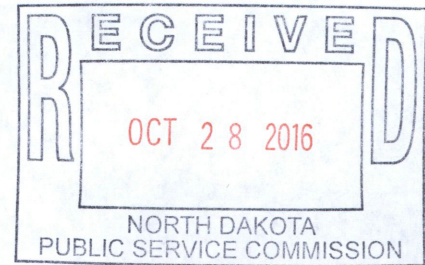


October 28, 2016

Julie Prescott  
Compliance and Competitive Markets  
ND Public Service Commission  
Bismarck, ND 58505-0480



Re: Topsoil Inspection Report for Sacagawea Pipeline Project  
Johnson's Corner Connector Crude Oil Pipeline  
PU-15-744

Dear Ms. Prescott:

Enclosed is one (1) signed copy for the construction topsoil removal inspection report as complied by KLJ. This report covers work done regarding top soil removal on right of way easement, for the Sacagawea Pipeline Project, PSC case number PU-15-744.

You can reach me at the office at (701) 250-3501 or my cell phone 351-5551. My email is [paul.lee@kljeng.com](mailto:paul.lee@kljeng.com) if you have any additional questions or comments.

Sincerely,

KLJ

Paul Lee, PLS

Enclosure(s): Sacagawea Pipeline Project, 1 signed copy  
Project #: 1216109

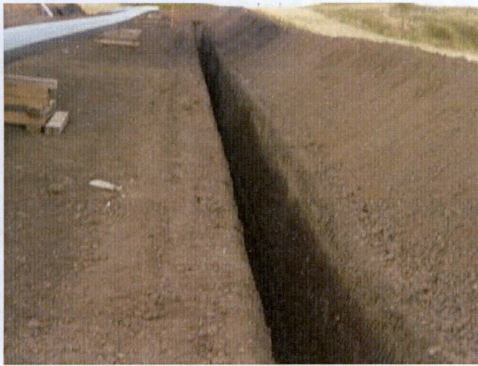
# Sacagawea Pipeline Co.

Johnson's Corner Connector  
Crude Oil Pipeline Project  
PU-15-744  
KLJ#1215109

*October 27, 2016*

Prepared for:

North Dakota Public Service Commission





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## EXECUTIVE SUMMARY

The North Dakota Public Service Commission, (PSC) File Case Number PU-15-744, retained KLJ to complete topsoil inspections during construction of the 16" crude oil line known as Johnsons Corner Connector Crude Oil Pipeline (Project) in McKenzie County, North Dakota (ND), constructed by Sacagawea Pipeline, LLC. 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, which includes a requirement that topsoil must be segregated from subsoil during installations of the pipeline.

Construction of the 13-mile pipeline project began 8 July, 2016. KLJ reviewed project documents to become familiar with the Project and PSC Orders for the Project. For second inspection, KLJ visually inspected a portion of the construction right of way on 18 July, 2016 when contractor started stripping topsoil. For third inspection, KLJ visually inspected the Project right of way area on 8 August, 2016. These site visit inspections were conducted to observe the completion of the topsoil and subsoil removal, soil segregation done by the contractor, and verification of pipeline depth. Overall soil removal and storage processes was done to contract requirements and the work was satisfactory. There were minor noteworthy issues which include 1) bore pit locations had topsoil and subsoil piles too close together, and 2) topsoil and subsoil stored piles along edge of right of way too close together and have touched. 3) struck abandon Hess pipeline, hit during trench excavation.

### Recommended Action Steps:

Issue 1) - Contractor relocated top and subsoil piles at bore pits to a wider distance, so touching of soil piles no longer a problem.

Issue 2) - Soil types along edge of Right of Way were moved further apart so touching was no longer an issue.

Issue 3) - Hess was called out to repair and mark abandoned pipe location, after hitting line during trench excavation.





# BACKGROUND AND SCOPE

## Introduction

The Sacagawea Pipeline Company, LLC (Project), also known as the “Johnsons Corner Connector Crude Oil Pipeline Project” connects the proposed pipeline that will originate at the Johnson’s Corner Connector Service Site, owned by Paradigm Midstream Services, in McKenzie County, and terminate at the Keene Crude Oil Terminal. (Appendix A, Figure 3.A.1). The Project will be constructed and operated by Sacagawea Pipeline Company, LLC. The Project includes a 16-inch diameter underground crude oil pipeline with a total length of approximately 13 miles. 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-15-744 on 24 May, 2016, granting a Certificate of Corridor Compatibility No. 186 and Route Permit No. 198, too Sacagawea Pipeline Company LLC, for the Johnson’s Corner Connector Crude Oil Pipeline Project., (Project).

## Regulatory Purpose and Scope of Work

The North Dakota Energy Conversion and Transmission Facility Act (North Dakota Century Code Chapter 49-22) authorized 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 KLJ to complete a construction inspection of the Project. The scope of work was to perform and document on-site inspections during the top soil removal phase for the project, to verify that the topsoil was properly removed and kept segregated from subsoil material until replacement occurred.

The inspection process also included a review of the Application for Corridor Compatibility and Route Permit, Order, and other applicable documents. PSC Order #12 for the Project states: “Company understands and agrees that all topsoil, up to 12 inches, or topsoil to the depth of cultivation, whichever is greater, over and along trench areas where cuts will be made, must be stripped and segregated from the subsoil. Any area on which excavated subsoil will be placed must also be stripped of topsoil. After backfilling is completed, any excess subsoil must be placed over the excavation area, blending the grade in existing topography. Topsoil must be replaced over areas from which it was stripped only after the subsoil is replaced.” Topsoil replacement will be done by using dozers and graders to level topsoil across Right of Way to contract requirements.

The number of on-site inspections were to be based on KLJ’s determination that equipment operators demonstrated proficiency concerning topsoil and subsoil removal and segregation in compliance with the Commission’s Order. This report includes, but is not limited to, documentation of site visit observations and a summary of findings and issues that should have been addressed for the Project to be considered complete and in full compliance.





## Background

During pipeline installation and excavation work in general, it is very important to separate topsoil and subsoil. Topsoil has biological, physical and chemical properties that are critical to recovery of a site. Topsoil, also known as the A horizon, should be stripped to the correct depth according to natural variations in the depth of the top layer of soil. Distinguishing the horizon boundaries can be difficult as they vary in distinctiveness and topography. Most boundaries are zones of transitions rather than sharp lines of division. Boundary distinctiveness is the vertical distance over which one horizon transitions into another which shape of the contact between the horizons which can be smooth, wavy, irregular or broken.

Mixing subsoil in with the topsoil is usually detrimental to the reclamation and re-vegetation of a site. Subsoil material has lower organic matter content than topsoil, making it typically lighter in color. It may also have a different texture than the topsoil. The most visible impact of pipeline constructions on agricultural land is the mixing of organic and nutrient rich topsoil with less fertile, mineral subsoil, which can bring up toxic elements such as sodium that restricts plant growth.



# FINDINGS OF SITE INSPECTION

## Methods

Arnie Siverson, KLJ Project Inspector, visited the Project site on 8 July 2016. The purpose of the visit contributed to the contractor's request for removing topsoil within right of way. A representative from STI, inspector manager, Marc Westbrook accompanied Arnie Siverson, KLJ, during the topsoil inspection site visit. The contractor, superintendent, and project foreman were present during the start of stripping topsoil off right of way.

The site was inspected visually by everyone in attendance, diving to access points and walking or driving within the project right of way. The inspection began at station 3+00, located on the north side of highway 73 in McKenzie County, with right of way heading northeast. Contractor/equipment operators were observed on easement right of way, stripping of top soil across right of way. After the removal of vegetation, contractor used two dozer cats to clear topsoil within right of way. During the topsoil removal phase, it was noted that this working procedure had the topsoil removed, piled, and kept segregated from subsoil on the right of way. Digital photographs were taken, from Nikon Power Shot Coolpix 3.6X, 14 megapixels, showing typical project infrastructure and documenting problem areas (**Appendix C, first set photos #1 thru #21**). Start of project, begun at station 0+00 beginning point, which is located on north side of highway 73. (**Appendix A, and Field Observation Points - Appendix D**).

Arnie Siverson, KLJ lead inspector, visited the Project site on 18 July 2016, for second inspection. The purpose of the second inspection was to visualize the completed topsoil removal within right of way, in accordance with the Commission's Selection Criteria. The second inspection begun at bore station 202+00 located on the west side of county road 14 in McKenzie County. No pipeline contractors or inspectors accompanied KLJ during topsoil inspection. Most areas of topsoil deposited along right of way edge, appeared properly removed, piled and kept segregated from subsoil within right of way. However, the contractor was notified that some locations looked as if both top and sub-soils were mixed and piled to close together, as noted by photos taken during inspection. Digital photographs (Nikon Power Shot COOLPIX 3.6X, 14 megapixels) were taken showing typical project infrastructure and documenting problem areas. (**Appendix C, second set photos #1 thru #28**). Geographic coordinates were recorded at observation points or potential problem areas using a handheld Global Positioning System (GPS) (Garmin GPSMAP Oregon 450; <10m accuracy; NAD83 datum) (**Appendix A, and Field Observation Points - Appendix D**).

## On-Site Inspection Observations and Findings

Construction for the Project began 8 July 2016. At the time of inspection, by KLJ, topsoil removal procedures were discussed, with contractor. (**Appendix B, from inspection #1**). Equipment operators started by stripping the topsoil using a grader, which went to a depth of approximately 4 inches though out the pipeline right of way. After this procedure was completed, equipment operators, using two dozer cats started ripping the top soil within right of way, further down to the appropriate depth. This depth consisted averaging around 8 to 12 inches deep. (**Appendix A, Appendix B, Inspection #2 and 1<sup>st</sup> Set Photos taken 7-18-16, Appendix C**). The pipeline contractor employed a combination of dozers and graders depending on the equipment available, depth of topsoil, land use and procedure being used to remove topsoil.





The third right of way topsoil inspection conducted by KLJ, was done on 30 August, 2016. The stripping of topsoil was complete. Field measurements were taken for appropriate depth, with the average measurement showing an 8 to 12inch depth along right of way. (Appendix A, Appendix B, Inspection #3 and 2<sup>nd</sup> Set Photos taken 8-30-16 Appendix C).

The contractors/equipment operators seemed competent during the topsoil stripping operation. Contractors removed topsoil according to the color change in the soil rather than to fixed 12-inch depth throughout the pipeline right of way. This was appropriate for the site conditions, since topsoil thickness did not reach 12 inches in depth along most of right of way. Some areas had very little topsoil left on the stripped right of way, while other areas had small amounts of subsoil scraped up with the topsoil. Overall the contractor has done a good job of separating the soil types, which consisted a minor volume of mixing both together. Where there were areas of mixed soils, the contractor was notified to separate soil types as required, so no touching could occur.

As required by contract requirements, the pipeline must be buried 48 inches deep in range land and 48 inches deep at the bottom of ditch for road crossings. The route application specified minimum of 4 feet soil cover. KLJ did not visually confirm the depth of the pipeline, but Marc Westbrook, contractor's lead inspector, stated that the pipeline was buried to at last the specified depth and deeper where bored under roads.

For the majority of the project, the topsoil pile was placed on the opposite side on right of way, from the subsoil pile, except where two-toning/side sloping and bore pit bell holes were located. Two-toning or side sloping refers to a construction technique where the uphill side of the construction side of the construction right of way provides a safe and level surface from which heavy equipment can operate. It usually requires extra workspace to accommodate the additional volumes of material generated by using this construction technique. A bell hole for bore pits is a widening of the trench over a given distance, to provide space for installing pipe tie-ins, valves, fittings, etc.; in this area more subsoil is removed creating a bell-shaped trench.

At one location the subsoil pile was observed touching the topsoil pile at bell hole bore pits alongside County Road 14. Contractor was notified about soil piles touching at bore pit. Work was completed by separating topsoil and subsoil piles further apart, so no touching could occur. Most of the topsoil was noted to be piled on the opposite side of the right of way. When the right of way was extended, a portion of the topsoil was pushed near or touching the trench spoil (subsoil) pile locations. Contractor was notified of conditions and soil portion types were separated and moved further apart so no touching would occur. Two-toning areas appeared to be in good condition for topsoil segregation, trench spoil (subsoil) piles in the two-toning areas were observed by contractor along with KLJ inspection, and noted soil types were not an issue environmentally.

A struck abandon line, found to be located at station 141+00 and 142+00, was hit during pipe trenching. It turned out to be a Hess line, no longer used. Hess was on site, during inspection, repairing line. Contractor needs to coordinate better with One-Call's locators and other operators, to verify other existing lines in areas even if not marked. Safety regulations including improved pipe safety as it is an important part of project operations and regulations.





## ISSUES TO RESOLVE AND RECOMMENDATIONS

### Topsoil Segregation at Bore Pit Bell Holes

When the topsoil inspection for the project was conducted, a minor issue was noted, on a location where the subsoil pile was observed touching the topsoil pile at the bell hole pits located on side of county road 14. Contractors/ equipment operators need to take special care in these areas not to mix the topsoil and subsoil. KLJ recommends that the PSC require monitoring and documentation from Sacagawea Pipeline LLC of this area to ensure vegetation has been established after reclamation.

### Topsoil/Subsoil Segregation Areas

When the topsoil inspections were conducted along right of way, minor issues were noted along right of way, lighter subsoil was deposited up against, or close too top soil, mixing both together. KLJ advises contractor/equipment operators need to take special care along right of way soil deposit areas, not to mix both topsoil and sub soils together. KLJ recommends that the PSC require monitoring and documentation from Sacagawea Pipeline LLC on these areas after reclamation has been completed and re-vegetation has been established.

### Pipeline Depths

KLJ suggests that the PSC request written verification from Sacagawea Pipeline LLC that all as-built depths are indeed 48 inches deep for cultivated land, 48 inches deep at the bottom of the ditch for road crossings and 72 inches deep across undeveloped section lines.



## CONCLUSIONS

Overall, the Project appeared to have been constructed as designed, with minimal impacts to the surrounding natural or human environment. The pipeline project was completed as stated in Sacagawea Pipeline LLC's application and in compliance with the PSC guidelines. The project site was well-maintained and in satisfactory condition. There were a few minor issues that included bore pit bell holes, where subsoil piles could have touched or mixed up against top soil locations. The contractor corrected these issues by moving sub and topsoil types further away to avoid soil contact. The struck abandon Hess line located at station 141+00, was repaired by Hess and left in existing location. Contractor made special coordination's on existing marked lines, to void any further accidents. As required by contract requirements, the pipeline must be buried 48 inches deep in range land and 48 inches deep at bottom of ditch for road crossings. The route application specified a minimum of 4 feet soil cover. Contractor's lead inspector stated that the pipeline was buried to at least the specified depth and deeper where bored under roads. KLJ suggests that the PSC request written verification from Sacagawea Pipeline LLC that all as-built depths are indeed 48 inches deep for cultivated lands, 48 inches deep at bottom of the ditch for road crossings and 72 inches deep across undeveloped section lines.

