

STATE OF NORTH DAKOTA
PUBLIC SERVICE COMMISSION

Dakota Access, LLC
Dakota Access Pipeline Project
Siting Application

Case No. PU-14-842

AFFIDAVIT OF SERVICE BY E-MAIL

STATE OF NORTH DAKOTA
COUNTY OF BURLEIGH

John G. Hamre deposes and says that:

he is over the age of 18 years and not a party to this action and, on the **26th** day of July, 2017, he electronically mailed to **10** addresses an electronic copy of:

Staff Memorandum in Response to Opened Investigation

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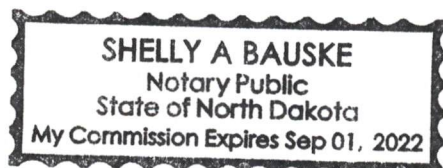


Subscribed and sworn to before me
this **26th day of July, 2017**.



Notary Public

SEAL



PUBLIC SERVICE COMMISSION OF THE STATE OF NORTH DAKOTA

DATE: July 21, 2017
TO: The Commissioners
FROM: John M. Schuh and Sara Cardwell
RE: PU-14-842 Investigation Hearing



STAFF MEMORANDUM IN RESPONSE TO OPENED INVESTIGATION

Introduction

On May 31, 2017, the Commission opened an investigation under North Dakota Administrative Code section 69-02-01-08 regarding Dakota Access, LLC's (DAPL) compliance with the North Dakota Century Code Title 49, North Dakota Administrative Code Title 69, and Commission Orders, excluding certain issues pending in a related proceeding.

This memorandum is intended to direct the Commission as it proceeds to review documents, request information, and conduct the investigative hearing. Due to administrative functions, the staff preparing this memo were not involved during the siting and construction process. Therefore, the information relied on in providing this review is limited almost entirely to the record. While this memorandum is a comprehensive review of the record, it is not a comprehensive review of the entire project. There may be outstanding issues beyond the current record that the Commission may discover or choose to clarify during the investigative hearing.

Summary

The mainline portion of the North Dakota section of the Dakota Access Pipeline (Project), as described in its application, is approximately 210 miles long with a total construction cost estimated at \$1.41 billion.¹ The North Dakota portion of the Project is located in Mountrail, Williams, McKenzie, Dunn, Mercer, Morton, and Emmons counties. DAPL stated that the facilities will be constructed and operated according to all applicable regulations and that the Project will be built and maintained in accordance with industry and governmental requirements and standards.

DAPL agreed to and participated in a preconstruction conference to ensure that the company fully understood the conditions set forth in the Commission's order upon which the certificate and permit were granted.² DAPL agreed to construct and operate the transmission facility in the manner described in the Company's application. To the extent that there were any inconsistencies or conflicts between the application and the provisions of the Certification Relating to Order Provisions, the Certification provisions would control.³

¹ Docket No. 1, Combined Application for Certificate of Corridor Compatibility and Route Permit, pg. 3-4.

² See Docket No. 134, Certification Relating to Order Provisions, provision 2; Docket No. 153, Pre-construction Meeting Conference Call Minutes.

³ Docket No. 134, Provision 9.

Keitu Engineers & Consultants, Inc. (Keitu or Inspector) performed the third-party construction consulting services for topsoil removal, construction, as-built, and reclamation and revegetation inspections. Inspections were conducted almost weekly from May 2016 until February 2017. The purpose of the construction inspections was to ensure that the Project was being constructed in compliance with the siting laws, rules, and the applicable Findings of Fact, Conclusions of Law and Order (Order) for the Project. Prior to conducting any construction inspection, Keitu reviewed all documents to identify any and all aspects requiring site verification. Keitu also participated in the preconstruction meeting.

Keitu's conclusion was that overall the Project was generally maintained and in good condition.⁴ However, Keitu did find that there were deficiencies. Staff review of the deficiencies can be found below.

The most common deficiencies found in the construction inspections were inadequate soil segregation. Typical issues observed were contact between subsoil and topsoil piles, subsoil stored above unstripped vegetation, topsoil in the workspace, and inadequate topsoil stripping. This was a recurring issue and communication was made with on-site personnel "over several visits" on soil piles that needed segregation.⁵ Specifically, docket numbers 148, 205, 213, 215, 216, 218, 222, 237, and 282 describe soil deficiencies found during Keitu's construction inspections.

An inspection on August 24, 2016 and subsequent filings show tree removal extended beyond not only the original 50 feet agreed upon in the certification documents, but also beyond the extension to 85 feet approved by the Commission upon DAPL's request. Keitu's desktop investigation found that 83 different areas were cleared in excess of the approved 85 feet. Keitu specified that the list of 83 areas cleared in excess of 85 feet does not include "dozens of sites" where clearing was in excess of 85 feet but not extending right of way (ROW) boundary to ROW boundary.⁶ The desktop investigation can be found in Docket No. 258. To clarify, a brief discussion with Keitu has identified the 83 sites as a lenient review.

The Construction Inspection Report filed in Docket No. 282 addresses improper notification to the PSC of a reroute to avoid an unanticipated find of cultural resources, which is the subject of a pending issue in front of the Commission. In addition to the pending issue, Docket No. 282 also documented another improper notification by the Company. Subsequent to the as-built inspection of the Project, the DAPL also filed three additional reroutes outside of the sited corridor without proper notification to the Commission.

During an inspection on August 4, 2016, a secondary containment for a fuel trailer was found to be inadequate. The fuel tank had been at the site for four days protected only by a plastic sheeting. This was not in compliance with the approved Project Spill Prevention, Containment, and Countermeasures Plan contained in DAPL's original application.

STAFF REVIEW

⁴ Docket No. 282.

⁵ Id. at 40.

⁶ Id.

There were a number of deficiencies and possible violations that were recorded such as debris left on the ROW,⁷ unsafe work practices,⁸ silt fences in disrepair,⁹ Storm Water Pollution Prevention Plan reporting requirements not being compliant with ND Dept. of Health Environmental Section,¹⁰ and wood matting being laid down in sensitive areas.¹¹ However, based upon review of the construction inspection reports and information in the record, and accompanying documents, this memorandum addresses a more limited review of areas where the facts and circumstances surrounding or attending to the events likely show probable violations in Case No. PU-14-842. Some photographs have been added for context, but for closer examination the docketed originals are clearer in electronic format.

I. FOUR PROBABLE VIOLATIONS: Failure to file a certification and documentation to notify Commission of route changes before conducting any construction activities.

N.D.C.C. § 49-22-16.3 (2016)¹² stated:

3. Before or during construction, a utility, without any action by the commission, may adjust the route of a gas or liquid transmission line outside the designated corridor if, before conducting any construction activities associated with the adjustment, the utility:

- a. Files with the commission certification and supporting documentation that:
 - (1) The construction activities will not affect any known exclusion or avoidance areas;
 - (2) The route outside the corridor is no longer than one and one-half miles [2.41 kilometers];
 - (3) The utility will comply with the commission's order, laws, and rules designating the corridor and designating the route; and
 - (4) Each owner of real property on which the adjustment is to be located and any applicable governmental entity with an interest in the same adjustment area do not oppose the adjustment.
- b. Files detailed field studies indicating exclusion and avoidance areas for an area encompassing the route outside the designated corridor equal to the length of the adjustment of the proposed corridor.

