoration of the construction ROW occurs in a timely fashion. Therefore, unless otherwise specified by Project permits or EPND, the Contractor will limit the amount of excavated open trench to a maximum of 3 days of anticipated welding production per spread, per pipe. This timeframe may be decreased at the discretion of EPND based on site conditions. Site-specific activities such as horizontal directional drilling, guided bores, road bores, tie-in points, and valve work may be performed independent of a spread.

1.12 FOAM PILLOW INSTALLATION

Use of foam pillows for pipe protection in the trench will be approved by EPND in advance and installed in accordance with applicable Project permits, local/state/federal regulations, and manufacturer's recommendations.

1.13 TRENCH BREAKERS

Trench breakers will be installed as deemed necessary by EPND in sloped areas after the pipe has been lowered into the trench. Trench breakers protect against subsurface water flow along the pipe after the trench is backfilled. Trench breakers will be constructed with bags filled with rock-free subsoil or sand. Use of foam trench breakers will be approved by EPND in advance and installed in accordance with applicable Project permits, local/state/federal regulations, and manufacturer's recommendations. Trench breakers will be placed from the bottom of the trench to near the top of the trench, completely surrounding the pipe and will be properly keyed into the undisturbed trench walls (refer to Figures 12 and 13). The location for trench breakers will be based on field conditions including the degree and length of slope, presence of down slope

sensitive resource areas such as wetland and waterbodies, and proximity to other features such as roads and/or railroads. The following conditions apply to the placement and installation of trench breakers unless otherwise directed by EPND:

- Trench breakers will be installed on slopes greater than 5 percent adjacent to streams, wetlands, or other waterbodies.
- Topsoil cannot be used to construct trench breakers.
- Where the pipeline exits a wetland towards areas of lower relief, trench breakers will be installed (within the upland) where there is a potential for underground drainage along the pipe in order to prevent wetland or waterbody drainage.
- At all waterbody crossings, as necessary, to prevent diversion of water into upland portions of the pipeline trench and to keep accumulated trench water out of the waterbody.

The actual location of each trench breaker will be selected through coordination between EPND's EIs, EPND's Craft Inspectors, and the Contractor's Foreman for backfilling activities.

1.14 DRAIN TILE INLET PROTECTION AND TILE REPAIRS

EPND will attempt to locate existing drain tile inlets that are located near the construction work area prior to construction. Drain tile inlets will be marked using flags. The Contractor will protect located drain tile inlets with the potential to receive stormwater from the construction Project using the appropriate ECDs until sources with the potential to discharge have been stabilized. The determination of the specific ECD will be made based on the location of an inlet with respect to the Project area, drainage area from the construction work area to the inlet, topography, vegetation, soils, and accessibility to the inlet. Where drain tile inlets are located off of EPND's construction ROW, EPND may not have authorization to install ECDs at the inlet site. In these cases, sediment control measures (typically silt fence) will be installed along the edge of the construction work area that drains to the inlet structure to minimize sedimentation.

If underground drainage tile is damaged by pipeline construction, it will be repaired in a manner that assures proper tile line operation at the point of repair in accordance with the Agricultural Protection Plan.

1.15 UPLAND BACKFILLING

Backfilling follows pipe installation and consists of replacing the material excavated from the trench. In areas where topsoil has been segregated, the subsoil will be replaced first, and the topsoil will be spread uniformly over the area from which it was removed. Prior to backfilling, the trench will be dewatered in accordance with the methods discussed in Section 5.0 if water obscures the trench bottom.

1.16 CLEANUP AND ROUGH/FINAL GRADING

All waste materials, including litter generated by construction crews, will be disposed of daily by the Contractor. Initial cleanup and rough grading activities may take place simultaneously. Cleanup involves removing construction debris (including litter generated by construction crews and excess rock) and large woody debris. 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 and de-compacting subsoil (where applicable) for permanent seeding, installing or repairing temporary erosion control measures, repairing/replacing fences, and installing permanent erosion controls.

1.16.1 Timing

The Contractor will begin cleanup and rough grading (including installation of temporary erosion and sediment control measures) within 72 hours after backfilling the trench. The Contractor will attempt to complete this rough cleanup within one week. The Contractor will initiate final grading, topsoil replacement, seeding, and installation of permanent erosion control structures within 14 days after backfilling the trench. If seasonal or other weather conditions prevent compliance with these timeframes, temporary erosion controls will be maintained until conditions allow completion of cleanup.

1.17 PERMANENT EROSION AND SEDIMENT CONTROLS

During final grading, slopes in areas other than cropland will be stabilized with erosion control structures. With exception to actively cultivated areas, permanent berms (diversion dikes or slope breakers) will be installed on all slopes, according to the following maximum spacing requirements unless otherwise specified in permit conditions:

Slope (%)	Approximate Spacing (ft)
3-5	250
5-15	200
15-25	150
>25	<100

Permanent berms will be constructed according to the following specifications:

- Permanent berms will be constructed of compacted earth, stone, or functional equivalent as approved in advance by EPND.
- The outfall of berms will be directed toward appropriate energy-dissipating devices, and off the construction ROW if possible.
- Permanent berms will be inspected and repaired as deemed necessary by EPND to maintain function and prevent erosion.
- Erosion control blankets (curlex, jute, or equivalent) will be placed on slopes over 30 percent or that are a continuous slope to a sensitive resource area (e.g., wetland or waterway).

1.18 SOIL COMPACTION TREATMENT

Cultivated fields and compacted or rutted areas will be tilled prior to topsoil replacement with a deep tillage device or chisel plowed to loosen compacted subsoils. If subsequent construction and cleanup activities result in further compaction, additional measures will be undertaken to alleviate the soil compaction.

1.19 STONE REMOVAL

A diligent effort will be made to remove excess stones equal to or larger than 4 inches in diameter from the upper 8 inches of subsoil or as specified in permit conditions, contract documents, or landowner agreements. After the topsoil is replaced, stone removal efforts will cease when the size and density of stones on the construction ROW are similar to undisturbed

areas adjacent to the construction ROW as determined by the EI. Excess rock will be piled in upland areas where landowner permission has been obtained, or will be hauled off-site to an EPND approved disposal site.

1.20 REPAIR OF DAMAGED CONSERVATION PRACTICES

The Contractor will restore all soil conservation practices (such as terraces, grassed waterways, etc.) that are damaged by the pipeline construction to preconstruction conditions to the extent practicable.

1.21 LAND LEVELING FOLLOWING CONSTRUCTION

Following the completion of the pipeline, the construction ROW will be restored to its pre-construction conditions as practical. Should uneven settling or documented surface drainage problems occur following the completion of pipeline construction and restoration, EPND will take appropriate steps to remedy the issue.

2.0 STREAM AND RIVER CROSSING GENERAL REQUIREMENTS

The procedures in this section apply to streams, rivers, and other waterbodies such as jurisdictional ditches, ponds, and lakes. These procedures require that judgment be applied in the field and will be implemented under the supervision of EPND.

Stream crossing requirements, including construction methods, timing, erosion control, and restoration are described in this section and in the stream crossing permits issued by state and federal agencies and by tribal authorities (as applicable). If the contractor considers certain parts of these procedures to be technically impractical due to site-specific engineering constraints, they may submit a request to EPND for approval of alternative measures that would provide an equal or greater level of protection to stream and river ecosystems. EPND will review the contractor's alternatives and consult with appropriate regulatory agencies and tribal resource specialists (as applicable). The contractor will receive written approval from EPND prior to implementing the alternatives. During wet and high runoff conditions, the EI will determine whether conditions warrant additional considerations for construction activities.

2.1 TIME WINDOW FOR CONSTRUCTION

All in-stream work activities (installation of dams, sheet piling, etc.) will be minimized to the extent practicable on an area and time duration basis. In-stream trenching will be conducted during periods permitted by the appropriate regulatory agencies and applicable permits. Unless otherwise specified in applicable permits and with exception to blasting and other rock breaking measures and directional drill, in-stream construction activities (specifically trenching, pipeline installation, backfill, and restoration of the streambed contours) for wet crossing methods will occur within the following timeframes:

- Minor Waterbodies (all waterbodies less than or equal to 10 feet wide at the water's edge at the time of crossing): 24 hours

- Intermediate Waterbodies (all waterbodies greater than 10 feet wide but less than 100 feet wide at the water's edge at the time of crossing): 48 hours

- Major Waterbodies (all waterbodies greater than 100 feet wide at the time of crossing): As specified by EPND or in the applicable permits.

These timeframes apply regardless of the presence or absence of flow. These timeframes also apply to dry crossing methods as a guideline and can be extended based on site-specific conditions with approval from EPND Environment staff, Construction Management, and the EI.

Stream crossings will be designed as close to perpendicular to the axis of the stream channel as engineering and routing constraints allow, creating the shortest crossing length.

2.2 CLEARING AND GRADING

The construction ROW width will consist of a 15-foot-wide neck down beginning 50 feet from the ordinary high water mark (OHWM) / ordinary high water level on the working side of the right-of-way. A 25-foot-wide neck down will be implemented on the spoil side of the construction ROW beginning 20 feet from the OHWM/OHWL (refer to Figures 15 through 17).

2.2.1 Impaired Waters

Where discharges of stormwater may occur to waters designated under Section 303(d) of the Clean Water Act as Impaired Waters, additional BMPs will be implemented as specified in the applicable Project permits.

2.3 ADDITIONAL TEMPORARY WORKSPACE

ATWS includes work areas outside the boundary of the typical construction ROW. These spaces are typically used to assemble pipe segments and for temporary spoil storage. Clearing of forested and brushy areas for ATWS will be avoided as much as possible. Woody vegetation in wetlands and riparian areas will typically not be cleared for the purpose of ATWS unless approved by appropriate regulatory agencies as stipulated in permits issued for the Project. ATWS will be constructed as follows:

- ATWS will be located at least 50 feet away from the OHWM/OHWL if topographic or other physical conditions such as stream channel meanders allow (refer to Figures 15 through 17).

- If safe work practices or site conditions do not allow for a 50-foot setback, ATWS should be located no closer than 20 feet from the OHWM/OHWL, subject to site-specific approval by EPND.

- ATWS will be limited to the minimum size needed to construct the stream crossing.

2.4 BRIDGES

Temporary equipment bridges will be used on most waterways (upon approval by the appropriate agency), including small waterways such as ditches and intermittent streams, where there is a potential for stormwater runoff or rain events to transport sediment downstream from equipment crossing the waterway. Bridges will be constructed as described below and will be removed as soon as possible during final restoration. Bridges will not typically be installed at directionally drilled waterbodies, unless there is no reasonable alternative that provides an efficient, economical way to transport heavy construction equipment around the waterbody by truck.

With exception to clearing-related equipment, fording of waterways is prohibited (i.e. civil survey, potholing, or other equipment are not permitted to ford waterways prior to bridge placement). Clearing equipment and equipment necessary for installation of equipment bridges will be allowed a single pass across waterbodies prior to bridge installation, unless restricted by applicable permits.

2.4.1 Types of Bridges

Equipment bridges will be constructed using one of the following techniques:

- Typical Span Type Bridge (timber mats - refer to Figure 19)
- Rock Flume (refer to Figure 20)
- Railroad flat cars
- Flexi-float or other pre-fabricated portable bridges
- Other methods as approved by EPND and appropriate agencies

2.4.2 Bridge Design and Maintenance

Bridges will be designed as close to perpendicular to the axis of the stream channel, creating the shortest crossing length and will be built and maintained in accordance with applicable permits. Equipment bridges will be designed to withstand the maximum foreseeable flow of the stream with headers and support structures being placed above the ordinary high water mark (OHWM) of the feature. Local jurisdictions may require stricter guidelines associated with bridge placement. Bridges will not restrict flow or pool water while the bridge is in place, and will be constructed with clean materials. Bridges will be designed and maintained to prevent soil from entering the waterbody. Soil that accumulates on the bridge decking will be removed as needed, or as deemed necessary by the EI.

2.5 STREAM AND RIVER CROSSING CONSTRUCTION METHODS

The following stream and river crossing methods are typically used, subject to further restrictions by EPND and applicable permits and subject to modifications as approved by appropriate regulatory agencies and tribal resource specialists (as applicable) during construction.

2.5.1 Wet Trench Method

Installation

The wet trench method will be used to cross streams and rivers not permitted to be flumed, dam and pumped, or directionally drilled. The following procedures will be used during wet trench crossings:

- Sediment control measures will be installed before grading from the 20-foot vegetative buffer left on each stream bank. Spoil containment structures will be installed back from the stream bank so that spoil does not migrate into the stream.

- Grading will be directed away from the waterbody to minimize the potential for sediment to enter the stream. Grading of stream banks will be restricted to the trench line and areas necessary for safe bridge installation.

- After grading, backhoes or draglines will be used to excavate the trench. Where possible, excavating equipment will operate from one or both banks, without entering the stream. If equipment must encroach into the stream, it will operate on clean construction mats. Streambed material will be segregated (e.g., upper one foot and the remaining trench spoil will be stored separately) and placed within a spoil containment structure in approved construction work area limits. Storage of streambed spoil within the stream will only be allowed if expressly approved in the applicable permits.

- Earthen trench plugs (hard plugs) between the stream and the upland trench will be left undisturbed during excavation of the in-stream trench to prevent diversion of the stream flow into the open trench and to prevent water that may have accumulated in the adjacent upland trench from entering the waterbody. Trench plugs will be removed immediately prior to pipe placement, and then replaced when the pipe is in place. Trench water accumulated upslope of trench plugs will be dewatered appropriately prior to trench plug removal.

- Water within the trench will be managed in accordance with Section 5.0

- Backfilling will begin after the pipe is positioned in the trench at the desired depth. Backfill material will consist of the spoil material excavated from the trench and parent streambed unless otherwise specified in state or federal permits. The in-stream trench will be backfilled so that the stream bottom is as near as practicable to its pre-construction condition, with no impediments to normal water flow.

Temporary Stabilization

The Contractor will restore the stream banks as near as practicable to pre-construction conditions unless that slope is determined to be unstable. If EPND determines the slope is considered unstable, the Contractor will reshape the banks to prevent slumping. Once the banks have been reshaped, ECDs will be installed within 24 hours of backfilling the crossing. Temporary slope breakers will be installed on all sloped approaches to streams in accordance with the spacing requirements previously specified.

A temporary seed mix (e.g., annual rye or annual oats) and mulch and/or erosion control blankets will be installed within a 50-foot buffer on either side of the stream, with exception to actively cultivated land. Silt fence or functional equivalent as approved in advance by EPND will be installed upslope of the temporary seeding area.

2.5.2 Dam and Pump Method

Installation

The dam and pump method is a dry crossing technique that is suitable for low flow streams and is generally preferred for crossing meandering channels. The dam and pump method involves damming of the stream upstream and downstream of the proposed trench before excavation (refer to Figure 16) and pumping water around the construction area. The following procedures will be used for dam and pump crossings:

- Dams may be constructed of sandbags, inflatable dams, aqua-dams, sheet piling, and/or steel plates. The dams will prevent the stream from flowing into the construction area. The dams will be continuously monitored for a proper seal. Additional sandbags, plastic sheeting, steel plating, or similar materials will be used where necessary to minimize the amount of water seeping around the dams and into the construction work area. The dam will not be removed until after the pipeline has been installed, the trench has been backfilled, and the banks have been stabilized.

- Pumping of the stream across the ROW will commence simultaneously with dam construction to prevent interruption of downstream flow. Stream flow will be pumped across the construction area through a hose and will be discharged to an energy-dissipation device, such as plywood boards, to prevent scouring of the streambed.

- The pumps and fuel containers will be located on the upstream side of the crossing and will be placed in impermeable, sided structures which will act as containment units (refer to Section 10.0). The pumps used for this crossing method will not be placed directly in the stream or on the streambed. Pumps will have a capacity greater than the anticipated stream flow. The pumping operation will be staffed 24 hours a day and pumping will be monitored and adjusted as necessary to maintain an even flow of water across the work area and near-normal water levels upstream and downstream from the crossing. .

The pump intake will be suspended to prevent sediment from being sucked from the bottom of stream and will be equipped with a screen, or equivalent device, to prevent fish uptake.

- Where possible, excavating equipment will operate from one or both banks, without entering the stream. If equipment must encroach into the stream, it will operate on clean construction mats (free of soil and plant material prior to being transported onto the construction ROW). Streambed material will be segregated as stated in the wet trench method and will be placed within a spoil containment structure in approved construction work area limits. Storage of streambed spoil within the stream will only be allowed if expressly approved in the applicable permits.

- Earthen trench plugs (hard plugs) between the stream and the upland trench will be left undisturbed during excavation of the in-stream trench to prevent diversion of the stream flow into the open trench and to prevent water that may have accumulated in the adjacent upland trench from entering the waterbody. Trench plugs will be removed

immediately prior to pipe placement, and then replaced when the pipe is in place. Trench water accumulated upslope of trench plugs will be dewatered appropriately prior to trench plug removal.

- Standing water that is isolated in the construction area by the dams will be managed in accordance with Section 5.0

- Backfilling will begin after the pipe is positioned in the trench to the desired depth. Backfill material will consist of the spoil material and parent streambed excavated from the trench unless otherwise specified in state or federal permits. The in-stream trench will be backfilled so that the stream bottom is similar to its pre-construction condition, with no impediments to normal water flow.

Temporary Stabilization

Restoration of the stream banks and the installation of temporary erosion controls will be similar to that described for the wet trench method above but will occur immediately following installation of the pipeline. Once the stream banks have been stabilized, the dams and pump will be removed.

2.5.3 Flume Method

Installation

The flume method is a dry crossing technique that is suitable for crossing relatively narrow streams that have straight channels and are relatively free of large rocks and bedrock at the point of crossing (refer to Figure 17). This method involves placement of flume pipe(s) in the stream bed to convey stream flow across the construction area without introducing sediment to the water. The procedures for using the flume method are described below.

- The flume(s) will be of sufficient diameter to transport the maximum flows anticipated to be generated from the watershed. The flume(s), typically 40 to 60 feet in length, will be installed before trenching and will be aligned so as not to impound water upstream of the flume(s) or cause downstream bank erosion. The flumes will not be removed until after the pipeline has been installed, trench has been backfilled, and the stream banks have been stabilized.

- The upstream and downstream ends of the flume(s) will be incorporated into dams made of sand bags and plastic sheeting (or equivalent). The upstream dam will be constructed first and will funnel stream flow into the flume(s). The downstream dam will prevent backwash of water into the trench and construction work area. The dams will be continuously monitored for a proper seal. Adjustments to the dams will be made where necessary to prevent large volumes of water from seeping around the dams and into the trench and construction work area.

- Where possible, excavating equipment will operate from one or both banks, without entering the stream. If equipment must encroach into the stream, it will operate on clean construction mats. Streambed material will be segregated and placed within a spoil containment structure in approved construction work area limits. Storage of streambed

spoil within the stream will only be allowed if expressly approved in the applicable permits.

- Earthen trench plugs (hard plugs) between the stream and the upland trench will be left undisturbed during excavation of the in-stream trench to prevent diversion of the stream flow into the open trench and to prevent water that may have accumulated in the adjacent upland trench from entering the waterbody. Trench plugs will be removed immediately prior to pipe placement, and then replaced when the pipe is in place. Trench water accumulated upslope of trench plugs will be dewatered appropriately prior to trench plug removal.

- If additional trench dewatering is necessary to complete the installation of the pipe, the discharge will be managed in accordance with Section 5.0.

- Backfilling will begin after the pipe is positioned in the trench to the desired depth. Backfill material will consist of the spoil material excavated from the trench and parent streambed unless otherwise specified in state or federal permits. The in-stream trench will be backfilled so that the stream bottom is similar to its pre-construction condition, with no impediments to normal water flow.

Temporary Stabilization

Restoration of the ROW and the installation of temporary erosion controls will be similar to that described for the wet trench method above but will occur immediately following installation of the pipeline. After the stream banks have been stabilized, the dams and flume will be removed from the stream bed allowing water to resume its flow in the channel.

2.5.4 Directional Drill and/or Guided Bore Method

Installation

Installing the pipe underneath a stream will involve placing a drill unit on one side of the stream (refer to Figure 18). A small-diameter pilot hole will be drilled under the stream along a prescribed profile. After the pilot hole has been completed, barrel reams will be used to enlarge the pilot hole to accommodate the desired pipeline diameter. Drilling mud will be necessary to remove cuttings and maintain the integrity of the hole. Water from an EPND-approved source will be used to prepare the slurry of drilling mud, and will be appropriated according to applicable permits. The pipe section will be pulled through the hole by the drilling rig and welded to the adjoining sections of pipe on each side of the river.

Drilling Mud

During drilling operations, drilling mud and slurry will be stored back from the waterbody in an earthen berm sediment control structure, in tanks, or by other methods so that it does not flow into the waterbody, adjacent wetlands or off the workspace (refer to Section 11.0 for additional details).

After the pipe is in place, excess drilling mud will be hauled off-site to an EPND-approved disposal location or licensed disposal facility.

Temporary Stabilization

The directional drilling/guided bore method normally does not result in the disturbance of the stream banks or riparian vegetation (with exception to extremely limited hand clearing of woody required to facilitate guide wire placement), which reduces the potential for erosion and sedimentation at the stream crossing. Consequently, temporary erosion control measures that are installed at open-cut crossings typically are not necessary for drilled/bored crossings.

2.6 PERMANENT RESTORATION

Stream banks disturbed during installation of the pipelines will be stabilized with erosion control materials such as an erosion control blanket and seeded in accordance with Section 7.0. Permanent stabilization will be initiated within 24 hours after installation of the crossing using the wet trench method and prior to restoring flow using the dam and pump or flume method, unless site and permit conditions delay permanent installation. Where the banks have been disturbed, the Contractor will restore the slopes as near as practicable to pre-construction conditions unless that slope is determined by EPND to be unstable. Where the slope of the banks is determined to be unstable or has the potential to erode or fail, the banks will be reshaped to transition the disturbed areas into the natural stream bank with the intent to stabilize the bank and create a blended, natural appearance.

Berms or other sediment filter devices will be installed at the base of sloped approaches to streams greater than five percent and the outlet of the berm will be directed away from the stream into a well vegetated area. Temporary sediment control devices will remain in place until the area has stabilized and adequate revegetation has established.

2.6.1 Vegetative Bank Restoration

Typically, waterbody banks will be restored as near as practicable to preconstruction conditions after backfilling is complete and will be seeded with an appropriate seed mix as specified in Section 7.0 and covered with an erosion control blanket. Erosion controls, (e.g. straw bales, bio-logs, silt fences, etc.) will be installed as necessary based on site-specific conditions.

2.6.2 Supplemental Bank Stabilization

Unstable soils and/or site-specific factors such as stream velocity and flow direction may require additional restoration efforts, such as installation of rock rip-rap, to stabilize disturbed stream banks. Rock rip-rap will be used only where site-specific conditions require and where applicable permits or approvals have been acquired. Geotextile fabric and rock riprap will be placed according to site and permit conditions (refer to Figure 23). Disturbed soils upslope and on either side of the riprap will be prepared for seeding according to Section 7.0 and other stream bank protection requirements. Bioengineering techniques may also be implemented as determined by EPND (refer to Figures 26 through 28).

2.6.3 Bridge Removal

Equipment bridges will be removed during final cleanup or, if access is needed, after final cleanup and permanent seeding. Restoration of the bridge area will be completed upon bridge removal.

2.6.4 Swales

Swales will be restored as near as practicable to original conditions. Swales will be seeded and either mulched with straw or erosion control blankets will be installed to the perceivable top of bank for the width of the construction ROW.

3.0 WETLAND CROSSING GENERAL REQUIREMENTS

The procedures in this section apply to all wetlands that will be affected by the Project. These procedures require that judgment be applied in the field and will be implemented under the supervision of EPND and the EI. The intent of these procedures is to minimize construction-related disturbance and sedimentation of wetlands and to restore wetlands as nearly as possible to pre-existing conditions.

Wetland crossing requirements, including construction methods, timing, erosion control, and restoration, are described in this section and in the wetland crossing permits issued by state, federal and/or tribal agencies as applicable. If the contractor considers certain parts of these procedures to be technically impractical due to site-specific engineering constraints, they may submit a request to EPND for approval of alternative measures. EPND will review the contractor's alternatives and consult with appropriate regulatory agencies. The contractor must receive approval from EPND prior to implementing the alternatives.

3.1 WETLAND ACCESS

The Contractor will use the construction ROW and only approved roads to access wetland areas.

3.2 CLEARING

Clearing the construction ROW in wetlands will be similar to clearing in uplands. For construction to proceed, obstructions (e.g., trees, brush, and logs) need to be removed. Typically, low ground pressure equipment will be used, limiting disturbance to the wetland. Vegetation and trees within wetlands will be cut off at ground level, leaving existing root systems intact; clearing debris will generally be removed from the wetland for disposal. Hydro-axe debris, or similar can be left in the wetland if spread evenly in the construction ROW to a depth which will allow for normal revegetation, as determined by the EI.

3.3 ADDITIONAL TEMPORARY WORKSPACE IN WETLANDS

In general, EPND attempts to locate ATWS outside of wetlands wherever practicable; however, ATWS may be sited in select wetlands where the wetland is adjacent to a waterbody, road, railroads, foreign utility crossings, and/or pipeline cross-over with prior approval from the applicable regulatory agencies. Clearing of forested wetlands for ATWS will be avoided as much as possible.

- Staging areas, additional spoil storage areas, and other ATWS will be located in upland areas at least 50 feet away from wetland boundaries (refer to Figures 24), where safe work practices or site conditions permit. If site conditions do not permit a 50-foot setback, then these areas will be located as far away from the wetland as is practicable. Vegetation will not be cleared between these areas and the wetland in any event. No construction activities including vegetation clearing or earthwork will occur between the ATWS and the wetland.

- The size of the ATWS areas will be limited to the minimum needed to construct the wetland crossing.

3.4 GRADING IN A WETLAND

Grading activities will be confined to the area of the trench and will be minimized to the extent practicable. Grading outside the trench will only be allowed where required to ensure safety and restore the construction ROW after backfilling the trench with prior approval from EPND.

ECDs will be installed:

- across the entire construction ROW upslope of the wetland boundary, where necessary, to prevent sediment flow into the wetland;
- along the edge of the construction ROW as necessary to prevent sediment flow into off-ROW wetlands; and

- Along the edge of the construction ROW as necessary to contain spoil and sediment within the construction ROW through wetlands.

ECDs will be maintained in proper working order to prevent the flow of sediment into wetlands from spoil piles or sloped approaches that are adjacent to the wetlands. .

3.5 RIGHT-OF-WAY STABILIZATION

Tree stumps, brush riprap, imported soil, and rock fill will not be brought in to stabilize the right-of-way in wetlands. Where low ground pressure equipment is not used, construction equipment will operate from timber construction mats or equivalent means with prior approval from EPND (refer to Figure 24). To prevent the spread of noxious and invasive plant species, timber mats will be free of soil and plant material prior to being transported onto the construction ROW and/or moved from one area of the construction ROW to another area. Timber riprap (also known as corduroy road) will not be used without prior written approval from EPND and the appropriate regulatory agencies. Pre-existing corduroy roads in wetlands may be used but may not be improved, maintained, restored, or replaced without site-specific authorization from applicable agencies.

Subsoil from the pipeline trench within the immediate wetland may be placed on top of equipment mats for additional stabilization. Timber mats may be placed over the ditch line or on the working side to facilitate trench excavation. All timber mats, construction debris, and larger woody vegetative debris will be removed during cleanup of wetlands.

3.6 TRENCHING

Excavation of the pipeline trench in wetlands typically will be accomplished using backhoe excavators. The Contractor will take reasonable steps to insure that the duration of open trench in wetlands, including tie-ins, is minimized to the fullest extent possible.

3.6.1 Topsoil Segregation

When constructing in wetland areas without standing water, up to one foot of topsoil (organic layer) will be stripped from the trench line and stockpiled separate from trench spoil to preserve the native seed stock. In standing water wetlands, organic soil segregation is not typically practical; however, the Contractor will attempt to segregate as much of the organic layer as possible based on site/saturation conditions. If normally unsaturated wetlands are saturated at the time of construction, topsoil segregation will be attempted according to Figure 3 and based on recommendations from the EI and appropriate regulatory agencies.

3.6.2 Trench Breakers

Where the EI determines that the pipeline trench has the potential to drain or partially drain a wetland, trench breakers will be installed as necessary to maintain the original wetland hydrology.

3.7 PIPELINE INSTALLATION

The following procedures are intended to minimize siltation and disturbance to wetlands during installation.

3.7.1 Push/Pull Method

Large wetlands with standing water can generally not be crossed with typical crossing methods. In these areas, the pipeline will be assembled in an upland area and positioned in the trench using the “push-pull" and/or "float" techniques.

Usually this fabrication requires use of ATWS adjacent to the construction ROW. A backhoe (or equivalent) supported on timber mats or equivalent low ground pressure equipment will be used to dig the trench. . The prefabricated section of pipeline will then be pushed-pulled into position or floated across the wetland. When the pipeline is in position, floats, if used, will be removed and the pipeline will sink into position. The trench will then be backfilled and a backhoe or similar equipment working from construction mats or by low ground pressure equipment will be used restore the wetland.

3.7.2 Temporary Erosion and Sediment Controls

ECDs at approaches to wetlands will be installed as previously described and in accordance with Section 1.0.

3.7.3 Concrete Coating

Concrete will generally be mixed off-site, and concrete coated pipe will be transported to the construction ROW on trucks. If required, pre-fabricated concrete weights and/or saddlebag weights will also be used to provide negative buoyancy. Concrete weights will be manufactured off-site and transported to the ROW. Weights will be strung along the construction ROW, where necessary, until they are placed over the pipe within the excavated ditch. Limited mixing and coating activities may occur on the construction ROW for coating pipe joints and concrete weight repairs according to the concrete usage specifications in Section 10.0. Washing equipment used for mixing, pouring, casting, or coating will not be conducted within 100 feet of any wetland and will be conducted and contained in a leak-proof containment facility or impermeable liner. The EI will determine where ECDs will be installed down slope of equipment wash areas to capture sediments and minimize erosion from runoff.

3.8 BACKFILLING

Subsequent to pipe installation, backfilling of wetland trenches will take place immediately, or as approved by EI. The Contractor will restore wetlands as near as practicable to pre-construction conditions and will make a reasonable attempt to return the subsoil to its pre-construction density. During backfilling of wetland areas, subsoil material removed from the trench during construction will be replaced so that the material is not mounded above the adjacent ground surface (undisturbed trench wall). Subsoil that exceeds the elevation of the ground adjacent to the trench will be removed from the wetland and disposed of in an upland area or an EPND-

approved disposal site. After the trench has been backfilled with subsoil, previously segregated topsoil will be spread over the trench area and mounded.

3.9 ROUGH GRADING, CLEANUP, AND TEMPORARY RESTORATION

Cleanup and rough grading activities may take place simultaneously. Cleanup typically involves removing construction debris and replacing fences removed during construction. Rough grading includes restoring original conditions within the disturbed areas (i.e., ditch line, spoil storage areas, and equipment travel lane) and installing or repairing temporary ECDs. Temporary slope breakers will be installed near the boundary between the wetland and adjacent sloped approaches, to prevent sediment flow into the wetland.

3.9.1 Timing

Cleanup and rough grading (including installation of temporary erosion control measures) will begin as soon as practical after the trench is backfilled, weather permitting.

3.9.2 Temporary Stabilization

Where necessary, disturbed wetland areas will be seeded with oats (40 lbs/acre) and/or a temporary seed mix, unless standing water is prevalent or unless permanent planting or seeding with native wetland vegetation is required by applicable permits. No fertilizer, lime, or mulch will be applied in wetlands.

4.0 HIGHWAY, ROAD AND RAIL CROSSINGS

4.1 ADDITIONAL WORKSPACE

Additional workspaces for bored road and railroad crossings and open-cut road crossings will be determined on a site-specific basis. These workspaces will be adjacent to the road or railroad and limited to the size needed to contain spoil from the crossing.

4.2 MAINTENANCE

Roadway crossings will be maintained in a condition that will prevent tracking of mud onto the roadway.

Rock tracking pads, constructed of stone as required by the applicable permits, will be installed adjacent to paved public roads to prevent or minimize the tracking of soil onto the roadway. If the roadside ditch is part of a jurisdictional waterway, a permit will be obtained prior to installing the tracking pad or culvert. If permitted in wetlands, tracking pads will be limited in size to reduce impacts. Tracking pads installed in wetlands will be constructed with clean rock placed on geotextile fabric, as approved by an EI and with approval from applicable regulatory agencies. All rock and fabric will be removed from the wetland during cleanup.

4.3 TEMPORARY EROSION AND SEDIMENT CONTROLS

Temporary ECDs (e.g., silt fence and/or double-staked straw bales) will be installed on sloped approaches to road crossings where vegetation has been disturbed (refer to Figure 25).

5.0 CONSTRUCTION DEWATERING

5.1 TRENCH DEWATERING

Prior to initiating dewatering activities, the EI will approve the water discharge situation to ensure that the best management practices are applied in such a way as to minimize the potential for scour and water containing sediment from reaching a wetland or waterbody. Furthermore, landowner approval is required in advance of placement of dewatering structures outside of the approved construction ROW. The Contractor will assess each water discharge situation to include:

- **Water Discharge Setting** - This includes:
    - Soil Type - The soil type the discharged water would flow over. The management of discharged water traveling over sandy soil is more likely to soak into the ground as compared to clay soils.
    - Ground Surface - The topography in the area that would influence the surface flow of the discharged water.
    - Adjustable Discharge rate - The flow rate of the discharged water (which may need to vary) can be managed based on the site conditions to minimize instances of water from reaching a sensitive resource area such as a wetland or waterbody. (Example - Water discharged at 500 gallons per minute may soak into the ground while if discharged at a higher flow rate would cause water to flow via overland runoff into a sensitive resource area)
    - Discharge Outfall - The amount of hose and number/size of pumps needed to attempt to discharge water at a location which drains away from waterbodies or wetlands.

- **Pump Intake** - Use floating suction hose or other similar measures to prevent sediment from being sucked from bottom of trench.

- **Overwhelming Existing Drainage** - If the discharge (assumed to be clean) enters a stream, the flow added to the stream will not exceed 50 percent of the peak storm event flow (to prevent adding high water volumes to a small stream channel that causes erosion due to imposing high flow conditions on the stream.

- **Filtering Mechanism –** All dewatering discharges will be directed through a filtering device as indicated below.
    - Well-Vegetated Upland Area – Water can be directed to a well-vegetated upland area through a geotextile filter bag. Geotextile bags need to be sized appropriately for the discharge flow and suspended sediment particle size.
    - Straw Bale Dewatering Structure – Where the dewatering discharge point cannot be located in an upland area due to site conditions and/or distance, the discharge should be directed into a straw bale dewatering structure. The size of the straw bale dewatering structure is dependent on the maximum water discharge rate (refer to Figure 21). A straw bale dewatering structure should be used in conjunction with a geotextile filter bag to provide additional filtration near sensitive resource areas.

- Alternative dewatering methods - Alternative methods may be approved by EPND on a site-specific basis.

5.1.1 Flow Measurement and Water Sampling

The volume of water discharged from the trench will be recorded as required by the applicable permits. The volume may be determined using a flow meter, or equivalent method, as approved by EPND or specified by applicable permit conditions.

Samples of the water discharged will be sampled if required by tribal permits and/or state-issued discharge permits.

5.1.2 Regulatory Notification and Reporting

EPND will notify and submit reports to appropriate tribal, state and federal agencies as required by all permits/authorizations.

5.2 HYDROSTATIC TEST DISCHARGES

Hydrostatic testing involves filling the new pipeline segments with water acquired in accordance with applicable permits (refer to Section 6.0), raising the internal pressure level, and holding that pressure for a specific period of time per federal DOT specifications. Hydrostatic testing will be done to verify that there are no flaws in the pipe or welds. Pre-built sections may be hydrostatically tested prior to installation using HDD and/or guided bore techniques. Hydrostatic testing will be conducted in accordance with applicable appropriation and discharge permits obtained by EPND. Hydrostatic test waters will not be transferred from one waterbody to another. Chlorinated source water will be used and treated as specified in applicable permits. After the hydrostatic test is complete, the line will be depressurized and the water discharged.

5.2.1 Refueling

The operation and refueling of hydrostatic test equipment will be in accordance with the conditions outlined in Section 10.0.

5.2.2 Siting of Test Manifolds

Hydrostatic test manifolds will be installed where necessary to ensure proper test pressures and incorporates changes due to topography. Where feasible, EPND will incorporate minor adjustments to the test manifold locations to avoid placement in wetlands and riparian areas. However, completely avoiding the placement of a test manifold in a wetland may not always be possible. The Contractor will install appropriate erosion control measures where the EI determines they are necessary.

5.2.3 Water Sampling

Water discharged from hydrostatic tests will be sampled as required by state-issued appropriation or discharge permits. Water volumes and flow rates will be recorded using the form provided in Appendix D.

5.2.4 Best Management Practices

Prior to hydrostatic testing the pipeline, EPND will prepare the pipe by removing accumulated construction debris, mill scale, dirt, and dust using a cleaning pig. The debris will be collected in

a temporary receiver and will be properly disposed off-site of by the Contractor. Upon completion of the cleaning operation, the pipeline will be sealed with the test headers.

Test headers and pigs will be arranged to allow for rinse water to be installed ahead of the fill pigs. Rinse water will be treated and disposed of in accordance with applicable permit conditions.

Following testing, the test section will be depressurized and the water will be discharged to a well-vegetated, upland area with an appropriate dewatering structure such as a geotextile filter bag and/or a hay bale structure that will be lined with geotextile fabric. Direct discharges to surface waters, if allowed by permit, will be directed into an energy dissipation device such as a splash pup.

At no time will the discharge rate exceed the applicable discharge rates specified in state-issued or other discharge permits. In the event no maximum discharge rate is identified, discharges will be monitored and adjusted as necessary to avoid scouring, erosion, or sediment transport from the discharge location.

To minimize the potential for introduction and/or spread of invasive species due to hydrostatic testing activities, EPND will discharge water to the same source location from which it was appropriated. If water is used to test multiple test sections, it will be relayed back to the source water through the pipeline for final discharge. Test water will not be discharged to a waterbody other than the appropriation source, unless coordinated and permitted through the applicable agencies.

5.2.5 Flow Measurement

The total volume of water discharged will be determined with a flow meter (or equivalent), or as required by the applicable state permit. The total volume of water discharged will not exceed the volume specified in the applicable permit.

6.0 WATER APPROPRIATION

6.1 GENERAL

Water may be drawn from local sources, such as lakes, streams, and private or municipal wells for construction activities such as dust control, horizontal directional drilling/guided boring, trench dewatering, and hydrostatic testing. The Project will follow applicable permit conditions for the appropriation of water.

The intake hose will be suspended off of the stream or lake bottom and equipped with a screen, or equivalent device, to prevent fish uptake. During withdrawal, adequate waterbody flow rates and volumes will be maintained to protect aquatic life and allow for downstream uses. The volume and rate of withdrawal will be monitoring to comply with applicable permit conditions.

6.2 WATER SOURCES

Water will only be withdrawn from sources approved by EPND and in accordance with applicable permits. No additives to the water are permitted unless written approval is received from EPND and applicable permits authorize such additives.

If appropriation is scheduled to occur during possible periods of low flow, including frozen conditions, a backup source will be identified.

6.3 FLOW MEASUREMENT

At no time will the withdrawal rate for the water source exceed the rate specified in the applicable permits.

The Contractor will measure the withdrawal rate and total volumes of water appropriated with a flow meter (or equivalent) and provide the data to EPND, as required by the applicable permits.

6.4 WATER SAMPLING

Where required by permit conditions, EPND will sample the water during appropriation. The Contractor will assist EPND in obtaining these samples.

6.5 REGULATORY NOTIFICATION AND REPORTING

EPND will notify appropriate agencies of the time of appropriations if required by the state appropriations permits. EPND will submit reports regarding the volume and quality of the water withdrawn if required by the applicable permits.

7.0 REVEGETATION & MONITORING

This section was developed in conjunction with Natural Resources Conservation Service (NRCS) guidelines. Project-specific permit conditions and landowner requests (with exception to wetlands) for specific seed mixes (as indicated in the Project CLL) take precedence over this section.

7.1 PROJECT SEED SPECIFICATIONS

Seed used will be purchased on a "Pure Live Seed" (PLS) basis for seeding (both temporary and permanent) revegetation areas. Seed tags will identify:

- purity;
- germination;
- date tested;
- total weight and PLS weight;
- weed seed content; and
- seed supplier's name and business information.

Seed will be used within 12 months of testing as required by applicable state rules and regulations. The seed tags on the seed sacks will also certify that the seed is "Noxious Weed Free". Seed rates used on the Project will be based on PLS rate, not actual weight basis. Therefore, to determine the correct application rate if not indicated on the seed tag, a correction calculation will be performed based the purity and germination. For example, a seed mix that has a specified 10 pounds PLS per acre, 95 percent germination rate, and is 80 percent pure needs to be applied at the following rate:

(95% germination × 80% purity)/100 = 76% PLS
10 pounds PLS per acre/.76% PLS = 13.2 pounds per acre actual seeding rate

The species components of individual mixes are subject to availability at the time of purchase. Grass species may be substituted with alternative native or non-invasive species that are included in the NRCS guidelines and subject to approval by EPND.

Seed tags will be collected by the contractor and provided to EPND during seeding activities. The tags will be reviewed by the EI prior to installation to ensure that the seed mix complies with EPND's specifications and that it is being applied to the correct location. If bulk delivery of seed is made, the above information will still be made available to EPND. Off-loading/on-loading of seed will not be performed in a designated wetland area.

Legume seed (if used) will be treated with an inoculant specific to the species and in accordance with the manufacturer's recommended rate of inoculant appropriate for the seeding method (broadcast, drill, or hydroseeding). When hydroseeding, four times the manufacturer's recommended rate of inoculant will be used.

7.2 TEMPORARY REVEGETATION

EPND's temporary seed mix (refer to Appendix C) was developed based on recommendations from the NRCS. Unless specifically requested by landowners or land managing agencies, EPND does not intend to establish temporary vegetation in actively cultivated land, standing water wetlands, and/or other standing water areas.

7.3 TIMING FOR TEMPORARY VEGETATION

Temporary revegetation will be established in construction work areas where 14 days or more will elapse between:

- the installation of the first pipeline and the second line where two pipelines will be co-constructed and active construction is ongoing;
- the completion of final grading at a site and the establishment of permanent vegetation; and/or,
- where there is a high risk of erosion due to site-specific soil conditions and topography.

EPND may require the Contractor(s) to conduct temporary seeding sooner than 14 days at site-specific locations near sensitive resource areas and/or areas prone to wind/water erosion.

Temporary vegetation should be established at any time between **April 1 and September 1**. Attempts at temporary revegetation after this date should be assessed on a site-specific basis and with approval from EPND.

7.4 MULCH

Mulch (weed-free straw, wood fiber hydromulch, or a functional equivalent) will be applied to disturbed areas (except for actively cultivated land and wetlands) if requested by the landowner or land managing agency, if specified by the applicable permits or licenses, or as required by EPND. Mulch will specifically be required on:

- Slopes greater than 5 percent; and
- Dry, sandy areas that can blow or wash away (field decision).

Mulch will be free of noxious weeds as listed in applicable state laws. Certified weed-free mulch may also be required at site-specific locations. The Contractor will be responsible for identifying and acquiring sources of weed-free and certified weed-free mulch. Sources will be approved by EPND prior to purchase.

Mulch will be applied at a rate of 2 tons per acre to cover at least 75 percent of the ground surface unless otherwise stipulated by permit conditions. Mulch will be uniformly distributed by a mechanical mulch blower, or by hand in areas not accessible to the mulch blower. Mulch will be anchored/crimped using a mulch-anchoring tool or disc set in the straight position to minimize loss by wind and water, as site conditions allow. In areas not accessible to a mulch-anchoring tool or too steep for safe operation, the mulch may be anchored by liquid tackifiers, with advance written approval from EPND. The manufacturer's recommended method and rate of application will be followed.

Hydro-mulch and liquid tackifier can be used in place of straw or weed-free hay mulch with prior approval from EPND. All hydromulch and liquid tackifier products used will be on the applicable state DOT product list. Application rates will be at the manufacturer's recommended rate, equal to or greater than 2 tons per acre of straw mulch.

7.5 PERMANENT REVEGETATION

Permanent vegetation will be established in areas disturbed within the construction work area (permanent easement, TWS, and ATWS) except in actively cultivated areas and standing water wetlands. The seed mixes for permanent seeding include native seed varieties commonly

found and/or available from local seed distributors. EPND's seed mixes (refer to Appendix C) were selected to augment revegetation via natural recruitment from native seed stock in the topsoil and are not intended to change the natural species composition. Rates provided are assumed for a drill application and will be adjusted as discussed in Section 7.1.

7.6 UPLAND CONSTRUCTION AREAS

In consulting with the NRCS and other agencies, EPND developed a standard upland seed mix for restoring disturbed areas affected by the Project (Appendix C, Table 2). The mix includes species that will provide for effective erosion control and revegetation of the Project area. This seed mix will be used by EPND as the standard upland mix unless an alternate seed mix is specified by landowners or land managing agencies.

7.7 PERMANENT SEEDING OF WETLAND AREAS

7.7.1 Unsaturated Wetland Areas

Non-standing water wetlands will be seeded with the mix provided in Appendix C, Table 3 to provide temporary cover and allowed to revegetate naturally. The natural revegetation process will be encouraged by the seeds and rhizomes in the topsoil spread back over the right-of-way after pipe installation. No fertilizer, lime, or mulch will be applied in wetlands.

7.7.2 Saturated/Standing Water Wetlands

EPND does not propose to seed standing water wetland areas. It is widely accepted that the reestablishment of vegetation within standing water wetlands occurs best through natural process without supplemental seeding.

7.7.3 Forested Wetland Restoration

EPND proposes to allow natural reforestation of the temporary workspace area within forested wetlands via stump sprouting, root sprouting, and natural recruitment. Specific forested wetland restoration provisions will be followed as indicated in applicable permits issued for the Project.

7.8 PERMANENT SEEDING OF WATERBODY BANKS

EPND will reestablish stream bank vegetation using the Upland seed mix listed in Appendix C, Table 2, unless an alternate seed mix is requested by applicable agencies. Additional vegetation requirements may also be contained within Project specific permits. Where a waterbody is located within a wetland, the Contractor will re-seed the banks with the applicable wetland seed mix.

7.9 SPECIALIZED SEED MIXES

The following specialized seed mixes are available upon landowner request on a site-specific basis.

- Residential Areas: This seed mix will be used to reestablish residential lawns or other types of "turf-type" land cover.
- Pasture Areas: This seed mix will be used to reestablish active pastures and hayfields.
- Wildlife Areas: This seed mix will be used to provide a desirable food source for wildlife, specifically deer.

- Native Areas: In consultation with the NRCS, a native seed mix was also developed for restoring areas currently dominated by native plant species. The mix includes naturally occurring species and provide for effective erosion control and revegetation of the Project area. This seed mix will be used by EPND at locations identified as high quality vegetation areas unless an alternate seed mix is specified by landowners or regulatory agencies.
- Roadways: This seed mix will be used to reestablish vegetation within upland areas of roadway easements.

7.10 CONSERVATION RESERVE PROGRAM (CRP) PROPERTIES

EPND's Land Agents will contact landowners where the construction ROW crosses land enrolled in CRP. EPND will work with the respective landowners to identify the parcel-specific CRP seed mixes. CRP lands will be seeded at the direction of the landowner per the site-specific landowner CRP requirements for that parcel and no non-CRP approved seed mix will be planted on CRP lands. CRP parcels will also be seeded with EPND's temporary cover seed mix. Seed for CRP seeding will meet the same criteria as other seed described in Section 7.1

7.11 SEED BED PREPARATION AND SEEDING PROCEDURES

After final grading, deep tillage will be performed in actively cultivated areas and in non-agricultural areas (as directed by EPND) to relieve soil compaction and promote root penetration. Deep tillage will not be conducted in non-farmed wetlands. The soil will then be tilled with a disc, field cultivator, or chisel plow (or equivalent) to prepare a seedbed, breaking up large clods and firm the soil surface. Tillage and equipment operations related to seeding and mulching will be performed parallel to ground contours as much as practicable. Fertilizer and other soil amendments will be incorporated into the soil during seedbed preparation as specified by EPND in the Project-specific CLL requirements and permits. No soil amendments will be applied in wetlands unless directed by the appropriate agencies.

7.12 SEEDING METHODS

Seed will be applied uniformly at specified rates across the prepared construction ROW by drilling, broadcasting, or hydroseeding. The EI will suspend seeding activities if conditions are such that equipment will cause rutting of the surface in the designated seeding areas. EPND will continue to monitor ROW conditions to resume seeding activities as site conditions improve and according to the general seeding timing restrictions listed in Section 7.14.

7.12.1 Drill Seeding

Seeding equipment will be capable of uniformly distributing the seed and sowing it at the required depth. Drills will be equipped with a feeding mechanism that will provide a uniform flow of seed at the desired application rate. Double-disc furrow openers equipped with depth bands and packer wheels to firm the soil over the seed will be used where practicable.

7.12.2 Broadcast Seeding

Broadcast seeding rate will be double the drill-seeding rate. Seed will be uniformly distributed by a mechanical or hand operated seeder. Following seeding, a cultipacker, harrow, or hand rake will be used to cover the seeds and firm the seedbed as is appropriate for the area.

7.12.3 Hydroseeding

Hydroseeding rate will be double the drill seeding rate, or the same as broadcast seeding rate. Seed will be applied alone or in a seed, fertilizer, and/or hydromulch slurry. If seeding is applied alone, the amount of hydromulch material will be adjusted to the seed slurry to show where seeding has taken place, providing a means to identify uniform cover of the construction ROW. Hydroseeders will provide continuous agitation and be capable of supplying a continuous, non-fluctuating flow of slurry. EPND will pre-approve all hydromulch products, which must be on the applicable state DOT product list.

7.13 SOIL AMENDMENTS

EPND will consult with NRCS representatives and review county soil survey information to assess where soil amendments, specifically the application of fertilizer or lime are needed to promote successful revegetation. No fertilizer or lime will be added with native seed mixes. When using non-native species on dry, dry-mesic and mesic sites for permanent seeding a minimum of 150 pounds of 20-10-10, and 2 tons of 80-85 lime or equivalent will be applied, unless otherwise specified or restricted by the landowner, NRCS, or land-managing agency. Soil amendments may be applied to agricultural, pasture, and/or residential lands if requested by landowners and/or land managing agencies. EPND will apply phosphate free fertilizers to areas within 100 feet of a waterway if soil amendments are required.

7.14 SEEDING PERIODS

These seeding windows have been developed in consultation with the NRCS and local/regional seed suppliers for normal average growing seasons, in conjunction with normal climate and soils conditions for maximum seed germination.

Seeding Periods

Native Mixes	
Spring Permanent Seeding	Fall Dormant Seeding
April 1 to June 15	Soil temperature below 55 degrees Fahrenheit

EPND will delay seeding during frozen ground conditions until the applicable spring seeding period or will complete dormant seeding where conditions allow (i.e., no snow cover). EPND will install temporary erosion controls during frozen conditions.

7.15 TIMING OF FINAL SEEDING

Upon final grading of the construction ROW, and upon the restoration of wetland and waterways, seeding and restoration/stabilization will occur within 48 hours. Other methods of stabilization will be used if temporary seeding is not appropriate due to seasonal conditions (e.g., mulch, erosion control matting).

7.16 EROSION & SEDIMENT CONTROL

Erosion control blankets, such as sewn straw mats, jute mats, coconut erosion control blankets, or biodegradable synthetic erosion control blankets, as approved by EPND, will be used on slopes over 30 percent, on stream banks and ditch banks and as directed by EPND.

