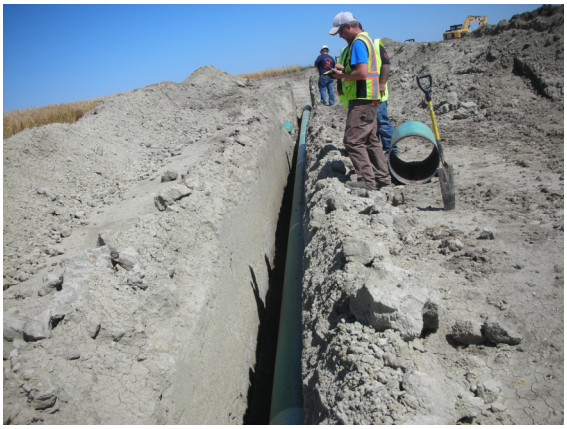
WENCK File #B2579-0035
November 2019

Demicks Lake NGL Pipeline Project Construction Inspection Report PU-18-399




Prepared for:

North Dakota
Public Service Commission

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Executive Summary

The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete site inspections during construction of the PU-18-399 Demicks Lake 20-inch Natural Gas Liquids (NGL) Pipeline (i.e., the Project) in McKenzie County, North Dakota (ND), constructed by ONEOK Bakken Pipeline L.L.C. (ONEOK). The purpose of the inspections is to ensure the project is constructed in compliance with the siting laws and rules and the applicable PSC Orders for the Project.

Construction involving soil disturbance for the Project began 14 May 2019. Wenck was present to observe the topsoil salvage and segregation by Jomax Construction Company, Inc. (Jomax) at the start of the project. Subsequently, an Initial Topsoil Inspection Report was submitted to the PSC (Wenck, May 2019). Wenck revisited the project on 5 and 6 June 2019, and completed an Interim Topsoil and Construction Report, which was submitted to the PSC (Wenck, June 2019). Wenck completed additional inspections of the Project area on 17 and 29 July, and 20 August 2019 and observed topsoil and subsoil removal and segregation done by both contractor crews on the two separate pipeline spreads. Details of these inspections were summarized in the Topsoil Inspection Report previously summited to the PSC (Wenck, September 2019).

ONEOK has been authorized to use and occupy National Forest System land in the Dakota Prairie Grasslands within the McKenzie Ranger District, subject to the terms and conditions of the U.S. Department of Agriculture, Forest Service, Special Use Permit (MCK18033). Jomax did not begin construction on National Forest System lands (i.e., Spread 3) portions of the Project until after Special Use Permit (MCK18033) was issued on 28 August 2019.

As part of the construction inspection process, Wenck reviewed the "Final Comprehensive Field Reconnaissance Report" by Braun Intertec (July 3, 2019) concerning potential geological unstable areas along the Project corridor. The geotechnical evaluations provided in the July 2019 Braun Report determined that the proposed depths of HDD in these areas is sufficient. Wenck visited multiple identified locations of potential geological instability during field inspections to verify HDD methods were being used, as proposed.

Construction inspections were conducted on 16 and 17 July, 21 August and 8 October 2019. Pipe depth was documented at multiple location and the pipeline was installed with the depth of cover required by the Commission's Order. Horizontal Directional Drilling (HDD) was conducted where proposed. Reclamation of the project is currently underway, parts of which are contracted by H2-Enterprises. Wenck confirmed that construction activities were compliant with PSC Order Provisions during construction site inspections. Overall, construction of the project appeared to be in compliance with the applicable siting laws, rules, and PSC orders.

1.0 Background and Scope

1.1 INTRODUCTION

The Demicks Lake 20-inch Natural Gas Liquids (NGLs) transmission pipeline is comprised of three pipeline segments, all within McKenzie County. The first segment, Spread 1, is approximately 36.3 miles originating from Demicks Lake Gas Processing Plant in McKenzie County T151N, R96W, Section 20. The second segment, Spread 2, is broken down into 3 subsegments, Spreads 2A, 2B, and 2C and is alternated with segment 3, Spreads 3A and 3B. Spread 2A is approximately 14.4 miles beginning in T149N, R100W, Section 8, north of the sectional road. Spread 3A is approximately 8.7 miles beginning in T148N, R103W, Section 13. Spread 2B is approximately 3.9 miles beginning in T147N, R103W, Section 7. Spread 3B is approximately 3.7 miles beginning in T147N, R104W, Section 25. The final subsegment, Spread 2C, is approximately 7.25 miles to the boundary of North Dakota and Montana. Spread 2C begins in T146N, R104W, Section 10 and ends in T146N, R105W, Section 22. Spread 3 comprises the portions of the Project within the National Forest System-Little Missouri National Grassland. Jomax Construction Company has conducted ROW topsoil clearing and pipeline construction of all identified project spreads.

In North Dakota, the Route is approximately 74.3 miles in length, approximately 9.5 miles of which crosses the Little Missouri National Grasslands (LMNG), which is managed through the United States Forest Service (USFS). The total length of the project is approximately 77.1 miles. In North Dakota, approximately 70 percent of the Route is co-located with existing linear infrastructure.

The pipe for the Project will be 20-inch diameter steel pipe with 0.344-inches wall thickness standard and 0.375-inches for road crossings. The maximum operating pressure will be 1,480 pounds per square inch and the maximum flow rate will be 40,000 barrels per day.

The Project is under the jurisdiction of the North Dakota Public Service Commission (PSC), which issued its Findings of Fact, Conclusions of Law, and Order in Case No. PU-18-399 on 1 May 2019, granting Certificate of Corridor Compatibility No. 209 and Route Permit No. 219 for the Project.

1.2 REGULATORY PURPOSE AND SCOPE OF WORK

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorizes the Public Service Commission to determine that the location, construction, and operation of jurisdictional energy conversion and transmission facilities will produce minimal adverse effects on the environment and the welfare of citizens of North Dakota. Construction inspections ensure that such projects are constructed in compliance with the siting laws (North Dakota Century Code Chapter 49-22) and rules (North Dakota Administrative Code Article 69-06) and the applicable Commission Orders.

The North Dakota PSC retained Wenck Associates, Inc. (Wenck) to complete construction inspections of the Project. Wenck's scope of work was to perform and document on-site inspections during the construction phase of the Project to verify that the project was constructed in compliance with the siting laws, siting rules, and applicable Commission Orders and to verify that the pipeline was installed with the depth of cover required by the Commission's Order. PSC Order Provision #11 for the Project states: *"Company*

understands and agrees that the pipeline will be buried to a minimum depth from the ground surface to the top of the pipe of 48 inches in range land, 48 inches for cultivated land, 48 inches at the bottom of the ditch for road crossings, and 72 inches across undeveloped section lines."

The inspection process included a review of the Application for Corridor Compatibility and Route Permit, the Project's Order, and other applicable documents. This report includes documentation of site visit observations and a summary of findings and issues that should be addressed for the Project to be considered complete and in full compliance.

2.0 Site Inspections

2.1 METHODS

Wenck staff completed on-site construction inspections of the Project between 16 July and 8 October 2019. The July and August construction inspections where in conjunction with topsoil inspections. Jeremy Hackley, Field Inspector visited the project on 16, 17 July and 8 October 2019, and was accompanied by Allen Kitchens, Assistant Chief Inspector, On-Shore Quality Control Specialists, L.L.C.(QCS) on 17 July 2019. Matt Retka, Project Manager/Soil Classifier, and Zach Leitner, Field Inspector visited the Project on 21 August 2019, accompanied Allen Kitchens, Assistant Chief Inspector, QCS.

The site was inspected visually by driving to access points and walking or driving within the Project right-of-way (ROW). Jomax contractors worked on the three spreads of the Project and H2-Enterprises is contracted to complete Project reclamation. The Project was inspected for proper topsoil removal, trench digging, pipe installation, trench filling, and topsoil re-spreading phases of the Project. Pipe depths, measured from open trenches, were inspected to confirm proper depth at various locations. Geologically unstable areas, impacted wetlands, water body crossings, as well as avoidance and exclusion areas were inspected to confirm construction methods. General construction procedures and erosion controls were also observed during the inspections. Digital photographs were taken showing typical Project infrastructure and documenting problem areas (**Appendix A**). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning Systems (GPS) (Garmin GPSMAP 60CSx; <10m accuracy; NAD83 datum and Trimble GEOXT, submeter accuracy, NAD83 datum) (**Table 1**).

2.2 ON-SITE INSPECTION OBSERVATIONS

Spread 1

On 17 July 2019, Mr. Hackley met and was accompanied by Allen Kitchens, QCS Assistant Chief Inspector during the construction inspections. Jomax staff was observed in the process of pipeline construction involving trenching, installing pipe, and utilizing HDD. Wetlands along the ROW were appropriately open-cut or bored under with appropriate erosion mitigation practices (**Appendix A, Observation Points 116**). Best management practices (BMPs) were used within the wetland at the site of the US Hwy 85 pullback area, consisting of timber mats and plastic sheeting **Appendix A, Observation Point 125-128**). Pipe in trench measurements were appropriate or deeper than required. Trench wall profiles showed that topsoil had been stripped appropriately (**Appendix A, Observation Point 118**). Jomax contractors were observed installing pipe in trenches appropriately (**Appendix A, Observation Point 117b and 123**). A Boring under an undeveloped section line between Section 34 and Section 33 of Township 151N, Range 98W was observed (**Appendix A, Observation Points 122a and 122b**). Jomax contractors at a boring under an undeveloped section line between Section 33, Township 150N, Range 99W and Section 4, Township 150N, Range 100W, utilized Bentonite drilling mud to lubricate and cool the drill during borings. At the boring exit, a backhoe was observed collecting the mud and depositing it in a subsoil constructed detention pond to be later disposed appropriately (**Appendix A, Observation Points 131, and 132**). The avoidance of multiple environmentally sensitive areas (ESAs) was observed. ESA-003 which contains ESA-004, 005, 006, 007, and 008 would be avoided by utilizing HDD. A suspected topsoil stockpile

from mining activities will also be bored under (**Appendix A, Observation Points 119-121**).

On 21 August 2019, Mr. Retka and Mr. Leitner visited the Project and was met by Allen Kitchens, QCS Assistant Chief Inspector, during the construction inspections. Trenched pipe measurements were appropriate or deeper than required. Trench wall profiles showed that topsoil had been stripped appropriately (**Appendix A, Observation Point 2760, 2764, 2769, and 2772**). Observed wetlands (W-20 and W-25) along the construction corridor were appropriately open-cut or bored under with appropriate erosion mitigation practices and clearly marked (**Appendix A, Observation Point 2768, 2770, and 2771**). Other observations of a constructed block value and ROW work were also made (**Appendix A, Observation Point 2763 and 2773**).

The "Final Comprehensive Field Reconnaissance Report" (i.e., the Braun Report) by Braun Intertec (July 3, 2019) included assessment of 2 potentially geologically unstable areas along Spread 1 (mileposts 29.3 and 30.4); both of which were determined to show minimal evidence of slope instability and permissible for open cut construction methods.

Spread 2

On 16 July 2019, Mr. Hackley visited Spread 2 of the project. Pipe in trench measurements were appropriate or deeper than required. Trench wall profiles showed that topsoil had been stripped appropriately (**Appendix A, Observation Point 104-107 and 112**) Dakota skipper (*Hesperia docotae*) habitats were appropriately fenced off. Contractors did not work in these areas while the Dakota skipper was active during their flight time and access was limited to foot traffic only. Dakota skipper habitat was defined by host vegetation (Purple cone flower (*Echinacea purpurea*) and Little bluestem (*Schizachyrium scoparium*)). Impacts to these habitats were limited and per the PSC Finding of Fact, additional mitigation measures include restoring the habitat at these areas (**Appendix A, Observation Point 108-111 and 114**).

