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Phase II Landslide Assessment

Proposed Carbon Capture Pipelines

North Dakota

Prepared by

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engineers | scientists | innovators

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Exhibit C

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1. INTRODUCTION

This report summarizes the results of a Phase II Landslide Assessment (Phase II Assessment) completed by Geosyntec Consultants, Inc. (Geosyntec) for 16 possible landslide locations that were identified by others along Summit Carbon Solutions' (SCS') proposed carbon capture pipeline system in North Dakota, USA. A Phase II Assessment consists of visual assessment by conducting a non-invasive (i.e., no ground disturbance) ground reconnaissance at possible landslide sites that are typically identified during a desktop assessment (e.g., Phase I Geologic Hazards Assessment) and have not previously been field assessed with respect to the project objectives.

2. BACKGROUND

The 16 possible landslide locations included in this Phase II Assessment were initially identified by the North Dakota Geological Survey (NDGS) and Terracon Consultants Inc. (Terracon 2023). To assist SCS with selecting sites for field assessment, SCS provided Geosyntec with the locations of 17 mapped landslides identified by the NDGS which were located near the proposed pipeline locations in North Dakota. Based on the proposed pipeline centerline data we received from SCS (Revision 6 dated May 25, 2023), we observed that 6 of the 17 mapped landslides were located sufficiently far (approximately 360 to >1400 feet) from the proposed pipeline centerline and thus were not considered to pose a threat to the pipeline. The remaining 11 mapped landslides were either crossed by or located within 100 feet of the proposed pipelines. Therefore, Geosyntec advised that 11 of the 17 mapped landslides identified by the NDGS be included in the Phase II Assessment. Table 1 (attached) lists landslides identified by the NDGS that were reviewed by Geosyntec for this purpose.

In addition to the 11 landslides mapped by the NDGS that were selected for this assessment, Terracon identified 6 areas where they identified possible evidence of landslide disturbance along the proposed pipelines during their desktop Phase I geologic hazard assessment (Terracon 2023). One of Terracon's possible landslide areas coincided with a mapped landslide identified by the NDGS. Therefore, 16 total locations were selected for this Phase II Assessment, which are listed in Table 2 (attached).

3. FIELD ASSESSMENTS

The field assessments were conducted between July 11 through 14, 2023, by a team of two Geosyntec geologists experienced in landslide hazard identification and characterization. At each site, the field team examined the mapped landforms to identify geomorphic evidence that would indicate the presence of a landslide. If geomorphic evidence of a landslide was observed, the field team characterized the landslide conditions observed at the time of visit (e.g., size, apparent activity level, movement direction, estimated thickness) and considered pipeline constructability along the proposed pipeline centerline relative to the conditions observed. Field observations were generally made from within 100 feet of the proposed pipeline centerline, as feasible, or to the

allowable extent necessary to draw conclusions. The field team documented site conditions by compiling field notes and collecting digital photographs at each site location while noting the locations of pertinent landslide features with a GPS device.

4. LANDSLIDE CATEGORIES

Based on the results of the field assessments, Geosyntec developed landslide categories to provide guidance on an appropriate level of construction response for each verified landslide. Our landslide categories are summarized in Table 3 below.

Table 3: Landslide Categories

Category	Recommended Response	Definition and Recommended Action
Class A	None Required	Landslides that do not appear to pose a challenge to pipeline constructability nor appear to pose a threat to pipeline integrity such that no mitigative action is required beyond implementation of standard best management practices (BMPs). Typically, Class A landslides would be partially or wholly removed by standard construction practices within the construction limits of disturbance (LOD).
Class B	Avoidance	Landslides that appear unlikely to pose a challenge to pipeline construction and appear unlikely to pose a threat to pipeline integrity if the landslide can be avoided either by circumvention around the landslide or via trenchless pipeline installation (i.e., HDD) beneath the landslide. Typically, avoidance of Class B landslides appears feasible due to apparent allowable workspace tolerances or due to proposed HDD installations planned for river crossings that coincide with the landslide. If a Class B landslide cannot be avoided, then Class C mitigative actions should apply.
Class C	General Mitigation	Landslides that appear likely to be disturbed and/or impacted by pipeline construction activities such that landslide activity may be more likely to occur as a result of pipeline construction. Depending on the conditions encountered during construction, non-specific mitigative measures may be warranted to maintain or improve drainage and slope stability such as trench breakers, subsurface drains, water bars, etc.

5. RESULTS

Geosyntec determined that 8 of the 16 assessed possible landslide sites did not exhibit sufficient evidence of landslide morphology and were designated as ‘Not a Landslide.’ The remaining 8 landslide sites exhibited features that appeared consistent with landslide morphology ranging in age from inactive (>10 years) to dormant (>100 years). Based on landslide size, inferred age, distance and orientation relative to the proposed pipelines, and the locations of proposed HDD crossings, we classified two landslides as Class A, 5 landslides as Class B, and one landslide as Class C (that is anticipated to be avoided by a proposed reroute) in accordance with our classification criteria provided in Table 3. A summary of the Phase II Assessment results is

provided in Table 4 (below) and shown in Figure 1. Table 5 provides a detailed summary of the site conditions observed at each location and Attachment A includes a Phase II Assessment Summary Sheet that includes site maps and photos for each site.

Table 4: Summary of Results

Site ID	Feature Type	Activity Level	Landslide Category
#2	Landslide	Inactive to Dormant	Class B (with micro reroute)
#7	Landslide	Inactive to Dormant	Class A
#8	Not a Landslide	-	-
#9	Not a Landslide	-	-
#10	Landslide	Dormant	Class C (N/A if reroute)
#11	Not a Landslide	-	-
#12	Landslide	Dormant	Class B
#13	Not a Landslide	-	-
#14	Landslide	Inactive	Class B
#15	Landslide	Inactive	Class B
#17	Landslide	Inactive	Class B
NDT-211 (MP 3.5-3.7)	Not a Landslide	-	-
NDL-325B (MP 4.6-4.7)	Not a Landslide	-	-
NDM-106 (MP 133-133.1)	Not a Landslide	-	-
NDM-106 (MP 145.3-145.4)	Landslide	Inactive	Class A
NDM-106 (MP 145.7-145.8)	Not a Landslide	-	-

6. RECOMMENDATIONS

Based on the results of our Phase II Assessment, the potential for existing landslides to affect SCS' proposed carbon capture pipelines in North Dakota generally appears to be low. Although landslide activity is often more likely to occur on slopes that have previously experienced landslide movement, new landslides can develop in other areas as a result of slope disturbance and alteration from pipeline construction. Pipeline construction can affect natural slope stability through disruption of natural soil and bedrock layering, disruption and interception of established drainage pathways, vegetation removal, altering slope gradient, and replacement of in-situ soil and bedrock material with loose backfill material. If not managed properly, these types of impacts can reduce soil and bedrock strength while diverting or trapping excess surface and groundwater so that the potential for mass movement may be increased.

To reduce the potential for new landslides to develop as a result of pipeline construction, we generally recommend that BMPs for slopes and drainage be implemented. The following sections

provide our comments for the types of responses that may be considered for the landslide categories assigned during this assessment.

6.1. Class A Sites

Two landslide sites are categorized as Class A landslides: Site #7 and NDM-106 (MP 145.3-145.4). Site #7 exhibited questionable dormant landslide morphology while the adjacent mapped landslide to the south exhibited more definitive, but inactive landslide features. The landslide observed near the proposed NDM-106 pipeline between MP 145.3 and 145.4 appeared to be a relatively small and inactive surficial failure about 20 feet north of the proposed pipeline. Based on the inferred estimated depths of less than 4 feet for the landslides observed at Site #7, and less than 2 feet for the landslide observed at NDM-106 (MP 145.3-145.4), it is likely that any landslide morphology intercepted within the construction limits of disturbance would be removed by standard construction practices and no additional mitigative action is recommended beyond implementation of BMPs for pipeline construction along steep slopes, as warranted.

6.2. Class B Sites

Five landslide sites are categorized as Class B landslides: Sites #2, #12, #14, #15, and #17. The landslides observed at Site #2 occur on a gentle side slope that is partially crossed by the proposed pipeline centerline. However, the area immediately upslope of the observed landslides is a broad and flat hilltop that contains sufficient workspace area. Geosyntec understands that SCS will propose a micro-reroute of the pipeline alignment approximately 75 to 100 feet to the west-southwest of the landslide. A small reroute would avoid intersecting the landslide and therefore the site is categorized as a Class B. Without a micro-reroute around the landslide, Site #2 would be considered a Class C site.

Proposed HDD crossings are planned for the Sheyenne River coinciding with Site #12 and the Maple River coinciding with Site #14. Based on our review of the proposed HDD site plans and profiles, including the proposed entry and exit points for these river crossings, the landslides at Site #12 and Site #14 would be avoided through HDD construction beneath the landslides. The landslide observed at Site #15 is located about 98 feet away from the proposed pipeline centerline and there appears to be sufficient workspace area on both sides of the proposed pipeline centerline to avoid intercepting this landslide. Similarly, the landslide at Site #17 is located about 70 feet west of the proposed pipeline centerline, and there appears to be sufficient workspace on the east side of the proposed centerline such that avoidance of this landslide appears feasible. Therefore, we recommend that temporary workspace delineations do not intercept the landslides at Sites #15 and #17.

6.3. Class C Sites

One landslide site was categorized as a Class C landslide: Site #10. The landslide observed at Site #10 exhibits questionable dormant landslide morphology where the mapped boundary is crossed

by the proposed pipeline centerline, and the depth of the landslide is not well constrained in the vicinity of the proposed pipeline centerline due to the scale and weathered condition of the landslide morphology observed. The terrain crossed by the proposed pipeline centerline is gradual and thus major grade alterations do not appear necessary to accommodate pipeline construction within the mapped landslide boundary of Site #10.

Geosyntec understands the SCS has proposed a reroute alignment around Bismarck that would avoid Site #10. If the reroute option is pursued as the final alignment, then a landslide categorization for Site #10 would not be applicable.

7. LIMITATIONS

The results provided in this report are based on the site conditions observed by Geosyntec at the time of the Phase II Assessments in correlation with the proposed pipeline centerline (Revision 6 dated May 25, 2023) and proposed HDD data provided by SCS to Geosyntec. Additionally, Geosyntec has not performed an independent Phase I desktop landslide hazard assessment for the entire proposed SCS pipeline system in North Dakota and the landslide sites selected for this Phase II Assessment are based on the findings of Terracon and the NDGS during their respective desktop reviews. Site conditions reported by Geosyntec could change prior to pipeline construction due to anthropogenic activity or significant rainfall events.

8. CLOSING

We appreciate the opportunity to support Summit Carbon Solutions in conducting this Phase II Landslide Assessment for the proposed carbon capture pipelines in North Dakota. We look forward to future opportunities to offer our services to Summit Carbon Solutions. Please do not hesitate to contact us if you have questions or need additional information.

Sincerely,
GEOSYNTEC CONSULTANTS

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9. REFERENCES

North Dakota Geological Survey (NDGS). 2021. Areas of Landslides, Menoken Quadrangle, North Dakota. Compiled by Fred J. Anderson. 1:24,000 scale.

NDGS. 2022a. Areas of Landslides, Barrie Quadrangle, North Dakota. Compiled by Christopher A. Maike and Levi D. Moxness. 1:24,000 scale.