All required Right of Way work, including topsoil removal, was done by the contractor, who stayed within Sacagawea Pipeline LLC's easement. All access on and off Right of Way was completed at access points specifically used on easement.

It does appear that there are several remaining items that Sacagawea Pipeline LLC needs to follow up with before the project can be considered in full compliance. Items noted as not complete are reseeding of the project had not been done, which will be done in spring of 2017 and installation of erosion control BMP's. KLJ recommends PSC to continually monitor and check with Sacagawea Pipeline LLC that the reclamation of reseeding Right of Way is complete and revegetation is established and maintained in satisfactory condition after reclamation. It is suggested the PSC requests Sacagawea Pipeline LLC to submit all fully executed permits for their records as well as all other supporting documentation. It is also recommended the PSC require written verification that any settlement areas will be repaired and the remaining trees and shrubs will be replanted per the mitigation plan.



## REFERENCES

North Dakota Public Service Commission (ND PSC). 2015. Online Case Search. Available from: [http://www.psc.nd.gov/database/company\\_case\\_list.php](http://www.psc.nd.gov/database/company_case_list.php). Accessed November 2015-December 2015

Westbrook, Marc. 2016. STI Group, Sacagawea Pipeline Company, Chief Inspector. Personal Communication: Discussions during site visits on July 8, and August 30, 2016.

Williams, Chad. 2016. Boyd Construction, Proj. Manager. Personal Communication; Discussions during site visit on July 18, 2016.

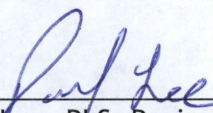
Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service, U.S. Department of Agriculture Handbook.



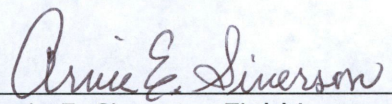
## SIGNATURES

The services performed by KLJ 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 judgement 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.

Lead Project Manager, Paul Lee, and Environmental Field Inspector, Arnie E. Siverson,

  
\_\_\_\_\_  
Paul Lee, PLS, Project Manager

10-27-16  
Date

  
\_\_\_\_\_  
Arnie E. Siverson, Field Inspector

10-27-16  
Date



## APPENDIX A:

### Map of Project and Observation Points



Sacagawea Pipeline Company, LLC  
Route Permit Application  
Johnson's Corner Connector Crude Oil Pipeline

