WENCK
ASSOCIATES

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February 15, 2019

Mr. Patrick Fahn
ND Public Service Commission
600 E. Boulevard Ave.
Bismarck, ND 58501

RE: Construction Inspection Report for the Andeavor NGL Pipeline Project

Dear Mr. Fahn,

Enclosed are three (3) signed copies of the construction inspection report for the Andeavor 6 and 8-inch NGL Pipeline Project, PSC case number PU-18-72. One (1) electronic copy of the report was submitted via email to ndpsc@nd.gov.

You can reach me at the office at 701-751-6128 or via email at ssimmers@wenck.com if you have any questions.

Sincerely,

Wenck Associates, Inc.

for

Sara Simmers
Environmental Scientist

enc: Andeavor NGL Pipeline Project Report, 3 Signed Copies

72 PU-18-72 Filed 02/15/2019 Pages: 23
Construction Inspection Report
Wenck Associates, Inc.
Sara Simmers, Envir. Scientist

WENCK File #B2579-0034
February 2019

Andeavor NGL Pipeline Project
Construction Inspection Report
PU-18-72




Prepared for:

North Dakota
Public Service Commission

600 E. Boulevard Avenue
Bismarck, ND 58505-0480

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Prepared by:

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301 1st Street NE, Suite 202
Mandan, ND 58554
Phone: 701-751-3370
Fax: 763-479-4242

Table of Contents

Executive Summary

The North Dakota Public Service Commission (PSC) retained Wenck Associates, Inc. (Wenck) to complete site inspections during construction of the Andeavor 6 and 8-inch Natural Gas Liquids (NGL) Pipeline (Project) in McKenzie, Billings, and Stark Counties, North Dakota (ND), constructed by Andeavor Field Services LLC (Andeavor). The purpose of the inspections was to ensure the project was constructed in compliance with the siting laws and rules and the applicable PSC Orders for the Project.

A pre-construction conference call was held for the Project on 15 June 2018; Wenck attended the call. Wenck reviewed Project documents to become familiar with the Project and PSC Orders for the Project. Construction involving soil disturbance for the Project began 20 June 2018. Wenck visually inspected the Project area on 20 June 2018 and observed topsoil and subsoil removal and segregation done by two separate contractor crews on three pipeline segments. Construction inspections were conducted on 12 July 2018, 29 October 2018, and 1 February 2019.

During site inspections, there were several locations where the subsoil pile was observed touching the topsoil pile, and locations where subsoil was mixed slightly with the topsoil. The final pass taken by graders during topsoil stripping inevitably disturbed a small amount of subsoil. Both types of mixing are minimal and were known to occur by the contractors. The grader operators spread the soil from the final pass of topsoil removal first when reapplying the stored soils. To resolve these issues, Wenck recommended the continued implementation of spotters during machinery use to ensure stockpiles are kept free from soil mixing and to prevent stockpiles from encroaching upon the ROW boundary. Occasionally, sediment found its way off site through vehicle tracking on roads or rolling off stockpiles. Sediment tracking from vehicles was reduced by placing wooden mats along ROW entry points and by having crew members remove any tracked soil by shovel.

1.0 Background and Scope

1.1 INTRODUCTION

The Andeavor 6 and 8-inch mixed natural gas liquids (NGLs) will be comprised of four pipeline segments. The first segment, the North Segment, is located in McKenzie County and will transport NGLs, or Y-Grade product, approximately 17 miles from Oasis Midstream Services LLC's Wild Basin Gas Plant to an interconnection in T149N, R98W, Section 30, McKenzie County, with an existing 42-mile pipeline previously permitted and constructed by BakkenLink Pipeline, LLC. The second segment is the existing BakkenLink Pipeline permitted by the Commission in Case No. PU-10-218. The third segment, the South Segment, will interconnect with the existing BakkenLink Pipeline in T142N, R99W, Section 3, Billings County, to transport the NGLs south approximately 22 miles to Andeavor's Belfield Gas Plant in Stark County. At the Belfield Gas Plant, the mixed NGLs will be separated into discrete components. The fourth segment, the Transfer Line Segment, will be comprised of four pipelines that will transport the four discrete components approximately 5 miles from Andeavor's Belfield Gas Plant to the Fryburg Rail Terminal located in Billings County. 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-18-72 on 13 June 2018, granting Certificates of Corridor Compatibility No. 205, 206, and 207 and Route Permits No. 215, 216, and 217 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. 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 Findings of Site Inspection

