



Savage Bakken Connector

Case No. PU-16-753

Reclamation and Revegetation Inspection Report



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July 17, 2019

RE: Case No. PU-16-753
Savage-Bakken Connector Line
10-Inch Crude Oil Pipeline Project -
Williams County
Reclamation and Revegetation Inspection
Report

Ms. Sara Cardwell
North Dakota Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, ND 58505-0480

Dear Ms. Cardwell:

Attached is the Reclamation and Revegetation Inspection Report for the above referenced project. This report includes the following:

1. Executive Summary
2. Inspection Report
3. Appendix A - Map of Photograph Locations
4. Appendix B - Photographs

Sincerely,

A handwritten signature in blue ink, appearing to read "Ken Nysether".

Ken Nysether, PE
Short Elliot Hendrickson Inc.
4719 Shelburne Street, Suite 6
Bismarck, ND 58503-5677

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 1701 West Knapp Street, Suite B, Rice Lake, WI 54868-1350
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EXECUTIVE SUMMARY

Date: 07/02/2019

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline

An inspection of the Savage Bakken 10" Crude oil Pipeline Route was conducted after one (1) full growing season had passed. Seeding and fertilization was completed in Spring of 2018, and affected areas were left to reestablish vegetation for over one (1) year.

Numerous areas were noted in the As-Built Inspection Report dated 10/12/2017 as having potential issues, and the inspector recommended fiber rolls be installed to mitigate any chance of erosion in the ditch bottoms. Specific locations are as follows:

- STA 3+48 LT, ditch flowing to the east.
- STA 10+75 LT, ditch flowing southeast into farm field and ditch bottom that is already eroding to the east and west.
- STA 45050 - STA 50+00 RT, bottom of hill before ditch bottom.
- STA 105+60, minimal chance of erosion around Receiver Pad.

Upon inspection of the re-vegetation it was determined that all erosion control devices had already been removed, or they had deteriorated over time and were no longer visible.

The area effected by construction activities has had ground surface restored per the As-Built Inspection Report, and now shows results of re-vegetation throughout all affected construction areas. Restoration of vegetation was found to match existing surrounding vegetation types for specie type.

Area of concern noted between STA 6+00 - STA 13+00 where drainage ditch slope has barren areas. This area is mostly underground bored pipeline. Also area of concern is between STA 100+00 - STA 105+63.36, where vegetation was patchy and not complete in coverage. This area appears to be a low lying wet area, and may be a result of the planted vegetation not fully germinating and growing. Area did not show any signs of erosion or sediment transportation due to being the low area withing the surrounding area. Both areas show no sign of erosion but may need additional seeding/re-vegetation.

Inspector's Signature



INSPECTOR'S DIARY

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline		Contractor: Savage Bakken Connector	
Date: 07/02/2019	Day: Friday	Subcontractor: N/A	
Weather: Partly cloudy w/chance of rain		Temp: 81	Inspector: Mark Limpert
Work Activities: No ongoing work was taking place. This inspection was after all work has been complete and the one-year grow period has been reached.			
Labor Force: No labor force on-site in regards to this project			
Contractor Correspondence: Spoke with Salvage terminal Operations Manual, Gabriel Grad, about safety standards to be adhered to and about performing the site review of the pipeline. Gabriel provided route and location information and accompanies Mark throughout inspection.			
Other Remarks: All erosion control devises were removed, or not visible and have degraded. Vegetation was found to be well-established and matched surrounding vegetation types.			


Inspector's Signature



INSPECTOR'S DIARY

Date: 7/02/2019

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline	Contractor or Sub: N/A
Work Performed & Location: * STA 0+00 - STA 3+75, no vegetation in area due to prior land use of graveled surface. All gravel surface is back to existing grade. * STA 3+75 - STA 6+00, vegetation was well established and matched surrounding vegetation * STA 6+00 - STA 13+00, the disturbed ground to the LT was well vegetated but the area to the RT was spares-covered. This area of spare covered vegetation was due to the sideslope of the existing drainage ditch that runs parallel to the pipeline (see picture #28). Existing ground coverage was also spares prior to start of construction due to drainage ditch. * STA 14+00 - STA 27+00 had vegetation established on the RT into the drainage ditch, and was vegetated with farmed crop over the actual pipeline and topsoil storage area (see picture #24 - #26). * STA 27+00 - STA 46+00 had farmed crop planted and maintained over the pipeline and topsoil storage areas. These areas also had signs of grass/weed vegetation over the disturbed area outside of the planted crop areas (see picture #23). * STA 46+00 - STA 52+00 had vegetation well established consisting of local plant species and matched existing area of vegetation (see picture #21-#22). * STA 52+00 - STA 70+00 was within the existing graveled surface area of storage/train yard. No vegetation was established through this area due to existing surface containing no vegetation. Area was restored to as-was per As-Built Inspection report.	
CONTRACTOR EQUIPMENT: No equipment on project	