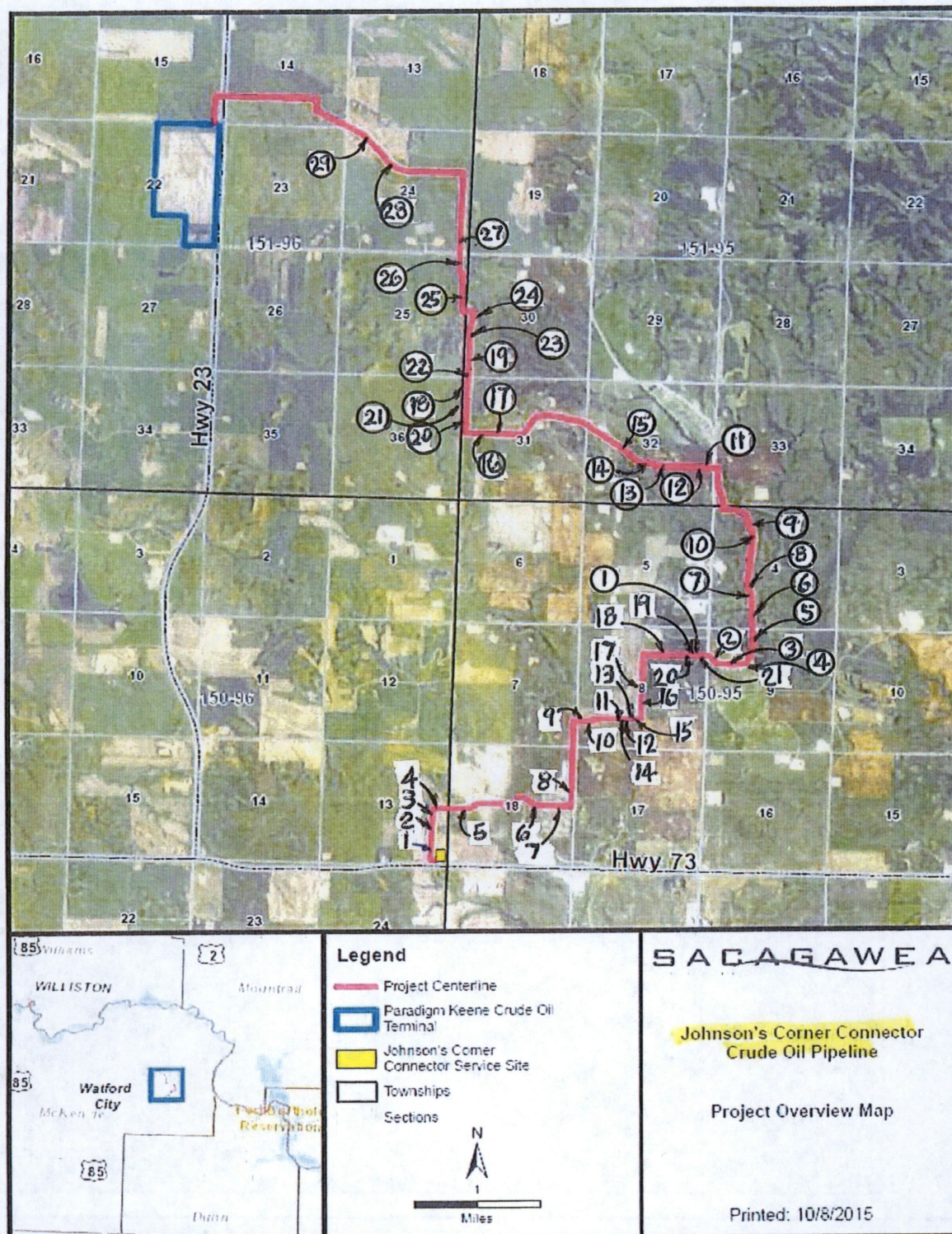


FIGURE 3.A.1 – General Project Location Map

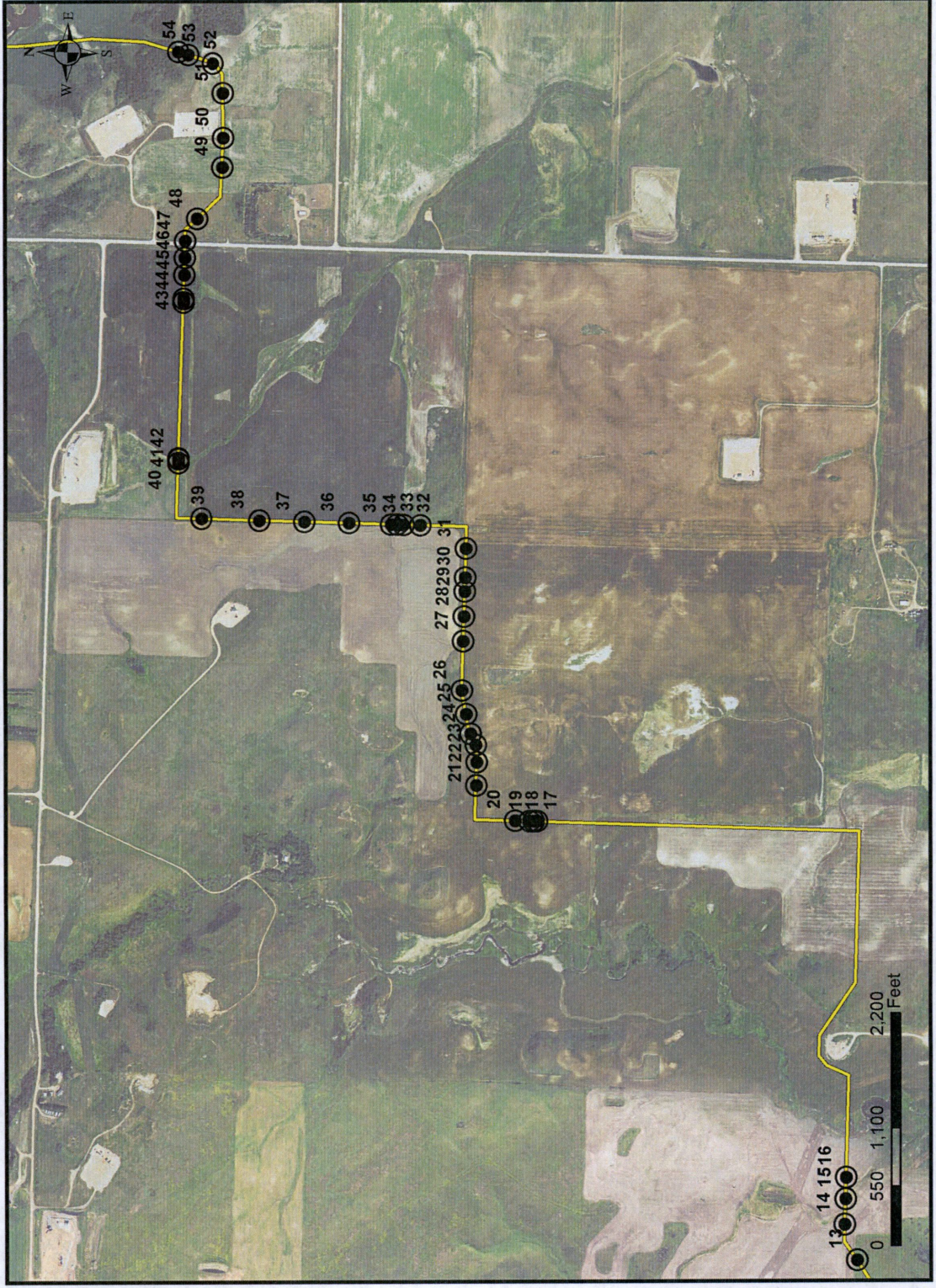


# Johnson's Corner Connector Drone Photo Locations

October 20, 2016  
**KLJ**

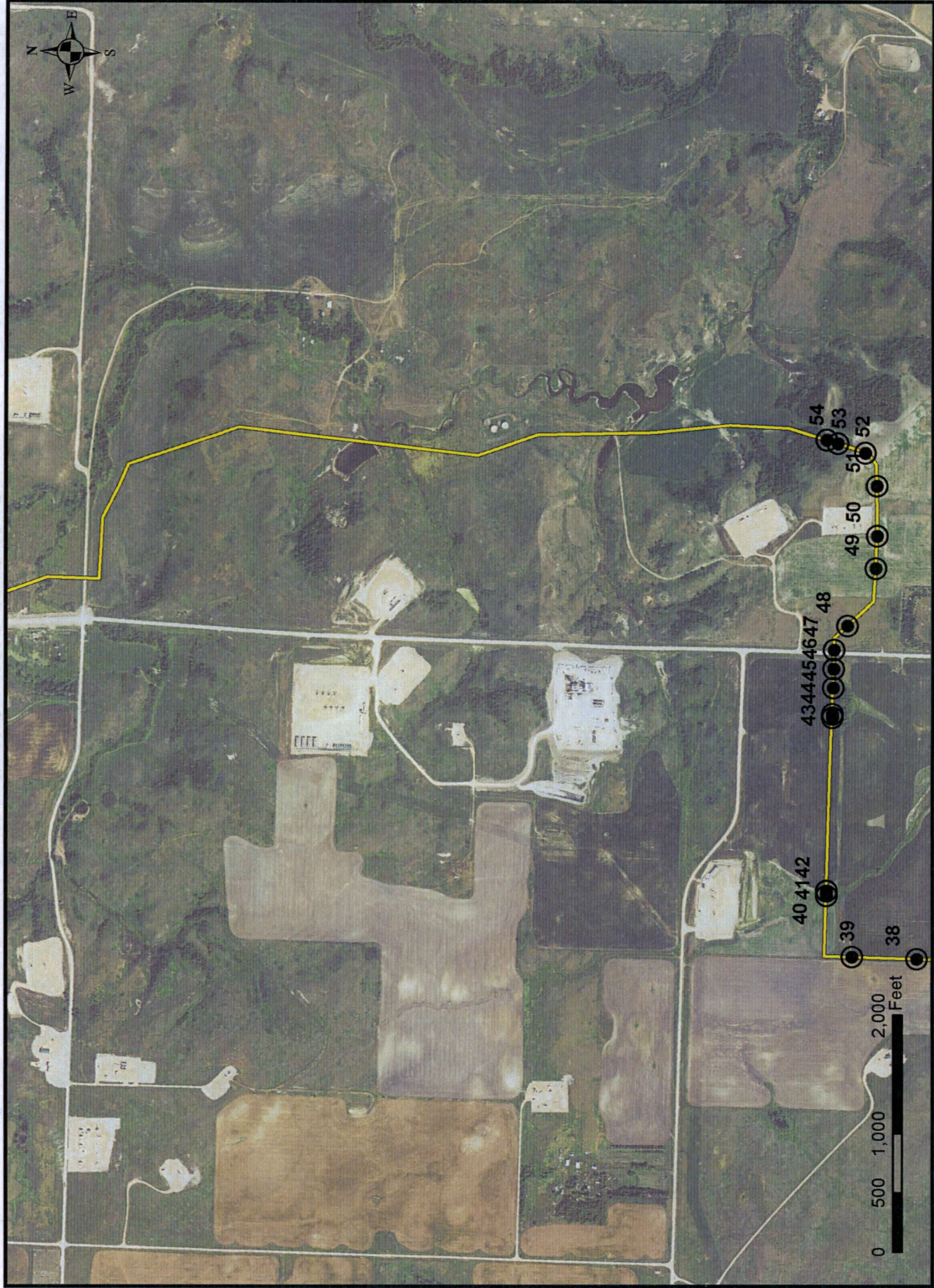


# Johnson's Corner Connector Drone Photo Locations



# Johnson's Corner Connector Drone Photo Locations

October 20, 2016  
**KLJ**

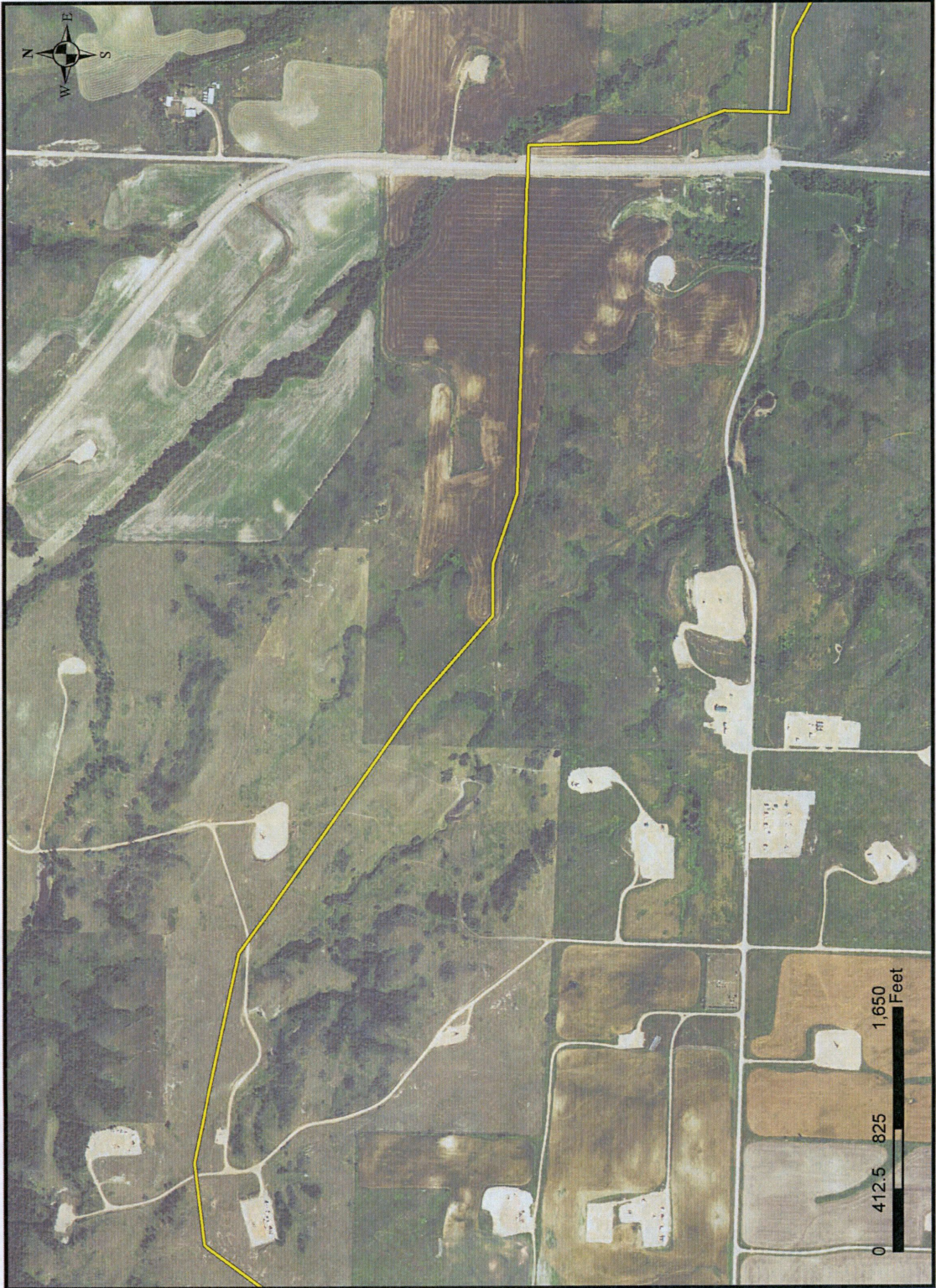


Page 4 of 7

# Johnson's Corner Connector

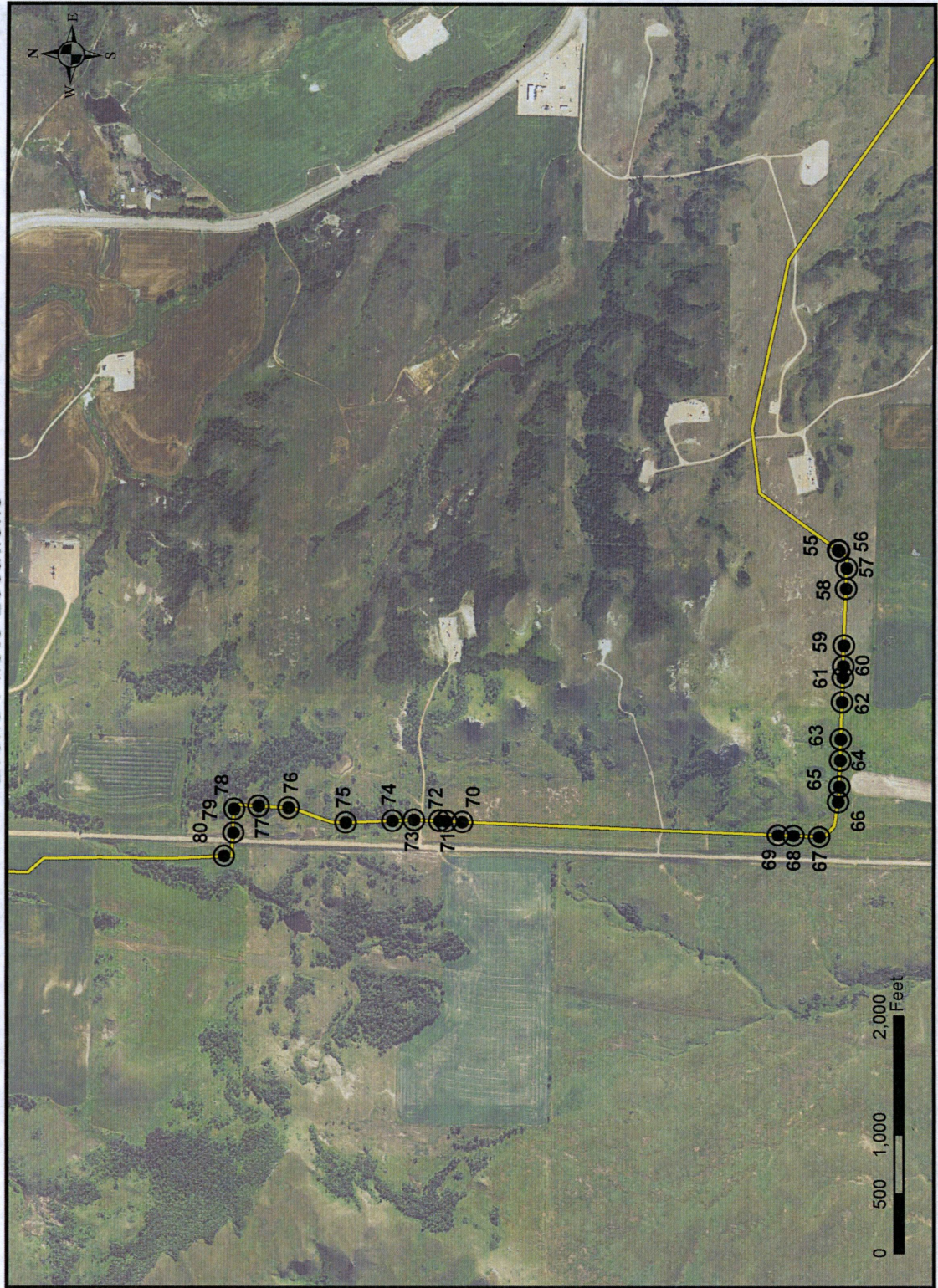
Drone Photo Locations

October 20, 2016  
**KLJ**



# Johnson's Corner Connector Drone Photo Locations

October 20, 2016  
**KLJ**



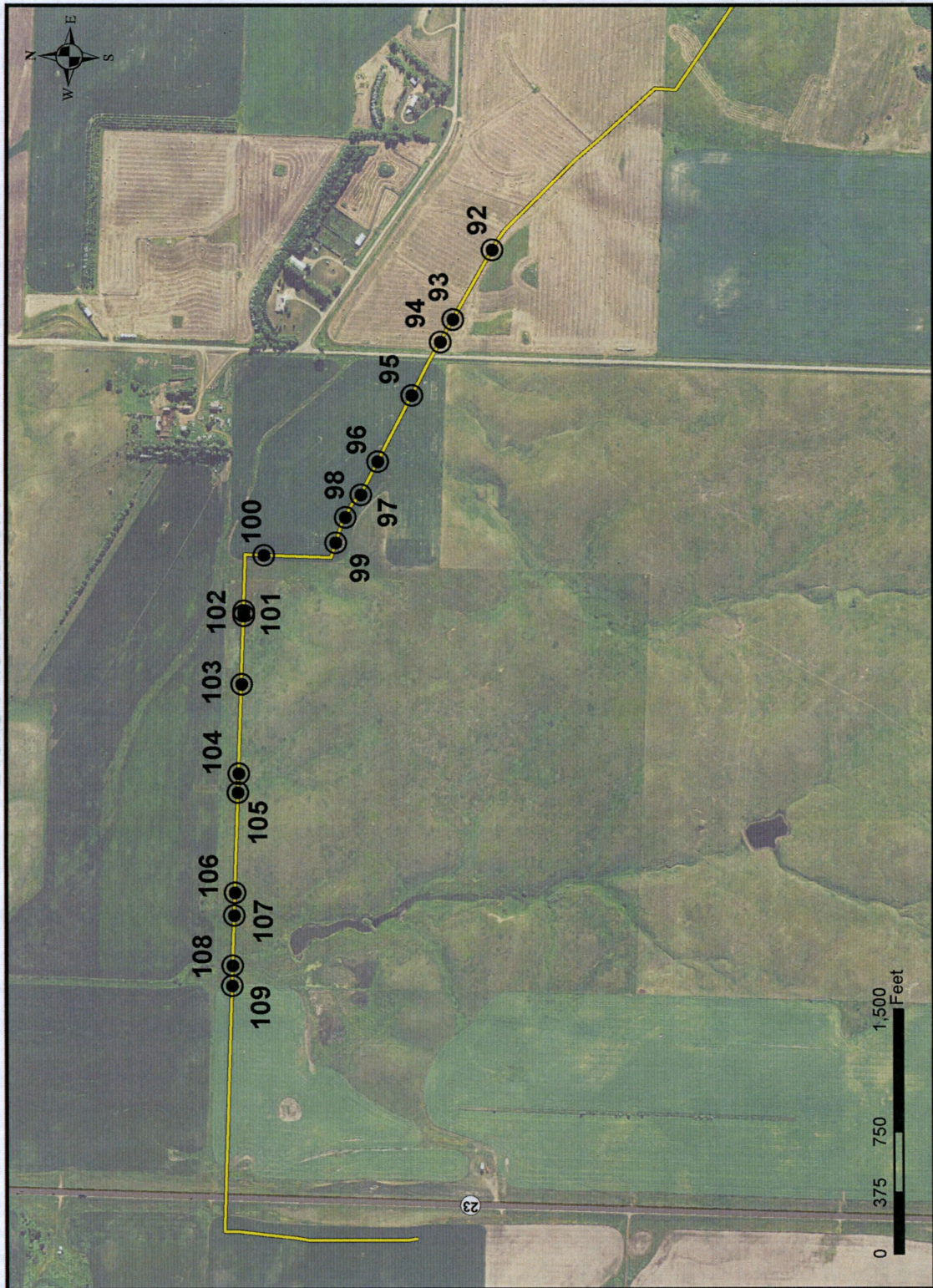
# Johnson's Corner Connector

Drone Photo Locations



# Johnson's Corner Connector

Drone Photo Locations






## **APPENDIX B:**

Inspection Reports 1,2 and 3




Daily Construction Progress Report				
	Client:	N. Dak. Public Service Commission	Report Number:	1
	Project:	Sacagawea Pipeline Company LLC	Date:	7/8/2016
	KL&J Project Number:	1216109& PSC Case No PU-15-744	Pages:	1 and 2
Project Contact Information				
Title	Name	Company	Office Phone	Cell Phone
Client Contact	Julie Prescott	ND Public Service Commission	701-328-4188	N/A
KLJ Project Manager	Paul Lee	KLJ	701-250-3501	701-351-5551
Field Inspector	Arnie Siverson	KLJ	701-355-8786	701-425-5414
Chief Field Inspector	Marc Westbrook	STI Group	409-384-4278	409-382-8333
Contractor Field Foreman	Kevin Taylor	Wyatt Construction	N/A	N/A
Daily Construction Conditions				
Weather Conditions:	Partly Cloudy, breezy 15MPH			
Temp (High/Low):	High 76, Low 52			
Tailgate Meeting (Yes/No):	No			
Daily Construction Activity				
Construction Activity	Footage Installed Today	Total % To-Date	Comments/Description	
ROW Clearing	Work just starting	11		
Topsoil Removal	Work just starting	11		
Level/Grade ROW	N/A	15		
HDD Boring	N/A	N/A		
Ditch	N/A	N/A		
Pipe Hauling/Stringing	N/A	25		
Bending	N/A	5		
Pipe Lower/Pull-in	N/A	N/A		
Backfill/Compaction	N/A	N/A		
Welding	N/A	20		
Coating	N/A	11		
Clean Up	N/A	N/A		
Topsoil Replace/Final Grade	0	0		
Final Reclamation & Reseeding	0	0		
Installed Quantities				
Material	Quantity Installed Today	Total Quantity To-Date	Comments/Description	
Mainline Block Valve Setting	0	0		
Pig Launcher	0	0		
Pig Receiver	0	0		
Fence Crossings	0	0		
Gates in Fence	0	0		
Silt Fence	0	0		
Waddles	0	0		
Erosion Blankets	0	0		
Straw Bales	0	0		
Sand Bag Trench Breakers	0	0		
Swamp Mats	0	0		
Trench Breakers	0	0		
	0	0		
	0	0		







Daily Construction Progress Report				
	Client:	N. Dak. Public Service Commission	Report Number:	2
	Project:	Johnson's Corner Connector Crude	Date:	7/18/2016
	KL&J Project Number:	1216109 & PSC Case No PU-15-744	Pages:	1 and 2

Project Contact Information				
Title	Name	Company	Office Phone	Cell Phone
Client Contact	Julie Prescott	ND Public Service Commission	701-328-4188	N/A
KLJ Project Manager	Paul Lee	KLJ	701-250-3501	701-351-5551
Field Inspector	Arnie Siverson	KLJ	701-355-8786	701-425-5414
Chief Field Inspector	Marc Westbrook	STI Group	409-384-4278	409-382-8333
Contractor Field Foreman	Chad Williams	Wyatt Construction	N/A	N/A

Daily Construction Conditions	
Weather Conditions:	Partly Cloudy, breezy 15MPH
Temp (High/Low):	High 72, Low 65
Tailgate Meeting (Yes/No):	No

Daily Construction Activity			
Construction Activity	Footage Installed Today	Total % To Date	Comments/Description
ROW Clearing	N/A	100	
Topsoil Removal	N/A	100	
Level/Grade ROW	N/A	90	
HDD Boring	N/A	80	
Ditch	N/A	100	
Pipe Hauling/Stringing	N/A	80	
Bending	N/A	70	
Pipe Lower/Pull-in	N/A	80	
Backfill/Compaction	N/A	80	
Welding	N/A	70	
Coating	N/A	65	
Clean Up	N/A	50	
Topsoil Replace/Final grade	N/A	0	
Final Reclamation & Reseeding	N/A	0	