2.1 METHODS

Luke Menden, Wenck Environmental Scientist, visited the Project site to conduct construction inspections on 12 July 2018, 29 October 2018, and 1 February 2019. Representatives from Shafer, the Construction Management company, Craig Kitchens, Jimmy Preece, and Scott Staehnke, accompanied Wenck staff during the visits. Shafer, under management by Craig Kitchens, oversees the daily actions of the construction contractors to ensure work is being conducted according to approved plans and procedures.

The site was inspected visually by driving to access points and walking or driving within the Project right-of-way (ROW). Two pipeline contractor companies worked on three different spreads; Jones Contractors worked on the North and Fryburg Rail Segments while Jomax began on the South Segment. Contractors/equipment operators were observed during the topsoil removal, trench digging, pipe installation, trench filling, and topsoil re-spreading phases of the Project to check that soils had been properly removed, segregated, and replaced during the construction process. General construction procedures were observed. Digital photographs (iPhone 6, 8 megapixels) 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 System (GPS) (Garmin GPSMAP 60CSx; <10m accuracy; NAD83 datum) (**Table 1**).

2.2 ON-SITE INSPECTION OBSERVATIONS

The first construction inspection was conducted on 12 July 2018 at the Fryburg Rail Segment where Jones Contractors were working. Wenck staff met with Shafer construction manager Scott Staehnke on site to witness trenching work. Two excavating machines were used to dig the trench alongside the assembled pipe. These excavators used wooden mats to cross 132nd Ave SW in order to minimize soil disturbance along the gravel road's shoulder. The road crossing remained unexcavated as horizontal boring was used to install the pipe underneath the road. Spotters observed the machines as the trench was dug and trench spoils placed on either side of the pipe. The depth of the pipeline installation was verified to have at least 48 inches of cover. Mr. Staehnke mentioned the spoil piles help create a barrier around the trench which limits the risk of workers slipping into the excavated area. Placing the trench spoils on both sides of the trench also reduced the chance of subsoils mixing with already stripped and stored topsoils positioned on the south side of the ROW. Even with these precautions, there was a slight overlapping of the spoil pile with the segregated topsoil and the occasional chunk of soil that rolled out of the ROW. These issues were very minimal and any soil chunk that left the ROW was immediately removed by the machine spotters. On the gravel road, some sediment tracking was witnessed as the machines crossed. Jones Contractor employees were quick with a shovel to remove any sediment tracked out of the ROW. When backfilling the trench, a sifter attachment was used on an excavator to apply debris free soil onto the installed pipe and ensure proper backfilling around the pipe while preventing damage to the coating. (**Appendix A, Photos 1-3**).

The next construction inspection was completed on 29 October 2018 at the South Segment where Jomax workers were spreading topsoil. Two graders were in operation at the time of

the inspection. The graders were positioned on either side of 32nd St SW separately spreading the topsoil. As mentioned in the topsoil report, the final pass made during initial topsoil removal will always disturb some subsoil. Topsoil is not uniformly even across a landscape and slight subsoil disturbance is unavoidable when trying to ensure all topsoil has been stripped. The soil disturbed in the final pass of topsoil removal was strategically pushed to the bottom of the topsoil stockpile. This allows graders to spread this layer first when reapplying the stored soils. This procedure was witnessed at the time of the inspection by both machine operators and the completed reapplication of topsoil appeared to be free of subsoil discoloration (**Appendix A, Photos 4-5**).

The final construction inspection was completed on 1 February 2019 at the Fryburg Rail Segment and the South Segment. Topsoil was reapplied throughout these two segments and evidence of reseeding was witnessed. Snow cover impeded the view of some of the pipeline scar but soil color and plant sprouts were visible. Both areas appeared to be planted with the same seed mix. According to Craig Kitchens, Shafer construction manager, a native seed mix was used and there may be some final seeding work completed in the spring. The plants were growing in noticeable rows indicating even germination and the start of good establishment. Plant growth will be monitored during the as-built inspections which will be conducted in the spring. Surface soil color appeared consistent with topsoil and the initial growth of the planted seeds speaks to proper topsoil reapplication in these areas (**Appendix A, Photos 6-9**).