NDGS. 2022b. Areas of Landslides, Durbin Quadrangle, North Dakota. Compiled by Christopher A. Maike and Levi D. Moxness. 1:24,000 scale.

NDGS. 2022c. Areas of Landslides, Leonard Quadrangle, North Dakota. Compiled by Christopher A. Maike and Levi D. Moxness. 1:24,000 scale.

NDGS. 2023a. Areas of Landslides, Burnt Butte Quadrangle, North Dakota. Compiled by Fred J. Anderson, Levi D. Moxness, Christopher A. Maike and Benjamin C. York. 1:24,000 scale.

NDGS. 2023b. Areas of Landslides, Crown Butte Quadrangle, North Dakota. Compiled by Fred J. Anderson, Levi D. Moxness, Christopher A. Maike and Benjamin C. York. 1:24,000 scale.

NDGS. 2023c. Areas of Landslides, Nelson Lake Quadrangle, North Dakota. Compiled by Levi D. Moxness, Fred J. Anderson, Christopher A. Maike and Benjamin C. York. 1:24,000 scale.

Terracon Consultants Inc. 2023. Underground Carbon Pipeline Geohazard, North Dakota. Consultant report prepared by Terracon for Summit Carbon Solutions. Project No. GR225831. Version 4 dated June 28, 2023.

FIGURES

Legend

- PROPOSED PIPELINE ALIGNMENT (REV6 5/25/23)
- MILEPOST

PHASE II LANDSLIDE SITE

- NOT A LANDSLIDE
- CLASS A
- CLASS B
- CLASS C

N

0 5 10 20

Miles

Location Map

Summit Carbon Solutions
Phase II Landslide Assessment
North Dakota

Geosyntec consultants

TXG0484 | August 2023

Figure 1

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TABLES

Table 1: Mapped Landslides Identified by NDGS

Site ID	Latitude[1]	Longitude[1]	Pipeline System	Applicable NDGS Landslide Map (1:24,000 scale)	Distance from Proposed Pipeline Centerline (ft)[2]	Selected for Phase II Assessment
#1	47.054346°	-101.197180°	NDL-328	Nelson Lake	540	No
#2	47.054780°	-101.201654°	NDL-328	Nelson Lake	0	Yes
#3	47.053053°	-101.193734°	NDL-328	Nelson Lake	640	No
#4	47.052915°	-101.192742°	NDL-328	Nelson Lake	1,045	No
#5	47.050930°	-101.189705°	NDL-328	Nelson Lake	1,400	No
#6	47.017626°	-101.188540°	NDL-328	Nelson Lake	360	No
#7	46.957038°	-101.039189°	NDM-106	Crown Butte	0	Yes
#8	46.951336°	-100.865277°	NDM-106	Burnt Butte	0	Yes
#9	46.951436°	-100.856594°	NDM-106	Burnt Butte	0	Yes
#10	46.941909°	-100.792478°	NDM-106	Burnt Butte	0	Yes
#11	46.942233°	-100.783880°	NDM-106	Burnt Butte	0	Yes
#12	46.571847°	-97.092455°	NDL-324	Barrie	0	Yes
#13	46.574364°	-97.094886°	NDL-324	Barrie	0	Yes
#14	46.745093°	-97.206570°	NDL-324	Leonard	0	Yes
#15	46.854676°	-100.583705°	NDM-106	Menoken	100	Yes
#16	47.054710°	-101.195443°	NDL-328	Nelson Lake	990	No
#17	46.750620°	-97.208900°	NDL-324	Durbin	70	Yes

Table 2. Phase II Sites

Site ID	Latitude[1]	Longitude[1]	Pipeline System	Source
#2	47.054780°	-101.201654°	NDL-328	NDGS
#7	46.957038°	-101.039189°	NDM-106	NDGS
#8	46.951336°	-100.865277°	NDM-106	NDGS
#9	46.951436°	-100.856594°	NDM-106	NDGS
#10	46.941909°	-100.792478°	NDM-106	NDGS
#11	46.942233°	-100.783880°	NDM-106	NDGS
#12	46.571847°	-97.092455°	NDL-324	NDGS; Terracon
#13	46.574364°	-97.094886°	NDL-324	NDGS
#14	46.745093°	-97.206570°	NDL-324	NDGS
#15	46.854676°	-100.583705°	NDM-106	NDGS
#17	46.750620°	-97.208900°	NDL-324	NDGS
NDT-211 (MP 3.5-3.7)	46.192310°	-97.080608°	NDT-211	Terracon
NDL-325B (MP 4.6-4.7)	47.096996°	-101.801359°	NDL-325B	Terracon
NDM-106 (MP 133-133.1)	46.945551°	-100.773971°	NDM-106	Terracon
NDM-106 (MP 145.3-145.4)	46.963154°	-101.015780°	NDM-106	Terracon
NDM-106 (MP 145.7-145.8)	46.961595°	-101.022466°	NDM-106	Terracon

Notes: [1]Latitude and Longitude represent a general site reference point on or near the applicable proposed pipeline centerline.

Table 5. Detailed Phase II Summary of Results

Site ID	Latitude	Longitude	Pipeline System	Source	Feature Type	Confidence	Assessment Date	Classification	Summary
#2	47.054780°	-101.201654°	NDL-328	NDGS	Landslide	>90%	7/11/2023	Class B (Class C without proposed micro reroute)	The morphology observed at Site #2 appears consistent with a dormant landslide on a northeast facing slope. The landslide boundary mapped by the NDGS was approximately 250 feet long and 450 feet wide. The direction of landslide movement was northeast and perpendicular relative to the proposed pipeline centerline. The mapped and observed landslide headscarp intersected the proposed pipeline centerline over an approximate length of 130 feet and was less than 1 foot high while appearing to be highly weathered, rounded, and subdued. Downslope of the proposed pipeline centerline, the landslide body exhibited rounded and subdued hummocks less than 1 foot high while lateral flanks were indistinct. The rounded and subdued landslide toe was 2 to 3 feet high and located greater than 100 feet from the proposed pipeline centerline. No sharp or fresh landslide features were identified. The inferred landslide depth was estimated to be less than 4 feet based on the size and condition of the landslide features observed. At the time of the visit the feature was uniformly vegetated with mixed grasses and wooded shrubs less than 4 ft high. Another, smaller landslide boundary mapped by the NDGS that is located adjacent to, and southwest of, Site #2 was similarly evaluated due to its proximity to the proposed pipeline centerline. The landslide boundary mapped by the NDGS was approximately 135 ft long and 250 ft wide. The direction of landslide movement was northeast and perpendicular relative to the proposed pipeline centerline. The mapped and observed landslide headscarp was located approximately 15 feet downslope of the proposed pipeline centerline and was less than 1 foot high while appearing to be highly weathered, rounded, and subdued. Approximately 50 feet downslope of the proposed pipeline centerline, a series of distinct internal scarps approximately 2 to 3 feet high were observed within the mapped landslide boundary. The condition of the observed internal scarps suggests this area of the slope may have experienced localized ground movement in the past 10 years. The mapped landslide toe was 2 to 3 feet high and appeared rounded and subdued. The inferred landslide depth was similarly estimated to be less than 4 feet based on the size and condition of the landslide features observed. This evaluation was conducted by Geosyntec on 7/11/2023.
#7	46.957038°	-101.039189°	NDM-106	NDGS	Landslide	>50%	7/11/2023	Class A	The morphology observed at Site #7 may be related to a highly weathered and subdued dormant landslide on a gentle east facing slope. The questionable landslide is crossed axially by the proposed pipeline centerline near the right lateral flank mapped by the NDGS. The landslide boundary mapped by the NDGS was approximately 400 feet long and 1150 feet wide. The only questionable landslide feature observed within 100 feet of the proposed pipeline centerline was a rounded hummock-type feature less than 1 ft high across the proposed pipeline centerline location that could be the remnants of a highly weathered and subdued right lateral flank or landslide toe. No other discernible features that appeared consistent with landslide morphology were observed within Site #7 near the proposed pipeline centerline. The mapped headscarp of Site #7 was located along a subtle slope break adjacent to a flat farm field. At the time of the visit the landslide was vegetated with mixed grasses up to 2 ft, wooded brush up to 3 ft and patches of trees up to 6 inches in diameter. The inferred depth of the questionable landslide is assumed to be less than 4 feet in the vicinity of the proposed pipeline centerline due to the lack of landslide features exhibited. Another, smaller landslide boundary mapped by the NDGS that is located near, and south of, Site #7 was similarly evaluated due to its proximity to the proposed pipeline centerline. The landslide boundary mapped by the NDGS was approximately 260 feet long and 515 feet wide. The direction of landslide movement was northeast and parallel relative to the proposed pipeline centerline. Within the mapped landslide boundary, a distinct landslide scarp 1 to 2 feet high and a distinct landslide toe 1 to 2 feet high were identified approximately 120 feet south of the proposed pipeline centerline. The condition of the observed features and their visibility in recent aerial imagery suggests this area of the slope likely experienced localized ground movement in the past 10 to 15 years. The inferred landslide depth was estimated to be less than 3 feet based on the based on the size and condition of the landslide features observed. The evaluation was conducted by Geosyntec on 7/11/2023.
#8	46.951336°	-100.865277°	NDM-106	NDGS	Not a Landslide	N/A	12/7/2022	N/A	Based on the Phase II evaluation, the landform observed at Site #8 did not appear to be consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform observed at Site # 8 comprised a gradual convergent slope having multiple converging erosional channels. The upper portion of the boundary mapped by the NDGS did not appear consistent with a landslide headscarp and appeared to be related to cattle trails and surface erosion. The lower portion of the mapped boundary did not exhibit features consistent with a landslide toe as the slope was uniformly gradual with no area of landslide deposition observed. The terrain crossed by the proposed pipeline centerline generally appeared to be smooth apart from cattle trails and erosion channels. Although it does not appear consistent with landslide morphology, the landform does appear to be unusual relative to surrounding areas, which may be a reason for it being mapped as a landslide by the NDGS. However, the landform could possibly be related to groundwater sapping and/or differential weathering due to some variation in the underlying geologic materials relative to surrounding areas. At the time of the site visit the vegetation within the landform consisted of grass up to 2 ft high. The evaluation was conducted by Geosyntec on 7/12/2023.
#9	46.951436°	-100.856594°	NDM-106	NDGS	Not a Landslide	N/A	12/6/2022	N/A	Based on the Phase II evaluation, the landform observed at Site #9 did not appear consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform observed at Site # 9 appeared as a generally smooth and gradual slope near an anthropogenic pond that was bordered by cattails. No features indicative of a landslide headscarp or landslide toe were exhibited within or surrounding the boundary mapped by the NDGS. Based on aerial imagery, the lower portion of the mapped boundary appears to protrude westward relative to the slope to the south, which may be a reason for it being mapped as a landslide by the NDGS. However, this apparent protrusion is unnatural and caused by anthropogenic alteration of the slope south of the mapped boundary to widen the area used for the retention pond: the eastward cut and regrading of the slope south of the mapped boundary gives the appearance of westward protrusion at the lower portion of the mapped boundary. At the time of the site visit the vegetation within the mapped boundary consisted of grass up to 2 ft high, wooded bushes up to 5 feet high, and cattails up to 6 feet high along the edge of the pond. The evaluation was conducted by Geosyntec on 7/12/2023.
#10	46.941909°	-100.792478°	NDM-106	NDGS	Landslide	>50%	7/12/2023	Class C (Not Applicable with reroute)	The morphology observed at Site # 10 appears consistent with a possible dormant landslide complex on an east- and northeast-facing slope. The landslide boundary mapped by the NDGS was approximately 1300 feet long and 2100 feet wide. The direction of landslide movement was east and northeast, and both axial and oblique relative to the proposed pipeline centerline. The proposed pipeline centerline crosses the mapped landslide boundary near the mapped left lateral flank and toe. Due to the large scale of the possible landslide the only feature observed in the vicinity of the proposed pipeline centerline was a possible rounded and subdued toe up to 30 feet high adjacent to the proposed pipeline centerline. The rounded and subdued condition of the morphology observed suggests this portion of the possible landslide complex is likely dormant and has not moved in hundreds, if not thousands, of years. No discernible evidence of recent landslide morphology was observed in the vicinity of the proposed pipeline centerline. The terrain crossed by the proposed pipeline centerline generally comprises a gradual and smooth slope. At the time of the visit, the vegetation in the vicinity of the proposed pipeline centerline consisted of mixed grasses up to 3 feet high. Areas of exposed sandstone bedrock were observed upslope of the proposed pipeline centerline along a ridgeline that trends southwest to northeast. The possible landslide morphology northwest of this ridge and crossed by the proposed pipeline centerline appeared more subdued and questionable than the area immediately downslope and east of the ridge, which exhibited stronger evidence of correlative landslide features. The inferred depth of the landslide could not be estimated due to the scale and condition of the observed landslide features. The evaluation was conducted by Geosyntec on 7/12/2023.
#11	46.942233°	-100.783880°	NDM-106	NDGS	Not a Landslide	N/A	7/12/2023	N/A	Based on the Phase II evaluation, the landform observed at Site #11 did appear to be consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform at Site #11 comprised a generally uniform and smooth side-slope with some localized erosion near a ridgetop along the headscarp boundary mapped by the NDGS. No evidence of landslide deposits was identified along the mapped toe boundary. Based on aerial imagery, the vegetation that persists during dry seasons forms arcuate bands below the natural ridge possibly in response to seeps and/or moisture retention along the base of the ridge. It is possible that the arcuate appearance of dry-season vegetation accumulated below the natural ridgetop and variation of vegetation along the mapped toe boundary is a reason for this landform to be mapped as a landslide by the NDGS. However, no evidence of landslide disturbance could be identified. The proposed pipeline centerline crosses the mapped feature obliquely along a relatively gentle and smooth side-slope which becomes progressively steeper nearest to the ridge that is north of the centerline. At the time of the site visit the vegetation along the proposed pipeline centerline was a mix of grass and bushes up to 2 feet high. The evaluation was conducted by Geosyntec on 7/12/2023.