7.17 DORMANT SEEDING

Dormant seeding is a method used after soil temperatures have cooled to 55 degrees Fahrenheit or cooler to prevent seed germination. Dormant seeding is only practicable if the soil is not frozen and snow is not present. Procedures for applying soil amendments, seedbed preparation, seeding, and mulching are the same as outlined for permanent revegetation in this section.

Where dormant seeding is conducted, one or more of the following temporary erosion and sediment controls will be put in place over the freshly seeded area unless the local soil conservation authority, landowner, or land managing agency specifies otherwise. The temporary measures will be in place within 48 hours of seeding, and are as follows:

- noxious weed-free straw mulch, at not more than 2 tons/acre, anchored;
- hydromulch, at 2 tons/acre, anchored; and/or
- erosion control blanket.

Additional erosion control measures will be applied as requested by the EI.

7.18 MONITORING

EPND will monitor and address all areas where stabilization techniques have been implemented in accordance with conditions identified in the applicable Project permits and/or licenses.

8.0 WINTER CONSTRUCTION

Frozen conditions can preclude effective topsoil segregation. When soil is frozen to a depth greater than the depth of topsoil, the soil will come off in thick slabs that contain both topsoil and subsoil, and mixing can result. If top soiling will proceed under these conditions, it should be done at the excavation only. A ripper should be used to break up the frozen topsoil over the trench line only. Care should be taken to only rip to the actual depth of topsoil or to a maximum depth of 12 inches, whichever is less. Topsoil in the spoil storage area should be graded smooth to minimize mixing during backfilling. Sufficient time is needed to allow the newly graded topsoil to freeze in place prior to trenching.

Summer construction of large diameter pipelines in saturated/standing water wetlands with unconsolidated soils can be difficult and potentially result in greater wetland disturbance including wider trench widths and extensive rutting/surface disturbance. Constructing across these types of wetlands in the winter can result in fewer impacts. Heavy construction equipment use and travel along the construction ROW, which may not be possible in summer conditions due to saturated, unstable soil conditions, can be accomplished in the winter by establishing temporary winter frost/ice roads. These frost/ice roads protect underlying vegetation and upper layers of wetland surfaces from disturbance potentially created during summer construction.

The area of open excavation will be minimized during winter construction to reduce amount of frozen backfill, and facilitate restoration to pre-construction contours. If winter conditions preclude final grading and cleanup, the Contractor will stabilize the area and temporary erosion control measures will remain in place until permanent erosion control measures are installed. Depending on site and weather conditions, EPND may require the Contractor to install dormant seeding, mulching, and/or installation of erosion control blanket on stream banks or other sensitive locations.

9.0 WASTE MANAGEMENT

The Contractor will properly handle, store, and dispose of all solid and hazardous materials and wastes that are used or generated by the Contractor as a result of the Project. The Contractor will determine if the materials and wastes associated with the Project classify as hazardous materials and/or wastes in accordance with applicable federal and/or state criteria. Upon request by EPND, the Contractor will provide documentation to EPND to substantiate findings of the regulatory status of materials and/or wastes used and/or generated as a result of the Project.

The Contractor will collect all waste materials, including oil or other waste liquids generated as a result of equipment maintenance, daily in suitable or approved containers (i.e., labeled and meeting any relevant regulatory requirements). On a routine basis, the Contractor will remove the containers of waste from the site and properly dispose of them. Throughout the duration of the Project, the Contractor will cleanup areas to the satisfaction of EPND. The Contractor is responsible for proper off-site disposal of all wastes generated during the Project. No wastes are to be left on EPND property, along the ROW, or buried in an excavation or otherwise disposed of on EPND property or ROW.

9.1 HAZARDOUS WASTES

If a Contractor generates a hazardous waste from materials they have brought on-site (e.g., paint clean-up solvents, waste paints, etc.), then the Contractor is responsible for proper waste collection, storage and disposal in accordance with all applicable regulations. The Contractor remains responsible for the proper handling, storage and disposal of the hazardous waste. Any release of the hazardous waste as a result of the improper handling, storage or disposal by the Contractor in this instance is the responsibility of the Contractor to rectify to the satisfaction of EPND and all applicable regulatory agencies.

9.2 ABRASIVE BLAST DEBRIS

The Contractor will contain and collect spent abrasive blast materials and place it into appropriate containers. The Contractor is responsible for covering the containers with appropriate means of rainwater and stormwater control to prevent said waters from entering or exiting the container. The Contractor is responsible for disposal of the spent abrasive in accordance with applicable federal, state and local regulatory requirements. The Contractor is responsible for determining if the spent abrasive is classified as a “hazardous” or “special” waste as defined by applicable federal and state regulations. If the spent abrasive is determined to be hazardous waste as a direct result of constituents of an EPND facility or equipment, EPND will coordinate proper disposal with the Contractor as previously discussed.

10.0 SPILL PREVENTION, CONTAINMENT, AND CONTROL MEASURES

This section describes planning, prevention and control measures to minimize impacts resulting from spills of fuels, petroleum products, or other regulated substances as a result of construction. These measures will be implemented by the Contractor, unless otherwise indicated by EPND.

10.1 PLANNING AND PREVENTION

EPND requires its Contractors to implement proper planning and preventative measures to minimize the likelihood of spills, and to quickly and successfully clean up a spill should one occur. This section sets forth minimum standards for handling and storing regulated substances and cleaning up spills. Potential sources of construction-related spills include machinery and equipment failure, fuel handling, transfer accidents and storage tank leaks. The Contractor will be responsible for implementing, at a minimum, the following planning and prevention measures.

10.2 ROLES AND RESPONSIBILITIES

10.2.1 Spill Coordinator

A Spill Coordinator will be designated by the Contractor, subject to approval by EPND. For all construction related spills, the Spill Coordinator will:

- report all spills to the EPND Representative immediately;
- report spills to appropriate federal, state and local agencies as soon as possible (subject to EI verification);
- mobilize on-site personnel, equipment, and materials for containment and/or cleanup commensurate with the extent of the spill;
- assist the Emergency Response Contractor (refer to a list of potential contractors provided in Appendix E) and monitor containment procedures to ensure that the actions are consistent with the requirements of this section;
- in consultation with EPND and appropriate agencies, determine when it is necessary to evacuate spill sites to safeguard human health;
- in consultation with EPND, coordinate with appropriate agencies the need to contact additional parties or agencies; and
- complete a Spill Report Form (refer to Appendix F) within 24-hours of the occurrence of a spill, regardless of the size of the spill.

10.2.2 Environmental Inspector

The EI will monitor the Contractor's compliance with the provisions of this section to ensure that appropriate agency notifications are made, spill resources are allocated, and clean-up is accomplished in accordance with applicable agency requirements

10.2.3 Authorized Personnel

Authorized Personnel are representatives of the Contractor who are designated to handle fuel, lubricants or other regulated substances. Authorized Personnel will be familiar with the requirements of this section and the consequences of non-compliance.

10.2.4 Construction Superintendent

The Contractor's Construction Superintendent or representative will notify the EI immediately of any spill of a petroleum product or hazardous liquid, regardless of volume.

10.2.5 Construction Personnel

Construction Personnel are representatives of the Contractor involved with the installation of the pipeline. Construction Personnel will notify the crew foreman or Spill Coordinator immediately of any spill of a petroleum product or hazardous liquid, regardless of volume.

10.3 TRAINING

The Contractor will train all employees handling fuels and other regulated substances to follow spill prevention procedures. The Contractor will train all employees who handle fuels and other regulated substances to prevent spills and to quickly and effectively contain and clean up spills that may occur in accordance with applicable regulations. .

10.4 EQUIPMENT

- Each construction crew will have adequate absorbent materials and containment booms on hand, to enable the rapid cleanup of any spill which may occur.

- The Contractor will maintain spill kits containing a sufficient quantity of absorbent and barrier materials to adequately contain and recover foreseeable spills. These kits may include, but are not limited to absorbent pads, straw bales, absorbent clay, sawdust, floor-drying agents, spill containment barriers, plastic sheeting, skimmer pumps, and holding tanks. This equipment will be located near fuel storage areas and other locations as necessary to be readily available to control foreseeable spills.

- Suitable plastic lining materials will be available for placement below and on top of temporarily-stored contaminated soils and materials.

- All fueling vehicles, and where necessary, service vehicles, will carry materials adequate to control foreseeable spills. Such material may include but not be limited to absorbent pads, commercial absorbent material, plastic bags with ties, and shovels.

- The Spill Coordinator will inform the Authorized Personnel, Construction Personnel, and the EIs of the locations of spill control equipment and materials, and have them readily accessible during construction activity. Spill kits should be clearly labeled for quick and easy identification in the field.

- All fuel nozzles will be equipped with functional automatic shut-offs.

- Fuel trucks transporting fuel to on-site construction equipment will travel only on approved access roads.

10.5 SUPERVISION AND INSPECTION

The Contractor will perform a pre-construction inspection and test of all equipment to ensure that it is in good repair. During construction, the Contractor will regularly inspect hoses, pipes, valves, and tanks to ensure equipment is free of leaks. Any equipment that found to be is leaking or in need of repair will be immediately removed from service by Contractor and repaired, prior to resuming work.

10.6 STORAGE AND HANDLING OF FUELS/HAZARDOUS LIQUIDS

10.6.1 Fuel Storage - General

The Contractor will follow proper fuel storage practices, including, but not limited to the following:

- Fuel storage will be at Contractor yards only or as approved by EPND.
- Proper signage at and adjacent to fuel storage areas to include “Fuel Storage Area – No smoking within 50 feet.”
- Tools and materials to stop the flow of leaking will be kept on-site. Such equipment may include, but not be limited to, plugs of various sizes, 3M tank patches, a hammer, assorted sizes of metal screws with rubber washers, a screwdriver, and plastic tape.
- Fuels, lubricants, waste oil, and any other regulated substances will be stored in aboveground tanks only.
- Storage tanks and containers will conform to all applicable industry codes (NFPA, UFC, etc.).
- A suitable secondary containment structure will be utilized at each fuel storage site. These structures will be lined with suitable plastic sheeting; provide a minimum containment volume equal to 150 percent of the volume of the largest storage vessel..
- Secondary containment areas will not have drains. Precipitation may be drawn off as necessary. If visual inspection indicates that no spillage has occurred in the secondary containment structure, accumulated water may be drawn off and discharged in accordance with Section 5.0. If spillage has occurred in the structure, accumulated waste will be drawn off and pumped into drum storage for disposal.

10.6.2 Refueling

Contractor will make all efforts to dispense fuel by Authorized Personnel during daylight hours. Fuel dispensing operations will be attended by Authorized Personnel at all times. Personnel will be stationed at both ends of the hose during fueling unless both ends are visible and are readily accessible by one person.

10.6.3 Refueling, Maintenance, and Fuel Storage Near Wetlands and Waterbodies

EPND requires that the storage of petroleum products, refueling, maintenance, and lubricating operations take place in upland areas that are more than 100 feet from wetlands, streams, and waterbodies (including drainage ditches), and water supply wells. In addition, the Contractor will

store hazardous materials, chemicals, fuel and lubricating oils, and perform concrete coating activities outside these areas.

In certain instances, refueling or fuel storage may be unavoidable due to site-specific conditions or unique construction requirements (*e.g.* continuously operating pumps or equipment on barges). These locations will be approved in advance by the EI. Site-specific precautions, in addition to those practices described above, will be taken when refueling or maintenance activities are required within 100 feet of streams, wetlands or other waterbodies. These precautions include, but are not limited to:

- Adequate amounts of absorbent materials and containment booms will be kept on hand by each construction crew to enable the rapid cleanup of any spill which may occur;
- If fuel will be stored within wetlands or near streams for refueling of continuously operating pumps, secondary containment will be used;
- Secondary containment structures will be lined with suitable plastic sheeting, provide a containment volume of at least 150 percent of the storage vessel, and allow for at least one foot of freeboard; and
- Provide adequate lighting for these locations and activities.

10.6.4 Overnight parking

Overnight parking of equipment (including but not limited to light plants, generators, pumps, and machinery) is not allowed within 100 feet of a wetland or waterbody unless special containment provisions have been implemented and approved by the EI in advance.

10.6.5 Concrete Washout Handling

Concrete wash water, grindings and slurry, will not be discharged to wetlands, waterbodies, and storm sewer systems or allowed to drain onto adjacent properties. Wash water disposal will be limited to a defined area of the site or to an area designated for cement washout. The area(s) will be sufficient to contain the wash water and residual cement. Contractors hired to provide concrete products will provide equipment capable of reclaiming wash water during wash out.

10.7 INITIAL SPILL MANAGEMENT

10.7.1 Immediate Response

Immediately upon learning of any fuel, oil, hazardous material or other regulated substance spill, or upon learning of conditions that will lead to an imminent spill, the person discovering the situation will:

- Initiate actions to contain the fluid that has spilled or is about to spill, and initiate action to eliminate the source of the spill to the maximum extent that is safely possible.
- Notify the crew foreman and/or the Spill Coordinator and provide them with the following information:
    - Location and cause of the spill;

- The type of material that has spilled; and
- Whether the spill has reached or is likely to reach any surface water.

Upon learning of a spill or a potential spill the Spill Coordinator will:

- Assess the situation and determine the need for further action;
- Direct subsequent activities and/or further assign responsibilities to other personnel; and
- Notify the EI.

10.7.2 Mobilization

The Spill Coordinator will mobilize on-site personnel, equipment, and materials for containment and/or cleanup commensurate with the extent of the spill. If the Spill Coordinator feels that a spill is beyond the scope of on-site equipment and personnel, the Spill Coordinator will immediately notify the Construction Superintendent that an Emergency Response Contractor is needed to contain and/or clean up the spill. Appendix E contains a list of potential Emergency Response Contractors. The Spill Coordinator will assist the Emergency Response Contractor and monitor containment procedures to ensure that the actions are consistent with the requirements of this Section.

In the event of a suspected Enbridge pipeline spill (to an adjacent pipeline), Enbridge's Emergency Pipeline Control Center will be notified at 1-800-858-5253 (24-hours/day), as well as the EPND EI. Actions requiring emergency response will be coordinated by Enbridge.

10.8 SPILL NOTIFICATION RESPONSIBILITIES

10.8.1 Notification Volumes

The Contractor's Construction Superintendent or representative will notify the EPND Representative and the EI immediately of any spill of a petroleum product or hazardous liquid, regardless of volume.

10.8.2 Spill Report Form

The Spill Coordinator will complete a Spill Report Form (Appendix F) for each release of a regulated substance, regardless of volume. The Spill Report Form will be submitted to the EI within 24 hours of the occurrence of a spill. Follow-up written reports, associated laboratory analyses, and other documentation may also be required separately on a site-specific basis as directed by the EI. Documentation is the responsibility of the Contractor.

10.8.3 Agency Notification

The Contractor will report spills to appropriate federal, state and local agencies as soon as possible. A listing of federal, state, and local agencies including reporting thresholds and timeframes is provided in Appendix G.

The Contractor, in coordination with EPND and the appropriate federal, state and local agencies will ensure that additional parties or agencies are properly notified. Additionally, the Contractor is responsible for ensuring that all cleanup activities required by a jurisdictional agency are satisfactorily met and provide documentation to EPND demonstrating this compliance.

10.9 SPILL CONTAINMENT AND CLEANUP

In the event of a spill, the Contractor will abide by all applicable federal, state and local regulations with respect to cleaning up the spill. All clean-up and other construction related spill activities will be completed by, and costs assumed by the Contractor. Specific cleanup measures for both upland and wetland/waterbody spills are described below.

10.9.1 Spill Control - Upland Areas

- If a spill should occur during refueling operations, **STOP** the operation until the spill can be controlled and the situation corrected.
- The source of the spill will be identified and contained immediately.
- For large spills on land, the spill will be contained and pumped immediately into tank trucks. The Contractor or, if necessary, an Emergency Response Contractor, will excavate contaminated soil.
- The spilled material and the contaminated soil will be treated and/or disposed of in accordance with all applicable federal, state, and local agency requirements.
- Smaller spills on land will be cleaned up with absorbent materials. Contaminated soil or other materials associated with these releases will also be collected and disposed of in accordance with applicable regulations.
- Flowing spills will be contained and/or absorbed before reaching surface waters or wetlands.
- Absorbent material(s) will be placed over spills to minimize spreading and to reduce its penetration into the soil.
- The Spill Coordinator, in consultation with the EI and appropriate agencies, determine when spill sites will be evacuated as necessary to safeguard human health. Evacuation parameters will include consideration for the potential of fire, explosion, and hazardous gases.

10.10 SPILL CONTROL - WETLANDS AND WATERBODIES

In addition to the above measures, the following conditions apply if a spill occurs near or into a wetland or waterbody, regardless of size:

- If a spill occurs during refueling operations, **STOP** the operation until the spill can be controlled and the situation corrected.
- The Contractor will use sorbent booms and pads to contain and recover released materials in standing water.
- If necessary, for large spills in waterbodies, The Contractor will secure an Emergency Response Contractor to further contain and clean up the spill.
- The Contractor will excavate contaminated soils in wetlands and temporarily place them on plastic sheeting in a bermed area, a minimum of 100 feet away from the wetland.

Contaminated soils will be covered with plastic sheeting while being stored temporarily and properly disposed of as soon as possible, in accordance with Section 10.11.

10.11 STORAGE AND DISPOSAL OF CONTAMINATED MATERIALS

- Appendix E lists potential treatment and disposal facilities for contaminated materials, petroleum products, and other construction-related wastes. The Contractor should recycle those wastes, such as motor oil, where there is an established recycling program available. Wastes such as grease or oily rags shall be disposed of in accordance with state requirements.

- The Contractor will store and dispose of all contaminated soils, absorbent materials, and other wastes in accordance with all applicable state and federal regulations.

- Only licensed carriers may be used to transport contaminated material from the site to a disposal facility.

- If it is necessary to temporarily store excavated soils on site, these materials will be placed on, and covered by, plastic sheeting, and the storage area bermed to prevent and contain runoff.

11.0 DRILLING FLUID RESPONSE, CONTAINMENT, AND NOTIFICATION PROCEDURES

Construction of a pipeline may include the use of trenchless methods known as the horizontal directional drilling (HDD) and guided/road bore methods. Throughout this section, both methods are referred to collectively as "drilling". While the HDD method always includes the use of drilling fluid, the guided or road bore method might use drilling fluid or only use water to power and lubricate the bore. The HDD drilling fluids/mud consists primarily of water mixed with inert bentonite clay. Under certain conditions an additive may need to be mixed with the drilling fluids/mud for viscosity or lubricating reasons. Only non-hazardous additives will be used and a Material Safety Data Sheet (MSDS) for the drilling fluid will be maintained on-site.

This section elaborates on measures to be implemented by the Contractor if an inadvertent release of drilling fluid occurs despite prevention efforts. Prior to the commencement of drilling operations, the Contractor will inform construction personnel involved in as to the responsible party(ies) for release containment and response. The Contractor will ensure that the appropriate response personnel and containment equipment are on site for each drill/bore.

11.1 ON-SITE OBSERVATION DURING CONSTRUCTION

During construction of a drilled crossing, Contractor personnel will monitor the pipeline route throughout the process, as follows:

The Contractor will inform construction observers on what to watch for and will make them aware of the importance of timely detection and response actions to any release of drilling fluid.

- Construction observers will have appropriate, operational communication equipment (*e.g.,* radio and cell phones) available at all times during installation of the directionally drilled crossing, with the ability to communicate directly with the HDD operator.
- The HDD operator will monitor the annular drilling fluid pressures during pilot hole operations.
- If the HDD operator realizes a sustained loss in fluid pressure or loss of circulation:
    - The operator will immediately notify the construction observers of the assumed position of the drill tool; and
    - The Contractor will visually monitor the appropriate portion of the drill path where the drill tool is located to determine if an inadvertent return occurred. The Contractor may perform this monitoring by walking or by using a boat, as appropriate.
- Construction observers, EI(s), or the EPND HDD craft inspector have the authority to order installation of containment structures, if needed, and to require additional response measures if deemed appropriate.

11.2 CONTAINMENT, RESPONSE, AND CLEAN-UP EQUIPMENT

Containment, response and clean-up equipment will be available at both sides of an HDD crossing location and one side of a guided or road bore prior to the commencement to assure a timely response in the event of an inadvertent release of drilling fluid. Containment and response equipment includes but is not limited to:

- straw bales and staking
- pre-filled sandbags
- turbidity curtain (not necessary for guided or road bores that do not involve a waterbody)
- silt fence
- plastic sheeting and/or geotextile fabric
- shovels, brooms, buckets, and other appropriate hand tools
- pumps and sufficient hose
- fluid storage tanks (may not be necessary for guided or road bores)
- vacuum truck on 24-hour call
- one small boat (for larger rivers and open water wetlands)
- light plant/generator (only necessary where operations are conducted outside of daylight hours)

11.3 RESPONSE

In the event an inadvertent drilling fluid release is observed, the EI and the Contractor will assess to determine the amount of fluid being released and potential for the release to reach sensitive resource areas (e.g., wetlands and waterbodies). Response measures will vary based on location of inadvertent release as discussed below.

11.3.1 Upland Locations

Response measures include:

- The EI will evaluate the release to determine if containment structures are warranted and if they will effectively contain the release.
- If the amount of the surface release is not great enough to allow the practical physical collection from the affected area, it will be diluted with clean water and/or the fluid will be allowed to dry and dissipate naturally.
- Earthen or sandbag berms, silt fence, and/or hay bales will be installed to contain small releases and prevent migration of drilling fluid.
- The Contractor will remove excess fluid at a rate sufficient to prevent an uncontrolled release.
- If the amount of the surface release exceeds that which can be completely contained with hand-placed barriers, small collection sumps (less than 5 cubic yards) may be used (with approval from EPND) to remove released drilling fluid by the use of portable pumps and hoses.
- The EI will inform the Contractor to initiate immediate suspension of drilling operations if the fluid release cannot be effectively contained.

11.3.2 Wetland and Waterbody Locations

This section also applies to areas immediately adjacent to wetlands and waterbodies, such as stream banks or steep slopes, where drilling fluid releases could quickly reach surface waters.

- In the event of a drilling fluid release in wetlands, waterbodies, or adjacent areas:
    - The EI will evaluate the release, and the Contractor will implement appropriate containment measures.

  - The EI and the Contractor will evaluate the recovery measures to determine the most effective collection method.
  - EPND Engineering and the Contractor will review and adjust drill pressures, pump volume rates, and drill profile to minimize the extent of the release.
  - EPND will suspend drilling operations if containment measures do not effectively control the release.

- If the amount of the surface release exceeds that which can be contained with hand-placed barriers, small collection sumps (less than 5 cubic yards) may be excavated to collect released drilling fluid for removal by the use of portable pumps and hoses.
- If the amount of the surface release is not great enough to allow the practical physical collection from the affected area without causing additional impacts, with approval from both EPND Environmental and Construction Management, it may be diluted with clean water and/or the fluid will be allowed to dry and dissipate naturally.
- Excess fluid will be held within the containment area and removed using pumps or other appropriate measures at a rate sufficient to maintain secure containment.
- Recovered fluid will be stored in a temporary holding tank or other suitable structure out of the floodplain and/or wetland for reuse or eventual disposal in an approved disposal facility
- EPND will consult with the appropriate regulatory agencies to evaluate the circumstances of the release, discuss additional containment or cleanup requirements, and determine whether and under what conditions the HDD may proceed.

11.4 NOTIFICATION AND RESUMPTION OF SUSPENDED HDD OPERATIONS

The Contractor will immediately notify the EI of all drilling fluid releases. If the EI determines the release affects wetland or waterbody areas, he or she will immediately notify EPND Environment and Construction Management and the appropriate regulatory agencies.

If notifications are necessary during non-business hours they will be done according to prior arrangements made between EPND and the regulatory agencies. Follow-up notifications will be made as necessary and practicable.

The conditions under which drilling/boring operations can resume will be discussed with appropriate regulatory agencies and/or field representatives. If containment measures are functioning, and the circumstances and potential impacts of the release are understood, drilling/boring operations will resume.

11.5 CLEAN-UP

The following measures are to be considered as appropriate:

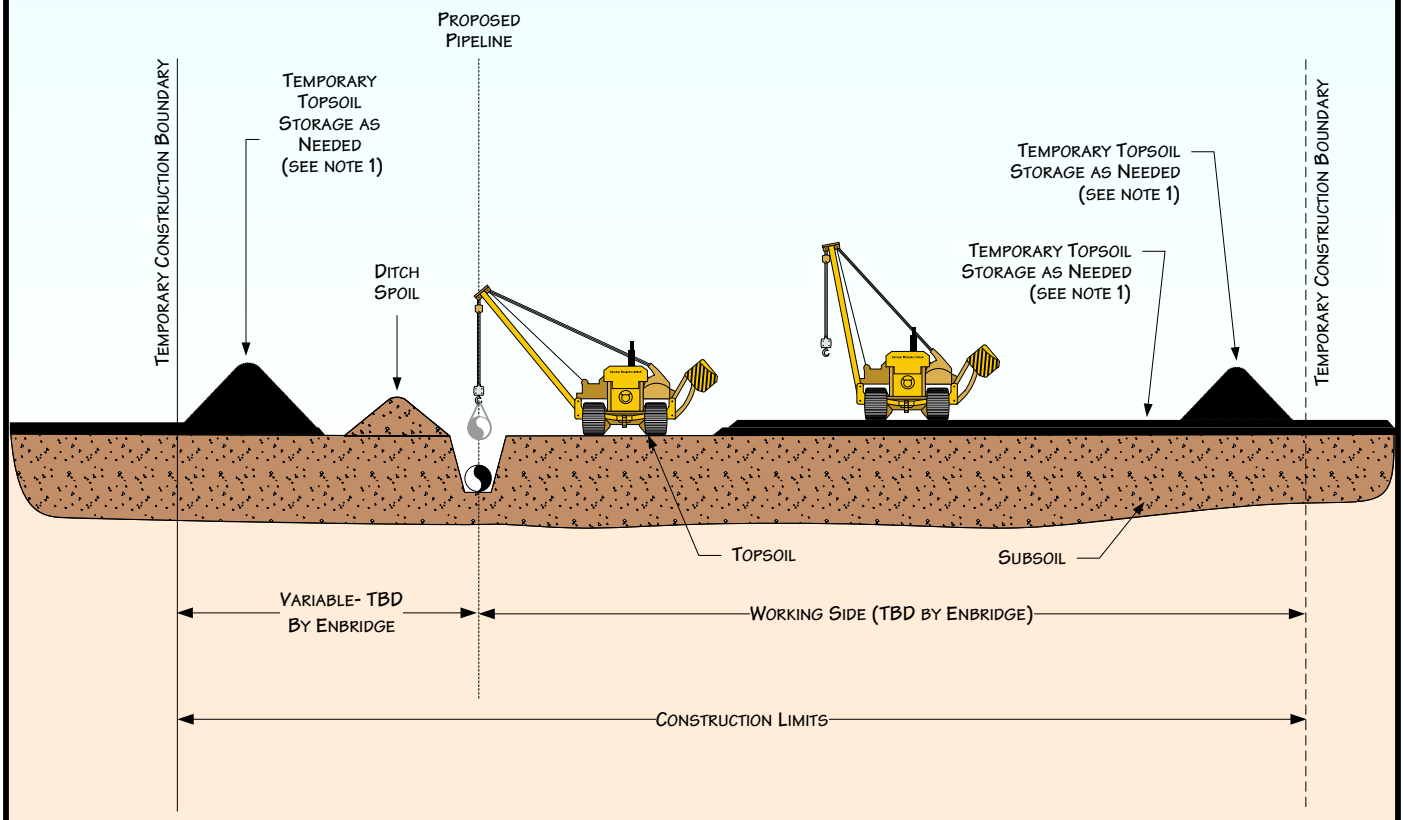
- Drilling fluid will be cleaned up by hand using hand shovels, buckets and soft-bristled brooms as possible without causing extensive ancillary damage to existing vegetation. Clean water washes may also be employed if deemed beneficial and feasible.
- Containment structures will be pumped out and the ground surface scraped to bare topsoil without causing undue loss of topsoil or ancillary damage to existing and adjacent vegetation.

- Material will be collected in containers for temporary storage prior to removal from the site.
- The EI will regularly evaluate the potential for secondary impact from the clean-up process and clean-up activities terminated if physical damage to the site is deemed to exceed the benefits of removal activities. This decision will be made in consultation with the appropriate regulatory agencies and/or EPND.

11.6 RESTORATION AND POST-CONSTRUCTION MONITORING

Following cleanup activities, restoration and revegetation of affected areas will be completed in accordance with all applicable local, state, and federal permits in addition to EPND's EPP. EPND will monitor the release site as appropriate to assure adequate restoration.

Figures



PROFILE

NOTES:

1. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL AS SHOWN OR IN OTHER CONFIGURATIONS APPROVED BY THE COMPANY.

Environmental Protection Plan

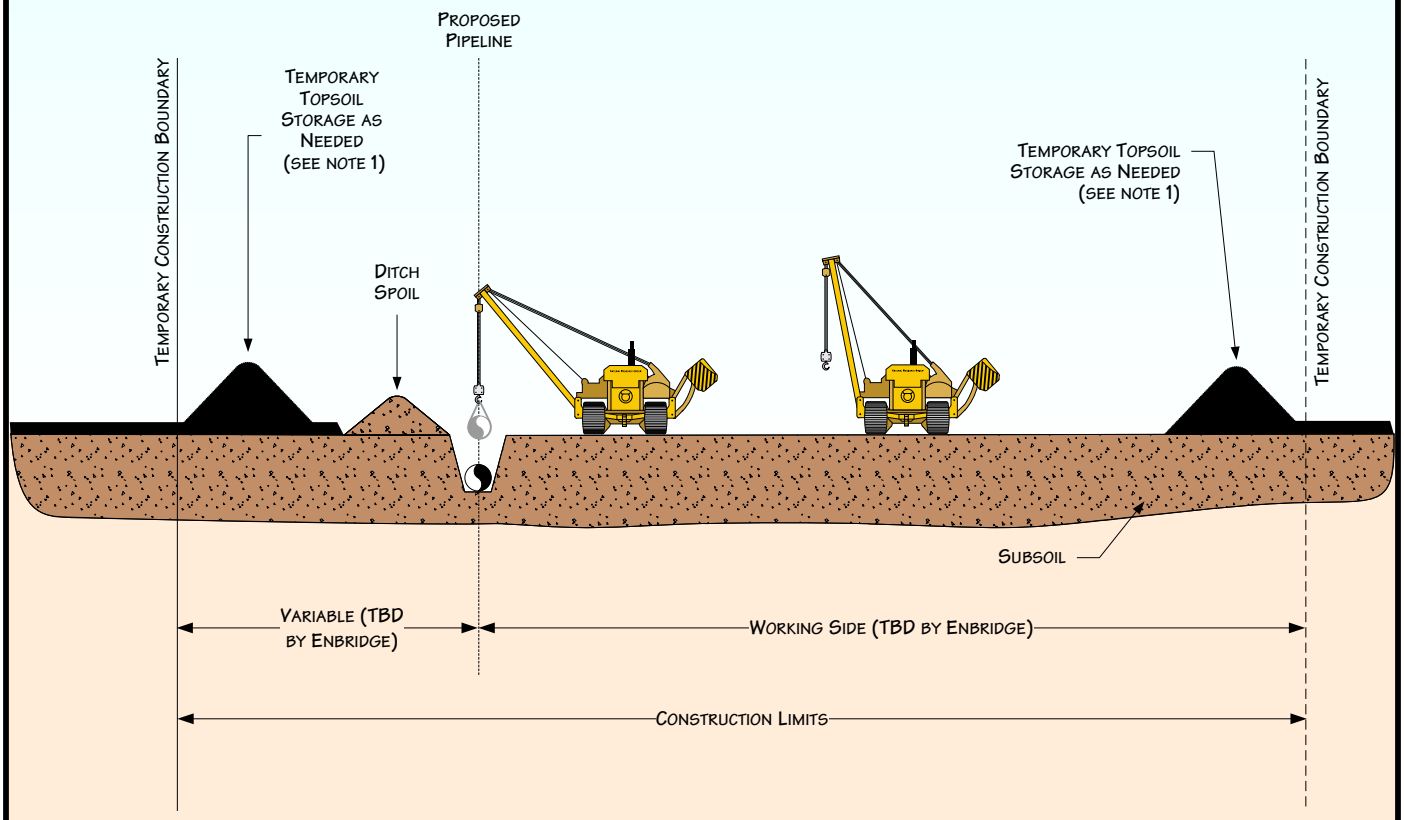
ENBRIDGE

Figure 1

Environmental Protection Plan

Typical Topsoil Segregation – Modified Ditch Plus Spoil Side

DATE:	7/9/2001
REVISED:	3/11/2011
SCALE:	NTS
DRAWN BY:	JPBOENTJE
K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_1-3_TYPICAL_TOPSOIL_SEGREGATION.VSD	



PROFILE

NOTES:

1. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL AS SHOWN OR IN OTHER CONFIGURATIONS APPROVED BY THE COMPANY.

ENBRIDGE

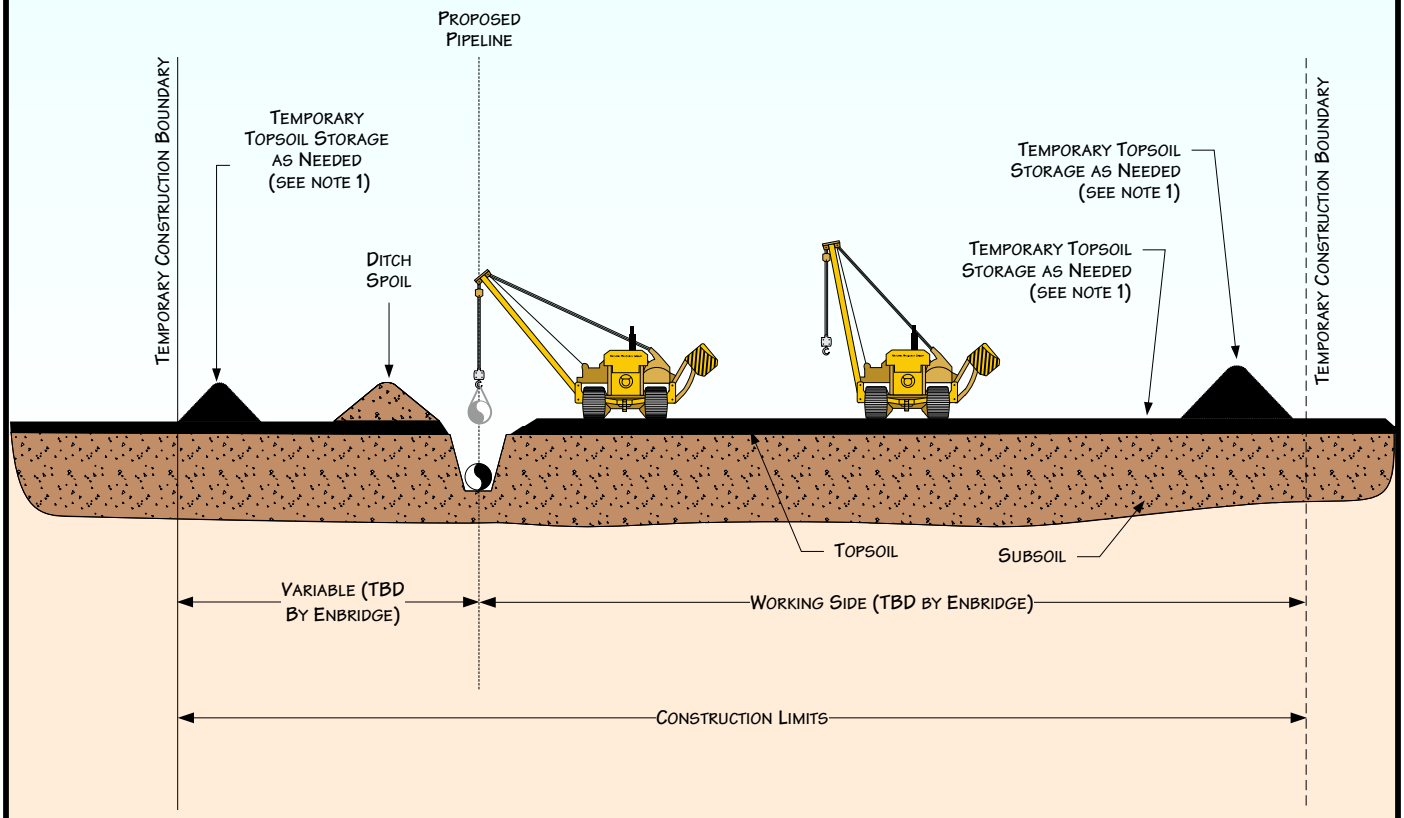
Figure 2

Environmental Protection Plan

Typical Topsoil Segregation - Full Right-of-Way

DATE:	7/9/2001
REVISED:	3/11/2011
SCALE:	NTS
DRAWN BY:	JPBOENTJE

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_1-3_TYPICAL_TOPSOIL_SEGREGATION.VSD



PROFILE

NOTES:

1. STOCKPILE TOPSOIL SEPARATELY FROM DITCH SPOIL AS SHOWN OR IN OTHER CONFIGURATIONS APPROVED BY THE COMPANY.

ENBRIDGE

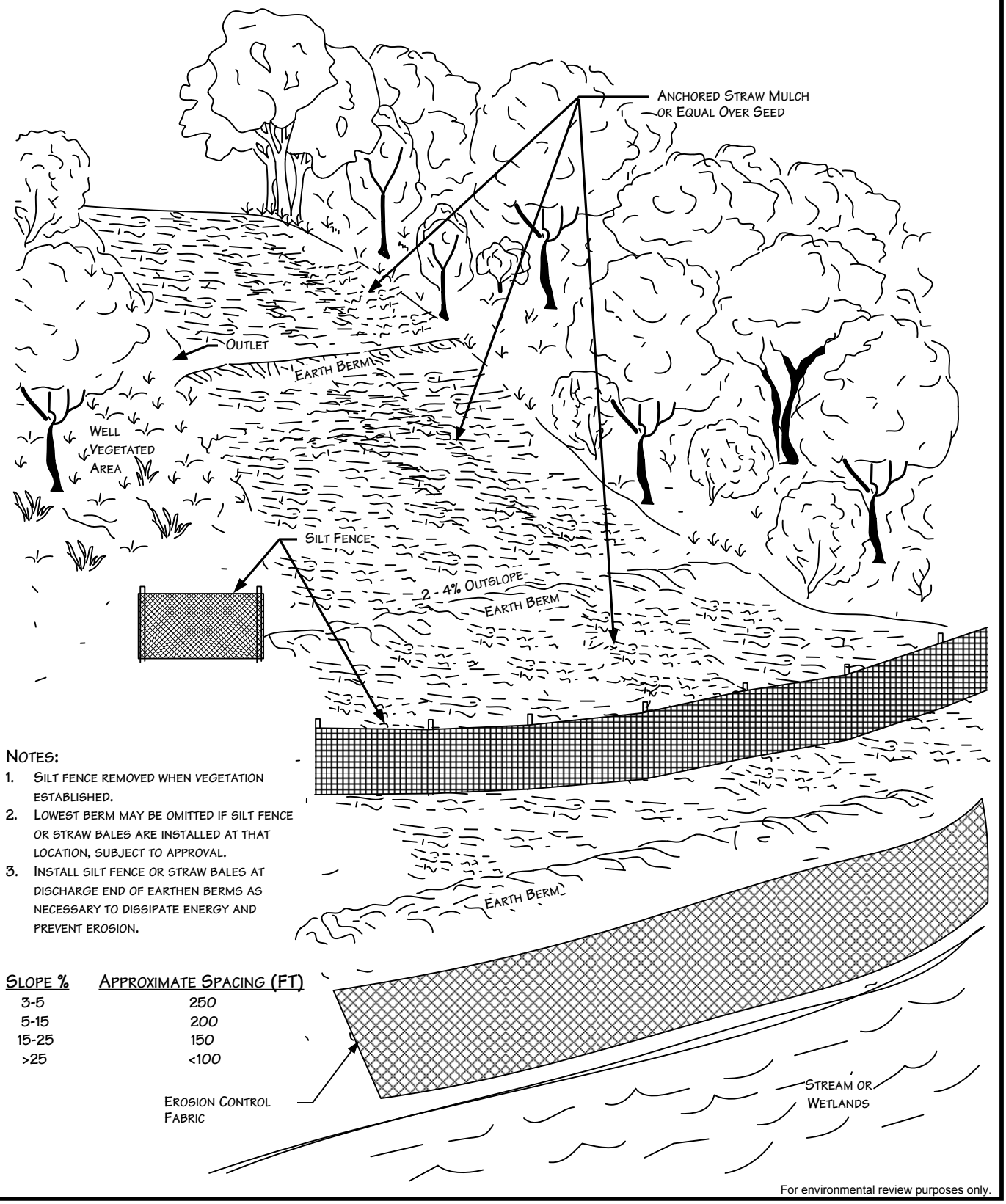
Figure 3

Environmental Protection Plan

Typical Topsoil Segregation – Trench Line Only

DATE:	7/9/2001
REVISED:	3/11/2011
SCALE:	NTS
DRAWN BY:	JPBOENTJE

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_1-3_TYPICAL_TOPSOIL_SEGREGATION.VSD



Notes:

1. Silt fence removed when vegetation established.
2. Lowest berm may be omitted if silt fence or straw bales are installed at that location, subject to approval.
3. Install silt fence or straw bales at discharge end of earthen berms as necessary to dissipate energy and prevent erosion.

Slope %	Approximate Spacing (ft)
3-5	250
5-15	200
15-25	150
>25	<100

For environmental review purposes only.

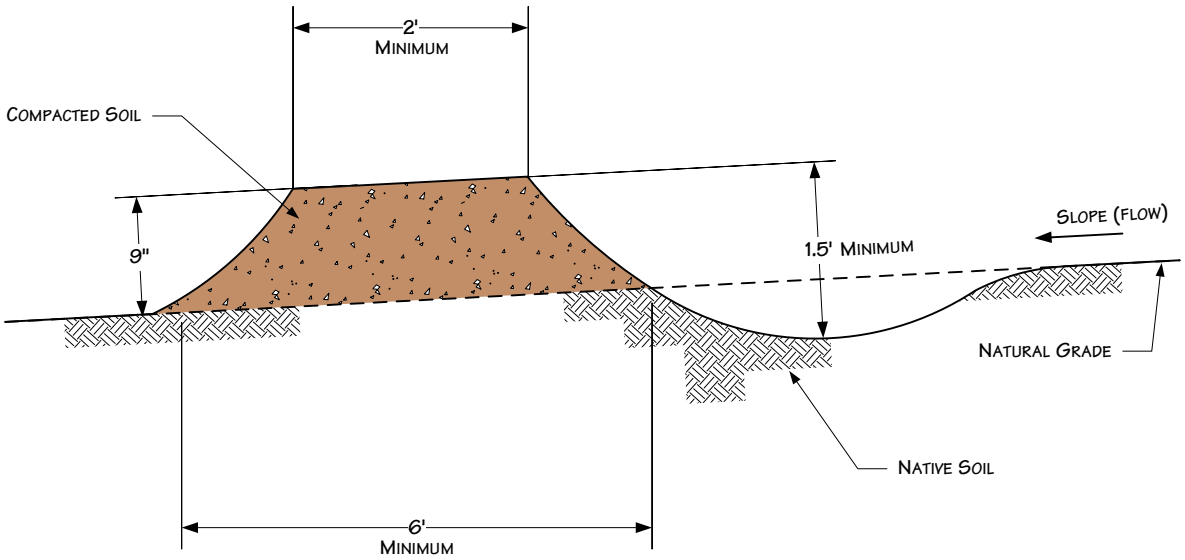
ENBRIDGE

Figure 4

Environmental Protection Plan
Typical Temporary or Permanent Berms
Perspective View

DATE:	11/14/2000
REVISED:	3/11/2011
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_4_BERMS_PERSPECTIVE_VIEW.VSD



NOTES

1. BERMS SHALL BE CONSTRUCTED WITH 2 TO 4 PERCENT OUTSLOPE.
2. BERMS SHALL BE OUTLETED TO WELL VEGETATED STABLE AREAS, SILT FENCES, STRAW BALES OR ROCK APRONS.
3. BERMS SHALL BE SPACED AS DESCRIBED IN CONSTRUCTION SPECIFICATIONS.
4. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.

For environmental review purposes only.

ENBRIDGE

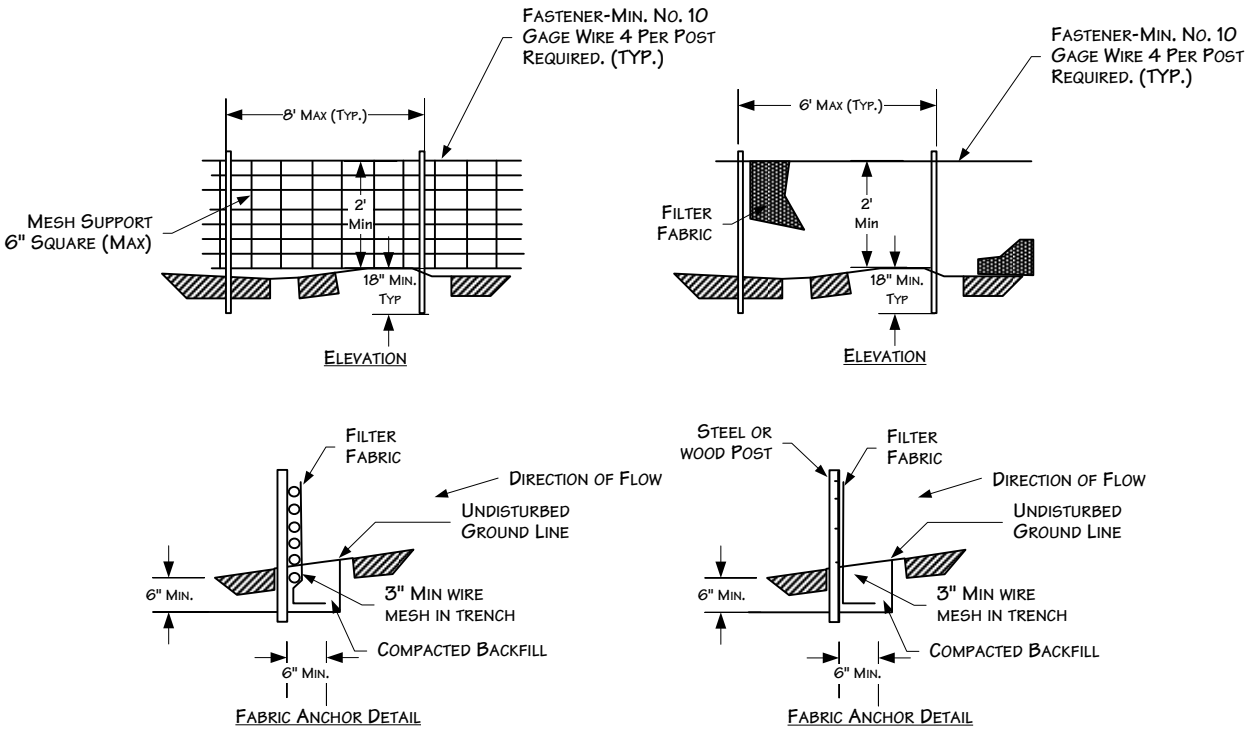
Figure 5

Environmental Protection Plan

Typical Temporary or Permanent Berms
Elevation View

DATE:	5/25/2001
REVISED:	3/11/2011
SCALE:	NTS
DRAWN BY:	KMKENDALL

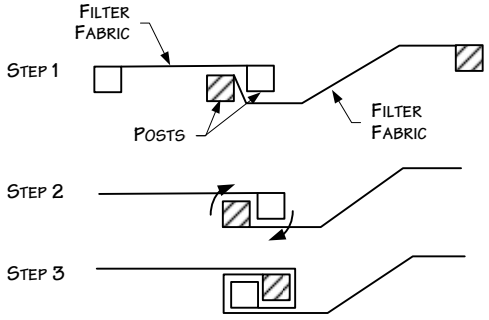
K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_5_BERMS_ELEVATION_VIEW.VSD



SILT FENCE WITH WIRE SUPPORT PLAN

SILT FENCE PLAN
NTS

NOTES:
1. WIRES OF MESH SUPPORT SHALL BE MIN. GAGE NO. 12.
2. FILTER FABRIC SHALL MEET THE REQUIREMENTS OF THE SPECIFICATION WITH EQUIVALENT OPENING SIZE OF AT LEAST 30 FOR NONWOVEN AND 50 FOR WOVEN. (SIEVE NO.)
3. THE POSTS USED TO SUPPORT THE SILT FENCE SHOULD BE HARDWOOD MATERIAL WITH A MINIMUM CROSS SECTIONAL AREA OF 4 INCHES SQUARE AND 4 FEET LONG. METAL POSTS SHOULD BE USED IN AREAS THAT POND WATER.



ATTACHING TWO SILT FENCES

NOTES:
1. PLACE THE END POST OF THE SECOND FENCE INSIDE THE END POST OF THE FIRST FENCE.
2. ROTATE BOTH POSTS AT LEAST 180 DEGREES IN A CLOCKWISE DIRECTION TO CREATE A TIGHT SEAL WITH THE FABRIC MATERIAL.
3. DRIVE BOTH POSTS A MINIMUM OF 18 INCHES IN THE GROUND AND BURY THE FLAP.

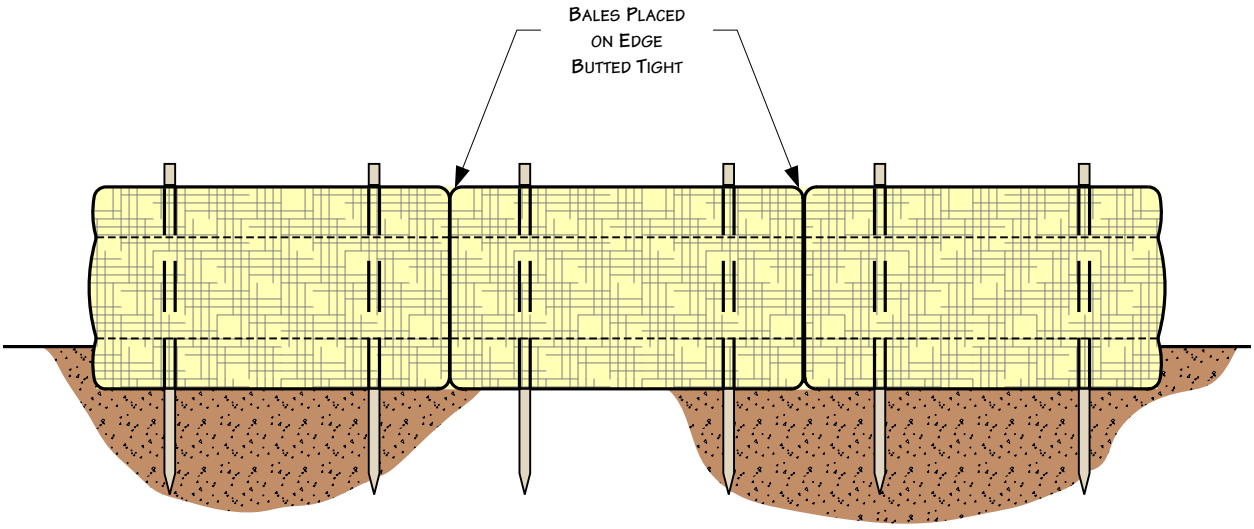
For environmental review purposes only.