In general, the contractors did a good job with the stripping of topsoil, trenching, and spreading of topsoil. Shafer construction managers seemed to have good rapport with the construction contractors and were well informed on the construction activities. Work areas visited during the inspection were kept free of debris and waste. Some issues were observed with sediment tracking, subsoil mixing, and sediment leaving the ROW. However, the work crews were quick to identify and rectify these small errors during construction.

3.0 References

North Dakota Public Service Commission (ND PSC). 2018. Online Case Search. Available from: http://www.psc.nd.gov/database/company_case_list.php. Accessed October-November 2018.

Kitchens, Craig. Preece, Jimmy. Staehnke, Scott. Shafer Construction Management. Personal Communication: discussion during site visits on June 20, July 12, October 29, 2018 and on project coordination for site visits.

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.

Environmental Scientist, Luke Menden, prepared the report and Project Manager, Sara Simmers, reviewed the report.

_____ 2/15/19

Sara Simmers, Project Manager/Scientist Date

_____ 2/15/19

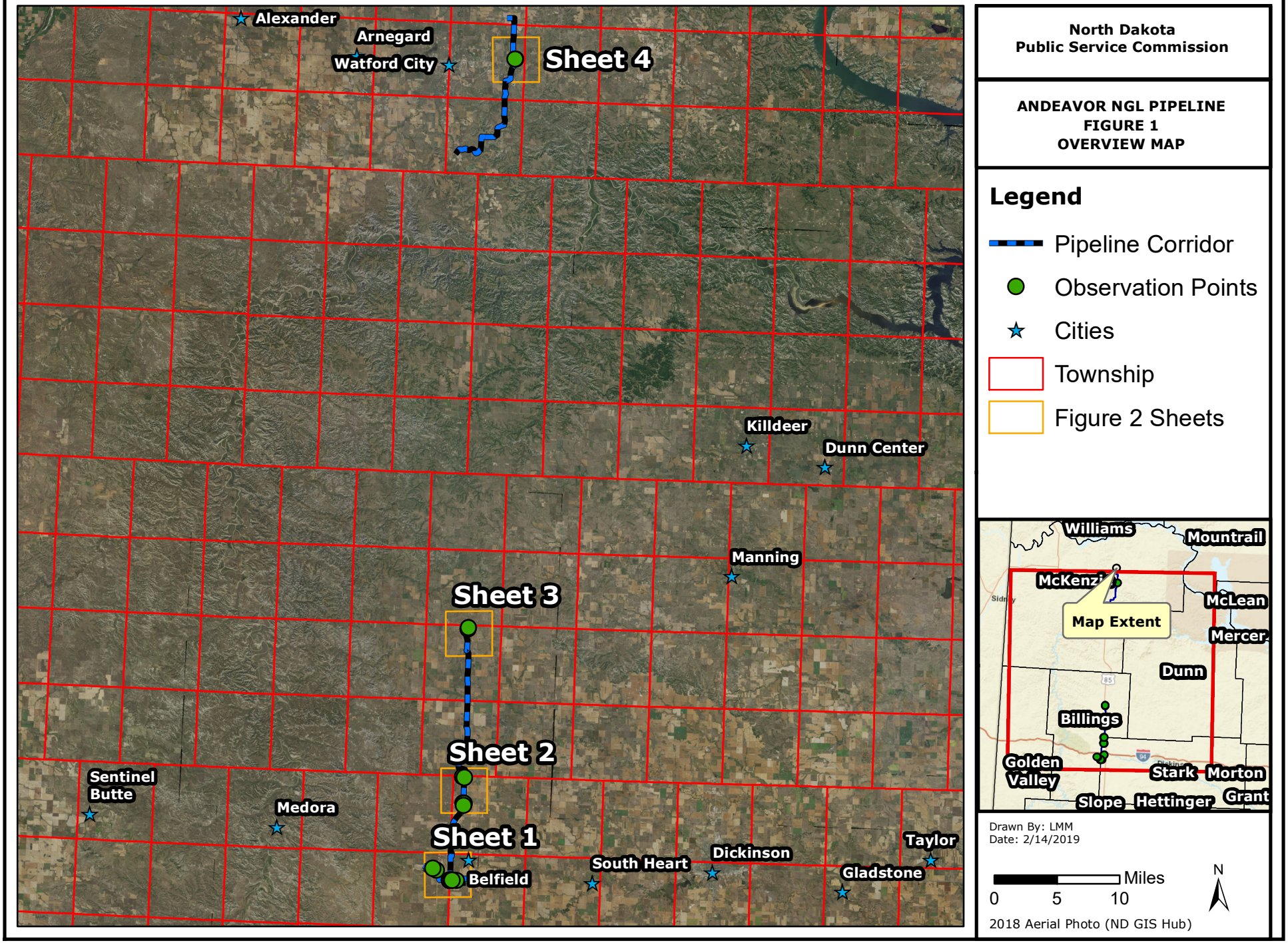
Luke Menden, Environmental Scientist Date