Table 5. Detailed Phase II Summary of Results

Site ID	Latitude	Longitude	Pipeline System	Source	Feature Type	Confidence	Assessment Date	Classification	Summary
#12	46.571847°	-97.092455°	NDL-324	NDGS; Terracon	Landslide	>90%	7/14/2023	Class B	The morphology observed at Site # 12 appears consistent with a dormant landslide on a northwest-facing slope. The landslide boundary mapped by the NDGS was approximately 460 feet long and 1100 feet wide. The direction of landslide movement was northwest and axial relative to the proposed pipeline centerline. The proposed pipeline centerline crosses the center of the mapped landslide boundary. The observed landslide features were generally distinct but rounded with no discernible evidence of recent movement. The slope corresponding with the mapped headscarp was 10 to12 feet high in the vicinity of the proposed pipeline centerline. Observed hummocks downslope of the mapped headscarp were rounded and approximately 4 feet high. The mapped landslide toe was up to 6 feet high and appeared to be modified or truncated by fluvial processes related to the Sheyenne River. West of the proposed pipeline centerline, a rounded headscarp up to 15 feet high and a rounded internal toe up to 10 feet high were observed with backward leaning trees up to 24 inches in diameter situated on the internal landslide body. The vegetation along the proposed pipeline centerline mostly consisted of grass up to 2 feet high with occasional deciduous trees. The inferred landslide depth was estimated to be 20 to 30 feet deep in the vicinity of the proposed pipeline centerline based on the size and condition of observed landslide features. A proposed HDD crossing for the Sheyenne River is planned for this location. Based on Geosyntec's review of the proposed HDD site plan and profile, including the proposed entry and exit points, the landslide morphology observed at this location would be avoided by the proposed pipeline as a result of HDD construction beneath the landslide. The evaluation was conducted by Geosyntec on 7/14/2023.
#13	46.574364°	-97.094886°	NDL-324	NDGS	Not a Landslide	N/A	12/6/2022	N/A	Based on the Phase II evaluation, the landform observed at Site #13 did not appear to be consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform at Site #13 appeared as a generally smooth and gradual slope with some bare soil exposed by erosion along a natural slope break that corresponds with the headscarp boundary mapped by the NDGS. A mound of material observed at the mapped toe boundary appeared to be unrelated to landslide activity. It is possible that the combination of the natural slope break and mound may be reasons for this landform to be mapped as a landslide by the NDGS. However, these features do not appear to be landslide related and may be related to differential weathering relative to surrounding areas. At the time of the visit, the vegetation along the proposed pipeline centerline was a mix of forest with mature trees and open areas containing grass up to 2 feet high. The evaluation was conducted by Geosyntec on 7/14/2023.
#14	46.745093°	-97.206570°	NDL-324	NDGS	Landslide	>50%	7/13/2023	Class B	The morphology observed at Site #14 appears consistent with a series of inactive, localized bank slumps located along an outer meander bend of the Maple River. The curved landslide boundary mapped by the NDGS was approximately 130 feet long by 1,350 feet wide, and encompasses multiple localized banks slumps. The proposed pipeline centerline crosses the mapped landslide boundary near the apex of the meander bend. The direction of landslide movement was north and axial relative to the proposed pipeline centerline. A possible headscarp of a localized bank slump crossed by the proposed pipeline centerline measured approximately 3 feet high and may have been exaggerated by a berm along a dirt road to the south. The lateral flanks corresponding with the possible headscarp were indistinct, but a questionable toe feature downslope of the possible headscarp measured approximately 2 feet high. The landslide morphology observed appeared to be rounded and subdued. The inferred depth of the landslide was estimated to be less than 4 feet deep based on the observed size and condition of landslide features and the topography of the riverbank. At the time of the site visit, the landslide was vegetated with mixed grass up to 4 feet tall and deciduous trees and shrubs. The slope gradient along the proposed pipeline centerline was generally moderate near the headscarp region and low in the vicinity of the toe region. The dirt road upslope of the headscarp appeared undisturbed at the time of the assessment. A flood plain associated with the Maple River was observed downslope of the toe. A proposed HDD crossing for the Maple River is planned for this location. Based on Geosyntec's review of the proposed HDD site plan and profile, including the proposed entry and exit points, the landslide observed at this location would be avoided by the proposed pipeline as a result of HDD construction beneath the landslide. The evaluation was conducted by Geosyntec on 7/13/2023.
#15	46.854676°	-100.583705°	NDM-106	NDGS	Landslide	>90%	7/13/2023	Class B	Site # 15 appears to be an inactive landslide located on a west-facing slope at the outer meander bend of a stream. The curved landslide boundary mapped by the NDGS measured approximately 200 feet long by 430 feet wide. The landslide was located approximately 98 feet west of the proposed pipeline centerline at its nearest approach. The direction of landslide movement was west-southwest and oblique relative to the proposed pipeline centerline. The landslide headscarp was approximately 5 to 6 feet high and the right and left lateral flanks were 4 to 5 feet high. The landslide toe was not visited due to the distance from the proposed pipeline centerline, but appeared to encroach into the stream bed. The landslide morphology appeared to be distinct and sharp along the southern portion of the mapped feature and rounded and subdued along the northern portion of the mapped feature, suggesting the southern features are relatively younger than the northern features. Based on aerial imagery and the observed morphology, the landslide appears to be 10-15 years old. The inferred landslide depth was estimated to be 6 to 10 feet deep based on the observed size and condition of the landslide features and topography of the streambank. At the time of the site visit, the landslide and the area in the vicinity of the proposed pipeline was uniformly vegetated with mixed grasses up to 2 feet high. The slope gradient along the proposed pipeline centerline was generally low to flat. Based on the topography observed, the landslide appears unlikely to retrogress across the path of the proposed pipeline centerline. The evaluation was conducted by Geosyntec on 7/13/2023.
#17	46.750620°	-97.208900°	NDL-324	NDGS	Landslide	<50%	7/14/2023	Class B	The morphology at Site #17 appears consistent with multiple, inactive bank slumps located along the outer meander bend of the Maple River. The curved landslide boundary mapped by the NDGS was approximately 130 feet long by 630 feet wide. The mapped headscarp was located approximately 70 feet from the proposed pipeline centerline. The direction of landslide movement was west-southwest and perpendicular relative to the proposed pipeline centerline. The observed headscarp and toe features nearest to the proposed pipeline centerline appeared rounded and subdued and measured approximately 3 feet high. The inferred depth of the bank slumps were estimated to be less than 3 feet based on the size and condition of the observed landslide features and topography of the riverbank. A flood plain for the Maple River was observed downslope of Site #17. At the time of the site visit, the area in the vicinity of the proposed pipeline was a cultivated soybean farm field and Site #17 was vegetated mixed grasses up to 4 feet high and undisturbed deciduous trees up to 12 inches in diameter. Dense vegetation may have obscured some landslide geomorphology at the time of the site assessment. The slope gradient along the proposed pipeline centerline was generally low. Based on the topography observed, Site #17 appears unlikely to expand across the path of the proposed pipeline centerline. The evaluation was conducted by Geosyntec on 7/14/2023.
NDT-211 (MP 3.5-3.7)	46.192310°	-97.080608°	NDT-211	Terracon	Not a Landslide	N/A	7/13/2023	N/A	Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDT-211 pipeline between MP 3.5 and 3.7. The features identified between MP 3.5-3.7 appeared to be flat terrain surrounding a natural slope break and rounded drainage gully, which were densely vegetated at the time of the assessment. The gradients of the sloped areas were generally low to moderate, and were generally smooth except where traversed by deer trails. At the time of the site visit, the sloped areas crossed by the proposed pipeline centerline were densely vegetated with mixed grasses up to 4 ft high and dispersed trees and shrubs. Downslope of the proposed pipeline centerline, cattails and ponded water were observed in a wetland area. The evaluation was conducted by Geosyntec on 7/13/2023.
NDL-325B (MP 4.6-4.7)	47.096996°	-101.801359°	NDL-325B	Terracon	Not a Landslide	N/A	7/11/2023	N/A	Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDL-325B pipeline centerline between MP 4.6 and 4.7. The features observed between MP 4.6 and 4.7 included a steep slope adjacent to a small stream, an area of exposed soil likely related to minor erosion that was located to the west of the proposed pipeline alignment, and a drainage gully located to the west of the proposed pipeline. At the time of the site visit, the area crossed by the proposed pipeline centerline was uniformly vegetated with mixed grasses up to 2 ft high. The slope gradient along the proposed pipeline centerline was generally moderate to the north and low to the south. It is possible that the observed erosion features may have been misidentified as possible indicators of landslide activity as they resemble scarps or tension cracks when viewed in aerial imagery. The evaluation was conducted by Geosyntec on 7/11/2023.