On 21 August 2019, Mr. Retka and Mr. Leitner visited Spread 2 of the Project. Measured pipe depth within trenches were appropriate or deeper than required. Trench wall profiles showed that topsoil had been stripped appropriately (**Appendix A, Observation Point 2774 and 2779**). Construction activities resumed after the Dakota skipper active fight time. Observations of ROW narrowing to limit impact on habitat were made. ROW benching allowed for impacts on ESA-034 to be limited. ROW adjacent to ESA-35 was observed to have been graded back to approximate original contours. Clay Wilkins, Jomax, was present to answer questions concerning topsoil handling at Dakota skipper ESAs and discussions regarding construction methods seemed satisfactory (**Appendix A, Observation Point 2775-2777**).

On 8 October 2019, Mr. Hackley visited Spread 2 of the Project. Pipe in trench measurements were appropriate or deeper than required. Trench wall profiles showed that topsoil had been stripped appropriately (**Appendix A, Observation Point 206a and 206b**). Construction at select geologically unstable areas highlighted in the Braun Report were inspected. The Braun report did not identify stability issues at the potential geologically unstable area located at milepost 62.2, and this area had been constructed with an open cut trench. Observations at milepost 61.1 showed that this area of the Project had utilized HDD methods. Milepost 47.2 is a location which the Braun Reported noted to show no signs of failure, and which HDD was utilized due to a wetland (W-35) crossing. (**Appendix A, Observation Point 201, 202, and 207**). Water bars were observed near milepost 60.3 adjacent to either side of a creek crossing. These water bars are detailed in

the "Construction Mitigation and Restoration Plan" and were used temporarily for erosion and sediment control along the ROW access route. This was also the location of a potentially geologically unstable area and an active landslide, which had been constructed using HDD methods (**Appendix A, Observation Point 203**). Other potentially geological unstable areas were not inspected, primarily due to access difficulties from recent rainy weather.

Spread 3

On 8 October 2019, Mr. Hackley visited Spread 3 of the Project. Noxious weeds (X-56) was clearly marked adjacent to ROW (**Appendix A, Observation Point 198**). Pipe in trench measurements were appropriate or deeper than required. Trench wall profiles showed that topsoil had been stripped appropriately (**Appendix A, Observation Point 199**). Jomax contractors were observed installing pipe into trenches. Pipe was also observed strung and awaiting trench to be dug for installation (**Appendix A, Observation Point 200 and 205**). A potentially geologically unstable area located at Milepost 56.4 slated for HDD was observed. Guideline stakes were present marking the proposed path of the HHD, which had not been completed at the time of the inspection (**Appendix A, Observation Point 204**).

In general, the contractors appear to have done a satisfactory job with project construction despite the persistent precipitation the region has experienced. Contractors appeared to follow PSC Order Provision #16 for the Project stating: *"Company understands and agrees that construction must be suspended when weather conditions are such that construction activities will cause irreparable damage to roads or land, unless adequate protection measures are taken by Company."* Work areas visited during the inspection appeared to be relatively clean.

Per a phone conversation with Blake Holland, ONEOK Project Manager, on 4 October 2019, the Spread 1 portion of the Project was scheduled for commencement the week of October 7th. Reclamation along the entire project was noted as ongoing. Spread 3 has been completely stripped of topsoil and pipe strung. Trenching of Spread 3 had been delayed due to weather conditions. According to the Monthly PSC Construction Report dated 16 October 2019, ROW clearing and grading, stringing, and bending of the Project is 100 percent complete. Ditching, lowering, and backfill were 95, 94, and 92 percent complete, respectively.

3.0 Issues, Resolutions, and Recommendations

Construction Inspections of ONEOK Demicks Lake 20-inch NGLs Pipeline PU-18-399 have verified that the project is being constructed in compliance with siting laws, siting rules, and applicable Commission Orders. Measurements of pipe depth within trenches confirm that the pipeline is being installed with the depth of cover required. No major issues were observed during construction inspections. However, Wenck has made the following recommendations for the Project to alleviate potential minor issues observed at the project:

- Continue to implement erosion control measures, especially if topsoil stockpiles are to be left over winter.
- Use timely chemical and/or physical control to suppress weeds within topsoil stockpiles to facilitate successful revegetation of the project during reclamation.
- Use spotters and carefully handle soil during subsequent trench backfilling to minimize subsoil/topsoil mixing, and to assure subsoil and topsoil remains segregated to the greatest extent feasible.
- Backfill trenches to assure the pipeline is buried with a minimum of 48 inches of cover, and to 72 inches of cover across unimproved section lines.
- Follow recommendations of the "Final Comprehensive Field Reconnaissance Report" by Braun Intertec (July 3, 2019) for Project construction along potentially geologically unstable areas.

4.0 Signatures

The services performed by Wenck staff for this project have been conducted in a manner consistent with the degree of care and technical skill appropriately exercised by professionals currently practicing in this area under similar time and budget constraints. Recommendations and findings contained in this report represent our professional judgment and are based upon available information and technically accepted practices at the present time and location. Other than this, no warranty is implied or expressed.

Matt Retka, Project Manager — Date: 11/07/2019

Jeremy Hackley, Field Inspector — Date: 10/24/2019

1. Observation Point Coordinates

Point #	Latitude	Longitude	Date	Point #	Latitude	Longitude	Date
104	47.67375	-103.64121	16-Jul-19	2760	47.750369	-103.433939	21-Aug-19
105	47.67376	-103.63912	16-Jul-19	2763e	47.750737	-103.433263	21-Aug-19
106	47.68009	-103.62689	16-Jul-19	2764	47.754679	-103.409381	21-Aug-19
107	47.68088	-103.62682	16-Jul-19	2768e	47.760008	-103.398108	21-Aug-19
108	47.68128	-103.62686	16-Jul-19	2769	47.733362	-103.498519	21-Aug-19
109	47.68146	-103.62684	16-Jul-19	2770w	47.733367	-103.499537	21-Aug-19
111	47.68305	-103.62444	16-Jul-19	2771e	47.733367	-103.499537	21-Aug-19
112	47.68287	-103.62497	16-Jul-19	2772e	47.733378	-103.49682	21-Aug-19
114	47.69598	-103.57936	16-Jul-19	2773ne	47.733378	-103.49682	21-Aug-19
116	47.90655	-103.00604	17-Jul-19	2774w	47.683123	-103.624207	21-Aug-19
117b	47.89133	-103.04821	17-Jul-19	2775nw	47.683189	-103.624014	21-Aug-19
118	47.89122	-103.04841	17-Jul-19	2776e	47.683189	-103.624014	21-Aug-19
119	47.87313	-103.11263	17-Jul-19	2777n	47.681082	-103.626919	21-Aug-19
120	47.87316	-103.11131	17-Jul-19	2779	47.662305	-103.713821	21-Aug-19
121	47.87313	-103.11033	17-Jul-19	198	47.499162	-103.896147	8-Oct-19
122a	47.85365	-103.2192	17-Jul-19	199	47.500164	-103.895291	8-Oct-19
122b	47.85365	-103.2192	17-Jul-19	200	47.49938	-103.895858	8-Oct-19
123	47.85355	-103.21872	17-Jul-19	201	47.532188	-103.864124	8-Oct-19
125	47.81542	-103.30619	17-Jul-19	202	47.546181	-103.863823	8-Oct-19
126a	47.81484	-103.3072	17-Jul-19	203	47.555303	-103.862548	8-Oct-19
126b	47.81484	-103.3072	17-Jul-19	204	47.591324	-103.820493	8-Oct-19
127	47.81358	-103.30946	17-Jul-19	205	47.591125	-103.820965	8-Oct-19
128	47.81307	-103.31029	17-Jul-19	206a	47.662306	-103.673474	8-Oct-19
131	47.76166	-103.35769	17-Jul-19	206b	47.662306	-103.673474	8-Oct-19
132	47.76134	-103.35783	17-Jul-19	207	47.662459	-103.686067	8-Oct-19

Figures

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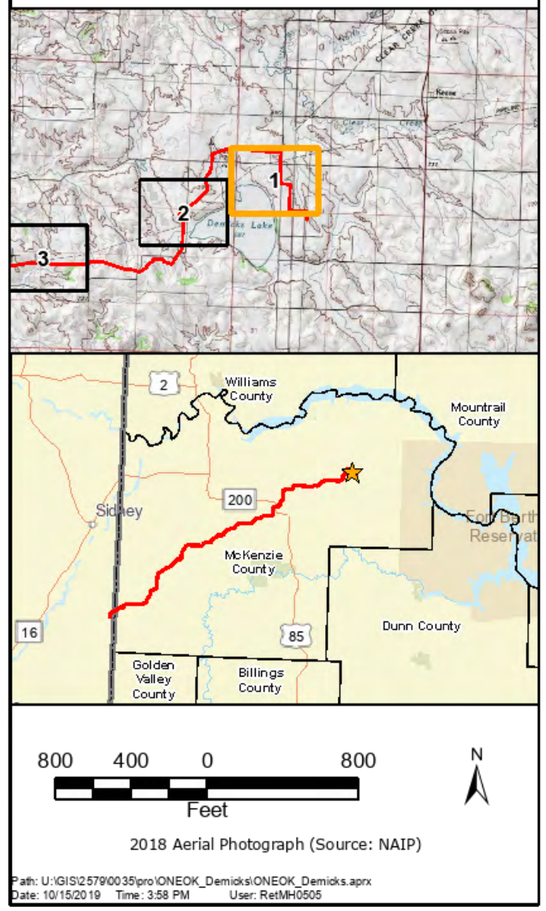
Demicks Lake Pipeline
Figure 1

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



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Construction Observation Locations

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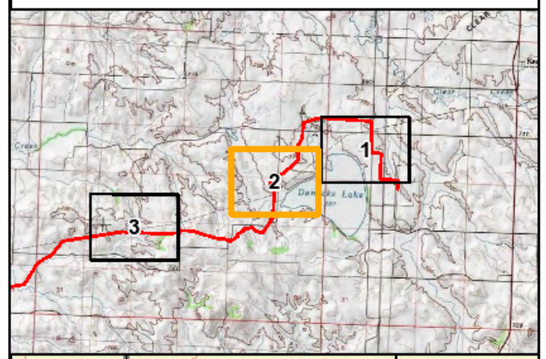
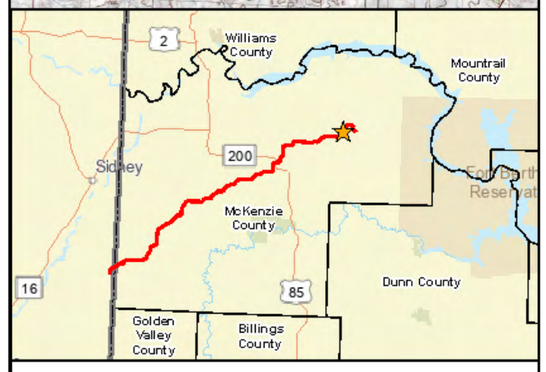
Demicks Lake Pipeline
Figure 2