1. Observation Point Coordinates

Point #	Latitude	Longitude	date
1*	47.80797	-103.170188	20-Jun-18
2*	47.80799	-103.170348	20-Jun-18
3*	47.151114	-103.214176	20-Jun-18
4*	47.149225	-103.21515	20-Jun-18
5*	47.149667	-103.214934	20-Jun-18
6*	47.150877	-103.214334	20-Jun-18
7	46.8596	-103.2312	12-Jul-18
8	46.8594	-103.2294	12-Jul-18
9	46.8592	-103.2187	12-Jul-18
10	46.8596	-103.23127	12-Jul-18
11	46.85963	-103.22839	12-Jul-18
12	46.859591	-103.228333	12-Jul-18
13	46.8596	-103.22678	12-Jul-18
14	46.9483	-103.2113	29-Oct-18
15	46.9487	-103.2125	29-Oct-18
16	46.94859	-103.21168	29-Oct-18
17	46.9462	-103.21192	29-Oct-18
18	46.87	-103.2528	1-Feb-19
19	46.8723	-103.2598	1-Feb-19
20	46.9794	-103.215	1-Feb-19
21	46.9782	-103.2122	1-Feb-19

*Topsoil removal (only) inspection points.

Figures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Arnegard
Watford City
Sheet 4
Killdeer
Dunn Center
Manning
Sheet 3
Sheet 2
Sheet 1
Sentinel Butte
Medora
Belfield
South Heart
Dickinson
Gladstone
Taylor
North Dakota
Public Service Commission
ANDEAVOR NGL PIPELINE
FIGURE 1
OVERVIEW MAP
Legend
Pipeline Corridor
Observation Points
Cities
Township
Figure 2 Sheets
Williams
Mountrail
McKenzie
McLean
Map Extent
Mercer
Dunn
Billings
Golden Valley
Stark
Morton
Slope
Hettinger
Grant
Drawn By: LMM
Date: 2/14/2019
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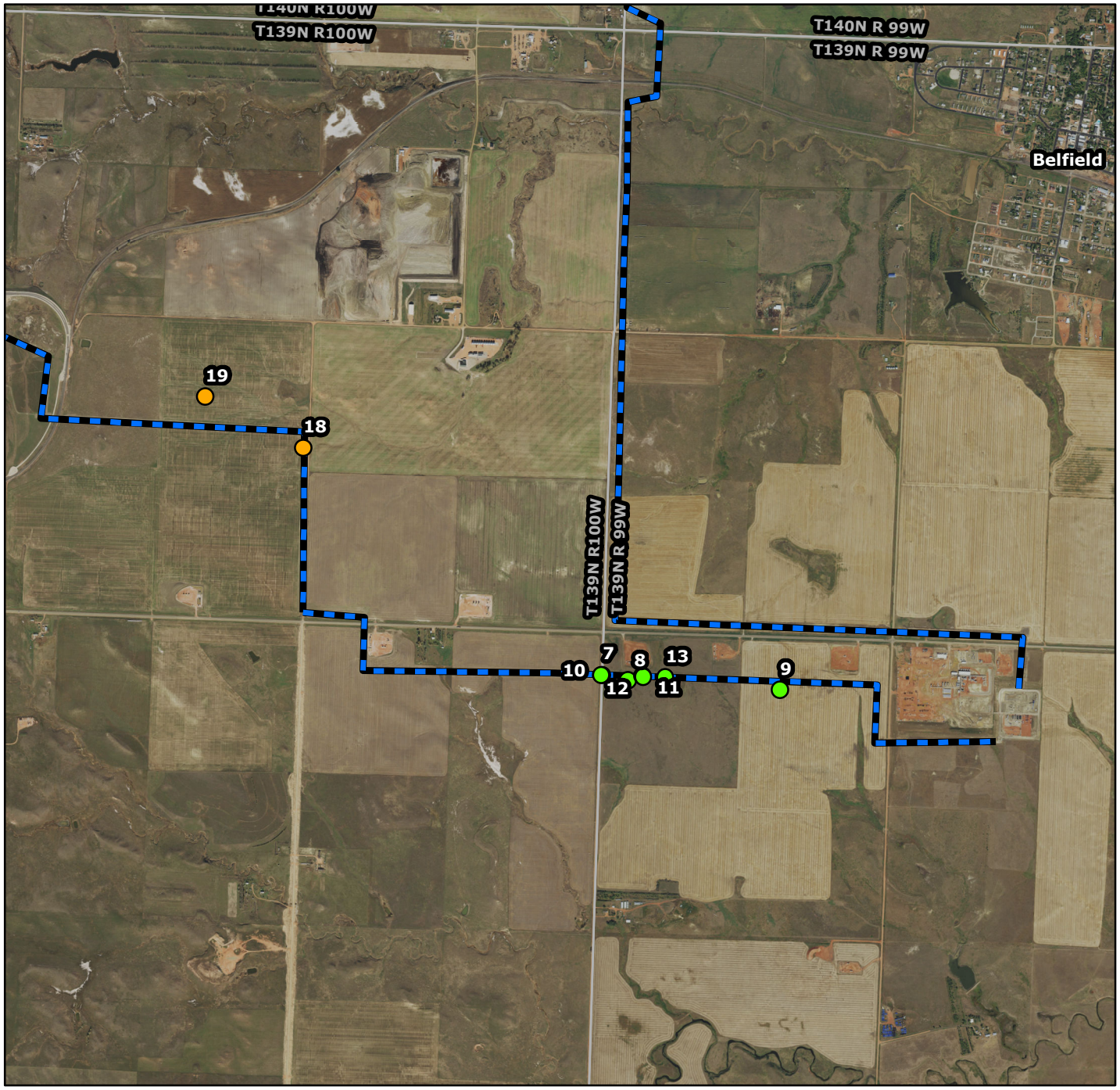

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ANDEAVOR NGL PIPELINE
FIGURE 2
SHEET 1

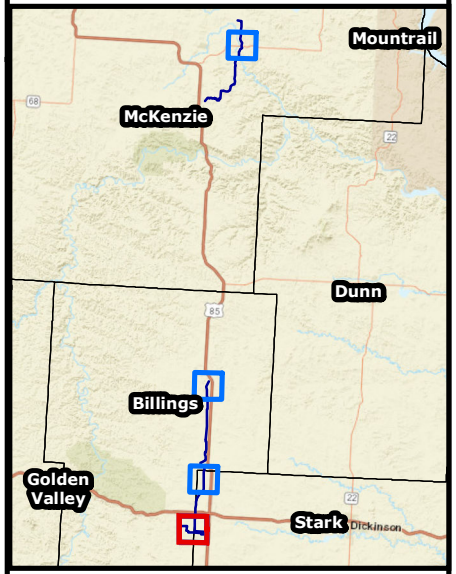
Pipeline Corridor

Observation Points

- 20-Jun-18 Topsoil Points
- 12-Jul-18
- 29-Oct-18
- 1-Feb-19

Township

Map Sheets (Inset)