⁷ Docket No. 218, September 26, 2016.

⁸ Docket No. 282, pg. 14, June 3, 2016 (Spotter was seen guiding pipe while equipment operator was moving it. There was no tag line attached to the pipe.)

⁹ Docket No. 216.

¹⁰ Docket No. 282, pg. 39.

¹¹ Id.

¹² Now N.D.C.C. § 49-22.1-15(3) after the 2017 legislative session.

In the Certification Relating to Order Provisions – Transmission Facility Siting¹³ signed on May 20, 2015 by Joey Mahmoud, a representative with authority to bind DAPL and entered into the record by DAPL, states:

36. Company agrees to utilize the following procedures if Company seeks a route adjustment before or during construction of the pipeline, pursuant under N.D.C.C. § 49-22-16.3.

37. Company will specifically identify which subsection of NDCC 49-22-16.3 it is requesting the adjustment under. Company will file the name and contact information for a key contact person for the purposes of notice and communication during the adjustment period.

...
40. ROUTE ADJUSTMENT OUTSIDE DESIGNATED CORRIDOR, NO AVOIDANCE AREA AFFECTED: Before adjusting the route of a gas or liquid transmission line under NDCC 49-22-16.3(3), outside the designated corridor and not affecting any exclusion and avoidance area, before conducting any construction activities for any adjustment to the designated route outside the designated corridor, the Company will file:

- a. Certification and supporting documentation affirming that construction activities will not affect any known exclusion or avoidance areas,
- b. Certification and supporting documents stating the length of the proposed route outside of the corridor and a map meeting the requirements of N.D. Admin. Code § 69-06-04-01(2)(n) identifying the designated corridor, corridor adjustment, designated route and the route adjustment;
- c. Certification that each owner of real property on which the adjustment is to be located and any applicable governmental entity with an interest in the same adjustment area do not oppose the adjustment; and
- d. Detailed field studies indicating exclusion and avoidance areas for the proposed adjustment area; and
- e. Certification that Company will comply with the Commission's order, law and rules designating the corridor and route.

The Certification Relating to Order Provisions were incorporated and attached to the Order and states. "To the extent that there are any conflicts or inconsistencies between Dakota

¹³ Docket No. 72.

Access' applications in this proceeding and the Certification, the Certification provisions control."¹⁴

A Pre-Construction Meeting Conference Call was held between Julie Prescott, Staff for the North Dakota Public Service Commission¹⁵; Kathleen M. Spillman, P.E., the third party inspector for the Commission; Tim Bowen, Contract Environmental Project Manager for DAPL; Jim Crawford, Director of Major Projects (Precision Pipeline, LLC); Mike Futch, Project Manager for DAPL; Lawrence Bender, Counsel for DAPL; as well as a number of other contract construction managers, rights-of-way managers, and third party inspector employees. Julie Prescott reviewed each of the Certification Relating to Order Provisions and no further discussion relating to Provision 40 was requested by the company.

May 23, 2016 Probable Violation 1, MP 172-172.5, Emmons County near Cannonball

On May 25, 2016, Dakota Access filed a certification and accompanying documentation for route adjustment 64 pursuant to N.D.C.C. § 49-22-16.3 and Provision 40 of the Certification Relating to Order Provisions.¹⁶ The filing included the correct documentation required, however, an inspection on May 23, 2016 showed that the ROW had already been stripped prior to the reroute for MP 172-172.5 being filed with the Commission. The inspector documented the deficiency.¹⁷

¹⁴ Docket No. 134

¹⁵ Docket No. 153.

¹⁶ Docket No. 182, Reroute location 64.

¹⁷ Docket No. 282, pg. 21. T.134N, R. 78W, Sec. 16,21, and 22. An email after reviewing the information from Keitu confirmed that the reroute occurred outside of the location of the route provided to Keitu in January of 2016, but corresponded to the location associated with later reroutes submitted to the Commission after the field inspection.



May 22, 2017, Probable Violations 2-4

On May 22, 2017, DAPL filed a “Notification of Route Adjustments under N.D.C.C. § 49-22-16.3(3). The Company discovered route adjustments “not previously provided to the Commission.”¹⁸ All three route adjustments were outside of the corridor and were discovered when the Company reviewed the Project “as-built”. As a result, these reroutes extending beyond the corridor were not filed timely.

The Company labels the route adjustments as 133, 134 and 135, but then addresses them as 134, 135 and 136 within the document. Reading through the document, Staff believes that DAPL’s intent is to state that route adjustment 133 is “related to a spatial conflict with a well pad and flare stack” and 134 and 135 were “related to landowner requests.”¹⁹

The DAPL Project was granted a 400-foot wide corridor based upon the width of the environmental survey. To extend beyond the 400-foot corridor DAPL must have filed, prior to conducting any construction, “detailed field studies indicating exclusion and avoidance areas for an area encompassing the route outside the designated corridor equal to the length of the adjustment of the proposed corridor.” This additional filing is not required for route adjustments under N.D.C.C. § 49-22-16.3 that do not extend beyond the corridor.

Absent from the filing is the date the construction occurred. It is also unclear when the additional studies outside the corridor occurred. The untimely filed document violates N.D.C.C.

¹⁸ Docket No. 289.

¹⁹ Docket No. 289, Pg. 2.

§ 49-22-16.3 and the Commission's ordering provisions. While the filing does state the environmental, wetland, wildlife surveys were completed, and that the reports were filed with SHPO concurrence with DAPL's recommendation, it is unclear to staff when these additional studies were done – prior to or after construction of the reroute. Staff believes that it is likely that these studies for the reroutes were done appropriately prior to construction for the reroutes package submitted on May 25, 2016,²⁰ but this should be explained by the company during the investigative hearing.

II. EIGHTY THREE PROBABLE VIOLATIONS: Tree removal beyond 85 feet, after Commission allowed the Company to go beyond the authorized 50 feet after the June 22, 2016 motion.

In the Supplemental Findings of Fact, Conclusions of Law and Order filed on May 24, 2016, the finding that DAPL would produce minimal adverse effects on the environment and upon the welfare of citizens of North Dakota and that the Project would minimize adverse human and environmental impacts was supported by DAPL agreeing to “a number of steps to mitigate the impact of the Project as indicated by the Certification Relating to Order Provisions – Transmission Facility Siting with accompanying Tree and Shrub Mitigation Specifications”.²¹

Provision 8 of the Tree and Shrub Mitigation Plan stated: “The maximum width of clear cuts through windbreaks, shelterbelts and all other wooded areas is 50 feet, unless otherwise approved by the Commission.”