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary





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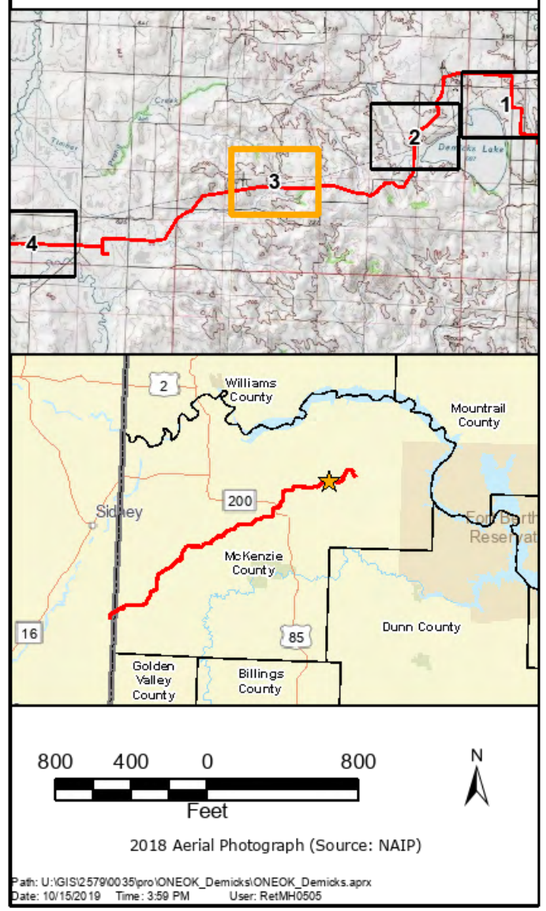
Demicks Lake Pipeline
Figure 3

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



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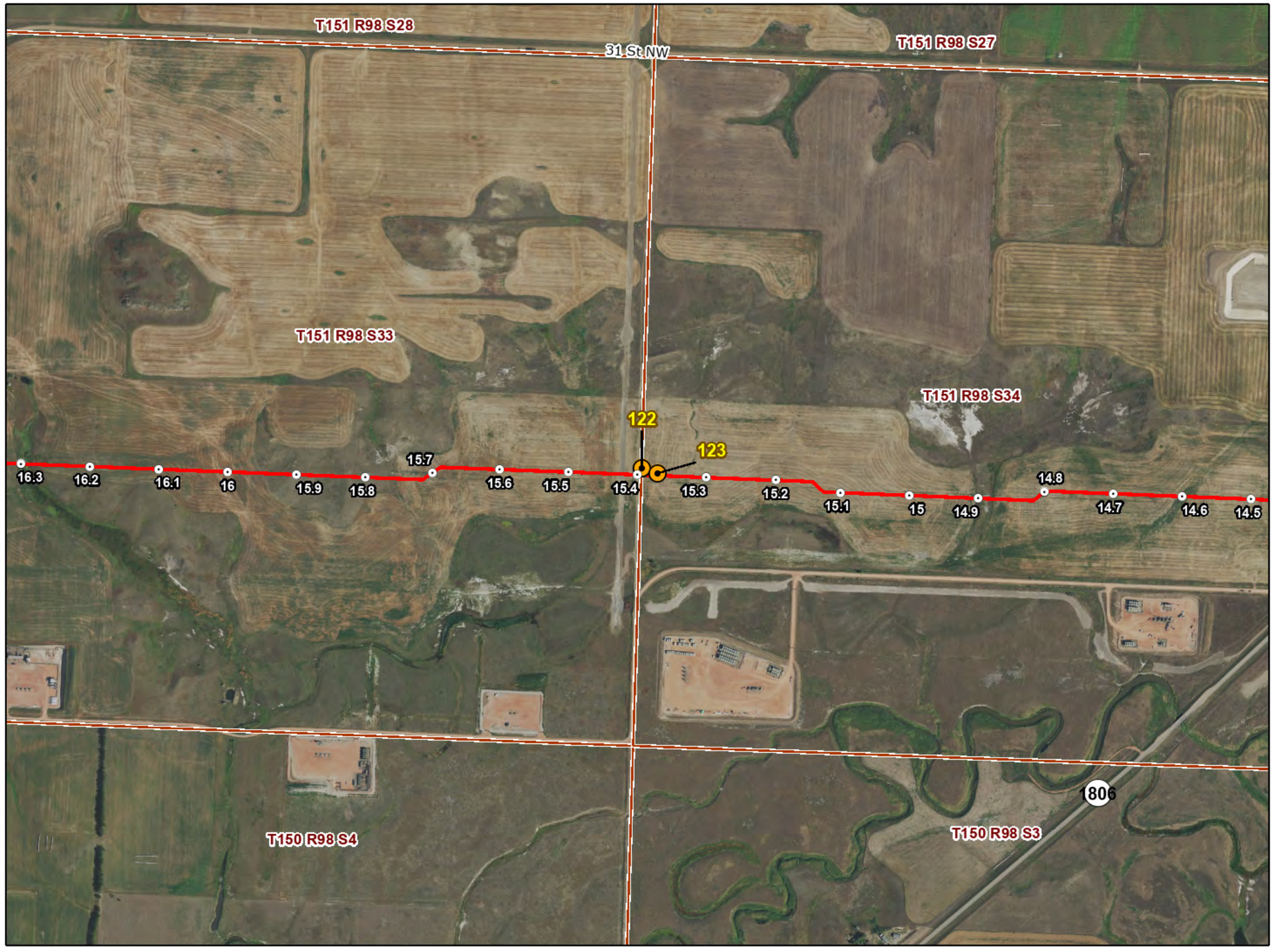

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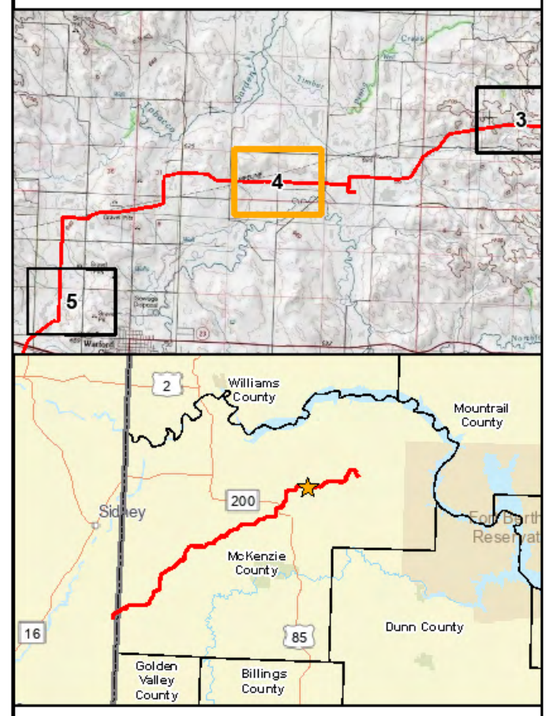
Demicks Lake Pipeline
Figure 4

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



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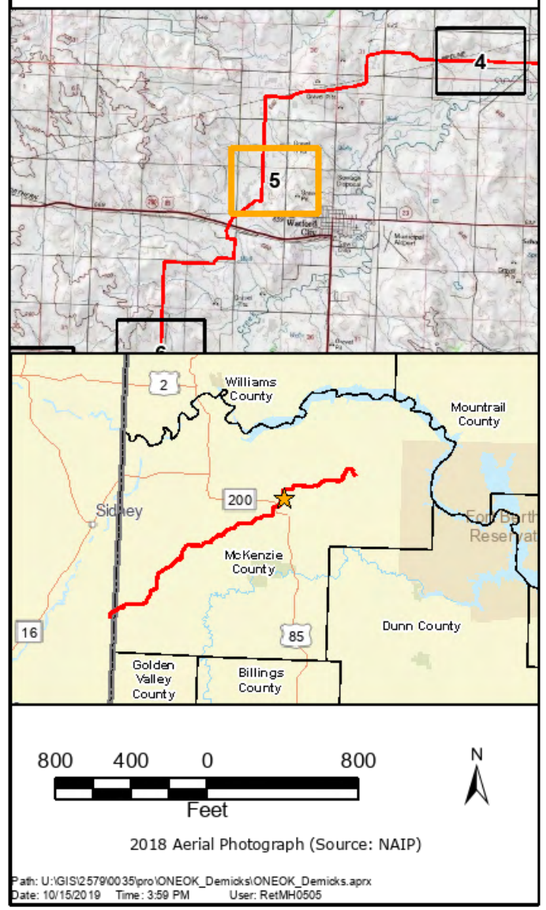
Demicks Lake Pipeline
Figure 5

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



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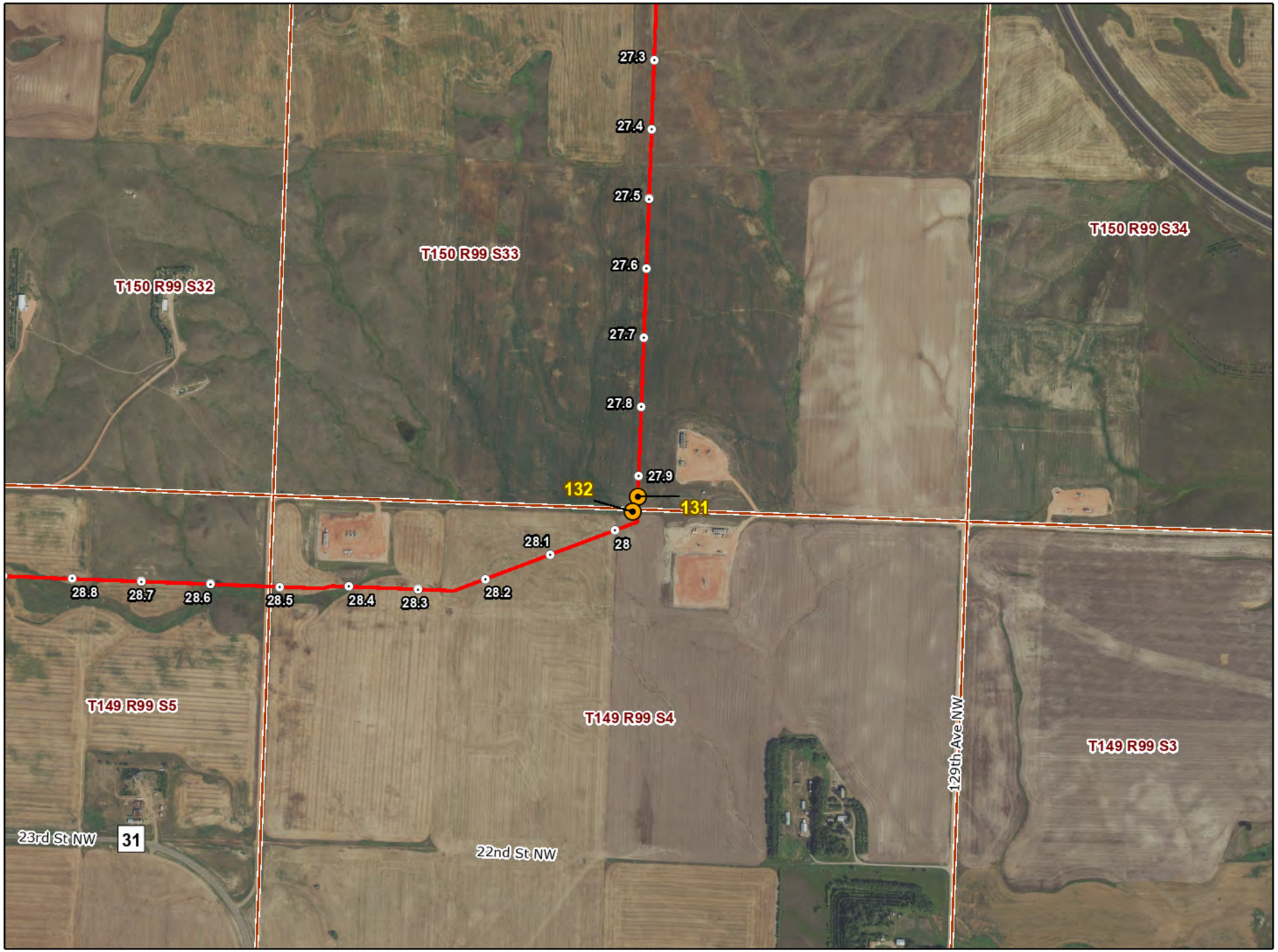
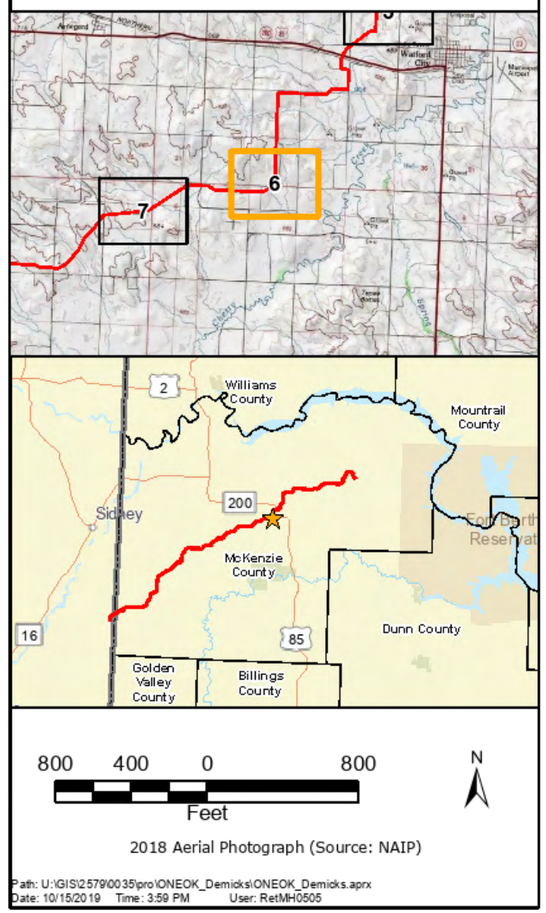
Demicks Lake Pipeline
Figure 6