Installed Quantities			
Material	Quantity Installed Today	Total Quantity To-Date	Comments/Description
Mainline Block Valve Setting	N/A	N/A	
Pig Launcher	N/A	N/A	
Pig Receiver	N/A	N/A	
Fence Crossings	0	0	
Gates in Fence	50	50	
Silt Fence	N/A	N/A	
Waddles	N/A	N/A	
Erosion Blankets	0	0	
Straw Bales	0	0	
Sand Bag Trench Breakers	N/A	N/A	
Swamp Mats	N/A	N/A	
Water Bars	N/A	N/A	






Photos	
Page 2	
<p>21 photos were taken on inspection, dated 7-18-2016, showing depth and amount of top soil stripped and moved to opposite side on right of way easement. Top and Sub soils were kept segregated and separated from touching. Photos were taken in trench where contractor hit unmarked line at station 141+00. Discription of work will be noted on each photo, as listed on the first photos taken 7-18-16 in Appendix C along with this report.</p>	
<p>_____</p> <p>_____</p> <p>_____</p>	
Sub Contractors On-Site	
No Sub-contractors on site during inspection #2 for observation on stripping and removal location of top soil on construction right of way easement.	
<p>_____</p> <p>_____</p>	
Disposition/Comments:	
<p>Amie Siverson, KLJ project inspector, arrived on job site right of way easement to assess several incidents by the contractor cutting existing unmarked H2S, salt water, and fresh water lines during construction trenching on this project. The PSC asked KLJ to review the situation on site and what incidents occurred. The line strikes occurred in the NW1/4SE1/4 of sec. 8, 150N, R95W. Met with Chad Williams, project foreman and we reviewed striked piping at stations 141+00 and 142+00. It turned out to be an abandoned Hess line not used. Hess was on site repairing line. Construction work started at station 0+00. GPS latitude and longitude readings were taken and are included within Appendix D, along with this report. Contractor had grass vegetation located within right of way removed, and stripping of top soil was under way. Contractor was in process of using two dozer cats to rip and clear top soil within right of way. Top soil had been pushed within right of way and placed along west edge of easement. Work can be noted from the 21 photos enclosed within Appendix C along with this report. After taking photos and observing work on right of way was being completed within PSC guidelines, KLJ inspector left job site.</p>	
<p>_____</p> <p>_____</p>	
Inspectors Name:	Amie Siverson
Inspectors Time (hrs.):	5
	Date: 7/18/2016





Daily Construction Progress Report				
	<b>Client:</b>	N. Dak. Public Service Commission	<b>Report Number:</b>	3
	<b>Project:</b>	Johnson's Corner Connector Crude	<b>Date:</b>	8/30/2016
	<b>KL&amp;J Project Number:</b>	1216109 & PSC Case No PU-15-744	<b>Pages:</b>	1 and 2
Project Contact Information				
<b>Title</b>	<b>Name</b>	<b>Company</b>	<b>Office Phone</b>	<b>Cell Phone</b>
Client Contact	Julie Prescott	ND Public Service Commission	701-328-4188	N/A
KLJ Project Manager	Paul Lee	KLJ	701-250-3501	701-351-5551
Field Inspector	Arnie Siverson	KLJ	701-355-8786	701-425-5414
Chief Field Inspector	Marc Westbrook	STI Group	409-384-4278	409-382-8333
Contractor Field Foreman	Chad Williams	Wyatt Construction	N/A	N/A
Daily Construction Conditions				
<b>Weather Conditions:</b>	Partly Cloudy, breezy 15MPH			
<b>Temp (High/Low):</b>	High 72-81, Low 67			
<b>Tailgate Meeting (Yes/No):</b>	No			
Daily Construction Activity				
<b>Construction Activity</b>	<b>Footage Installed Today</b>	<b>Total % To Date</b>	<b>Comments/Description</b>	
ROW Clearing	N/A	100		
Topsoil Removal	N/A	100		
Level/Grade ROW	N/A	100		
HDD Boring	N/A	95		
Ditch	N/A	100		
Pipe Hauling/Stringing	N/A	100		
Bending	N/A	100		
Pipe Lower/Pull-in	N/A	100		
Backfill/Compaction	N/A	95		
Welding	N/A	100		
Coating	N/A	100		
Clean Up	N/A	70		
Topsoil Replace/Final grade	N/A	70		
Final Reclamation & Reseeding	N/A	50		
Installed Quantities				
<b>Material</b>	<b>Quantity Installed Today</b>	<b>Total Quantity To-Date</b>	<b>Comments/Description</b>	
Mainline Block Valve Setting	N/A	N/A		
Pig Launcher	N/A	N/A		
Pig Receiver	N/A	N/A		
Fence Crossings	100	100		
Gates in Fence	100	100		
Silt Fence	N/A	N/A		
Waddles	N/A	N/A		
Erosion Blankets	0	0		
Straw Bales	0	0		
Sand Bag Trench Breakers	N/A	N/A		
Swamp Mats	N/A	N/A		
Water Bars	N/A	N/A		
	0	0		
	0	0		





Photos	
Page 2	
<p>28 photos were taken on inspection, dated 8-30-2016, showing depth and amount of top soil stripped and moved to opposite side on right of way easement. Top and Sub soils were kept segregated and separated from touching. Discription of work will be noted on each photo, as listed on second photos taken 8-30-16 in Appendix C along with this report.</p> <hr/> <hr/> <hr/> <hr/>	
Sub Contractors On-Site	
No Sub-contractors on site during inspection #3 from observation of stripping and top soil removal locations on right of way easement construction project.	
Disposition/Comments:	
<p>Amie Siverson, KLJ project inspector, arrived at project, located at bore station 200+44.34 on west side of county road 14. Inspection was conducted on 8-30-16, at 3:00 PM. No project managers were in attendance during inspection. I drove right of way to conduct top soil inspections and took photos. During inspection, contractor was in process of hydro-testing piping. At present right of way top soil removal inspection begun at station 207+00, located on east side county road 14, and ended at end of pipe station 679+07.32, located at Keene Terminal Unit. GPS latitude and longitude readings were taken at given station points and are included within Appendix D, along with this report. Right of way was noted from inspection, that grading was complete and top soils had been pushed to west opposite side on right of way easement. Depth of soil removed off right of way was measured approximately 12" deep. Work continued on right of way heading west and north to Keene Terminal Unit. Work can be noted from the 28 photos enclosed within Appendix C along with this report. No BMP's were installed along right of way as noted from inspection. After taking photos and observing work on right of way was being completed within PSC guidelines, KLJ inspector left job site.</p>	
Inspectors Name:	Arnie Siverson
Inspectors Time (hrs.):	5
Date:	8/30/2016





## APPENDIX C: PHOTOGRAPHS

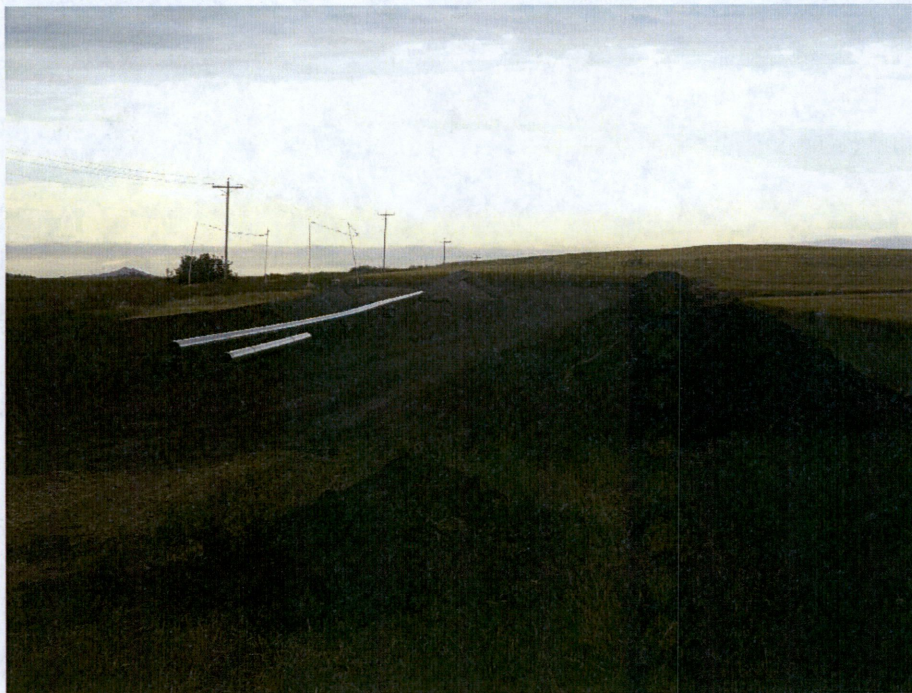
First Set Photos

*Taken July 18, 2016*





*Photo 1: Located at station 6+00, showing Right of Way direction looking east with graded top soil placed on edge of Right of Way. Subsoil is pushed to left edge of topsoil, but is segregated and separated from each. Pipe is welded and sitting on skids ready for trenching.*



*Photo 2: Located at station 15+00, showing Right of Way direction looking east with graded topsoil placed on right edge of Right of Way. Subsoil is pushed on Right of Way edge on left side. Bore pipe located on Right of Way.*



*Photo 3: Located at station 21+00, showing Right of Way direction looking west graded with topsoil placed on the edge of Right of Way. Subsoil is pushed to the edge of topsoil, but is segregated and separated from each. Pipe is welded and setting on skids ready for trenching.*



*Photo 4: Located at station 27+00, showing Right of Way direction looking west graded with top soil pushed off Right of Way. Pipeline skids placed on Right of Way ready for piping.*



*Photo 5: Located at station 48+00, showing graded Right of Way with subsoil located on left side on Right of Way and topsoil stockpiled on extreme left side of Right of Way. Both topsoil and subsoil have been kept segregated. Pipe has been welded and ready to install in trench.*



*Photo 6: Located at station 66+00, showing graded Right of Way with welded pipe on skids ready for trenching. Topsoil is shown on edge of left side of Right of Way.*



*Photo 7: Located at station 78+00, showing Right of Way direction looking west with graded topsoil pushed to edge of Right of Way.*



*Photo 8: Located at station 93+00, showing Right of Way direction looking east with graded topsoil pushed to edge of Right of Way. Power pole is shown laying on topsoil located on right side of photo.*



*Photo 9: Located at station 126+00, showing grade Right of Way direction looking east with trench excavated. Pipe is welded and ready to place in trench. Photo shows subsoil placed on left side of Right of Way. Top soil placed along right side edge on Right of Way.*



*Photo 10: Located at station 132+00, photo showing stripped Right of Way at approximate topsoil depth of 12 inches. Photo is showing west side of Right of Way.*





*Photo 11: Located at station 141+00, photo showing open trench where existing line was hit while excavating trench. Hess line was not damaged and existing line location was not found or exposed.*



*Photo 12: Located at station 141+00, looking inside trench where existing Hess pipeline was partially hit and disturbed during excavation of trench. Pipe was repaired by Hess and no liquid from pipe flowed into trench. Location of Hess pipe was mismarked during locating existing piping for trench work.*



*Photo 13: Located at station 146+00. Photo showing flagged location of existing Hess lines which is approximately 700 ft. east of actual Hess line location hit during trench excavation.*



*Photo 14: Located at station 146+00, showing Right of Way direction looking west with Right of Way graded. Right of Way has been trenched with subsoil located on right side of trench. Topsoil is pushed off Right of Way located on left side of photo not shown. Pipe is welded, sitting on skids ready to place in trench.*





*Photo 15: Located at station 148+00, showing trench work completed on Right of Way ready to place piping in trench.*



*Photo 16: Located at station 162+00, Photo looking north showing stripped Right of Way. Photo showing topsoil placed on east edge of Right of Way. Subsoil is placed on west edge (left side) along Right of Way.*



*Photo 17: Located at station 165+00, photo showing stripped Right of Way with approximate topsoil depth exposed at 12 inches. Photo showing east side at edge of Right of Way.*



*Photo 18: Located at station 198+00, showing Right of Way heading west. Station is at bore pit located at County Road 14 that heads east. Right of Way has been stripped with topsoil located at left side (south edge) on Right of Way. Topsoil depth stripped has been approximately 12 inches. Photo showing bore piping located on left side of photo.*





*Photo 19: Located at station 203+00, showing stripped Right of Way with approximate topsoil depth of 12 inches. Photo is showing north side of Right of Way.*



*Photo 20: Located at station 202+00, showing station 202+00 located at bore site at County Road 14. Wheat field is shown off Right of Way looking north.*



*Photo 21: Located at station 204+00, showing Right of Way heading west. Station is at bore pit, location by County Road 14 that heads west. Right of Way has been stripped of topsoil which is located along left side (south edge) of Right of Way. Photo showing pipe welded and ready to be bored under County Road 14.*



# APPENDIX C: PHOTOGRAPHS

Second Set Photos

*Taken August 30, 2016*



*Photo 1: Showing Right of Way at station 198+00, Bore site located at County Road 14. Right of Way needs cleaning. Photo looking east, showing subsoil at lower left of photo with topsoil pushed off Right of Way on right side of photo. Both soil types are kept separated and segregated.*



*Photo 2: Located at station 207+00, showing Right of Way direction looking east. Right of Way has been stripped with subsoil on right side of photo and topsoil is located on the left side of photo and Right of Way. Both soil types are kept separated and segregated.*



*Photo 3: Located at station 213+00, showing graded Right of Way headed north.*



*Photo 4: Located at station 222+00, Looking north of Right of Way with pipe in trench and Right of Way leveled and regraded to original condition. Right of Way has been cleaned and ready for seeding.*



*Photo 5: Located at station 225+00, taken from east end of Right of Way facing west, heading uphill. Right of way graded, with topsoil pushed to north edge of Right of Way easement. No BMP's have been installed along entire length of Right of Way for erosion control.*



*Photo 6: Located at station 240+00, showing graded Right of Way direction looking north. Topsoil is pushed off and placed in edge of Right of Way on the west side.*





*Photo 7: Located at station 248+00, Facing west, showing graded Right of Way with topsoil pushed off Right of Way edge on west side. Subsoil is pushed on Right of Way edge on left side. Rocks need to be removed from Right of Way when replacing topsoil.*



*Photo 8: Located at station 264+00, looking west at graded Right of Way showing topsoil located on left side of Right of Way. Topsoil removal is approximately 12 inches deep.*



*Photo 9: Located at station 297+00, looking east at graded Right of Way. Pipe installed in trench with subsoil replaced over Right of Way. Existing topsoil being regraded and leveled over Right of Way. Clean up in progress.*



*Photo 10: Located at station 288+00, looking south at Right of Way. Pipe installed in trench and backfilled. Contractor in process of installing and leveling Right of Way to original condition. Clean up in process.*





*Photo 11: Located at station 319+52.27, looking at bore pit on east side of County Road 14. Photo showing piping and valve settings.*



*Photo 12: Located at station 324+00, looking at graded Right of Way showing subsoil and topsoil pushed off of Right of Way. Both soil types are segregated and separated as required.*



*Photo 13: Located at station 342+00, looking north at graded Right of Way. Pipe installed in trench and regraded. Right of Way topsoil needs to have leveling finished and cleaned up to original condition.*