On May 27, 2016, DAPL filed a chart of “Wooded Areas Requiring Construction in Accordance with Environmental Construction Plan.”²²

On June 20, 2016, DAPL filed a Motion for Clarification of Supplemental Findings of Fact, Conclusions of Law and Order Dated May 24, 2016. In this Motion, DAPL requested that the Commission broaden, “Dakota Access's workspace dimensions from 50 feet to 85 feet for clearing in wooded areas, as provided for in Dakota Access's materials for which Dakota Access was relying upon as approved.”²³

In response to the filing, on June 22, 2016 the Commission approved a motion to extend the maximum width of 50 feet to 85 feet for clear cuts through windbreaks, shelterbelts and other wooded areas identified in the “Wooded Areas Requiring Construction” filed by DAPL on May 27, 2016.²⁴ It appears that a number of areas were likely cleared beyond the 50 feet prior to the Commission approval of the 85 foot width.

An August 24, 2016 inspection report found that the tree and shrub removal “extended significantly beyond the 85 feet approved” in the Commission motion with the narrowest width identified being just short of 127 feet wide and wider removal in other portions of the right-of-

²⁰ Docket No. 182.

²¹ Docket No. 179

²² Docket No. 184.

²³ Docket No. 189, Motion for Clarification of Supplemental Findings of Facts, Conclusions of Law and Order.

²⁴ Docket No. 190.

way²⁵. This report was corroborated by a September 29, 2016 inspection report describing tree and shrub removal significantly beyond the 85 feet.”²⁶

On January 3, 2017, Keitu Engineers & Consultants filed a comprehensive “As-Built Inspection Report – Desktop Trees and Shrubs Review.”²⁷ The report findings were that 83 sites were identified as being cleared in excess of 85 feet and provided a table listing the length of clearance, Latitude and Longitude of the locations.

Table 1 – Tree and Shrub Cleared Locations Greater Than 85 Feet

Number	Length	Latitude	Longitude
1	113 Ft	48.286233	-102.745348
2	199 Ft	48.286480	-102.747104
3	100 Ft	48.289877	-102.768840
4	100 Ft	48.289936	-102.770367
5	122 Ft	48.146522	-103.788444
6	150 Ft	48.093486	-103.778660
7	97 Ft	48.098113	-103.770141
8	125 Ft	48.087007	-103.801944
9	150 Ft	47.768685	-103.263584
10	170 Ft	47.796387	-103.091396
11	250 Ft	47.796272	-103.090034
12	115 Ft	47.797622	-102.996862
13	168 Ft	47.794016	-102.913612
14	150 Ft	47.786615	-102.905036
15	150 Ft	47.786013	-102.905324
16	150 Ft	47.783824	-102.905204
17	150 Ft	47.768580	-102.897792
18	100 Ft	47.745031	-102.897465
19	125 Ft	47.741436	-102.897278
20	125 Ft	47.735526	-102.894137
21	125 Ft	47.721455	-102.874728
22	109 Ft	47.713565	-102.865409
23	94 Ft	47.706137	-102.857502
24	137 Ft	47.701736	-102.852722
25	100 Ft	47.701003	-102.851962
26	200 Ft	47.695419	-102.849619
27	125 Ft	47.694262	-102.849361
28	150 Ft	47.688136	-102.848441
29	100 Ft	47.655246	-102.836034
30	100 Ft	47.652510	-102.837113
31	98 Ft	47.650979	-102.843361
32	125 Ft	47.625571	-102.860451
33	125 Ft	47.624820	-102.860443
34	93 Ft	47.623660	-102.860266
35	150 Ft	47.606419	-102.876569
36	150 Ft	47.605514	-102.876573
37	150 Ft	47.604915	-102.876575
38	125 Ft	47.598912	-102.876273
39	111 Ft	47.597723	-102.875726
40	132 Ft	47.596796	-102.874835
41	150 Ft	47.595024	-102.875081
42	120 Ft	47.588330	-102.879036
43	150 Ft	47.585636	-102.880903
44	128 Ft	47.582691	-102.878986
45	150 Ft	47.580259	-102.877345
46	150 Ft	47.579059	-102.876204
47	124 Ft	47.577254	-102.873944
48	125 Ft	47.575980	-102.872515
49	129 Ft	47.574296	-102.871778
50	118 Ft	47.571209	-102.872049
51	207 Ft	47.569545	-102.872748
52	134 Ft	47.568580	-102.873142
53	100 Ft	47.567100	-102.872961
54	125 Ft	47.562373	-102.872551
55	117 Ft	47.505843	-102.775683
56	126 Ft	47.504313	-102.773217
57	150 Ft	47.502440	-102.770560
58	122 Ft	47.501436	-102.769128
59	150 Ft	47.500146	-102.767641
60	133 Ft	47.499027	-102.766929
61	127 Ft	47.491419	-102.764757
62	126 Ft	47.487024	-102.762939
63	150 Ft	47.482781	-102.759983
64	199 Ft	47.480342	-102.757640
65	150 Ft	47.472510	-102.747237
66	100 Ft	47.471467	-102.745882
67	100 Ft	47.468609	-102.743263
68	115 Ft	47.447133	-102.704605
69	123 Ft	47.446084	-102.703615
70	139 Ft	47.374574	-102.359517
71	106 Ft	47.373957	-102.358166
72	104 Ft	47.373303	-102.356826
73	105 Ft	47.372661	-102.355512
74	242 Ft	47.371107	-102.350900
75	174 Ft	47.284535	-102.179246
76	110 Ft	47.281698	-102.174460
77	99 Ft	47.261032	-102.142616
78	124 Ft	47.254578	-102.130656
79	132 Ft	47.213020	-102.060506
80	124 Ft	47.129556	-101.947906
81	149 Ft	47.123293	-101.940701
82	101 Ft	46.674151	-101.258730
83	99 Ft	46.143641	-100.227142

Julie Prescott, of the Commission Staff, requested a response to the clearing of trees and shrubs extending beyond 85 feet. Mike Futch, DAPL Project Manager for North Dakota, responded that there was a conflict between the “approved project specific Environmental Construction Plan” and Commission’s “generic” or “boiler plate” project provisions from the Certification Relating to Order Provisions. Mr. Futch also

²⁵ Docket No. 212

²⁶ Docket No. 221

²⁷ Docket No. 258

asserted that provision 8 specifies that the clearing should be limited to 50 feet “unless otherwise approved by the Commission” and that since the Commission approved the construction plan, “following the chain of approvals and their interrelated conditions” led him to believe that DAPL’s plan trumped the agreed upon and ordered fifty foot clearance²⁸.

In a subsequent letter, Mr. Futch stated that when DAPL became aware of the “differing opinions regarding the interplay of the documents, DAPL raised the issue with the Commission.”²⁹ Mr. Futch also stated that it was unclear whether the areas cleared outside of the 85-foot approved area were cleared prior to the Commission approval of expanding the clearing area to 85 feet at the request of the DAPL.

These responses appear to be disingenuous for a number of reasons. These provisions were reviewed with Julie Prescott during the pre-hearing construction meeting. However, the most telling is that Mr. Futch notably participated in the March 23, 2016 pre-construction meeting. During the pre-construction meeting, the Tree and Shrub mitigation specifications were reviewed and the meeting minutes that were prepared and documented by DAPL state that: “Limiting ROW width through standing trees to 50 feet was highlighted.”³⁰

III. THIRTEEN POSSIBLE OR PROBABLE VIOLATIONS: Inadequate Separation of topsoil from Subsoil

Certification Relating to Order Provision No. 16 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 into existing topography. Topsoil must be replaced over areas from which it was stripped only after the subsoil is replaced.