Inspector's Signature



INSPECTOR'S DIARY

Date: 7/02/2019

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline	Contractor or Sub: N/A
Work Performed & Location: * STA 70+00 - STA 73+00 was fully vegetated matching surrounding vegetation types (see picture #18). * Sta 73+00 - STA 83+00 contained bore area and was within an existing graveled parking area. Area had weeds growing, but were mostly gravel surface. At the east side of ND HWY 1804 prior to the bore under the roadway, area had vegetation in the corner of the parking lot and vegetation was well established (see picture # 17-#18). * STA 86+50 - STA 103+00 showed signs of vegetation establishment. Area showed signs of drill seeding in windrows, and grasses were starting to germinate between rows. Majority of vegetation was growing and well established. Area showed no signs of erosion (see picture #11 - #15). * Between approximate STA 86+50 - STA 95+00, the vegetation appeared to be different in color than surrounding vegetation. This could be that the grass species planted is different than the surrounding grass types. * STA 103+00 - STA 105+63.36 (connection) had vegetation areas and barren areas. No newly planted trees showed signs of non-growth or dying. Areas of barren vegetation were within low areas that had previous standing water and was soggy/saturated ground. The barren areas did have weeds growing, but no grass species. Area was previously wet with limited vegetation. Additional seeding could take pace with wetland seeding.	
CONTRACTOR EQUIPMENT: No equipment on project	




Inspector's Signature



INSPECTOR'S DIARY

Date: 07/02/2019

Project: Savage Bakken Petroleum Hub Connector - 10" Crude Oil Pipeline	Contractor or Sub: N/A
Photo Description:	
Photo Number:	Description/Location:
(AH=Ahead Stationing, BK=Back Stationing)	
#1 - STA 105+00 AH, Connection point receiver pad.	
#2 - STA 103+50 BK, area shows windrow seeding and coverage matching existing vegetation to the RT and LT.	
#3 - STA 105+00 AH, vegetation near connection pad buildings.	
#4 - STA 105+00 AH, trees on the NW side of the connection site pad.	
#5 - STA 105+00 BK, trees on the N side of the connection site pad.	
#6 - STA 105+00 BK, trees on the S side of the connection site pad	
#7 - STA 105+00 AH, trees and vegetation on the SE side of the connection pad. Barren area due to soggy/saturated soil.	
#8 - STA 105+25 BK, trees and vegetation on the SE side of the connection point	
#9 - STA 105+30 AH, barren soils near the connection point due to soggy/saturated soils in low area.	
#10 - STA 105+36 AH, barren soils near the connection point due to soggy/saturated soils in low area.	
#11 - STA 93+00 AH, seeded area of disturbed work area. vegetation is in windrows and is spreading.	
#12 - STA 95+00 AH, seeding of disturbed area and existing trees/shrubs near construction area.	
# 13 - STA 101+00 AH, vegetation establishment over disturbed area, matches surrounding area vegetation.	
#14 - STA 86+00 AH, area of lighter color in the top-right of the picture is pipeline route and shows vegetation coverage. Color of new vegetation is different than surrounding areas vegetation.	
# 15 - STA 86+00 AH, zoomed in view of the vegetation and overview to compare color verse surrounding area.	
*See attached map with location of each photo, and attached pages of photo's	
*(AH=Ahead Stationing, BK=Back Stationing)	


Inspector's Signature



INSPECTOR'S DIARY

Date: 07/02/2019

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

Photo Description:

Photo Number: Description/Location:
(AH=Ahead Stationing, BK=Back Stationing)

- #16 - STA 83+00 BK, looking east, start of bore area with vegetation growth.
- #17 - STA 83+00 BK, looking NE, area leading into the ND HWY 1804 bore was vegetated into the existing gravel parking lot.
- #18 - STA 74+50 BK, area was vegetated with grass species leading into the existing gravel parking lot.
- #19 - STA 72+00 BK, area between the gravel parking lot and the roadway was vegetated for any disturbances due to construction.
- #20 - STA 72+00 BK, dirt roadway over pipeline prior to bore.
- #21 - STA 52+00 BK, area is well vegetated over all disturbed areas. Overview of pipeline through farm land crops.
- #22 - STA 50+00 BK, area is well vegetated next to the farmed crop land. At STA 46+50 (bend in pipeline to the east) area becomes farmed cropland once again.
- #23 - STA 45+50 BK, area is well vegetated next to the farmed crop land.
- #24 - STA 25+00 AH, area vegetated with crop land over soil storage areas.
- #25 - STA 25+00 BK, area vegetated with crop land over soil storage areas.
- #26 - STA 13+50 AH, area vegetated with crop land over soil storage areas. Vegetative cover to the RT matches existing vegetation in the drainage ditch areas.
- #27 - STA 13+50 BK, crossing of the access roadway to Savage Bakken
- #28 - STA 13+00 BK, various barren areas on the LT of the pipeline alignment on the drainage ditch slope.
- #29 - STA 0+00 BK, area was previously gravel surface and remains gravel surface. No vegetation.
- #30 - STA 4+00 AH, vegetation established at road crossing and along the ditch line and soil storage areas.
- #31 - STA 4+50 AH, Vegetation over top of pipeline and soil storage areas matching existing vegetation to (left of picture).