*Photo 14: Located at station 345+00, looking north at graded Right of Way showing pipe installed in trench and backfilled. Topsoil still needs to be regraded and leveled out across Right of Way.*



*Photo 15: Located at station 354+00, looking north at graded Right of Way showing pipe installed in trench with subsoil backfilled and graded across Right of Way. Photo shows topsoil placed on edge of Right of Way ready to grade and level over Right of Way to original condition.*



*Photo 16: Located at station 435+00, looking south at graded Right of Way, showing pipe installed in trench with subsoil graded and leveled. Topsoil still shown placed on edge of Right of Way, needs to be regraded and returned to original condition.*



*Photo 17: Located at station 420+00, looking west at graded Right of Way, showing pipe installed in trench with subsoil graded and leveled. Topsoil replacement and Right of Way cleanup still needs to be completed.*



*Photo 18: Located at station 450+00, looking north at Right of Way, showing subsoil and topsoil along the edge of Right of Way. Subsoil shown on right side of photo and topsoil on left side of photo. Both soil types are separated and segregated.*



*Photo 19: Located at station 459+00, showing topsoil placed along edge of Right of Way. Topsoil needs to be regraded and levelled over Right of Way to original condition.*



*Photo 20: Located at station 438+00, looking south at Right of Way, then turning east, showing graded subsoil. Topsoil still placed on edge of Right of Way, needing to be regraded and levelled across Right of Way to original condition. Clean up work across Right of Way not completed.*



*Photo 21: Located at station 444+00, looking south at Right of Way showing piping installed in trench and backfilled. Subsoil has been regraded and leveled across Right of Way. Topsoil has not been regraded and levelled out across Right of Way.*



*Photo 22: Located at station 459+00, looking south at topsoil placement along edge of Right of Way. Right of Way has been graded and ready to install topsoil over Right of Way to original condition.*



*Photo 23: Located at station 474+00, looking north at Right of Way, showing piping installed in trench and backfilled. Subsoil has been regraded across Right of Way. Topsoil work has not started yet, shown on right side of photo. Clean up work across Right of Way is not completed.*



*Photo 24: Located at station 483+00, looking north, showing subsoil grading started but not completed. Topsoil placed on edge of Right of Way, showing no work started. Clean up work across Right of Way not started.*



*Photo 25: Located at station 492+00, photo showing Right of Way graded with piping in trench and backfilled. Topsoil shown on outside of Right of Way with a lot of dead timber located with topsoil, that needs to be cleaned up and removed.*



*Photo 26: Located at station 510+00, looking north of Right of Way, showing piping installed in trench and backfilled. Topsoil shown on right side along Right of Way. Grading work has not been started yet.*





*Photo 27: Located at station 519+00, showing Right of Way with segregated subsoil and topsoil along edge of Right of Way.*



*Photo 28: Located at station 570+00, showing graded Right of Way with 12 inches of topsoil removed. Grading showing subsoil below topsoil after grading completed.*



*Photo 29: Located at station 600+00, looking north, showing graded subsoil across Right of Way levelled. Topsoil shown on left side of photo. Topsoil work not started yet.*



# APPENDIX C: PHOTOGRAPHS

Drone Photos

*Taken October 13, 2016*



Photo 1: Station 6+30; Latitude: 47°48'20.84"N Longitude: 102°54'3.73"W



Photo 2: Station 9+25; Latitude: 47°48'23.77"N Longitude: 102°54'3.36"W



Photo 3: Station 11+10; Latitude: 47°48'25.28"N Longitude: 102°54'3.52"W



Photo 4: Station 13+76; Latitude: 47°48'28.21"N Longitude: 102°54'3.85"W



Photo 5: Station 16+50; Latitude: 47°48'30.87"N Longitude: 102°54'3.65"W



Photo 6: Station 19+90; Latitude: 47°48'34.20"N Longitude: 102°54'3.40"W



Photo 7: Station 21+76; Latitude: 47°48'35.91"N Longitude: 102°54'2.85"W



Photo 8: Station 27+70; Latitude: 47°48'38.78"N Longitude: 102°54'0.16"W

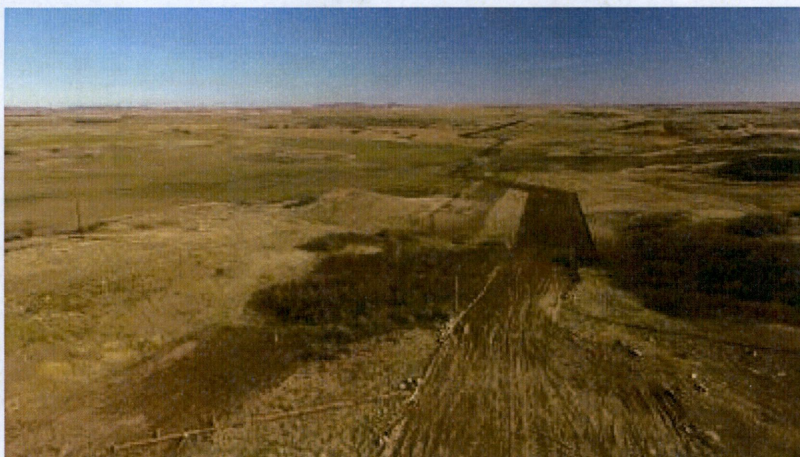


Photo 9: Station 29+48; Latitude: 47°48'39.05"N Longitude: 102°53'57.47"W



Photo 10: Station 31+25; Latitude: 47°48'39.29"N Longitude: 102°53'54.86"W

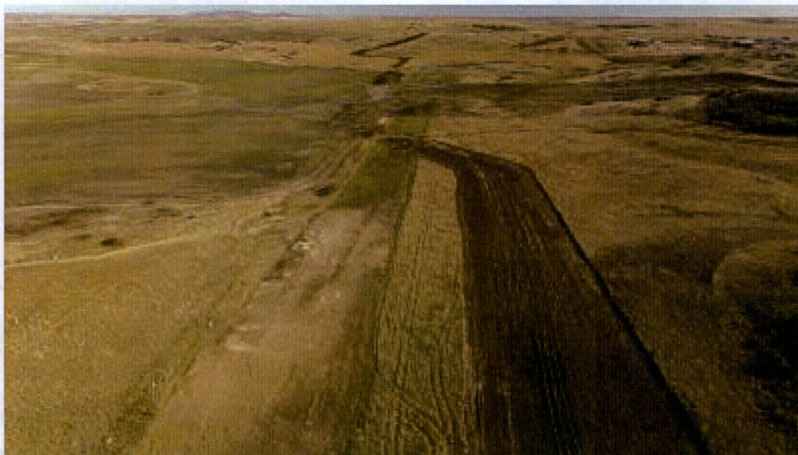


Photo 11: Station 34+00; Latitude: 47°48'39.59" Longitude: 102°53'50.47"W



Photo 12: Station 36+75; Latitude: 47°48'39.99"N Longitude: 102°53'46.36"W

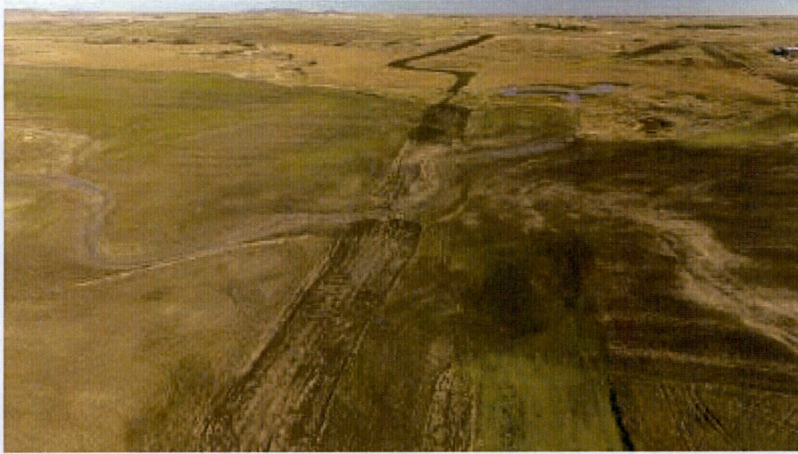


Photo 13: Station 42+05; Latitude: 47° 48' 40.67" N Longitude: 102° 53' 39.51" W

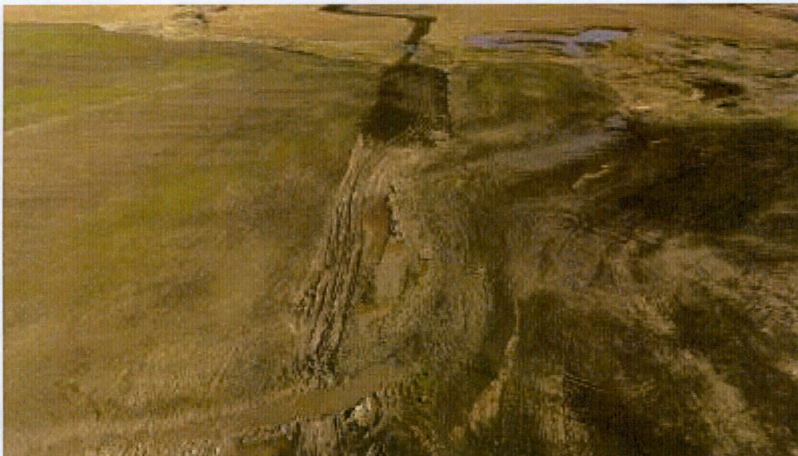


Photo 14: Station 45+75; Latitude: 47° 48' 41.35" N Longitude: 102° 53' 34.57" W

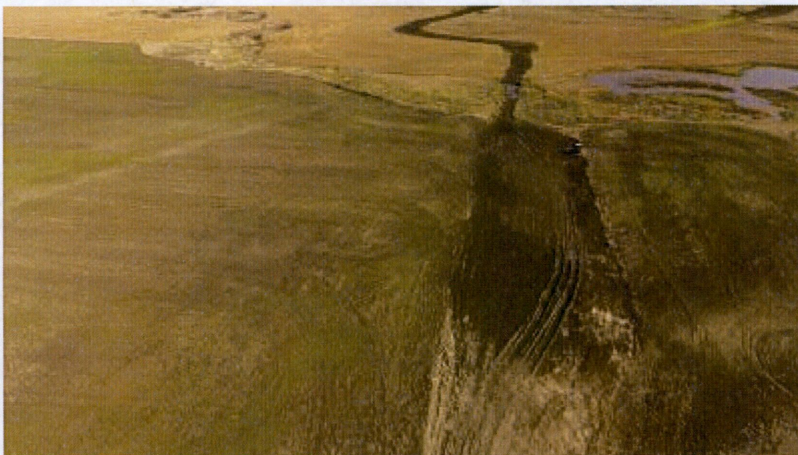


Photo 15: Station 48+15; Latitude: 47° 48' 41.81" N Longitude: 102° 53' 31.00" W

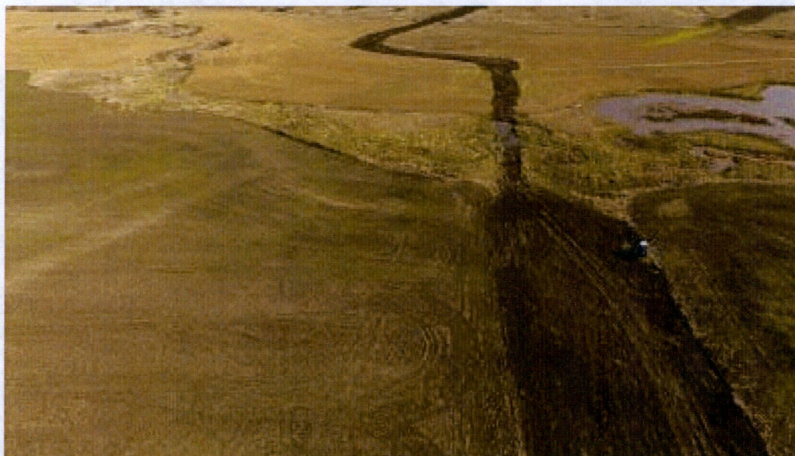


Photo 16: Station 50+20; Latitude: 47°48'42.31"N Longitude: 102°53'28.06"W



Photo 17: Station 116+75; Latitude: 47°49'12.33"N Longitude: 102°52'37.91"W

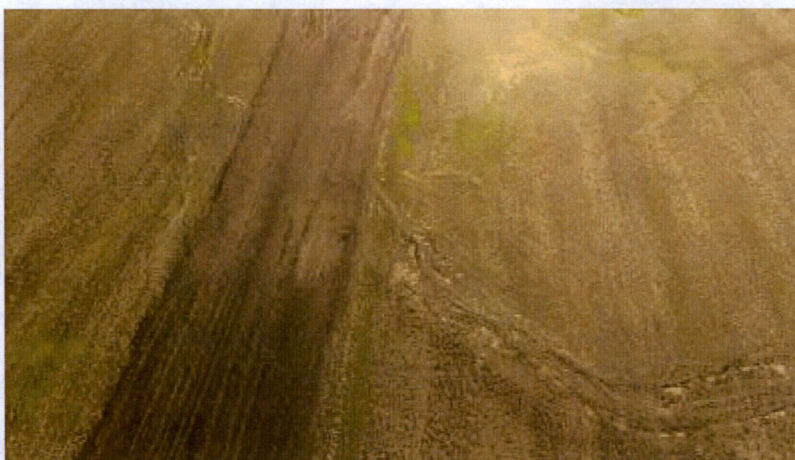
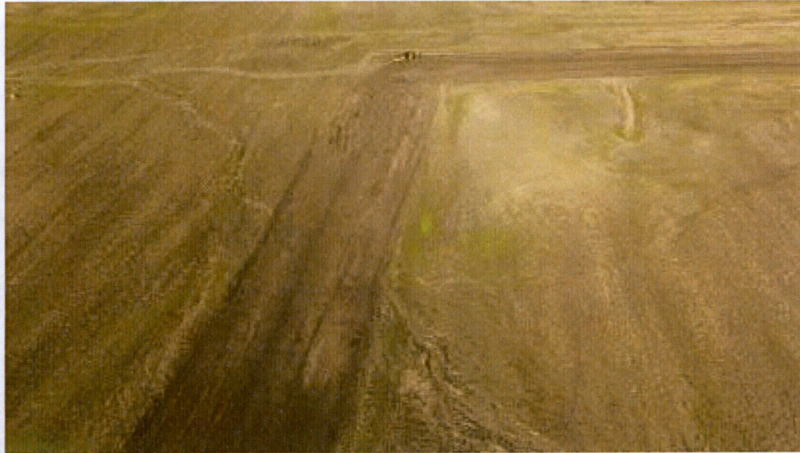
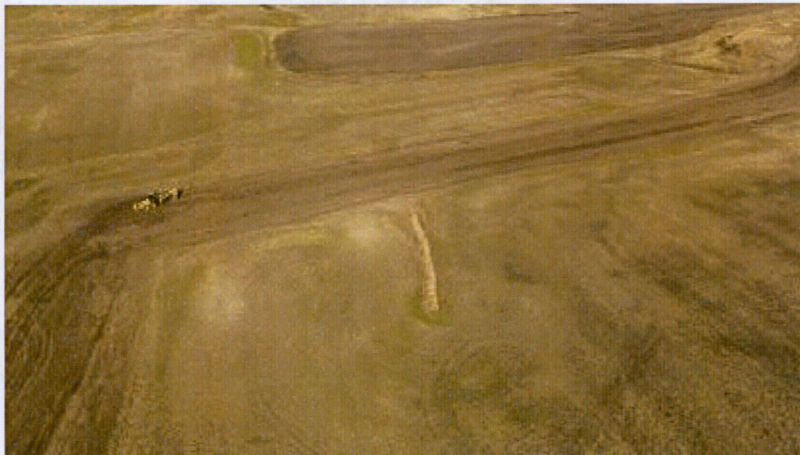