Table 5. Detailed Phase II Summary of Results

Site ID	Latitude	Longitude	Pipeline System	Source	Feature Type	Confidence	Assessment Date	Classification	Summary
NDM-106 (MP 133-133.1)	46.945551°	-100.773971°	NDM-106	Terracon	Not a Landslide	N/A	7/12/2023	N/A	Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDM-106 pipeline between MP 133 and 133.1. The features observed between MP 133 and 133.1 included flat terrain surrounding a steep embankment along a meander bend of a shallow oxbow lake. At the time of the site visit, the area crossed by the proposed pipeline centerline was uniformly vegetated with mixed grasses and shrubs up to 4 ft high, and trees dispersed along the edge of the oxbow lake. The slope gradient along the proposed pipeline centerline was generally steep along the western embankment of the oxbow lake, and low to flat on the eastern side of the oxbow lake. Cattle tracks were observed throughout the section of the steep slope and along the flat fields to the west and east of the oxbow lake. It is possible that the cattle tracks may have been misidentified as possible indicators of landslide activity as they resemble scarps or tension cracks when viewed in aerial imagery. The evaluation was conducted by Geosyntec on 7/12/2023.
NDM-106 (MP 145.3-145.4)	46.963154°	-101.015780°	NDM-106	Terracon	Landslide	>90%	7/11/2023	Class A	Based on the Phase II evaluation along the proposed NDM-106 pipeline between MP 145.3 and 145.4, a shallow landslide was observed on a west facing slope approximately 20 feet north of the proposed pipeline centerline. The landslide was relatively small and measured approximately 70 feet long by 25 feet wide. The direction of ground movement was west and axial relative to the orientation of the proposed pipeline centerline. The headscarp measured approximately 2 feet high, the left and right lateral flanks measured approximately 2 ft high, and the toe measured approximately 1-foot high. The landslide appeared to be inactive (>10 years old) based on the condition of the morphology observed. The landslide was estimated to be 1-2 feet deep based on the observed size of the landslide features and topography. At the time of the site visit, the landslide was uniformly vegetated with mixed grass up to 2 feet tall except where recent cattle activity had exposed bare soil within and around the landslide. The slope gradient along the proposed pipeline centerline was generally moderate and increased from west to east. The evaluation was conducted by Geosyntec on 7/11/2023.
NDM-106 (MP 145.7-145.8)	46.961595°	-101.022466°	NDM-106	Terracon	Not a Landslide	N/A	7/11/2023	N/A	Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDM-106 pipeline between MP 145.7 and 145.8. The topography between MP 145.7 and 145.8 consisted of a rounded knoll with gentle to moderately steep slope gradients that exhibited minor erosion along the upslope portions of the hilltop. At the time of the site visit, the area crossed by the proposed pipeline centerline was uniformly vegetated with mixed grasses up to 2 ft high. Overgrown cattle trails were common along the slopes in the vicinity of the proposed pipeline centerline. It is possible that the cattle trails may have been misidentified as indicators of landslide activity as they may resemble scarps or tension cracks when viewed in recent aerial imagery. The evaluation was conducted by Geosyntec on 7/11/2023.

ATTACHMENT A

Phase II Summary Sheets

PHASE II ASSESSMENT SUMMARY SHEET

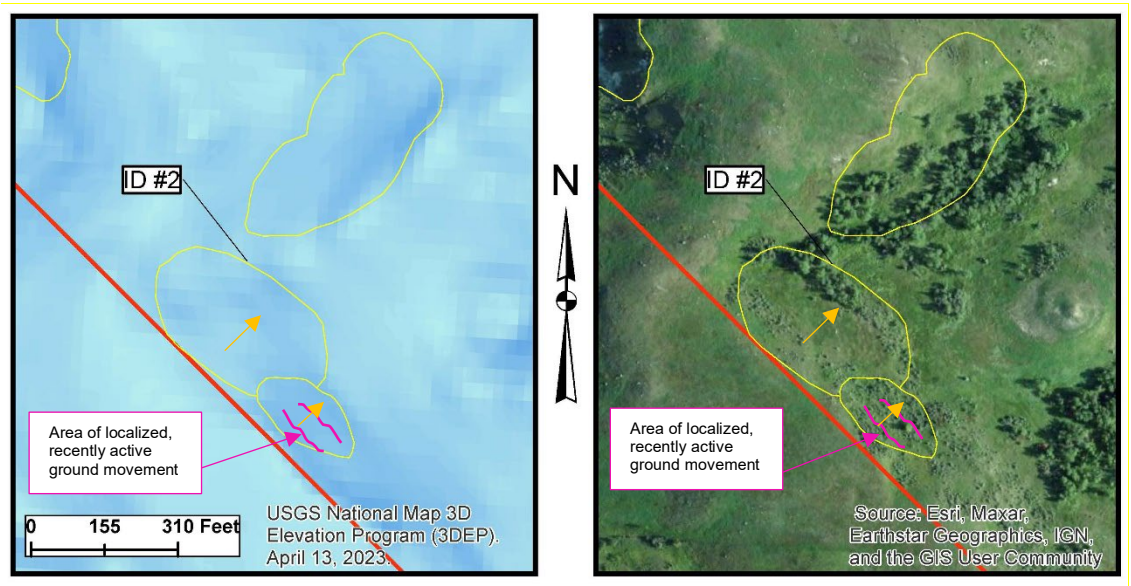
Site ID	Site #2
Source	NDGS
Pipeline Name	NDL-328
Latitude, Longitude	47.054780°, -101.201654°
County	Oliver
Field Evaluation Date	July 11, 2023

Feature Type	Landslide
Activity Level	Inactive to Dormant
Confidence	>90%
Distance from Proposed Centerline	0
Estimated Landslide Depth	<4 ft
Classification	Class B

EVALUATION SUMMARY

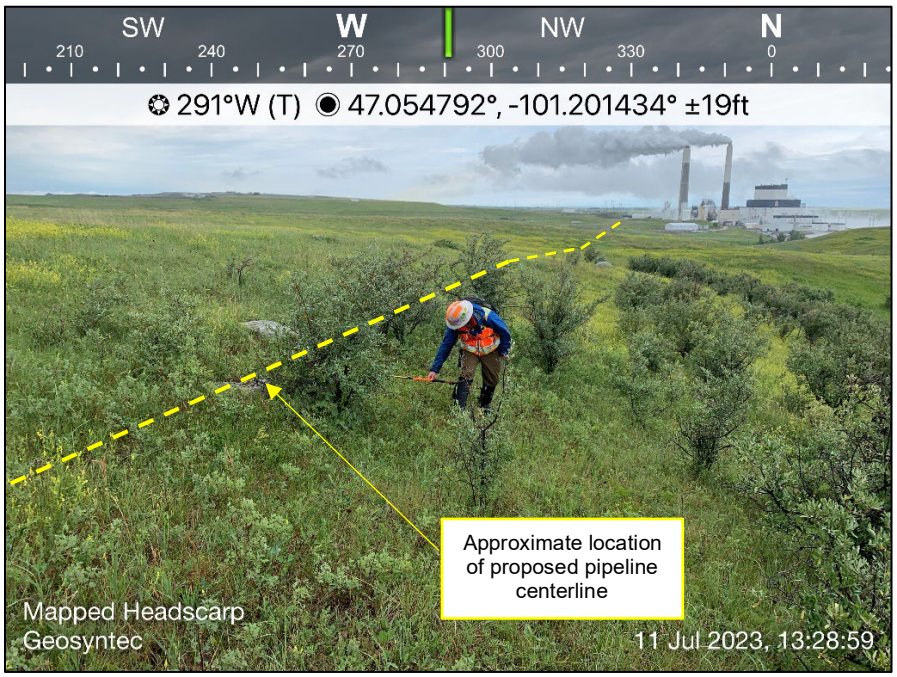
The morphology observed at Site #2 appears consistent with a dormant landslide on a northeast facing slope. The landslide boundary mapped by the NDGS was approximately 250 feet long and 450 feet wide. The direction of landslide movement was northeast and perpendicular relative to the proposed pipeline centerline. The mapped and observed landslide headscarp intersected the proposed pipeline centerline over an approximate length of 130 feet and was less than 1 foot high while appearing to be highly weathered, rounded, and subdued. Downslope of the proposed pipeline centerline, the landslide body exhibited rounded and subdued hummocks less than 1 foot high while lateral flanks were indistinct. The rounded and subdued landslide toe was 2 to 3 feet high and located greater than 100 feet from the proposed pipeline centerline. No sharp or fresh landslide features were identified. The inferred landslide depth was estimated to be less than 4 feet based on the size and condition of the landslide features observed. At the time of the visit the feature was uniformly vegetated with mixed grasses and wooded shrubs less than 4 ft high. Another, smaller landslide boundary mapped by the NDGS that is located adjacent to, and southwest of, Site #2 was similarly evaluated due to its proximity to the proposed pipeline centerline. The landslide boundary mapped by the NDGS was approximately 135 ft long and 250 ft wide. The direction of landslide movement was northeast and perpendicular relative to the proposed pipeline centerline. The mapped and observed landslide headscarp was located approximately 15 feet downslope of the proposed pipeline centerline and was less than 1 foot high while appearing to be highly weathered, rounded, and subdued. Approximately 50 feet downslope of the proposed pipeline centerline, a series of distinct internal scarps approximately 2 to 3 feet high were observed within the mapped landslide boundary. The condition of the observed internal scarps suggests this area of the slope may have experienced localized ground movement in the past 10 years. The mapped landslide toe was 2 to 3 feet high and appeared rounded and subdued. The inferred landslide depth was similarly estimated to be less than 4 feet based on the size and condition of the landslide features observed. This evaluation was conducted by Geosyntec on 7/11/2023.

MAPS

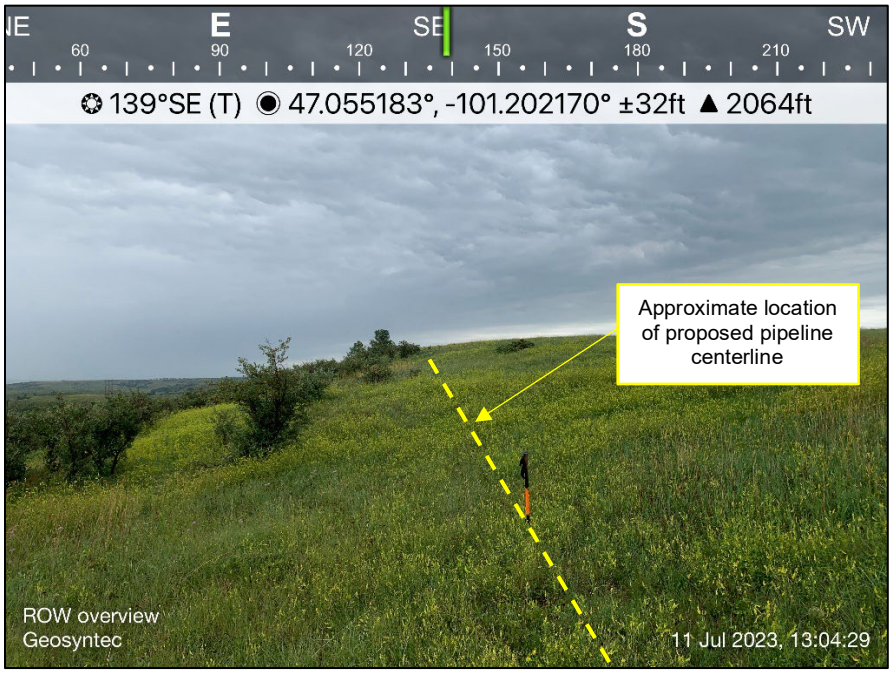


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2023c).
- Inferred direction of ground movement depicted by orange arrows.
- Approximate location of observed internal scarps depicted by purple lines.