In the Application for Certificate of Corridor Compatibility and Route Permit, DAPL explains that the effects of construction on agriculture and grazing would be minor and short term, but states that in some cases construction can result in “soil compaction; mixing of topsoil and subsoil, including introduction of rocks into the topsoil from subsoil; erosion; the introduction of weeds; and damage to irrigation and drainage systems.”³¹ As stated in the application, “these impacts may lower soil productivity and

²⁸ Docket No. 251

²⁹ See March 23, 2017 Letter, Mike Futch, DAPL Project Manager, North Dakota. Attached.

³⁰ Docket No. 153

³¹ Docket No. 1, DAPL ND PSC Final (Application), pg. 58.

reduce crop and hay yields as well as range productivity following construction.”³² DAPL planned to minimize these effects by implementing their environmental construction plan.³³

Some of the basic procedures include: (1) segregating topsoil from subsoil during excavation; (2) storing topsoil and subsoil in a manner that prevents mixing and returning topsoil to its original horizon during backfilling³⁴; and (3) stockpiling topsoil and subsoil while maintaining a minimum of 12 inches of separation between topsoil and subsoil.³⁵

There were a number of site inspections that had issues with topsoil and subsoil pilings (touching, mixing . . . etc.). Keitu found that some of them were likely a result of rainfall, for short duration, and infrequent in some inspections.³⁶ In other inspections, deficiencies were addressed by Keitu by notifying the crew to alter their practices.³⁷ The probable and possible violations are a result of the Commission’s third-party construction inspector finding deficiencies during their inspections.

1. **January 25, 2016 – Stanley Terminal in Mountrail County** – An inspection showed that segregation was adequate, however the inspector consulted with the site chief and a Matrix representative regarding two areas that had some subsoil mix with topsoil due to the frozen ground. The inspector reported that after the consultation, *overall* segregation on the site was demonstrated.³⁸
2. **January 27, 2016 – Stanley Terminal in Mountrail County**- During a 27 January 2016 inspection, the inspector reported that temporary storage of subsoil had been piled on the top of unstripped frozen topsoil due to a site construction manager decision.³⁹
3. **January 29, 2016 – Johnson’s Corner Terminal in McKenzie County**- During a 29 January 2016 inspection, topsoil segregation from subsoil appeared to be inadequate in a few areas. The top layer of topsoil was observed to have excessive subsoil mixed with the topsoil. The inspector stated that subsoil mixing with topsoil seemed unavoidable due to warm weather thawing and softening of the bare ground.⁴⁰
4. **May 19, 2016 – MP 167.5-168.5 in Emmons County near Cannonball** – An inspection showed topsoil segregation from subsoil was not adequate. Excessive amounts of subsoil was mixed with topsoil and subsoil piles were also

³² Id.

³³ Docket No. 1, Exhibit 3.C.1 Environmental Construction Plan.

³⁴ Docket No. 1, Application, pg. 58.

³⁵ Docket No. 1, Exhibit 3.C.1, DWG. No. P12-15.

³⁶ See Docket 222.

³⁷ Docket No. 282. Keitu inspector notified operators to leave more space between the soil pile and the ROW boundary or that subsoil was stacked on unstripped surface.

³⁸ Docket No. 148, pg. 2.

³⁹ Id. at 5.

⁴⁰ Id. at 32.

touching the topsoil pile.⁴¹ The inspector observed many areas of concern and met with the third party coordinator to explain the issues. The talks regarding the concerned areas were reported to go nowhere and no action was taken during the visit. Upon communication with the Project leader, another field visit was deemed required to immediately address and correct the issues.

Report Photo #1 "Subsoil Mixing with Topsoil" at GPS Coordinates:

46.44° N 100.571944° W



⁴¹ Docket No. 282, pg. 28.



- 5. May 20, 2016 – MP 167-170 in Emmons County near Cannonball –** An inspection showed many areas of excessive subsoil mixed with topsoil and subsoil piles touching topsoil piles.⁴² Topsoil segregation was found to be not adequate. Keitu inspector advised the third party coordinator to notify construction crews that there was insufficient segregation of topsoil and subsoil. Due to the inspection being from the same MP area in follow-up of the May 19, 2016 inspection, there is a redundant use of a documented picture.

⁴² Docket No. 282, pg. 24.

Report Photo #2 Topsoil and Subsoil Mix at GPS Coordinates:

46.52575° N 100.61727° W



Report Photo #3 Top Soil and Sub Soil Touching at GPS Coordinates: 46.43599° N 100.55867° W



6. **May 23, 2016 – Spread 6 in Emmons County near Cannonball** – An inspection reported storage of topsoil from subsoil piles to be inadequate in many areas upon visit.⁴³ Keitu inspector and third party coordinator agreed that a 2 foot buffer between the topsoil and subsoil piles should be kept.

Report Photo #1 Topsoil and Subsoil Piles Bordering at GPS Coordinates: 46.417778° N 100.499722° W



7. **May 24, 2016 – MP 20.5-130.25 in Dunn County near Killdeer** – Storage of topsoil and subsoil piles was deemed inadequate in many areas. One area appeared to have subsoil stacked on topsoil.⁴⁴ During the visit, the inspector and third party coordinator documented many areas that needed further separation between topsoil and subsoil piles.

⁴³ Docket No. 282

⁴⁴ Docket No. 282, pg. 18.

Report Photo #1 Topsoil and Subsoil Piles Bordering at GPS Coordinates: 47.524167° N 102.848444° W



- 8. June 16, 2016 – Spreads 7 & 8 in Mountrail County near Medicine Hole -** During a 16 June 2016 inspection, Spreads 7 & 8 in Mountrail County, it was observed that the topsoil had rolled near or over the ROW boundary as the soil piles settled. The third party coordinator and Keitu inspector agreed that operators should be notified to leave more space between the soil pile and ROW boundary. Subsoil pile from the bore pit was stacked on unstripped surface. The third party coordinator notified the crew about making sure soil piles from bore pits were stripped of topsoil before stockpiling.⁴⁵

⁴⁵ Id. at 8.

Report Photo #2 Subsoil piled on un-stripped ground at GPS Coordinates: 47.516944° N 102.835278° W



9. **August 4, 2016 – Slip HDD South of the Little Missouri River in Dunn County** - During the 4 August 2016 site inspection, Keitu reported a deficiency where one area of topsoil was stacked on top of stripped subsoil.⁴⁶ Keitu recommended leaving the soil pile at its current location as moving the pile would likely cause as much damage as leaving it at the current location.

⁴⁶ Docket No. 205, pg. 3.



NOTE: Topsoil stacked on subsoil

- 10. August 26, 2016 – MP 61 to 65, 2.3 miles SE of Dodge, ND** - On a 26 August 2016 site inspection trip, Keitu reported a minor probable violation including 3 short areas of minor subsoil contact with topsoil or surface vegetation with one area specifically associated with a late stage install of a flow breaker on a steep slope of the ROW as opposed to the initial top soil stripping⁴⁷.

⁴⁷ Docket No. 213, pg. 1.