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary





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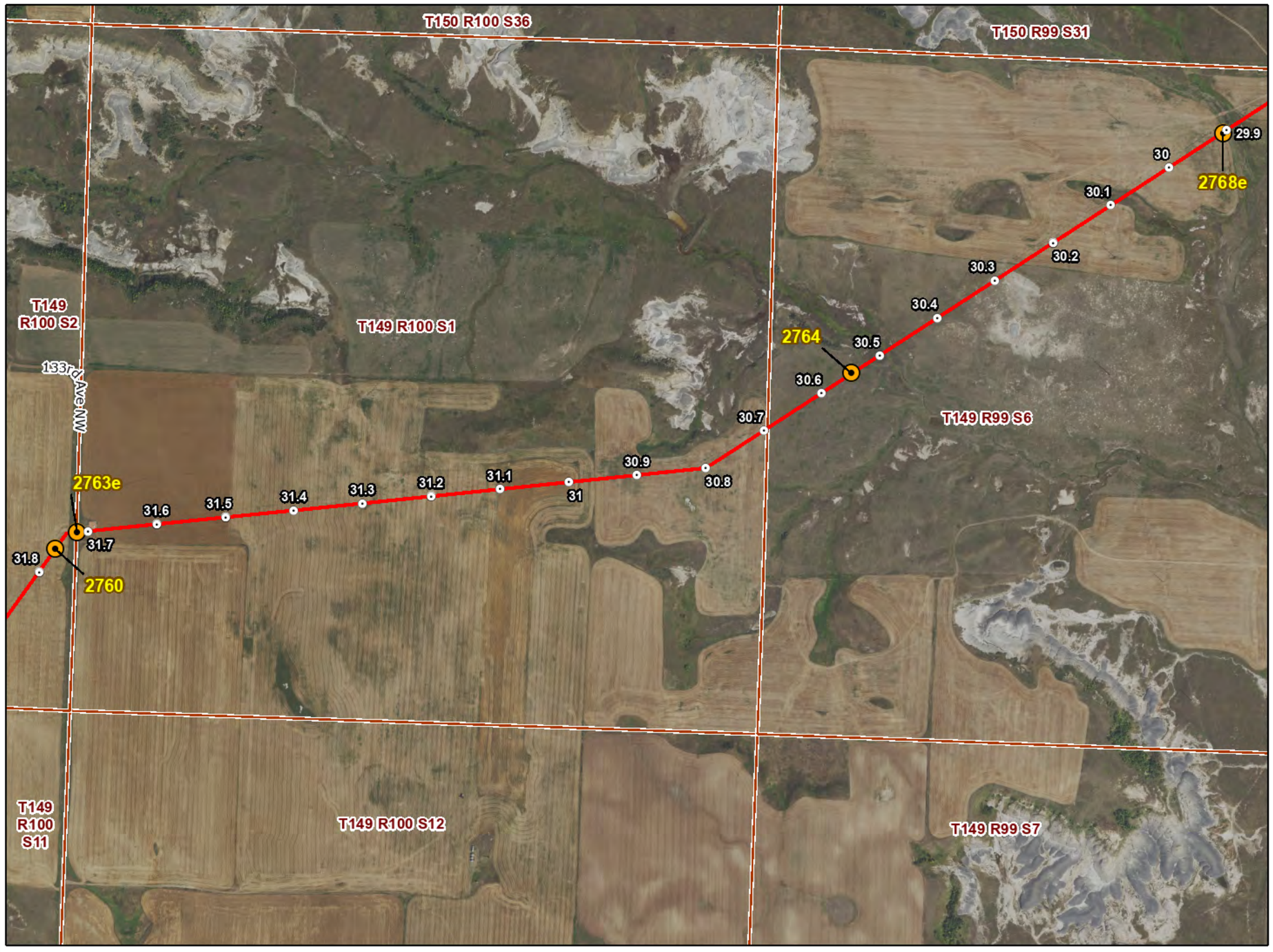

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Demicks Lake Pipeline
Figure 7

- Milepost
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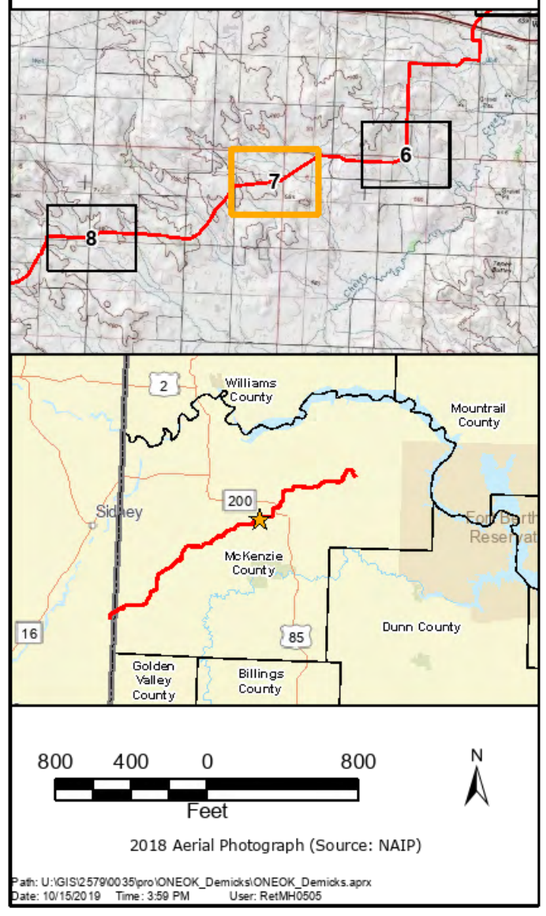
- Section Boundary



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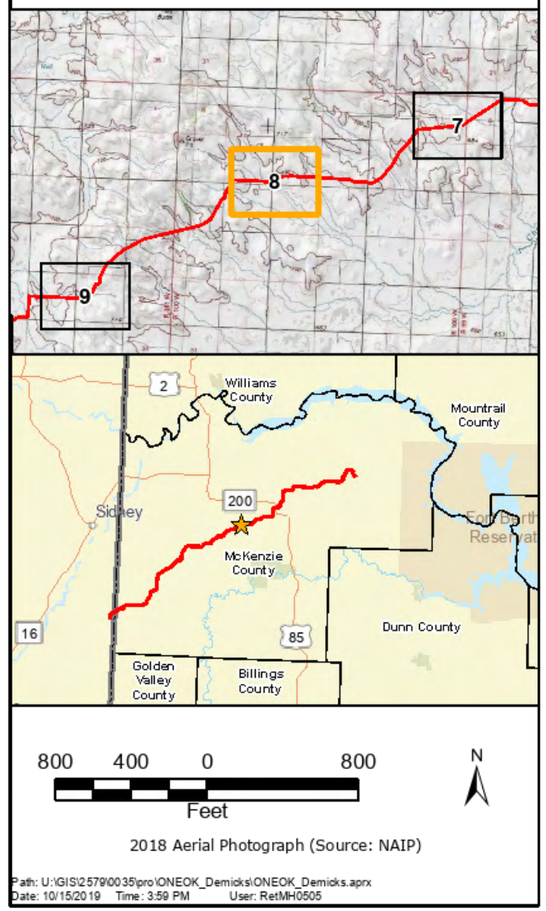

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Demicks Lake Pipeline
Figure 8

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary

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Construction Observation Locations