*See attached map with location of each photo, and attached pages of photo's
*(AH=Ahead Stationing, BK=Back Stationing)

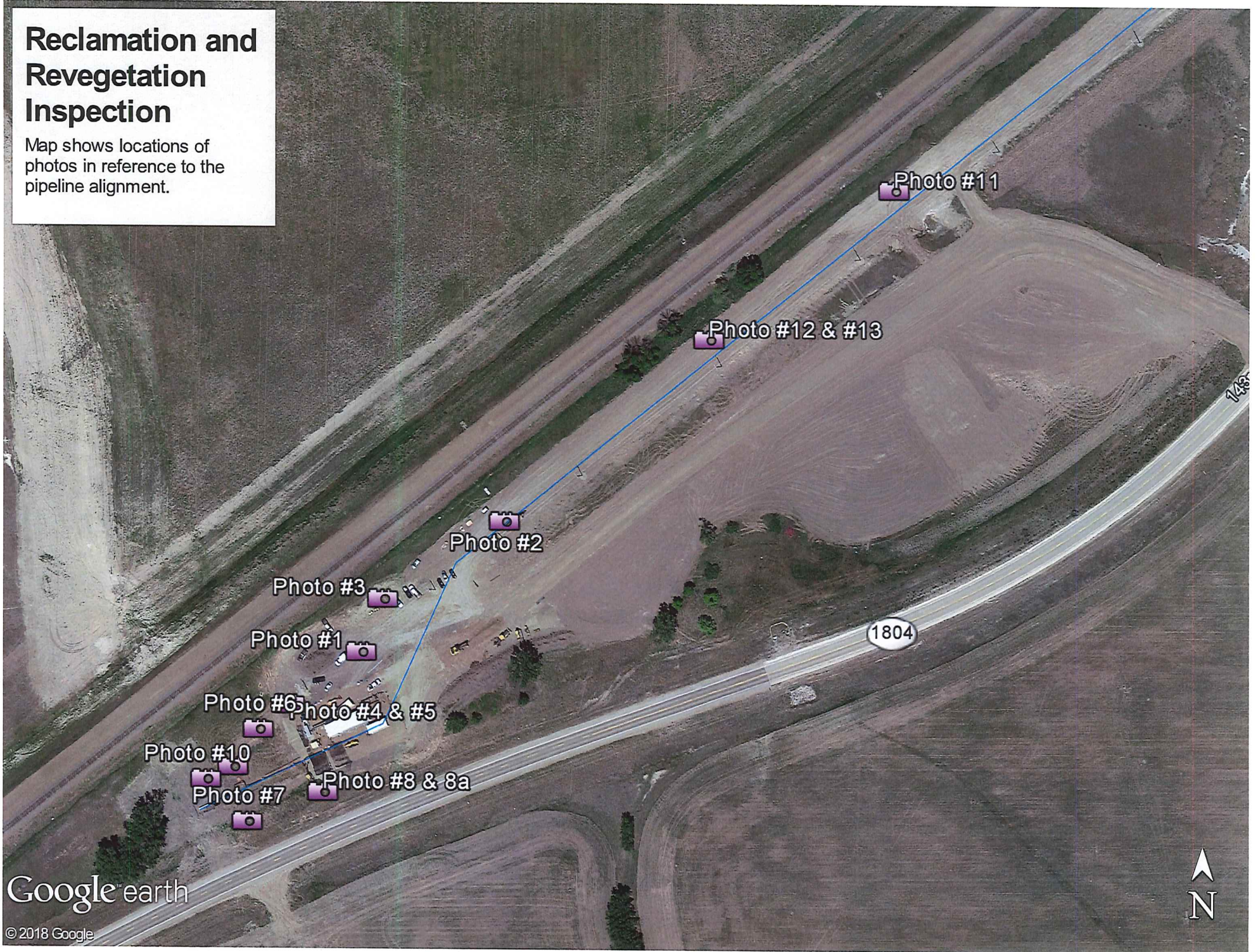

Inspector's Signature

Appendix A

Photo Location Maps

Reclamation and Revegetation Inspection

Map shows locations of photos in reference to the pipeline alignment.