Report Photo #4 "Subsoil Cast on Topsoil Likely During Flow-breaker Install: 47.2539°N 102.1294°W





- 11. September 13, 2016 – MP 75-92 – 17 miles South of Beulah in Mercer County** - A 13 September 2016 site inspection trip stated that although the majority of the topsoil/subsoil segregation was adequate for the inspected ROW, there were three deficient spots where topsoil/subsoil was missing, piled on vegetated surfaces, or had heavy equipment drive over the piles, mixing topsoil and subsoil⁴⁸.

⁴⁸ Docket No. 215, pg. 1.

Report Photo #1 "Topsoil Driven over, Soils Mixing at M.P. 92":

46.99060°N 101.79373°W



Report Photo #3 "Subsoil Plowed onto Topsoil at M.P.91.25:

46.99338°N 101.79533°W

Date & Time: Tue Sep 13 13:43:21 CDT 2016
Position: +046.99338° / -101.79533°
Altitude: 2294ft
Datum: WGS-84
Azimuth/Bearing: 024° N24E 0427mils (True)
Elevation Angle: -05.8°
Horizon Angle: -00.7°
Zoom: IX
subsoil on topsoil



Report Photo #5 "Subsoil On Top of Vegetation, No ROW Stakes":

47.06115°N 101.86956°W

Date & Time: Tue Sep 13 14:41:05 CDT 2016
Position: +047.06115° / -101.86956°
Altitude: 2174ft
Datum: WGS-84
Azimuth/Bearing: 352° N08W 6258mils (True)
Elevation Angle: -17.3°
Horizon Angle: -00.1°
Zoom: IX
subsoil on unstripped ground



12. September 26, 2016 – MP 125 to 125.5, 9 miles south of Judson with affected landowner

A 26 September 2016 inspection by Keitu found long stretches of ROW (100'+) where topsoil was not adequately stripped to the required depth. Subsoils were used for grading over these improperly stripped areas. A ROW easement for topsoil storage was not properly stripped and subsoils from the trench were stacked/mixed in with the topsoil. It was suggested that land reparations should be considered for improper segregation.⁴⁹ The landowner was actively involved with this inspection and has experience working with land and soil reclamation. He stated that an onsite mechanic told him stripping and grading crews were running slower than tie-in crews. He believes this to be the reason for improper ROW stripping. He also stated that he received an estimate of approximately \$400,000 to fix the inadequate segregation.

Kathleen Spillman of Keitu, filed a subsequent letter with supplemental photos on October 31, 2016 providing additional information and review. In the letter she stated:

[T]he condition of the Dakota Access Pipeline (DAPL) Right-of-Way (ROW) is significantly below the standards the project successfully demonstrated in other locations of the project. The top soil stockpiles are extremely small given the unusually wide ROW dimensions associated with this project and the expectation that a minimum of 12 inches of topsoil, where available be removed and stockpiled outside of the active work zones. As the photos show, there is clear evidence additional topsoil remains within the work zone.⁵⁰

In a March 23, 2017 response letter, Mike Futch stated that the “[i]t appears there is a difference of opinion between the Commission’s third party inspector and other standards in the industry regarding topsoil stripping, segregation, and handling procedures.” Mr. Futch also provided a technical memorandum in response to the third party construction inspector in an attempt to clarify the issues.⁵¹

In the technical report prepared by Aaron Dejoia, a North Dakota Certified Professional Soil Classifier, Duraroot Environmental Consulting, LLC stated that although topsoil depth can be evaluated differently by different soil scientists, “given the shallow topsoil depths for this location, per the NRCS soil survey, and the similar colors and characteristics of the underlying subsoil, it appears that the topsoil segregation was appropriately handled in the majority of the area” and that as observed by the data

⁴⁹ Docket No. 216.

⁵⁰ Docket No. 237, cover letter.

⁵¹ March 23, 2017 Letter, Mike Futch, DAPL Project Manager, North Dakota.

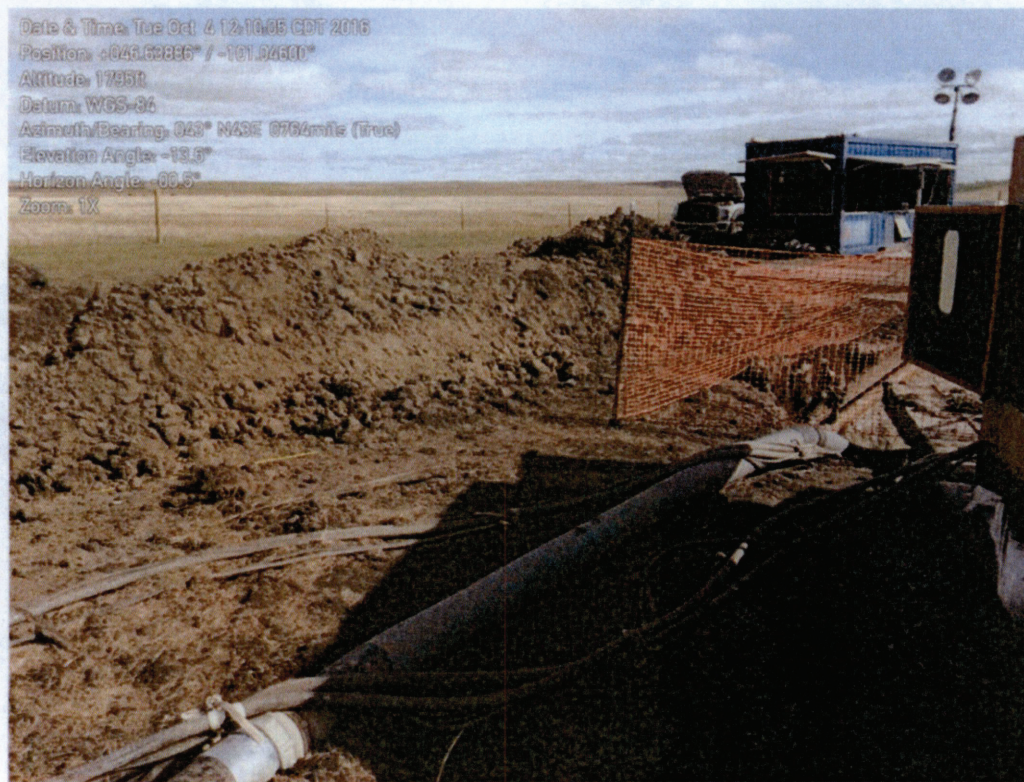
presented, "topsoil was salvaged to appropriate depths throughout the majority of the ROW."⁵²

Staff spoke with Dean Moos, Director of Reclamation and a registered soil classifier regarding the photos. Mr. Moos reviewed the photographs, order requirements of Provision 16, and the response by Duraroot Environmental. From Mr. Moos's review, he believes that there is a violation of provision 16 of the order.