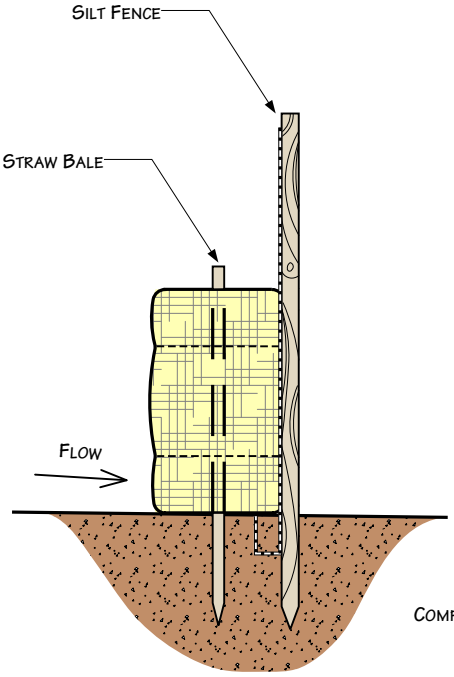
ENBRIDGE

Figure 6
Environmental Protection Plan
Typical Silt Fence Installation

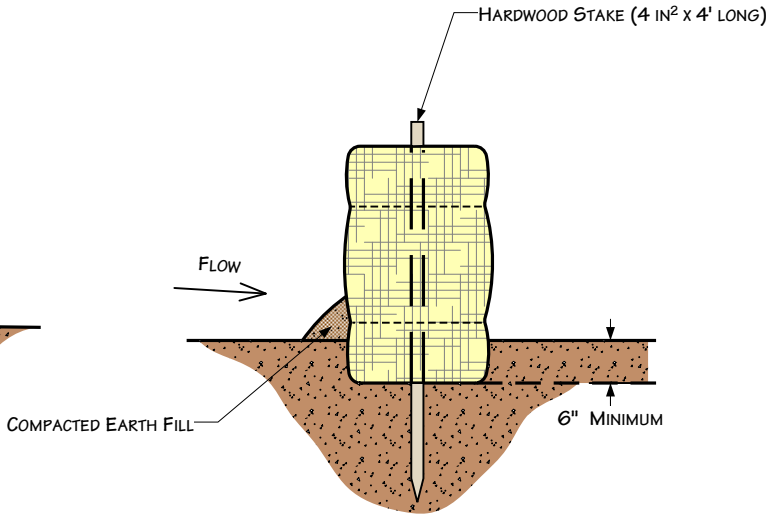
DATE:	5/25/2001
REVISED:	3/23/2011
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_6_SILT_FENCE_INSTALL.VSD





Straw Bales & Silt Fence



Straw Bales Only

For environmental review purposes only.

ENBRIDGE

Figure 7
Environmental Protection Plan
Typical Straw Bale Installation

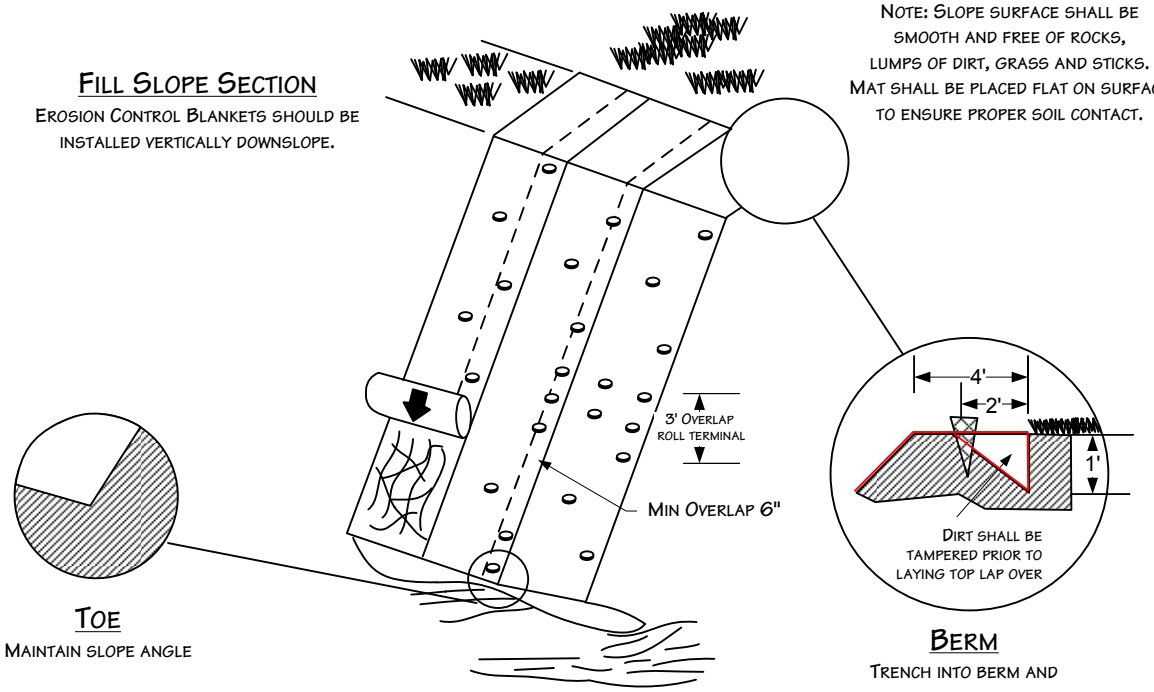
DATE:	5/25/01
REVISED:	3/11/11
SCALE:	Not to Scale
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_7_STRAW_BALE_INSTALL.VSD

Fill Slope Section

Erosion Control Blankets should be installed vertically downslope.

Note: Slope surface shall be smooth and free of rocks, lumps of dirt, grass and sticks. Mat shall be placed flat on surface to ensure proper soil contact.



Toe

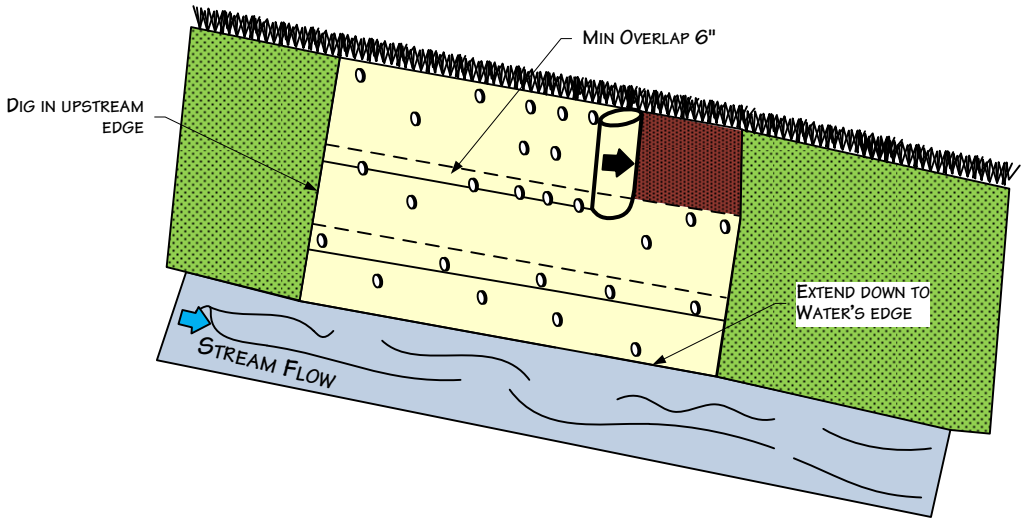
Maintain slope angle

Berm

Trench into berm and progress downslope

Stream Channel

Erosion Control Blankets should be installed Horizontally with Stream Flow.



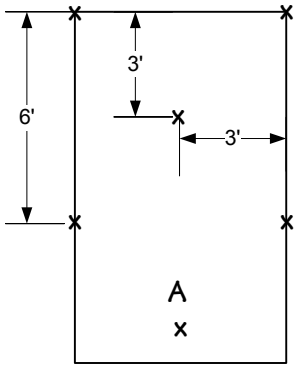
For environmental review purposes only.

ENBRIDGE

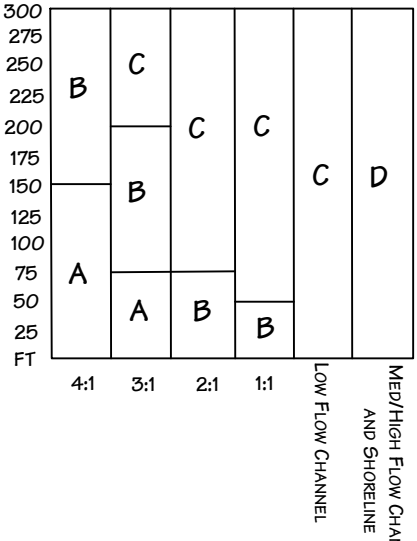
Figure 8
Environmental Protection Plan
Typical Erosion Control Blanket Installation

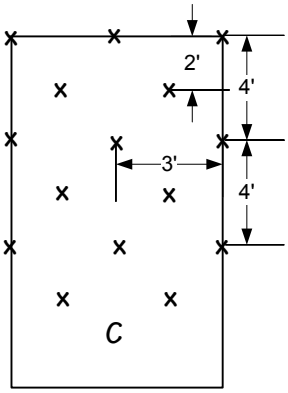
DATE:	5/25/2001
REVISED:	3/23/2011
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_8_EROSION_CONTROL_BLANKET_INSTALL.VSD

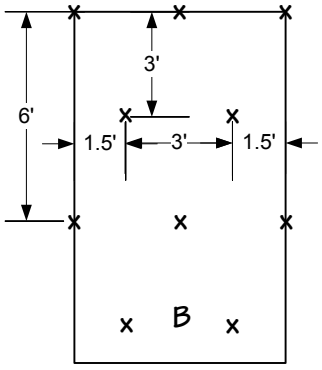


1 Staple Per Sq. Yd



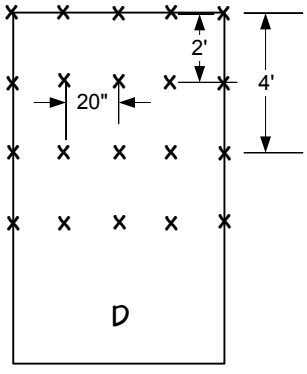


2 Staples Per Sq. Yd



1 ½ Staples Per Sq. Yd

For optimum results, these recommended staple pattern guides must be followed. Suggested anchoring methods vary according to the manufacturer. This chart shows how to slope lengths and how gradients affect sampling patterns.



3 1/2 Staples Per Sq. Yd

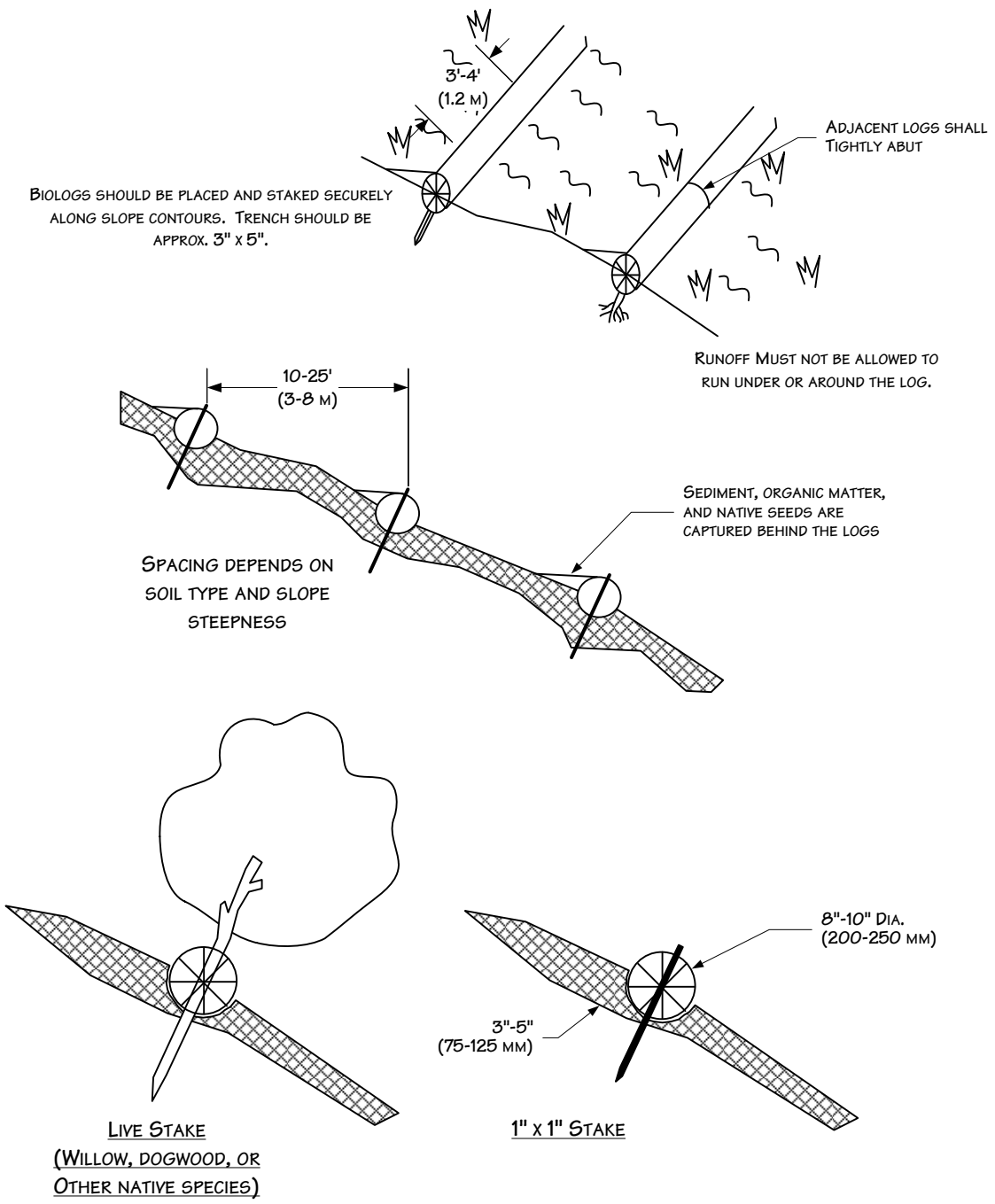
For environmental review purposes only.

ENBRIDGE

Figure 9
Environmental Protection Plan
Typical Staple Pattern for Erosion Control Fabric

DATE:	5/25/2001
REVISED:	3/24/2011
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_9_STAPLE_PATTERN_EROSION_CONTROL_FABRIC.VSD



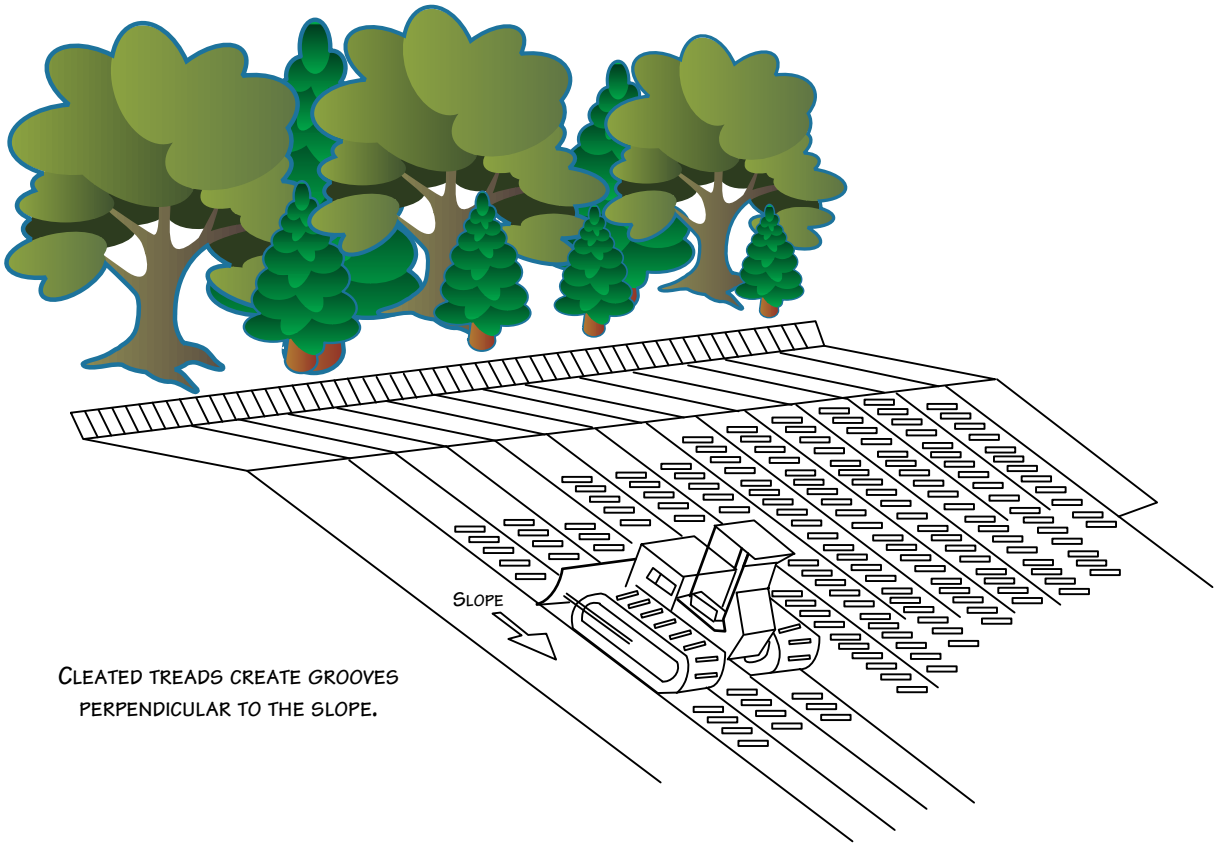
For environmental review purposes only.

ENBRIDGE

Figure 10
Environmental Protection Plan
Typical Biolog Installation

DATE:	5/25/2001
REVISED:	3/24/2011
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_10_BIOLOG INSTALL.VSD



CLEATED TREADS CREATE GROOVES PERPENDICULAR TO THE SLOPE.

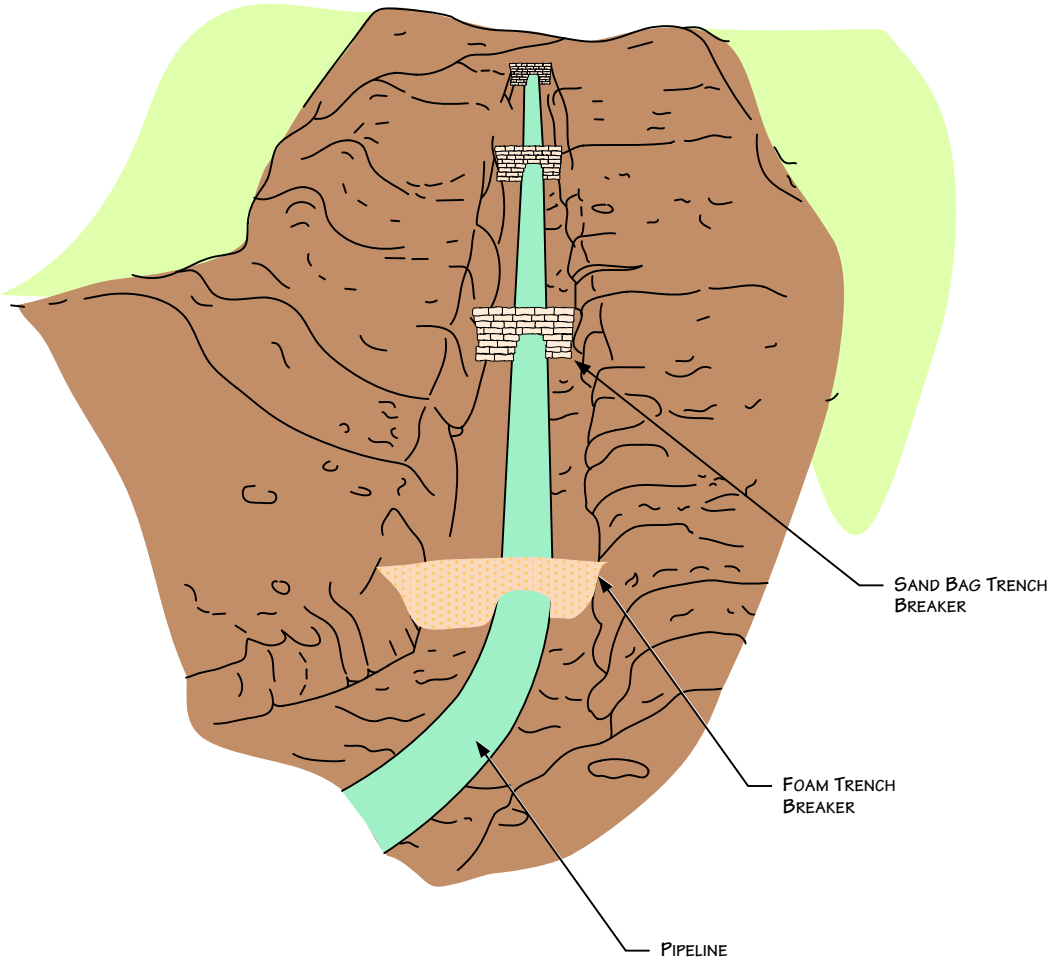
For environmental review purposes only.

ENBRIDGE

Figure 11
Environmental Protection Plan
Typical Cat Tracking

DATE:	5/25/2001
REVISED:	3/24/2011
SCALE:	NTS
DRAWN BY:	KMKENDALL
K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_11_CAT_TRACKING.VSD	

NATURAL RESOURCE GROUP



Notes

1. Bags will not be filled with topsoil.
2. Additional information included on other drawings.

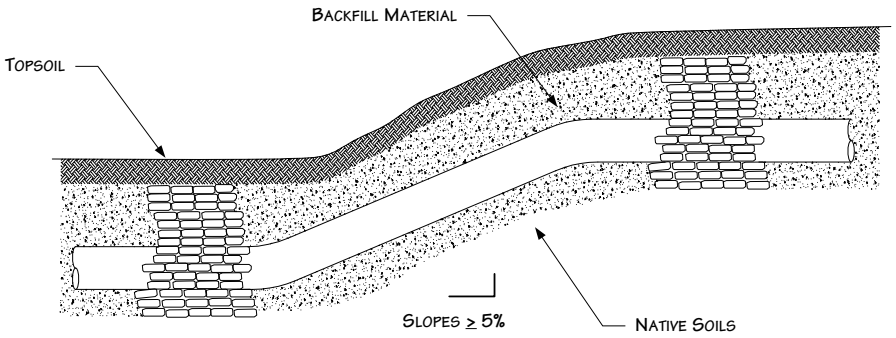
For environmental review purposes only.

ENBRIDGE

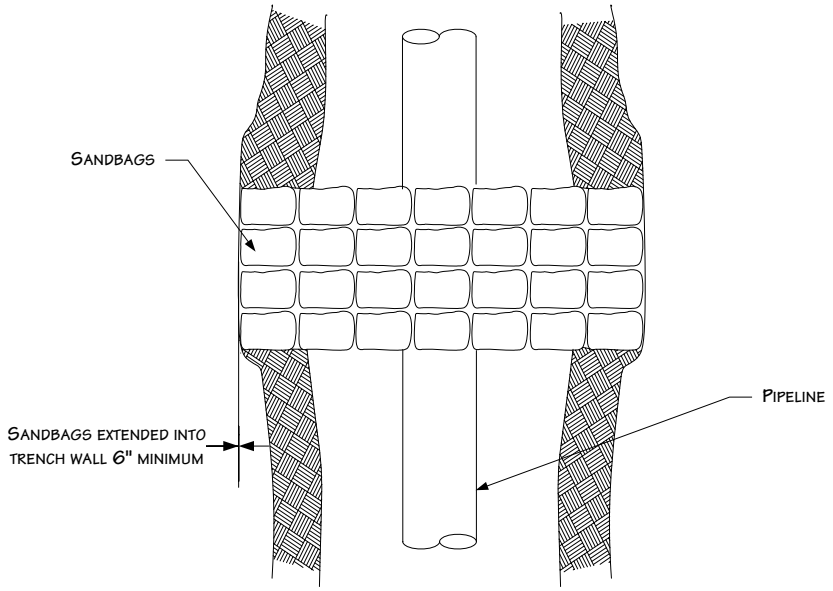
Figure 12
Environmental Protection Plan
Typical Trench Breakers - Perspective View

DATE:	5/25/2001
REVISED:	3/11/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

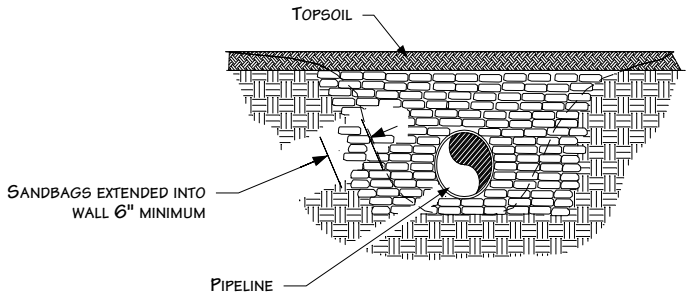
K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_12_TRENCH_BREAKER_PERSPECTIVE_VIEW.VSD



PROFILE VIEW
(NOT TO SCALE)



PLAN VIEW
(NOT TO SCALE)



FACE VIEW
(NOT TO SCALE)

NOTES

1. BAGS WILL NOT BE FILLED WITH TOPSOIL
2. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS

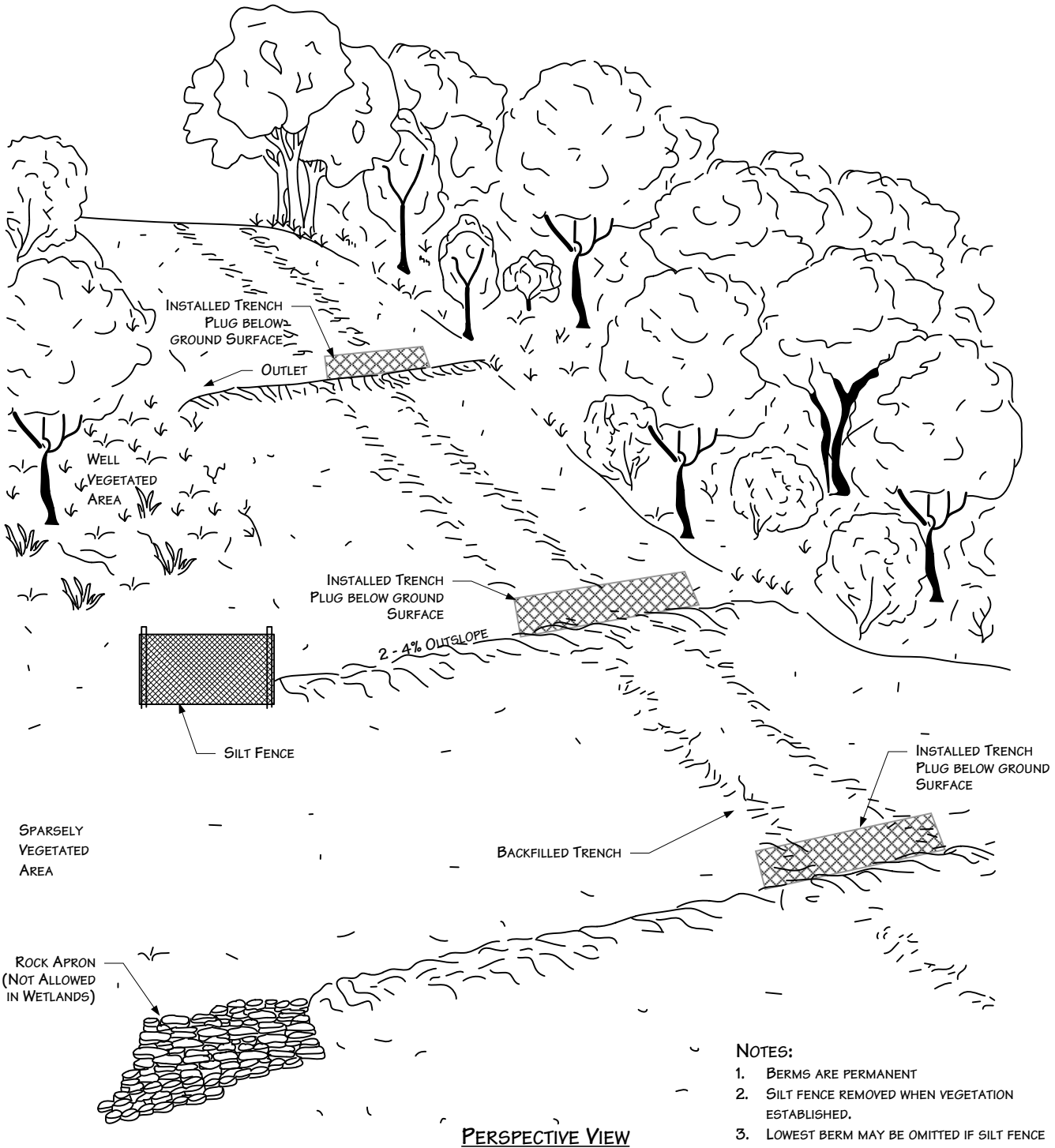
For environmental review purposes only.

ENBRIDGE

Figure 13
Environmental Protection Plan
Typical Trench Breakers – Plan & Profile View

DATE:	11/15/2000
REVISED:	3/11/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_13_TRENCH_BREAKER_PLAN_PROFILE_VIEW.VSD



Perspective View
(not to scale)

Slope %	Approximate Spacing (FT)
3-5	250
5-15	200
15-25	150
>25	<100

Notes:

1. Berms are permanent
2. Silt fence removed when vegetation established.
3. Lowest berm may be omitted if silt fence or straw bales are installed at that location, subject to approval.
4. Install silt fence or straw bales at discharge end of earthen berms as necessary to dissipate energy and prevent erosion.

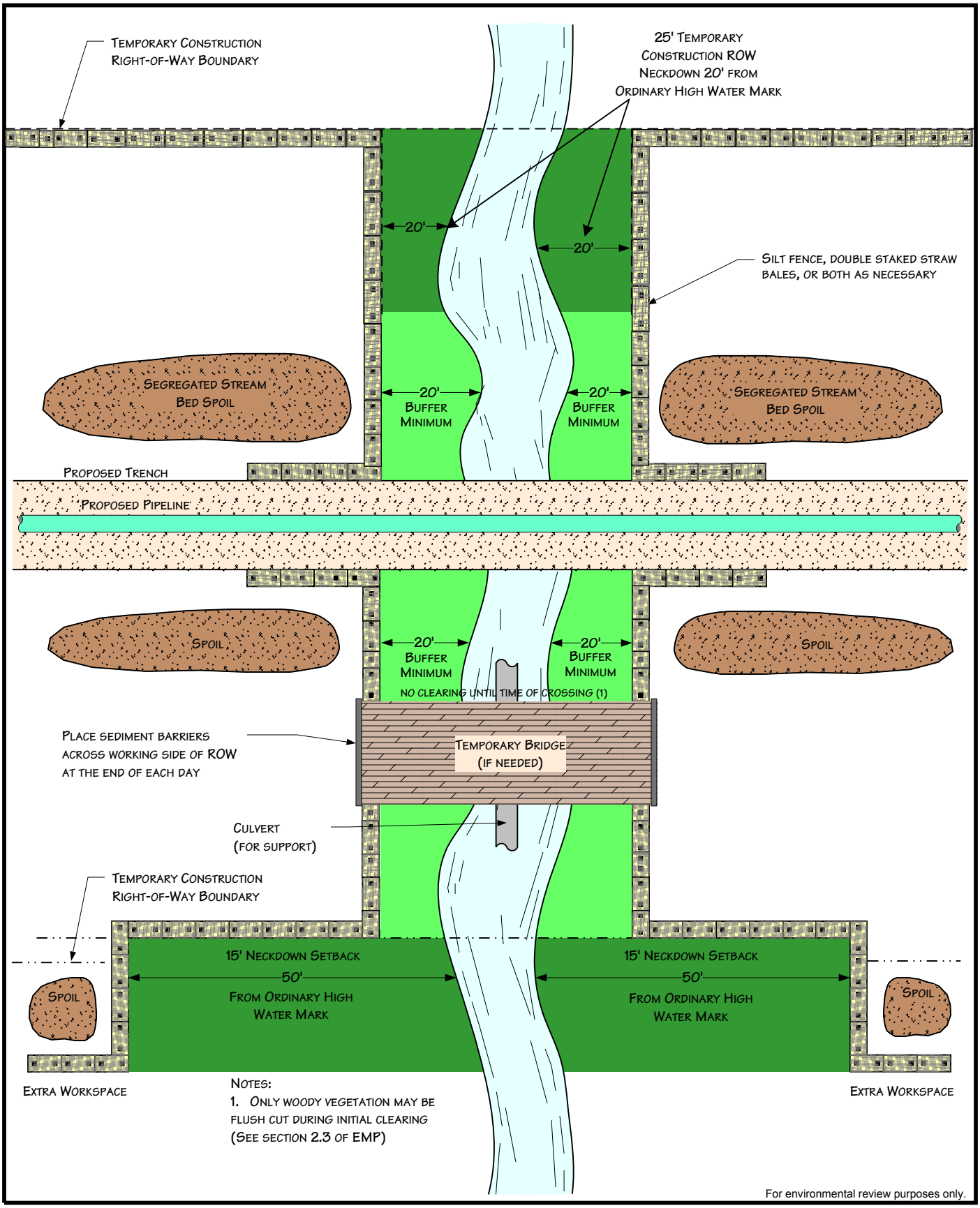
For environmental review purposes only.

ENBRIDGE

Figure 14
Environmental Protection Plan
Permanent Slope Breakers - Perspective View

DATE:	5/25/2001
REVISED:	3/11/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_14_SLOPE_BREAKERS_PERSPECTIVE_VIEW.VSD



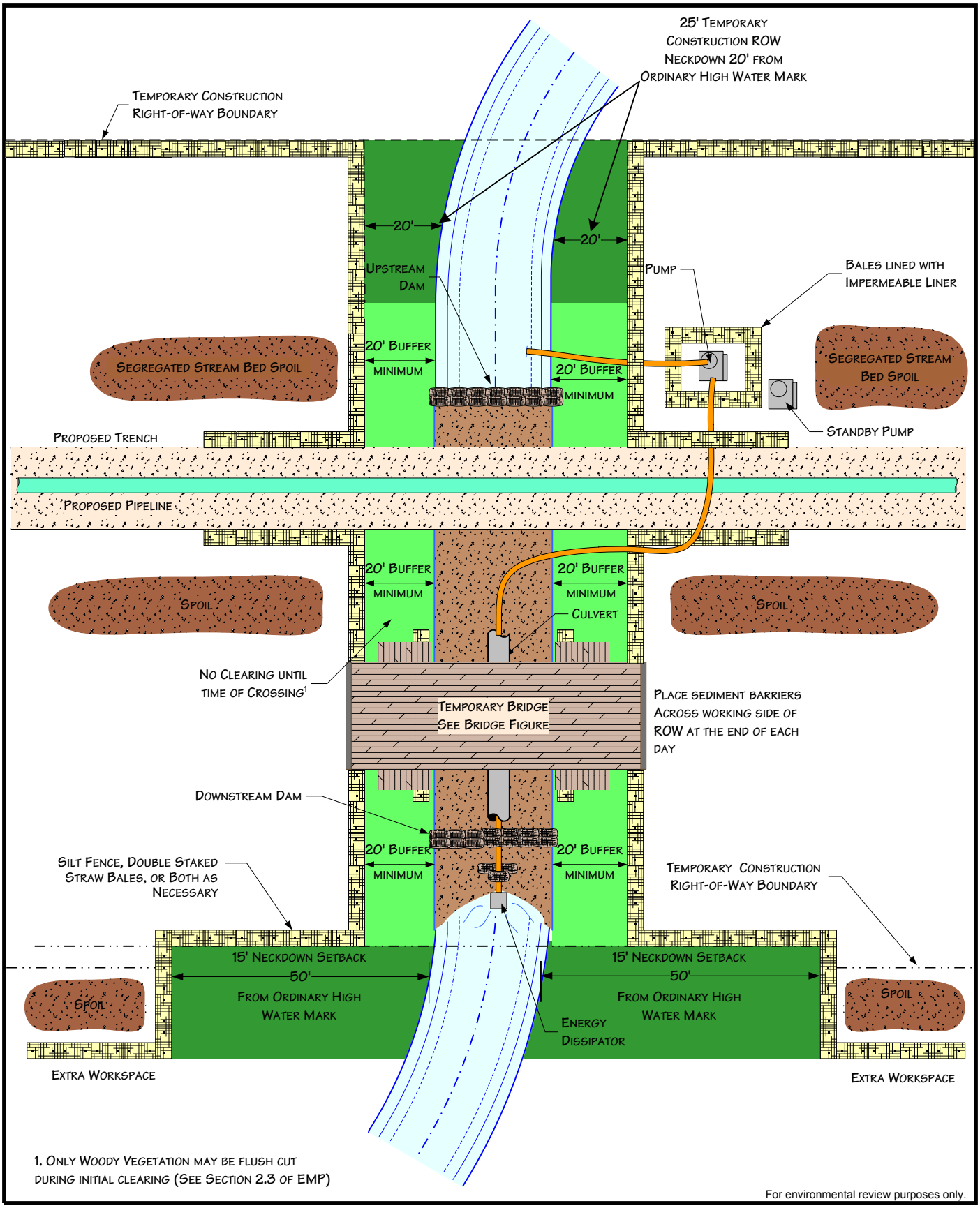
For environmental review purposes only.

ENBRIDGE

Figure 15
Environmental Protection Plan
Typical Waterbody Crossing
Open Cut - Wet Trench Method

DATE:	11/29/2005
REVISED:	3/11/11
SCALE:	NTS
DRAWN BY:	JPB

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_15_WATERBODY_OPENCUT_WETTRENCH.VSD



1. Only woody vegetation may be flush cut during initial clearing (See Section 2.3 of EMP)

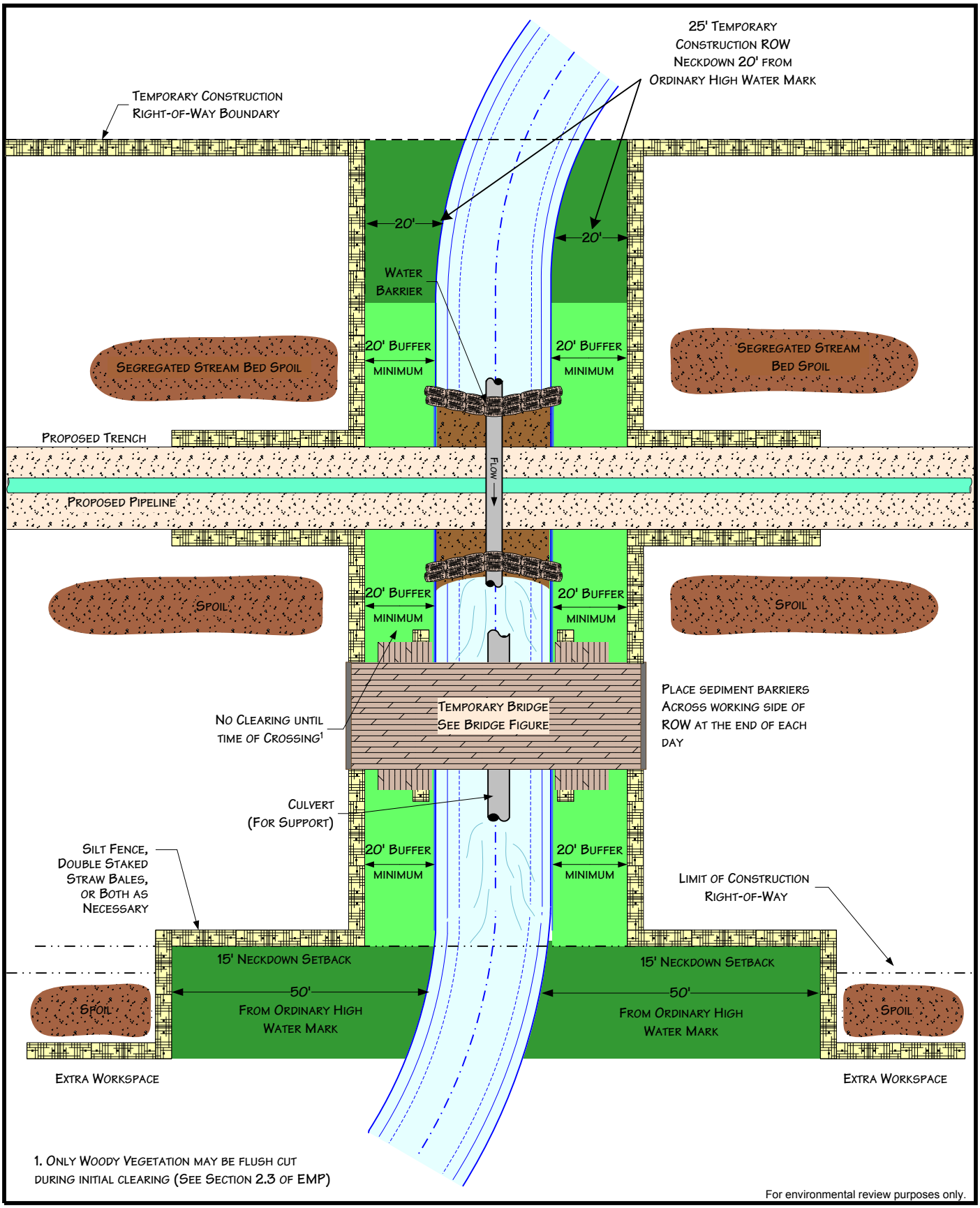
For environmental review purposes only.

ENBRIDGE

Figure 16
Environmental Protection Plan
Typical Waterbody Crossing
Dam and Pump Method

DATE:	11/29/2005
REVISED:	4/20/09
SCALE:	NTS
DRAWN BY:	JPB

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_16_WATERBODY_DAM_AND_PUMP.VSD



1. Only woody vegetation may be flush cut during initial clearing (See Section 2.3 of EMP)

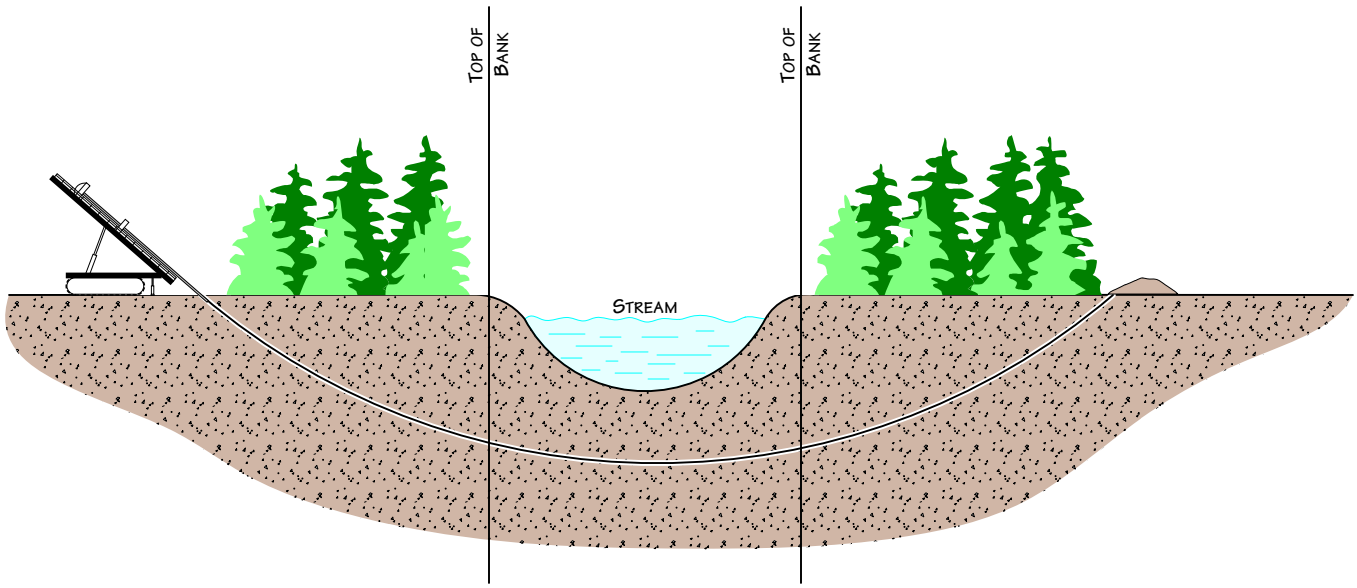
For environmental review purposes only.

ENBRIDGE

Figure 17
Environmental Protection Plan
Typical Waterbody Crossing
Flume Method

DATE:	11/29/2005
REVISED:	3/11/11
SCALE:	NTS
DRAWN BY:	JPB

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_17_WATERBODY_FLUME.VSD



For environmental review purposes only.

ENBRIDGE

Figure 18

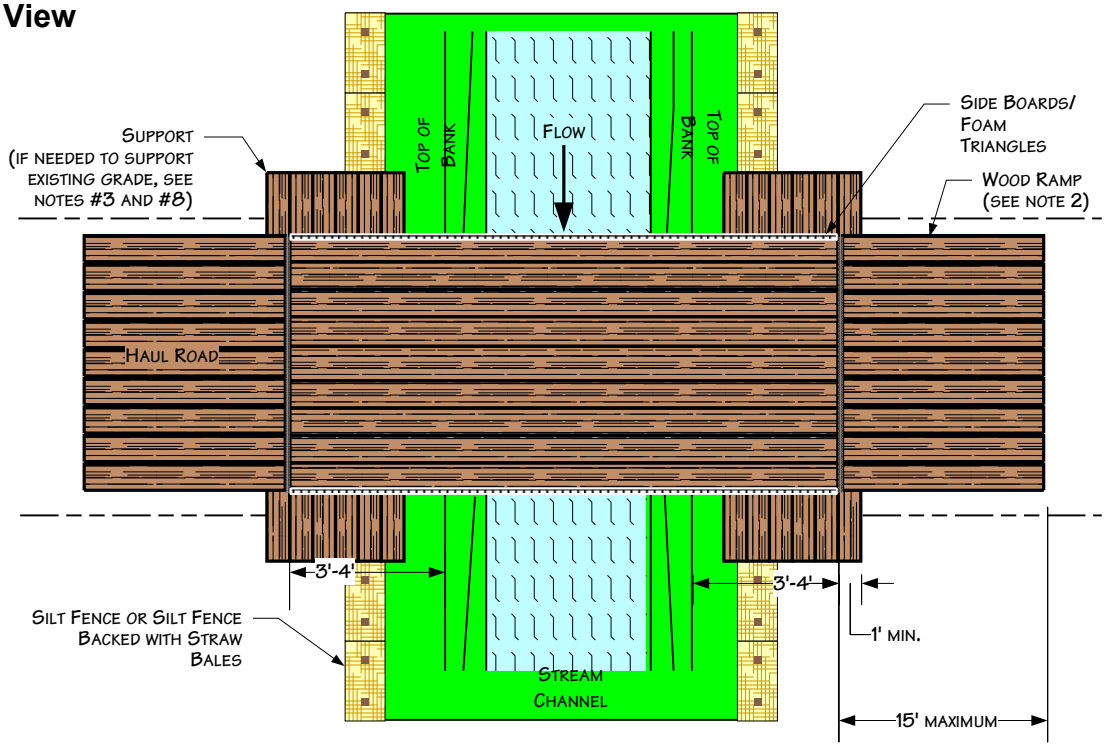
Environmental Protection Plan

Typical Waterbody Crossing
Directional Drill Method

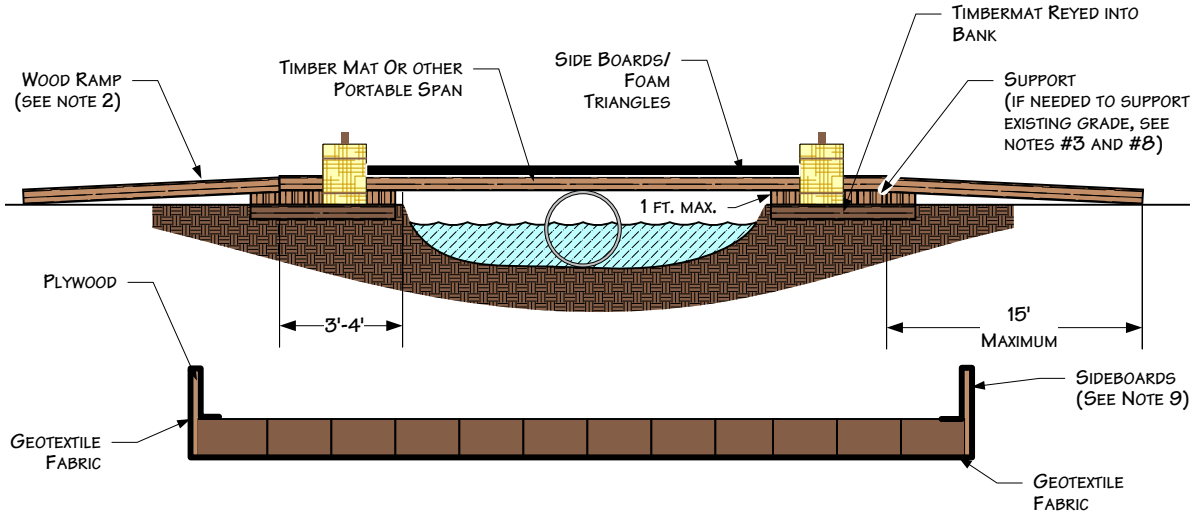
DATE:	7/14/2000
REVISED:	3/11/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_18_WATERBODY_DIRECTIONAL_DRILL.VSD

Plan View



Profile View



Notes:

1. Inspect bridge opening periodically and following rainfalls of over ½". Remove any debris restricting flow and deposit it at an upland site outside of floodplain.
2. If physical circumstances prohibit wood or metal ramps, earthen ramps may be used as approved.
3. Inspect bridge elevation so bridge remains supported above high bank and does not sink into bank.
4. The culvert support must be anchored to the stream bottom and may not be supported with fill.
5. Earthen ramp cannot be taller than 1' and cannot extend for more than 15' on either side of the crossing.
6. The bridge must span from top of bank to top of bank.
7. Additional support must be added on top of bank and under span if initial support starts to settle.
8. Erosion and sedimentation control measures shall be inspected and maintained in accordance with the company's Environmental Mitigation Plan
9. Sideboards will be installed on temporary bridges to minimize the potential for sediment transport. Sideboards may be constructed out of plywood, or equivalent, and affixed to the outer sides of the bridge. Geo-textile fabric, or equivalent, must also be adequately secured to the underside of the bridge to prevent material from falling through the bridge deck. The geo-textile fabric or an equivalent should be secured to the bottom of the bridge and wrapped around the sideboards in a continuous fashion.

For environmental review purposes only.