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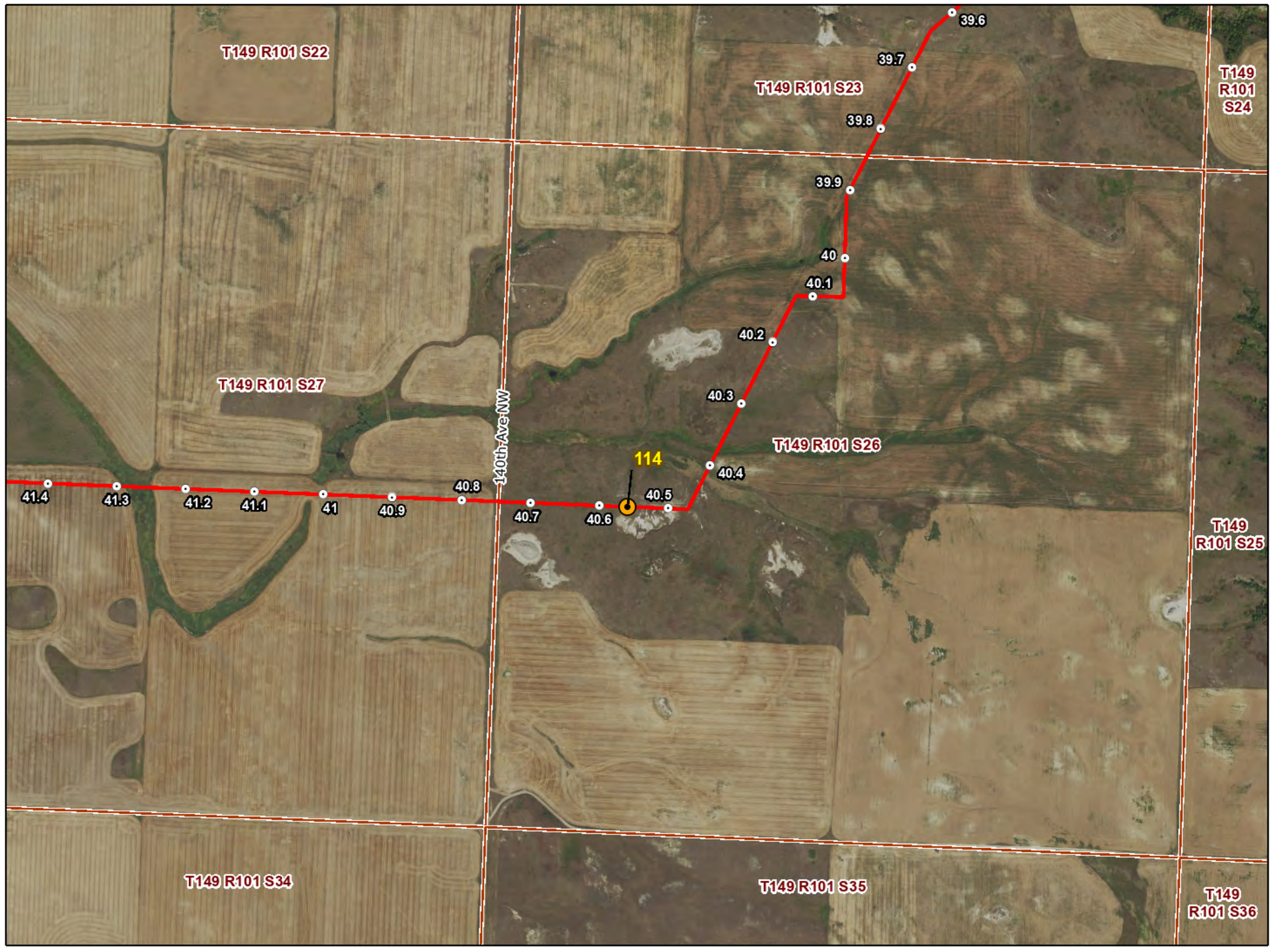
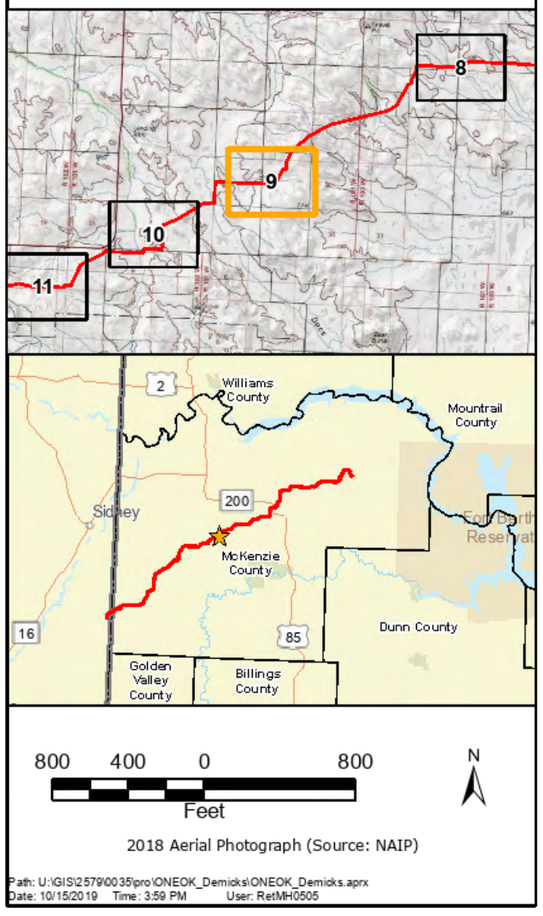


North Dakota Public Service Commission

Demicks Lake Pipeline
Figure 9

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

WENCK
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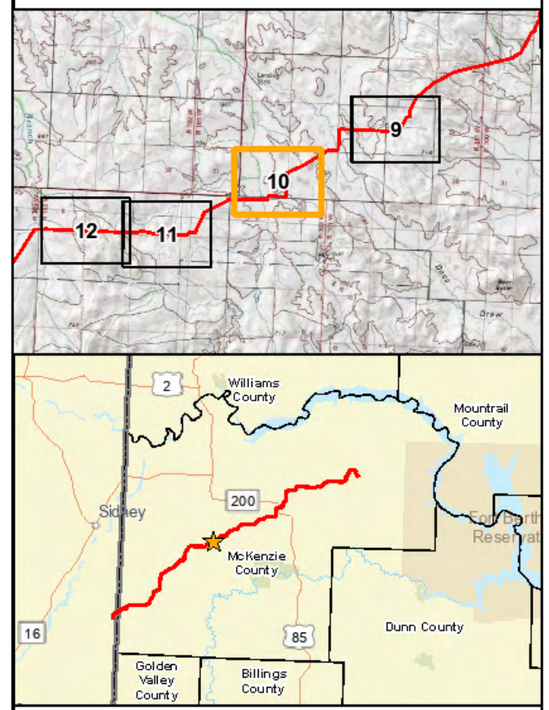
North Dakota Public Service Commission

Demicks Lake Pipeline
Figure 10

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



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Feet

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2018 Aerial Photograph (Source: NAIP)

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142 Ave NW
19th St NW
T149 R101 S28
T149 R101 S31
T149 R101 S32
T149 R101 S33
T148 R102 S2
T148 R102 S1
68
30
18th St NW
18 St NW
42.6
42.7
42.8
42.9
43
43.1
43.2
43.3
43.5
43.6
43.7
43.8
43.9
44
44.1
44.2
44.3
44.4
44.5
44.6
44.7
44.8
44.9
45
2775nw/2776e
2774w
112
111
109
108
2777n
107
106
104
105

PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

WENCK
Responsive partner. Exceptional outcomes.

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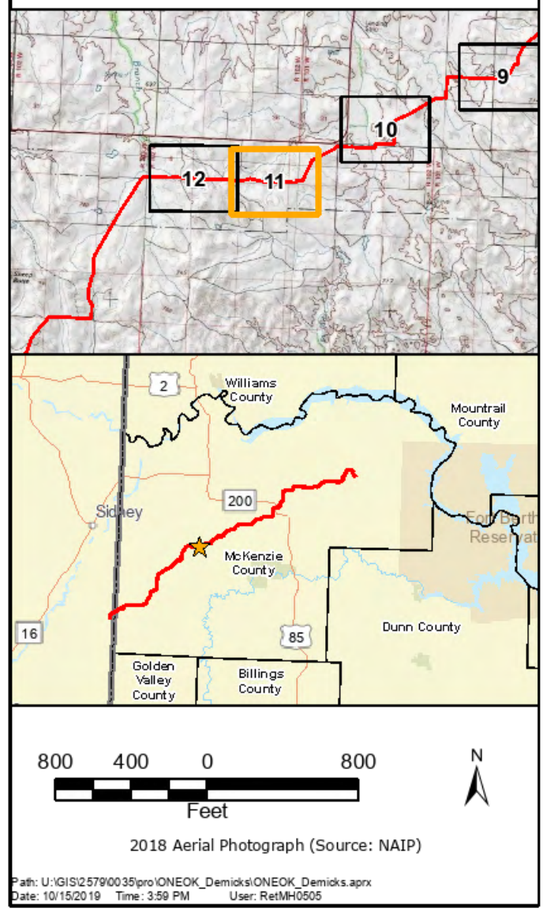
Demicks Lake Pipeline
Figure 11

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

WENCK
Responsive partner. Exceptional outcomes.

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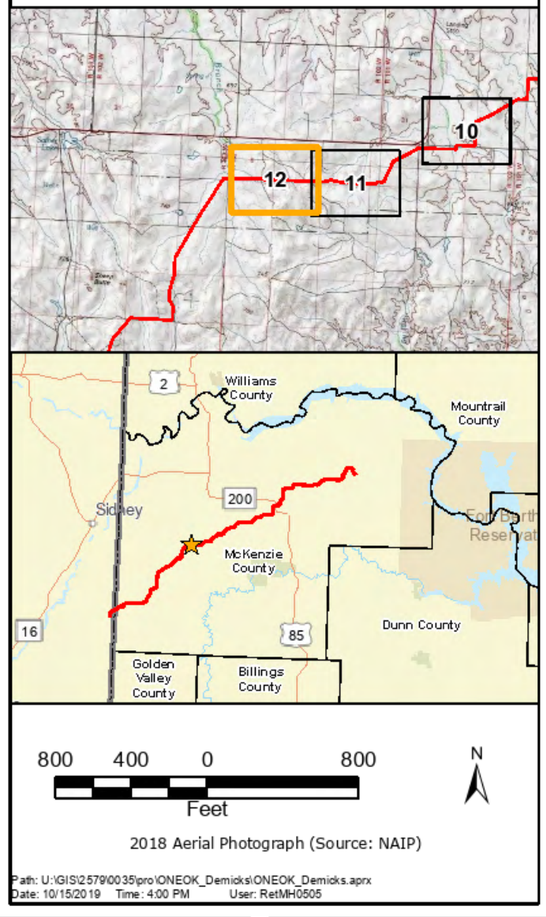
Demicks Lake Pipeline
Figure 12

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

WENCK
Responsive partner. Exceptional outcomes.

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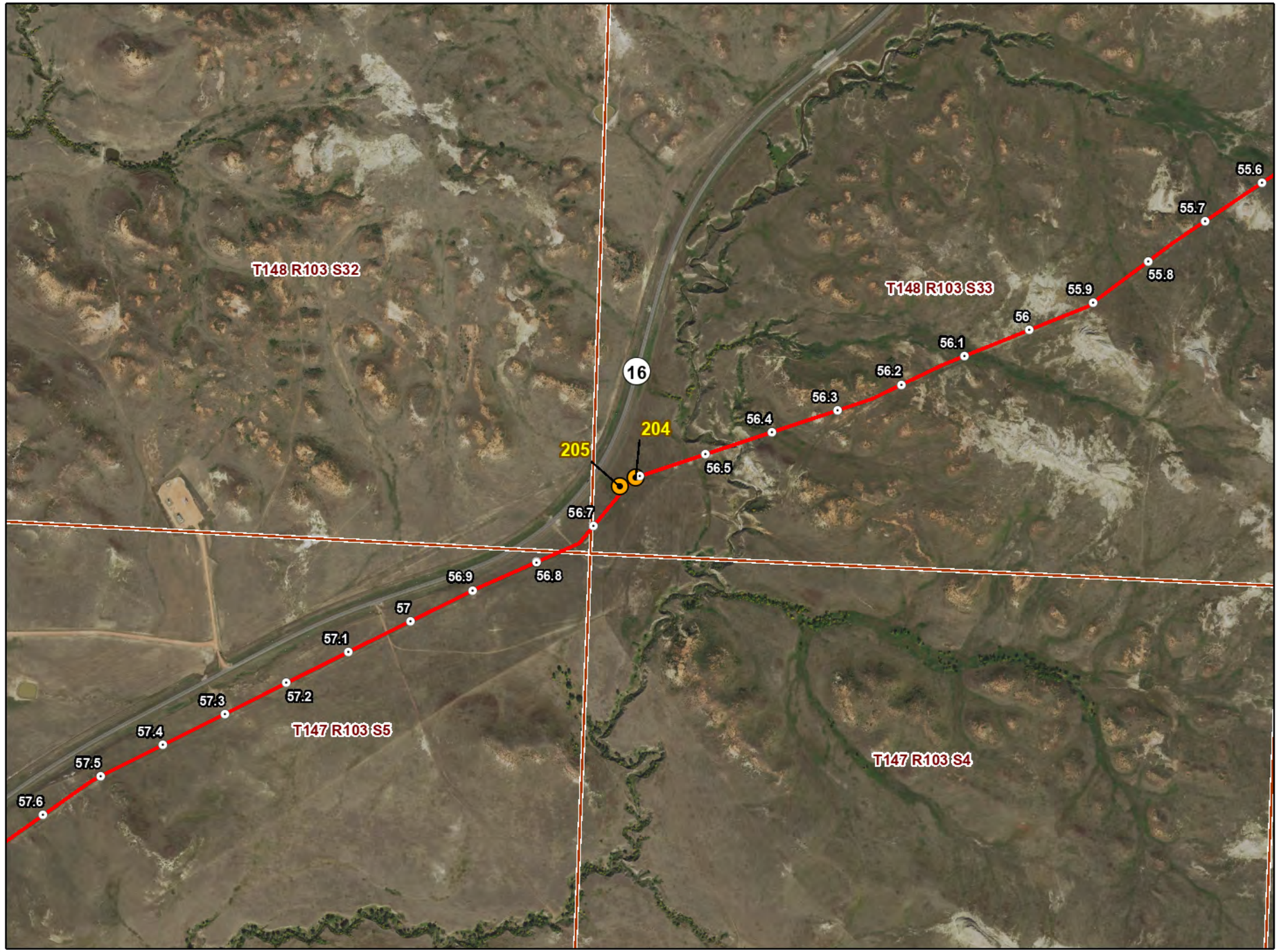
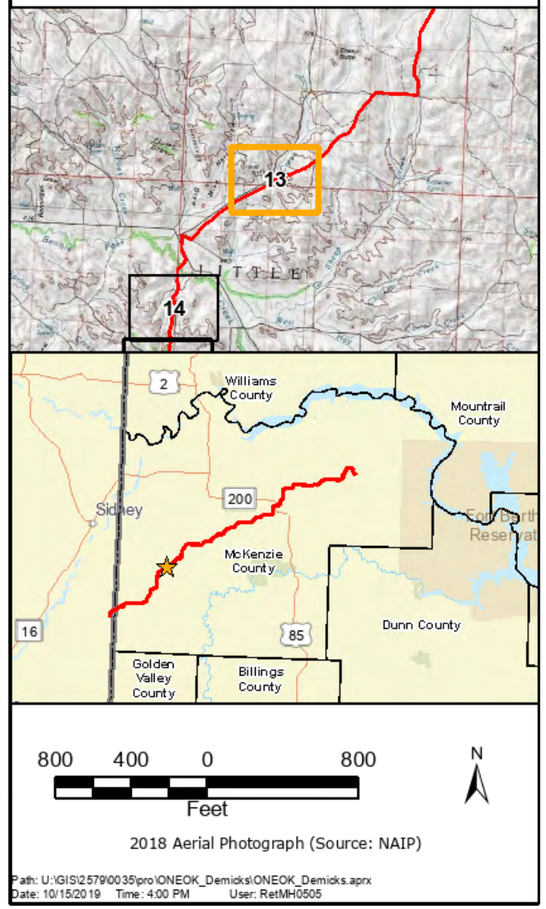
Demicks Lake Pipeline
Figure 13



- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



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PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

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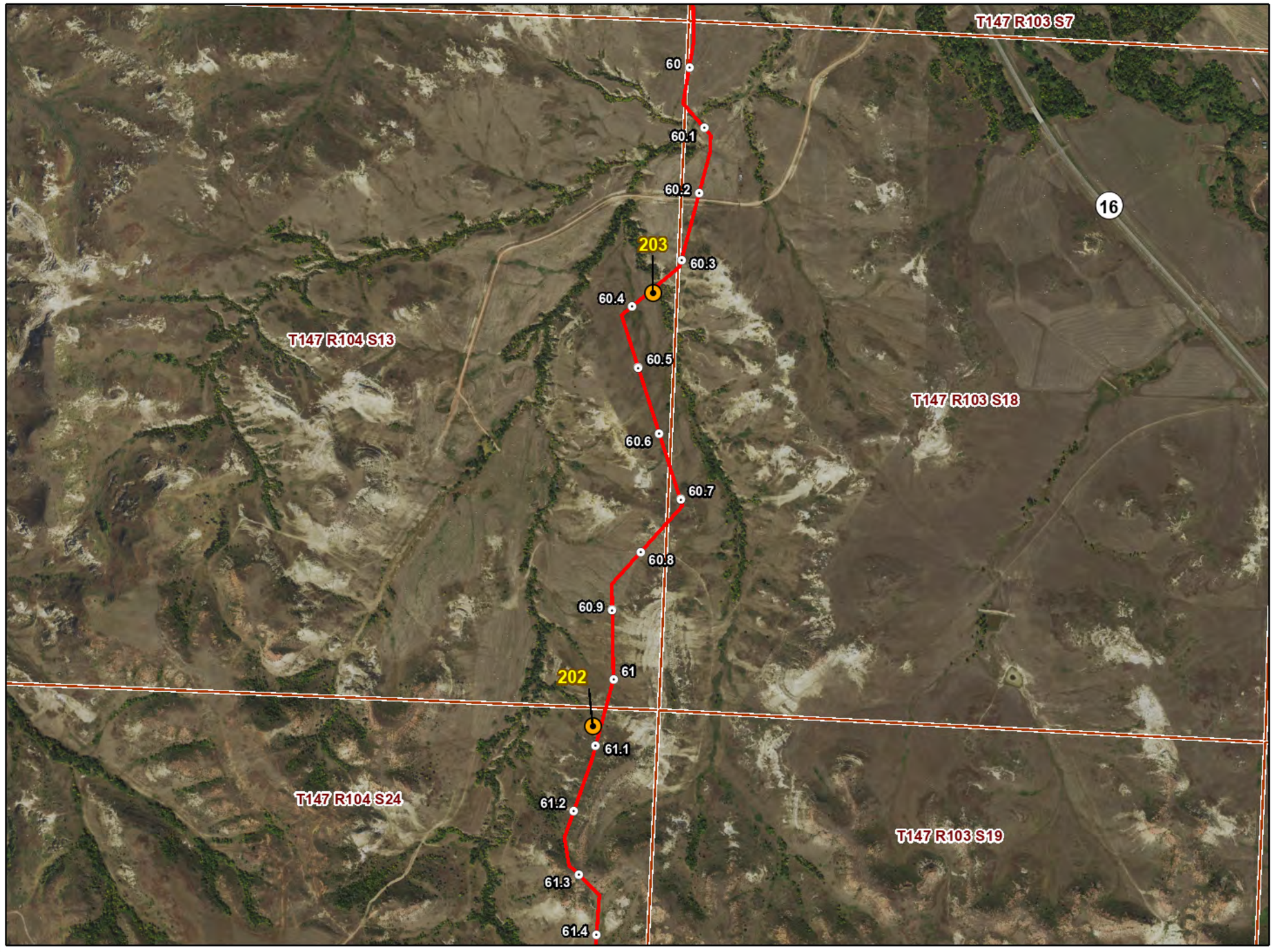
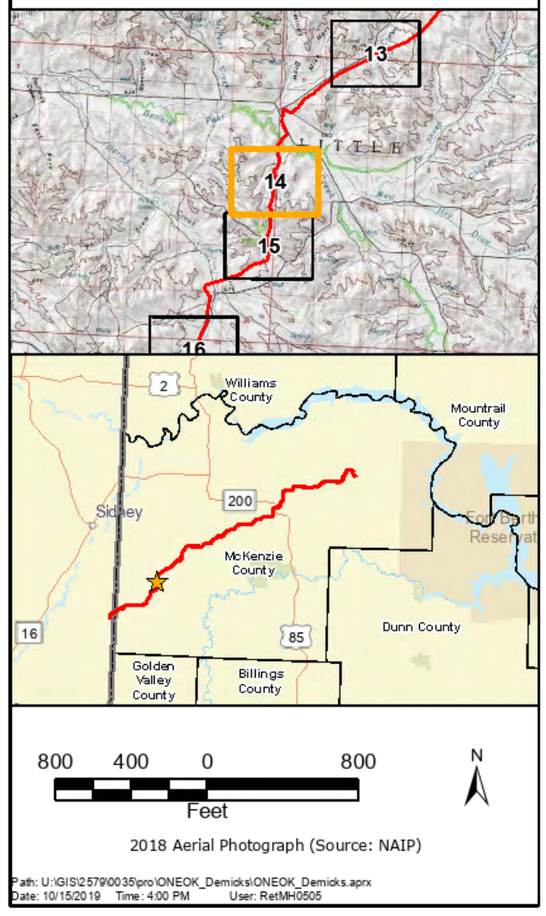


North Dakota Public Service Commission

Demicks Lake Pipeline
Figure 14

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

WENCK
Responsive partner. Exceptional outcomes.

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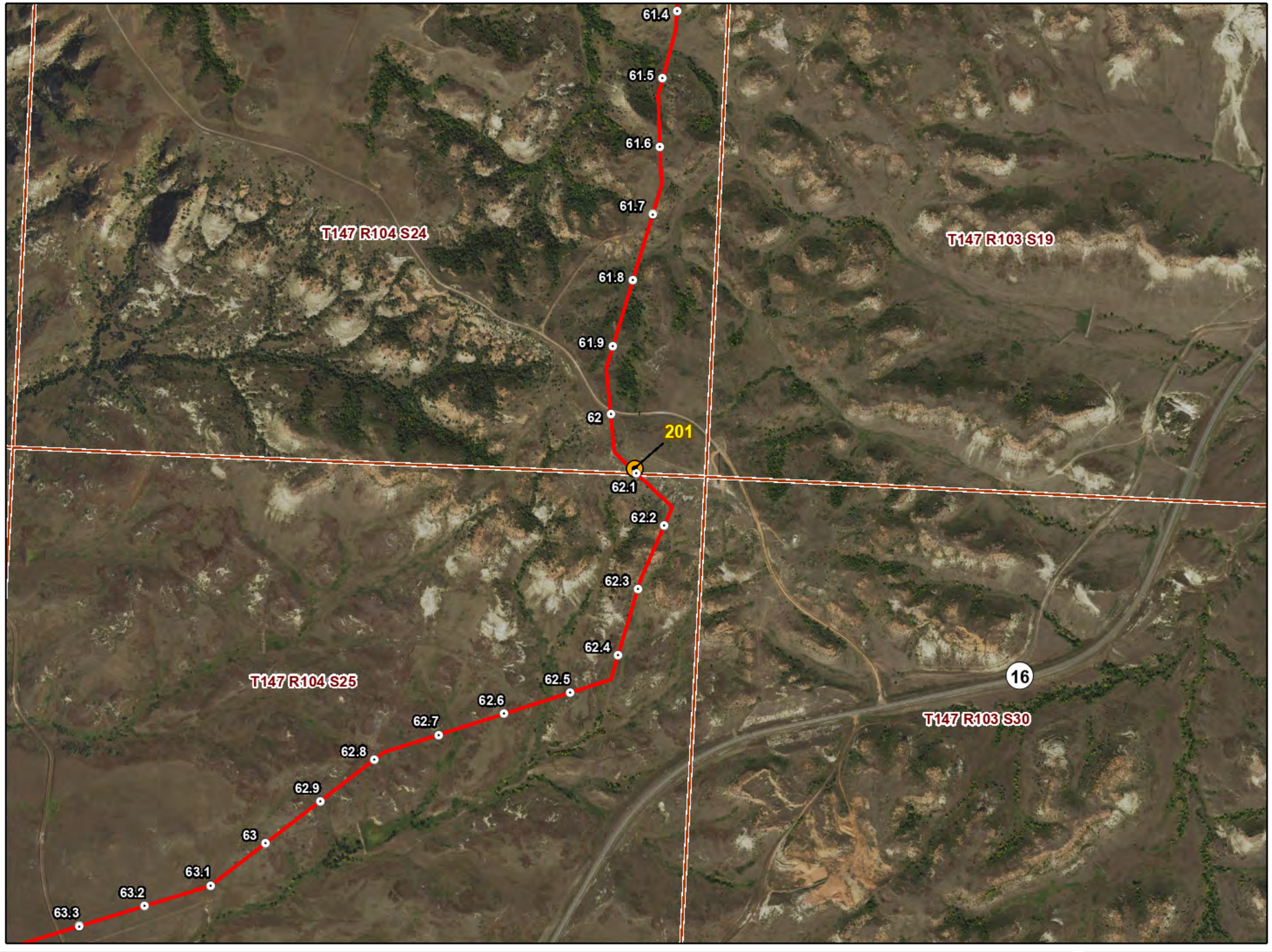
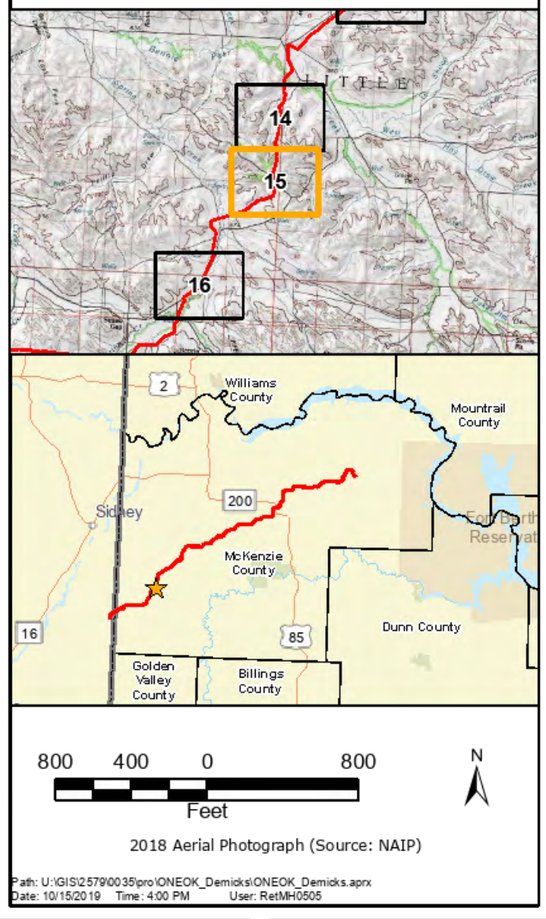
North Dakota Public Service Commission