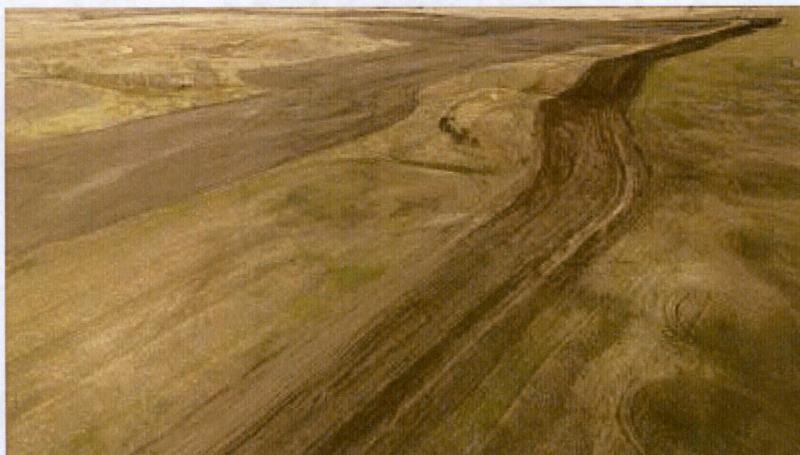
Photo 18: Station 117+ 25; Latitude: 47°49'12.37"N Longitude: 102°52'37.94"W



