

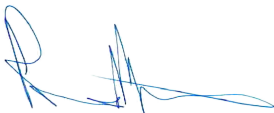
STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Savage Bakken Connector, Inc.
10-Inch Crude Oil Pipeline – McKenzie County
Savage Bakken Petroleum Hub Connector

Short Elliot Hendrickson Inc.
TOPSOIL REMOVAL INSPECTION REPORT

Report Includes:

- 1) Topsoil Removal Inspection Diary
- 2) Map Locations of Photographs Taken
- 3) Location-Referenced Photographs
- 4) Executive Summary



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INSPECTOR'S DIARY

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline		Contractor: Savage Bakken Connector	
Date: 03/20/2016	Day: Monday		Subcontractor: ProPipe
Weather: mostly clear & sunny, wind 5-15mph from N		Temp: 49 F	Inspector: Matthew Schaible
Work Activities: * Start of topsoil removal and stockpiling operations. - This work included the stripping of topsoil to a specified depth due to existing evidence of no stratification of soil layers. Topsoil was removed from workzone areas and stockpiled in a windrow.			
Labor Force: ProPipe: 1-Foreman, 2-Operators Kadramas Lee & Jackson: 2-Inspectors Great Basin Industrial: 1-Inspector			
Contractor Correspondence: * Met with ProPipe foreman "Red", and discussed topsoil removal plan. Red said ProPipe planned to strip topsoil to the south or east of the pipeline trenching location. Topsoil was to be stripped by an excavator initially and finished by a dozer. Double-Ditching methods will not be used. * Matt Schaible informed ProPipe foreman Red that topsoil layer was to be kept segregated from subsoil, and if frozen soil is encountered that topsoil stripping should be done in small lifts to "shave" the topsoil off. Red said it was planned to stockpile subsoil on opposite side of pipeline trench than topsoil to ensure segregation of soil types was maintained. * Matt Schaible informed ProPipe foreman Red that due to no defining stratification of topsoil layers being observed, to remove topsoil to 12" depth, or cultivation depth, whichever is greater. Red said they would remove to approximate depth of 12".			
Other Remarks: * At end of day, Matt Schaible spoke with ProPipe foreman Red and asked that removal methods remain the same as shown today throughout the topsoil removal process. Red said all topsoil removal will follow the 12" depth removal and windrowing near Temporary Construction Easement (TCE) on the opposite side of the pipe trench as the subsoils.			

Inspector's Signature



INSPECTOR'S DIARY

Date: 03/20/2016

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline Contractor or Sub: ProPipe

Work Performed & Location:

* Prior to start of topsoil stripping, initial field observations were made. Soil was soft and appeared to be unfrozen, with standing water in some areas. Vegetation was not dense, but rather scattered plants and grass with 2"-4" spacing between plants. Soil surface appeared to be clay-like material and was very cohesive See photos #1-5).

* Topsoil removal began at STA 4+30, where ProPipe removed topsoil out to Temporary Construction Easement (TCE) due to placement of construction mats over existing underground gas lines (see photo #6 & 7). Method of Removal:

- Excavator removed initial topsoil layers 2'-30' LT of centerline (see photo #10,11,13,14).

- Dozer pushed topsoil back to 42'-55' LT of centerline and finished topsoil removal depth across removal area (see photo #19).

* Within the first 200LF of topsoil stripping, it was observed that no defining stratification of soil type was observable. All soil was of a dark-brown color and appeared to be a homogeneous clay-loam soil type (see photo #9,15,25). It was observed that vegetation roots proceed to depths ranging from 8"-12". This was communicated to ProPipe foreman Red.

*Topsoil was windrowed at @ 42' - 55' LT of pipeline centerline (see photos #17,18,23).

* ProPipe left topsoil at centerline of ditch due to flowing water (see photo #13-14). This was to continue the facilitation of water flow off site and not to flood topsoil removal area and work area. ProPipe foreman Red said it would be removed prior to start of trench excavation.