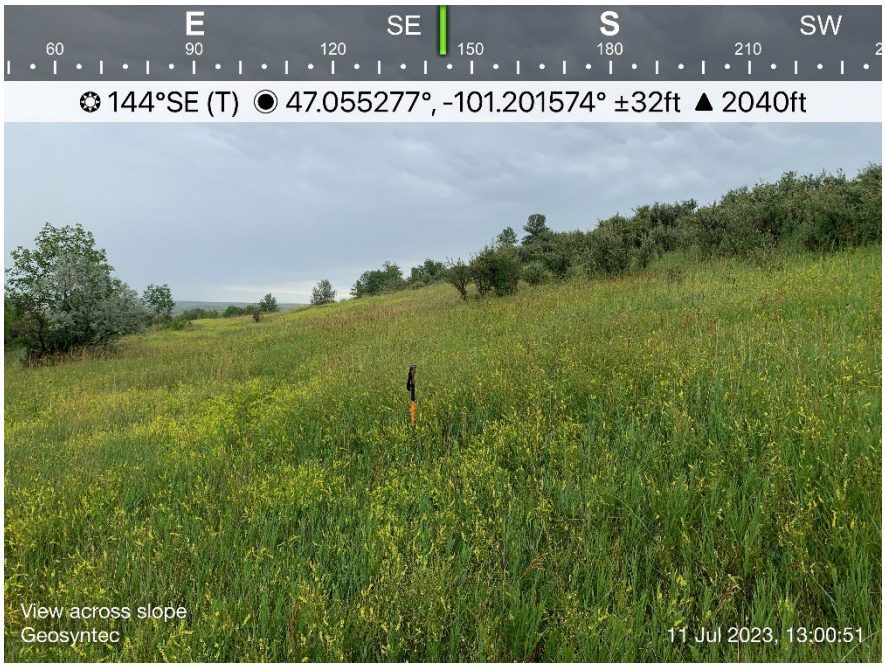
PHOTOGRAPHS



Looking northwest along the mapped headscarp of Site #2 where it intersects the proposed pipeline centerline. Geosyntec field personnel is pointing at the mapped headscarp that appeared as a <1 ft subdued slope break. The approximate location of the proposed pipeline centerline is represented by the dashed yellow line.



Looking southeast along the approximate location of the proposed pipeline centerline as represented by the dashed yellow line. Site #2 is located on the gradual side slope to the left of the image.



Looking southeastward across the body of the landslide mapped at Site #2. The proposed pipeline centerline is located out of view at the top of the slope to the right of the photo.

Example of a 2 ft high distinct internal scarp that is associated with the smaller landslide mapped by the NDGS to the southeast of Site #2. The feature is ~50 ft downslope of the proposed pipeline centerline.

PHASE II ASSESSMENT SUMMARY SHEET

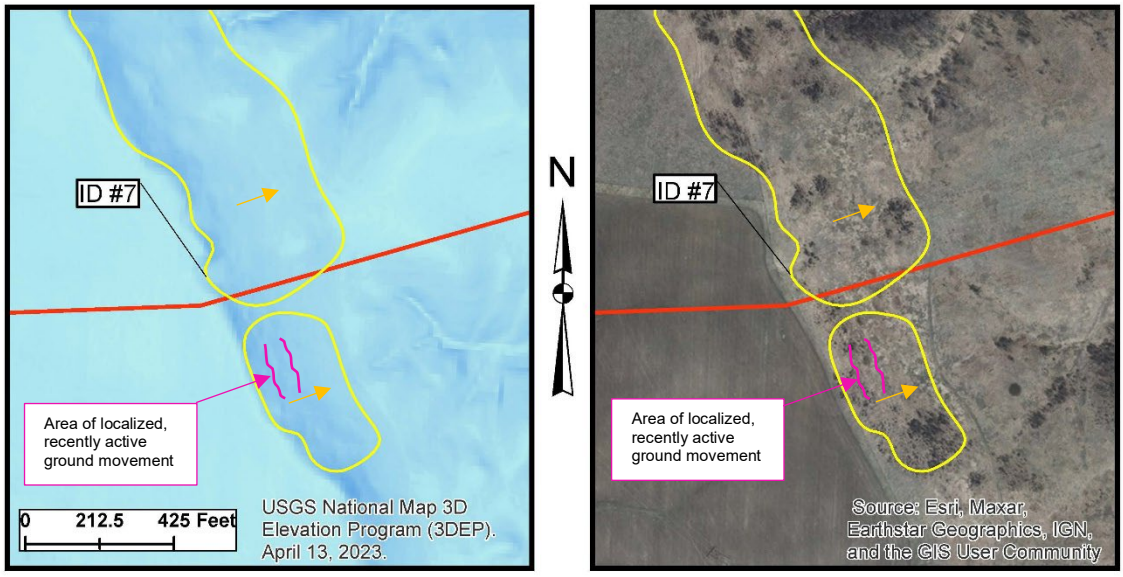
Site ID	Site #7
Source	NDGS
Pipeline Name	NDM-106
Latitude, Longitude	46.957038°, -101.039189°
County	Morton
Field Evaluation Date	July 11, 2023

Feature Type	Landslide
Activity Level	Inactive to Dormant
Confidence	>50%
Distance from Proposed Centerline	0 ft
Estimated Landslide Depth	<4 ft
Classification	Class A

EVALUATION SUMMARY

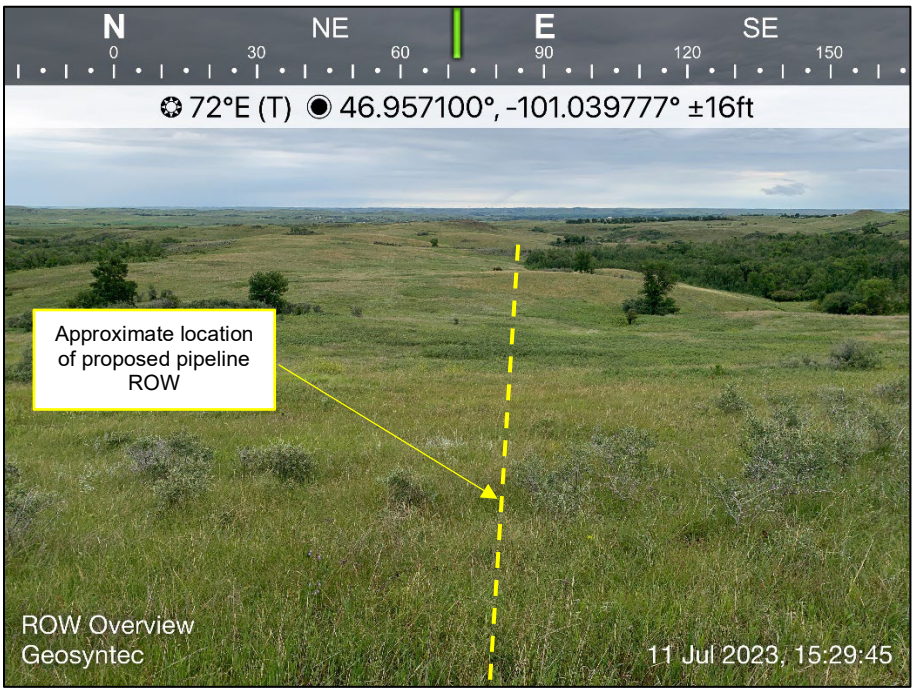
The morphology observed at Site #7 may be related to a highly weathered and subdued dormant landslide on a gentle east facing slope. The questionable landslide is crossed axially by the proposed pipeline centerline near the right lateral flank mapped by the NDGS. The landslide boundary mapped by the NDGS was approximately 400 feet long and 1150 feet wide. The only questionable landslide feature observed within 100 feet of the proposed pipeline centerline was a rounded hummock-type feature less than 1 ft high across the proposed pipeline centerline location that could be the remnants of a highly weathered and subdued right lateral flank or landslide toe. No other discernible features that appeared consistent with landslide morphology were observed within Site #7 near the proposed pipeline centerline. The mapped headscarp of Site #7 was located along a subtle slope break adjacent to a flat farm field. At the time of the visit the landslide was vegetated with mixed grasses up to 2 ft, wooded brush up to 3 ft and patches of trees up to 6 inches in diameter. The inferred depth of the questionable landslide is assumed to be less than 4 feet in the vicinity of the proposed pipeline centerline due to the lack of landslide features exhibited. Another, smaller landslide boundary mapped by the NDGS that is located near, and south of, Site #7 was similarly evaluated due to its proximity to the proposed pipeline centerline. The landslide boundary mapped by the NDGS was approximately 260 feet long and 515 feet wide. The direction of landslide movement was northeast and parallel relative to the proposed pipeline centerline. Within the mapped landslide boundary, a distinct landslide scarp 1 to 2 feet high and a distinct landslide toe 1 to 2 feet high were identified approximately 120 feet south of the proposed pipeline centerline. The condition of the observed features and their visibility in recent aerial imagery suggests this area of the slope likely experienced localized ground movement in the past 10 to 15 years. The inferred landslide depth was estimated to be less than 3 feet based on the based on the size and condition of the landslide features observed. The evaluation was conducted by Geosyntec on 7/11/2023.

MAPS

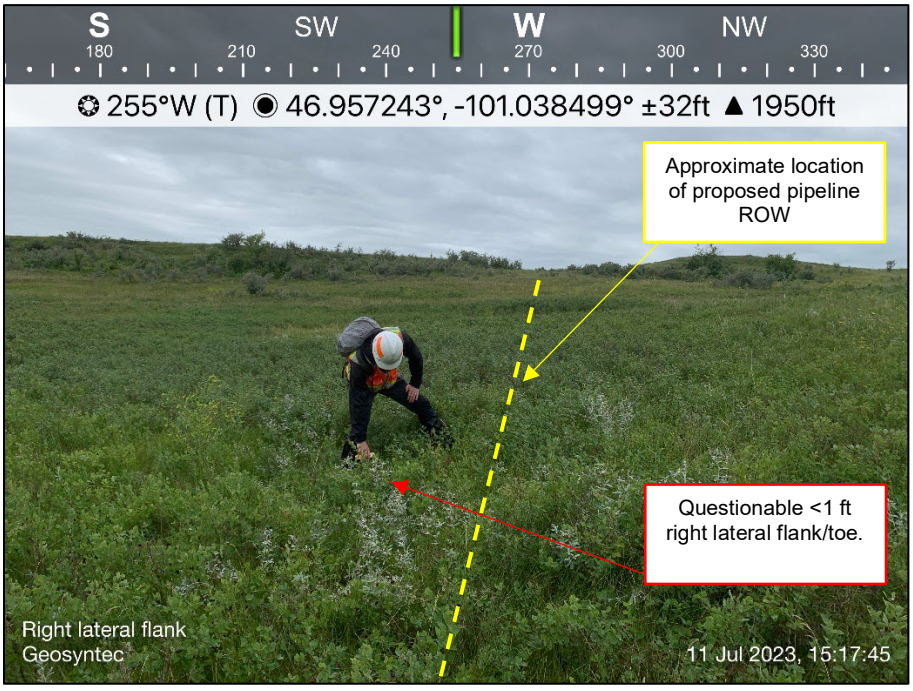


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2023b).
- Inferred direction of ground movement depicted by orange arrows.
- Approximate location of observed internal scarps depicted by purple lines.