ENBRIDGE

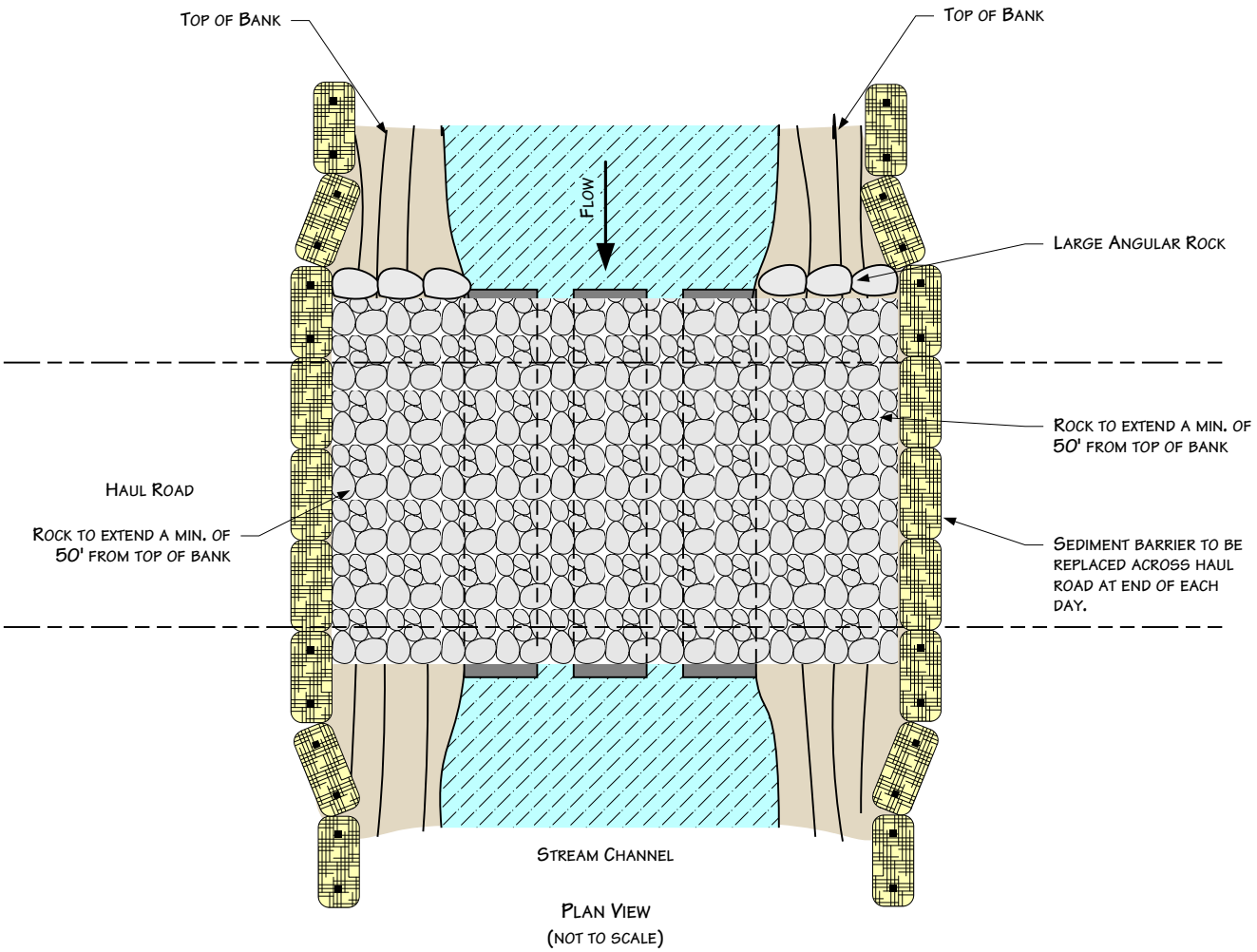
Figure 19

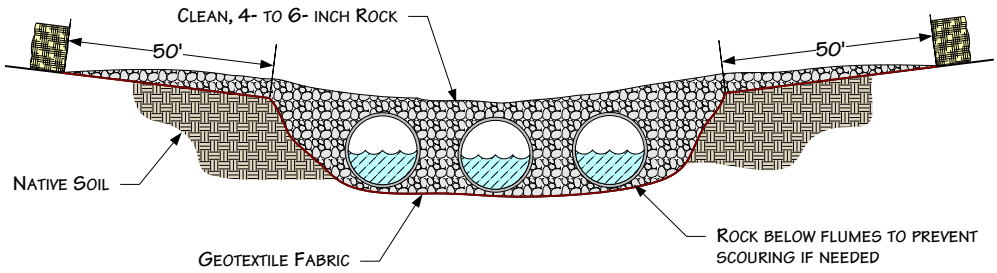
Environmental Protection Plan

Typical Span Type Bridge
With or Without Instream Support

DATE:	3/11/2003
REVISED:	3/25/2011
SCALE:	NTS
DRAWN BY:	KMK6792

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_19_BRIDGE_SPAN.VSD





NOTES:

1. STEEL FLUME PIPE(S) SIZED TO ALLOW FOR STREAM FLOW AND EQUIPMENT LOAD.
2. STRAW BALES SHALL BE PLACED ACROSS BRIDGE ENTRANCE EVERY NIGHT.
3. ADDITIONAL INFORMATION INCLUDED ON OTHER DRAWINGS.

For environmental review purposes only.

ENBRIDGE

Figure 20

Environmental Protection Plan

Typical Rock Flume Bridge

DATE:	5/25/2001
REVISED:	3/15/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

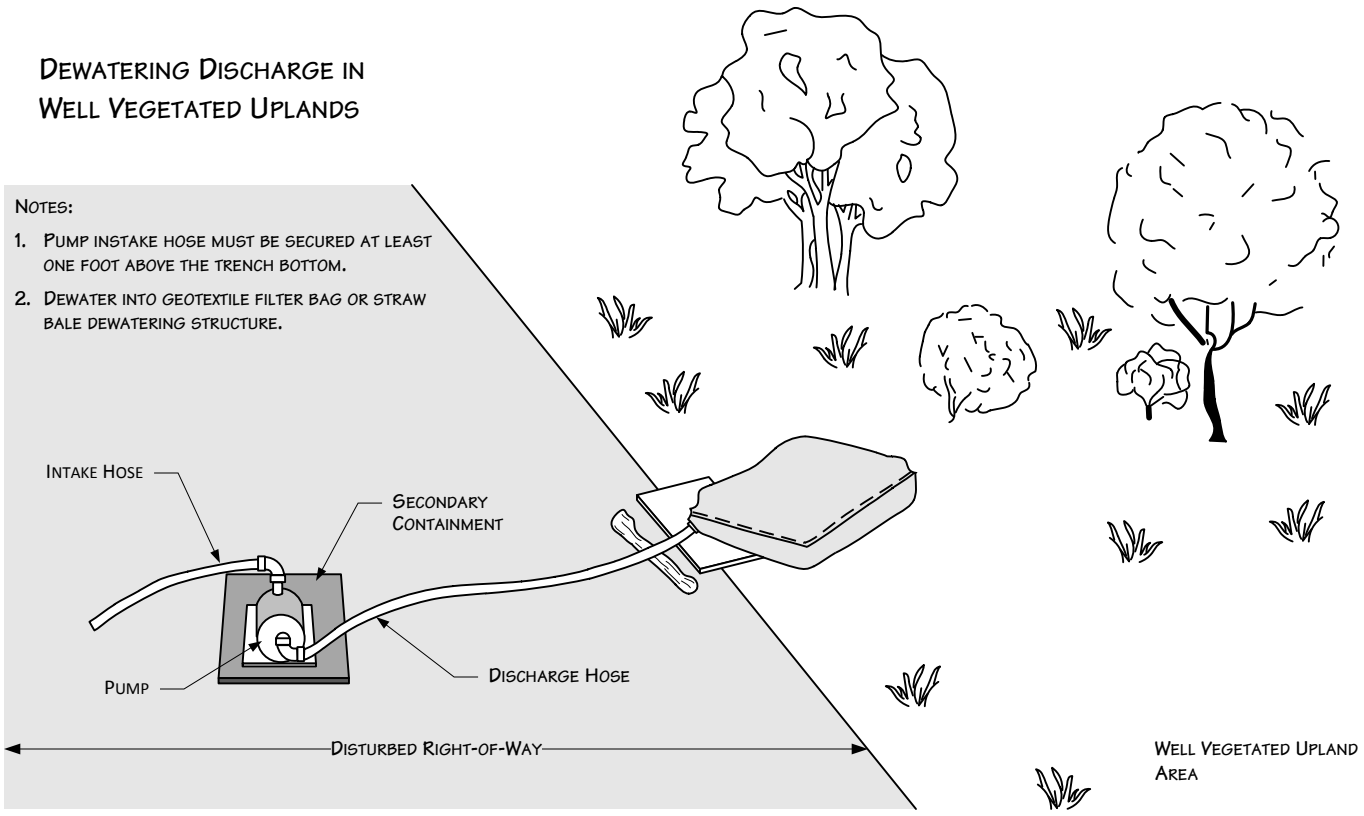
NATURAL RESOURCE GROUP

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_20_ROCK_FLUME_BRIDGE.VSD

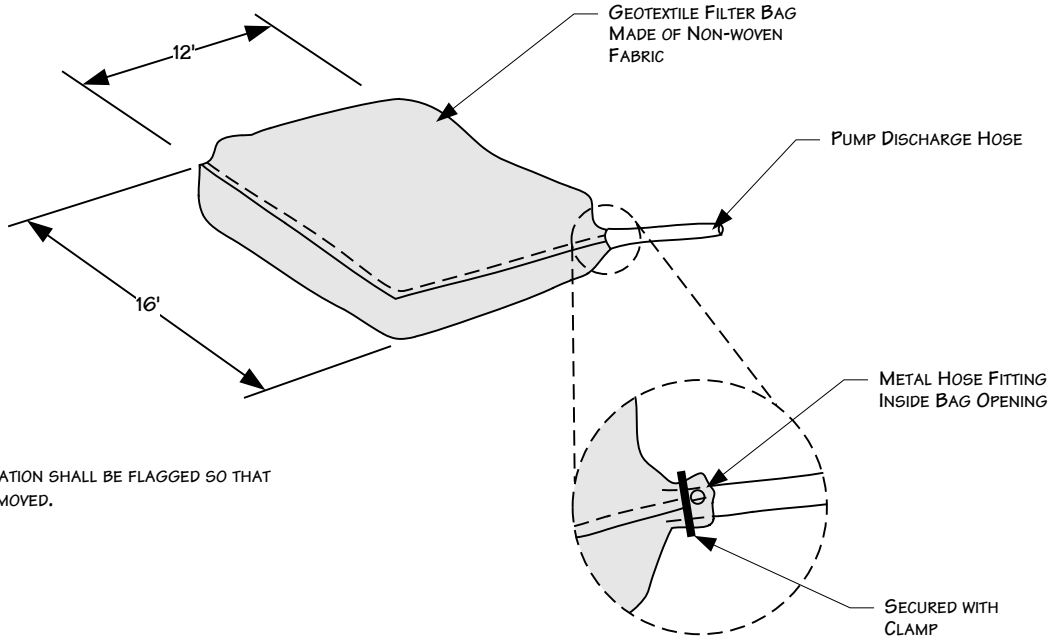
Dewatering Discharge in Well Vegetated Uplands

Notes:

1. Pump instake hose must be secured at least one foot above the trench bottom.
2. Dewater into geotextile filter bag or straw bale dewatering structure.



Geotextile Filter Bag



Note:

1. Filter bag location shall be flagged so that bag can be removed.

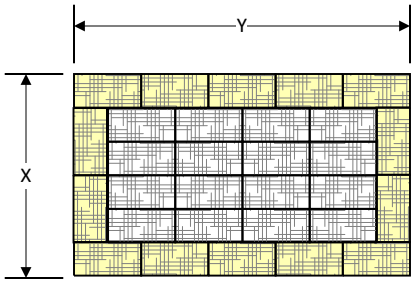
For environmental review purposes only.

ENBRIDGE

Figure 21
Environmental Protection Plan
Typical Dewatering Measures

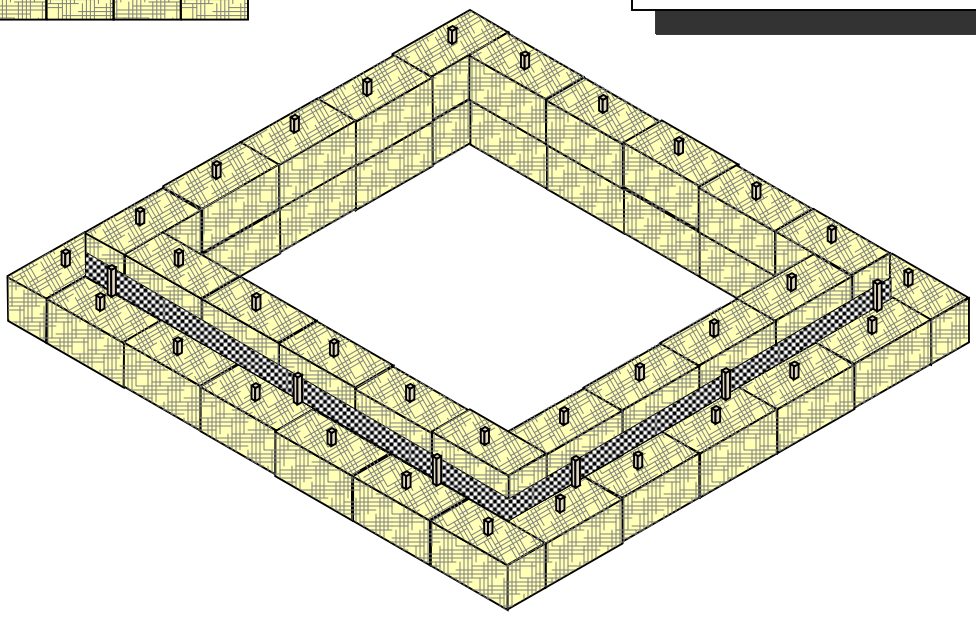
DATE:	5/25/2001
REVISED:	3/15/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_21_DEWATERING_MEASURES.VSD

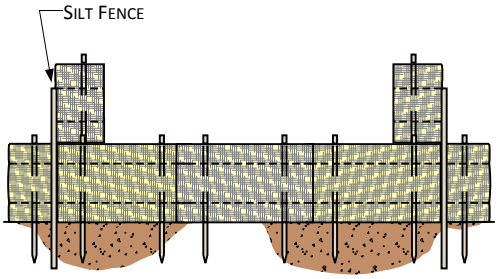


NOTES

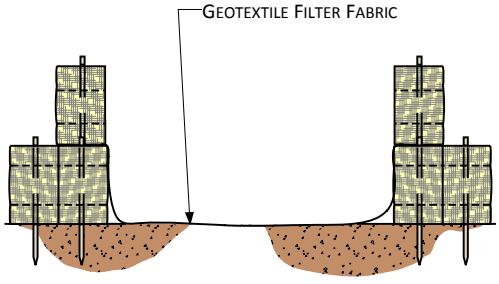
1. ARRANGE THE STRAW BALES TO THE X AND Y DIMENSIONS AS SPECIFICIED BELOW.
2. IF BOTTOM OF STRUCTURE IS NOT LINED WITH STRAW BALES (OPTION 1), LINE ENTIRE STRUCTURE WITH GEOTEXTILE FILTER FABRIC.



PERSPECTIVE VIEW



OPTION 1



OPTION 2

TYPICAL MINIMUM SUMP DIMENSIONS (FEET)		MAXIMUM PUMPING RATE
X	Y	GALLONS PER MINUTE
10	20	300
15	20	350
20	20	400
20	25	450
25	25	500
25	30	550
30	30	660

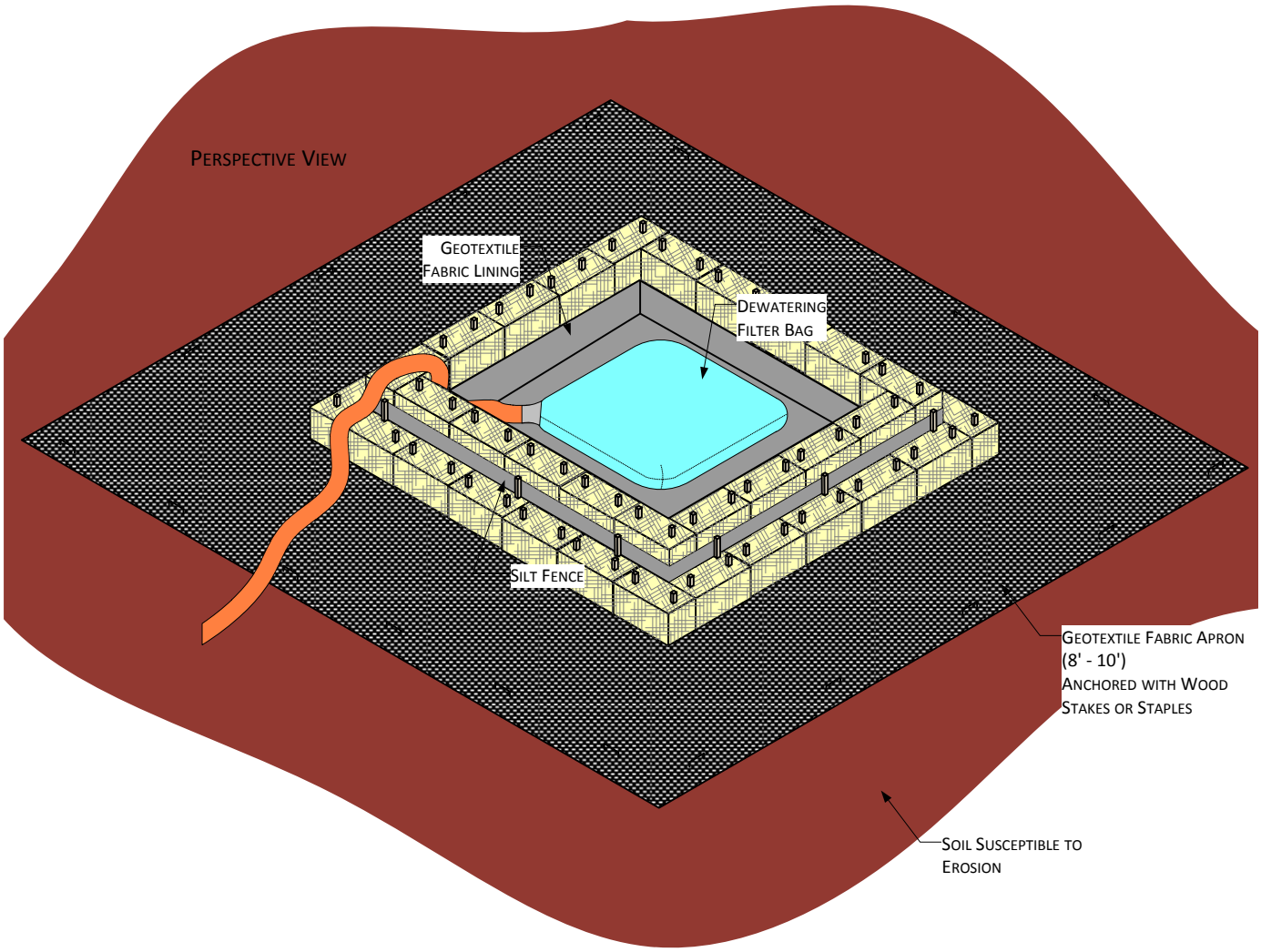
For environmental review purposes only.

Figure 22A
Environmental Protection Plan
Straw Bale Dewatering Structure

ENBRIDGE

NATURAL RESOURCE GROUP

K:_CLIENT_PROJECTS\D-FEEL\2011-019\FIG_22_STRAW_BALE_DEWATERING_STRUCTURE_C.VSD | SCALE: NTS | DATE: 3/11/2003 | REVISED: 3/25/2011 | DRAWN BY: KJANDERSON



Construct Dewatering Structure to accommodate anticipated pumping rates. See example below.

Example Pumping rate = 200 g.p.m.
Storage volume (c.f.) = 16 x 200 g.p.m. = 3200 c.f.
Height of straw bale structure = 3 feet (2 bales stacked) (based on height of bales, not silt fence)
Inside dimensions of structure = 33 x 33 feet square

Notes:

1. Silt fence ends must be wrapped to join two sections.
2. Install silt fence 2 inches above top of straw bales, and anchor a minimum of 8 inches straight down.
3. Silt fence post staking must be 4 feet or less.
4. Dewatering intake hose supported at least 1 foot from bottom of trench being dewatered.
5. Erosion and sedimentation control measures shall be inspected and maintained in accordance with the company's upland erosion control, revegetation, and maintenance plan.

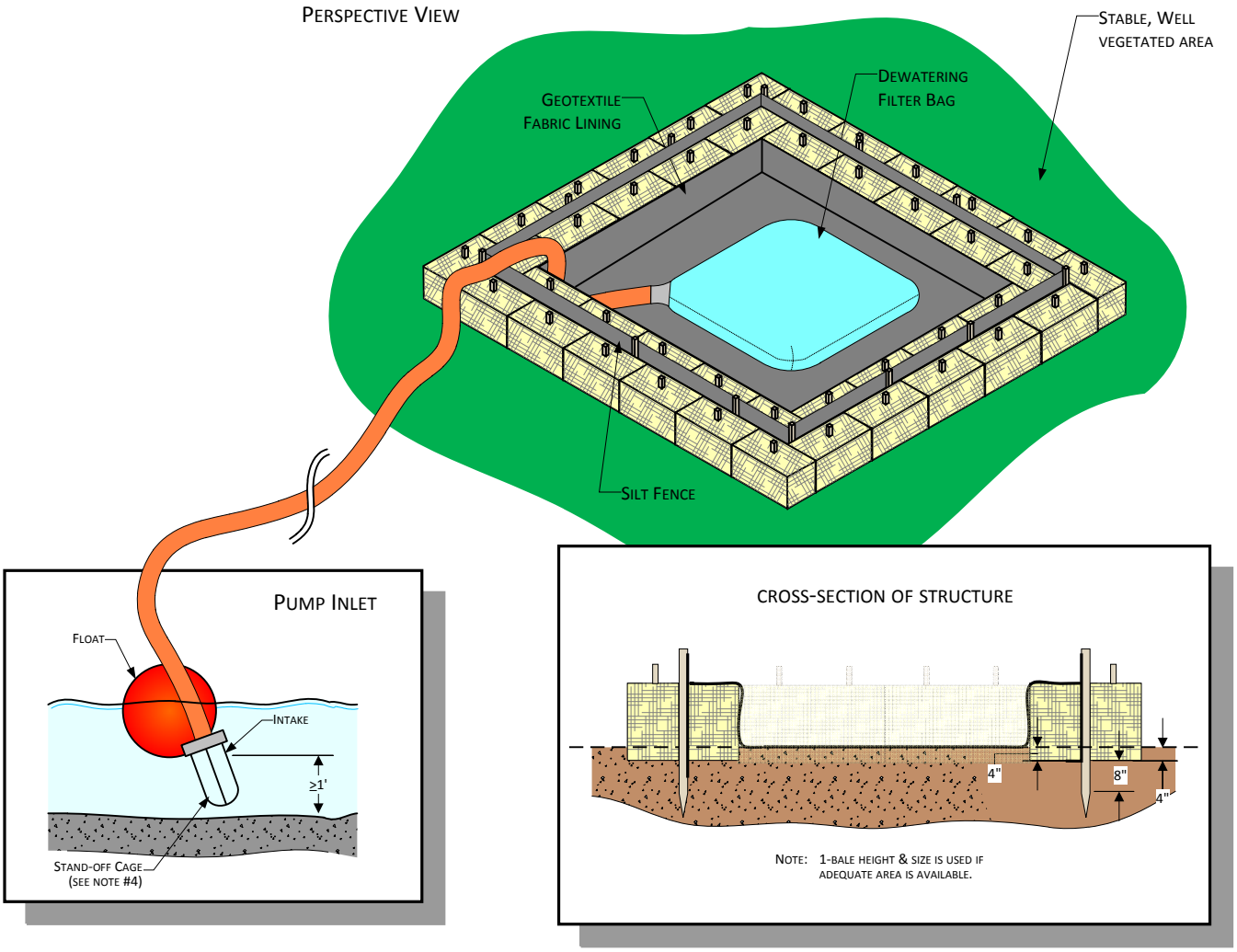
For environmental review purposes only.

Figure 22B
Environmental Protection Plan
Straw Bale Dewatering Structure

ENBRIDGE

Natural Resource Group

K:_CLIENT_PROJECTS\D-FEEL\2011-019\FIG_22_STRAW_BALE_DEWATERING_STRUCTURE_C.VSD	SCALE: NTS	DATE: 3/11/2003	REVISED: 3/25/2011	DRAWN BY: KJANDERSON



CONSTRUCT DEWATERING STRUCTURE TO ACCOMMODATE ANTICIPATED PUMPING RATES. SEE EXAMPLE BELOW.

EXAMPLE PUMPING RATE = 200 G.P.M.
STORAGE VOLUME (C.F.) = 16 X 200 G.P.M. = 3200 C.F.
HEIGHT OF STRAW BALE STRUCTURE = 1.5 FEET (1 BALE) (BASED ON HEIGHT OF BALES, NOT SILT FENCE)
INSIDE DIMENSIONS OF STRUCTURE = 46 X 46 FEET SQUARE

NOTES:

1. SILT FENCE ENDS MUST BE WRAPPED TO JOIN TWO SECTIONS.
2. INSTALL SILT FENCE 2 INCHES ABOVE TOP OF STRAW BALE, AND ANCHOR A MINIMUM OF 8 INCHES STRAIGHT DOWN.
3. SILT FENCE POST STAKING MUST BE 4 FEET OR LESS.
4. DEWATERING INTAKE HOSE SUPPORTED AT LEAST 1 FOOT FROM BOTTOM OF TRENCH BEING DEWATERED.
5. USE A FILTER BAG AT THE DISCHARGE HOSE END.
6. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE COMPANY'S UPLAND EROSION CONTROL, REVEGETATION, AND MAINTENANCE PLAN.

For environmental review purposes only.

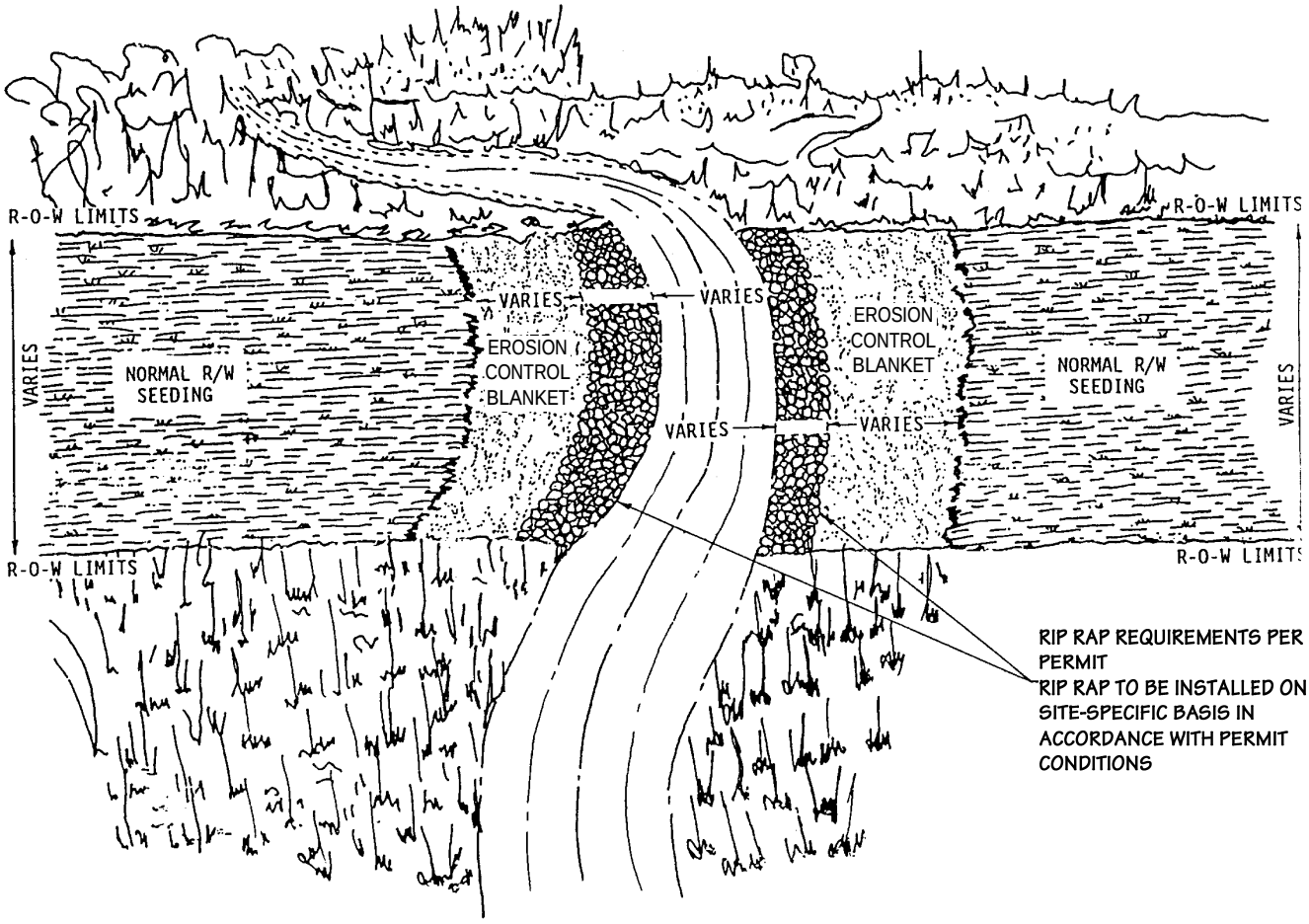
Figure 22C
Environmental Protection Plan
Straw Bale Dewatering Structure

ENBRIDGE

NATURAL RESOURCE GROUP

K:_CLIENT_PROJECTS\D-FEEL\2011-019\FIG_22_STRAW_BALE_DEWATERING_STRUCTURE_C.VSD	SCALE: NTS	DATE: 3/11/2003	REVISED: 3/25/2011	DRAWN BY: KJANDERSON

NOTE: PLACE JUTE BLANKET A MINIMUM OF ONE (1) FOOT UNDER RIP RAP. EXTEND JUTE BLANKET FROM MEAN HIGH WATER LEVEL TO SEVERAL FEET BEHIND HIGH BANK.



For environmental review purposes only.

ENBRIDGE

Figure 23

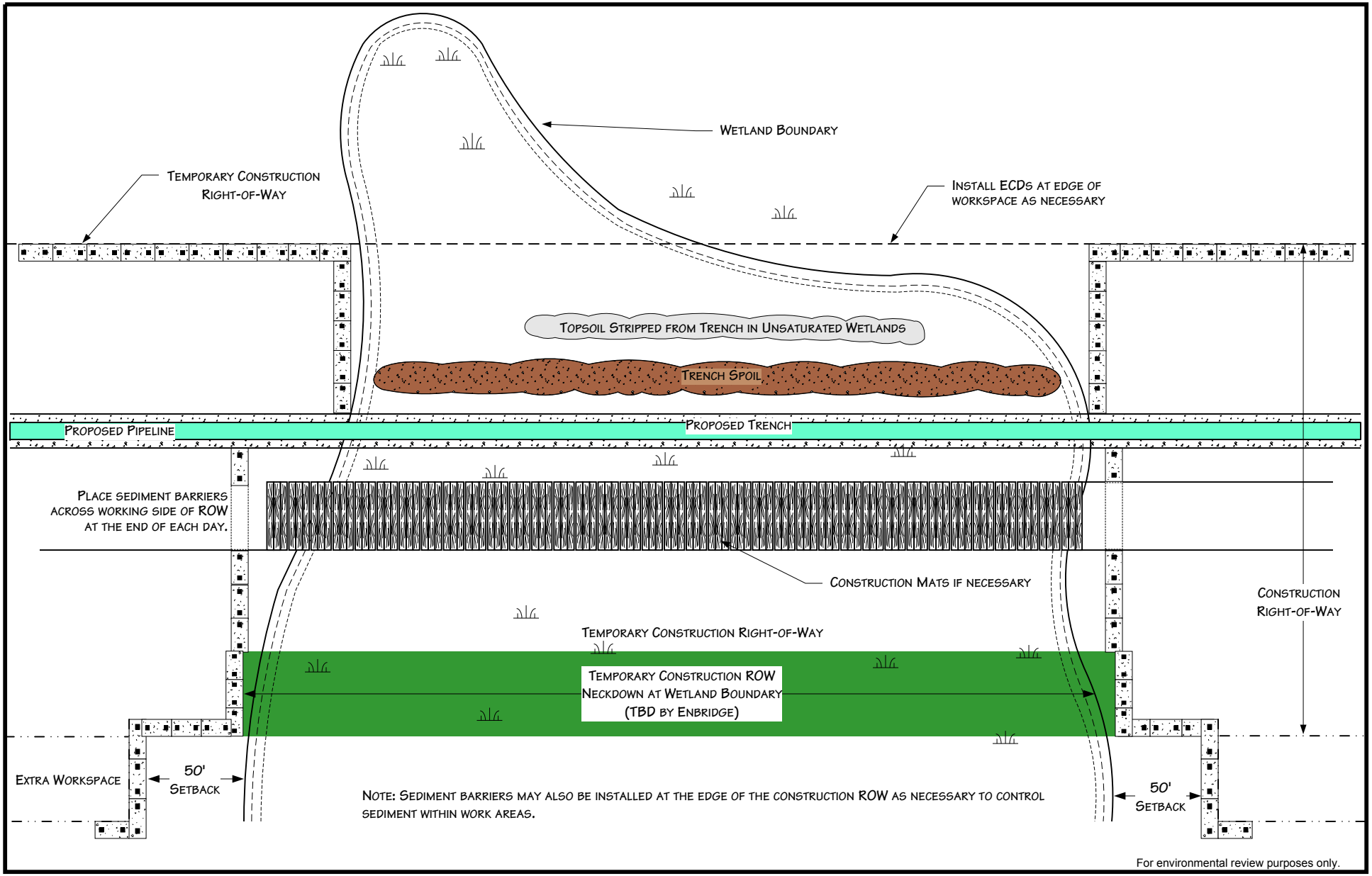
Environmental Protection Plan

Typical Final Stream Bank Stabilization
Rip Rap & Erosion Control

DATE:	7/19/2000
REVISED:	3/14/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_23_STREAM_BANK_STABILIZATION.VSD

NATURAL RESOURCE GROUP



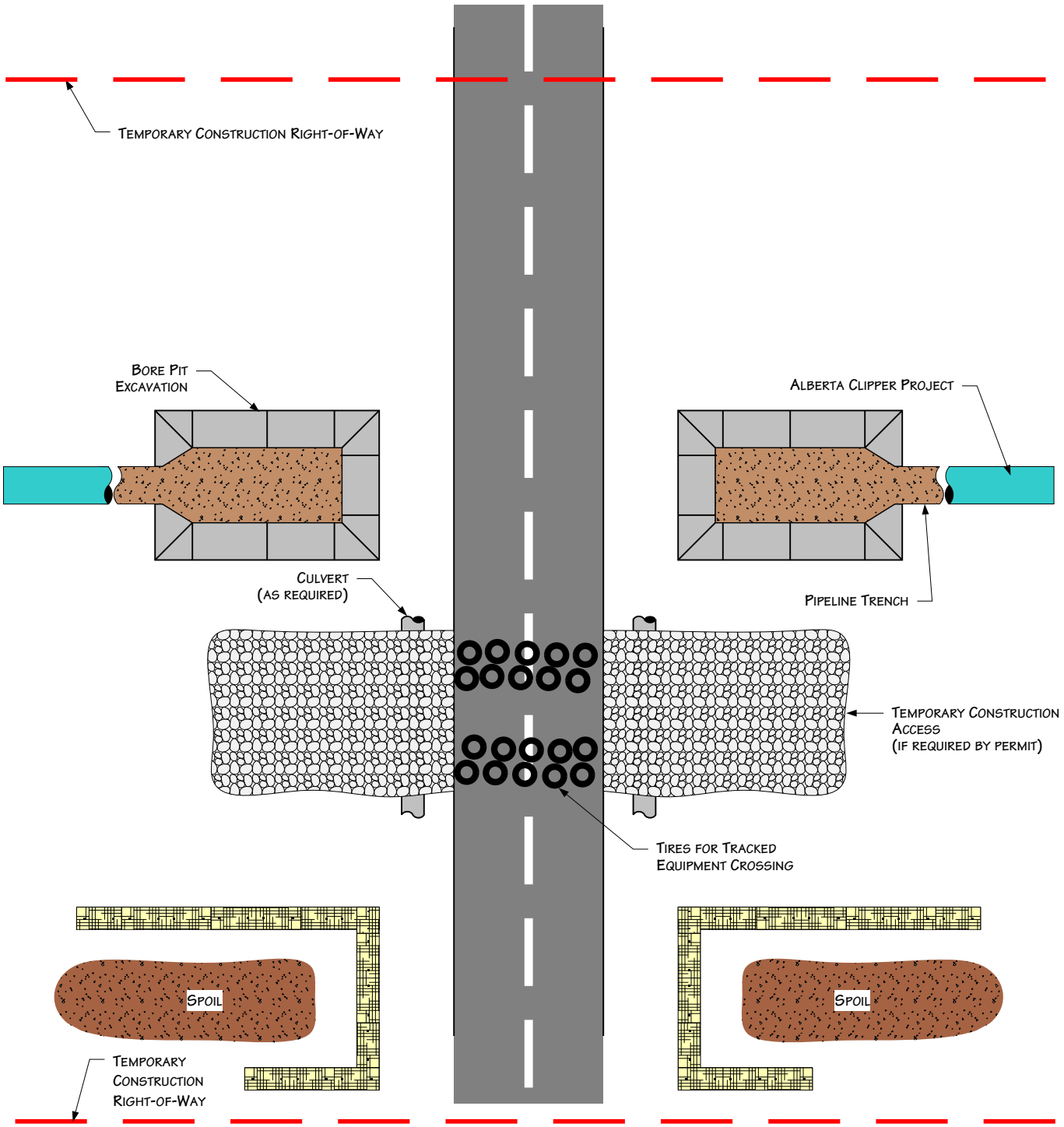
For environmental review purposes only.

ENBRIDGE

Figure 24
Environmental Protection Plan
Typical Wetland Crossing Method

DATE:	5/25/2001
REVISED:	3/14/11
SCALE:	NTS
DRAWN BY:	KMKENDALL

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_24_WETLAND_CROSSING_METHOD.VSD



Plan View

Notes

1. Procedures shown in this drawing apply to improved roads.
2. Roads must be cleaned after equipment crosses and dirt placed in spoil containment areas.
3. Temporary access materials must be removed upon project completion.
4. Additional information included on other drawings or permits.
5. Construction areas located outside road ROW.

For environmental review purposes only.

ENBRIDGE

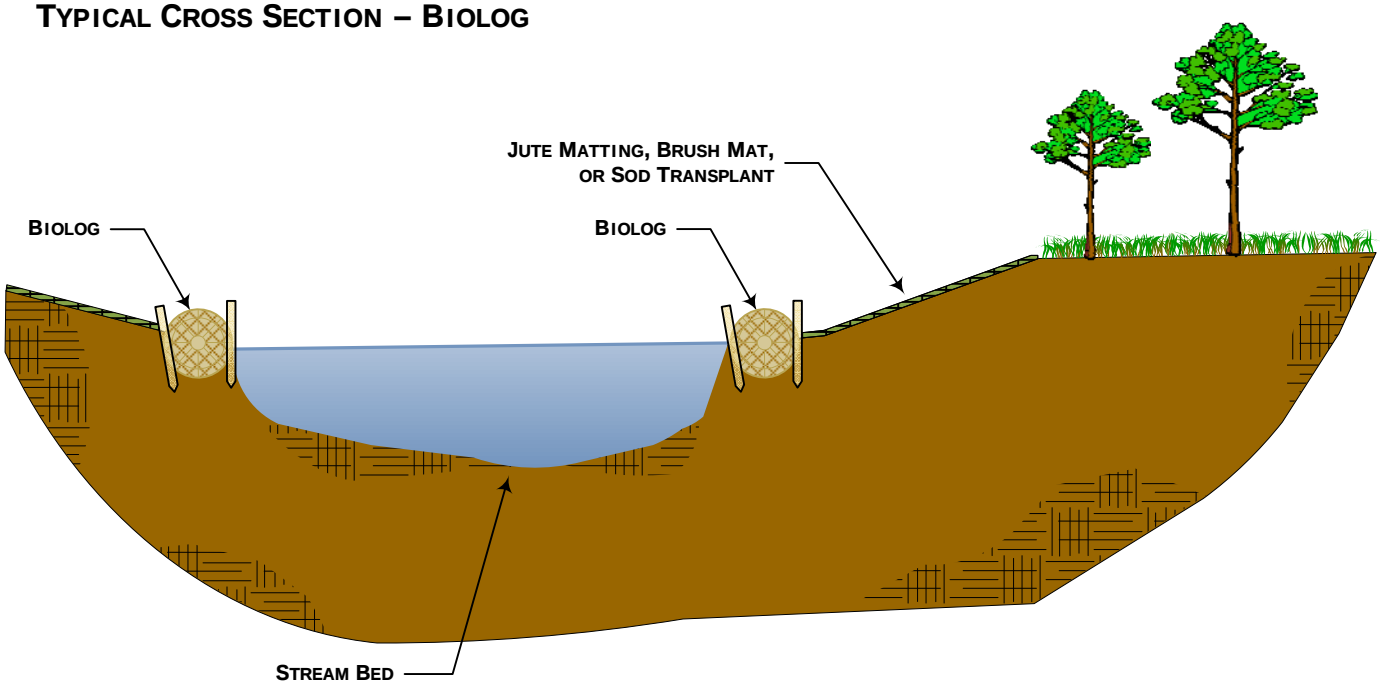
Figure 25
Environmental Protection Plan
Typical Improved Road Crossing
Directional Bore Method

DATE: 7/13/1999
REVISED: 3/14/11
SCALE: NTS
DRAWN BY: KMKENDALL

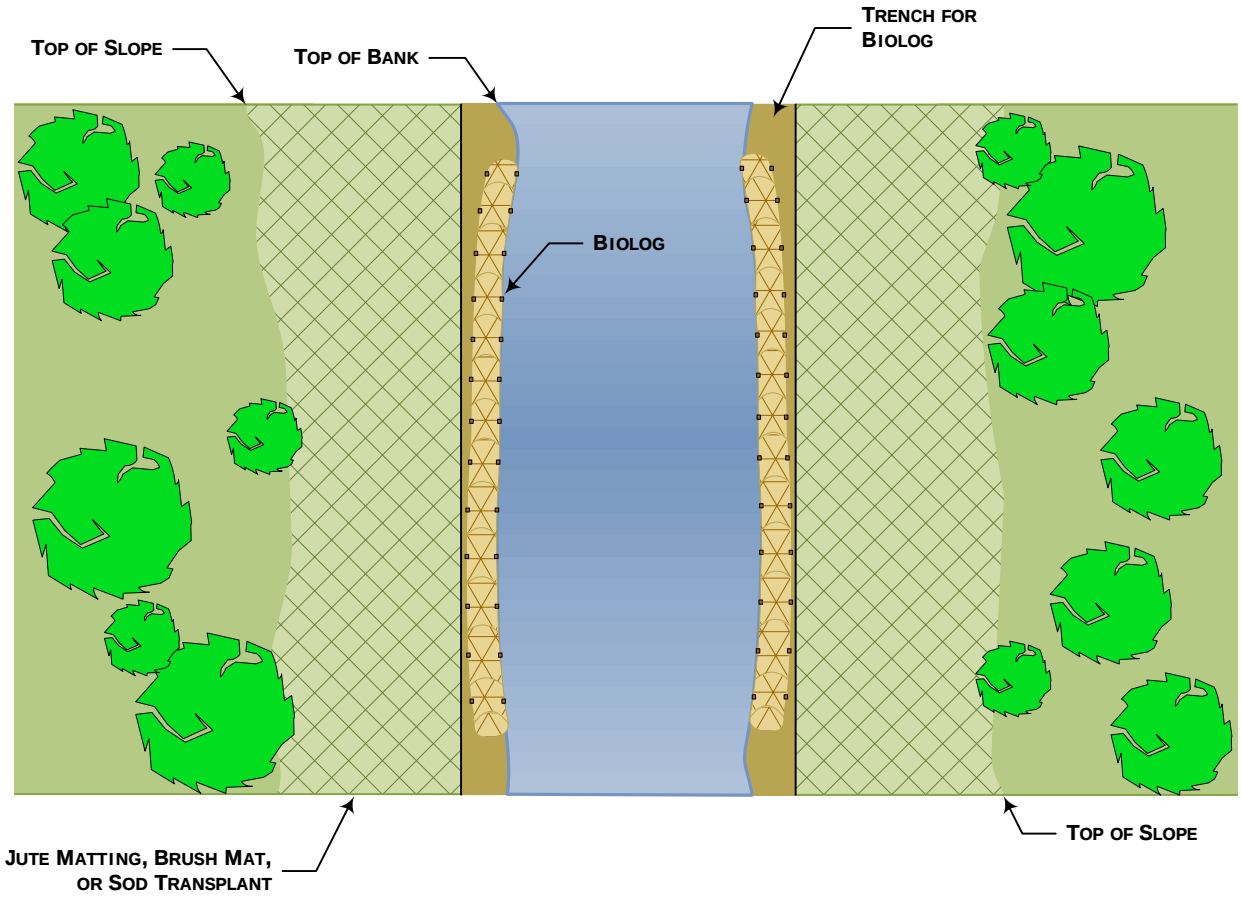
NATURAL RESOURCE GROUP

K:_CLIENT_PROJECTS\D-F\EEL\2011-019\FIG_25_IMPROVED_ROAD_BORE_CROSSING.VSD

Typical Cross Section – Biolog



Typical Plan View – Biolog

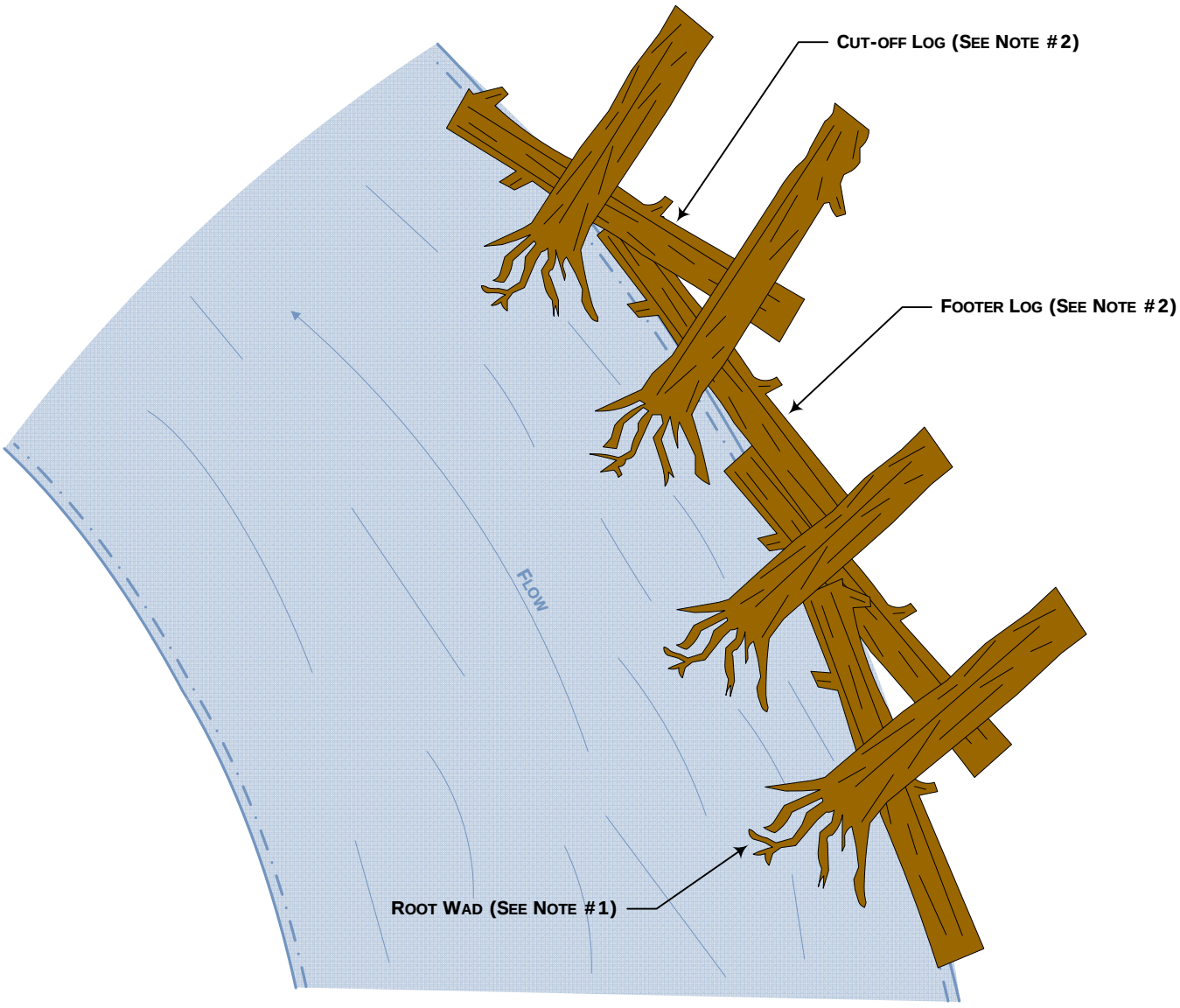


ENBRIDGE

Figure 26
Typical Stream Bank Stabilization
Biolog

04/17/2013

Typical Plan View – Natural Material Revetment



Notes:

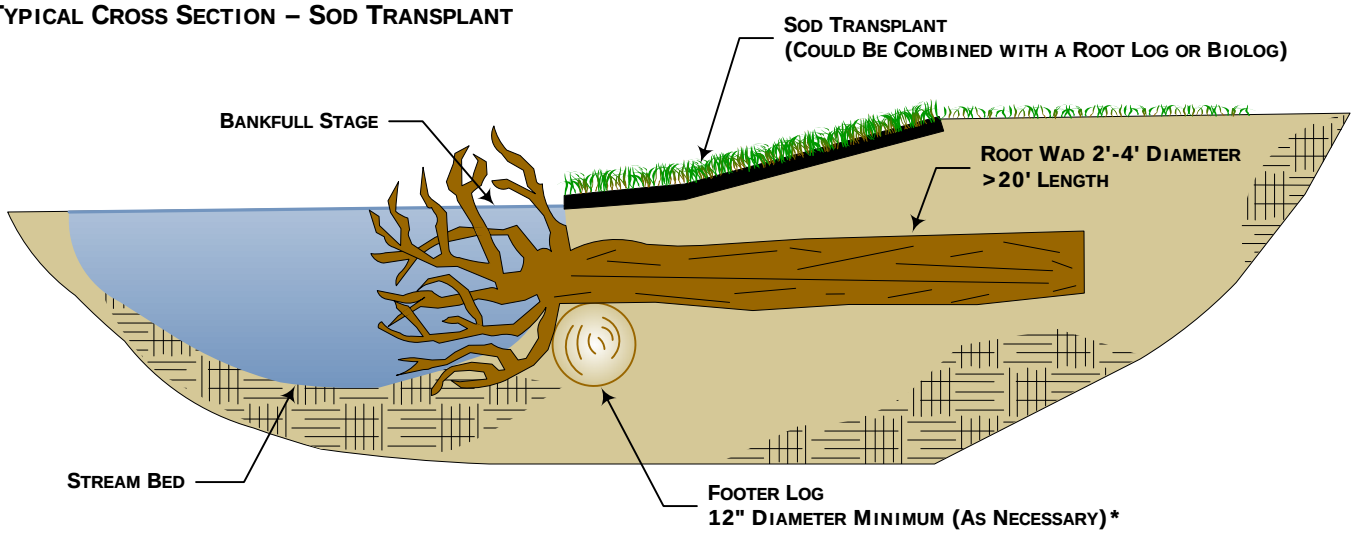
#1 – Root wad logs to be used on steep banks or based on agency recommendations.
#2 - Root wad logs to be anchored appropriately based on site-specific conditions or agency recommendations.