13. October 4, 2016 – MP 136-140, 8 miles NW of St. Anthony in Morton County

An inspection showed that subsoil piles from trenching were bordering and overlapping with the topsoil pile and subsoil was stored over unstripped ground. The lead inspector claimed he was advised by an Ag inspector to place straw mulch under the pile when piling on topsoil. However, straw mulch was not visible during the site visit in these areas. Rainfall appeared to have caused much of the overlapping. Two areas had subsoil cast on or plowed onto adjacent topsoil for a limited duration.⁵³

Report Photo #2 "Subsoils from HDD Bore Entry Pit on Unstripped Ground: 46.63866°N 101.04600°W

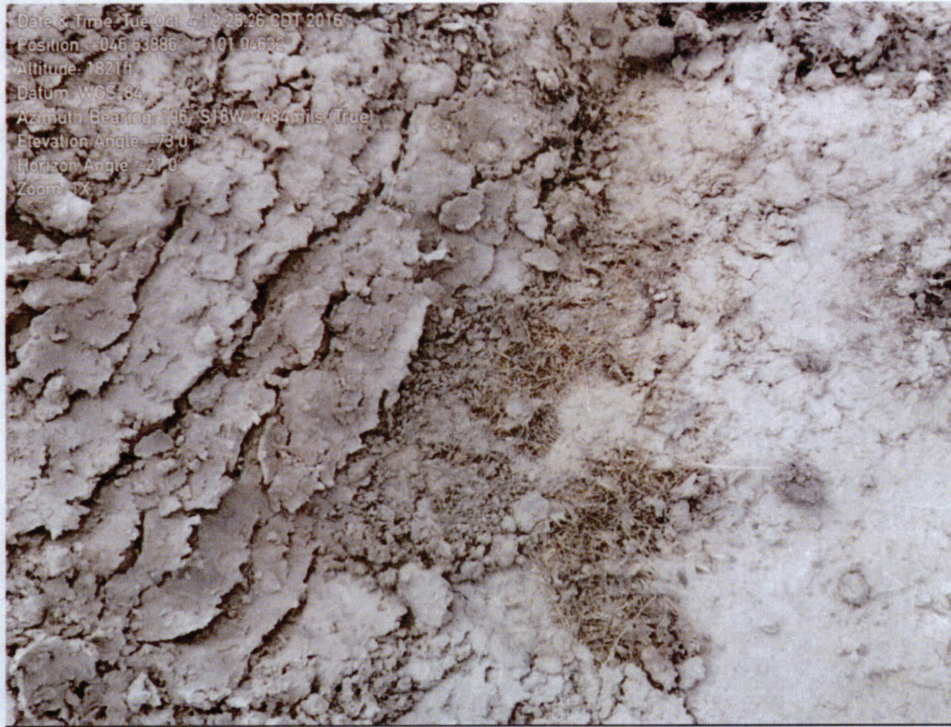


⁵² Topsoil Salvage Review, Duraroot Environmental Consulting, LLC, Aaron Deloia, March 23, 2017. Attached.

⁵³ Docket no. 222, pg. 1.

Report Photo #3 "No Straw Mulch Visible Under Bore Pit's Subsoil Pile:

46.63886°N 101.04632°W



Report Photo #4 "Trench Subsoils Bordering/Overlapping with Topsoil Pile: 46.63897°N 101.05932°W



Notice of Probable Violation: Violation of Company's Spill Prevention Plan

DAPL provided a Spill Prevention, Containment, and Countermeasures plan (Spill Plan) for the Project to provide preventative and mitigative measures to minimize the environmental impact associated with inadvertent spills or releases of fuel, lubricant, or hazardous materials during construction of the Project. The Spill Plan states that the measures would be implemented by the construction contractor or inspection staff during the construction of the Project.⁵⁴ As stated in the Spill Plan, DAPL developed the Spill Plan to "set forth minimum standards for handling and storing regulated substances and for cleaning up spills" and required its contractors to implement these measures to minimize the likelihood of spills.⁵⁵

A chief inspector was to be located at the construction site and monitor contractor compliance with the provisions of the Spill Plan.⁵⁶ The plan also required authorized personnel as representatives of a contractor to be "familiar with the requirements of the [Spill Plan] and the consequences of non-compliance"⁵⁷ and prior to initiation of construction to assure adequate understanding of the Spill Plan, a spill briefing shall be scheduled and conducted to address a number of topics including Spill Plan contents and precautionary measures.⁵⁸

Under the best management practices specified in the Spill Plan, "the following preventative actions and procedures will be accomplished prior to construction."⁵⁹ Contractors were required to establish areas which would minimize the environmental and safety impacts associated with inadvertent releases of fuel, lubricants and hazardous substances. One guideline specified to be followed was:

All petroleum products used by the Contractor necessary for fueling and maintenance of construction equipment shall be stored at a well-maintained and supervised location. Diesel fuel, gasoline, and lubricating oils shall be stored in bermed and lined containment structures or other approved fabricated containment reservoirs.⁶⁰

On August 4, 2016, the inspector noted a deficiency where a secondary fuel tank located at the worksite trailer had been at the site for four days protected only by plastic

⁵⁴Docket No. 1, Exhibit 3.C.1, pg. 78.

⁵⁵Id. at 78.

⁵⁶Id. at 79.

⁵⁷Id. at 80.

⁵⁸ Id. at 82.

⁵⁹ Id. at 81.

⁶⁰ Id.

sheeting beneath the tank.⁶¹ The inspector stated that the “[s]ite personnel understood, without prompting, that the secondary containment for the fuel trailer was not adequate. Possible modifications were discussed to correct item.”⁶²

Report Photo #8 “Fueling Trailer” at GPS Coordinates: 47.6087°N 102.8765°W



⁶¹ Docket No. 205, pg. 4.

⁶² Id. at 4.

Conclusion

As stated in N.D. Admin. Code. 69-02-01-08, the Commission may, through its staff or otherwise, secure evidence as it considers necessary or desirable. By signing the Certification Relating to Order provisions, DAPL agreed to maintain records that will demonstrate that it has complied with the requirements of the Commission's order issuing the certificate and permit, and that DAPL would preserve the records for Commission inspection at any reasonable time upon any reasonable notice.⁶³ After review, Staff requests that these issues, in addition to any other issues the Commission deems necessary, be explored at the investigative hearing.

In order to secure a just, speedy, and inexpensive determination of the issues presented in this Memorandum, Staff respectfully suggests that prior to the investigative hearing the Commission require DAPL to produce records demonstrating compliance with issues presented,⁶⁴ and require personnel directly responsible for oversight of the issues presented in the memorandum to be present at the investigative hearing. Staff also suggests that the Commission consider sending the Commission's own soil classifiers to sample Probable Violation Section III(12). After discussion with the landowner, Keitu and Director Moos, Staff questions whether a company provided inspection would provide a sufficient neutrality with its review.

In addition to any other items that the Commission believes useful for providing the clarity necessary to assess these issues or any other issues, the Commission may require DAPL to:

- a. Identify the dates on which construction, clearings, or filings related to the issues occurred.
- b. Provide documentation to corroborate the dates listed (e.g. daily activity logs or construction logs).
- c. Identify the persons responsible for monitoring compliance with all the applicable laws and Commission orders upon which the certificate and permit were issued.
- d. Describe the policies and safeguards DAPL used to ensure compliance with the applicable laws and Commission orders.
- e. Identify the individual or individuals that were responsible for the noncompliance.
- f. If DAPL contends that there was no obligation to comply with applicable laws, regulations and Commission Orders, identify and describe the basis to support this contention.
- g. If DAPL did not have knowledge of the applicable laws, regulations or Commission orders relating to the issues presented in this memorandum, identify and describe the basis to support this contention.
- h. Produce a list of persons that the Commission can expect at the investigative hearing and the issues they will be addressing.
- i. Provide or produce other items or information that the Commission believes would be useful in guiding the investigation.