PHOTOGRAPHS



View to the east downslope along the proposed pipeline ROW. No apparent landslide morphology is visible in the photo. The proposed pipeline centerline is approximated by the yellow dashed line.



View looking upslope to the west along the proposed ROW. Geosyntec personnel is approximating the height of the questionable right lateral/toe where crossing the proposed pipeline centerline. The proposed centerline is approximated by the yellow dashed line.

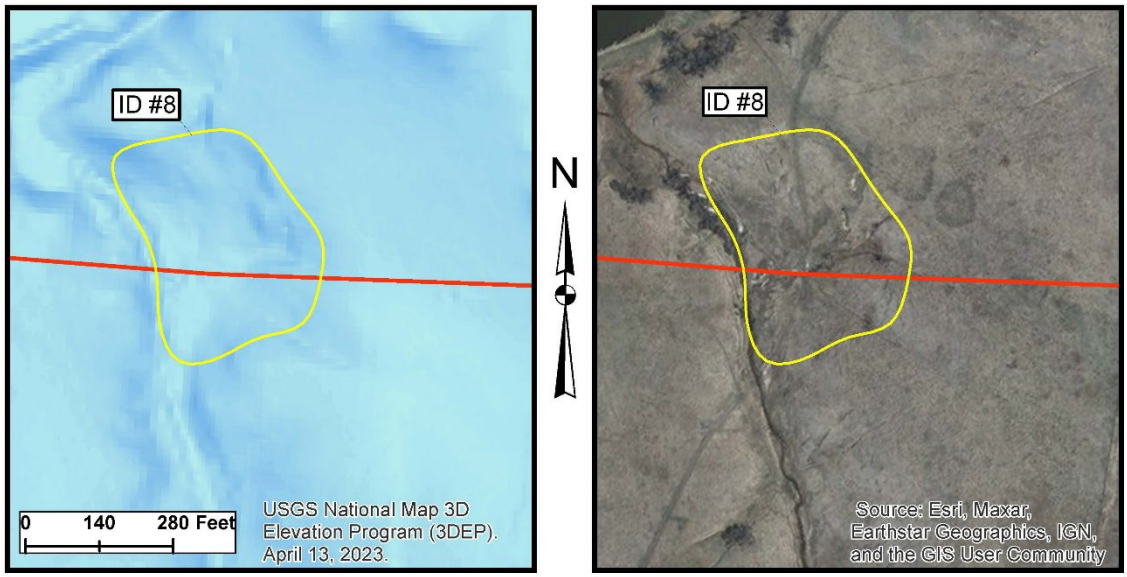
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	Site #8	**Feature Type**	Not a Landslide
Source	NDGS	**Activity Level**	N/A
Pipeline Name	NDM-106	**Confidence**	N/A
Latitude, Longitude	46.951336°, -100.865277°	**Distance from Proposed Centerline**	N/A
County	Burleigh	**Estimated Landslide Depth**	N/A
Field Evaluation Date	July 11, 2023	**Classification**	N/A

EVALUATION SUMMARY

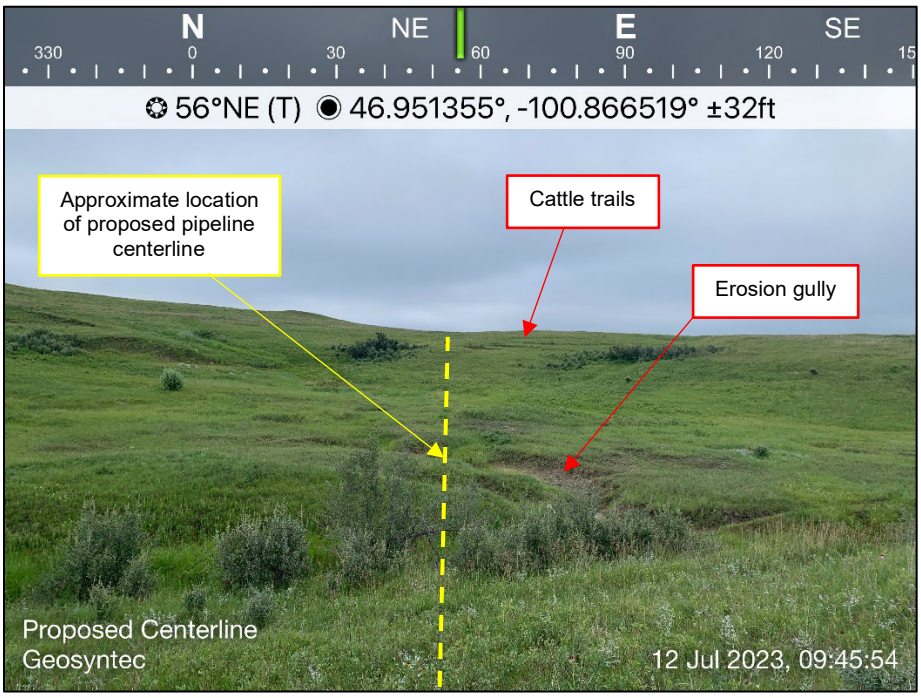
Based on the Phase II evaluation, the landform observed at Site #8 did not appear to be consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform observed at Site # 8 comprised a gradual convergent slope having multiple converging erosional channels. The upper portion of the boundary mapped by the NDGS did not appear consistent with a landslide headscarp and appeared to be related to cattle trails and surface erosion. The lower portion of the mapped boundary did not exhibit features consistent with a landslide toe as the slope was uniformly gradual with no area of landslide deposition observed. The terrain crossed by the proposed pipeline centerline generally appeared to be smooth apart from cattle trails and erosion channels. Although it does not appear consistent with landslide morphology, the landform does appear to be unusual relative to surrounding areas, which may be a reason for it being mapped as a landslide by the NDGS. However, the landform could possibly be related to groundwater sapping and/or differential weathering due to some variation in the underlying geologic materials relative to surrounding areas. At the time of the site visit the vegetation within the landform consisted of grass up to 2 ft high. The evaluation was conducted by Geosyntec on 7/12/2023.

MAPS

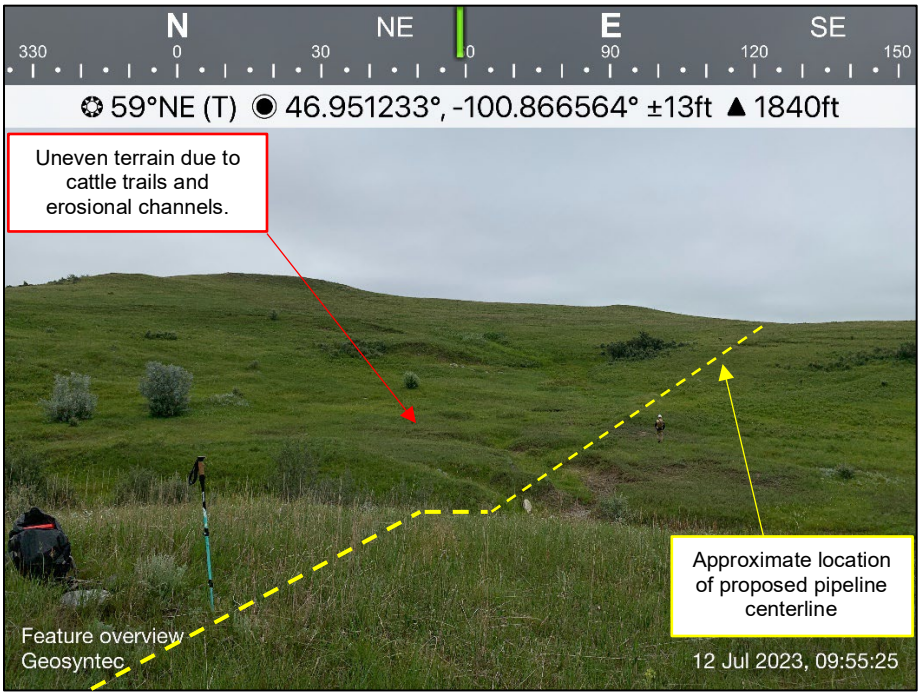


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2023a).

PHOTOGRAPHS



View northeast along the proposed pipeline centerline with erosion visible in the foreground of the image. To the right of the proposed centerline near the crest of the slope are cattle tracks. The proposed pipeline centerline is approximated by the dashed yellow line.



View northeast of the overall site with Geosyntec personnel for scale. The proposed pipeline centerline is approximated by the dashed yellow line.

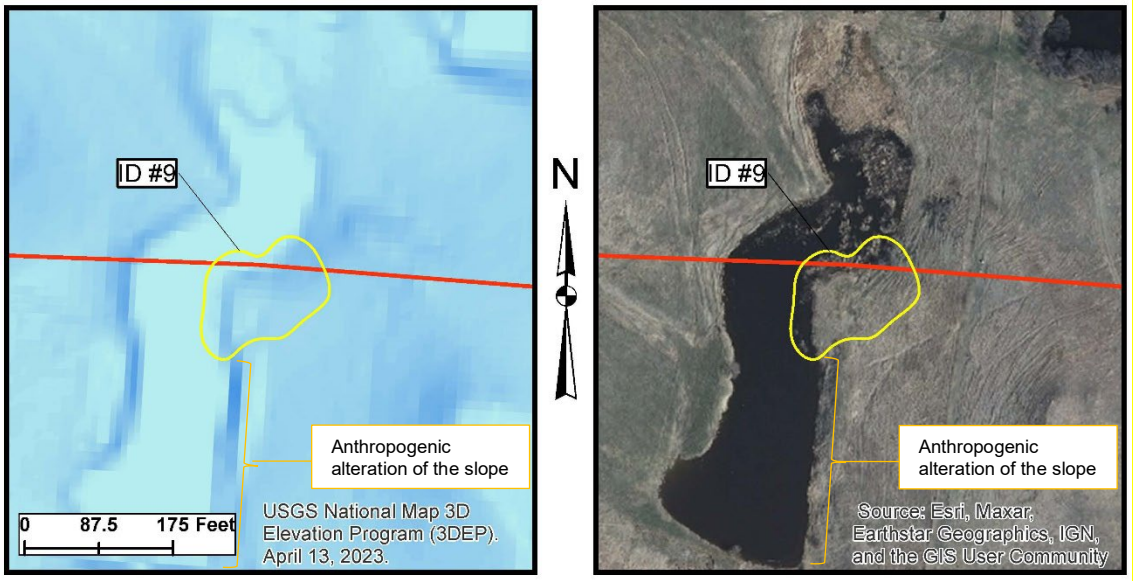
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	Site #9	**Feature Type**	Not a Landslide
Source	NDGS	**Activity Level**	N/A
Pipeline Name	NDM-106	**Confidence**	N/A
Latitude, Longitude	46.951436°, -100.856594°	**Distance from Proposed Centerline**	N/A
County	Burleigh	**Estimated Landslide Depth**	N/A
Field Evaluation Date	July 12, 2023	**Classification**	N/A