*Photo 19: Station 117+50; Latitude: 47°49'12.60"N Longitude: 102°52'38.13"W*



*Photo 20: Station 119+85; Latitude: 47°49'13.96"N Longitude: 102°52'37.01"W*



*Photo 21: Station 125+85; Latitude: 47°49'16.37"N Longitude: 102°52'34.62"W*

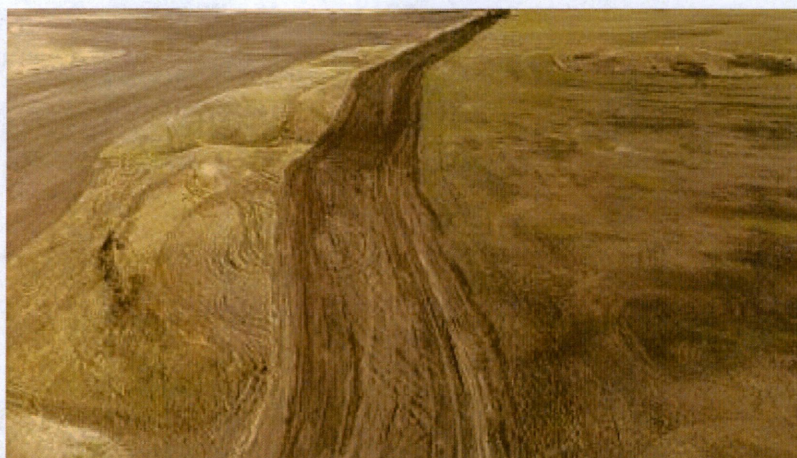


Photo 22: Station 128+10; Latitude: 47°49'17.20"N Longitude: 102°52'31.40"W



Photo 23: Station 129+75; Latitude: 47°49'17.43"N Longitude: 102°52'28.69"W



Photo 24: Station 130+95; Latitude: 47°49'17.98"N Longitude: 102°52'26.90"W



Photo 25: Station 132+85; Latitude: 47°49'18.55"N Longitude: 102°52'24.34"W

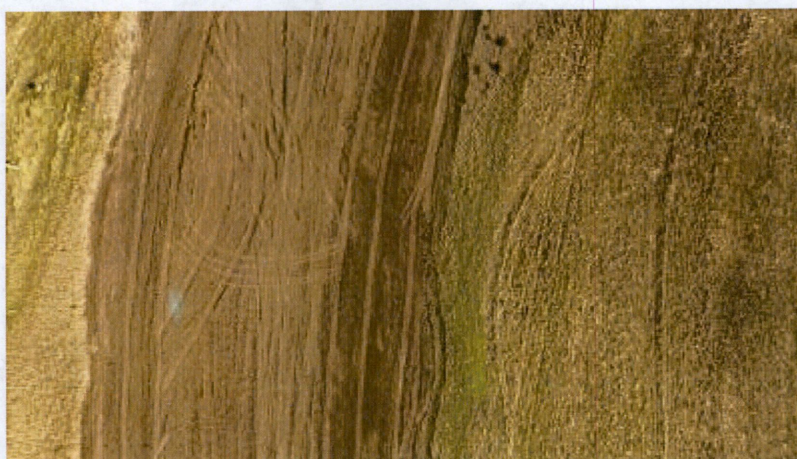


Photo 26: Station 135+15; Latitude: 47°49'18.84"N Longitude: 102°52'21.30"W

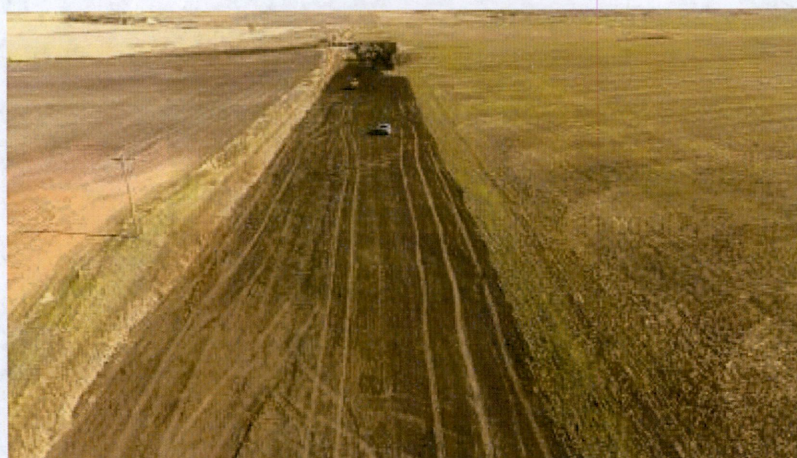


Photo 27: Station 139+85; Latitude: 47°49'19.04"N Longitude: 102°52'14.59"W



Photo 28: Station 142+20; Latitude: 47°49'18.97"N Longitude: 102°52'11.21"W



Photo 29: Station 144+60; Latitude: 47°49'18.92"N Longitude: 102°52'7.75"W



Photo 30: Station 145+90; Latitude: 47°49'19.17"N Longitude: 102°52'5.70"W



Photo 31: Station 148+60; Latitude: 47°49'20.61"N Longitude: 102°52'1.71"W

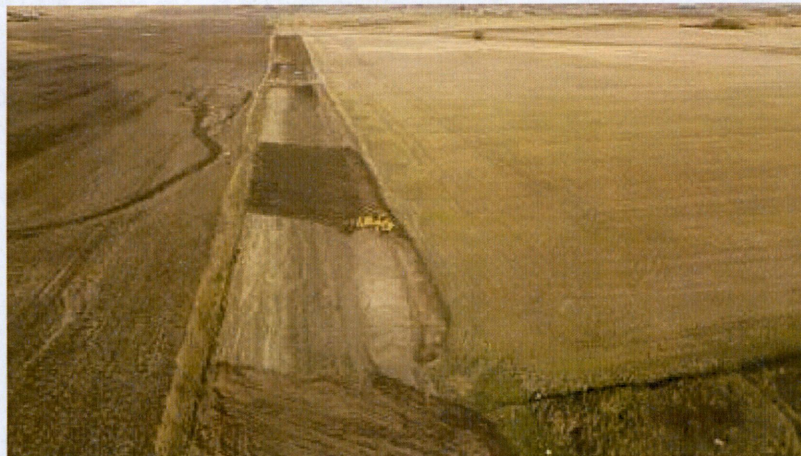


Photo 32: Station 155+20; Latitude: 47°49'23.79"N Longitude: 102°51'58.48"W

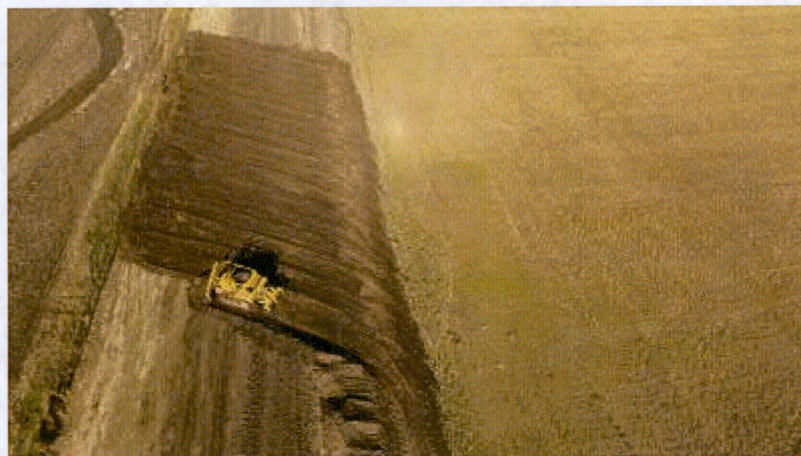


Photo 33: Station 156+75; Latitude: 47°49'25.38"N Longitude: 102°51'57.93"W

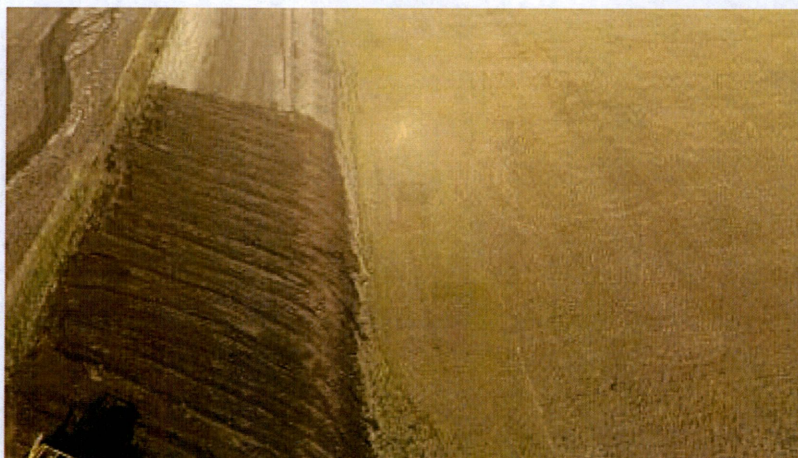


Photo 34: Station 157+45; Latitude: 47° 49'25.97"N Longitude: 102° 51'57.70"W



Photo 35: Station 158+00; Latitude: 47° 49'26.54"N Longitude: 102° 51'57.45"W



Photo 36: Station 162+00; Latitude: 47° 49'30.50"N Longitude: 102° 51'57.92"W

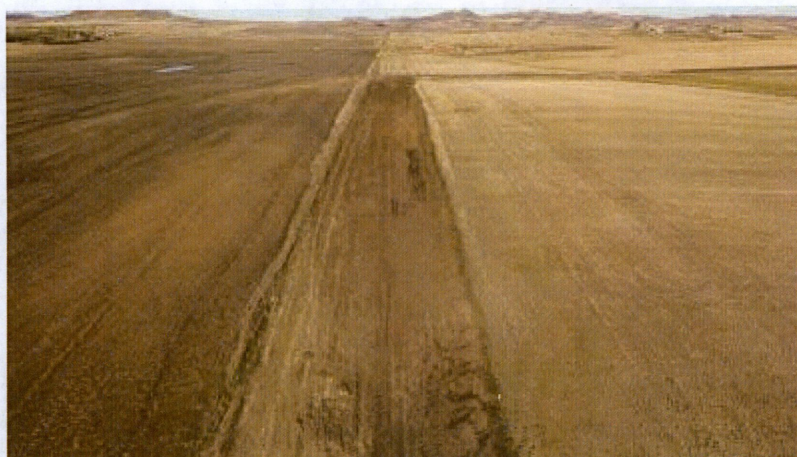


Photo 37: Station 166+25; Latitude: 47°49'34.67"N Longitude: 102°51'58.15"W

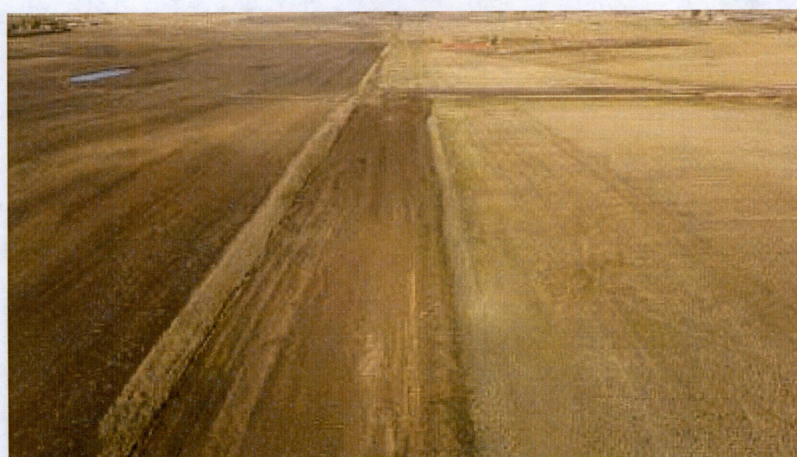


Photo 38: Station 170+55; Latitude: 47°49'38.98"N Longitude: 102°51'57.87"W

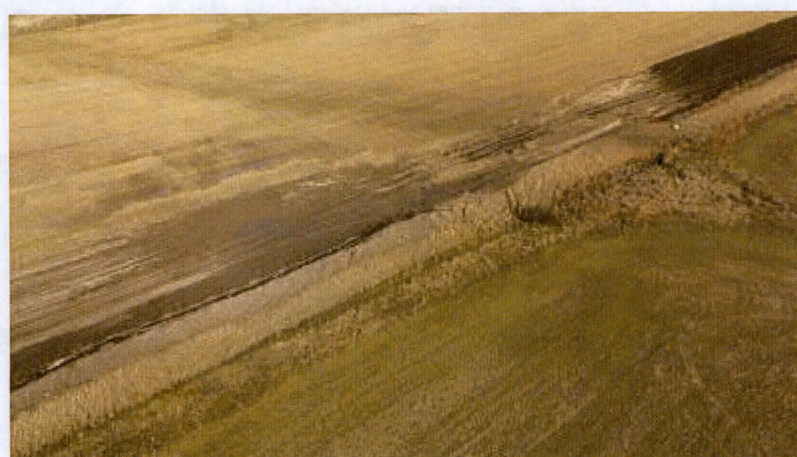


Photo 39: Station 176+15; Latitude: 47°49'44.54"N Longitude: 102°51'54.52"W



Photo 40: Station 183+74; Latitude: 47° 49'46.00"N Longitude: 102° 51'50.98"W



Photo 41: Station 184+15; Latitude: 47° 49'46.05"N Longitude: 102° 51'50.38"W

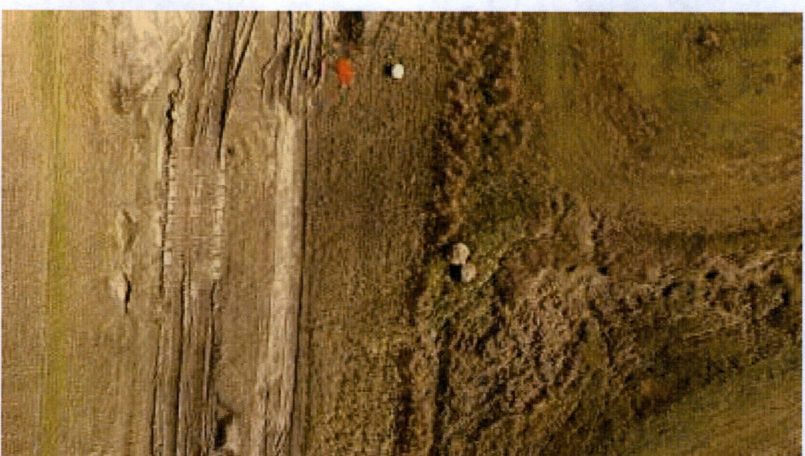


Photo 42: Station 184+20; Latitude: 47° 49'46.07"N Longitude: 102° 51'50.27"W



Photo 43: Station 199+05; Latitude: 47°49'46.72"N Longitude: 102°51'28.51"W



Photo 44: Station 199+30; Latitude: 47°49'46.59"N Longitude: 102°51'28.05"W



Photo 45: Station 201+65; Latitude: 47°49'46.37"N Longitude: 102°51'24.76"W



Photo 46: Station 203+27; Latitude: 47° 49'46.10"N Longitude: 102° 51'22.32"W



Photo 47: Station 205+90; Latitude: 47° 49'45.78"N Longitude: 102° 51'19.87"W



Photo 48: Station 207+48; Latitude: 47° 49'45.50"N Longitude: 102° 51'17.30"W



Photo 49: Station 213+40; Latitude: 47°49'43.47"N Longitude: 102°51'9.56"W

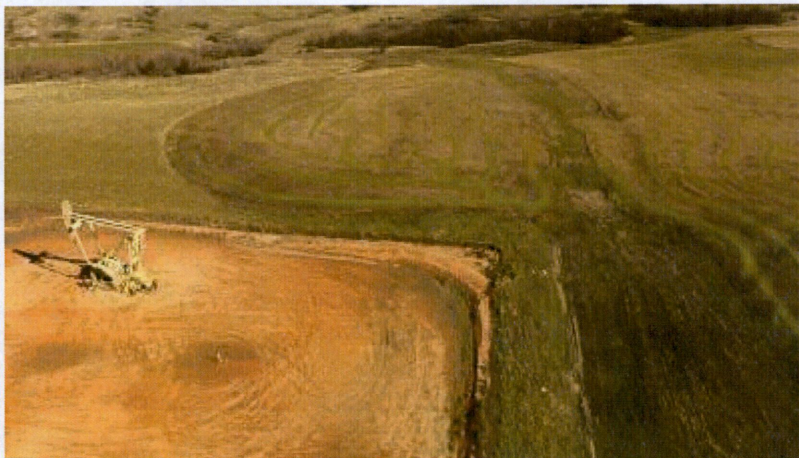


Photo 50: Station 216+45; Latitude: 47°49'43.99"N Longitude: 102°51'5.50"W

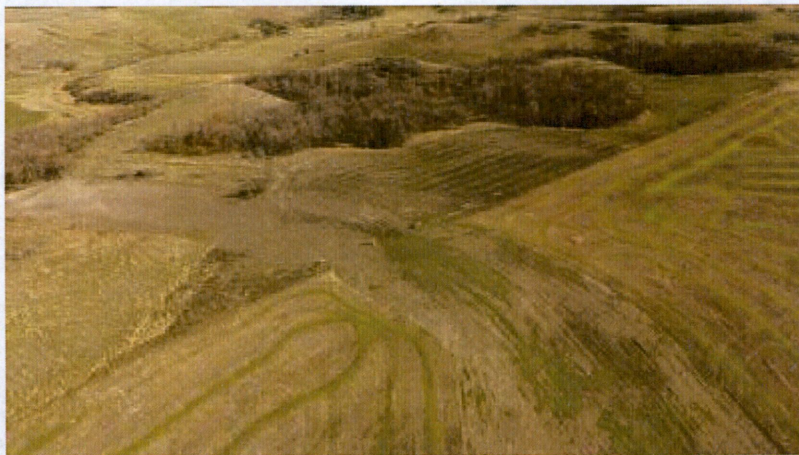


Photo 51: Station 220+45; Latitude: 47°49'44.50"N Longitude: 102°50'59.37"W



Photo 52: Station 223+70; Latitude: 47° 49'45.29"N Longitude: 102° 50'57.25"W



Photo 53: Station 226+20; Latitude: 47° 49'47.04"N Longitude: 102° 50'54.08"W



Photo 54: Station 227+15; Latitude: 47° 49'48.06"N Longitude: 102° 50'53.89"W



*Photo 55: Station 414+55; Latitude: 47°51'20.21"N Longitude: 102°53'18.05"W*



*Photo 56: Station 412+55; Latitude: 47°51'20.46"N Longitude: 102°53'17.26"W*



*Photo 57: Station 412+72; Latitude: 47°51'20.45"N Longitude: 102°53'17.38"W*



Photo 58: Station 416+35; Latitude: 47°51'18.98"N Longitude: 102°53'20.48"W

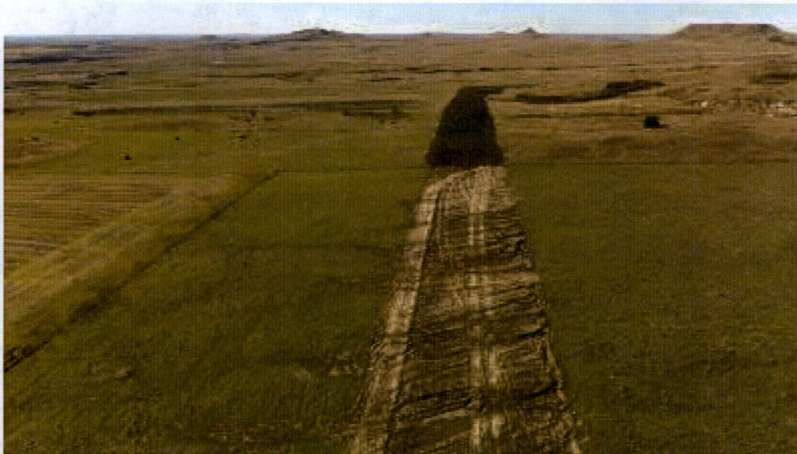


Photo 59: Station 421+24; Latitude: 47°51'18.77"N Longitude: 102°53'27.64"W

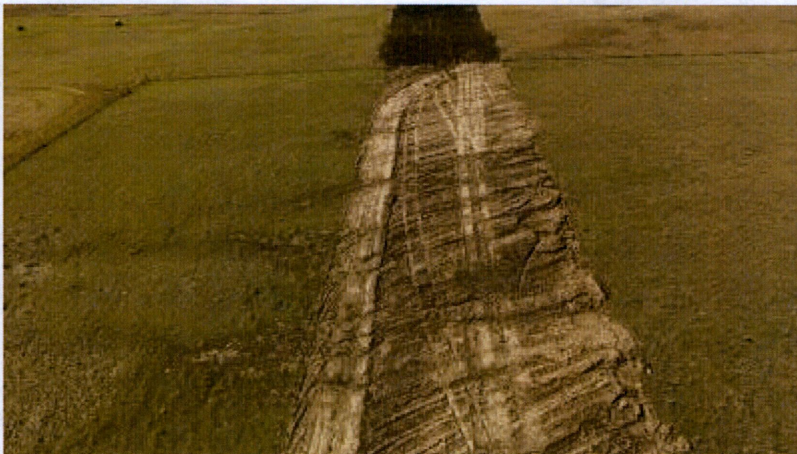


Photo 60: Station 423+00; Latitude: 47°51'18.75"N Longitude: 102°53'30.25"W



Photo 61: Station 423+97; Latitude: 47°51'18.70"N Longitude: 102°53'31.67"W



Photo 62: Station 426+10; Latitude: 47°51'18.51"N Longitude: 102°53'34.74"W



Photo 63: Station 429+24; Latitude: 47°51'18.58"N Longitude: 102°53'39.34"W



Photo 64: Station 431+05; Latitude: 47°51'18.73"N Longitude: 102°53'42.04"W



Photo 65: Station 433+30; Latitude: 47°51'18.89"N Longitude: 102°53'45.36"W

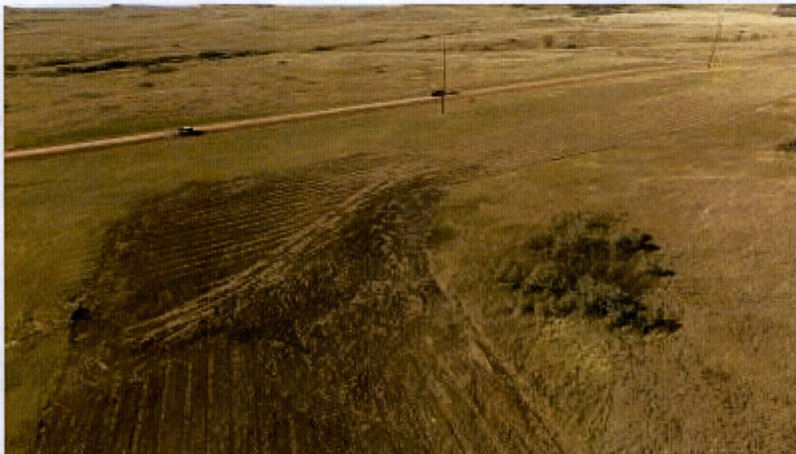


Photo 66: Station 434+60; Latitude: 47°51'19.23"N Longitude: 102°53'47.25"W



Photo 67: Station 438+50; Latitude: 47°51'21.41"N Longitude: 102°53'49.62"W

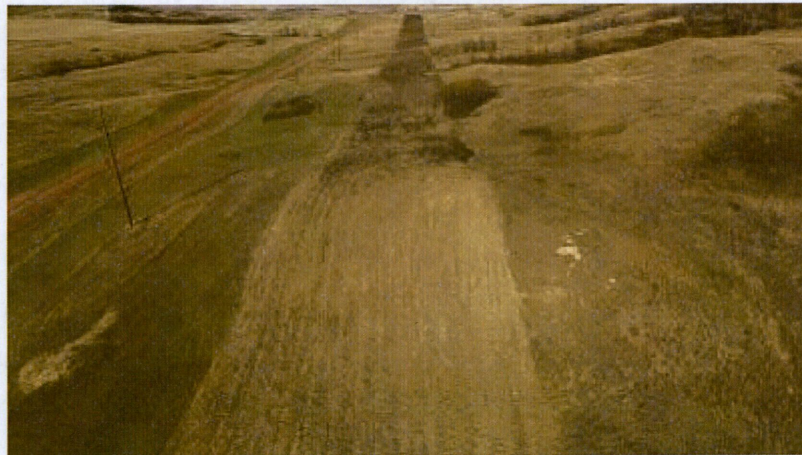


Photo 68: Station 440+70; Latitude: 47°51'22.78"N Longitude: 102°53'51.05"W



Photo 69: Station 442+05; Latitude: 47°51'24.03"N Longitude: 102°53'50.74"W



Photo 70: Station 469+10; Latitude: 47°51'50.86"N Longitude: 102°53'50.42"W



Photo 71: Station 470+50; Latitude: 47°51'52.15"N Longitude: 102°53'50.48"W



Photo 72: Station 471+05; Latitude: 47°51'52.74"N Longitude: 102°53'50.39"W



Photo 73: Station 473+25; Latitude: 47°51'55.24"N Longitude: 102°53'50.42"W



Photo 74: Station 475+10; Latitude: 47°51'56.82"N Longitude: 102°53'50.37"W

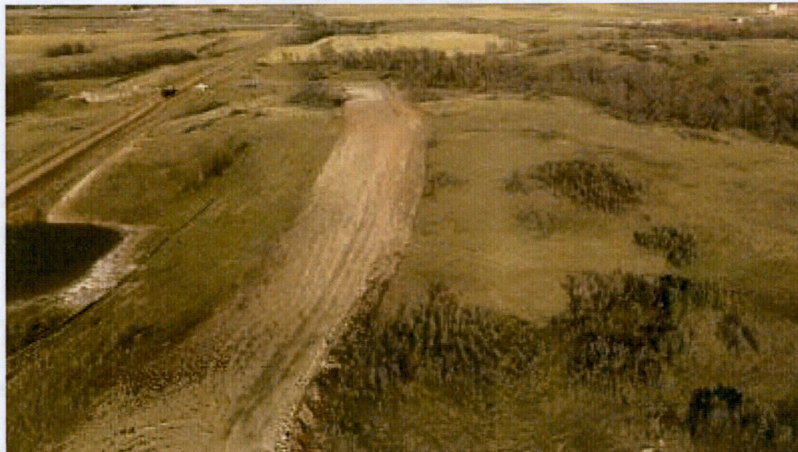
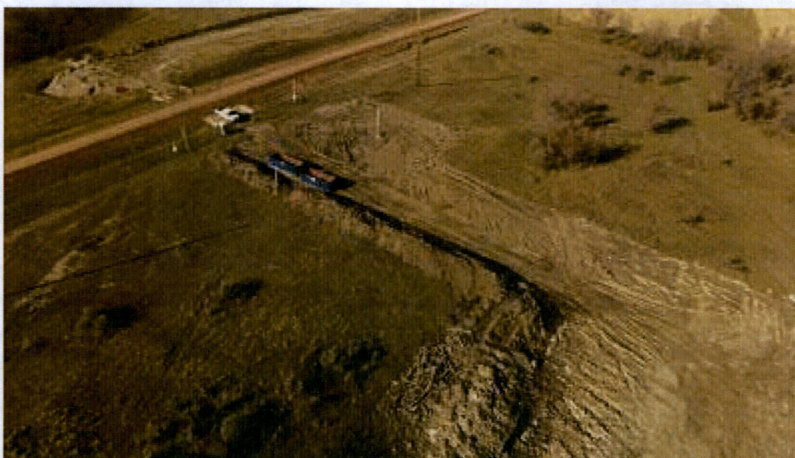