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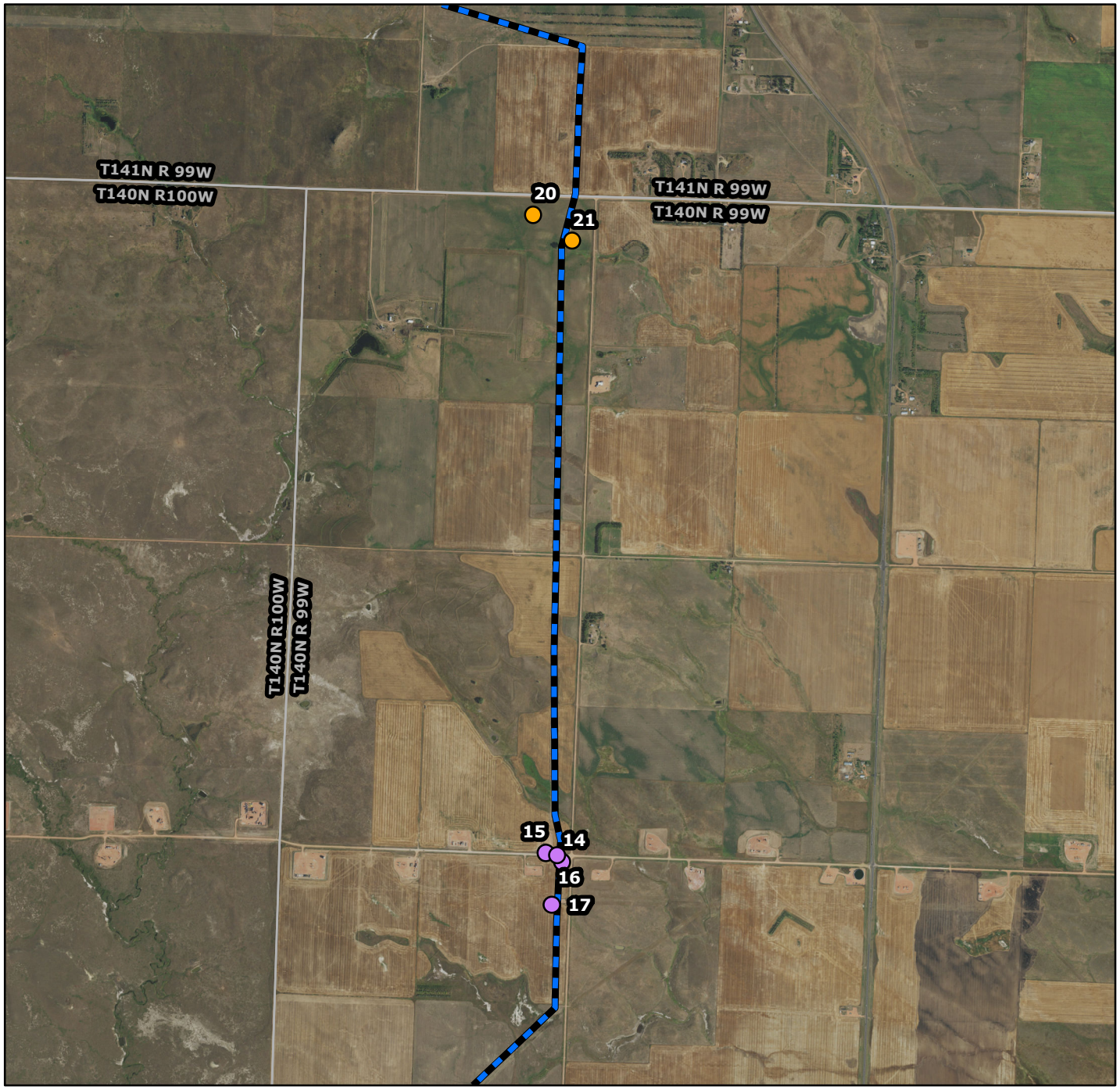

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Public Service Commission

ANDEAVOR NGL PIPELINE
FIGURE 2
SHEET 2

Pipeline Corridor

Observation Points

- 20-Jun-18 Topsoil Points
- 12-Jul-18
- 29-Oct-18
- 1-Feb-19

Township

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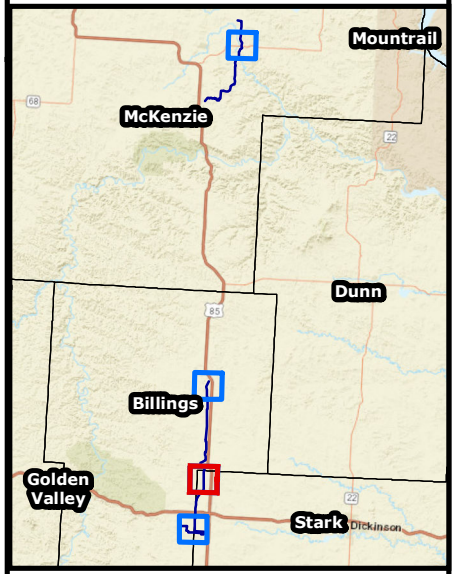