* Once initial area of topsoil was removed (STA 4+30 - STA 8+90 LT), it was evident that contractors topsoil removal plan followed set guild-lines and specifications (see photos #19 - 22 & 24). The topsoil was non-frozen to the removal depth of 12" (see photos #8 & 9), allowing the excavator and dozer to remove topsoil lifts of approximately 6".

CONTRACTOR EQUIPMENT:

ProPipe: 1- John Deere 410J Backhoe Loader, 1- John Deere 850K Dozer, 1- John Deere 872GP Blade, 1- Hitachi Excavator

Inspector's Signature



INSPECTOR'S DIARY

Date: 03/20/2016

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline		Contractor or Sub: ProPipe	
Photo Description:			
Photo Name:		Description:	
Initial Visit #1 - Existing topsoil at planned windrow area			
Initial Visit #2 - Existing topsoil at centerline			
Initial Visit #3 - Existing topsoil with staking and flagging			
Initial Visit #4 - Existing vegetation - example			
Initial Visit #5 - Existing ditch centerline			
Initial Visit #6 - Topsoil removal methods			
Initial Visit #7 - Topsoil removal depth - example			
Initial Visit #8 - Topsoil removal depth - example			
Initial Visit #9 - Topsoil layer composition			
Initial Visit #10 - Initial topsoil removal by excavator			
Initial Visit #11 - Initial topsoil removal by excavator			
Initial Visit #12 - Gravel/sand non-topsoil to RT of centerline @ STA 6+75			
Initial Visit #13 - Initial topsoil removal by excavator			
Initial Visit #14 - Initial topsoil removal by excavator			
Initial Visit #15 - Removal depth			
Initial Visit #16 - Removal depth			
Initial Visit #17 - Back of topsoil windrow (blue stakes in RT of picture are TCE)			
Initial Visit #18 - Back of topsoil windrow			
Initial Visit #19 - Finish removal of topsoil by dozer			
Initial Visit #20 - Finish removal of topsoil by dozer			
Initial Visit #21 - Final cleared area (10"-12" depth)			
Initial Visit #22 - Final cleared area (10"-12" depth)			
Initial Visit #23 - Back of topsoil windrow			
Initial Visit #24 - Topsoil removal depth next to centerline			
Initial Visit #25 - Removed soil type - vegetation roots in last 4"-6" of topsoil removal			
*See attached map with location of each photo, and attached pages of photo's			

Inspector's Signature

Initial Topsoil Inspection Photo Lo..