Reclamation and Revegetation Inspection

Map shows locations of photos in reference to the pipeline alignment.

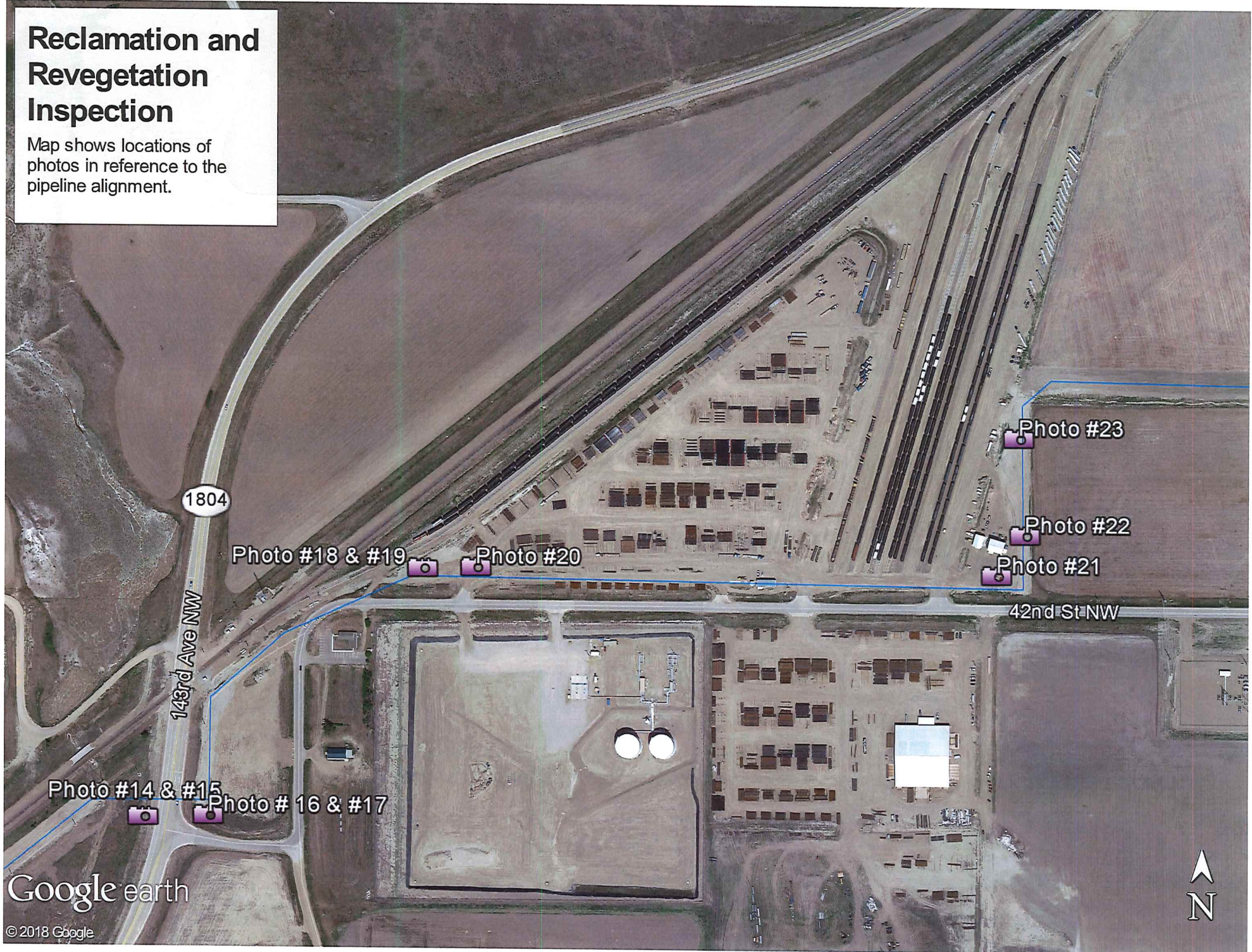


Photo #14 & #15

Photo #16 & #17

Photo #18 & #19

Photo #20

Photo #23

Photo #22

Photo #21

1804

143rd Ave NW

42nd St NW

Google earth

© 2018 Google



Reclamation and Revegetation Inspection

Map shows locations of photos in reference to the pipeline alignment.

Photo #24



Photo #25



Photo #26, #27, & #28



Photo #31



Photo #30



Photo #29



Google earth

© 2018 Google



Appendix B

Photos

#1



#2



#3



#4



#5



#6



#7



#8



#8a



#9



#10



#11



#12



#13



#14



#15



#16



#17



#18



#19



#20



#21



#22



#23



#24



#25



#26



was

#27



#28



#29



#30



#31





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