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2018 Aerial Photo (ND GIS Hub)

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Public Service Commission

ANDEAVOR NGL PIPELINE
FIGURE 2
SHEET 3

Pipeline Corridor

Observation Points

- 20-Jun-18 Topsoil Points
- 12-Jul-18
- 29-Oct-18
- 1-Feb-19

Township

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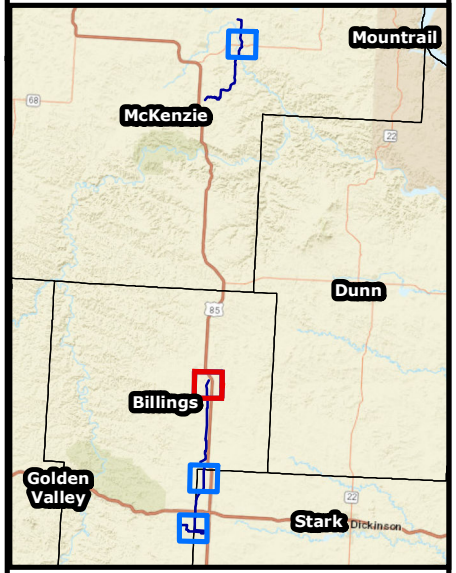

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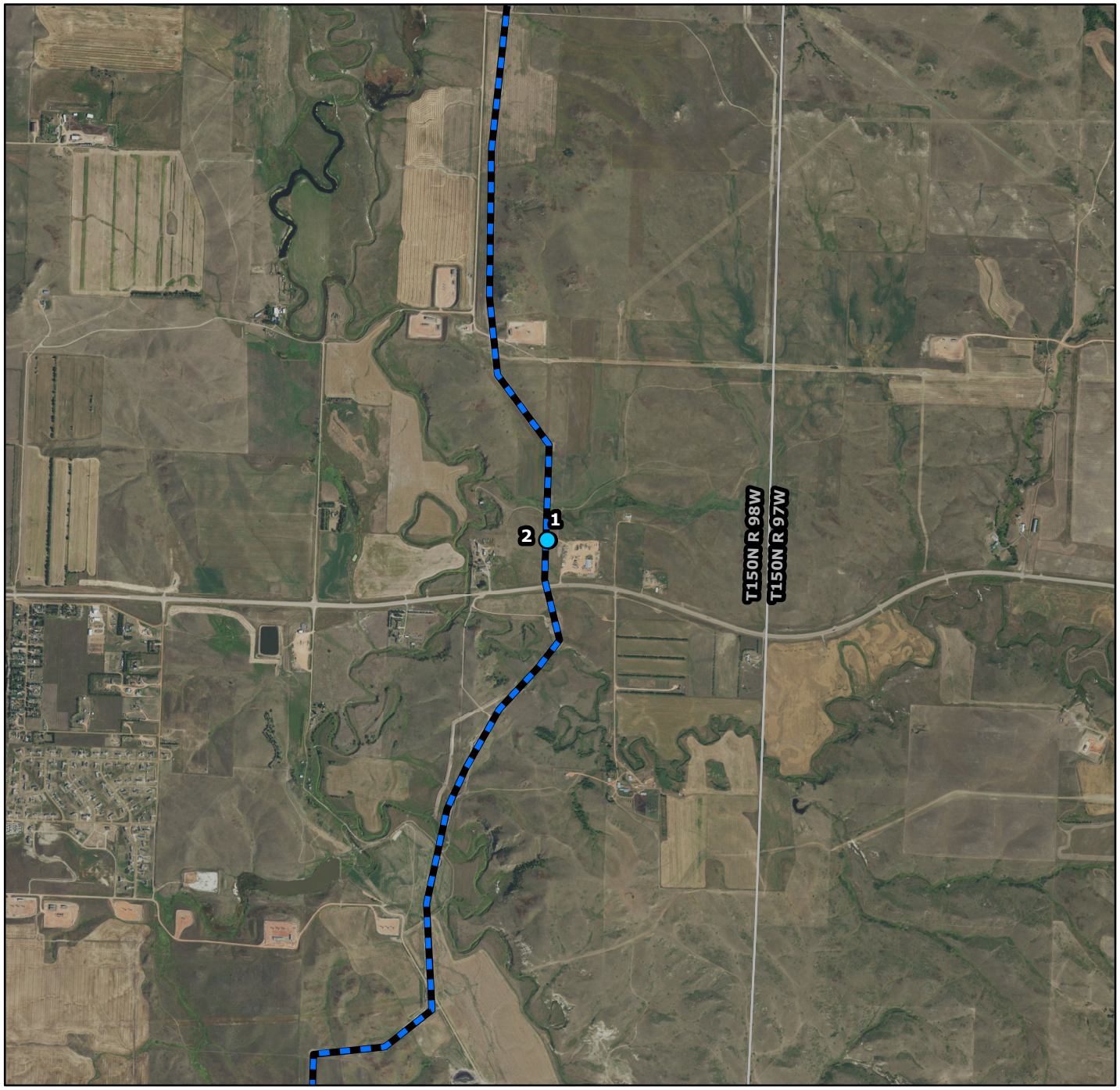