4 views

All changes saved in Drive

Add layer Share Preview

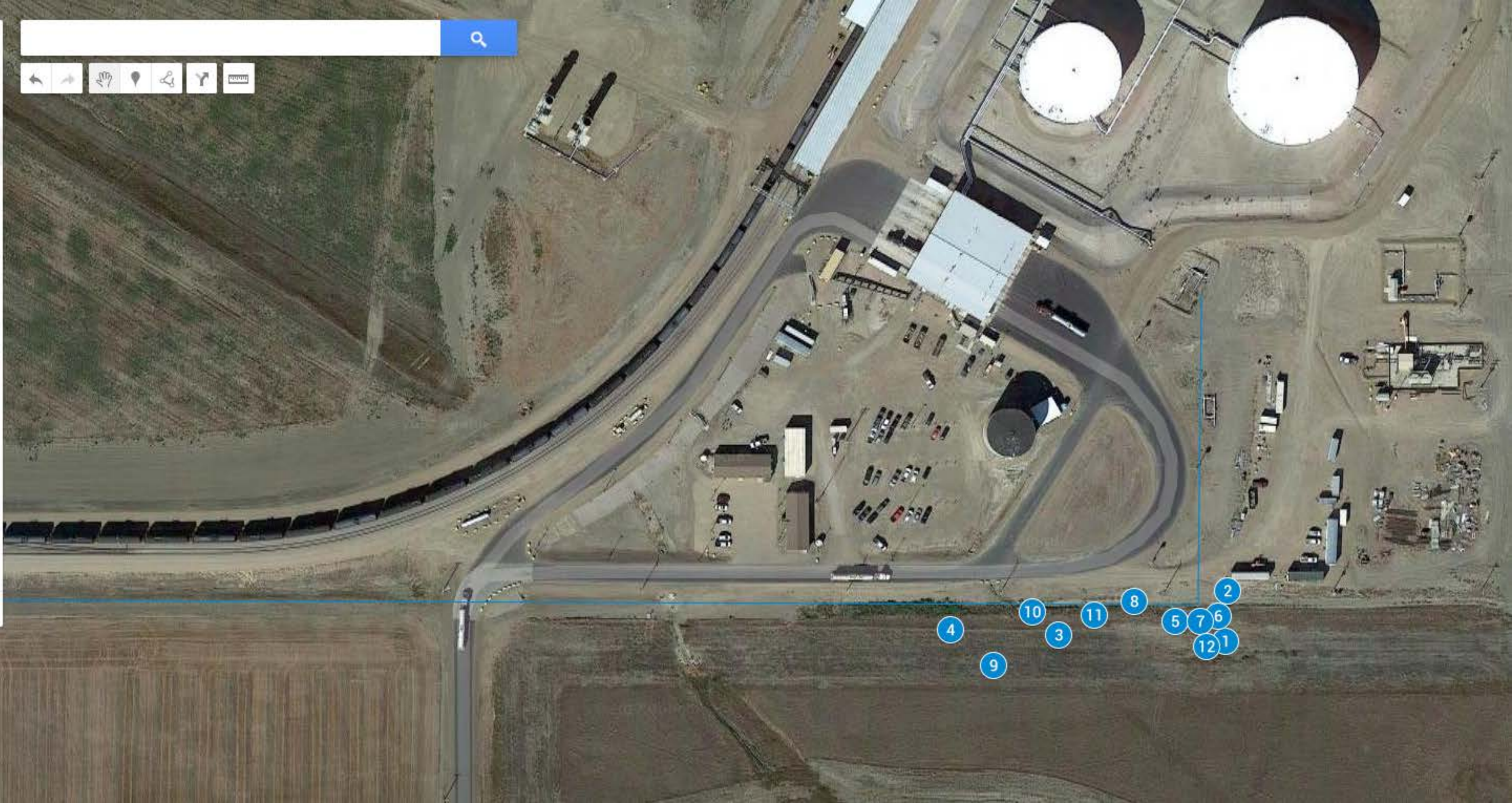
Imported Photos

Sequence of numbers

- Photo #1
- Photos #6 & 7
- Photos #8,14,17 & 25
- Photos #12 & 13
- Photos #11 & 10
- Photos #19 & 20
- Photos #2 & 3
- Photos #15 & 16
- Photo #18
- Photos #4 & 5
- Photo #9
- Photos #24, 23,22,21

Savage Bakken Connector

Base map



#1



#3



#4



#2



#5



#8



#9



#10



#11



#6



#7



#12



#15



#13



#14



#16



#17



#18



#22



#19



#23



#20



#24



#21



#25





EXECUTIVE SUMMARY

Date: 03/20/2017

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline	
<p>Initial Topsoil Removal Inspection identified that construction contractor and associated equipment operators demonstrated proficiency in topsoil removal methods following siting laws, siting rules, and applicable Commission Orders for Topsoil Removal During Frozen Conditions.</p> <p>No concerning issues were immediately identified due to contractors plan for storage of topsoil and subsoils mitigating any potential mixing of topsoil and subsoils (see inspection diary above). Topsoil removal depths followed siting laws, siting rules, and applicable Commission Orders.</p> <p>Potential concern of low lying lands and associated sitting water in these areas may be of concern when removing topsoil throughout these areas. Contractor said dewatering operations would start on 03/21/2017 to remove any potential issues with standing water.</p> <p>It is recommend that 3rd party inspector ensure that no standing water is present in areas of topsoil storage withing right-of-way during construction.</p>	


Inspector's Signature