ENBRIDGE

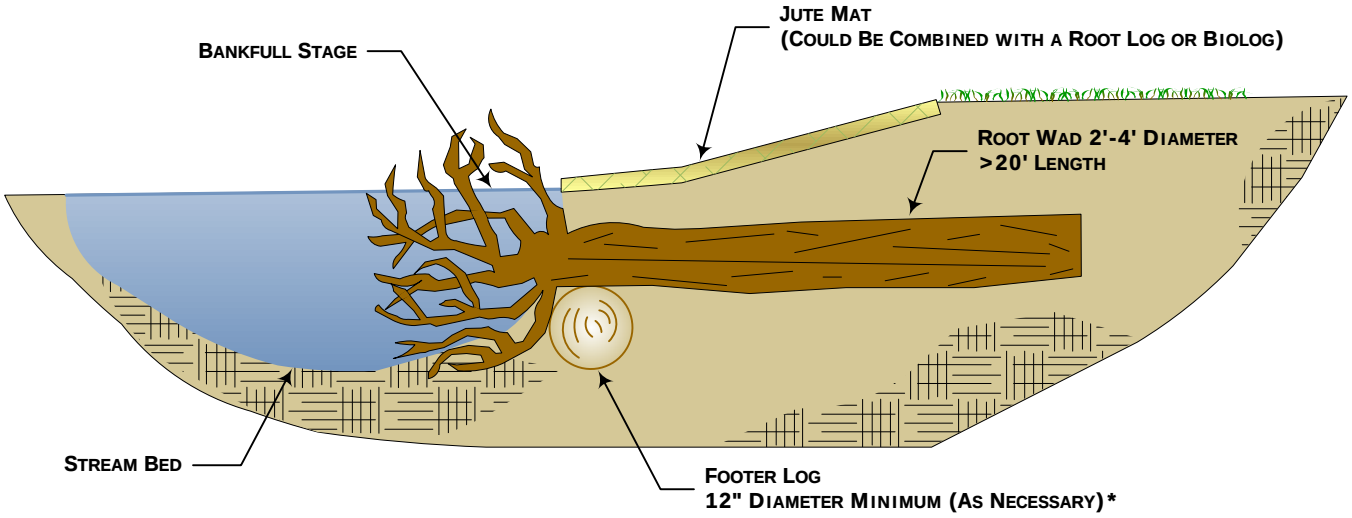
Figure 28
Typical Natural Material Revetment

04/17/2013

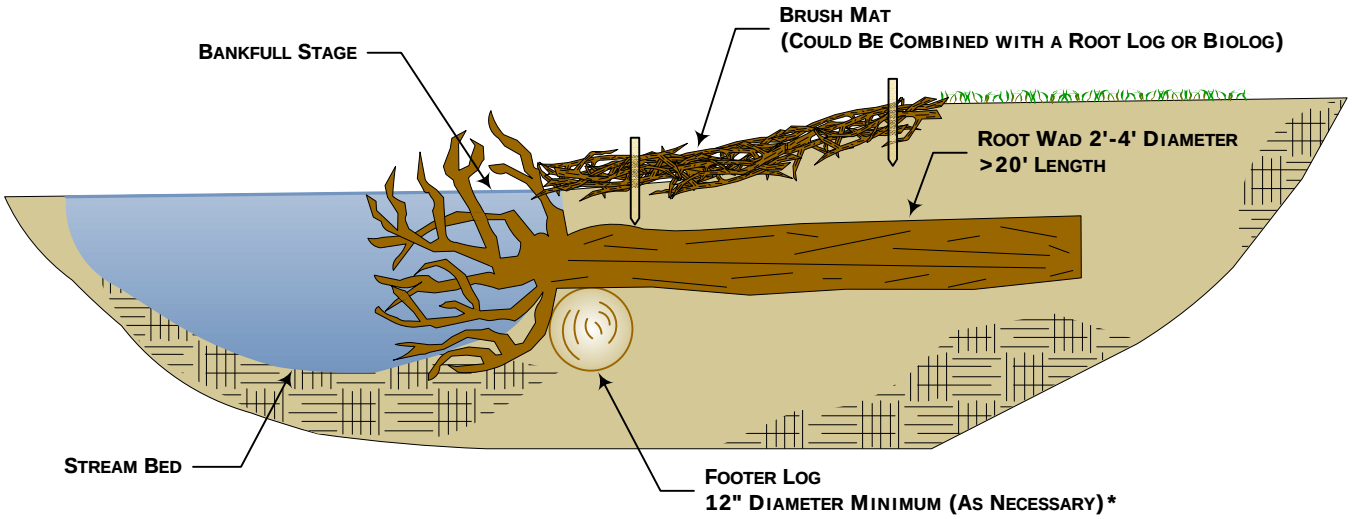
Typical Cross Section – Sod Transplant



Typical Cross Section – Jute Mat



Typical Cross Section – Brush Mat



ENBRIDGE

Figure 27
Typical Root Wad

04/17/2013

Appendix A

Noxious and Invasive Weed Species

Appendix A

Sandpiper Pipeline Project
Noxious and Invasive Weed Species

State/Weed Type	Common Name	Scientific Name	Regulatory Classification
NORTH DAKOTA			
Terrestrial Weeds	Russian knapweed	*Acroptilon repens*	NW [a]
	absinth wormwood	*Artemisia absinthium*	NW [a]
	musk thistle	*Carduus nutans*	NW [a]
	diffuse knapweed	*Centaurea diffusa*	NW [a]
	yellow starthistle	*Centaurea solstitialis*	NW [a]
	spotted knapweed	*Centaurea stoebe; Centaurea maculosa*	NW [a]
	Canada thistle	*Cirsium arvense*	NW [a]
	field bindweed	*Convolvulus arvensis*	NW [a]
	leafy spurge	*Euphorbia esula*	NW [a]
	Dalmatian toadflax	*Linaria dalmatica; Linaria genistifolia*	NW [a]
	purple loosestrife	*Lythrum salicaria; Lythrum virgatum*	NW [a]
	saltcedar	*Tamarix chinensis; Tamarix parviflora; Tamarix ramosissima*	NW [a]
Mountrail County	common tansy	*Tanacetum vulgare*	CONW [a]
	houndstounge	*Cynoglossum officinale*	CONW [a]
Ward County	scentless chamomile	*Anthemis arvensis*	CONW [a]
	yellow toadflax	*Linaria vulgaris*	CONW [a]
	houndstounge	*Cynoglossum officinale*	CONW [a]
Ramsey County	annual sowthistle	*Sonchus oleraceus*	CONW [a]
	scentless chamomile	*Anthemis arvensis*	CONW [a]
	common milkeed	*Asclepias syriaca*	CONW [a]
Nelson County	perennial sowthistle	*Sonchus arvensis*	CONW [a]
Grand Forks County	kochia	*Bassia scoparia*	CONW [a]
Aquatic Weeds	curly leaf pondweed	*Potamogeton crispus*	Regulated
	Eurasian watermilfoil	*Myriophyllum spicatum*	Regulated
	didymo or rock snot	*Didymosphenia geminata*	Prohibited
Aquatic Invertebrate Invasives (Bivalves)	Asian clam	*Corbicula fluminea*	Prohibited
	Zebra mussel	*Dreissena polymorpha*	Prohibited
	Quagga mussel	*Dreissena bugensis*	Prohibited
	New Zealand mudsnail	*Potamopyrgus antipodarum*	Prohibited
Aquatic Invertebrate Invasives	Rusty crayfish	*Orconectes rusticus*	Prohibited
	Scud	*Echinogammarus ischnus*	Prohibited
	Fishhook water flea	*Cercopagis pengoi*	Prohibited
	Spiny water flea	*Bythotrephes cederstroemi*	Prohibited
MINNESOTA			
Terrestrial Weeds	black swallow-wort	*Cynanchum louiseae*	SN [b]
	brown knapweed	*Centaurea jacea*	SN [b]
	Canada thistle	*Cirsium arvense*	SN, PS [c]
	common or European buckthorn	*Rhamnus cathartica*	RN [d]
	common reed – non-native subspecies	*Phragmites australis*	RN [d]

Sandpiper Pipeline Project Noxious and Invasive Weed Species			
State/Weed Type	Common Name	Scientific Name	Regulatory Classification
	common teasel	*Dipsacus fullonum*	SN [b]
	Cut-leaved teasel	*Dipsacus laciniatus*	SN [b]
	Dalmatian toadflax	*Linaria dalmatica*	SN [b]
	garlic mustard	*Alliaria petiolata*	SN [c]
	giant hogweed	*Heracleum mantegazzianum*	FN [b]
	glossy buckthorn, including all cultivars	*Frangula alnus*	RN [d]
	Grecian foxglove	*Digitalis lanata*	PS [b]
	Japanese hops	*Humulus japnicus*	SN [b]
	leafy spurge	*Euphorbia esula*	SN, PS [c]
	meadow knapweed	*Centaurea x moncktonii*	FN [b]
	multiflora rose	*Rosa multiflora*	RN [d]
	musk thistle	*Carduus nutans*	SN, PS [c]
	narrowleaf bittercress	*Cardamine impatiens*	SN [c]
	Oriental bittersweet	*Celastrus orbiculatus*	SN [b]
	plumeless thistle	*Carduus acanthoides*	SN, PS [c]
	purple loosestrife	*Lythrum salicaria, virgatum*	SN [c]
	spotted knapweed	*Centaurea stoebe*	SN [c]
	common tansy	*Tanacetum vulgare*	SN [c]
	wild parsnip	*Pastinaca sativa*	SN [c]
	yellow starthistle	*Centaurea solstitialis*	PI [b]
Aquatic Weeds	African oxygen weed	*Lagarosiphon major*	FN, PI; Prohibited Species
	ambulia	*Limnophila sessiliflora*	FN
	anchored or rooted water hyacinth	*Eichornia azurea*	FN
	aquarium watermoss, giant salvinia	*Salvinia molesta*	FN; Prohibited Species
	arrowhead	*Sagittaria sagittifolia*	FN
	arrowleaf false pickerelweed	*Monochoria hastata*	FN
	Australian stonecrop	*Crassula helmsii*	PI; Prohibited Species
	brittle naiad	*Najas minor*	PI; Prohibited Species
	broadleaf paper bark tree	*Melaleuca quenquinervia*	FN
	curly-leaf pondweed	*Potamogeton crispus*	PI; Prohibited Species
	European frog-bit	*Hydrocharis morsus-ranae*	PI; Prohibited Species
	Eurasian watermilfoil	*Myriophyllum spicatum*	PI; Prohibited Species
	exotic bur-reed	*Sparganium erectum*	FN
	ducklettuce	*Ottelia alismoides*	FN
	flowering rush	*Butomus umbellatus*	PE; Prohibited Species
	giant salvinia	*Salvinia auriculata*	FN
	giant salvinia	*Salvinia biloba*	FN
	giant salvinia	*Salvinia herzogii*	FN
	heart-shaped false pickerelweed	*Monochoria vaginalis*	FN
	hydrilla	*Hydrilla verticillata*	FN, PI; Prohibited Species
	Indian swampweed, Miramar weed	*Hygrophila polysperma*	FN; Prohibited Species

Sandpiper Pipeline Project Noxious and Invasive Weed Species			
State/Weed Type	Common Name	Scientific Name	Regulatory Classification
	Mediterranean strain (killer algae)	*Caulerpa taxifolia*	FN
	mosquito fern, water velvet	*Azolla pinnata*	FN
	purple loosestrife	*Lythrum salicaria, Lythrum virgatum*	PI, SN; Prohibited Species
	water aloe or water soldiers	*Stratioles aloides*	PI; Prohibited Species
	water chestnut	*Trapa natans*	PI; Prohibited Species
	water-spinach, swamp morning-glory	*Ipomoea aquatica*	FN
	wetland nightshade	*Solanum tampicense*	FN
	Brazilian waterweed	*Egeria densa*	Regulated Species
	Carolina fanwort or fanwort	*Cabomba caroliniana*	Regulated Species
	Chinese water spinach	*Ipomoea aquatica*	Regulated Species
	nonnative waterlilies	*Nymphaea spp.*	Regulated Species
	parrot's feather	*Myriophyllum aquaticum*	Regulated Species
	yellow iris or yellow flag	*Iris pseudacoris*	Regulated Species
Aquatic Invertibrate Invasives	faucet snail	*Bithynia tentaculata*	Prohibited Species
	New Zealand mud snail	*Potamopyrgus antipodarum*	Prohibited Species
	quagga mussel	*Dreissena bugensis*	Prohibited Species
	red swamp crayfish	*Procambarus clarkii*	Prohibited Species
	zebra mussel	*Dreissena spp.*	Prohibited Species
	Banded mystery snail	*Viviparus georgianus*	Regulated Species
	Chinese mystery snail, Japanese trap door snail	*Cipangopaludina spp.*	Regulated Species
	rusty crayfish	*Orconectes rusticus*	Regulated Species
	spiny water flea	*Bythotrephes longimanus*	Regulated Species
WISCONSIN			
Terrestrial Weeds	Amur honeysuckle	*Lonicera maackii*	Prohibited/Restricted
	Autumn olive	*Elaeagnus umbellata*	Restricted
	Bells honeysuckle	*Lonicera x bella*	Restricted
	Black swallow-wort	*Vincetoxicum nigrum*	Prohibited/Restricted
	Canada thistle	*Cirsium arvense*	Restricted
	Cattail hybrid	*Typha x glauca*	Restricted
	Celandine	*Chelidonium majus*	Prohibited/Restricted
	Chinese yam	*Dioscorea oppositifolia*	Prohibited
	Common buckthorn	*Rhamnus cathartica*	Restricted
	Common teasel	*Dipsacus fullonum subsp. sylvestris*	Restricted
	Creeping bellflower	*Campanula rapunculoides*	Restricted
	Cut-leaved teasel	*Dipsacus laciniatus*	Restricted
	Cypress spurge	*Euphorbia cyparissias*	Restricted
	Cypress spurge	*Euphorbia cyparissias*	Restricted
	European marsh thistle	*Cirsium palustre*	Prohibited/Restricted

Sandpiper Pipeline Project Noxious and Invasive Weed Species			
State/Weed Type	Common Name	Scientific Name	Regulatory Classification
	Garlic mustard	*Alliaria petiolata*	Restricted
	Giant hogweed	*Heracleum mantegazzianum*	Prohibited
	Giant knotweed	*Polygonum sachalinense*	Prohibited
	Glossy buckthorn	*Frangula alnus*	Restricted
	Hairy willow herb	*Epilobium hirsutum*	Prohibited/Restricted
	Helleborine orchid	*Epipactis helleborine*	Restricted
	Hemp nettle, brittlestem hemp nettle	*Galeopsis tetrahit*	Restricted
	Hill mustard	*Bunias orientalis*	Prohibited/Restricted
	Hound's tongue	*Cynoglossum officinale*	Restricted
	Japanese hedge-parsley	*Torilis japonica*	Prohibited/Restricted
	Japanese honeysuckle	*Lonicera japonica*	Prohibited
	Japanese hops	*Humulus japonicus*	Prohibited/Restricted
	Japanese knotweed	*Polygonum cuspidatum*	Restricted
	Japanese stilt grass	*Microstegium vimineum*	Prohibited
	Kudzu	*Pueraria lobata*	Prohibited
	Leafy spurge	*Euphorbia esula*	Restricted
	Lyme grass or sand ryegrass	*Leymus arenarius*	Prohibited/Restricted
	Mile-a-minute vine	*Polygonum perfoliatum*	Prohibited
	Morrow's honeysuckle	*Lonicera morrowii*	Restricted
	Multiflora rose	*Rosa multiflora*	Restricted
	Musk thistle	*Carduus nutans*	Restricted
	Narrow-leaf cattail	*Typha angustifolia*	Restricted
	Oriental bittersweet	*Celastrus orbiculatus*	Restricted
	Pale swallow-wort	*Vincetoxicum rossicum*	Prohibited
	Perennial pepperweed	*Lepidium latifolium*	Prohibited
	Phragmites, Common reed	*Phragmites australis*	Restricted
	Plumeless thistle	*Carduus acanthoides*	Restricted
	Poison hemlock	*Conium maculatum*	Prohibited/Restricted
	Porcelain berry	*Ampelopsis brevipedunculata*	Prohibited
	Princess tree	*Paulownia tomentosa*	Prohibited
	Purple loosestrife	*Lythrum salicaria*	Restricted
	Russian olive	*Elaeagnus angustifolia*	Restricted
	Sawtooth oak	*Quercus acutissima*	Prohibited
	Scotch broom	*Cytisus scoparius*	Prohibited
	Sericea lespedeza	*Lespedeza cuneata*	Prohibited
	Spotted knapweed	*Centaurea biebersteinii, c. stoebe*	Restricted
	Spreading hedge parsley	*Torilis arvensis*	Prohibited
	Tall or Reed manna grass	*Glyceria maxima*	Prohibited/Restricted
	Tansy	*Tanacetum vulgare*	Restricted

Sandpiper Pipeline Project Noxious and Invasive Weed Species			
State/Weed Type	Common Name	Scientific Name	Regulatory Classification
	Tartarian honeysuckle	*Lonicera tatarica*	Restricted
	Tree-of-heaven	*Ailanthus altissima*	Restricted
	Wild chervil	*Anthriscus sylvestris*	Prohibited/Restricted
	Wild parsnip	*Pastinaca sativa*	Restricted
	Wineberry	*Rubus phoenicolasius*	Prohibited
	Yellow star thistle	*Centaurea solstitialis*	Prohibited
Wetland Weeds	Dame's rocket	*Hesperis matronalis*	Restricted
	European marsh thistle	*Cirsium palustre*	Prohibited/Restricted
	Flowering rush	*Butomus umbellatus*	Restricted
Aquatic Weeds	Australian swamp crop	*Crassula helmsii*	Prohibited
	Brazilian waterweed	*Egeria densa*	Prohibited
	Brittle waternymph	*Najas minor*	Prohibited
	Curly-leaf pondweed	*Potamogeton crispus*	Restricted
	Eurasian water milfoil	*Myriophyllum spicatum*	Restricted
	European frog-bit	*Hydrocharis morsus-ranae*	Prohibited
	Fanwort, Carolina Fanwort	*Cabomba caroliniana*	Prohibited
	Flowering rush	*Butomus umbellatus*	Restricted
	Hydrilla	*Hydrilla verticillata*	Prohibited
	Oxygen-weed, African elodea	*Lagarosiphon major*	Prohibited
	Parrot feather	*Myriophyllum aquaticum*	Prohibited
	Water chestnut	*Trapa natans*	Prohibited
	Yellow floating heart	*Nymphoides peltata*	Prohibited
	N/A	*Ulva (Enteromorpha) spp.*	Prohibited
Aquatic Fish and Invertebrate Invasives	Asian clam	*Corbicula fluminea*	Prohibited
	Bloody shrimp	*Hemimysis anomala*	Prohibited
	Chinese mitten crabs	*Eriocheir sinensi*	Prohibited
	Chinese mystery snail	*Cipangopaludina chinensis*	Restricted
	Cylindro (cyanobacteria)	*Cylindrospermopsis raciborskii*	Prohibited
	Didymo or rock snot	*Didymoshpenia geminata*	Prohibited
	Faucet snail	*Bithynia tentaculata*	Prohibited
	Fishhook waterflea	*Cercopagis pengoi*	Prohibited
	Golden alga	*Prymneisum parvum*	Prohibited
	New Zealand mudsnail	*Potamopyrgus antipodarum*	Prohibited
	Novel cyanobacterial epiphyte of order Stigonematales	*Stigonematales spp.*	Prohibited
	Quagga mussels	*Dreissena bugensis*	Prohibited
	Red swamp crayfish	*Procambarus clarkii*	Prohibited
	Rusty crayfish	*Orconectes rusticus*	Restricted
	Spiny waterflea	*Bythotrephes cederstroemi*	Prohibited
	Starry stonewort (alga)	*Nitellopsis obtusa*	Prohibited

Sandpiper Pipeline Project
Noxious and Invasive Weed Species

State/Weed Type	Common Name	Scientific Name	Regulatory Classification
	Water flea	*Daphnia lumholtzi*	Prohibited
	Zebra mussel	*Dreissena polymorpha*	Restricted

_____

North Dakota:

[a] Listed Regulated Species

Minnesota Control Status:

[b] Eradicate

[c] Control

[d] Restricted

Abbreviations:

NW = Noxious Weed
CONW = County Noxious Weed
SN = State noxious weed (Minnesota Department of Agriculture)
PS = State prohibited weed seed (Minnesota Department of Agriculture)
RN = Restricted noxious weed (Minnesota Department of Agriculture)
FN = Federal noxious weed (USDA-Animal Plant Health Inspection Service)
PI = Prohibited exotic species (Minnesota Department of Natural Resources)

Appendix B

Equipment Cleaning Log

Equipment Cleaning Log

Form Completed By: _____

Date: _____ Time: _____

Location of Equipment (tract & milepost): _____

Equipment Type: _____

Equipment ID (e.g., company, unique ID number): _____

Cleaning Method: (check all that apply)

- ☐ Scrape Down
- ☐ Steam Wash Blow Down (compressed air)
- ☐ Power/Pressure Wash (water)
- ☐ Other (Describe): _____

Comments: _____

_____

_____

_____

_____

Appendix C

Seed Mixes

Sandpiper Pipeline Project
Seed Mixes

Table 1 – North Dakota, Minnesota, and Wisconsin Temporary Cover Crop Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Oats *if summer seeding* (*Avena sativa)* or Winter Wheat *if dormant (late fall) or spring seeding (Triticum aestivum)*	40	50%
Annual Ryegrass *(Lolium italicum)*, Annual Alfalfa (*Medicago sativa*), or Slender Wheat Grass (*Elymus trachycaulus)*	40	50%
GRAND TOTAL	**80 pounds**	**100%**

Table 2 – North Dakota Construction Area Standard Upland Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Western Wheatgrass (*Pascophyrum smithii*)	3.2	20%
Slender Wheatgrass (*Elymus trachycaulus)*	1	10%
NewHy bluebunch-quackgrass hybrid	6	30%
Pubescent Wheatgrass (*Elytrigia intermedia*)	5.2	30%
Alfalfa	1.2	10%
Total	16.6	100%
Associated Companion Crop Mix		
Oats *if summer seeding* (*Avena sativa)* or Winter Wheat *if late fall (dormant) or spring seeding (Triticum aestivum)*	16	80%
Annual Ryegrass *(Lolium italicum)*, or Slender Wheat Grass (*Elymus trachycaulus)*	4	20%
Companion/Cover Crop Total	20	100%
GRAND TOTAL	**36.6 pounds**	**100%**

Sandpiper Pipeline Project
Seed Mixes

Table 3 – Minnesota and Wisconsin Construction Area Standard Upland Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Perennial Ryegrass (*Lolium perenne*)	2	17%
Canada Wild-rye (*Elymus canadensis*)	4	33%
Switchgrass (*Panicum virgatum*) (unimproved native variety)	4	33%
Timothy (*Phleum pratense*)	2	17%
Total	12	100%
Associated Companion Crop Mix		
Oats *if summer seeding* (*Avena sativa*) or Winter Wheat *if late fall (dormant) or spring seeding* (*Triticum aestivum*)	16	80%
Annual Ryegrass (*Lolium italicum*), or Slender Wheat Grass (*Elymus trachycaulus*)	4	20%
Companion/Cover Crop Total	20	100%
GRAND TOTAL	**32 pounds**	**100%**

Table 4- North Dakota, Minnesota, and Wisconsin Unsaturated Wetland Seed Mix – General Restoration Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	Percent (%) of Seed
American Slough Grass (*Beckmannia syzigachne*)	6	30%
Annual Rye Grass (*Lolium perene*)	8	40%
Fowl Bluegrass (*Poa palustris*)	6	30%
GRAND TOTAL	**20.0 pounds**	**100%**

Table 5 – North Dakota, Minnesota, and Wisconsin Residential Area Upland Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Kentucky Bluegrass (*Poa pratensis*)	82.5	52%
Perennial Ryegrass (*Lolium perenne*)	30	19%
Creeping Red Fescue (*Festuca rubra*)	37.5	23%
Annual Rye Grass (*Lolium italicum*)	10	6%
GRAND TOTAL	**160 pounds**	**100%**

Sandpiper Pipeline Project
Seed Mixes

Table 6 – North Dakota Livestock Grazing and Hay Production Areas Upland Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Western Wheatgrass (*Pascophyrum smithii*)	3.2	20%
Slender Wheatgrass (*Elymus trachycaulus)*	1	10%
NewHy bluebunch-quackgrass hybrid	6	30%
Pubescent Wheatgrass (*Elytrigia intermedia*)	5.2	30%
Alfalfa	1.2	10%
Total	16.6	100%
Associated Companion Crop Mix		
Oats ***if summer seeding*** (*Avena sativa)* or Winter Wheat *if late fall (dormant) or spring seeding (Triticum aestivum)*	16	80%
Annual Ryegrass *(Lolium italicum)*, or Slender Wheat Grass (*Elymus trachycaulus)*	4	20%
Companion/Cover Crop Total	20	100%
GRAND TOTAL	**36.6 pounds**	**100%**

Table 7 – Minnesota and Wisconsin Livestock Grazing and Hay Production Areas Upland Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Orchard Grass *(Dactylis glomerata)*	6	30%
Vernal Alfalfa (*Medicago sativa)*	2	10%
Climax Timothy *(Phleum pretense)*	3	15%
Tetraploid Perennial Ryegrass *(Lolium perenne)*	4	20%
Alsike Clover *(Trifolium hybridum)*	2	10%
Medium Red Clover *(Trifolium pretense)*	3	15%
Total	20	100%
Associated Cover Crop Mix		
Oats *if summer seeding* (*Avena sativa)* or Winter Wheat *if late fall (dormant) or spring seeding (Triticum aestivum)*	16	80%
Annual Ryegrass *(Lolium italicum)*, or Slender Wheat Grass (*Elymus trachycaulus)*	4	20%
Cover Crop Total	20	100%
GRAND TOTAL	**40 pounds**	**100%**

Sandpiper Pipeline Project
Seed Mixes

Table 8 – North Dakota Wildlife Area Upland Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Western Wheatgrass (*Pascophyrum smithii*)	4.0	34.5%
Slender Wheatgrass (*Elymus trachycaulus)*	1.0	8.6%
Green needlegrass (*Stipa viridula*)	2.4	20.7%
Sideoats grama (*Bouteloua curtipendula*)	2.4	20.7%
Blue grama (*Bouteloua gracilis*)	0.4	3.4%
Canada wildrye (*Elymus Canadensis*)	0.6	5.2%
Switchgrass (*Panicum virgatum*)	0.8	6.9%
GRAND TOTAL	**11.6 pounds**	**100%**

Table 9 – Minnesota and Wisconsin Wildlife Area Upland Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Red Clover *(Trifolium pretense)*	4.5	30%
Alsike Clover *(Trifolium hybridum)*	4.5	30%
White Clover (*Trifolium repens)*	4.5	30%
Creeping Red Fescue *(Festuca rubra)*	1.5	10%
Total	15	100%
Associated Cover Crop Mix		
Oats *if summer seeding* (*Avena sativa)* or Winter Wheat *if spring seeding (Triticum aestivum)*	16	80%
Annual Ryegrass *(Lolium italicum)*, Annual Alfalfa (*Medicago sativa*), or Slender Wheat Grass (*Elymus trachycaulus)*	4	20%
Cover Crop Total	20	100%
GRAND TOTAL	**35 pounds**	**100%**

Sandpiper Pipeline Project
Seed Mixes

Table 10 – North Dakota Native Area Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Western Wheatgrass (*Pascophyrum smithii*)	4.0	34.5%
Slender Wheatgrass (*Elymus trachycaulus)*	1.0	8.6%
Green needlegrass (*Stipa viridula*)	2.4	20.7%
Sideoats grama (*Bouteloua curtipendula*)	2.4	20.7%
Blue grama (*Bouteloua gracilis*)	0.4	3.4%
Canada wildrye (*Elymus Canadensis*)	0.6	5.2%
Switchgrass (*Panicum virgatum*)	0.8	6.9%
GRAND TOTAL	**11.6**	**100%**

Table 11 – Minnesota and Wisconsin Native Area Seed Mix [1/]

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Big Bluestem *(Andropogon gerardi)*	4	44%
Western Wheatgrass ***(Pascopyrum smithii)***	4	29%
Switchgrass *(Panicum virgatum)*	0.5	12%
Canada Wildrye *(Elymus canadensis)*	2	15%
Purple Prairie Clover *(Dalea purpureum)*	2 (ounces)	
Total	10.5 pounds	100%
Associated Cover Crop Mix		
Oats *if summer seeding* (*Avena sativa)* or Winter Wheat *if spring seeding (Triticum aestivum)*	16	80%
Slender Wheat Grass (*Elymus trachycaulus)*	4	20%
Cover Crop Total	20	100%
GRAND TOTAL	**30.5 pounds**	**100%**

1/ Applicable seeding dates: May 15 to June 30 or after soil temperatures are below 55 degrees Fahrenheit.

Sandpiper Pipeline Project
Seed Mixes

Table 12 – North Dakota Roadside Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Western Wheatgrass (*Pascophyrum smithii*)	3.2	20%
Slender Wheatgrass (*Elymus trachycaulus)*	1	10%
NewHy bluebunch-quackgrass hybrid	6	30%
Pubescent Wheatgrass (*Elytrigia intermedia*)	5.2	30%
Alfalfa	1.2	10%
Total	16.6	100%
Associated Companion Crop Mix		
Oats *if summer seeding* (*Avena sativa)* or Winter Wheat *if late fall (dormant) or spring seeding (Triticum aestivum)*	16	80%
Annual Ryegrass *(Lolium italicum)*, or Slender Wheat Grass (*Elymus trachycaulus)*	4	20%
Companion/Cover Crop Total	20	100%
GRAND TOTAL	**36.6 pounds**	**100%**

Sandpiper Pipeline Project
Seed Mixes

Table 13 – Minnesota and Wisconsin Roadside Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Kentucky Bluegrass – Certified Park (*Poa pratensis*)	22.3	32%
Canada Bluegrass (*Poa compressa*)	9.8	14%
Switch grass (*Panicum virgatum*)	2.1	3%
Slender Wheatgrass (*Elymus trachycaulus*)	2.8	4%
Perennial Rye-grass (*Lolium perenne*)	14.7	21%
Timothy (*Phleum pratense*)	2.1	3%
Redtop (*Agrostis gigantea*)	2.1	3%
Creeping Alfalfa (*Medicago sativa*)	4.2	6%
White clover (*Trifolium repens*)	2.1	3%
Hairy Vetch (*Vicia villosa)*	7.8	11%
Total	70 pounds	100%
Associated Cover Crop Mix		
Oats *if summer seeding* (*Avena sativa)* or Winter Wheat *if spring seeding (Triticum aestivum)*	16	80%
Annual Ryegrass *(Lolium italicum)*, Annual Alfalfa (*Medicago sativa*), or Slender Wheat Grass (*Elymus trachycaulus)*	4	20%
Cover Crop Total	20	100%
GRAND TOTAL	**90 pounds**	**100%**

Table 14 – North Dakota Conservation Reserve Program (CRP) Seed Mix

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
Tall wheat grass (*Thinopyrum ponticum*)	2.2	27.5
Intermediate or pubescent wheat grass (*Thinopyrum intermedium*)	4.3	53.75
Alfalfa (*Medicago sativa*)	1.1	13.75
Sweet clover (*Melilotus officinalis*)	0.4	5
GRAND TOTAL	**8 pounds**	**100%**

Sandpiper Pipeline Project
Seed Mixes

Table 15 – Minnesota Protected Waters Seed Mix[1]

Seed Name	Pure Live Seed (Pounds Per Acre)	% of Seed
American slough grass (*Beckmannia syzigachne*)	1.5	18.63%
Blue-joint grass (*Calamagrostis Canadensis)*	0.06	0.75%
Reed manna grass *(Glyceria grandis)*	0.18	2.24%
Fowl manna grass (*Glyceria grandis*)	0.12	1.49%
Rice Cut-grass *(Leersia oryzoides)*	0.24	2.98%
Annual ryegrass (*Lolium italicum*)	0.9	11.18%
Fowl bluegrass (*Poa palustris*)	1.8	22.36%
Tussock sedge (*Carex stricta*)	0.06	0.75%
Fox sedge (*Carex vulpinoidea*)	0.3	3.37%
Green bulrush (*Scirpus atrovirens*)	0.06	0.75%
Wool grass (*Scirpus cyperinus*)	0.006	0.07%
River bulrush (*Scirpus fluviatilis*)	0.24	2.98%
Soft-stem bulrush (*Scirpus validus*)	0.12	1.49%
Marsh milkweed (*Asclepias incarnate*)	0.12	1.49%
Flat-topped aster (*Aster umbellatus*)	0.3	3.73%
Joe-pye weed (*Eupatorium maculatum*)	0.3	3.73%
Boneset (*Eupatorium perfoliatum*)	0.24	2.98%
Sneezeweed (*Helenium autumnale*)	0.24	2.98%
Spotted Touch-me-not (*Impatiens capensis*)	0.06	0.75%
Great-blue lobelia (*Lobelia siphilitica*)	0.12	1.49%
Monkey flower (*Mimulus ringens*)	0.006	0.07%
Mountain mint (*Pycnanthemum virginianum*)	0.12	1.49%
Giant goldenrod (*Solidago gigantean*)	0.24	2.98%
Blue vervain (*Verbena hastate*)	0.36	4.47%
Ironweed (*Veronia fasciculate*)	0.36	4.47%
Total	6.0	100%
Associated Cover Crop Mix		
Slender Wheat Grass (*Elymus trachycaulus)*	2	100%
Cover Crop Total	2	100%
GRAND TOTAL	**8 pounds**	**100%**

[1] Applicable seeding dates: May 15 to June 30 or after soil temperatures are below 55 degrees Fahrenheit.

[2] Quantities and availability may be limited.

Table 16 – North Dakota Park and Recreation Department - Suggested grass/forb mix for Restoration of the Northern Tallgrass Prairie

The following is a suggested mix for the restoration project. This mix matches the typical plant species found within the Northern Tallgrass Prairie plant community.

Grass Species	**Common Name**
**Andropogon gerardii*	Big bluestem
**Panicum virgatum*	Switchgrass
**Calamagrostis canadensis*	Bluejoint
**Calamagrostis stricta*	Slimsteam reedgrass
**Spartina pectinata*	Prairie cordgrass
Koeleria macrantha	Prairie junegrass
Bouteloua curtipendula	Sideoats grama
Nassella viridula	Green needlegrass
Pascopyrum smithii	Western wheatgrass
Forb Species	**Common Name**
Achillea millefolium	Common yarrow
Anemone Canadensis	Canadian anemone
Artemisia ludoviciana	White sagebrush
Pediomelum argophyllum	Silvery scurfpea
Rudbeckia hirta	Blackeyed susan
Polygala verticillata	Milkwort
Ratibida columnifera	Prairie coneflower
Solidago Canadensis	Canada goldenrod
Symphyotrichum ericoides	White heath aster
Vicia americana	American vetch
Dalea purpurea	Purple prairie clover

*****Indicates dominates within this plant community.

Regarding: Wet-Mesic Tallgrass Prairie

Community Description

Andropogon gerardii - (Panicum virgatum) - Muhlenbergia richardsonis Herbaceous Vegetation
Translated Name: Big Bluestem - (Switchgrass) - Mat Muhly Herbaceous Vegetation
Common Name: Northern Wet-Mesic Tallgrass Prairie
Unique Identifier: CEGL002199
Classification Approach: International Vegetation Classification (IVC)
Summary: This big bluestem wet-mesic prairie type is found in the northern tallgrass prairie region of the United States and Canada. In South Dakota, soils are moist loams and poorly drained silt loams derived from glacial drift. The vegetation is dominated by a dense layer of tall grasses, such as *Andropogon gerardii* and *Panicum virgatum*, with associates of *Calamagrostis canadensis, Calamagrostis stricta*, and *Spartina pectinata*. *Muhlenbergia richardsonis* may be a diagnostic, less dominant species of the northern tallgrass prairie. In the Sheyenne Delta, this type may form a distinctive wet-mesic sand prairie type.

Appendix D

EPND Environment Hydrotest
Discharge Authorization and Documentation

Enbridge Environment Hydrotest Discharge Authorization & Documentation - *Instructions*

The purpose of this form is to document and insure that appropriate planning occurs prior to hydrostatic test discharge activities as well as the proper recording of necessary information during the actual discharge event. If the discharge permit specifies the need for a Certified Operator, he/she is responsible for the final section of the form. Otherwise, an Environmental Inspector will be responsible for completion of this form.

Part 1: Basic Discharge Information: All information must be completed. Coordination with Enbridge Engineering is necessary to obtain the exact test section length and volume of water to be discharged. The estimated duration of the discharge must be calculated using the maximum permitted rate (or the anticipated rate, if lower than the permitted rate) and the total volume of water to be discharged. This is critical information and will ensure that any required sampling is conducted at the appropriate frequency specified in the permit.

Part 2: Pre-Discharge Planning Checklist: A pre-discharge planning meeting must be held with the Certified Operator (if required), Contractor, Craft Inspection, Environmental Inspection, and Construction Management staff to review items included in the checklist and any other pertinent information deemed necessary. A full copy of the permit and discharge plan must be provided to all participants. Upon completion of this meeting, all participants must sign the form to indicate that they understand all steps of the discharge process. ***Note: In order to proceed with discharge activities, the Enbridge Construction Manager and Environment Staff assigned to the project, or their designees, must review the information and provide their authorization by signing and dating the form.***

Part 3: Discharge Monitoring: A copy of the permit, discharge plan, and parts one and two of the form must be on-site at all times during the discharge event. In addition to the items specified on the form, the following photographs are required:

- Receiving water before, during, and after the discharge (minimum 3 photos/day)
- Discharge structure/device before and during the discharge (minimum 3 photos/day)

As noted, upon completion of the discharge event, the Certified Operator or Environmental Inspector, Craft Inspector, Contractor Foreman, and Enbridge Construction Manager must sign and date the form. ***The completed form, along with the supplemental photographs, and a copy of the chain of custody for any samples submitted for laboratory analysis must be submitted to the Enbridge Environment Project Manager/Lead within 12 hours of ending the discharge. Any permit violations will be reported to the applicable agencies by the Enbridge Environment Project Manager/Lead within the timeframes specified in the discharge permit.***

Enbridge Environment Hydrotest Discharge Authorization & Documentation

Part 1: Basic Discharge Information

Date: _____

Project Name: _____ Spread: _____ Tract #: _____

Test Section Identification: _____

Pipe Diameter (inches): _____ Test Section Length (feet): _____

Volume to be discharged (gallons): _____

Permitted Discharge Rate (gpm): _____ Est. Duration of Discharge (hours): _____

Receiving Waterbody Name/Nearest Surface Waterbody: _____

Certified Operator Name and Number (if applicable): _____

Part 2: Pre-Discharge Planning Checklist

Note: All items must be complete prior to initiating discharge activities

☐ Notification to agency(ies) provided (if applicable - attach copy of notification documentation)

☐ Flow meter installed and functional in accordance with manufacturers recommendations

☐ Sample collection port/tap installed or other positive means of direct sampline of discharge water (only necessary if sampling is required)

☐ Review of discharge permit and site-specific plan complete (attach a copy of the permit and approved site specific plan)

☐ Discharge structure/BMPs installed according to approved plan

☐ Complete the table below, including quantity of samples required in accordance with the permit based on anticipated discharge duration. Add other parameters as specified in the permit:

Parameter	Analytical Method Number	Container type	Container Volume	Preservation	Maximum Holding Times	Permit Limit	Sample Type	Frequency of Analysis Specified in Permit	Number of Samples Required
pH	NA	Polyethylene / Glass	NA	None required	Analyze immediately		Field measurement		
Dissolved Oxygen	NA	Glass bottle and top	NA	None required	Analyze immediately		Field measurement		
TSS	106.2	Polyethylene	500 ml	Cool to 4° C	7 days				
Oil & Grease	1664	Amber Glass	1 liter	Cool to 4° C, HCL or H_2SO_4 to pH <2	28 days				

☐ Indicate responsible party for emergency/upset/spill notifications in accordance with the permit:_____

☐ Indicate responsible party for to begin flow diversion when change in coloration observed:

_____

All staff involved in hydrostatic test discharge activities must review the above information and print and sign their name below indicating their participation in a pre-job planning meeting and that they understand the discharge plan, permit, and procedures and are prepared to properly implement them. Attach additional sheets as necessary.

Name (print and sign):

Certified Operator or Environmental Inspector Signature: _____

Enbridge Environment and Construction Management staff reviewed the pre-planning information provided and approve the initiation of discharge activities.

Enbridge Environment Staff Signature and Date: _____

Enbridge Construction Manager Signature and Date: _____

Part 3: Discharge Monitoring - attach additional sheets as necessary
Note: Flow rate must be recorded hourly, sample frequency must be in accordance with the permit specifications

Date	Time	Recorded/Sampled By	Flow Rate (gpm)	pH	Dissolved Oxygen (mg/l)	TSS Sample Collected?	Oil & Grease Sample Collected?	Other (indicate)

Appendix E

Emergency Response Contractors/Disposal and Treatment Facilities

The Contractor will dispose of all wastes according to applicable federal, state, and local requirements. A listing of potential Emergency Spill Response Contractors and waste disposal facilities is provided below. This list was developed from state-wide data bases. This list represents firms operating at the time the data base was produced. The Contractor is responsible for verifying if a contractor or facility is currently operating under appropriate permits or licenses. The Contractor is responsible for ensuring wastes are disposed of properly.

Spill Response Contractors

Company	City/State	Phone Number
North Dakota		
Clean Harbors Environmental	Williston, ND	(701) 774-2201 (800) 645-8265
Garner Environmental Services	Williston, ND	(701) 577-1200 (855) 774-1200
Absorbent & Safety Solutions	Watford City, ND	(701) 838-4558
Minnesota Limited	Berthold, ND	(701) 453-3700
Bobs Oilfield Service Inc	Belfield, ND	(701) 575-4666
Keitu Engineers & Consultants, Inc.	Mandan, ND	(701) 667-1800
Minnesota		
Bay West Environmental	St. Paul, MN	(800) 279-0456 (651) 291-0456
West Central Environmental Consultants Inc.	Morris, MN	(800) 422-8356 (888) 923-2778
Minnesota Limited	Bemidji, MN	(218) 755-9595
OSI Environmental	Bemidji, MN	(800) 585-8838
OSI Environmental	Eveleth, MN	(800) 777-8542
Bay West Environmental	Duluth, MN	(800) 279-0456 (218) 740-0110
Wisconsin - *The Contractor should consult with the WDNR Northern Regional Spill Coordinator (John Sager: phone (715) 365-8959) for assistance when selecting a spill response contractor.*		

Waste Disposal/Treatment Facilities

Facility	City/State	Telephone
North Dakota		
Gascoyne Materials Handling & Recycling LLC	Dickinson, ND	701.225.0061
Sawyer Disposal Services LLC*	Sawyer, ND	701.624.5622
Dishon Disposal Inc*	Williston, ND	701.572.3223
Prairie Disposal Inc*	Tioga, ND	800.490.2106
Minnesota		
Pope-Douglas Solid Waste	Alexandria, MN	(320) 762-2381
Northstar Reclamation	Fosston, MN	(800) 422-0817
Polk County Incinerator	Fosston, MN	(218) 435-6501
Wisconsin		
Lake Area Landfill (BFI)	Sarona, WI	(612) 457-2778
Timberline Trail (Waste Mgmt.)	Weyerhaueser, WI	(800) 504-1067 ext. 7

Please note: Some facilities may have limitations on amounts, types of materials, etc.
*May accept crude oil-impacted soils and/or wastes from oil field exploration and production activities.

Appendix F

Spill Report Form

Spill Report Form

(The Contractor Spill Coordinator must complete this for any spill, regardless of size, and submit the form to the EPND Representative within 24 hours of the occurrence)

Date of Spill:_____ Date of Spill Discovery:_____

Time of Spill:_____ Time of Spill Discovery:_____

Name and Title of Discoverer:_____

Type of material spilled and manufacturer's name:_____

Legal Description of spill location to the quarter section:_____

Directions from nearest community:_____

Estimated volume of spill:_____

Weather conditions:_____

Topography and surface conditions of spill site:_____

Spill medium (pavement, sandy soil, water, etc.):_____

Proximity of spill to surface waters: _____

Did the spill reach a waterbody? _____Yes _____No

If so, was a sheen present? _____Yes _____No

Describe the causes and circumstances resulting in the spill:_____

_____

_____

_____

Describe the extent of observed contamination, both horizontal and vertical (i.e., spill-stained soil in a 5-foot radius to a depth of 1 inch): _____

_____

_____

Describe immediate spill control and/or cleanup methods used and implementation schedule: _____

_____

_____

_____

Current status of cleanup actions:_____

Name and Company for the following:

Construction Superintendent:_____

Spill Coordinator:_____

EPND Representative:_____

Person Who Reported the Spill:_____

Environmental Inspector:_____

Form completed by:_____Date:_____

Appendix G

Spill Reporting-Agency Contacts

Sandpiper Pipeline Project Spill Reporting Contacts			
Agency	**Reporting Criteria**	**When**	**Phone Number**
Federal Contacts			
National Response Center	Release of a hazardous substance in an amount equal to or greater than its reportable quantity under CERCLA Any quantity of discharged oil that violates state water quality standards, causes a film or sheen on the water's surface, or leaves sludge or emulsion beneath the surface	Immediately	(800) 424-8802
Environmental Protection Agency (EPA) Region V (MN&WI)	Any quantity of discharged oil that violates state water quality standards, causes a film or sheen on the water's surface, or leaves sludge or emulsion beneath the surface	Immediately	1 (312) 353-2000
Environmental Protection Agency (EPA) Region VIII (ND)	Any quantity of discharged oil that violates state water quality standards, causes a film or sheen on the water's surface, or leaves sludge or emulsion beneath the surface	Immediately	1 (303) 312-6312
State Contacts			
North Dakota Industrial Commission, Oil and Gas Division	Must be a leak, spill or other release of fluid that is less than one barrel total volume and remains onsite of a facility.	Immediately	(701) 328-8020
North Dakota Department of Health	Any Amount	Immediately	(701) 328-5210 or 5166
North Dakota Department of Emergency Services (NDDES)	As Needed	Immediately	NDDES Duty Officer System (701) 328-9921 (24 hour, request the Duty Officer be paged) ND Regional Hazardous Materials Teams (800) 472-2121 (Teams requested through State Radio)

Sandpiper Pipeline Project Spill Reporting Contacts			
Agency	**Reporting Criteria**	**When**	**Phone Number**
Minnesota Duty Officer Program	Minnesota has a reporting threshold of greater than five-gallons for petroleum spills. Spills of any quantity of all other chemicals or materials should be reported. If in doubt, report.	Immediately	Duty Officer (651) 649-5451 1 (800) 422-0798
Wisconsin Department of Natural Resources	>one gallon of gasoline on a pervious surface	Immediately	24-hour Toll Free Hotline for Reporting Spills 1 (800) 943-0003
County Contacts – North Dakota			
Williams County Emergency Services County Law Enforcement Center	As Needed		Mike Hallesy (701) 577-7707
Mountrail County Emergency Management Resources	As Needed		Don Longmuir (701) 628-2909
Ward County Emergency Management	As Needed	8:00 a.m.–4:30 p.m. Monday-Friday	Amanda Schooling, Director (701) 857 6560
McHenry County Emergency Management	As Needed		Marvin Sola (815) 338-6400
Pierce County Emergency Management	As Needed	7:30 a.m.-4:30 p.m. Monday-Friday	Kelsey Siegler (253) 798-6595
Benson County Emergency Management	As Needed		Scott Todahl (701) 473-5320
Ramsey County Emergency Management	As Needed		Kristen Nelsen, Local Emergency Manager (701) 662-7001
Nelson County Emergency Management	As Needed		Sharon Young, Local Emergency Manager (701) 247-2472
Grand Forks County Emergency Services	As Needed		Jim Campbell (701) 780-8213
City of Grand Forks Emergency Services	As Needed		John Bernstrom (701) 746-4636
County Contacts – Minnesota			
Polk County Emergency Management	As Needed		Barb Erdman, Director (218) 281-0437
Red Lake County	As Needed		Mitch Bernstein

Sandpiper Pipeline Project Spill Reporting Contacts			
Agency	**Reporting Criteria**	**When**	**Phone Number**
Emergency Management			(218) 253-2996
Clearwater County Emergency Management	As Needed	8:00 a.m.–4:30 p.m. Monday-Friday	(218) 694-6183
Hubbard County Emergency Management	As Needed		Brian Halbasch (218) 732-2588
Cass County Emergency Management	As Needed		Kerry Swenson, Dispatcher (218) 547-7437
Crow Wing County Emergency Management	As Needed		John Bowen, Director (218) 829-4749
Aitkin County Emergency Management	As Needed		Dispatch (non-emergency) (218) 927-7400
Carlton County Emergency Management	As Needed		Brian Belich, Manager (218) 384-3236
County Contacts – Wisconsin			
Douglas County Emergency Management	As Needed	8:00 a.m.-4:30 p.m. Monday-Friday	Keith Kesler, Director (715) 395-1636

Enbridge Pipelines (North Dakota) LLC
Sandpiper Environmental Services
Sandpiper Pipeline Project

UNANTICIPATED DISCOVERIES PLAN

October 14, 2013

ENBRIDGE

merjent

TABLE OF CONTENTS

1.0 INTRODUCTION 1
2.0 UNANTICIPATED DISCOVERY CONDITIONS 1
3.0 DISCOVERY OF HISTORIC PROPERTIES 2
3.1 FEDERAL AGENCY JURISDICTION 3
3.2 STATE LANDS 3
3.3 PRIVATE LANDS SUBJECT TO STATE ROUTING AUTHORITY JURISDICTION 4
4.0 DISCOVERY OF HUMAN SKELETAL REMAINS 5

APPENDICES

Appendix A – Contact Lists: North Dakota, Minnesota, and Wisconsin

1.0 INTRODUCTION

This Unanticipated Discoveries Plan ("UDP") sets forth the guidelines to be used in the event archaeological resources or human skeletal remains are discovered during construction of the Sandpiper Pipeline Project. These measures were developed by Enbridge Pipelines (North Dakota) LLC ("Enbridge") in accordance with applicable state and federal guidelines. Early and frequent communications are essential in meeting both the spirit and law of those guidelines; therefore, Appendix A shows the most current list of relevant contacts in the event of an unanticipated discovery during construction.

2.0 UNANTICIPATED DISCOVERY CONDITIONS

Pipeline construction excavations have potential to uncover previously unknown archaeological sites and human skeletal remains, as well as many other cultural and natural elements such as modern refuse and faunal remains. While extensive project environmental surveys, such as those conducted for Sandpiper, can effectively eliminate most discoveries during project construction, Enbridge is aware that project planning should anticipate even the remote possibility of a discovery.

Enbridge will have the primary responsibility of distinguishing discoveries of significant archaeological sites or human skeletal remains from those that are neither. The former would require ceasing project activities at the find location followed by a coordinated consultation effort among Enbridge, permitting agencies, landowners, and other interested parties. Identification of the latter (neither significant archaeological sites nor human skeletal remains) would not mean initiation of the consultation process; however documentation of the event must be made.

When possible archaeological materials or suspected human skeletal remains are identified during ground disturbing activities within the project construction corridor, the construction contractor ("Contractor") will immediately notify Enbridge's lead onsite Environmental Inspector ("EI") of the discovery.

1. Immediately following notification of the discovery, the lead EI shall:

    (a) Establish and delineate a 25 foot buffer around the edge of the discovery (using flagging and/or fencing), advise the on-site construction manager to halt all ground-disturbing activities within the buffered area until otherwise notified by Enbridge Environment, and implement measures to protect the discovery from looting and vandalism, including a 24-hour watch, if necessary; and

    (b) Contact a qualified Professional Archaeologist (possible archaeological materials) and/or Physical Anthropologist (suspected human skeletal remains) to conduct an assessment of the discovery. The Professional Archaeologist should meet the qualification standards outlined in 36 Code of Federal Regulations (CFR) Part 61 in order to conduct the assessment. The Physical Anthropologist must be acknowledged as competent to positively identify human skeletal remains.