⁶³ Docket No. 134, Provision 8.

⁶⁴ N.D. Admin. Code. § 69-02-01-10. The practice and procedure "shall be liberally construed to secure just, speedy, and inexpensive determination of the issues presented."

Dakota Access, LLC

8111 Westchester Drive Ste 600, Dallas, TX 75225-6142

March 23, 2017

Mr. John M. Schuh
Staff Attorney
North Dakota Public Service Commission
600 East Boulevard Avenue, Dept. 408
Bismarck, ND 58505-0480

**RE: Dakota Access Pipeline Project, Case
No. PU-14-842- Response to March 9,
2017 Compliance Inquiry**

Dear Mr. Schuh:

Dakota Access, LLC (“DAPL”) provides the following information in response to your letter dated March 9, 2017, involving compliance with the North Dakota Public Service Commission’s (“Commission”) Order granting a certificate of corridor compatibility and route permit to DAPL in the above-referenced matter. Both of the issues raised in your letter have been previously addressed by DAPL in a response submitted to the Commission on November 29, 2016, but will again be addressed and clarified herein.

Regarding the first issue, you cite to a construction inspection report prepared by the Commission’s third party construction inspector noting issues with clearing through wooded areas. *See* PSC Docket No. 212. As previously indicated to the Commission, at the time of construction and clearing in various areas, DAPL was following the project plans and workspace drawings that were submitted to and approved by the PSC in the Order dated January 20, 2016. Construction under those approved plans began immediately thereafter on the terminal portion of the project and on or around May 16, 2016 for the pipeline portion of the project.

In the Commission’s Order there was an apparent conflict between the approved project-specific Environmental Construction Plan, the DAPL provided drawings and plan sheets, and the “generic” or “boiler plate” project conditions/provisions as provided in the North Dakota PSC Certification Relating to Order Provisions – Transmission Facility Siting (“Certification”), Provision 20, and corresponding Tree and Shrub Mitigation Specifications. Specification 8 states that workspace within windbreaks, shelterbelts, and all other wooded areas should be limited to 50 feet “unless otherwise approved by the Commission.” In this situation, all the project plans and workspace requirements, including the Environmental Construction Plan, clearly identified areas larger than 50 feet. Because all of those plans were approved without comment or modification by the Commission in its Order, those plans became the basis of the construction plan, and presumably met the approval by the Commission as stated in Specification 8 which states “unless otherwise approved by the Commission.” When DAPL received its Order, it was not thought that this was a mere discrepancy as would have been handled under

Provision 9, but an approval of the workspace plans under Specification 8 of the Tree and Shrub Mitigation Specifications.

However, when DAPL became aware of the differing opinions regarding the interplay of the documents, DAPL raised the issue with the Commission. On June 22, 2016, a motion was made and approved by the Commission revising the clearing limitation to 85 feet clarifying any conflict in the Order. Prior to the motion, several areas along the ROW were cleared to the width as submitted and approved on the project plans and drawings.

It is unclear from your letter whether the areas allegedly cleared outside the 85 foot width were areas cleared prior to the previous exchange between DAPL and the Commission resolving the clearing issues. Additionally, according to your letter and the report filed at PSC Docket No. 221, only one area located at MP 1.5, Spread 8, was cleared outside the 85-foot approved area. DAPL lacks additional information from the Commission to specifically address any other areas of clearing in dispute. Any areas the Commission may take issue will be revegetated and subsequent replanting will occur in compliance with the tree and shrub mitigation plan.

The second issue raised by the Commission in your letter is the perceived inadequate stripping, segregation, and handling of topsoil during construction. Again, DAPL previously submitted information regarding this issue to the Commission. It appears there is a difference of opinion between the Commission's third party inspector and other standards in the industry regarding topsoil stripping, segregation, and handling procedures. Duraroot Environmental Consulting has prepared the attached technical memorandum in response to the third party construction inspector report filed at PSC Docket No. 216 in an attempt to clarify the issues.

DAPL welcomes the opportunity to discuss these issues in more detail with the Commission to resolve any misunderstandings, and to allow the Commission to provide more information with respect to the issues raised. If you should have any questions, please advise.

Sincerely,

/s/ Mike Futch

Mike Futch
DAPL Project Manager, North Dakota

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Technical Memorandum
VIA EMAIL

To: Monica Howard – Dakota Access Pipeline
From: Aaron DeJoia, CPSS/CPAg/ND-PSC – Duraroot Environmental, LLC
Date: March 23, 2017
Subject: Tospoil Salvage Review

The following technical memorandum was prepared to evaluate the removal of topsoil from the Dakota Access Pipeline (DAPL) ROW in North Dakota. The focus of this memorandum is regarding the topsoil salvage on the subject property located in Morton County, North Dakota. The area in question stretches from approximately milepost 125.0 to 125.5 on Spreads 7/8 of the DAPL right-of-way (ROW). The following information was reviewed and analyzed by North Dakota Professional Soil Classifier, Aaron DeJoia.

This memorandum was based solely on the following information and if additional information is available Duraroot reserves the right to change these opinions:

- 1) Site Inspection Trip Report by Keitu Engineers and Consulting, Inc. dated September 26, 2016.
- 2) Site Inspection Trip Report Pictures dated September 26, 2016 (attached).
- 3) Certificate Relating to Order Provisions – Transmission Facility Siting Dakota Access Pipeline Project (Specifically Condition #16).
- 4) NRCS Soil Survey and Official Soil Series Descriptions.

Topsoil depths can be evaluated differently by different soil scientists. However, for this memorandum and evaluation the following definition and criteria were used to determine if appropriate topsoil depth was salvaged:

- 1) All surface soil material to the first identified horizon and any A soil material beyond the surface soil horizon including the Ap, A, AB, BA, and sometimes Bw soil horizons, could be considered topsoil material. Soil horizons with illuviated or eluviated organic matter or minerals would not be considered topsoil. These illuviated or eluviated layers would include but not limited to the E, Bt, Bn or Bk soil horizons. All layers below illuviated or eluviated soil horizons would not be considered topsoil.
- 2) Soil horizons below the surface soil horizon that contain parent material or have a significant increase in coarse fragments would not be considered topsoil.
- 3) Soil horizons below the A horizon that have a significant decrease in soil organic matter as depicted by a significant change in soil color would not be considered topsoil.
- 4) Per Condition #16 in the Certificate Relating to the Order Provisions, any soil material below 12 inches does not need to be treated as topsoil even if it meets topsoil requirements

Please note that a soil horizon could have similar color as topsoil but does not necessarily indicate that that soil horizon is topsoil.