EVALUATION SUMMARY

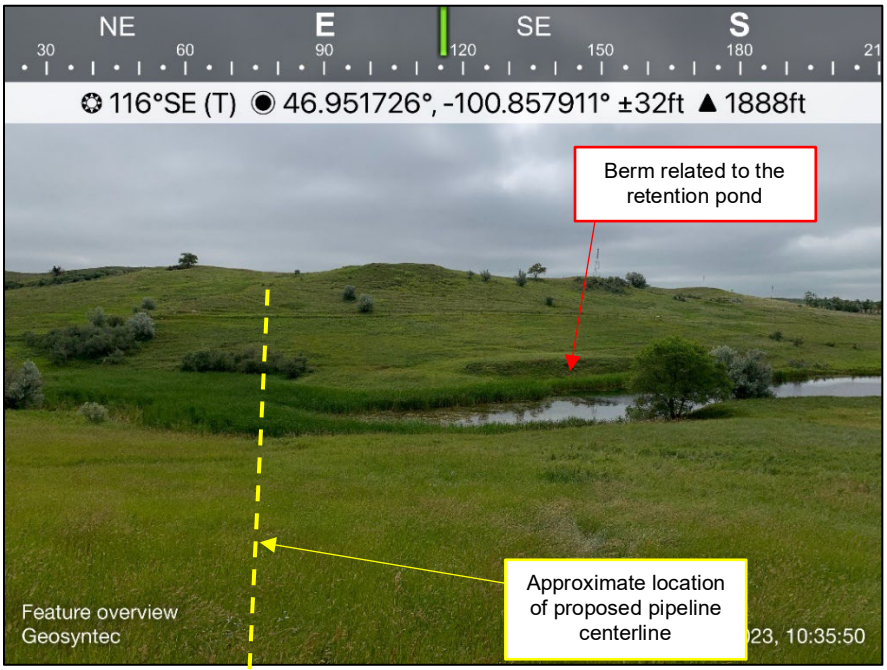
Based on the Phase II evaluation, the landform observed at Site #9 did not appear consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform observed at Site # 9 appeared as a generally smooth and gradual slope near an anthropogenic pond that was bordered by cattails. No features indicative of a landslide headscarp or landslide toe were exhibited within or surrounding the boundary mapped by the NDGS. Based on aerial imagery, the lower portion of the mapped boundary appears to protrude westward relative to the slope to the south, which may be a reason for it being mapped as a landslide by the NDGS. However, this apparent protrusion is unnatural and caused by anthropogenic alteration of the slope south of the mapped boundary to widen the area used for the retention pond: the eastward cut and regrading of the slope south of the mapped boundary gives the appearance of westward protrusion at the lower portion of the mapped boundary. At the time of the site visit the vegetation within the mapped boundary consisted of grass up to 2 ft high, wooded bushes up to 5 feet high, and cattails up to 6 feet high along the edge of the pond. The evaluation was conducted by Geosyntec on 7/12/2023.

MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2023a).

PHOTOGRAPHS



View of the overall slope looking southeast from the opposite slope. The terrain crossed by the proposed pipeline centerline appeared as a generally smooth and gradual slope with no evidence of landslide morphology exhibited. Multiple cattle trails traversed the slope and there was a distinct berm constructed to the south of the ROW. The proposed pipeline centerline is approximated by the dashed yellow line.

View facing east and upslope along the proposed pipeline centerline from within the mapped boundary. The slope was generally smooth and uniform with no observed geomorphic indicators of a landslide headscarp. The proposed pipeline centerline is approximated by the dashed yellow line.

PHASE II ASSESSMENT SUMMARY SHEET

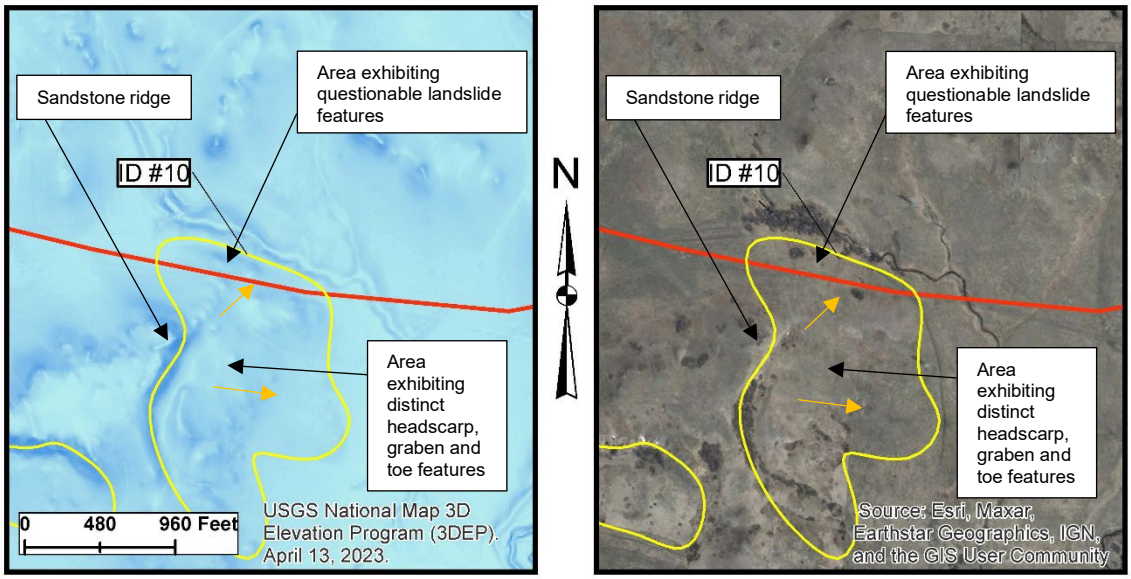
Site ID	Site #10
Source	NDGS
Pipeline Name	NDM-106
Latitude, Longitude	46.941909°, -100.792478°
County	Burleigh
Field Evaluation Date	July 12, 2023

Feature Type	Landslide
Activity Level	Dormant
Confidence	>50%
Distance from Proposed Centerline	0 ft
Estimated Landslide Depth	Uncertain
Classification	Class C

EVALUATION SUMMARY

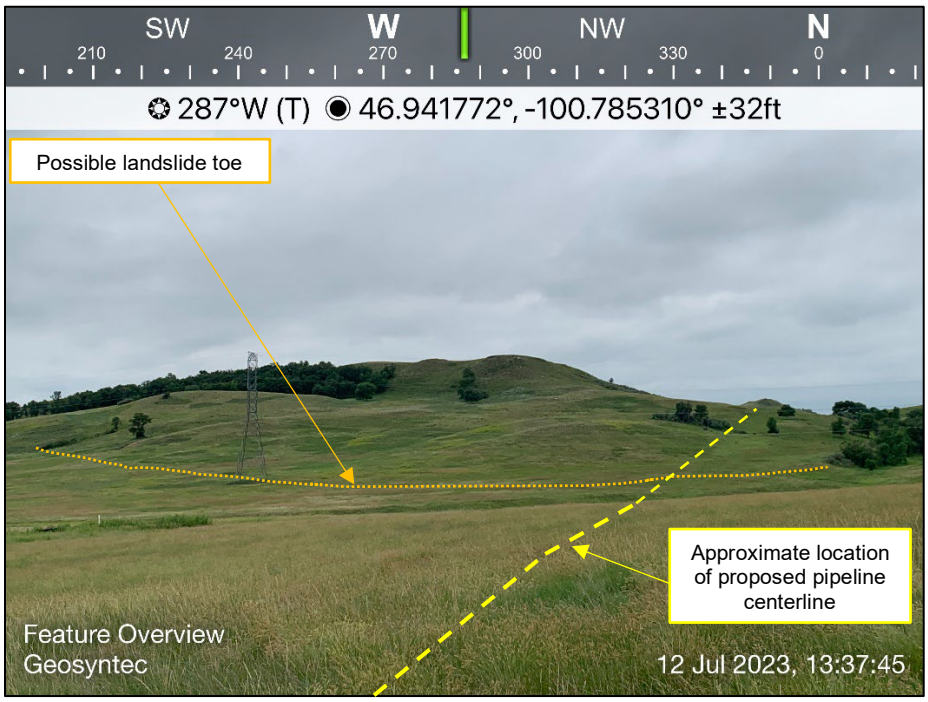
The morphology observed at Site # 10 appears consistent with a possible dormant landslide complex on an east- and northeast-facing slope. The landslide boundary mapped by the NDGS was approximately 1300 feet long and 2100 feet wide. The direction of landslide movement was east and northeast, and both axial and oblique relative to the proposed pipeline centerline. The proposed pipeline centerline crosses the mapped landslide boundary near the mapped left lateral flank and toe. Due to the large scale of the possible landslide the only feature observed in the vicinity of the proposed pipeline centerline was a possible rounded and subdued toe up to 30 feet high adjacent to the proposed pipeline centerline. The rounded and subdued condition of the morphology observed suggests this portion of the possible landslide complex is likely dormant and has not moved in hundreds, if not thousands, of years. No discernible evidence of recent landslide morphology was observed in the vicinity of the proposed pipeline centerline. The terrain crossed by the proposed pipeline centerline generally comprises a gradual and smooth slope. At the time of the visit, the vegetation in the vicinity of the proposed pipeline centerline consisted of mixed grasses up to 3 feet high. Areas of exposed sandstone bedrock were observed upslope of the proposed pipeline centerline along a ridgeline that trends southwest to northeast. The possible landslide morphology northwest of this ridge and crossed by the proposed pipeline centerline appeared more subdued and questionable than the area immediately downslope and east of the ridge, which exhibited stronger evidence of correlative landslide features. The inferred depth of the landslide could not be estimated due to the scale and condition of the observed landslide features. The evaluation was conducted by Geosyntec on 7/12/2023.

MAPS

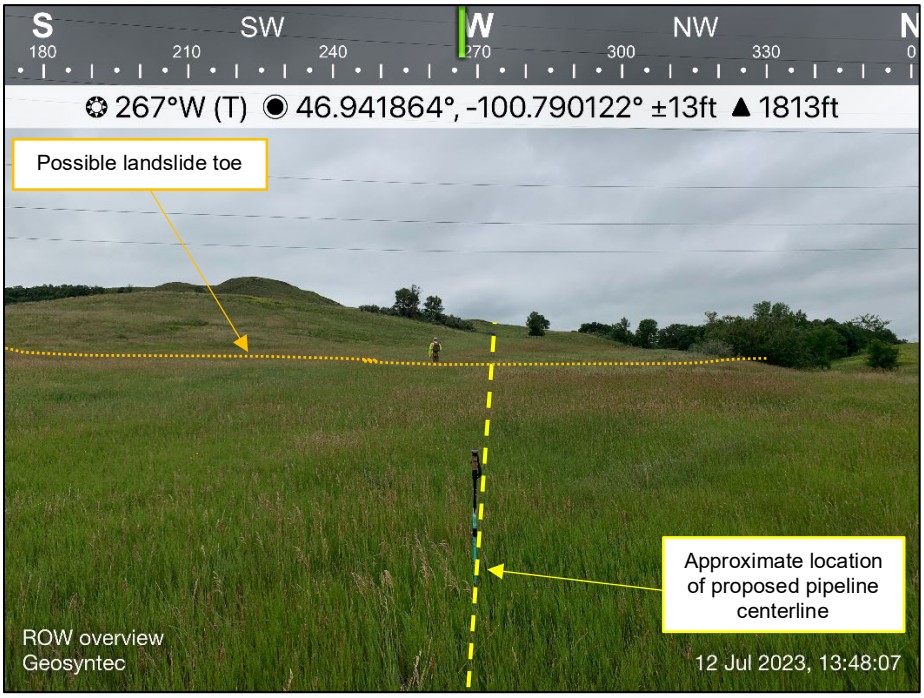


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2023a).
- Inferred direction of ground movement depicted by orange arrows.