2. When contacted by the lead EI, the Professional Archaeologist shall gather additional information from the discovery area and assess the potential significance and condition

and integrity of the discovery according to the guidelines established by the National Park Service ("NPS") in Bulletin 15 and its amendments:

(a) The Professional Archaeologist will determine whether or not the discovery is an archaeological site or cultural resource over 45 years of age. If the discovery is an archaeological site or cultural resource greater than 45 years of age, the Professional Archaeologist will record as much information as possible to secure a Smithsonian Trinomial Number from the appropriate state agency. The lead EI would then notify Enbridge Environment to initiate the process outlined in *3.0 Discovery of Historic Properties* below.

(b) If the discovery is not an archaeological site or cultural resource greater than forty-five years of age, the Professional Archaeologist will document the discovery for the record and Enbridge's lead EI will advise the on-site construction manager to restart ground-disturbing activities.

3. When contacted by the lead EI, the Physical Anthropologist shall investigate the site to make an assessment of the likely nature of the remains:
   (a) If the remains are likely human then the lead EI would notify Enbridge Environment to initiate the process outlined in *4.0 Discovery of Human Skeletal Remains* below.
   (b) If the discovery does not represent human skeletal remains, the Physical Anthropologist will document the discovery for the record and Enbridge's lead EI will advise the on-site construction manager to restart ground-disturbing activities.

3.0 DISCOVERY OF HISTORIC PROPERTIES

Upon the discovery of an archaeological site or cultural resource greater than 45 years of age, the Professional Archaeologist will advise Enbridge Environment of the proper agency notification procedure and recommend a plan of action for the discovery area.

(a) If the discovery area is under the jurisdiction of a federal permit and/or approval, or otherwise subject to federally-mandated conditions, Enbridge Environment will advise the Responsible Federal Agency ("RFA") of the resource and provide information regarding its significance and condition and integrity (see *3.1 Federal Agency Jurisdiction* below).

(b) If the discovery is on state land, Enbridge Environment will first advise the land-managing agency of the resource and provide information regarding its significance and condition and integrity and, if directed by the land-managing agency, advise the appropriate State Archaeologist (see *3.2 State Lands* below).

(c) If the discovery is on private land, its disposition will still be subject to the authority of the appropriate state routing agency. Enbridge Environment will advise the state routing agency of the resource and provide information regarding its significance and condition and integrity (see *3.3 Public Lands Subject to State Routing Authority* below).

3.1 FEDERAL AGENCY JURISDICTION

(a) Enbridge Environment will notify the RFA of the resource and provide information regarding its significance and condition and integrity.

(b) Within 24 hours of notification, the RFA shall provide notice of the discovery to other parties who may wish to participate in consultation, including but not limited to the appropriate State Historic Preservation Office ("SHPO"), Native American tribal officials (as applicable), and private landowner(s).

(c) The RFA shall have 5 calendar days following notification to determine the discovery's eligibility for listing on the National Register of Historic Places ("NRHP") in consultation with the appropriate SHPO and other consulting parties. The RFA may extend the review period by an additional 7 calendar days by providing written notice to consulting parties prior to the expiration of the 5 day calendar period.

(d) For properties determined eligible for listing on the NRHP pursuant to (c) above, Enbridge Environment shall notify the RFA and other consulting parties of Enbridge's proposed treatment measures to resolve adverse effects to the discovered resource. The consulting parties shall comment on the proposed treatment measures within 48 hours. The RFA shall ensure that the recommendations of the consulting parties are considered prior to granting approval of Enbridge-proposed treatment measures. Once approval has been granted by the RFA, Enbridge Environment shall carry out the approved treatment measures and, after doing so, Enbridge may resume construction.

(e) In the event of any disagreements between the consulting parties regarding the NRHP eligibility of the newly discovered property or the treatment measures proposed to mitigate adverse effects to the property, the RFA shall seek and take into account the recommendations of the Advisory Council on Historic Preservation ("ACHP"). Within 48 hours of receipt of a request, ACHP shall provide the RFA with recommendations on how to resolve the dispute.

(f) If, after consultation, the RFA determines that the discovery does not represent an NRHP-eligible resource, the RFA will direct Enbridge Environment to resume ground-disturbing activities at the discovery location at its discretion.

3.2 STATE LANDS

(a) Enbridge Environment will notify the land-managing agency of the resource and provide information regarding its significance and integrity. If directed by the land-managing agency to do so, Enbridge Environment will advise the appropriate State Archaeologist.

(b) The land-managing agency will have 5 calendar days following notification to consult with the appropriate state archaeologist and other consulting parties, as necessary, about the assessment of the discovery. NPS criteria of eligibility for listing on the NRHP may be considered as a guideline to determine the significance of the find and SHPO may be consulted during the assessment, but the state agency is not obliged to apply NPS standards in making its decision. The land-managing agency may assume the resource is eligible for listing on the NRHP

while consultation occurs and may require avoidance, impact minimization, or mitigation.

(c) For properties determined eligible for listing on the NRHP, Enbridge Environment shall notify the land-managing agency and other consulting parties of the treatment measures it proposes for resolving adverse effects to the resource. The consulting parties shall provide their views on the proposed treatment measures to Enbridge Environment, the land-managing agency and other consulting parties within 48 hours. The land-managing agency shall ensure that the recommendations of the consulting parties are considered prior to granting approval of Enbridge's proposed treatment measures. Once approval has been granted by the land-managing agency, Enbridge Environment shall carry out the approved treatment measures and, after doing so, Enbridge may resume construction.

(d) If, after consultation, the land-managing agency determines that the discovery does not represent an NRHP-eligible or otherwise important resource, the land-managing agency will direct Enbridge Environment to resume ground-disturbing activities, at its discretion, at the discovery location.

3.3 PRIVATE LANDS SUBJECT TO STATE ROUTING AUTHORITY JURISDICTION

(a) Enbridge Environment will notify the state routing authority of the resource and provide information regarding its significance and integrity.

(b) Within 24 hours of notification, the state routing authority shall provide notice of the resource to other parties, including, but not limited to, the appropriate SHPO, the appropriate State Archaeologist, Native American tribal officials (as applicable), and private landowner(s).

(c) The state routing authority will have 5 calendar days following notification to consult with the appropriate SHPO and other consulting parties, as necessary, about assessing the discovery. Criteria for eligibility for listing on the NRHP may be considered as a guideline to determine the significance of the find and SHPO may be consulted during the assessment, but the state routing authority is not obliged to apply the standards in making its decision. The state routing authority may assume the resource is eligible for listing on the NRHP while consultation occurs and may require avoidance, impact minimization, or mitigation.

(d) For properties eligible for listing on the NRHP, Enbridge Environment shall notify the state routing authority and other consulting parties of the treatment measures it proposes to resolve impacts to the resource. The consulting parties shall provide their views on the proposed treatment measures within 48 hours. The state routing authority shall ensure that the recommendations of the consulting parties are considered prior to granting approval of Enbridge's proposed treatment measures. Once approval has been granted by the state routing authority, Enbridge Environment shall carry out the approved treatment measures and, after doing so, Enbridge may resume construction.

(e) If, after consultation, the state routing authority determines that the discovery does not represent an NRHP-eligible or otherwise important resource, the state routing authority will direct Enbridge Environment to resume ground-disturbing activities, at its discretion, at the discovery location.

4.0 DISCOVERY OF HUMAN SKELETAL REMAINS

1. When unmarked human burial or skeletal remains are encountered during construction activities, Enbridge will comply with all applicable laws, specifically:

   - North Dakota's "Protection of human remains and burial goods – Unlawful acts – Penalties – Exceptions" law (North Dakota Century Code ["NDCC"] §23-06-27) and its accompanying administrative rules (North Dakota Administrative Code ["NDAC"] §40-02-03);

   - Minnesota's "Private Cemeteries Act" (Minnesota Statute ["MS"] §307.08); and

   - Wisconsin Statute §157.70. In Wisconsin, in the case of accidental discoveries, state law does not distinguish between historic or prehistoric burials in the requirements for initial notifications or disinterment.

2. In the event a human burial or skeletal remains are encountered during ground-disturbing construction activity, Enbridge Environment will implement the following notification procedures:

   (i.) North Dakota – notify the local law enforcement agency (county sheriff) and the State Historical Society of North Dakota as required by NDCC §23-06-27. Pursuant to NDAC §40-02-03-03, upon receiving notification of the discovery of human skeletal remains, a human burial, or burial goods, the local law enforcement agency shall, as soon as practicable, report the receipt of such notification to State Historical Society of North Dakota and the North Dakota State Department of Health and Consolidated Laboratories. These two state agencies shall commence the initial examination of the discovery within 24 hours of notification.

   (ii.) Minnesota – notify the local law enforcement agency (county sheriff). As required by MS §307.08 Enbridge Environment will also notify the Office of the State Archaeologist of the find.

   (iii.) Wisconsin – notify the local law enforcement agency (county sheriff) and SHPO as stipulated by Wisconsin Statute §157.70.

3. Enbridge Environment also shall promptly notify the RFA, land-managing agency, or state routing authority of the find and consult regarding the appropriate measures to handle the discovery.

After permission to resume construction has been issued by the RFA, land-managing agency, or state routing authority, Enbridge's lead EI will advise the on-site construction manager to restart ground-disturbing activities.

Appendix A
Contact Lists – North Dakota, Minnesota, and Wisconsin

Contact Lists North Dakota, Minnesota, and Wisconsin		
State/County	Contact	Address/Telephone
NORTH DAKOTA	TBD, Lead Environmental Inspector	Cellphone: TBD E-mail: TBD
	Merlan E. Paaverud, Jr., Director/SHPO	State Historical Society of North Dakota 612 East Boulevard Avenue Bismarck, ND 58505-0830 Telephone: (701) 328-2672 Fax: (701) 328-3710 E-mail: mpaaverud@nd.gov
	Edward C. Murphy, State Geologist	North Dakota Industrial Commission, Department of Mineral Resources, North Dakota Geological Survey 1016 East Calgary Ave. Bismarck, ND 58503 Telephone: (701) 328-8000
Williams County	Scott Busching, County Sheriff	223 East Broadway, Suite 301 Williston, ND 58801 Telephone: (701) 577-7700
Mountrail County	Kenneth Halvorson, County Sheriff	101 N Main St Stanley, ND 58784 Telephone: (701) 628-2975
Ward County	Steve Kukowski, County Sheriff	315 SE 3rd Street PO Box 907 Minot, ND 58702 Telephone: (701) 857-6500
McHenry County	Marvin Sola, County Sheriff	407 Main Street South, Room 303 Towner, ND 58788 Telephone: (701) 537-5633
Pierce County	Matt Lunde, County Sheriff	110 Industrial Park Road Rugby, ND 58368-0226 Telephone: (701) 776-5245
Towner County	Vaughn Klier, County Sheriff	315 2nd Street PO Box 366 Cando, ND 58324-0603 Telephone: (701) 968-4350
Ramsey County	Steve Nelson, County Sheriff	222 W Walnut Devils Lake, ND 58301-3596 Telephone: (701) 662-0708
Nelson County	Kelly Janke, County Sheriff	210 B Ave W Ste 102 Lakota, ND 58344-7410 Telephone: (701) 247-2475
Grand Forks County	Bob Rost, County Sheriff	122 South 5th Street Suite 210 PO Box 12608 Grand Forks, ND 58208-2608 Telephone: (701) 780-8280

Contact Lists North Dakota, Minnesota, and Wisconsin		
State/County	Contact	Address/Telephone
MINNESOTA	TBD, Lead Environmental Inspector	Cellphone: TBD E-mail: TBD
	TBD, SHPO	Minnesota State Historic Preservation Office Minnesota Historical Society 345 Kellogg Boulevard West St. Paul, MN 55102-1903 Telephone: TBD E-mail: TBD
	Scott Anfinson, Minnesota State Archaeologist	Office of the State Archaeologist Fort Snelling History Center 200 Tower Avenue St. Paul, MN 55111 Telephone: (612) 725-2411 E-mail: scott.anfinson@state.mn.us
	Jim L. Jones, Jr., Cultural Resource Director	Minnesota Indian Affairs Council 3801 Bemidji Avenue, Suite 5 Bemidji, MN 56601 Telephone: (218) 755-3825
	Harvey Thorleifson, Director	Minnesota Geological Survey 2642 University Ave. St. Paul, MN 55114-1057 Telephone: (612) 627-4780, ext. 224
Polk County	Barb Erdman, County Sheriff	600 Bruce Street P.O. Box 416 Crookston, MN 56716 Telephone: (218) 281-0431
Red Lake County	Mitch Bernstein, County Sheriff	124 Langevin Avenue, PO Box 367 Red Lake Falls, MN 56750 Telephone: (218) 253-2996
Clearwater County	Mike Erickson, County Sheriff	213 Main Avenue North Bagley, MN 56621 Telephone: (218) 694-6226
Hubbard County	Cory Aukes, County Sheriff	301 Court Ave. Park Rapids, MN 56470 Telephone: (218) 737-3331
Becker County	Kelly Shannon, County Sheriff	925 Lake Ave. Detroit Lakes, MN 56501 Telephone: (218) 847-2661
Wadena County	Mike Carr, County Sheriff	415 So Jefferson St Wadena, MN 56482 Telephone: (218) 631-7600
Cass County	Tom Burch, County Sheriff	303 Minnesota Avenue Walker, MN 56484 Telephone: (218) 547-1424, ext. 309
Crow Wing County	Todd Dahl, County Sheriff	304 Laurel St. Brainerd, MN 56401 Telephone: (218) 829-4749
Aitkin County	Scott Turner, County Sheriff	217 2nd St. NW, Room 185 Aitkin, MN 56431 Telephone: (218) 927-7435

Contact Lists North Dakota, Minnesota, and Wisconsin		
State/County	Contact	Address/Telephone
Carlton County	Kelly Lake, County Sheriff	317 Walnut Avenue Carlton, MN 55718 Telephone: (218) 384-3236

Contact Lists North Dakota, Minnesota, and Wisconsin		
State/County	Contact	Address/Telephone
WISCONSIN	TBD, Lead Environmental Inspector	Cellphone: TBD E-mail: TBD
	Sherman Banker, SHPO	Wisconsin Historical Society, Division of Historic Preservation 816 State Street Madison, WI 53706-1488 Telephone: (608) 264-6500
	James M. Robertson, State Geologist	Wisconsin Geological and Natural History Survey 3817 Mineral Point Road Madison, WI 53705-5100 Telephone: (608) 262-1705
Douglas County	Tom Dalbec, County Sheriff	1316 North 14th Street Superior, WI 54880 Telephone: (715) 395-1371

North Dakota Pipeline Company LLC **Exhibit L**
North Dakota PSC Application
Docket No. PU-13-848

List of Structures within 500 feet of the Sandpiper Centerline
Begins at Beaver Lodge Station near Tioga, ND and ends at Grand Forks, ND

Waiver	County	TractName	Feature Near ROW	Distance from Centerline	Notes on Tract
1	Williams	ND-WI-008.300	House	431'	
2	Mountrail	ND-MO-017.000	Barn/House	465'	
3	Mountrail	ND-MO-019.000	House	413'	
4	Mountrail	ND-MO-024.100	House	297'	
	Mountrail	ND-MO-032.000	House	~~462'~~ 566'	Route Adjustment - waiver no longer needed
5	Mountrail	ND-MO-056.220	House	492'	
6	Mountrail	ND-MO-077.100	House	418'	
7	Mountrail	ND-MO-103.100	House	460'	
8	Mountrail	ND-MO-105.000	House	338'	
9	Ward	ND-WA-063.300	Barn/House	412'	
10	Ward	ND-WA-098.200	House	218'	
11	Ward	ND-WA-099.210	House	240'	
12	McHenry	ND-MC-017.000	House	449'	
13	McHenry	ND-MC-043.200	House	265'	
	McHenry	ND-MC-048.000	House	~~368'~~ 730'	Route Adjustment - waiver no longer needed
14	McHenry	ND-MC-069.200	House	330'	
15	Pierce	ND-PI-014.310	House	462'	
16	Pierce	ND-PI-026.210	House	359'	
17	Pierce	ND-PI-028.200.100	House	206'	
18	Pierce	ND-PI-089.310	House	401'	
19	Towner	ND-TO-004.200	House	494'	
20	Towner	ND-TO-005.200	House	290'	
21	Towner	ND-TO-026.200	House	427'	
22	Ramsey	ND-RA-054.210	House	435'	
23	Ramsey	ND-RA-061.000	House	217'	
24	Nelson	ND-NE-036.000	House	204'	
25	GrandForks	ND-GR-032.300	House	365'	
26	GrandForks	ND-GR-033.000	House	434'	
27	GrandForks	ND-GR-033.300	House	232'	
28	GrandForks	ND-GR-033.310	House	404'	
	GrandForks	ND-GR-035.305	House	~~489'~~ 528'	Route Adjustment - waiver no longer needed
	GrandForks	ND-GR-036.320	House	~~347'~~ 638'	Route Adjustment - waiver no longer needed
29	GrandForks	ND-GR-058.200	House	391'	
30	GrandForks	ND-GR-097.000	House	427'	
31	GrandForks	ND-GR-099.000	House	311'	
32	GrandForks	ND-GR-100.300	House	311'	
	GrandForks	ND-GR-106.525	House	495'	No Waiver Needed--Not Habitable

North Dakota Pipeline Company LLC
List of Additional Structures within 500 feet of the Sandpiper Centerline due to Route Adjustments

Map	County	TractName	Feature Near ROW	Distance from Centerline	Notes on Tract
33	Williams	ND-WI-004.000	Business	65'	
34	Mountrail	ND-MO-090.100	Business	118'	
35	Ward	ND-WA-021-100	Business	100'	
36	Ward	ND-WA-086.200	House	400'	
37	Nelson	ND-NE-061.000	Barn	415'	
38	Grand Forks	ND-GR-039.300	Business	450'	

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5855
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Harlan T. and Ashley M. Johnson
10159 60TH Street Northwest
Tioga, North Dakota 58852

SUBJECT/RE: Parcel ID 13156950034033

Dear Harlan T. and Ashley M. Johnson:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

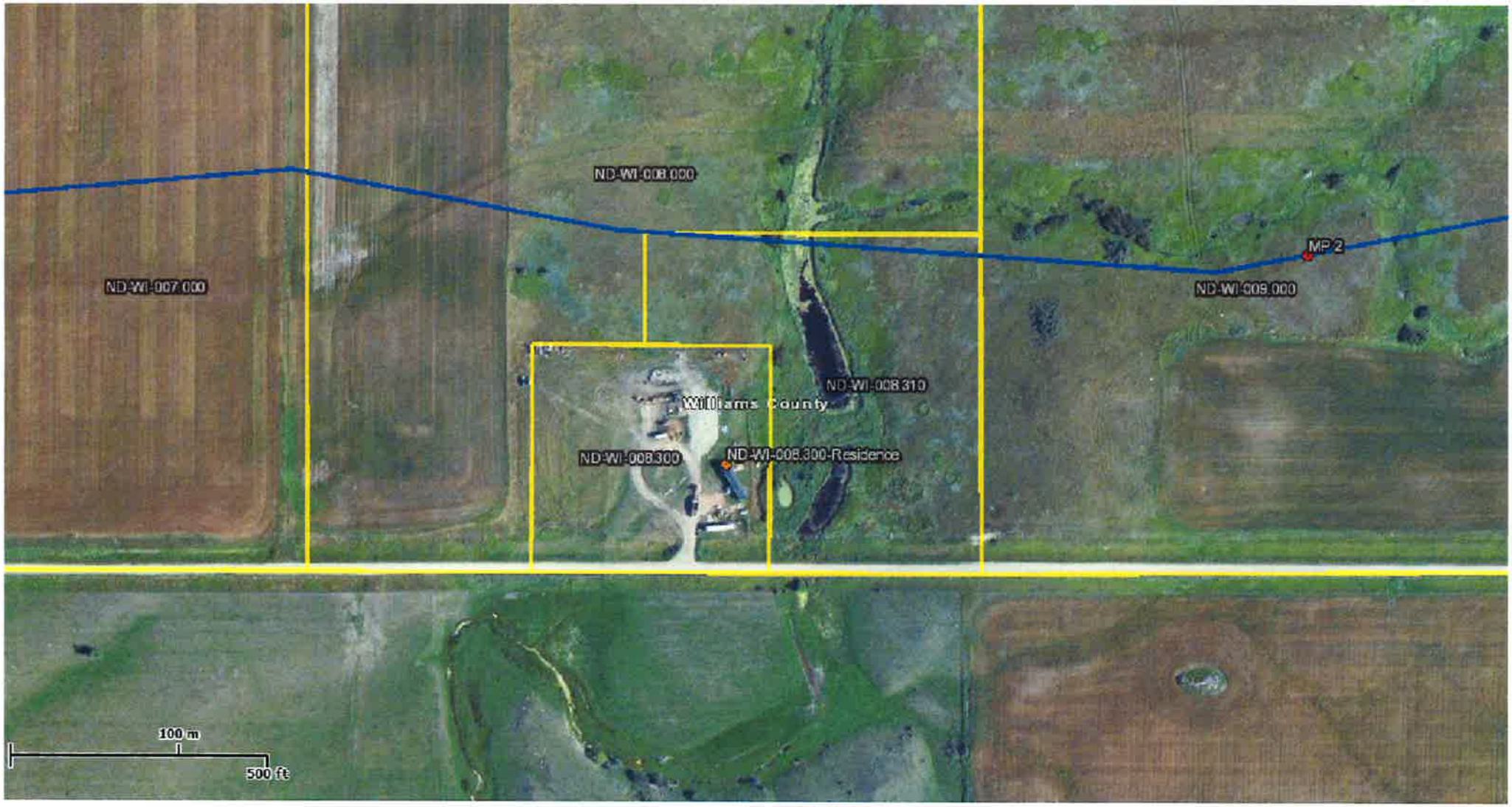
Harlan T. Johnson

11-16-13
Date

Ashley M. Johnson

Date

ND-WI-008.300



CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 04:01:31 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr. Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

October 8, 2013

Gene and Patricia Brown
9561 61ST Street Northwest
Ross, North Dakota 58776-9042

SUBJECT/RE: Parcel ID 20-0017300

Dear Gene and Patricia Brown,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

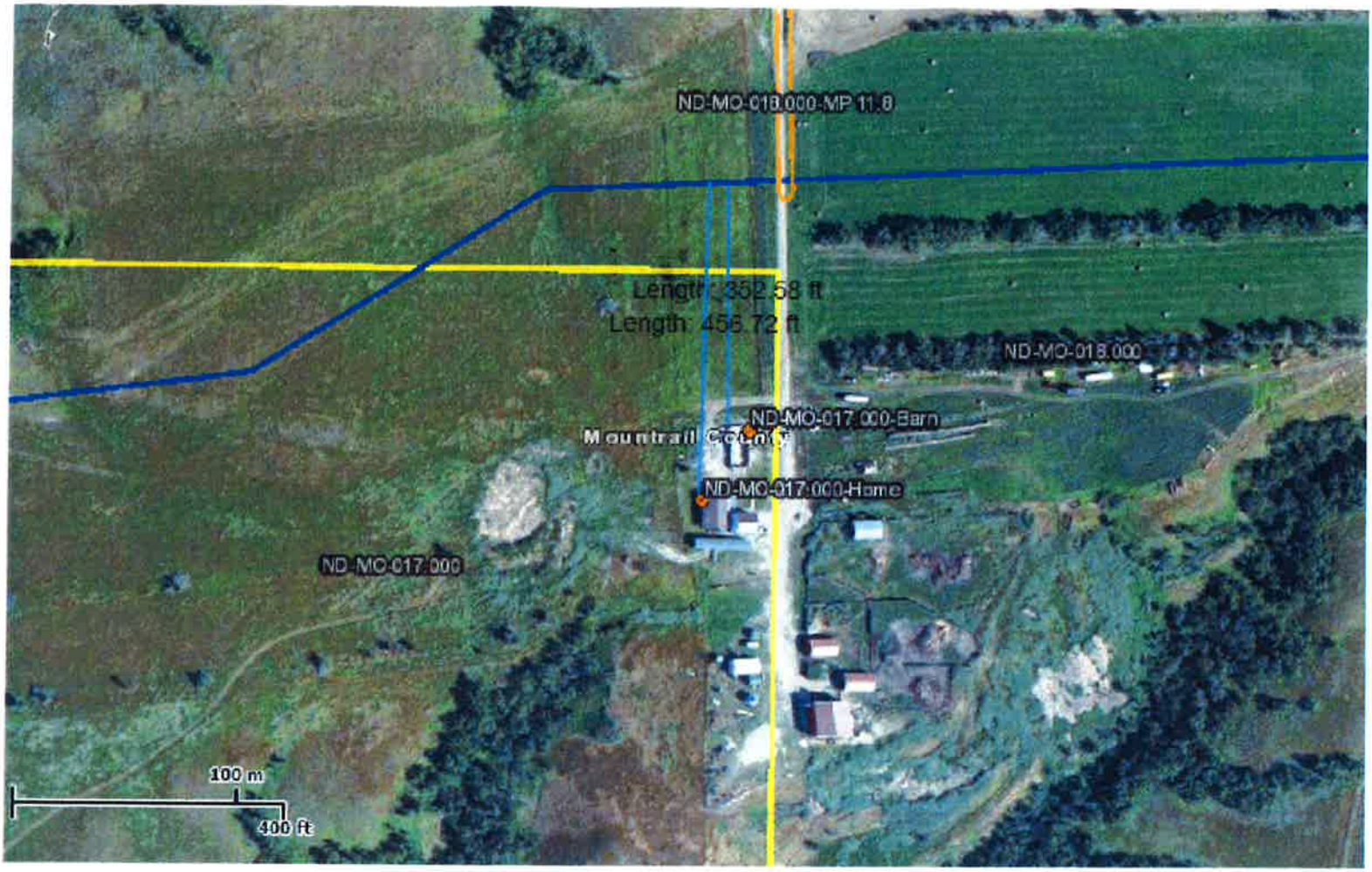
Attachment

Gene Brown
Gene Brown

11-18-2013
Date

Patricia Brown
Patricia Brown

11-18-2013
Date


ND-MO-018.000-MP 11.8
Length: 352.58 ft
Length: 456.72 ft
ND-MO-018.000
ND-MO-017.000-Barn
Mountrail County
ND-MO-017.000-Home
ND-MO-017.000
100 m
400 ft

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Shawn Iwen
55 Cottonwood Spring Road
Columbus, Montana 59019-7454

SUBJECT/RE: Parcel ID 200017400

Dear Shawn Iwen:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

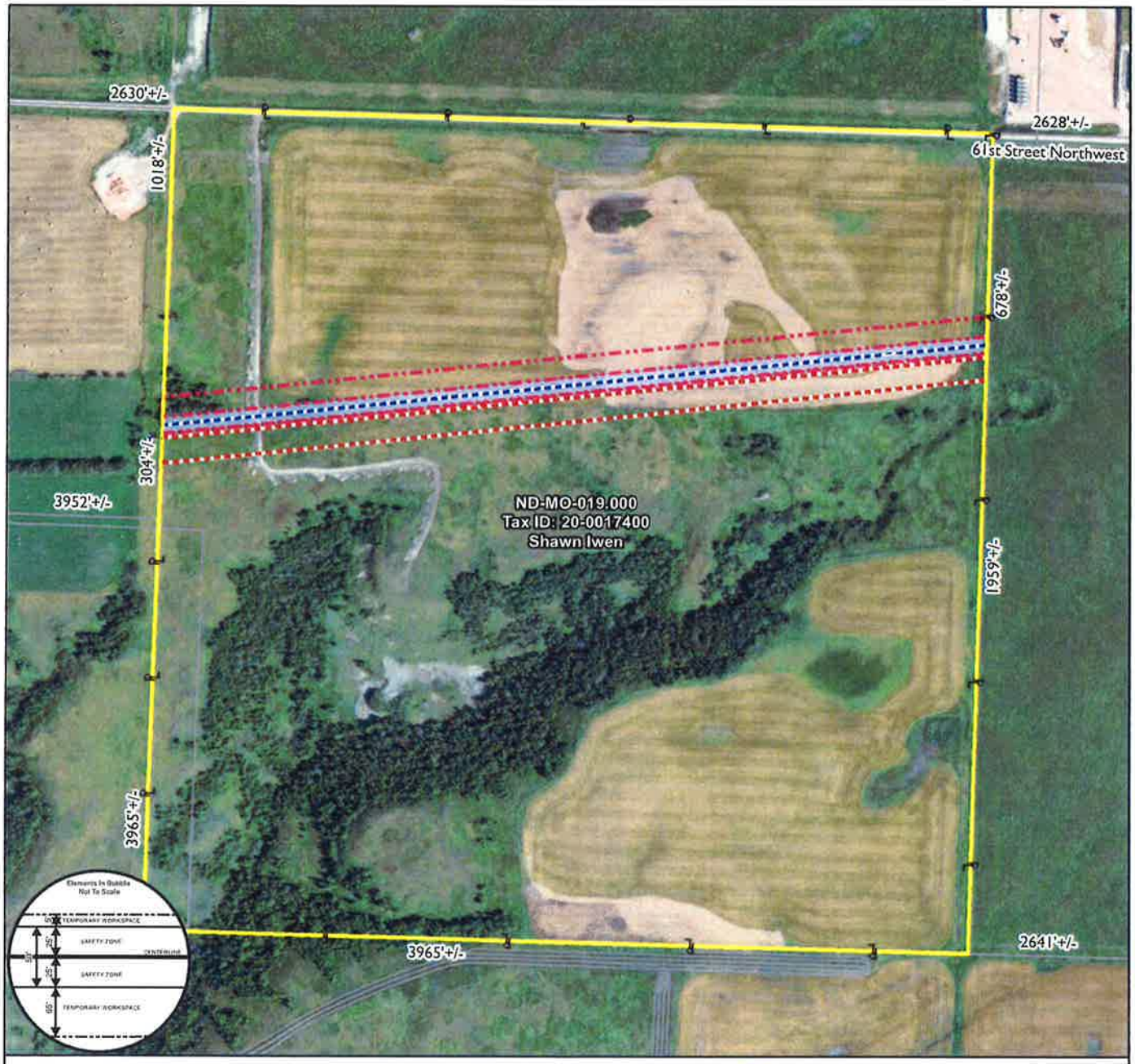
Trevor Seely

Attachment

Shawn Iwen

11-14-13
Date

EXHIBIT "A", Page 2
Shawn Iwen



2655.35 Feet = 160.93 Rods
Safety Zone = 3.05 Acres
Temporary Workspace = 4.27 Acres
Additional Temporary Workspace = 0.00 Acres

ENBRIDGE

1 in = 480 ft

0 0.05 0.1 0.2 Miles

Proposed Pipeline
Existing Pipeline
Safety Zone
TWS
ATWS
Property Boundaries

This is not a survey product. This should not be used for authoritative definition of legal boundary, or property title.

Proposed Pipeline Easement Across:
Shawn Iwen

Tract No.: ND-MO-019.000

PDF NAME: ACQMap_Sandpiper_ND-MO-019.000_11122013.pdf

Date Exported: Tuesday, November 12, 2013 1:22:46 PM

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 8, 2013

Michael R. Addicott
8094 60th ST NW
Stanley, North Dakota 58784

SUBJECT/RE: Parcel ID 20-0018401

Dear Michael R. Addicott:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Michael R. Addicott

Date 11/09/13

CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:37:59 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

January 8, 2014

Eighty Eight Oil, LLC
455 North Poplar
Casper, Wyoming 82602

SUBJECT/RE: Parcel ID 42000008424000

Dear Eighty Eight Oil, LLC,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Eighty Eight Oil, LLC

1-27-14
Date

Print Name and Position

© 2013 Google
Google earth

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Tilman L. and Svea Jones, Trustees
Tilman L. Jones and Svea Jones Living Trust
PO Box 591
Stanley, ND 58784-0591

SUBJECT/RE: Parcel ID 16-0010301

Dear Tilman L. and Svea Jones, Trustees, Tilman L. Jones and Svea Jones Living Trust:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

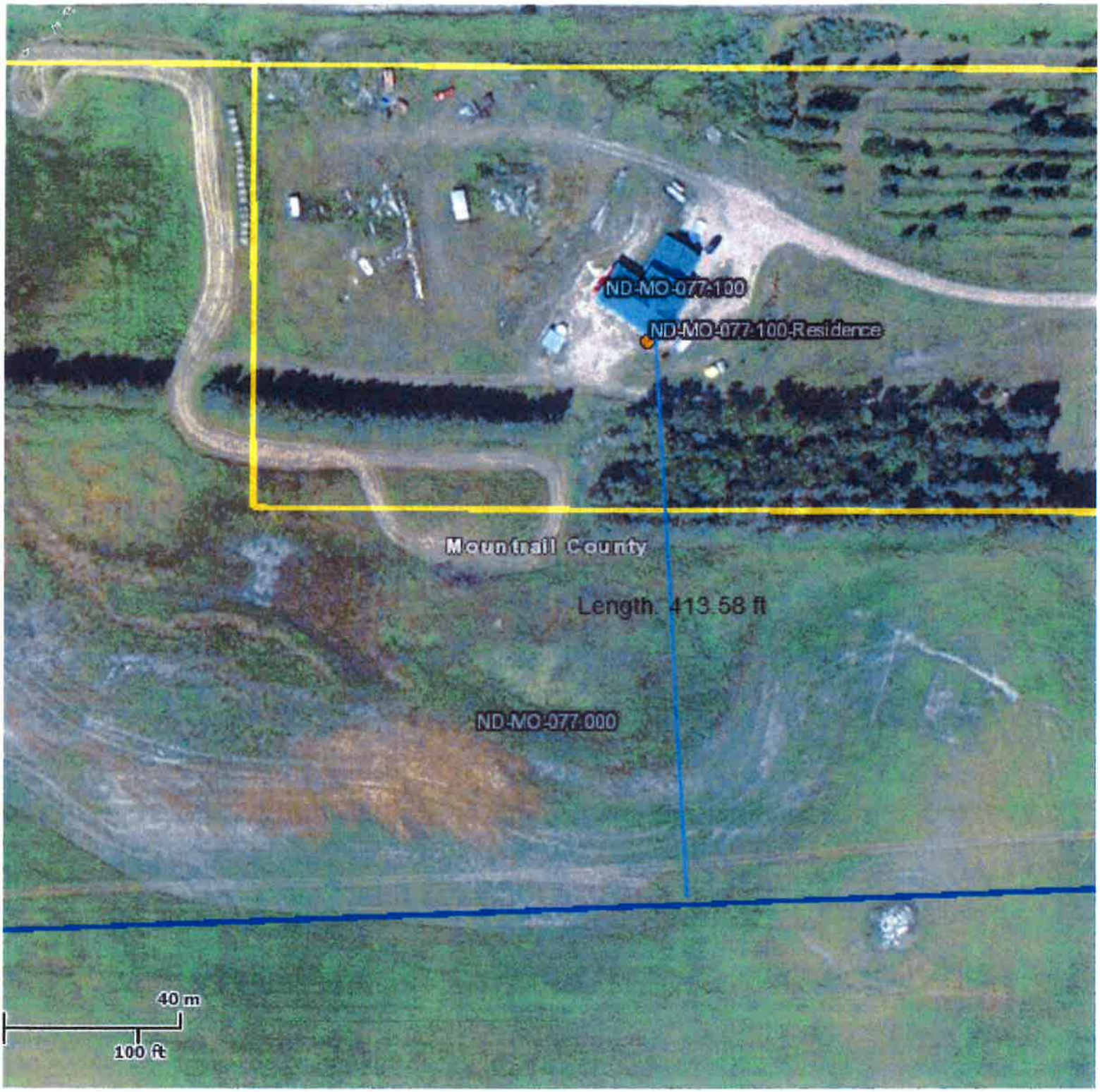
Attachment

Tilman L. Jones

Svea Jones

11/14/13
Date

11/14/13
Date


ND-MO-077-100
ND-MO-077-100-Residence
Mountrail County
Length: 413.58 ft
ND-MO-077-000
40 m
100 ft

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

December 5, 2013

Phillip Ennis
615 34th Av SW Unit B
Minot, North Dakota 58701

SUBJECT/RE: Parcel ID 15-0013701

Dear Phillip Ennis:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

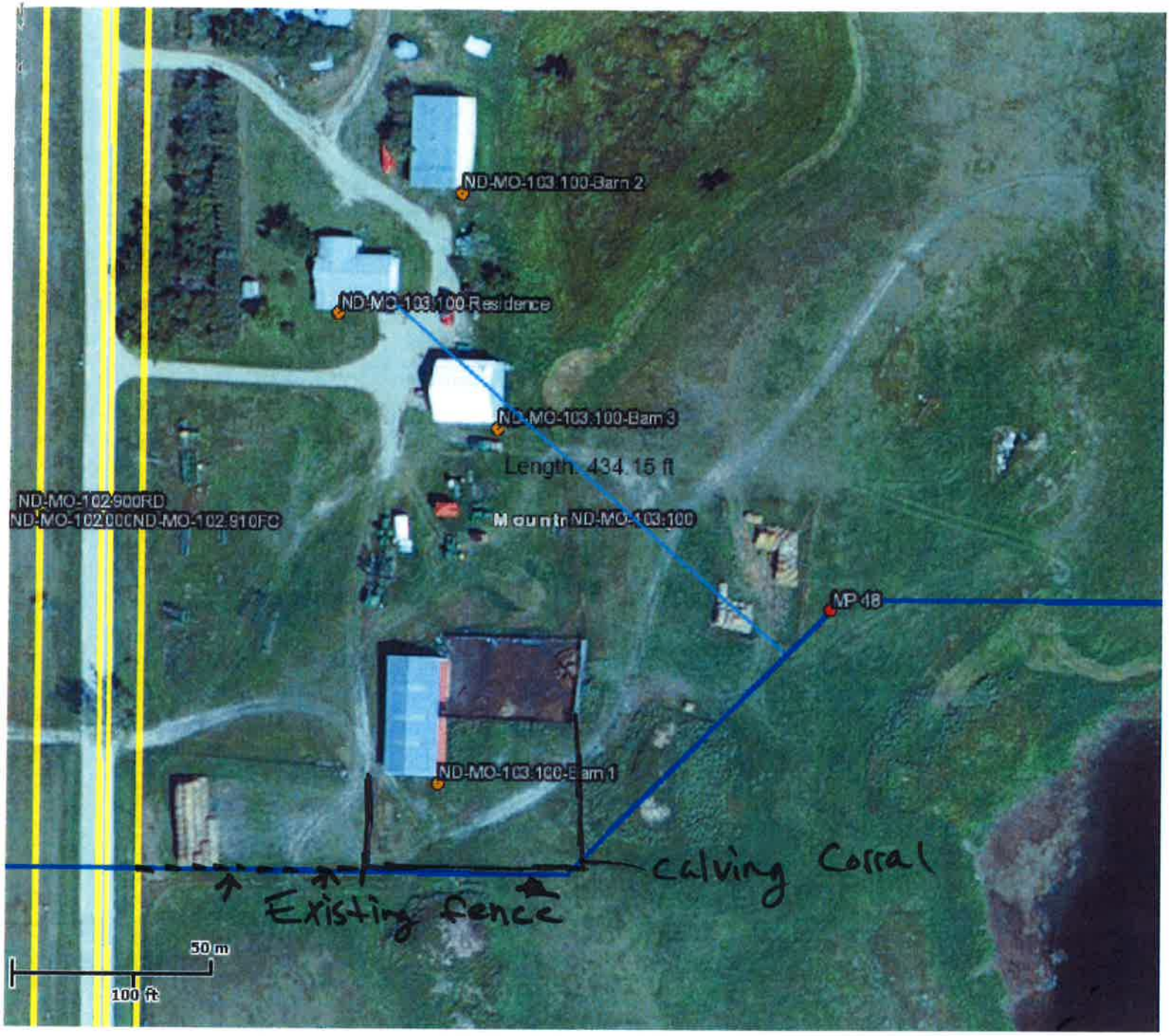
Sincerely,

Trevor Seely

Attachment

Phillip Ennis

12/13/13
Date



missil cable

3'- 4' deep posts..

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

October 8, 2013

Harlan and Sharon M. Ulberg
6235 60TH Avenue Northwest
Berthold, North Dakota 58718-9043

SUBJECT/RE: Parcel ID 15-0013900

Dear Harlan and Sharon M. Ulberg,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

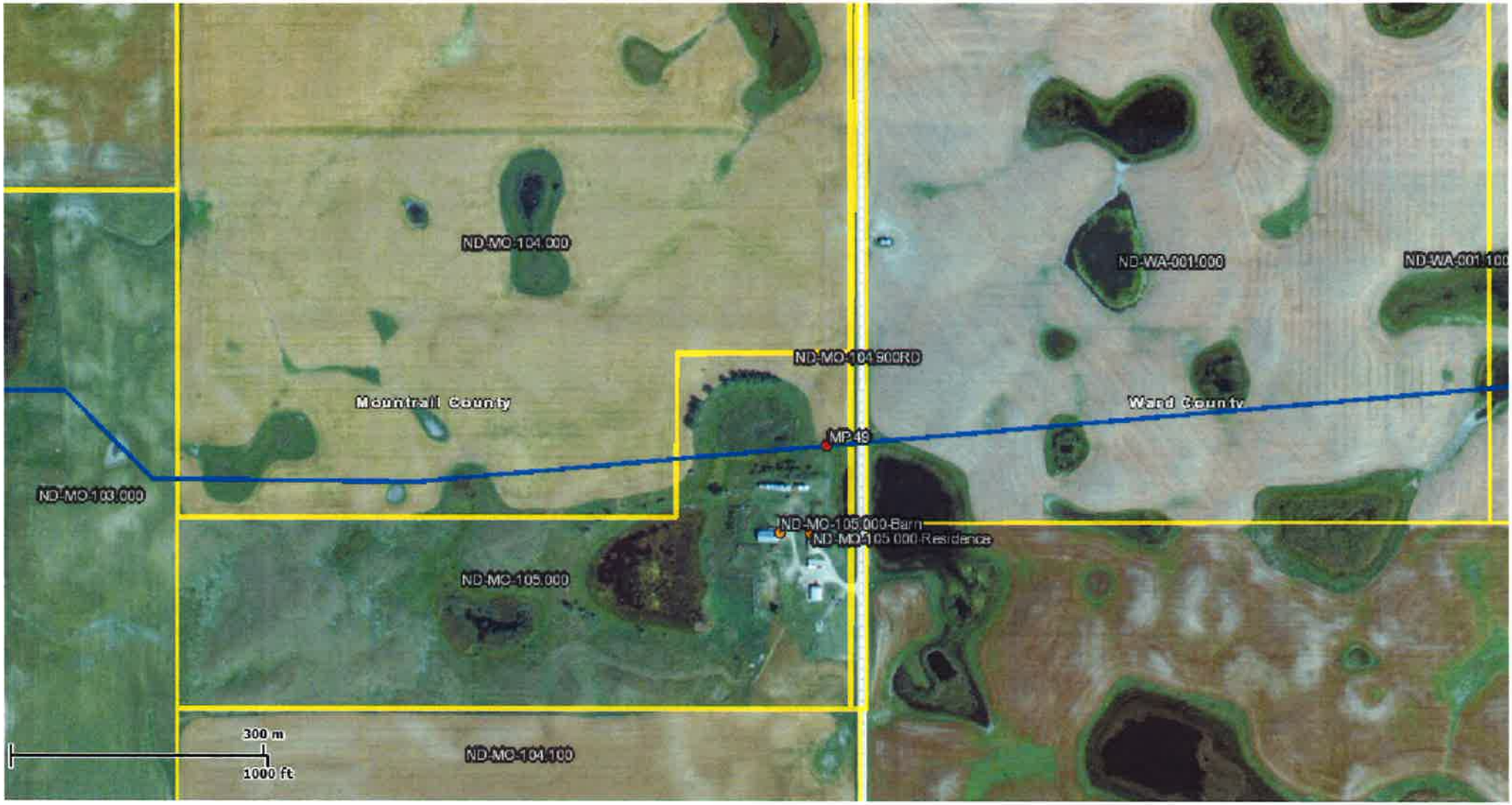
Harlan Ulberg

Sharon M. Ulberg

10/21/13
Date

10/21/13
Date

ND-MO-105.000



CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 03:40:21 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Dennis M. Steen and Schannan K. Oen
12771 62ND Street Northwest
Minot, North Dakota 58703

SUBJECT/RE: Parcel ID EE060990000020

Dear Dennis M. Steen and Schannon K. Oen,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

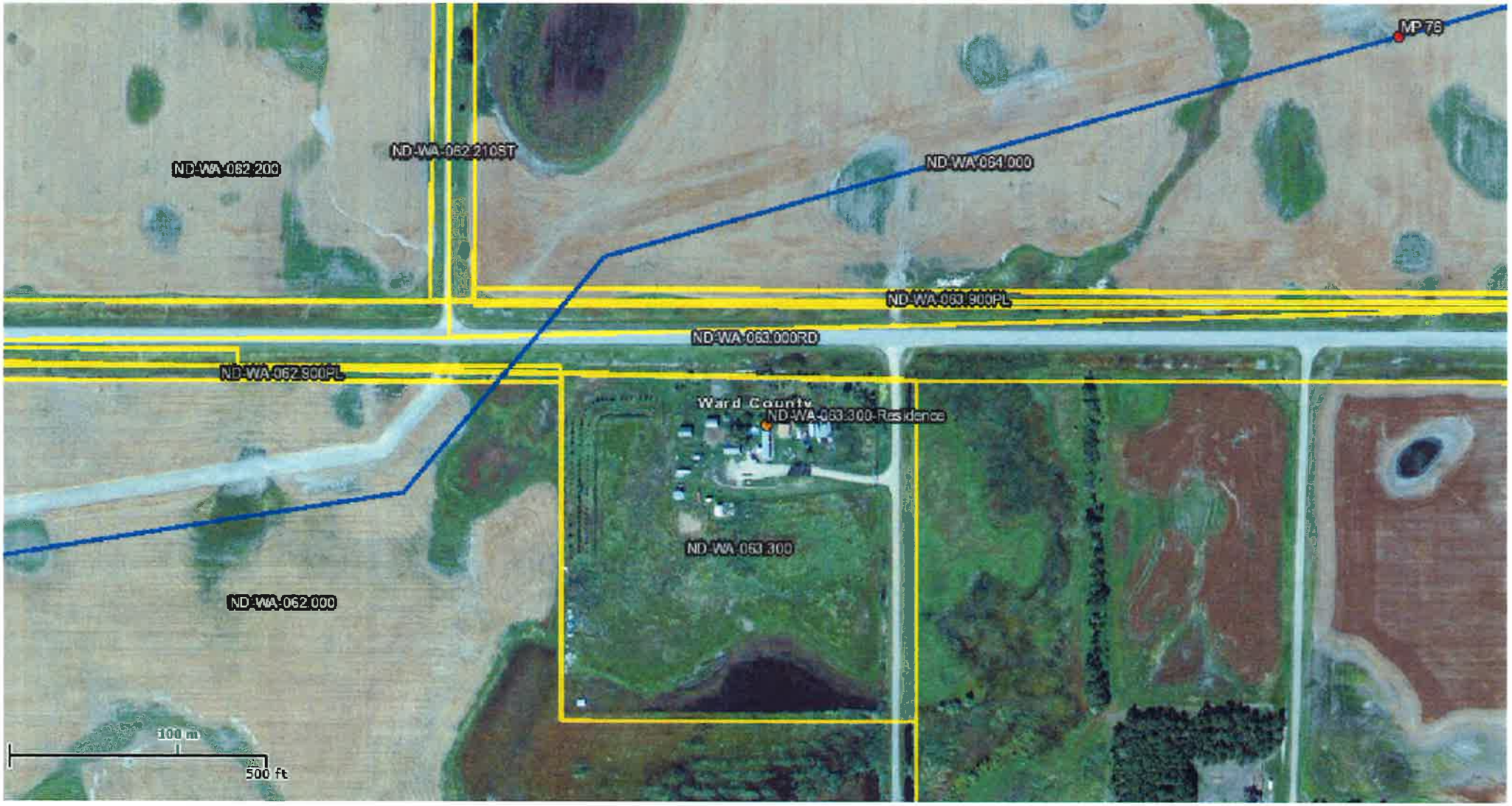
Sincerely,

Trevor Seely

Attachment

Dennis M. Steen — Date 11/12/13

Schannon K. Oen — Date 11/12/13



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:59:24 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Jeanette Varberg
9248 28TH Avenue Southwest
Apt. #207
Minot, North Dakota 58701

SUBJECT/RE: Parcel ID MG230030000000

Dear Ms. Varberg,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Jeanette Varberg

Date 12/24 - 13

ND-WA-098.200

Generated by CamScanner from intsig.com

ND-WA-098.200-Residence
ND-WA-098.200-Barn
MP 89
Ward County
Unknow
ND-WA-098.900PL
ND-WA-097.900ST
Margaret Township, Ward County
ND-WA-098.000
Jeanette Varberg
Jerold Miller
ND-WA-099

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

William L. and Glenna D. Thomas
13821 156TH Avenue Northeast
Deering, North Dakota 58731

SUBJECT/RE: Parcel ID MG230990000010

Dear Mr. and Mrs. Thomas,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

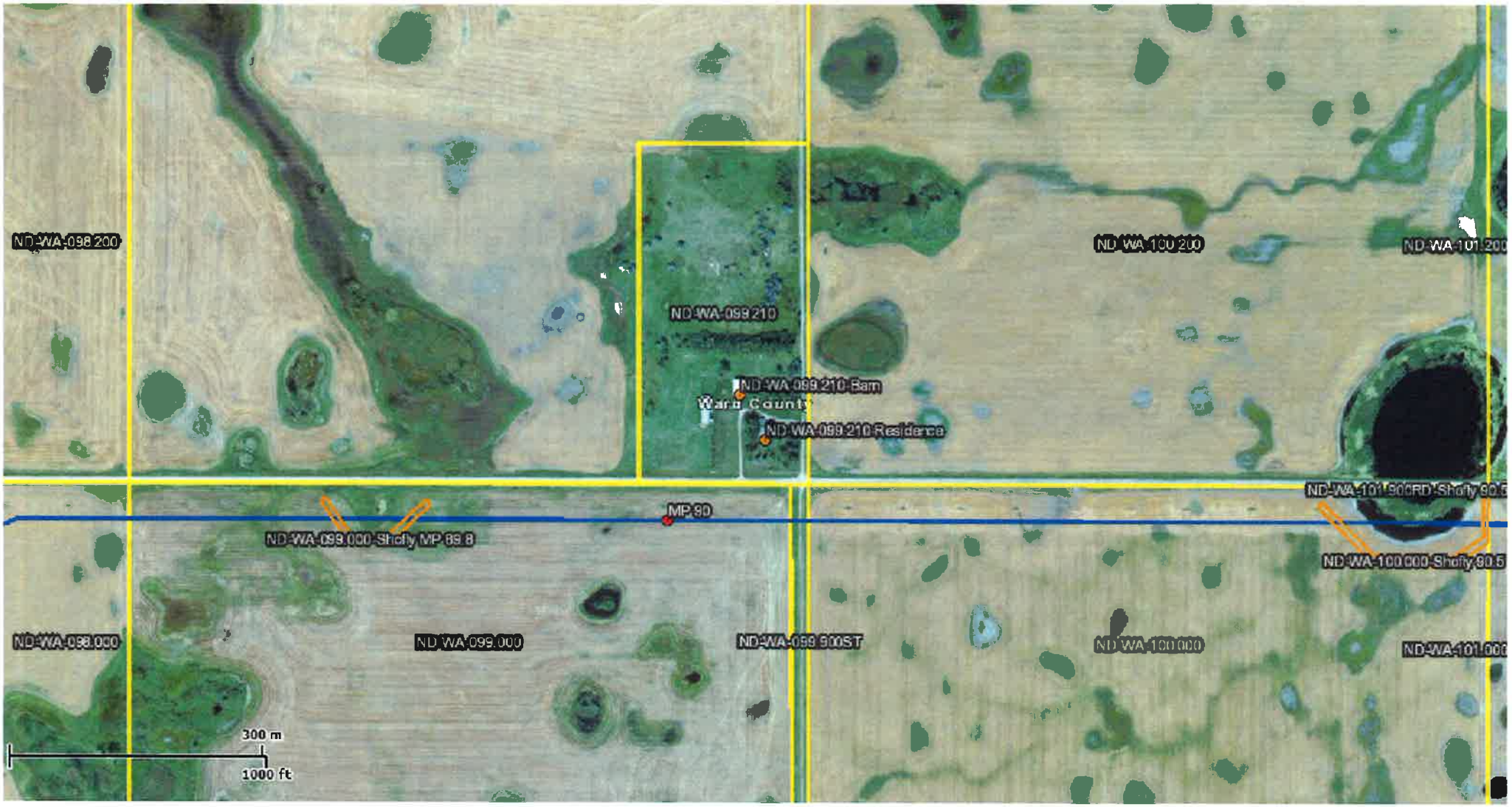
Trevor Seely

Attachment

William L. Thomas — Date 11-11-13

Glenna D. Thomas — Date 11-11-13

ND-WA-099.210



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:40:31 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 5, 2013