Demicks Lake Pipeline
Figure 15

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary





PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

WENCK
Responsive partner. Exceptional outcomes.

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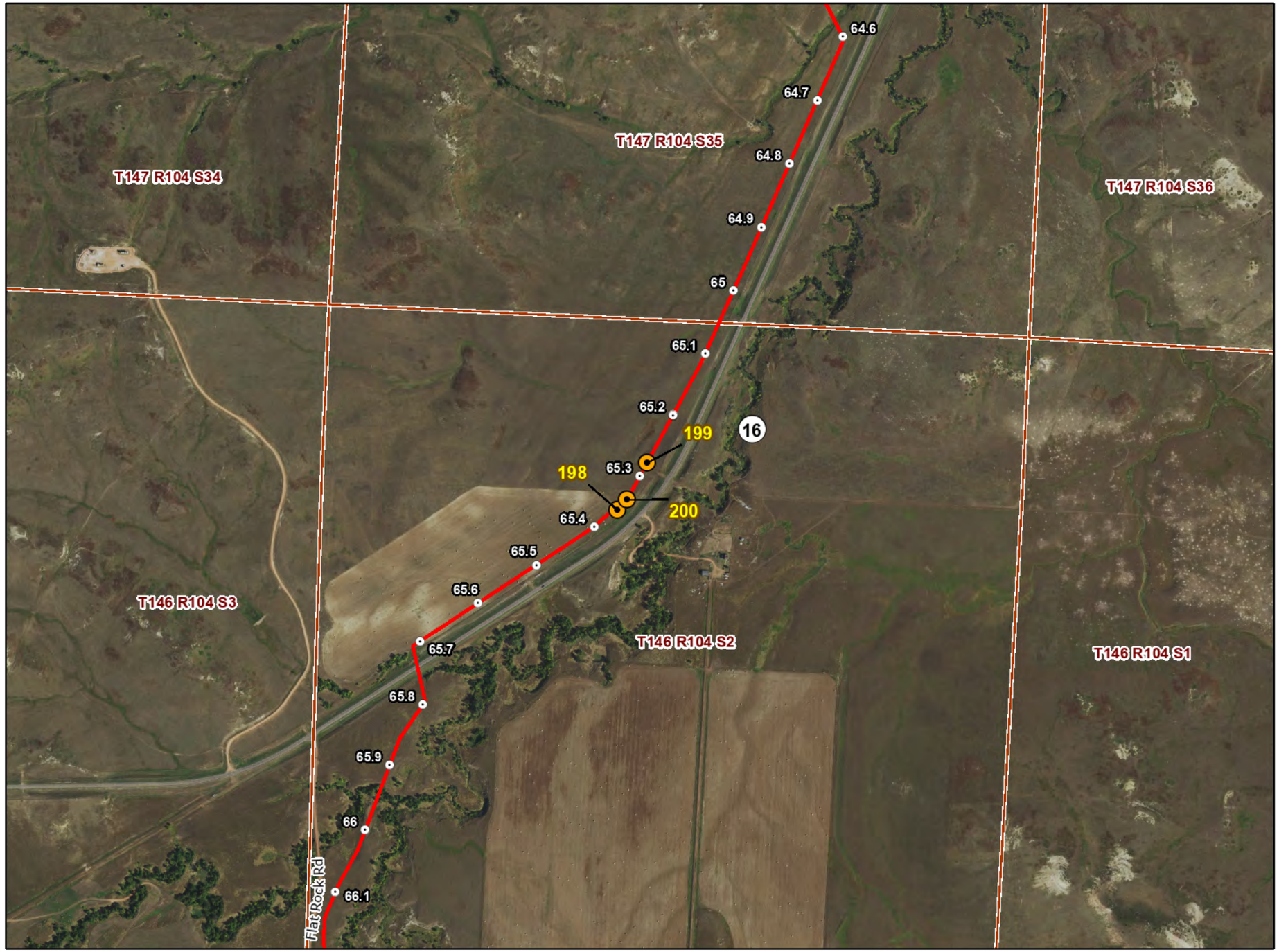
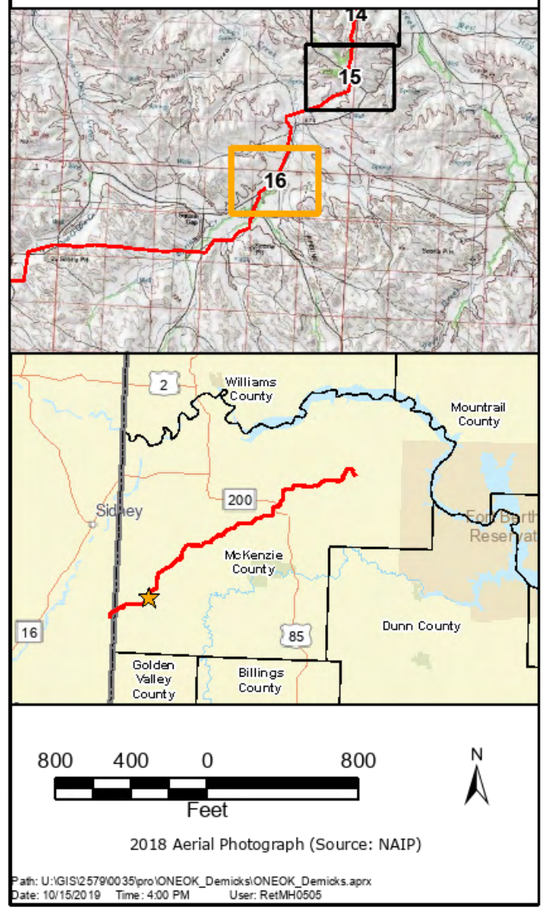


North Dakota Public Service Commission

Demicks Lake Pipeline Figure 16

- Milepost
- Construction Observation Point Location
- Demicks Lake Centerline (PU-18-399)
- Section Boundary



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Feet

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2018 Aerial Photograph (Source: NAIP)

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PU-18-399 DEMICKS LAKE PIPELINE CONSTRUCTION INSPECTION

Construction Observation Locations

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Responsive partner. Exceptional outcomes.

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Appendix A

Photographs

Appendix A- On-Site Photographs

	**Observation Point: 116** Date Taken: July 17, 2019 Direction Photo is Taken: Northwest Spread 1 Station 96+00 Photo Description: Wetland (W-1) with silt fence installed. Pipe strung for open trenching. Latitude: 47.90655 Longitude: -103.00604
	**Observation Point: 117b** Date Taken: July 17, 2019 Direction Photo is Taken: Southwest Spread 1 Station 254.00 Photo Description: Jomax crew placing pipe in trench. Subsoil stockpiles are spoils from trenching. Latitude: 47.89133 Longitude: -103.04821
	**Observation Point: 118** Date Taken: July 17, 2019 Direction Photo is Taken: South Spread 1 Station 255+00 Photo Description: Appropriately no topsoil in trench profile. Pipe depth at approximately 60-inches. Latitude: 47.89122 Longitude: -103.04841

Appendix A- On-Site Photographs

	**Observation Point: 119** Date Taken: July 17, 2019 Direction Photo is Taken: West Spread 1 Station 485+00 Photo Description: ESA-003 containing ESA-004 ESA-005, ESA-006, ESA-007, and ESA-008. HDD guideline and stakes are present. Latitude: 47.87313 Longitude: -103.11263
	**Observation Point: 120** Date Taken: July 17, 2019 Direction Photo is Taken: East Spread 1 Station 483+00 Photo Description: HDD pipe to be bored under ESA-003 and accompanied other ESAs. Guideline present. Latitude: 47.87316 Longitude: -103.11131
	**Observation Point: 121** Date Taken: July 17, 2019 Direction Photo is Taken: West Spread 1 Station 478+00 Photo Description: Suspected topsoil stockpile from mining pit. Mr. Kitchens commented that HDD will begin before stockpile as to not disturb soil. Latitude: 47.87313 Longitude: -103.11033

Appendix A- On-Site Photographs

	**Observation Point: 122a** Date Taken: July 17, 2019 Direction Photo is Taken: Southeast Spread 1 Station 812+00 Photo Description: Boring entry for undeveloped sectional line. Latitude: 47.85365 Longitude: -103.21920
	**Observation Point: 122b** Date Taken: July 17, 2019 Direction Photo is Taken: Northeast Spread 1 Station 812+00 Photo Description: Extra workspace cleared. Topsoil and subsoil segregated properly. Latitude: 47.85365 Longitude: -103.21920
	**Observation Point: 123** Date Taken: July 17, 2019 Direction Photo is Taken: East Spread 1 Station 813+00 Photo Description: Pipe placed in trench and pipe waiting to be connected to bore pipe from sectional line crossing. Latitude: 47.85355 Longitude: -103.21872

Appendix A- On-Site Photographs

	**Observation Point: 125** Date Taken: July 17, 2019 Direction Photo is Taken: Southwest Spread 1 Pullback US HWY 85 Photo Description: Pullback area for US HWY 85 HDD. NO PARKING/NO REFUELING marked. Latitude: 47.81542 Longitude: -103.30619
	**Observation Point: 126a** Date Taken: July 17, 2019 Direction Photo is Taken: Southwest Spread 1 Pullback US HWY 85 Photo Description: Timber mats with plastic barrier underneath to prevent potential contaminants from entering wetland (W-42). Latitude: 47.81484 Longitude: -103.30720
	**Observation Point: 126b** Date Taken: July 17, 2019 Direction Photo is Taken: South-southeast Spread 1 Pullback US HWY 85 Photo Description: Orange sign marking Wetland (W-42). Latitude: 47.81484 Longitude: -103.30720