Photo 75: Station 479+15; Latitude: 47°52'0.64"N Longitude: 102°53'50.58"W



*Photo 76: Station 484+25; Latitude: 47°52'5.49"N Longitude: 102°53'49.33"W*



*Photo 77: Station 486+85; Latitude: 47°52'8.17"N Longitude: 102°53'50.05"W*



*Photo 78: Station 489+30; Latitude: 47°52'9.00"N Longitude: 102°53'51.16"W*



Photo 79: Station 491+40; Latitude: 47°52'9.53"N Longitude: 102°53'53.50"W



Photo 80: Station 494+20; Latitude: 47°52'10.95"N Longitude: 102°53'56.16"W



Photo 81: Station 516+70; Latitude: 47°52'32.66"N Longitude: 102°53'59.61"W



Photo 82: Station 519+65; Latitude: 47°52'35.61"N Longitude: 102°53'59.43"W



Photo 83: Stationing: 522+75; Latitude: 47°52'38.65"N Longitude: 102°53'59.18"W



Photo 84: Station 528+65; Latitude: 47°52'44.51"N Longitude: 102°53'59.42"W



Photo 85: Station 533+30; Latitude: 47°52'49.09"N Longitude: 102°53'59.18"W

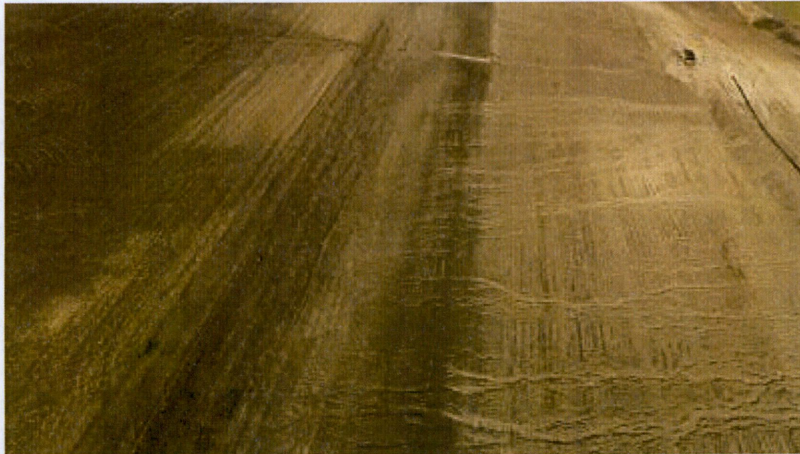
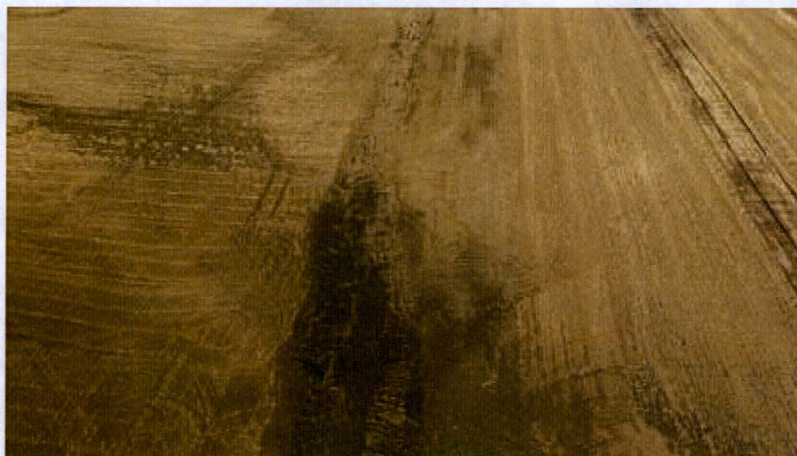


Photo 86: Station 535+50; Latitude: 47°52'51.23"N Longitude: 102°53'59.24"W



Photo 87: Station 542+20; Latitude: 47°52'57.82"N Longitude: 102°53'59.31"W



*Photo 88: Station 546+72; Latitude: 47°53'2.32"N Longitude: 102°53'59.54"W*



*Photo 89: Station 549+80; Latitude: 47°53'5.42"N Longitude: 102°53'59.54"W*



*Photo 90: Station 557+05; Latitude: 47°53'7.98"N Longitude: 102°54'4.76"W*



Photo 91: Station 559+30; Latitude: 47°53'8.78"N Longitude: 102°54'8.13"W



Photo 92: Station 602+55; Latitude: 47°53'25.27"N Longitude: 102°55'1.21"W



Photo 93: Station 607+52; Latitude: 47°53'27.31"N Longitude: 102°55'7.85"W



Photo 94: Station 609+15; Latitude: 47°53'27.87"N Longitude: 102°55'9.93"W

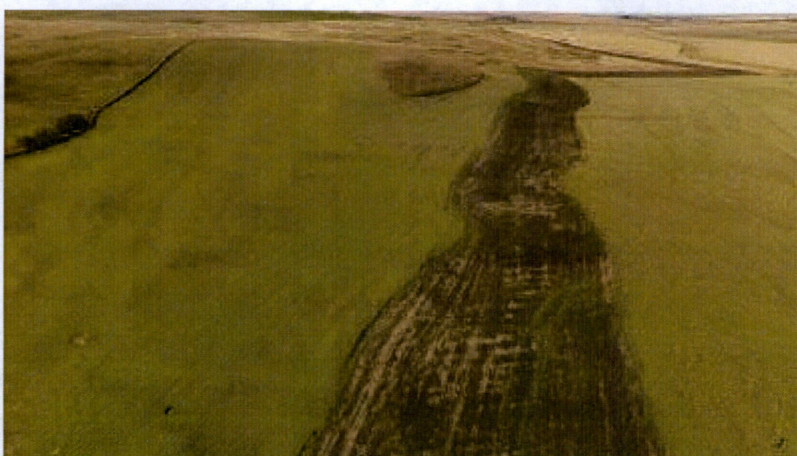


Photo 95: Station 613+90; Latitude: 47°53'29.36"N Longitude: 102°55'15.25"W

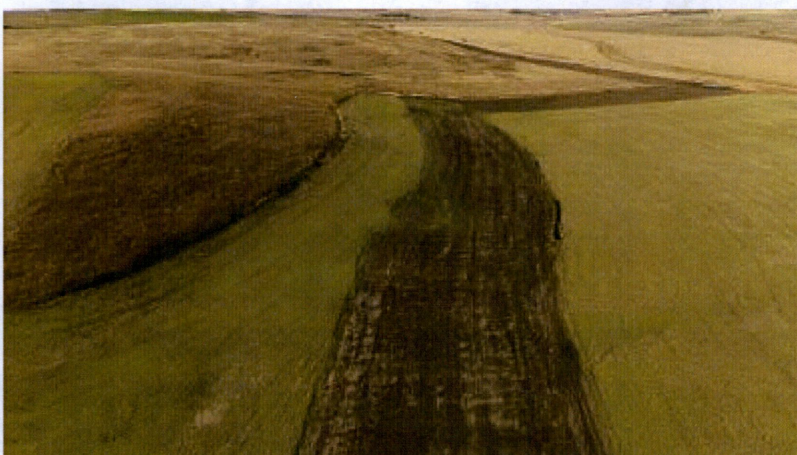


Photo 96: Station 617+55; Latitude: 47°53'31.14"N Longitude: 102°55'21.61"W



Photo 97: Station 619+85; Latitude: 47°53'32.21"N Longitude: 102°55'24.36"W



Photo 98: Station 621+55; Latitude: 47°53'33.29"N Longitude: 102°55'26.48"W



Photo 99: Station 623+25; Latitude: 47°53'34.13"N Longitude: 102°55'28.10"W



*Photo 100: Station 628+48; Latitude: 47°53'37.06"N Longitude: 102°55'34.48"W*



*Photo 101: Station 633+05; Latitude: 47°53'39.38"N Longitude: 102°55'36.24"W*



*Photo 102: Station 633+35; Latitude: 47°53'39.38"N Longitude: 102°55'36.40"W*



Photo 103: Station 637+60; Latitude: 47°53'39.57"N Longitude: 102°55'42.46"W



Photo 104: Station 643+20; Latitude: 47°53'40.00"N Longitude: 102°55'51.05"W



Photo 105: Station 644+30; Latitude: 47°53'39.31"N Longitude: 102°55'52.24"W



Photo 106: Stationing: 650+65; Latitude: 47°53'39.41"N Longitude: 102°56'1.59"W



Photo 107: Station 652+05; Latitude: 47°53'38.61"N Longitude: 102°56'3.67"W



Photo 108: Station 655+23; Latitude: 47°53'38.55"N Longitude: 102°56'8.26"W



*Photo 109: Station 656+49; Latitude: 47°53'38.66"N Longitude: 102°56'10.14"W*



# APPENDIX D:

## Field Observation Points



POINT	STATION	NAME	LATITUDE	LONGITUDE	DATE
1	6+00	Topsoil stripped, two tone area	N 47.4817	W 102.5400	7/18/2016
2	15+00	Bore Location	N 47.4822	W 102.5403	7/18/2016
3	21+00	Topsoil stripped, Top and subsoil pile separate	N 47.4832	W 102.5407	7/18/2016
4	27+00	Topsoil stripped	N 47.4836	W 102.5410	7/18/2016
5	48+00	Topsoil stripped, Top and subsoil pile separate	N 47.4839	W 102.5342	7/18/2016
6	66+00	Topsoil stripped, Piping welded ready for trench	N 47.4844	W 102.5308	7/18/2016
7	78+00	Topsoil stripped	N 47.4841	W 102.5385	7/18/2016
8	93+00	Topsoil stripped	N 47.4880	W 102.5246	7/18/2016
9	126+00	Topsoil stripped, trench dug, ready to install pipe	N 47.4937	W 102.5229	7/18/2016
10	132+00	Topsoil stripped, showing depth of cut	N 47.4918	W 102.5226	7/18/2016
11	142+00	Trench opening at striked Hess Line	N 47.4920	W 102.5231	7/18/2016
12	141+00	Trench opening at striked Hess Line	N 47.4920	W 102.5230	7/18/2016
13	146+00	ROW Hess Line marked crossing	N 47.4921	W 102.5234	7/18/2016
14	147+00	Topsoil stripped and trench dug	N 47.4922	W 102.5236	7/18/2016
15	148+00	Topsoil stripped and trench dug	N 47.4924	W 102.5238	7/18/2016
16	162+00	Topsoil stripped, Top and subsoil pile separate	N 47.4927	W 102.5258	7/18/2016
17	165+00	Topsoil stripped, showing depth of cut	N 47.4929	W 102.5261	7/18/2016
18	198+00	Topsoil stripped, Top and subsoil pile separate	N 47.4946	W 102.5318	7/18/2016
19	203+00	Topsoil stripped, showing depth of cut	N 47.4948	W 102.5322	7/18/2016
20	202+00	Station Marker	N 47.4947	W 102.5321	7/18/2016
21	204+00	Topsoil stripped, near bore location	N 47.4950	W 102.5325	7/18/2016
①	198+00	Topsoil stripped, Top and subsoil pile separate	N 47.4946	W 102.5318	8/30/2016
②	207+00	Top and subsoil pile separated	N 47.4967	W 102.5118	8/30/2016
③	213+00	Right of Way, regraded and leveled	N 47.4943	W 102.5121	8/30/2016
④	222+00	Right of Way, regraded and leveled	N 47.4952	W 102.5058	8/30/2016
⑤	225+00	Right of Way graded, topsoil piled on edge	LP	W 102.5054	8/30/2016
⑥	240+00	Right of Way graded, topsoil piled on edge	N 47.5002	W 102.5053	8/30/2016
⑦	248+00	Right of Way graded, topsoil piled on edge, rocks cleaned up	N 47.5010	W 102.5054	8/30/2016
⑧	264+00	Right of Way graded, topsoil piled on edge	N 47.5017	W 102.5054	8/30/2016
⑨	297+00	Right of Way, regraded and leveled for seeding	N 47.5049	W 102.5113	8/30/2016
⑩	288+00	Grading Right of Way	N 47.5047	W 102.5059	8/30/2016
⑪	PI 319+52.12	Bore pit east side of County Road 14	N 47.5059	W 102.5117	8/30/2016
⑫	324+00	Topsoil stripped, Top and subsoil pile separate	N 47.5102	W 102.5117	8/30/2016
⑬	342+00	Topsoil stripped, topsoil pile on edge of Right of Way	N 47.5106	W 102.5152	8/30/2016
⑭	345+00	Topsoil stripped, topsoil pile on edge of Right of Way	N 47.5108	W 102.5157	8/30/2016
⑮	354+00	Topsoil stripped, topsoil pile on edge of Right of Way	N 47.5153	W 102.5214	8/30/2016
⑯	435+00	Topsoil stripped, topsoil pile on edge of Right of Way	N 47.5121	W 102.5271	8/30/2016
⑰	420+00	Topsoil stripped, topsoil pile on edge of Right of Way, cleanup to be done	N 47.5128	W 102.5264	8/30/2016
⑱	450+00	Topsoil stripped, Top and subsoil pile separate	N 47.5132	W 102.5472	8/30/2016
⑲	459+00	Topsoil stripped, topsoil pile on edge of Right of Way	N 47.5134	W 102.5473	8/30/2016
⑳	438+00	Topsoil stripped, topsoil pile on edge of Right of Way, cleanup to be done	N 47.5119	W 102.5351	8/30/2016
㉑	444+00	Right of Way, regraded and leveled, ready for seeding	N 47.5127	W 102.5467	8/30/2016
㉒	459+00	Topsoil stripped, two tone area	N 47.5134	W 102.5473	8/30/2016
㉓	474+00	Topsoil stripped, topsoil pile on edge of Right of Way, cleanup to be done	N 47.5202	W 102.5351	8/30/2016
㉔	483+00	Topsoil stripped, topsoil pile on edge of Right of Way, cleanup to be done	N 47.5210	W 102.5349	8/30/2016
㉕	492+00	Topsoil stripped, topsoil pile on edge of Right of Way, cleanup of dead branches to be done	N 47.5215	W 102.5357	8/30/2016
㉖	510+00	Topsoil stripped, two tone area	N 47.5227	W 102.5359	8/30/2016
㉗	519+00	Topsoil stripped, Top and subsoil pile separate	N 47.5233	W 102.5361	8/30/2016
㉘	570+00	Topsoil stripped, Showing depth of cut	N 47.5308	W 102.5359	8/30/2016
㉙	600+00	Topsoil graded, topsoil pile on edge of Right of Way	N 47.5327	W 102.5511	8/30/2016





4585 Coleman Street  
PO Box 1157  
Bismarck, ND 5850-1157  
701 355 8400  
[Kljeng.com](http://Kljeng.com)