David-Darwin-Dominic Nickle
and Karen Nickle Family Trust
6718 17TH Avenue North
Deering, North Dakota 58731

SUBJECT/RE: Parcel ID 3700007590000

Dear Landowners:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Deceased
Karen C. Nickle Family Trust

Date

David C. M. Nickle Jr
David C. Nickle

11-12-2013
Date

ND-MC-017.000

Darwin C. Nickle

11-12-13
Date

Dominic C. Nickle

11-11-2013
Date

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:34:50 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Paula Genetzky
C/O Genetzky Family Trust
341 68TH Street North
Towner, North Dakota 58788-8971

SUBJECT/RE: Parcel ID 40000008078000

Dear Genetzky Family Trust,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Paula Genetzky Trustee
Genetzky Family Trust

11-15-13
Date

Paula Genetzky
Paula Genetzky

11-15-13
Date

ND-MC-043.200

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:35:21 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 12, 2013

Donald O. and Kathryn M. Sveund
561 68TH Street Northeast
Towner, North Dakota 58788

SUBJECT/RE: Parcel ID 41000008262002

Dear Donald O. and Kathryn M. Sveund,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Donald O Sveund
Donald O. Sveund

11-15-2013
Date

Kathryn M Sveund
Kathryn M. Sveund

11-15-2013
Date

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:35:46 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Melvin Schumacker
68TH Street Northeast
Rugby, North Dakota 58368

SUBJECT/RE: Parcel ID 01358001

Dear Mr. Schumacker,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

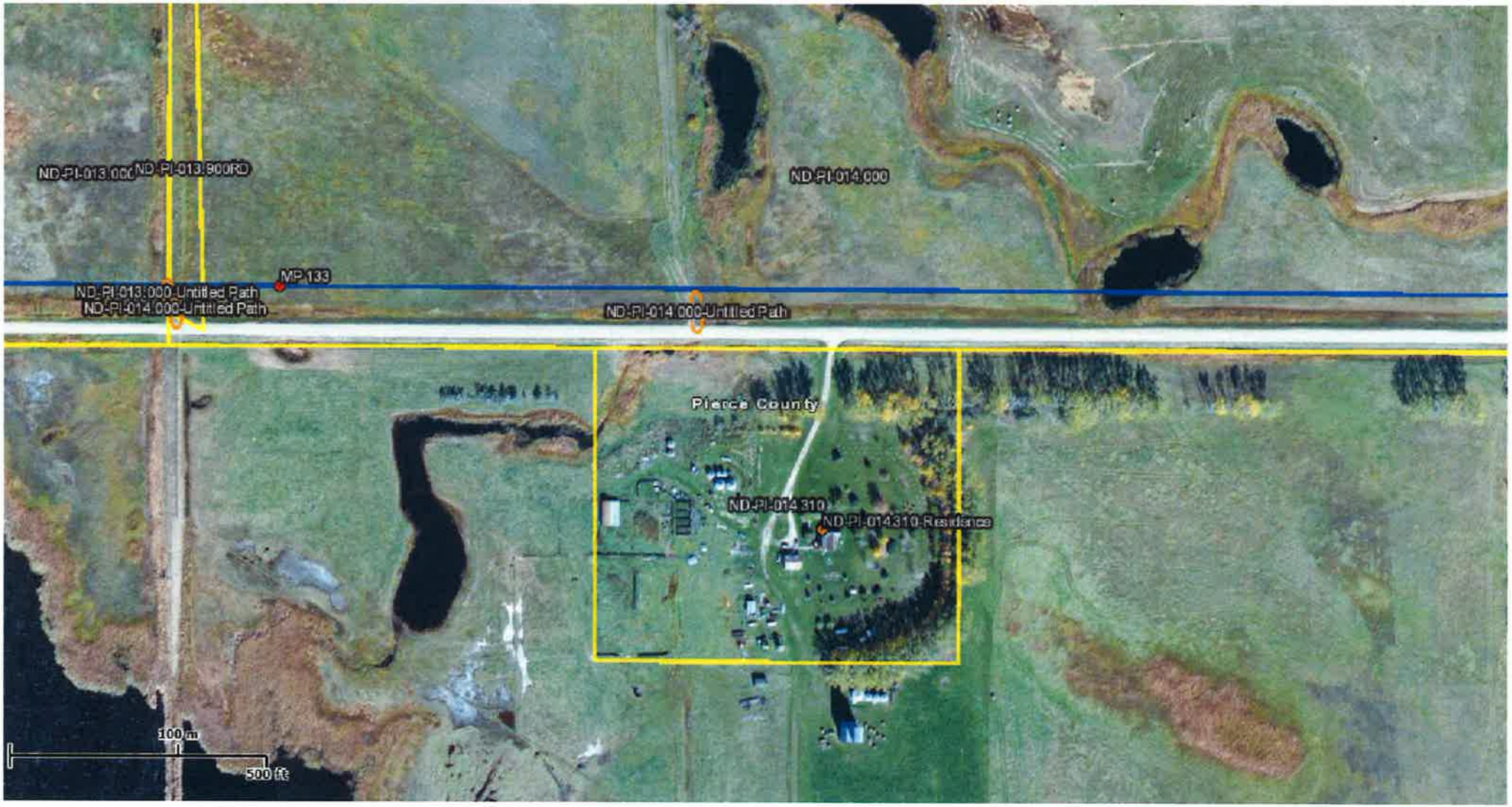
Attachment

Melvin Schumacker

Melvin Schumacker

11/14/13
Date

ND-PI-014.310



CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:44:11 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 20, 2013

Patricia M. Kuhnhenn
6811 HWY 3 North
Rugby, North Dakota 58368

SUBJECT/RE: Parcel ID 01552001

Dear Ms. Kuhnhenn,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

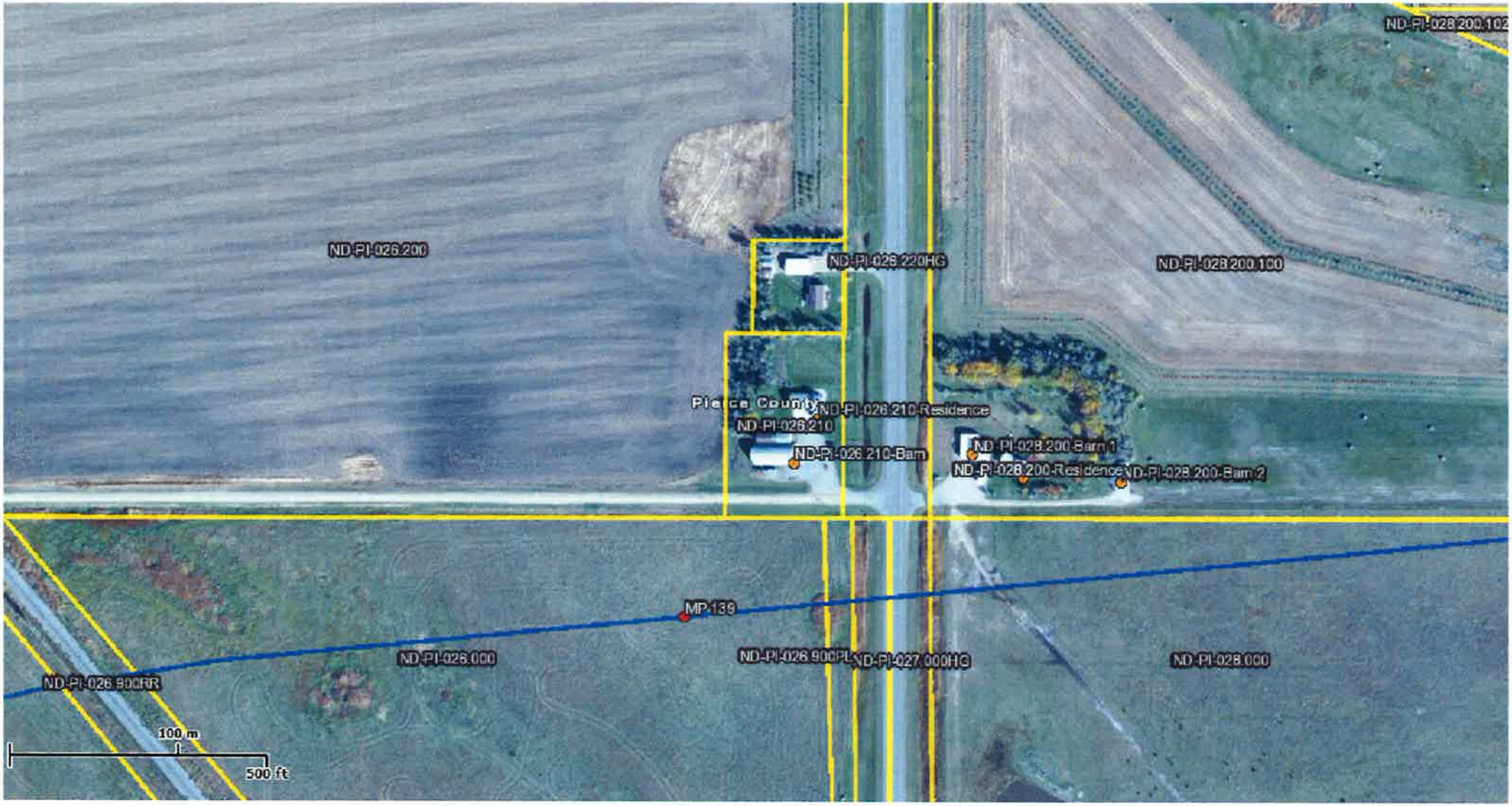
Sincerely,

Trevor Seely

Attachment

Patricia M Kuhnhenn
Patricia M. Kuhnhenn

11-20-13
Date



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 03:48:03 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Bob Deb
~~Marty~~ and ~~Janel~~ Schmaltz
~~3071 69th St. N.E.~~ 6810 Hwy 3N
Rugby, ND 58368

SUBJECT/RE: Parcel ID 01558000

Bob Deb
Dear ~~Marty~~ and ~~Janel~~ Schmaltz:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

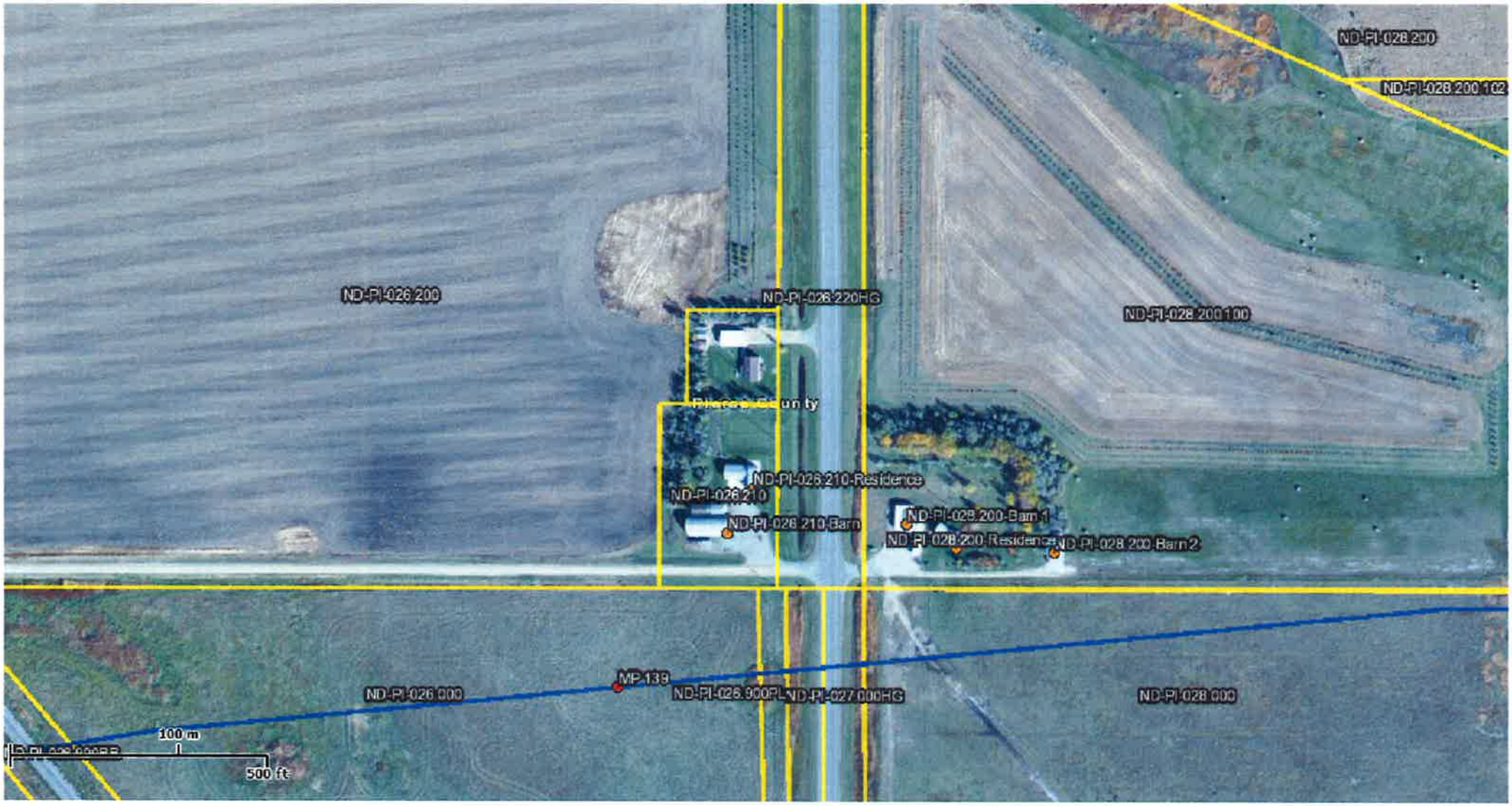
Attachment

Robert J. Schmaltz
~~Marty~~ Schmaltz
Robert J

11. 18. 2013
Date

Debra J. Schmaltz
~~Janel~~ Schmaltz
Debra J.

11-18-2013
Date



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:44:56 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Terry and Janelle Engstrom
5281 69TH Street Northeast
York, North Dakota 58386

SUBJECT/RE: Parcel ID 02415000

Dear Terry and Janelle Engstrom,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Terry Engstrom — Date: 11-14-13

Janelle Engstrom — Date: 11-14-13

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:51:44 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 25, 2013

Helen Carlson
PO BOX 108
Leeds, ND 58346

<SUBJECT/RE: Parcel ID 10000000581000>

Dear Helen Carlson:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Helen Carlson — Date: 11/27/2013

Spouse; Sherwin Carlson — Date: 11-27-13

ND-TO-004.200

TO-002

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:56:19 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 14, 2013

Arnold C. Nestegard Living Trust
Attn: Arnold C. Nestegard
5585 67Th Street Northeast
Leeds, North Dakota 58346-9207

SUBJECT/RE: Parcel ID 10000000573000

Dear Mr. Nestegard,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

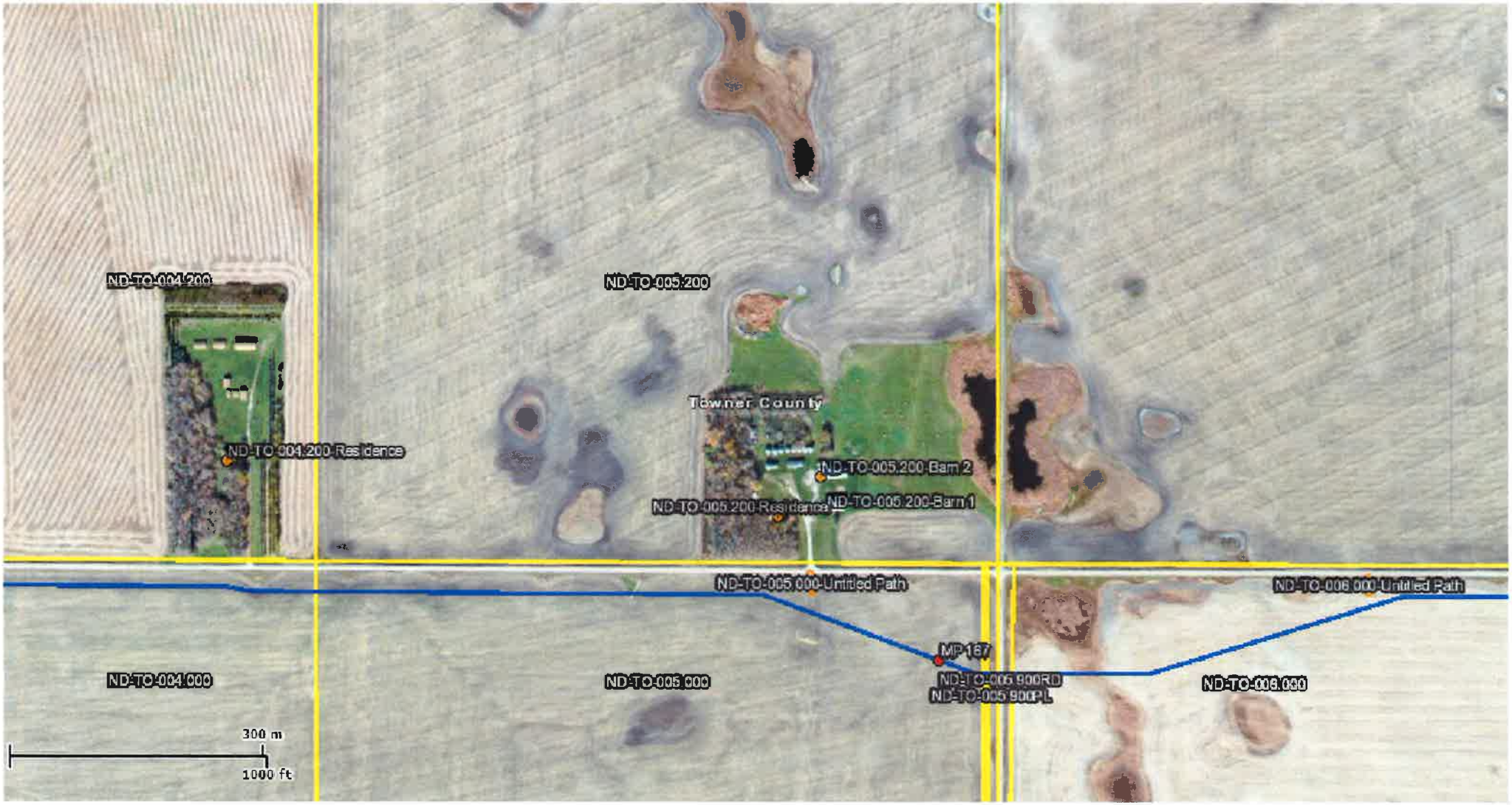
Sincerely,

Trevor Seely

Attachment

Arnold C. Nestegard sole Trustee
Arnold C. Nestegard Living Trust, Dated July 12, 1999

11-14-13
Date



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:57:01 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Dale and Elizabeth Farbo
6118 69TH Street Northeast
Cando, North Dakota 58324

SUBJECT/RE: Parcel ID 3000000387000

Dear Mr. and Mrs. Farbo,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Dale E. Farbo — Date 11/13/13

Elizabeth L. Farbo — Date 11/13/13

ND-TO-026.200

This is not a survey product. Distances in this map are approximations only and should not be used for authoritative definition of legal boundary, or property title.

E.F.

Farbo

Sandpiper

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Wed Nov 13 2013 11:33:46 AM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Eugene Leiphon
901 6TH Street Northeast
Devils Lake, North Dakota 58301

SUBJECT/RE: Parcel ID 18000005943001

Dear Mr. Leiphon,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

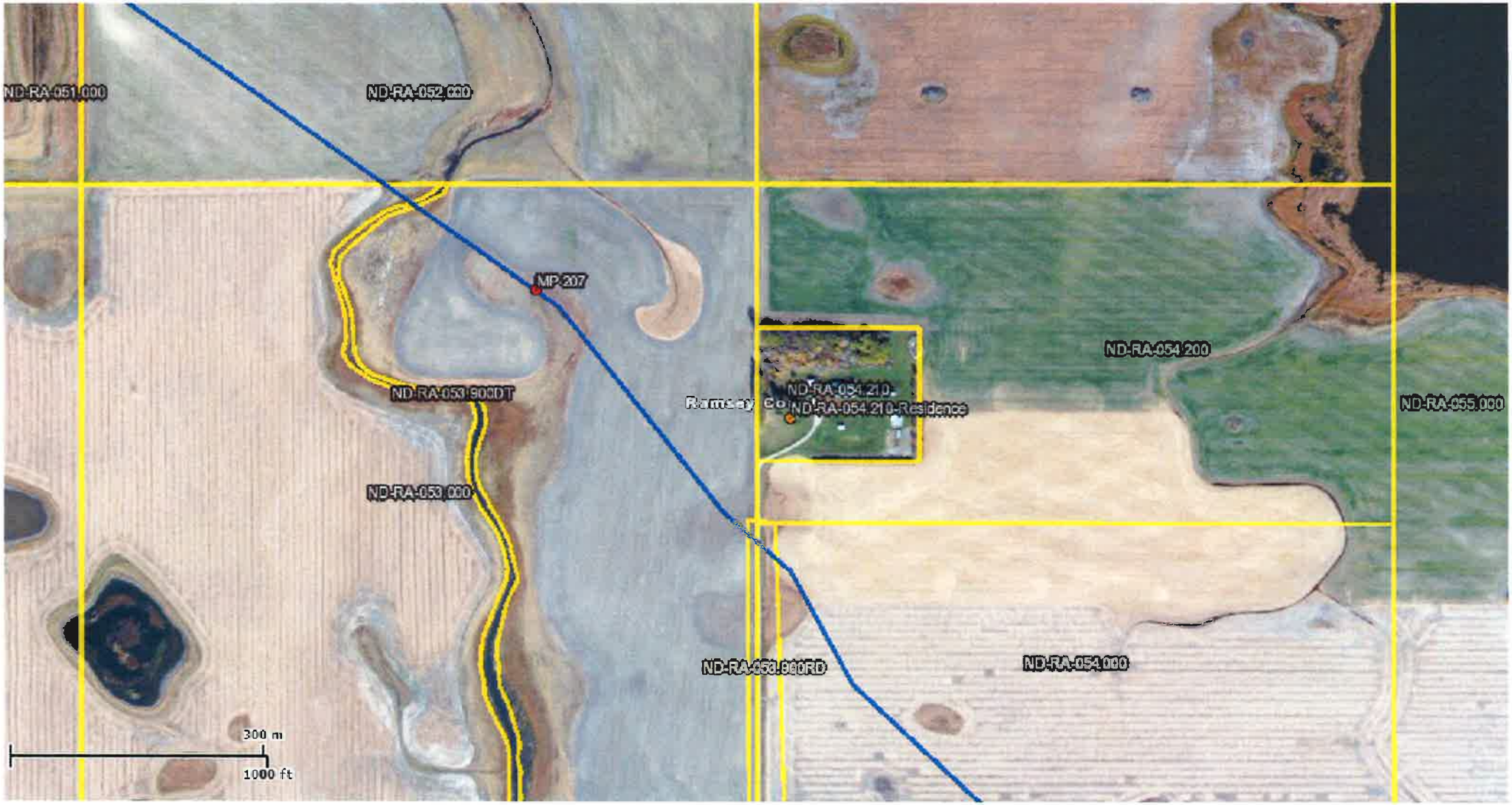
Attachment

Eugene Leiphon

Eugene Leiphon

11-14-13
Date

ND-RA-054.210



CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:52:37 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 17, 2013

Dennis J. and Cynthia G. Schiele
9252 55TH Street Northeast
Crary, North Dakota 58327

SUBJECT/RE: Parcel ID 18000005997000

Dear Dennis J. and Cynthia G. Schiele,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Dennis J. Schiele — Date: 12-5-13

Cynthia G. Schiele — Date: 12-5-13

ND-RA-061.000

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 03:50:08 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 13, 2013

Myron H. Fowler and Karen L. Fowler Life Estate
11433 39TH Street Northeast
Michigan, North Dakota 58259

SUBJECT/RE: Parcel ID 20000005862000

Dear Myron H. Fowler and Karen L. Fowler Life Estate,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

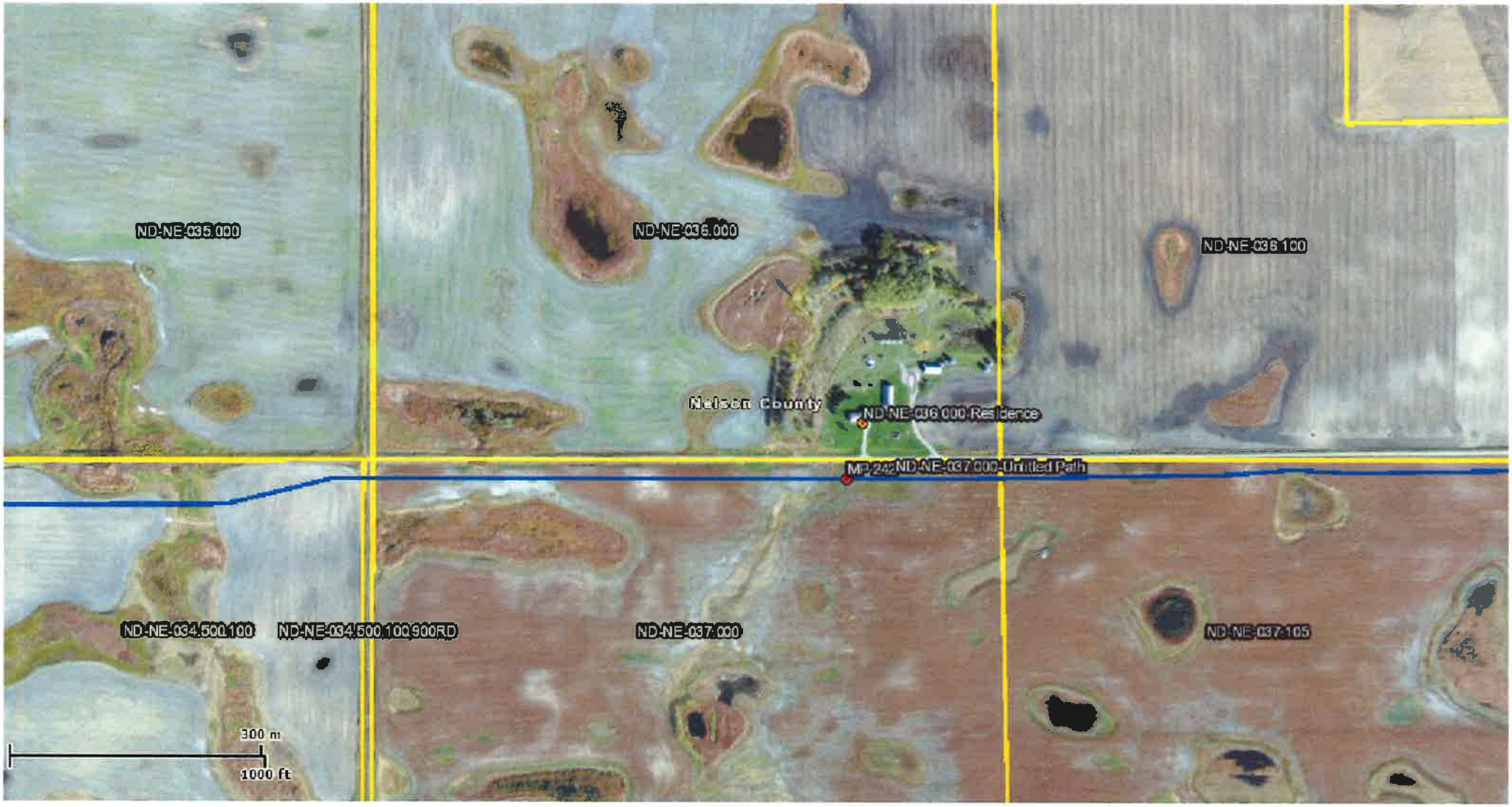
Attachment

Myron H. Fowler and Karen L. Fowler Life Estate:

Myron H. Fowler — Date: 11-13-2013

Karen L. Fowler — Date: 11-13-2013

ND-NE-036.000



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 03:43:05 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 12, 2013

Timothy J. and Donna M. Pietron
1750 Barrett Avenue Northeast
Larimore, ND 58251

SUBJECT/RE: Parcel ID 22010100009001

Dear Timothy J. and Donna M. Pietron:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Timothy J. Pietron

Donna M. Pietron

11/13/13
Date

11/13/13
Date

ND-GR- 032,300

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:05:12 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Kurt P. Karas
1775 37TH Street Northeast
Larimore, North Dakota 58251

SUBJECT/RE: Parcel ID 22450100002000

Dear Kurt P. Karas,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

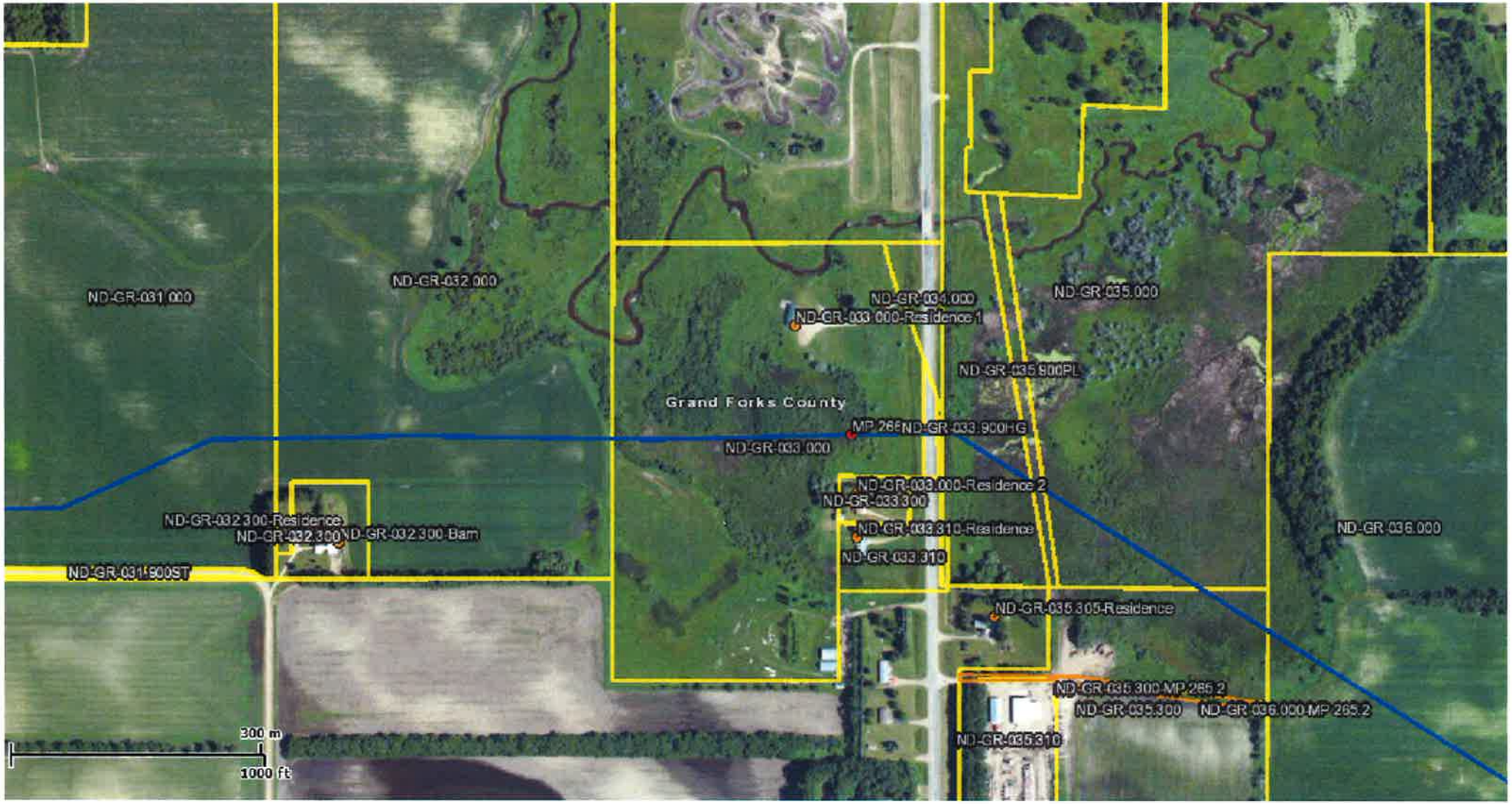
Trevor Seely

Attachment

Kurt P. Karas

11-16-13
Date

ND-GR-033.000



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:20:49 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 20, 2013

Autumn D. McCart
1741 37TH Street Northeast
Larimore, North Dakota 58251

SUBJECT/RE: Parcel ID 22010100005000

Dear Autumn D. McCart:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

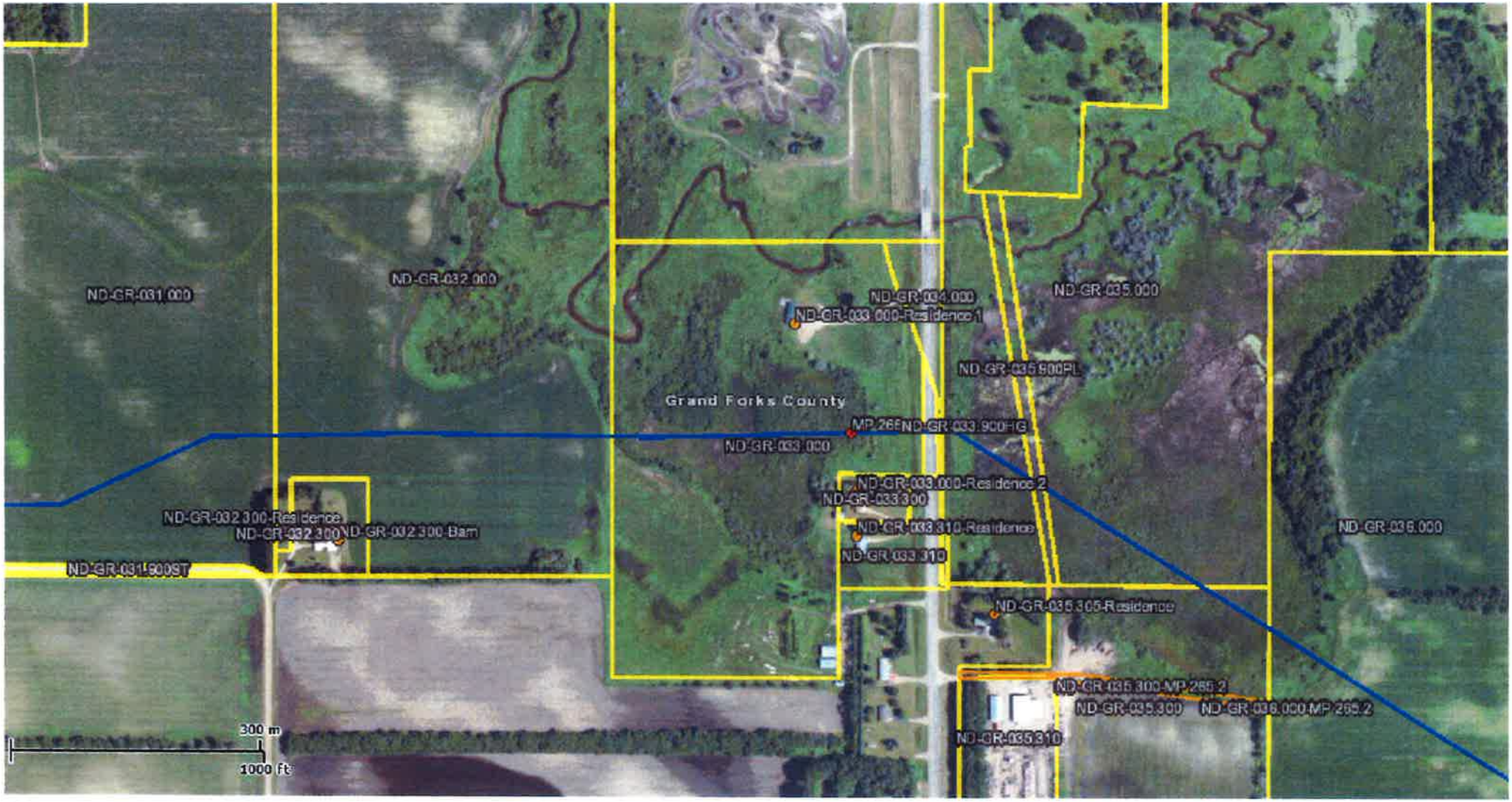
Attachment

Autumn D. McCart

Autumn D. McCart

11/20/2013

Date



CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:20:49 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 12, 2013

Kevin Ray Hoisington
1739 37TH Street Northeast
Larimore, North Dakota 58251

SUBJECT/RE: Parcel ID 04060300004002

Dear Mr. Hoisington:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Kevin Ray Hoisington

13 NOV 13
Date

CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:20:49 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Thomas J. Raker
1645 31ST Street Northeast
Arvilla, North Dakota 58214

SUBJECT/RE: Parcel ID 04120400001002

Dear Mr. Raker,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Thomas J. Raker

13 Nov 2013
Date

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:24:27 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Keith R. Berg
9100 47TH Avenue South
Grand Forks, North Dakota 58201

SUBJECT/RE: Parcel ID 08220300001001

Dear Mr. Berg,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

✓ R. Keith Berg
Keith R. Berg

11-14-2013
Date

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:25:00 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 12, 2013

Dale R. and Jennifer K. Spicer
9102 47TH Avenue South
Grand Forks, North Dakota 58201

SUBJECT/RE: Parcel ID 08220300002000

Dear Dale R. and Jennifer K. Spicer,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

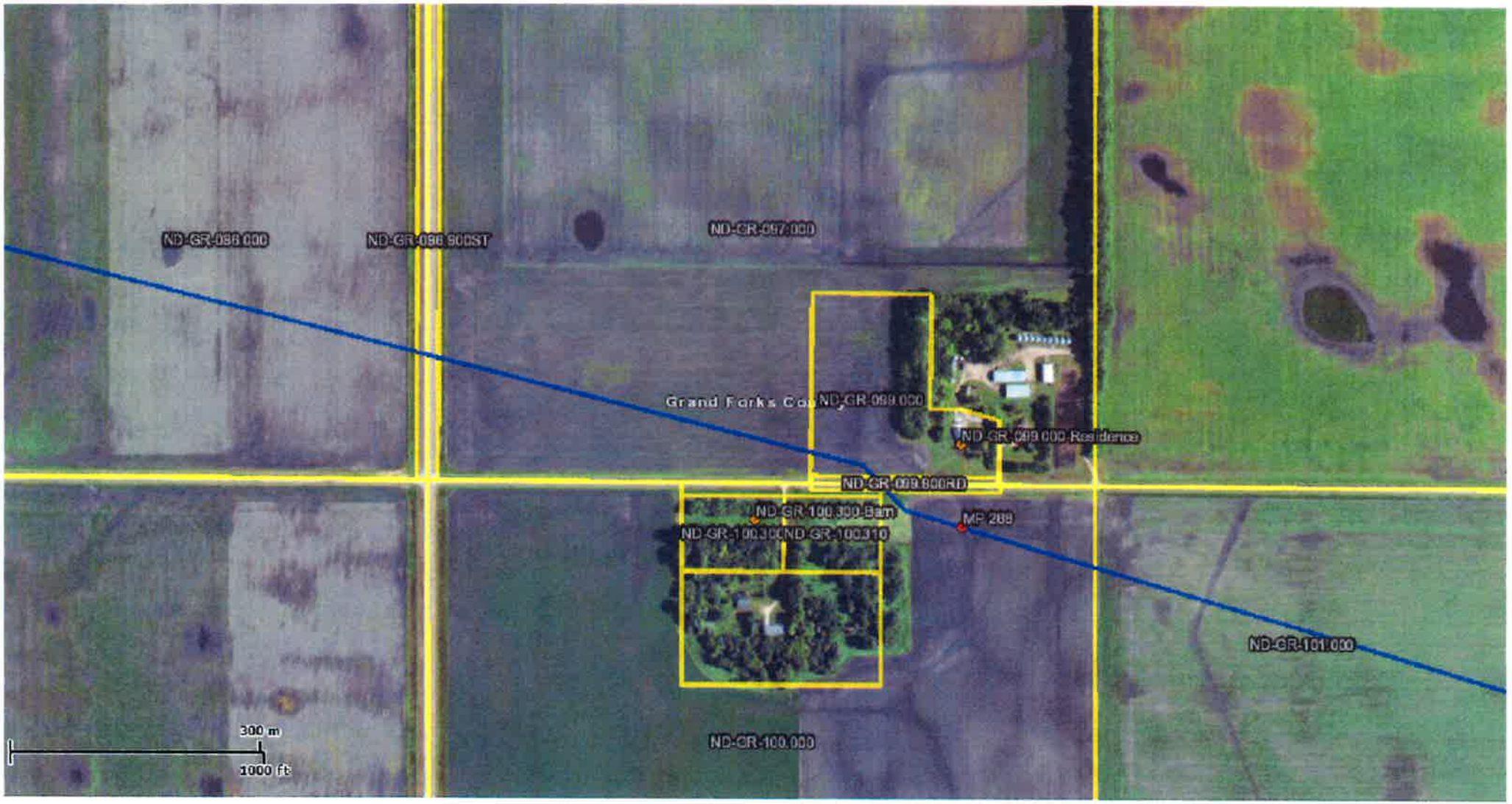
Attachment

Dale Spicer
Dale R. Spicer

11/14/2013
Date

Jennifer Spicer
Jennifer K. Spicer

11-14-2013
Date



CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:25:00 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Donna V. Partlow
9301 47TH Avenue South
Grand Forks, North Dakota 58201

SUBJECT/RE: Parcel ID 08420400001000

Dear Donna V. Partlow:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Donna V. Partlow

Donna V. Partlow

11-14-13
Date

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:31:25 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 20, 2013

Hamm & Phillips Service Company, Inc.
C/O Kent Evatt
PO Box 3907
Enid, Oklahoma 73702

SUBJECT/RE: Parcel ID 12155950004045

Dear Hamm & Phillips Service Company, Inc.:

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

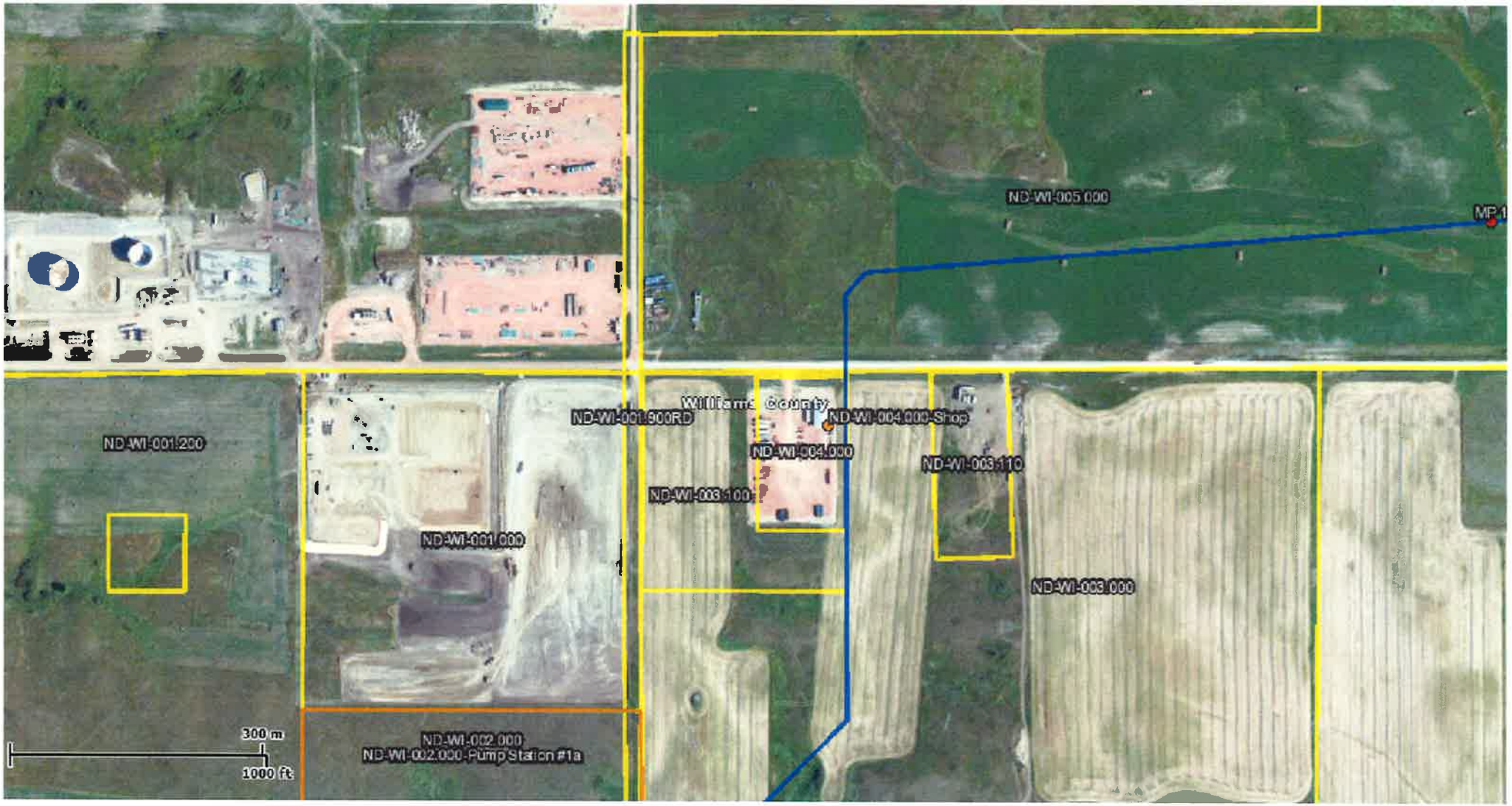
Attachment

Hamm & Phillips Service Company, Inc.