Appendix A- On-Site Photographs

	**Observation Point: 127** Date Taken: July 17, 2019 Direction Photo is Taken: East Spread 1 Pullback US HWY 85 Photo Description: Wetland (W-42) marked on southwestern side of wetland area. Latitude: 47.81358 Longitude: -103.30946
	**Observation Point: 128** Date Taken: July 17, 2019 Direction Photo is Taken: Northeast Spread 1 Pullback US HWY 85 Photo Description: Timber mats exiting wetland (W-42) area. Latitude: 47.81307 Longitude: -103.31029
	**Observation Point: 131** Date Taken: July 17, 2019 Direction Photo is Taken: Southeast Spread 1 Station 1475+00 Photo Description: Jomax crew boring under undeveloped sectional line. White mat placed to mitigate against potential machine fluid spills or leaks. Latitude: 47.76166 Longitude: -103.35769

Appendix A- On-Site Photographs

	**Observation Point: 132** Date Taken: July 17, 2019 Direction Photo is Taken: South Spread 1 Station 1475+00 Photo Description: Bore exit. Backhoe placing boring fluid and wet boring cuttings from exit to created detention pond. Latitude: 47.76134 Longitude: -103.35783
	**Observation Point: 2760** Date Taken: August 21, 2019 Direction Photo is Taken: Southwest Spread 1 Station 1677+00 Photo Description: Pipe depth at approximately 60-inches. Appropriately no topsoil in trench profile. Latitude: 47.750369 Longitude: -103.433939
	**Observation Point: 2763e** Date Taken: August 21, 2019 Direction Photo is Taken: East Spread 1 Station 1675+00 Photo Description: Overlooking block valve and ROW. Latitude: 47.750737 Longitude: -103.433263

Appendix A- On-Site Photographs

	**Observation Point: 2764** Date Taken: August 21, 2019 Direction Photo is Taken: NA Spread 1 Station 1613+00 Photo Description: Pipe depth at approximately 54-inches. Appropriately no topsoil in trench profile. Latitude: 47.754679 Longitude: -103.409381
	**Observation Point: 2768e** Date Taken: August 21, 2019 Direction Photo is Taken: East Spread 1 Station 1579+00 Photo Description: Trenching along wetland (W-20). Silt fence and wetland identification sign installed. Latitude: 47.760008 Longitude: -103.398108
	**Observation Point: 2769** Date Taken: August 21, 2019 Direction Photo is Taken: NA Spread 1 Station 1869+00 Photo Description: Pipe depth at approximately 58-inches. Appropriately no topsoil in trench profile. Latitude: 47.733362 Longitude: -103.498519

Appendix A- On-Site Photographs

Observation Point: 2770w
Date Taken: August 21, 2019
Direction Photo is Taken: West
Spread 1 Station 1870+00

Photo Description: Overlooking wetland (W-25). Silt fences installed. HDD used under wetland feature.

Latitude: 47.733367
Longitude: -103.499537

Observation Point: 2771e
Date Taken: August 21, 2019
Direction Photo is Taken: East
Spread 1 Station 1870+00

Photo Description: Overlooking ROW and Wetland (W-25) bore entry. Safety fence installed around entry area.

Latitude: 47.733367
Longitude: -103.499537

Observation Point: 2772e
Date Taken: August 21, 2019
Direction Photo is Taken: East
Spread 1 Station 1864+00

Photo Description: Acceptable trenching with no topsoil in trench profile.

Latitude: 47.733378
Longitude: -103.49682

Appendix A- On-Site Photographs

	**Observation Point: 2773ne** Date Taken: August 21, 2019 Direction Photo is Taken: Northeast Spread 1 Station 1864+00 Photo Description: View of construction progress along the ROW. Latitude: 47.733378 Longitude: -103.49682
	**Observation Point: 104** Date Taken: July 16, 2019 Direction Photo is Taken: West Spread 2 Station 2356+00 Photo Description: Pipe bored under access road. Trench seemed to hazardous to conduct accurate measurement of pipe depth. Visual estimation of pipe depth was 48-inches or deeper. Latitude: 47.67375 Longitude: -103.64121
	**Observation Point: 105** Date Taken: July 16, 2019 Direction Photo is Taken: East Spread 2 Station 2350+00 Photo Description: HDD boring under Waterbody W-33 and Wetland W-33. Pipe depth difficult to accurately measure due to trench taper. Estimated visual measurement of 48-inches or greater. Latitude: 47.67376 Longitude: -103.63912

Appendix A- On-Site Photographs

Observation Point: 106
Date Taken: July 16, 2019
Direction Photo is Taken: South
Spread 2 Station 2296+00

Photo Description: Pipe buried and awaiting ROW grading.

Latitude: 47.68009
Longitude: -103.62689

Observation Point: 107
Date Taken: July 16, 2019
Direction Photo is Taken: South
Spread 2 Station 2293+00

Photo Description: Appropriately no topsoil in trench profile. Pipe depth approximately 60-inches.

Latitude: 47.68088
Longitude: -103.62682

Observation Point: 108
Date Taken: July 16, 2019
Direction Photo is Taken: North
Spread 2 Station 2292+00

Photo Description: ESA-035 clearly marked and roped off. ROW narrowed to limit impact on Dakota skipper (*Hesperia dacotae*) habitat.

Latitude: 47.68128
Longitude: -103.62686

Appendix A- On-Site Photographs

Observation Point: 109
Date Taken: July 16, 2019
Direction Photo is Taken: Northwest
Spread 2 Station 2292+00

Photo Description: Vegetation within the boundary of the ESA-035. Purple cone flower (*Echinacea purpurea*) and Little bluestem (*Schizachyrium scoparium*) are present within the area.

Latitude: 47.68146
Longitude: -103.62684

Observation Point: 111
Date Taken: July 16, 2019
Direction Photo is Taken: East
Spread 2 Station 2282+00

Photo Description: ESA-304 clearly marked with NO ACCESS. No construction activities (foot traffic only) until permission granted.

Latitude: 47.68305
Longitude: -103.62444

Observation Point: 112
Date Taken: July 16, 2019
Direction Photo is Taken: Southeast
Spread 2 Station 2283+00

Photo Description: Appropriately no topsoil in trench profile. Pipe depth approximately 60-inches.

Latitude: 47.68287
Longitude: -103.62497

Appendix A- On-Site Photographs

	**Observation Point: 114** Date Taken: July 16, 2019 Direction Photo is Taken: South Spread 2 Station 2142+00 Photo Description: ESA-032 clearly marked and fenced. Latitude: 47.69598 Longitude: -103.57936
	**Observation Point: 2774w** Date Taken: August 21, 2019 Direction Photo is Taken: West Spread 2 Station 2281+00 Photo Description: Pipe depth at approximately 60-inches. Appropriately no topsoil in trench profile. Latitude: 47.683123 Longitude: -103.624207
	**Observation Point: 2775nw** Date Taken: August 21, 2019 Direction Photo is Taken: Northwest Spread 2 Station 2281+00 Photo Description: Overlooking benched ROW within ESA-034. Jomax limited impact to ESA-034 Dakota skipper habitat after skipper flight time by narrowing ROW. ONEOK proposed to restore habitat of ESA per PSC Siting Criteria #37. Latitude: 47.683189 Longitude: -103.624014

Appendix A- On-Site Photographs

	**Observation Point: 2776e** Date Taken: August 21, 2019 Direction Photo is Taken: East Spread 2 Station 2281+00 Photo Description: Overlooking benched ROW within ESA-034. Jomax limited impact to ESA-034 Dakota skipper habitat after skipper flight time by narrowing ROW. ONEOK proposes to restore habitat of ESA per PSC Siting Criteria #37. Latitude: 47.683189 Longitude: -103.624014
	**Observation Point: 2777n** Date Taken: August 21, 2019 Direction Photo is Taken: North Spread 2 Station 2293+00 Photo Description: Overlooking narrowed ROW adjacent to Dakota skipper habitat ESA-35. Latitude: 47.681082 Longitude: -103.626919
	**Observation Point: 2779** Date Taken: August 21, 2019 Direction Photo is Taken: NA Spread 2 Station 2557+00 Photo Description: Pipe depth at approximately 66-inches. Appropriately no topsoil in trench profile. Latitude: 47.662305 Longitude: -103.713821

Appendix A- On-Site Photographs

	**Observation Point: 201** Date Taken: October 8, 2019 Direction Photo is Taken: South Spread 2 Station 3279+00 Photo Description: Overlooking pipeline route and alternate route mentioned in the Final Comprehensive Field Reconnaissance Report by Braun Intertec. No stability issues were reported for Milepost 62.2 according to the Braun report and the alternate route was not taken. Latitude: 47.532188 Longitude: -103.864124
	**Observation Point: 202** Date Taken: October 8, 2019 Direction Photo is Taken: South Spread 2 Station 3226+00 Photo Description: Overlooking area where HDD was utilized across contoured terrain near Milepost 61.1, though there was no reported instability according to Braun report. Latitude: 47.546181 Longitude: -103.863823
	**Observation Point: 203** Date Taken: October 8, 2019 Direction Photo is Taken: North Spread 2 Station 3186+00 Photo Description: Overlooking creek crossing and completed HDD for the geographical unstable area at milepost 60.3 according to Braun report. Temporary Erosion and Sediment Control Device on either side of the crossing are utilized to divert stormwater runoff. These water bars are further explained in the Construction Mitigation and Restoration plan 3.11. Latitude: 47.555303 Longitude: -103.862548

Appendix A- On-Site Photographs

	**Observation Point: 206a** Date Taken: October 8, 2019 Direction Photo is Taken: West Spread 2 Station 2457+00 Photo Description: Pipe depth at approximately 72-inches. Appropriately no topsoil in trench profile. Latitude: 47.662306 Longitude: -103.673474
	**Observation Point: 206b** Date Taken: October 8, 2019 Direction Photo is Taken: East Spread 2 Station 2457+00 Photo Description: Pipe depth at approximately 72-inches. Appropriately no topsoil in trench profile. Latitude: 47.662306 Longitude: -103.673474
	**Observation Point: 207** Date Taken: October 8, 2019 Direction Photo is Taken: West Spread 2 Station 2512+00 Photo Description: Overlooking completed HDD under wetland and near potentially geologically unstable area between Mileposts 47.1 & 47.2. Latitude: 47.662459 Longitude: -103.686067

Appendix A- On-Site Photographs

	**Observation Point: 198** Date Taken: October 8, 2019 Direction Photo is Taken: Northeast Spread 3 Station 3451+00 Photo Description: Noxious weeds (X-56) marked appropriately adjacent to ROW. Latitude: 47.499162 Longitude: -103.896147
	**Observation Point: 199** Date Taken: October 8, 2019 Direction Photo is Taken: East Spread 3 Station 3447+00 Photo Description: Pipe depth at approximately 72-inches moving towards boring at undeveloped sectional line. Latitude: 47.500164 Longitude: -103.895291
205 	**Observation Point: 200** Date Taken: October 8, 2019 Direction Photo is Taken: Southwest Spread 3 Station 3450+00 Photo Description: Jomax crew preparing to place pipe in trench. Latitude: 47.49938 Longitude: -103.895858

Appendix A- On-Site Photographs

	**Observation Point: 204** Date Taken: October 8, 2019 Direction Photo is Taken: Northeast Spread 3 Station 2988+00 Photo Description: Proposed HDD location. Braun report identifies this area as a deeply incised, meandering stream channel which shows evidence of large-scale slumping along its length. Stakes mark HDD path towards the geologically unstable area near Milepost 56.4. Latitude: 47.591324 Longitude: -103.820493
	**Observation Point: 205** Date Taken: October 8, 2019 Direction Photo is Taken: Southwest Spread 3 Station 2990+00 Photo Description: Pipe strung. ROW awaiting to be trenched. Latitude: 47.591125 Longitude: -103.820965

Responsive partner.
Exceptional outcomes.