Project Photos

Report Photo #1 “Topsoil Not Completely Stripped”

It appears that stripping activities are active and ongoing in this photo. There are still small stands of grass that indicate that the surface has not been completely stripped. The appearance of the rounded stone, or glacial till, indicate that subsoil levels had been encountered in places and that the depth of topsoil had been reached. The soil map unit for this location based off the NRCS soil survey is the Cabba soil series. This soil series is characterized as having a relatively shallow topsoil depth, approximately 3.0 inches, before encountering the underlying subsoil which is similar in color but having a higher clay content (Bk in this instance). We believe that topsoil depths are shallow in this region and that although topsoil salvage is not completed it appears that the topsoil will be appropriately salvaged.

Report Photo #2 “1+ Foot of Topsoil Not Stripped”

Based off the trench line soil conditions in the foreground of the photo, it appears that a clayey soil was encountered. Topsoil in this region doesn't typically have a high enough clay content where “smearing” or slicken sides are observed. The soil profile in this photo shows these smeared soil characteristics from the current soil surface down into the trench line. The NRCS soil survey for this particular area shows subsoil horizons with “Bt” designations meaning that the underlying subsoil is argillic with a significant increase in clay content from the overlying topsoil. This Bt horizon would exhibit a smeared appearance when contacted with a piece of equipment such as a trackhoe. It appears from this picture that topsoil depths were appropriately salvaged and that the current surface is the Bt soil horizon. The large topsoil spoil in the background of the photo is indicative that 12” of topsoil likely has already been stripped.

Report Photo #3 “1+ Foot of Topsoil Not Stripped”

This photo also shows the heavier clay content of the underlying subsoil based on the smearing of the soil faces at the soil surface. According to the NRCS soil survey for this area (primarily the Savage and Belfield soil series), the underlying subsoil has very similar color to the overlying topsoil but exhibits properties of higher clay contents (i.e. Bt or Btn designations). Topsoil in this area doesn't always extend to the upper portion of the C horizon, or weathered bedrock level, as observed by the lighter colored subsoil in this photo. It should also be noted that the subsoil horizons change in depths, which is part of the natural soil formation process. This picture indicates that the topsoil was appropriately salvaged at this location.

Report Photo #4 “Cutout – Estimate of Topsoil Depth”

This photo is difficult to characterize given that the photo was taken in the shade and there is not much to contrast the soil profile with. Topsoil depths could have been determined from the 7” depth to the 16” depth per the landowner's measuring tape. This is based off the observed differences in soil structure and color of the soil profile on the right side of the photo. Root mass appears to significantly decrease after the 7” depth indicating different soil horizons also. It is our professional opinion that topsoil depth at this location is approximately 7” inches not 16”. The coordinates for this photo provided in the 3rd party inspection report do

not match the centerline or ROW for this particular tract. The depth of topsoil beyond 12" is inconsequential to compliance with the permit condition as segregation of topsoil up to 12" is the condition.

Report Photo #5 "Center of ROW – Visible Topsoil Layer"

Based off the condition of the soil in this photo, it is difficult to determine if any topsoil is present. Topsoil is hardly ever encountered directly over C horizons or bedrock. The absence of plant roots also indicates that this soil horizon is neither fertile nor wet enough to support vegetative growth. The coordinates provided in the 3rd inspection report for this photo do not match the centerline or ROW for this particular tract.

Report Photos #6, 7, 8 "Center of ROW – Visible Topsoil Layer"

The presence of root mass in a soil horizon doesn't always indicate that that particular soil is topsoil. Taproots will often move through the soil profile to find plant available nutrients and soil moisture. This often means that these roots will penetrate deep into the subsoil. In the instance of these three photos, the presence of rocks and mottling indicate that this dark subsoil soil horizon is likely an underlying Bt or Btn soil horizon, not topsoil. There also appears to be rock fragments in the soil horizon being identified as topsoil. Topsoil in this area would not contain rocks and bringing these rock fragments to the soil surface would limit reclamation success. There are no conditions in the Permit that exclude placing subsoil on top of subsoil which we believe is what these photos are indicating.

Report Photo #9 "Center of ROW – Visible Topsoil Layer"

The soil horizon in this photo being identified as topsoil has little root mass and appears to have a high clay content based off the presence of smeared soil faces and a blocky soil structure. Subsoils in this area have been surveyed by the NRCS as having these types of soil horizons and are designated as having a Bt or Btn soil horizon. The Cabba soil series is the designated soil map unit for this location per the NRVS soil survey. While the topsoil is shallow in this soil series (approximately 3.0 inches), the topsoil has a similar color to the underlying subsoil while exhibiting very different characteristics. The subsoil has similar color but a higher clay and different soil structure. Based on the photos we do not believe that there was improper backfilling of topsoil in this area.

Report Photos #10, 11, 12, 12, 14 "Visible Topsoil Layer Topped w/ Subsoil"

Based off the color, presence of root mass, and observed soil structure, this appears to be buried topsoil. The buried topsoil depth appears to be 1 or 2 inches. However, there is a large rock in the center of the identified soil horizon and there are several sandstones just a few inches below that soil horizon. If a soil scientist were determining topsoil depths with a manual soil push probe, or an automated soil auger, they would likely hit refusal when encountering one of these rocks. It is easy to believe that the topsoil would be determined above that refusal layer if that's where the probe struck during surface penetration. Soil series surveyed by the NRCS at this location have identified topsoil horizons, or A horizons, with depths of 3.0 – 5.5 inches before encountering subsoils with similar colors but higher clay contents. Although it appears that 1 to 2 inches of topsoil may have been buried; the rocks within the profile could exclude this from being classified as a topsoil layer.

Conclusion

Given the shallow topsoil depths for this location, per the NRCS soil survey, and the similar colors and characteristics of the underlying subsoil, it appears that the topsoil segregation was appropriately handled in the majority of this area. While the topsoil and subsoil in this area exhibit similar characteristics, there are several soil properties that distinguish the two that need to be segregated. It appears in the attached photos that some of the underlying subsoil exhibiting the same characteristics as the topsoil was not stripped and segregated from the overlying topsoil. There are several reasons why this is beneficial to the overall health of the surface soil post-construction. Based on these photographs and topsoil definitions we believe that topsoil was salvaged in accordance with project provisions and requirements. Some of the attached photos show that subsoil identified as BC or C horizons, those with weathered bedrock and not nearly the same characteristics of the overlying subsoil, being placed over the identified Bt or Btn subsoil horizons. This practice is not out of compliance with project requirements and provisions. As long as the appropriate amount of topsoil was stripped and segregated from the underlying subsoil, the sequence of backfill and subsoil replacement does not violate permit Condition #16.

As can be observed by the above evaluation of the data presented, topsoil was salvaged to appropriate depths throughout a majority of the ROW. This evaluation is supported by both the pictures obtained from the ROW and correlates with the NRCS soil survey for the area.

It was assumed for this evaluation that Report Photos #4, #5, #6, and #7 were obtained from the subject property even though the GPS coordinates provided in the 3rd party inspection report do not correspond with the subject property. Photo #4 likely helps represent the major issue that is encountered throughout this report. In this photograph, if we agree that the topsoil depth is 16 inches (which is hard to determine from the picture), the conditions of the permit (#16) indicate that only the top 12 inches would need to be removed, thus leaving the other 4 inches of dark soil material in place.