12-5-13
Date

W.E. Dusty Runnels EXEC. V.P.
Print Name and Position

ND-WI-004.000



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 03:54:29 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Kutter C. Moore
6290 67TH Avenue Northwest
Blaisdell, North Dakota 58718

SUBJECT/RE: Parcel ID 160012400

Dear Mr. Moore,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

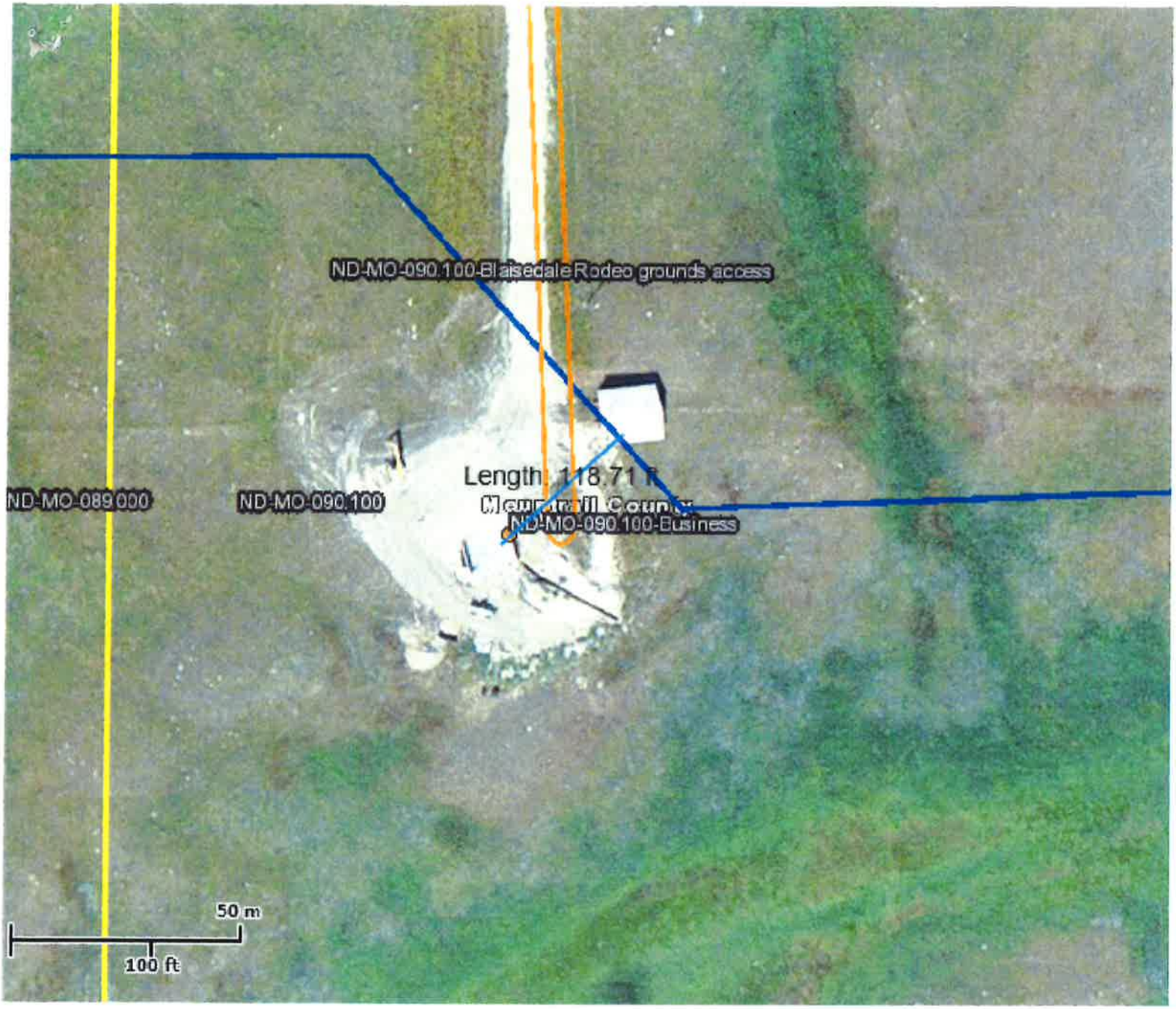
Sincerely,

Trevor Seely

Attachment

Kutter C. Moore

11-22-13
Date


ND-MO-090.100-Blaisedale Rodeo grounds access
Length: 118.71 ft
ND-MO-089.000
ND-MO-090.100
ND-MO-090.100-Business
50 m
100 ft

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Minnesota Limited, LLC
Attn: Dan Britz
18640 200TH Street
Big Lake, Minnesota 55309

SUBJECT/RE: Parcel ID BE1509900000030

Dear Minnesota Limited, LLC,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Minnesota Limited, LLC

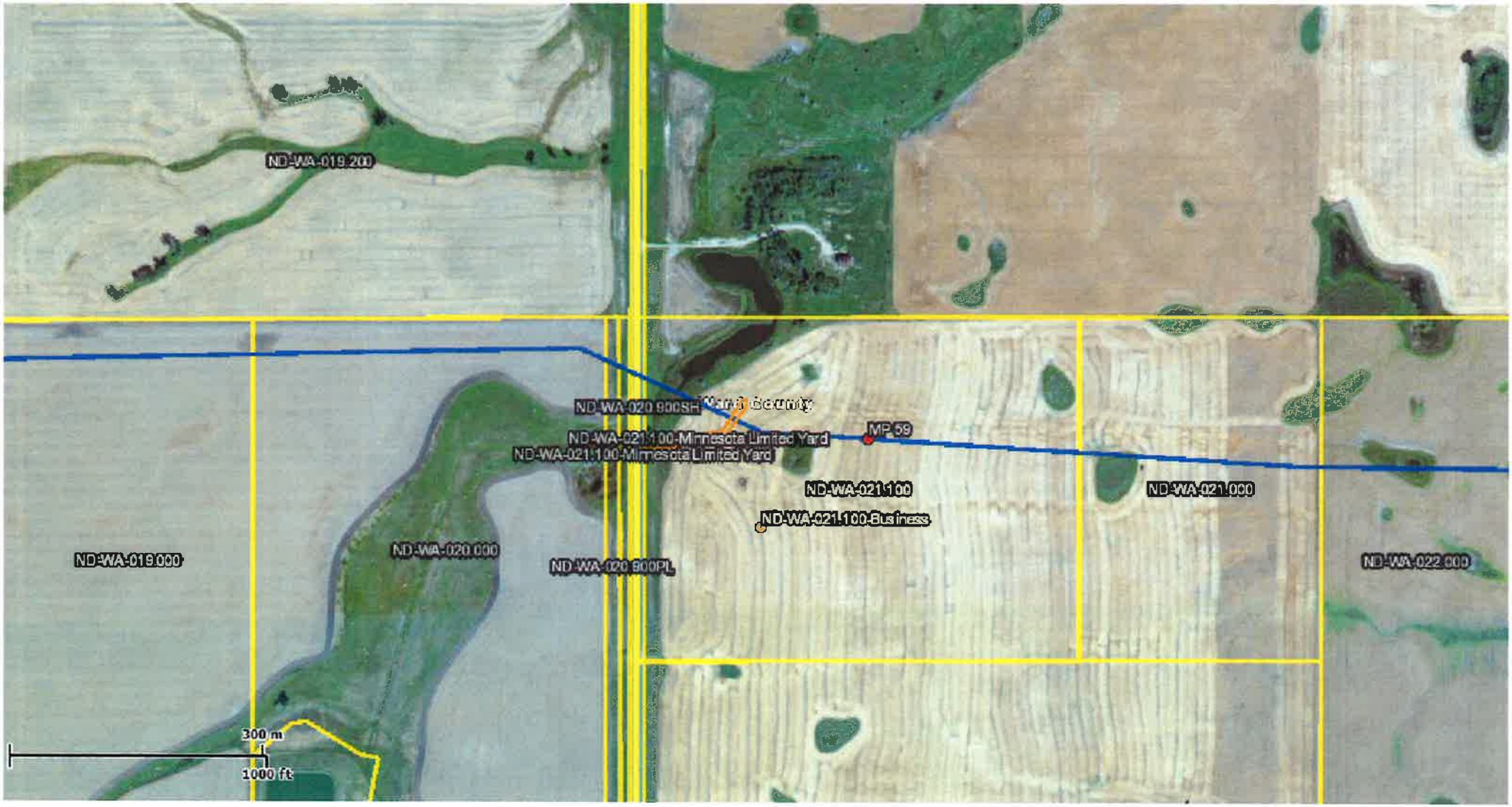
Ted Crowe, VP of Operations

Date

11-19-13

Date

ND-WA-021.100



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:58:37 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 9, 2013

Quentin E. and Cindy K. Carlson
6400 156TH Avenue Northeast
Glenburn, North Dakota 58740

SUBJECT/RE: Parcel ID TA25005U040000

Dear Mr. and Mrs. Carlson,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

Quentin E. Carlson — 11-12-13

Quentin E. Carlson — Date

Cindy K. Carlson — Date

CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:39:47 PM.

Enbridge (U.S.) Inc.

1409 Hammond Avenue

Superior, WI 54880

Tel 715-817-5655

Fax 832 325 5570

www.enbridgepartners.com

Trevor Seely

Sr.Lands and Right-of-Way Specialist, US

trevor.seely@enbridge.com

November 8, 2013

Edward L. Georgeson
926 Westwood Avenue
Larimore, North Dakota 58251

SUBJECT/RE: Parcel ID 20000006862000

Dear Mr. Georgeson,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

Attachment

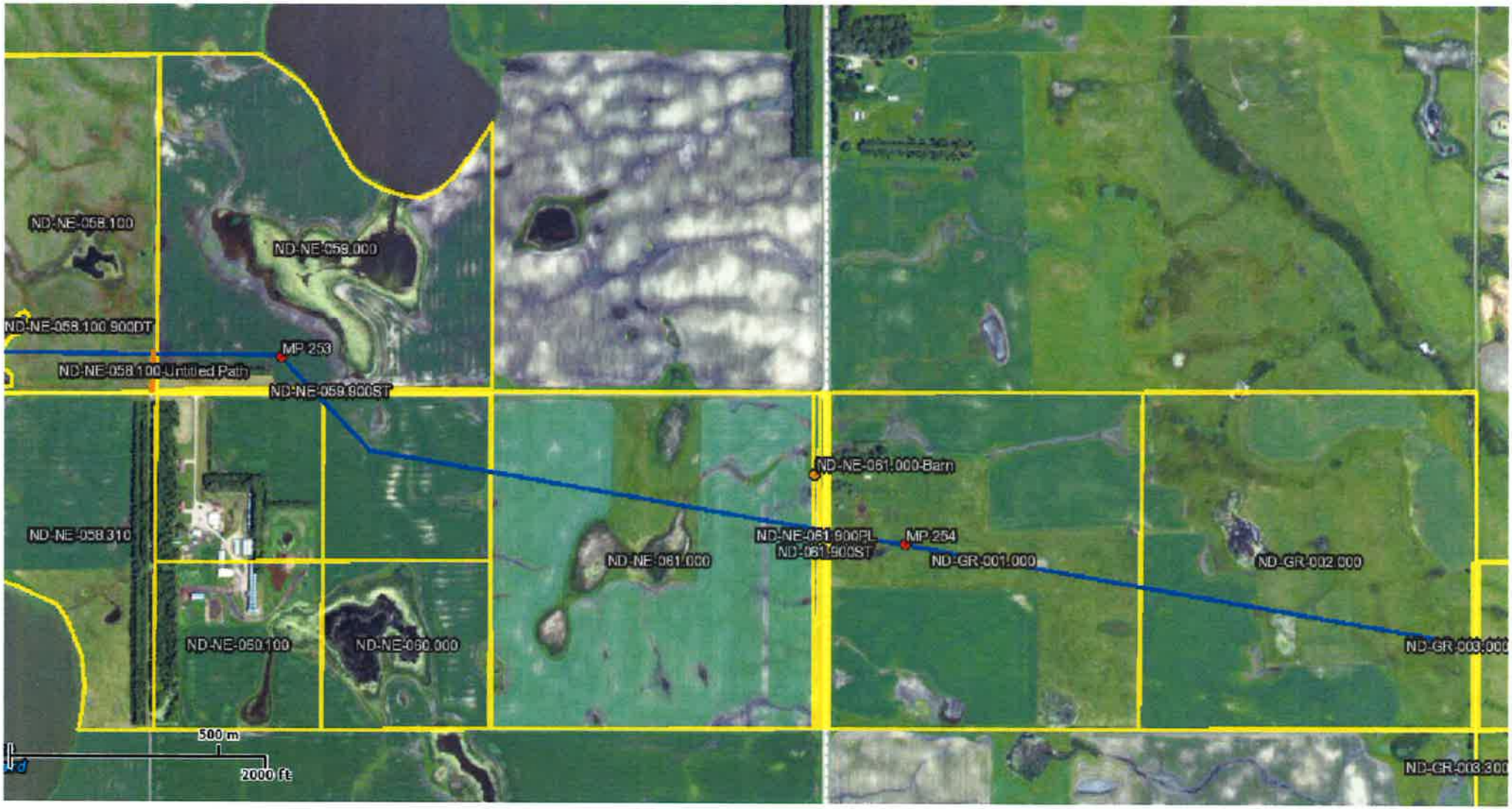
Edward L. Georgeson

Edward L. Georgeson

11-8-2013
Date

Connie Ryba, Trustee for Connie Ryba, Patricia Rongestvedt and Dan Fowler

Date



CLS LiNK GIS Viewer

Contract Land Staff, LLC

Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Thu Dec 12 2013 02:42:58 PM.

Enbridge (U.S.) Inc.
1409 Hammond Avenue
Superior, WI 54880
Tel 715-817-5655
Fax 832 325 5570
www.enbridgepartners.com

Trevor Seely
Sr.Lands and Right-of-Way Specialist, US
trevor.seely@enbridge.com

November 13, 2013

Minnkota Power Cooperative, Inc.
PO Box 13200
Grand Forks, North Dakota 58208-3200

SUBJECT/RE: Parcel ID 04060400002001

Dear Minnkota Power Cooperative, Inc.,

Please review the attached site map noting the proposed location of a pipeline (hereinafter referred to as "Facilities") associated with the Sandpiper Project Application Enbridge intends to file with the North Dakota Public Service Commission. The map indicates that the Facilities will be located within **500 feet** of your residence or business.

By signing below you are confirming that you have no objection to the installation of Enbridge's proposed Facilities at this location, or the future operation and maintenance of the Facilities. Your cordial cooperation in this matter is greatly appreciated.

Sincerely,

Trevor Seely

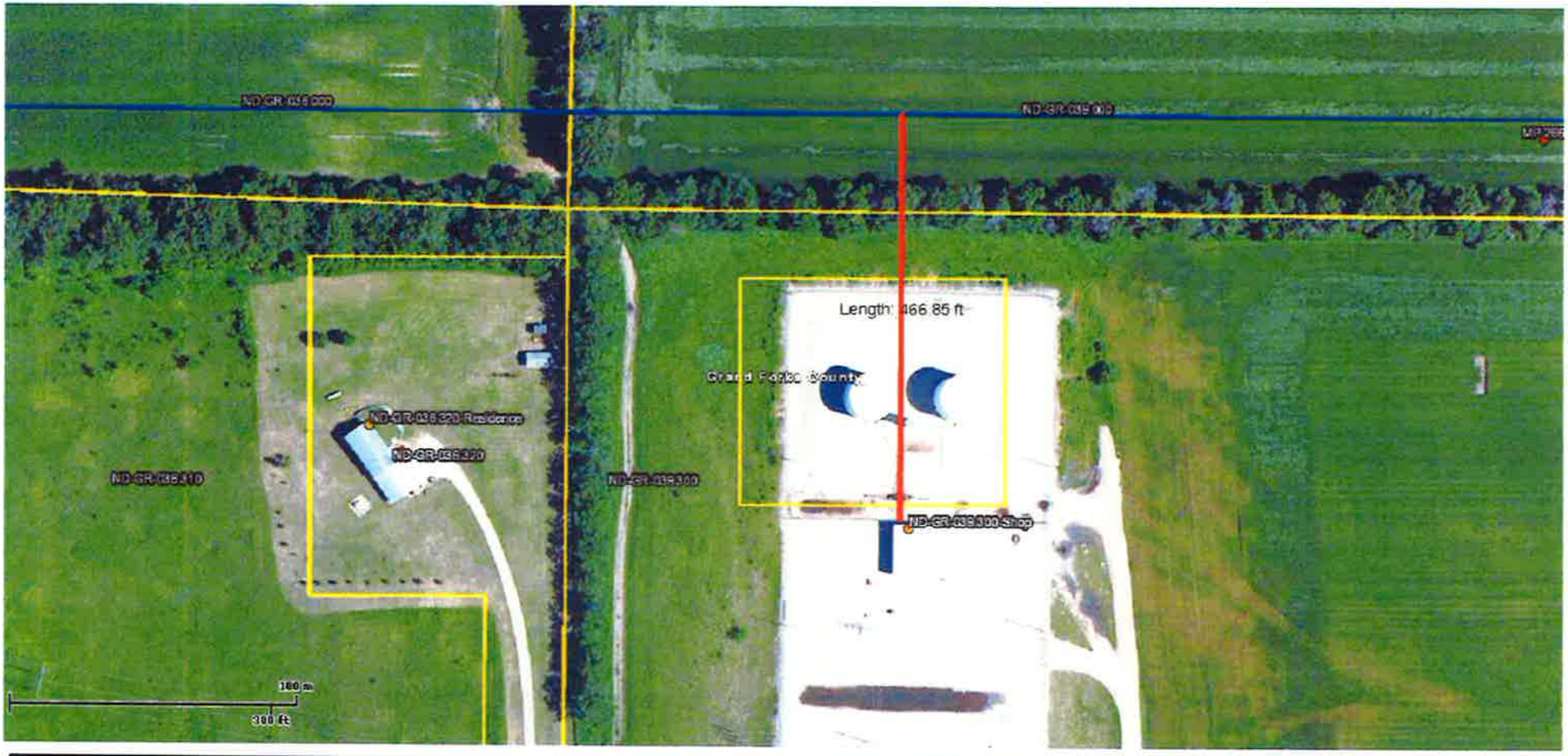
Attachment

Minnkota Power Cooperative — 11/18/13

Minnkota Power Cooperative, Inc. — Date

Paul Mahlen Property and Right of Way Mgr.

Print Name and Position



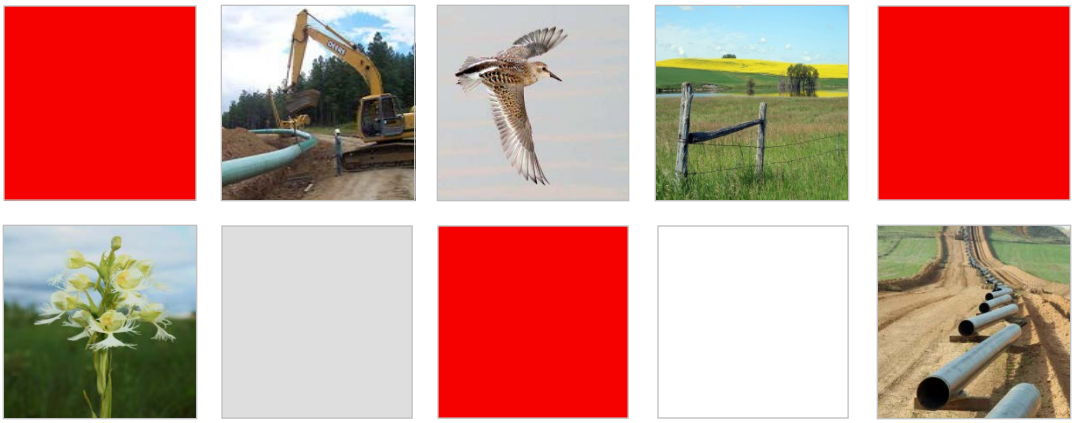
This is not a survey product. Distances in this map are approximations only and should not be used for authoritative definition of legal boundary, or property title.

CLS LiNK GIS Viewer

Contract Land Staff, LLC

CLS Contract Land Staff

© Copyright 2008 Contract Land Staff, LLC. All rights reserved. Printed on Wed Nov 13 2013 08:54:49 AM.



Sandpiper Environmental Services
Sandpiper Pipeline Project

Draft
Contaminated Sites Management Plan
Outline

PRESENTED BY BARR ENGINEERING
January 19, 2014

Table of Contents

1.0 Introduction 1
1.1 Purpose 1
1.2 Background 1
1.2.1 General Project Construction Information 1
1.2.2 Areas of Known Historical Contaminated Soil Impacts 1
1.3 Roles and Responsibilities 2
1.3.1 Enbridge's Major Projects Environmental Staff 2
1.3.2 Enbridge's Operations Environmental Staff 2
1.3.3 Soils Management Consultant 2
1.3.4 Mainline Construction Contractors 2
2.0 Site Assessment and Response Actions 2
2.1 Identification of Sites with Historical Contamination 3
2.1.1 Known Historical Release Sites 3
2.1.2 Unknown Historical Release Sites 3
2.2 Notification Procedures 3
2.3 Contaminated Soil Management 3
2.3.1 Soil Characterization 4
2.3.2 Onsite Soil Management and Offsite Disposal 4
2.4 Contaminated Groundwater Management 4
2.4.1 Groundwater Characterization 4
2.4.2 Onsite Groundwater Management and Offsite Disposal 4
2.5 Contaminated Debris Management 4
2.5.1 Debris Characterization 5
2.5.2 Onsite Debris Management and Offsite Disposal 5
2.6 Site Restoration 5
3.0 Reporting 5

List of Figures

Figure 1 Proposed Sandpiper Route

1.0 Introduction

This Contaminated Sites Management Plan (CSMP) outline has been prepared by Enbridge for the Sandpiper Pipeline Project (Project). This outline will be used to develop a complete CSMP prior to the commencement of construction activities.

1.1 Purpose

The purpose of the CSMP is to provide guidance on the management of historically contaminated soil, groundwater, and potential debris that may be encountered during construction. The CSMP is also intended to provide guidance for documenting residual contamination that may be left in place after construction is completed.

Enbridge prepared an Environmental Protection Plan (EPP) that addresses construction related spills as a separate document from the CSMP. Enbridge, working with its contractors and consultants, will oversee and/or coordinate with any existing utilities or landowners the required activities associated with the management of contaminated soil, groundwater and debris that may be encountered during construction.

1.2 Background

1.2.1 General Project Construction Information

The Project begins at Enbridge's Beaver Lodge station south of Tioga, North Dakota, extends to Clearbrook, Minnesota, and continues to an Enbridge terminal in Superior, Wisconsin, as shown on Figure 1.

1.2.2 Areas of Known Historical Contaminated Soil Impacts

Prior to construction, Enbridge will conduct a desktop review of environmental data to identify sites with potential contamination and/or historical environmental issues along the proposed construction footprint. Data will be collected from the following sources:

- Enbridge's historical release database
- Publically available environmental databases

1.3 Roles and Responsibilities

1.3.1 Enbridge's Major Projects Environmental Staff

Enbridge's Project Environment Staff will provide overall leadership and direct construction activities associated with the CSMP for the entire Project.

1.3.2 Enbridge's Operations Environmental Staff

Enbridge's Operations Environmental Staff will provide site specific oversight for CSMP activities conducted where the line is collocated along Enbridge's existing pipeline corridor(s) and facilities.

1.3.3 Soils Management Consultant

The soils management consultant will conduct the desktop environmental review prior to construction. The soils management consultant will also oversee and coordinate site specific management and disposal of historically contaminated soil, water or debris that is encountered during construction.

Enbridge, working with its contractors and consultants, will oversee site specific management and disposal of contaminated soil, groundwater or debris that may be encountered during construction.

1.3.4 Mainline Construction Contractors

Enbridge will specify that construction contractors and subcontractors provide excavation, staging and hauling for disposal of contaminated soil, water and debris. The construction contractors will work under the direction of the soils management consultant and Enbridge when CSMP activities occur.

2.0 Site Assessment and Response Actions

Site assessment and response actions specific to CSMP activities are intended to allow for safe, timely, and efficient management of contaminated soil, groundwater, and debris that may be encountered in the construction trench at historical release sites during construction.

2.1 Identification of Sites with Historical Contamination

Enbridge anticipates two possible types of historical release sites (known and unknown) may be encountered during construction that may require implementation of CSMP activities.

2.1.1 Known Historical Release Sites

Known historical release sites include sites identified during the pre-construction desktop review which includes regulatory database(s) and/or the Enbridge Leak Reporting System (LRS).

2.1.2 Unknown Historical Release Sites

Unknown historical release sites include those not identified during the pre-construction desktop review. Unknown release sites could include releases encountered while constructing adjacent to a foreign utility right-of-way, releases that occurred prior to Enbridge ownership of the asset, as well as third party contamination that may have migrated onto the right-of-way.

2.2 Notification Procedures

Enbridge will develop notification procedures for planning; scheduling, reporting and responding to historical contamination encountered during construction and will include company staff, contractors and response teams. The procedures may vary depending on which state agencies are involved, the location of historical contamination and the responsible party.

2.3 Contaminated Soil Management

Enbridge plans to manage contaminated soil associated with historical releases in accordance with applicable regulatory rules and guidelines. It is not the intent of the CSMP to delineate or remediate the horizontal and vertical extent of any soil impacts encountered during Project construction activities. Depending on site-specifics, additional follow-up assessment and remediation activities may be required at certain sites but would be conducted outside the scope of the CSMP.

2.3.1 Soil Characterization

The soils management consultant will perform field screening and analytical sampling of soil suspected of being contaminated for the purpose of waste characterization and disposal.

2.3.2 Onsite Soil Management and Offsite Disposal

Enbridge will develop criteria for management and disposal of contaminated soil to ensure compliance with applicable rules and regulations that will vary depending on the responsible party, who was in control of the right-of-way or facility prior to construction and, if necessary, based on regulatory requirements. A soil field screening component will be developed as part of the criteria.

2.4 Contaminated Groundwater Management

Enbridge plans to manage contaminated groundwater associated with historical releases in accordance with applicable regulatory rules and guidelines. It is not the intent of the CSMP to delineate or remediate the horizontal and vertical extent of any groundwater impacts encountered during construction activities. Depending on site-specifics, additional follow-up assessment and remediation activities may be required at certain sites but would be conducted outside the scope of the CSMP.

2.4.1 Groundwater Characterization

The soils management consultant will perform field screening and coordinate laboratory sample analysis for the purpose of waste characterization and disposal, if necessary.

2.4.2 Onsite Groundwater Management and Offsite Disposal

Enbridge will develop criteria for characterization, management, and disposal of contaminated groundwater that will vary depending on the responsible party, who was in control of the right-of way or facility prior to construction and, if necessary, based on regulatory requirements. A sheen field screening component will be developed as part of the criteria.

2.5 Contaminated Debris Management

Enbridge plans to manage debris associated with historical releases in accordance with applicable regulatory rules and regulations guidelines.

2.5.1 Debris Characterization

The soils management consultant will perform field screening and coordinate laboratory sample analysis for the purpose of waste characterization and disposal, if necessary.

2.5.2 Onsite Debris Management and Offsite Disposal

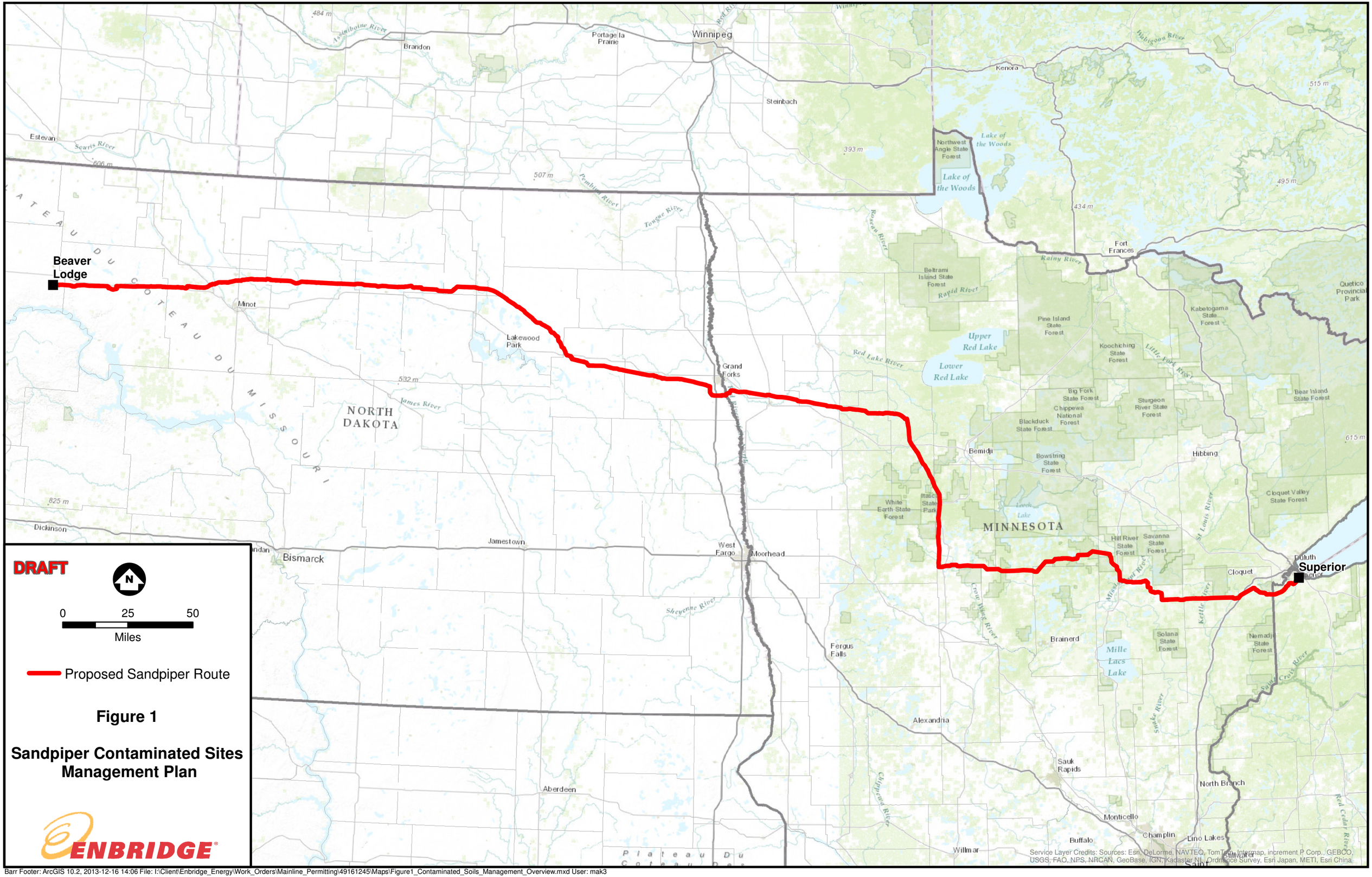
Enbridge will develop criteria for characterization, management, and disposal of contaminated debris that will vary depending on the responsible party, who was in control of the right-of way or facility prior to construction and, if necessary, based on regulatory requirements. A field screening component will be developed as part of the criteria.

2.6 Site Restoration

Restoration at sites where CSMP activities have taken place will occur in accordance with the EPP. Enbridge or contractor(s) will obtain backfill necessary to replace the volume of contaminated soils removed from approved, clean offsite borrow sources.

3.0 Reporting

The soils management consultant will prepare reports for CSMP activities on a site-specific basis using a standard format template and will account for the types of contaminated materials encountered and records of disposal.



Barr Footer: ArcGIS 10.2, 2013-12-16 14:06 File: I:\Client\Enbridge_Energy\Work_Orders\Mainline_Permitting\49161245\Maps\Figure1_Contaminated_Soils_Management_Overview.mxd User: mak3

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC
And
ENBRIDGE PIPELINES (BAKKEN) L.P.

(Collectively Referred to herein as "EPND")

TEN YEAR PLAN

NORTH DAKOTA

June 26, 2013

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION A: Existing Energy Conversion Facilities

This section does not apply to EPND.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION B: Energy Conversion Facilities under Construction

This section does not apply to EPND.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION C: Proposed Energy Conversion Facilities on Which Construction is intended within the Ensuing Five Years

This section does not apply to EPND.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION D: Proposed Energy Conversion Facilities during the Next Ten Year Time Period

This section does not apply to EPND.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION E: Existing Transmission Facilities (Electric)

This section does not apply to EPND.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION F: Existing Transmission Facilities (Pipeline)

1) Enclosed is a System Map designated as Exhibit "A".

2) The pipeline consists of:

   a) Product type – crude petroleum

   b) Length of facility

Pipeline Section	Pipeline Segments		ND Miles
83-107	Reserve Station. to Grenora Station Total Miles 23.7 – 18.7 in Montana		5.0
83-106	Flat Lake Field to Grenora Station		29.4
83-105	Grenora Station to Beaver Lodge Station		53.0
86-108	Trenton Station to Beaver Lodge Station		51.7
84-108	Alexander Station to Beaver Lodge Station		64.5
88-109	Little Muddy Station to East Fork Station		5.9
82-105	Beaver Lodge Station to Berthold Station		54.7
87-105	Beaver Lodge Station to Berthold Station		55.5
26-102	Canadian Border to Berthold Station		64.5
82-102	Berthold Station to Minot Station		26.0
85A-103	Sherwood Station to Maxbass Station		29.7
85-104	Newburg Station to Maxbass Station		13.4
85-103	Maxbass Station to Minot Station		33.8
81-102	Minot Station to The Red River		207.7
81-101	The Red River to Clearbrook Terminal All miles in Minnesota – 75.2		0.0
	Total		**694.8**

   c) Pipe size

   - 6-5/8" O.D.

- 8-5/8" O.D.
- 10-3/4" O.D.
- 12-3/4" O.D.
- 16" O.D.

d) Maximum design operating pressure

- 1440 psig for 6-5/8"
- 1440 psig for 8-5/8"
- 1440 psig for 10-3/4"
- 1440 psig for 12-3/4"
- 1440 psig for 16"

e) Maximum design flow rate

- Grenora to Beaver Lodge – 18,000 BPD (Barrels Per Day)
- Alexander to Trenton – 84,700 BPD
- Trenton to Beaver Lodge – 134,200 BPD
- Berthold to Canadian Border – 162,000 BPD
- Beaver Lodge to Stanley – 385,000 BPD
- Stanley to Berthold– 435,000 BPD
- Berthold to Minot –232,000 BPD
- Sherwood to Maxbass – 7,000 BPD
- Newburg to Maxbass – 4,320 BPD
- Maxbass to Minot – 16,000 BPD
- Minot to Clearbrook, MN – 232,000 BPD

f) Pump Stations

- Number (North Dakota) 22
- Station horsepower – Total installed horsepower – 55,640 hp
- Discharge pressure – 1440 psig
- Capacity – 4,320–435,000 BPD

g) Minimum cover over pipe – 36 inches

3) Facilities "in service" dates

- Grenora to Beaver Lodge – 1964
- Alexander to Beaver Lodge – 1983
- Berthold to Lignite - 1962
- Canadian Border to Lignite – 1996
- Beaver Lodge to Berthold – 1964
- Sherwood to Maxbass – 1962
- Newburg to Maxbass – 1960

- Maxbass to Minot – 1960
- Minot to Clearbrook Station, Minnesota – 1962
- Berthold to Minot – 1962
- Trenton to Beaver Lodge – Q4 2007
- Beaver Lodge to Berthold Loop – Q1 2013
- Little Muddy to East Fork – projected Q2 2013
- Bakken Pipeline Project – Q1 2013

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION G: Proposed Transmissions Facilities on Which Construction is intended within the Ensuing Five Years (Electric)

This section does not apply to EPND.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION H: Proposed Transmission Facility on Which Construction is intended within the Ensuing Five Years (Pipeline)

Planned upgrades to the EPND pipeline system as of 2013 are as follows:

1. **Q1 2013- Grenora Station Upgrade Project (Complete)**
    - Connect new shipper-owned and operated 8 Lot Truck Unloading Facility
    - Hydrotest Grenora to Beaver Lodge line for increased capacity
    - Upgrades to pumping, piping and metering facilities
    - Construct one new 40,000 barrel tank
    - Accommodate 3rd party pipeline connections
    - The Commission approved the Grenora Project on March 21, 2012 in Docket No. PU-11-605
2. **Q1 2013- Little Muddy Station and Pipeline Project (Complete)**
    - Construct new Little Muddy Injection Station
    - Approximately 6 miles of new 10-inch pipeline
    - Install (2) new 20,000 barrel tanks
    - Connect new shipper-owned and operated 8 Lot Truck Unloading Facility
    - The Commission approved the Little Muddy Project on March 21, 2012 in Docket No. PU-11-606
3. **Q1 2013 - Bakken Pipeline Project (Complete)**
    - Adds 120,800 BPD of incremental export pipeline capacity to Line 26 to move Bakken production out of North Dakota (Approved on May 5, 2011 in Docket No. PU-10-612)
    - Two new pumping stations (Kenaston and Lignite, North Dakota)

- Replace 11-mile segment of the existing 12-inch diameter pipeline (Line 26) between Kenaston and Lignite
- Expansion at Berthold Station

4. **Q1 2013 - Beaver Lodge Loop Project (Complete)**
    - Adds 145,800 BPD of incremental pipeline capacity ex-Beaver Lodge to Berthold (Approved on May 17, 2011 in Docket No. 10-613)
    - Approximately 26 miles of new 16-inch diameter pipeline between EPND's Beaver Lodge (Near Tioga, North Dakota) and Stanley Stations
    - Approximately 29 miles of new 16-inch diameter pipeline between EPND's Stanley and Berthold Stations

    In addition to the construction of new pipelines, the project scope will also include expansions within EPND's existing terminal facilities in the following locations:
    - Two new 80,000 barrel tanks at Berthold, North Dakota terminal
    - One new 80,000 barrel tank at Stanley, North Dakota terminal
    - One new 150,000 barrel tank at the Beaver Lodge terminal near Tioga, North Dakota
    - Interconnection valves, pipes and metering stations will also be built
5. **Q2 2013 – Berthold Station Expansion Project (Complete)**
    - The Commission approved the Berthold Station Expansion Project on May 30, 2012 in Docket No. PU-11-232
    - Install new pipe from Berthold Station to a rail loading facility adding 80,000 bpd capacity
6. **Q3 2014 – East Fork Upgrades**
    - Adds 64,500 BPD of capacity from Trenton into Beaver Lodge by upgrading pumps at Trenton and installing a new midpoint booster on the 10-inch line at East Fork

7. **Q1 2015 – Sanish Pipeline Project (formally SORTI-Dunn – project scope has been revised)**
    - Approximately 36 miles of new 12-inch mainline pipeline and associated facilities originating near Johnson's Corner, McKenzie County, North Dakota and terminating at Beaver Lodge Station near Tioga, North Dakota
    - Approximately 6 miles of new 10-inch pipeline and associated facilities to connect Saddle Butte Facility and Arrow Pipeline Facility
    - Install new pump station and terminal at Johnson's Corner, McKenzie County, North Dakota
    - Upgrade station facilities at existing Beaver Lodge Pump Station and Terminal Facility
    - Install (2) new 30,000 barrel tanks at Johnson's Corner Station
    - Initial target design rate of 67,000 BPD, with design considerations to allow easy upgrades to achieve an ultimate design rate of 100,000 BPD
8. **Q4 2013 & Q4 2014 – EPND Contract Storage Projects**
    - Miscellaneous contract storage projects across our ND system
9. **Q4 2013 – Stanley Remote Satellite**
    - Accommodate up to 200,000 3rd party pipeline connections
10. **2013, 2014, 2015 – EPND Well Connects**
    - Expansion of various customer connections across our ND system, including truck facilities, piping/manifold upgrades, gathering system tie-ins, and rail connection
11. **Q1 2016 – Sandpiper Expansion Project**
    - Installation of 24" pipeline starting at the existing EPND Beaver Lodge Station and terminating at Superior, Wisconsin
    - Has potential design capacity of 225,000 – 375,000 bpd

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION I: Proposed Transmission Facilities during the Next Ten Year Time Period (Electric and Pipeline)

EPND does not have any proposed projects beyond those reported on Section H.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION J: Regional Coordination

EPND is not attempting to coordinate our plans with other utilities serving the area. However, as expansion plans develop, affected utilities have and will be contacted.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION K: Environmental Information

See attached policy.

Enbridge Pipelines (North Dakota) LLC and Enbridge Pipelines (Bakken) L.P.
Ten Year Plan
North Dakota

June 26, 2013

SECTION L: Projected Demand for Service

Crude oil that is gathered into the EPND System is shipped from Minot through EPND's mainline pipeline to Clearbrook, Minnesota. In 2013, EPND's mainline projection is 435,000 BPD. EPND's volume of business is directly related to production in the Williston basin, which is dependent on the extent of exploration being undertaken and crude oil usage by others. Current Williston Basin production is in excess of 850,000 BPD and is forecast to climb to 1,200,000 BPD in the future.

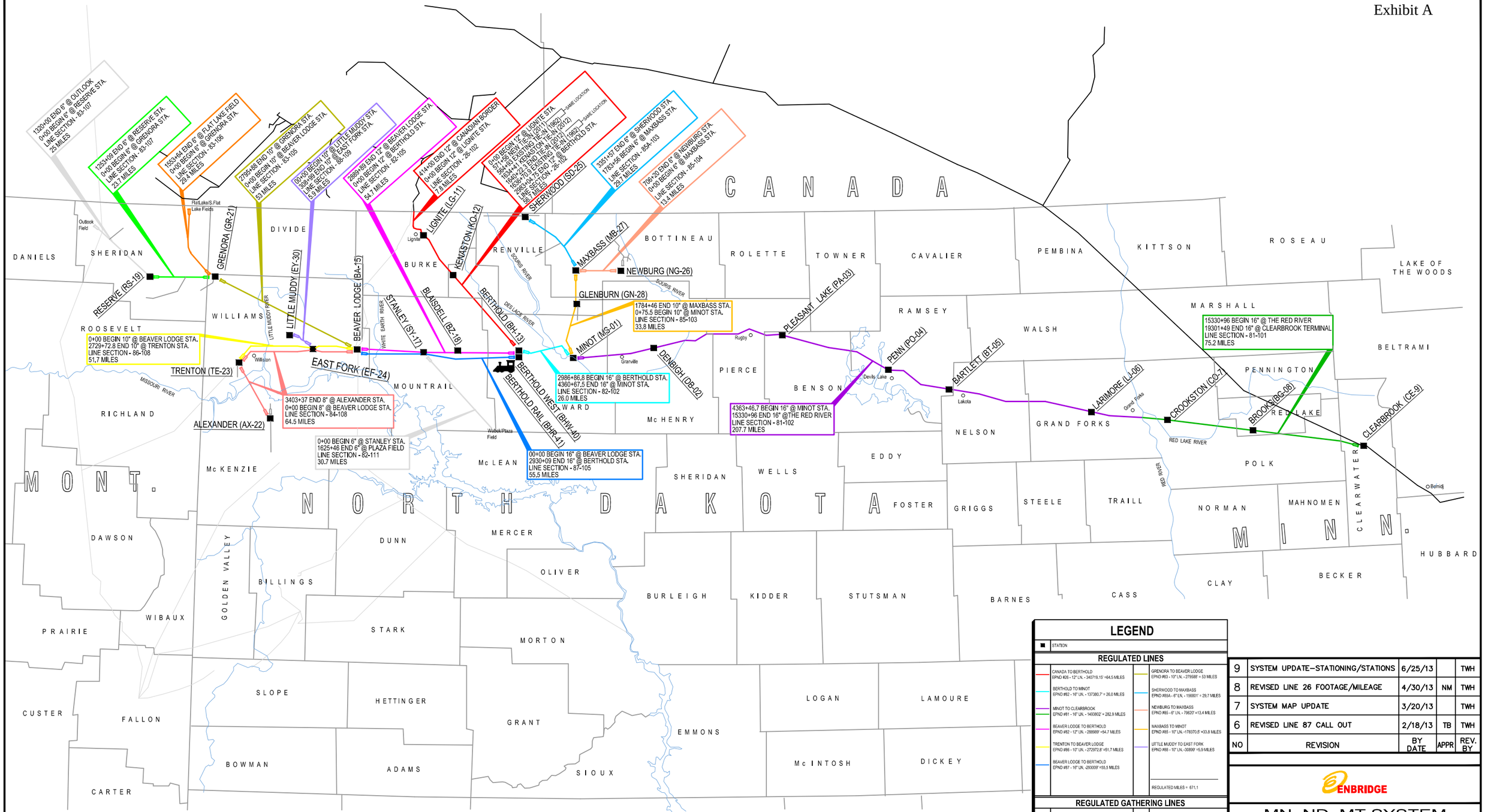
Environmental Policy

Liquids Pipelines

- The protection of the environment is an integral element in the conduct of company business.
- The company will ensure adverse environmental effects are minimized through careful planning, implementation of effective protection measures, and monitoring of company activities.
- The company will comply with government regulations and standards through internal rules and procedures for environmental protection that will be consistent with industry codes and guidelines.
- The company will minimize consequences of emergency events by ensuring prompt and effective response.
- The company will provide appropriate training to ensure employees understand their responsibility to protect the environment.
- Employees and contractors must follow company environmental rules and procedures, and must carry out work in an environmentally responsible manner at all times.
- The company will provide the public and government with relevant information regarding planned activities, and will actively respond to their concerns.
- Environmental damage resulting from company actions or actions of its contractors will be repaired in a timely and efficient manner.
- Environmental research will be encouraged, supported and undertaken when necessary to improve company environmental protection and reclamation procedures.

Steve Wuori
Executive Vice President
Liquids Pipelines

Exhibit A



LEGEND

STATION

REGULATED LINES

- CANADA TO BERTHOLD — EPND #26 - 12" LN. - 340719.15' =64.5 MILES
- BERTHOLD TO MINOT — EPND #82 - 16" LN. - 137380.7' = 26.0 MILES
- MINOT TO CLEARBROOK — EPND #81 - 16" LN. - 1493802' = 282.9 MILES
- BEAVER LODGE TO BERTHOLD — EPND #82 - 12" LN. - 288989' =54.7 MILES
- TRENTON TO BEAVER LODGE — EPND #86 - 10" LN. - 272972.8' =51.7 MILES
- BEAVER LODGE TO BERTHOLD — EPND #87 - 16" LN. -293009' =55.5 MILES
- GRENORA TO BEAVER LODGE — EPND #83 - 10" LN. - 279588' = 53 MILES
- SHERWOOD TO MAXBASS — EPND #85A - 6" LN. - 156801' = 29.7 MILES
- NEWBURG TO MAXBASS — EPND #85 - 6" LN. = 70620' =13.4 MILES
- MAXBASS TO MINOT — EPND #85 - 10" LN. =1783705.5' =33.8 MILES
- LITTLE MUDDY TO EAST FORK — EPND #88 - 10" LN. =30899' =5.9 MILES

REGULATED MILES = 671.1

REGULATED GATHERING LINES

- RESERVE TO GRENORA — EPND #83 - 6" LN. - 125309' =23.7 MILES
- FLAT LAKE TO GRENORA — EPND #83 - 6" LN. - 155364' = 29.4 MILES
- ALEXANDER TO TRENTON — EPND #84 - 8" LN. - 63254' =12 MILES
- TRENTON TO BEAVER LODGE — EPND #84 - 8" LN. - 276936' =52.5 MILES

REGULATED GATHERING MILES = 117.6

INACTIVE LINES

- INACTIVE — OUTLOOK TO RESERVE — EPND #83 - 6" LN. - 132000' =25 MILES
- INACTIVE — WABEK/PLAZA FIELD TO STANLEY — EPND - 6" LN. -162546' =30.8 MILES

INACTIVE MILES = 55.8

NO	REVISION	BY DATE	APPR	REV. BY
9	SYSTEM UPDATE–STATIONING/STATIONS	6/25/13		TWH
8	REVISED LINE 26 FOOTAGE/MILEAGE	4/30/13	NM	TWH
7	SYSTEM MAP UPDATE	3/20/13		TWH
6	REVISED LINE 87 CALL OUT	2/18/13	TB	TWH

ENBRIDGE

MN, ND, MT SYSTEM

SYSTEM MAP

LINE SECTION INFORMATION

PROJECT:

SCALE:	NO SCALE	DATE:	3/20/2003	DRAWN:	GJH
CHECK:	G. HARROM	APPR:	G. HARROM	DATE:	3/20/2003

DWG. NO. B-0-0.5-10002-9-300

ENBRIDGE PIPELINES (NORTH DAKOTA) LLC AND ENBRIDGE PIPELINES (BAKKEN) L.P.

EXHIBIT O

Enbridge Pipelines (North Dakota) LLC
2505 16th St. SW
Minot, ND 58701
www.enbridgeUS.com

Katie Haarsager
Community Relations Advisor
(701) 857-0849
katie.haarsager@enbridge.com

March 8, 2013

Name Title
Organization
Address 1
Address 2
City, State, Zip

Dear Name:

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow our existing Line 81 pipeline and other existing utilities. The Sandpiper Pipeline Project ("Sandpiper") will begin at our Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will continue to our terminal in Superior, Wisconsin. The Sandpiper Pipeline Project will transport growing supplies of North Dakota crude petroleum to our terminal and then connect to various other pipelines, eventually providing refineries in the Midwest and eastern Canada with crude oil.

Enbridge is in the process of determining the Sandpiper Pipeline Project route, but expects construction to take place between late-2014 and early 2016, depending on regulatory approvals and final construction planning. Much of the Sandpiper Pipeline will follow our existing Line 81. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota.

In the near future, Enbridge Land Services Department personnel will contact landowners in your area, by phone or in-person before accessing their property, to notify them of upcoming route surveys and to request permission to enter their property for this work. Surveying will allow us to gather necessary environmental, land use and design information to confirm the final route. In areas along the existing Enbridge right-of-way, we will ask for consent to survey outside the boundaries of the existing pipeline easement, as required.

Because more than one survey may be going on at the same time in a given location, we will provide clear and concise information to landowners in a timely fashion in order to avoid confusion.

The Sandpiper Pipeline Project is a positive step toward North American energy security and independence that will:

- Increase America's access to growing, secure and reliable North American crude oil;
- Expand access to refinery markets in the U.S. Midwest and beyond for growing production from the Bakken Formation in North Dakota; and
- Reduce reliance on imports from countries that are often unstable, less reliable or unfriendly to U.S.

We do not expect this survey work to disrupt or significantly impact landowners. The total amount of time spent on each property will depend on its characteristics. Our surveyors have extensive experience in successfully completing this work on private property and public lands. They will make every effort to minimize disturbance to landowners, crops, livestock and their land. Use of heavy equipment is not anticipated at this time; in rare circumstances, a small backhoe or other similar mechanized equipment may be used for cultural resource investigations.

Surveying requires trained specialists to walk the pipeline right-of-way across each property, sometimes leaving small, temporary stakes in the ground so that they and other environmental specialists will be able to keep track of the boundaries. In some cases, they may need to dig small holes for wetland and/or cultural resource assessments. Any such holes will be dug by hand and filled in before the crew leaves a landowner's property.

Survey crew members will have identification with them and on their vehicles, indicating that they are Enbridge contractors. Each survey crew has different areas of expertise, and based on tract features and complexities of crew deployments, it may require more than one day to conduct all necessary survey work. Coordinating all landowner

contacts with the various field survey crews on hundreds of tracts can be challenging. Completing all necessary survey work on a given tract in one business day can be equally challenging. We ask for and appreciate your continued assistance and patience in developing cooperative relationships with landowners as surveys are scheduled and completed.

You are likely already aware that a comprehensive set of national standards and federal laws and regulations, developed over several decades, prescribe the design, construction, operation and maintenance of liquid petroleum pipelines. Enbridge bases the design, construction, operation and maintenance of its facilities to comply with or exceed these standards.

As our planning progresses and we gain information from the upcoming surveys, we will finalize the Sandpiper Pipeline Project. We will begin working with state and federal agencies, including the North Dakota Public Service and Minnesota Public Utility Commissions. We also will keep landowners and public officials updated as details of our future construction and maintenance plans develop.

If you, or your colleagues or constituents, have any questions on this project, please contact me toll- free at 855-788-7805 or via e-mail at sandpiperproject@enbridge.com.

Cordially,

Katie Haarsager
Enbridge Community Relations Advisor

Enclosure

Enbridge Pipelines (North Dakota) LLC
1409 Hammond Ave.
Superior, WI 54880-5247
www.enbridgeUS.com

John McKay
Manager, Land Services (U.S. Projects)
Tel. (855) 788-7805
sandpiperproject@enbridge.com

March 25, 2013

[Full Name]
[Care of]
[St Address]
[Address 2]
[City Name], [State] [Zip Code]

Dear Landowner:

Enbridge Pipelines (North Dakota) LLC ("Enbridge") is proposing to build a new pipeline that will generally follow our existing Line 81 pipeline and other existing utilities. The Sandpiper Pipeline Project ("Sandpiper") will begin at our Beaver Lodge Station south of Tioga, North Dakota to Clearbrook, Minnesota and will flow east to our terminal in Superior, Wisconsin. The Sandpiper Pipeline Project will transport growing supplies of North Dakota crude petroleum to our terminal and then connect to various other pipelines, eventually providing refineries in the United States and eastern Canada with crude oil.

Enbridge is in the process of determining the Sandpiper Pipeline route, but expects construction to take place between late 2014 and early 2016, depending on regulatory approvals and final construction planning. Much of the Sandpiper Pipeline will follow our existing Line 81. In some areas, the new pipeline will deviate from Enbridge's existing pipeline right-of-way in North Dakota and Minnesota. As a landowner along the preliminary route, we will be contacting you soon to request your permission to conduct surveys on your property. Surveying will allow us to gather necessary environmental, land use and design information to confirm the final route.

If you are a landowner along the existing Enbridge pipeline(s) you may already know who Enbridge is and our role in transporting crude oil across North America. If you haven't heard of Enbridge previously, please visit our website www.enbridge.com/SandpiperProject for more information about our company and projects.

The Sandpiper Pipeline Project is a positive step toward North American energy security and independence that will:

- Increase America's access to growing, secure and reliable North American crude oil;
- Expand access to refinery markets in the U.S. Midwest and beyond for growing production from the Bakken Formation in North Dakota; and
- Reduce reliance on imports from countries that are often unstable, less reliable or unfriendly to U.S. interests.

Enbridge is conducting civil surveys and environmental assessments to analyze potential routes for the Sandpiper Project. Enbridge's Land Services Department personnel will contact you in-person or by phone to obtain consent before accessing your property. We do not expect this survey work to disrupt you or significantly impact your property. The total amount of time spent on each property will depend on its characteristics. Our surveyors have extensive experience in successfully completing this work on private property and public lands. They will make every effort to minimize disturbance to you, your crops, livestock or land. Use of heavy equipment is not anticipated at this time; in rare circumstances, a small backhoe or other similar mechanized equipment may be used for cultural resource investigations.

Surveying requires trained specialists to walk the pipeline right-of-way across each property, sometimes leaving small, temporary stakes in the ground so that they and other environmental specialists will be able to keep track of the boundaries. In some cases, they may need to dig small holes for wetland and/or cultural resource assessments. Any such holes will be dug by hand and filled in before the crew leaves your property.

Survey crew members will have identification with them and on their vehicles, indicating that they are Enbridge contractors. Each survey crew has different areas of expertise, and depending on your property's features and the complexities of crew deployments, it may require more than one day to conduct all necessary survey work. We ask for and appreciate your patience as surveys are scheduled and completed.

This is just the first stage in a step-by-step process of working with you and other landowners, seeking community input and applying for various local, state and federal approvals. In coming months, we will send you more information about the Sandpiper Pipeline Project and opportunities to meet with Enbridge or agency representatives to ask questions and provide comment. Enbridge appreciates your patience and cooperation as we move forward with this survey work. If you have any questions on this matter, please call our toll-free, informational line at 1-855-788-7805 and I or one of our representatives working in the area will get back to you.

Cordially,

John McKay
Manager, Land Services (U.S. Projects)