North Dakota
Public Service Commission

ANDEAVOR NGL PIPELINE
FIGURE 2
SHEET 4

Pipeline Corridor

Observation Points

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- 29-Oct-18
- 1-Feb-19

Township

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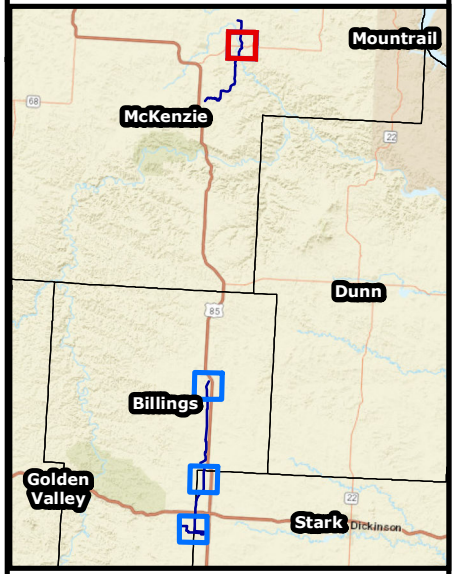

Drawn By: LMM
Date: 2/14/2019

Miles
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2018 Aerial Photo (ND GIS Hub)

Appendix A

Photographs

Photo 1. Point: 7. Facing: East. Location: 46.8596, -103.23127. Topsoil on outside (right) with the subsoil pile touching. Fencing located around bore exit hole.

Photo 2. Point: 8. Facing: West. Location: 46.8594, -103.2294. View of road crossing at 132nd Ave SW where minor sediment tracking occurred due to vehicle crossing. Equipment staged along the road within the ROW at a designated staging area.

Photo 3. Point: 9. Facing: Northeast. Location: 46.8592, -103.2187. Trenching operations. Piping properly staged upon risers with protection blankets to prevent damage from falling sediment.

Photo 4. Point: 14. Facing: South. Location: 46.9483, -103.2113. Location on South Segment where topsoil is ready to be re-spread.

Photo 5. Point: 15. Facing: South. Location: 46.9487, -103.2125. Grader spreading the first layer from the stockpile containing any mixed sub/topsoil according to planned procedure. Pipeline gauge for a different pipeline located to the east of ROW.

Photo 6. Point: 18. Facing: West. Location: 46.8700, -103.2528. View of pipeline scar leading to Fryburg Rail Terminal. Surface soil color was topsoil. Contouring matched surrounding landscape.

Photo 7. Point: 19. Facing: West. Location: 46.8723, -103.2598. Sprouting vegetation along Fryburg Rail segment in foreground. Rows of vegetation along scar in the background.

Photo 8. Point: 20. Facing: North. Location: 46.9794, -103.2150. Evidence of seeding along pipeline scar. Germination appeared even.

Photo 9. Point: 21. Facing: South. Location: 46.9782, -103.2122. Vegetation appears to have taken after fall planting.

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