PHOTOGRAPHS



Overview of the possible landslide complex looking west. The possible features of the landslide were large in scale but rounded and subdued. The proposed pipeline centerline is approximated by the dashed yellow line.



View facing west along the proposed pipeline centerline with the mapped landslide toe visible in the background. The proposed pipeline centerline is approximated by the dashed yellow line.

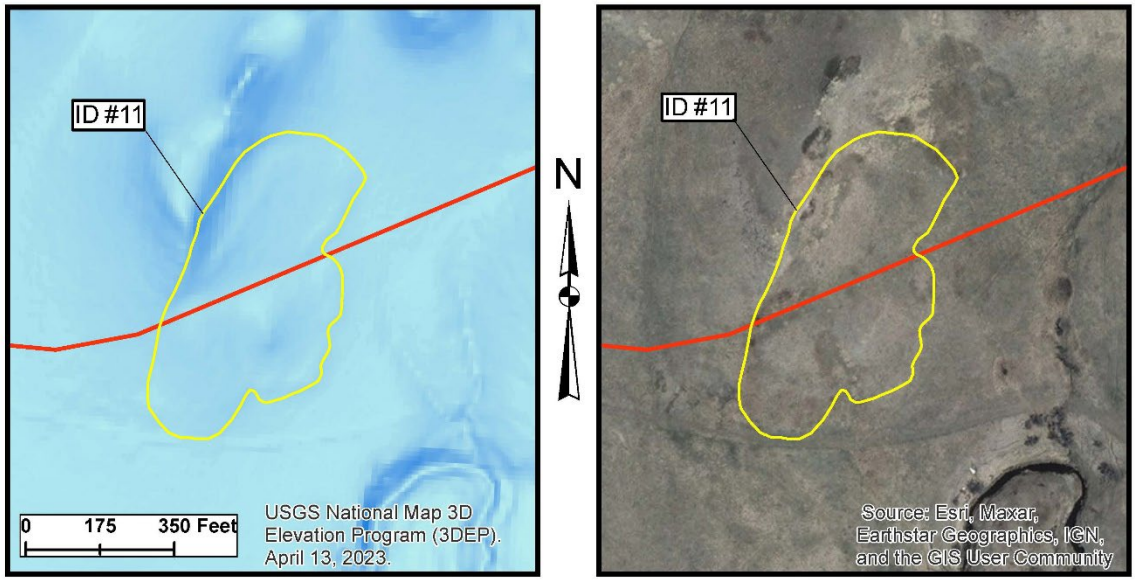
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	Site #11	**Feature Type**	Not a Landslide
Source	NDGS	**Activity Level**	N/A
Pipeline Name	NDM-106	**Confidence**	N/A
Latitude, Longitude	46.942233°, -100.783880°	**Distance from Proposed Centerline**	N/A
County	Burleigh	**Estimated Landslide Depth**	N/A
Field Evaluation Date	July 12, 2023	**Classification**	N/A

EVALUATION SUMMARY

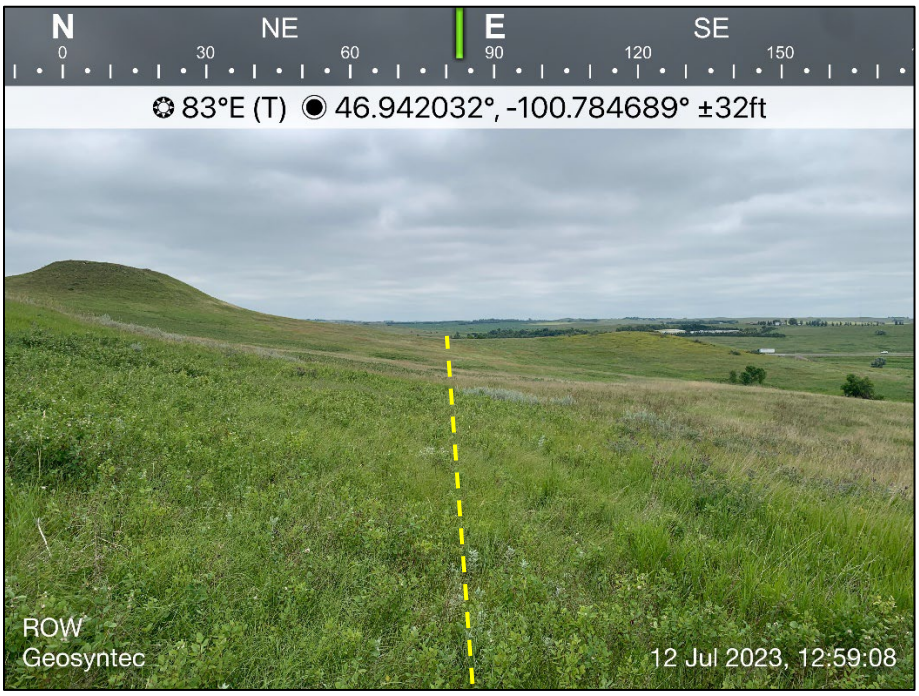
Based on the Phase II evaluation, the landform observed at Site #11 did appear to be consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform at Site #11 comprised a generally uniform and smooth side-slope with some localized erosion near a ridgetop along the headscarp boundary mapped by the NDGS. No evidence of landslide deposits was identified along the mapped toe boundary. Based on aerial imagery, the vegetation that persists during dry seasons forms arcuate bands below the natural ridge possibly in response to seeps and/or moisture retention along the base of the ridge. It is possible that the arcuate appearance of dry-season vegetation accumulated below the natural ridgetop and variation of vegetation along the mapped toe boundary is a reason for this landform to be mapped as a landslide by the NDGS. However, no evidence of landslide disturbance could be identified. The proposed pipeline centerline crosses the mapped feature obliquely along a relatively gentle and smooth side-slope which becomes progressively steeper nearest to the ridge that is north of the centerline. At the time of the site visit the vegetation along the proposed pipeline centerline was a mix of grass and bushes up to 2 feet high. The evaluation was conducted by Geosyntec on 7/12/2023.

MAPS

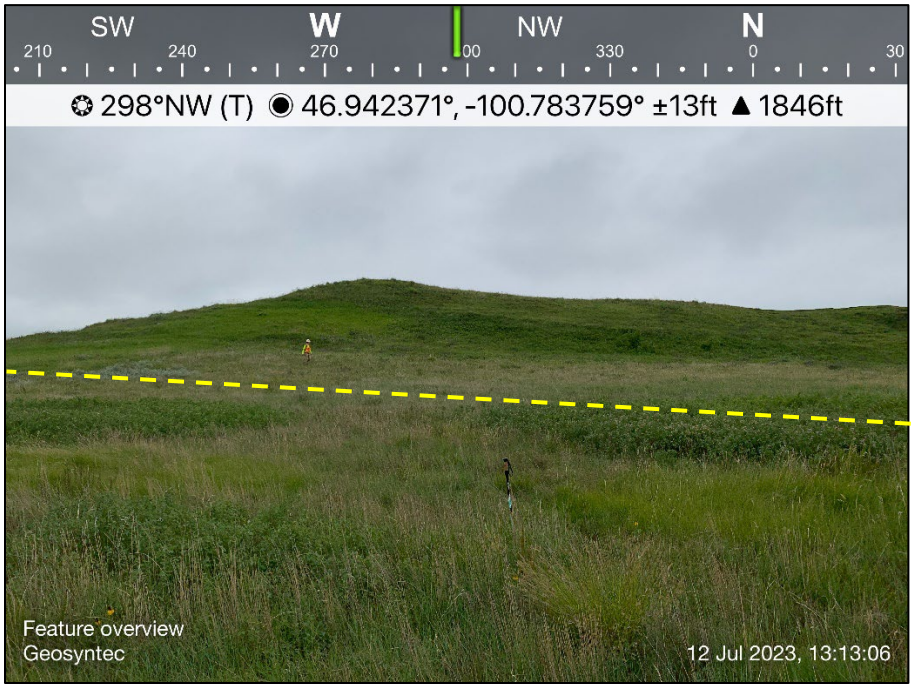


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundary shown was mapped by the NDGS (2023a).

PHOTOGRAPHS



View facing east along the proposed pipeline centerline. The area is a generally smooth and gradual side slope with no discernible landslide morphology. The proposed pipeline centerline is approximated by the dashed yellow line.



View facing northwest and upslope across the proposed pipeline centerline. No discernible landslide morphology was observed as the slope increases in steepness towards the ridgetop. The proposed pipeline centerline is approximated by the dashed yellow line.

PHASE II ASSESSMENT SUMMARY SHEET

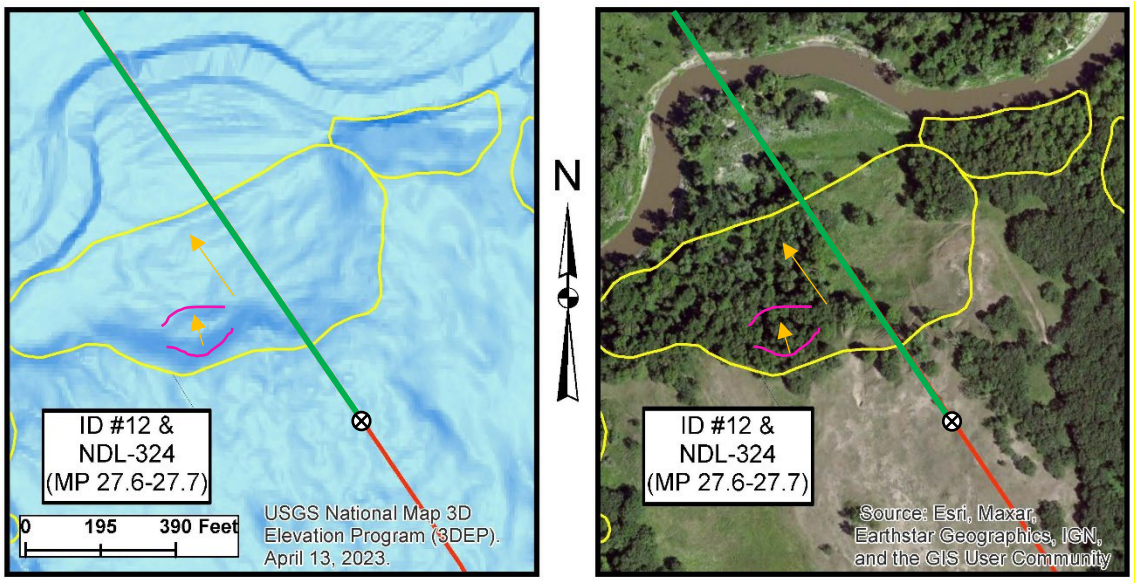
Site ID	Site #12
Source	NDGS
Pipeline Name	NDL-324
Latitude, Longitude	46.571847°, -97.092455°
County	Richland
Field Evaluation Date	July 14, 2023

Feature Type	Landslide
Activity Level	Dormant
Confidence	>90%
Distance from Proposed Centerline	0 ft
Estimated Landslide Depth	20-30 ft
Classification	Class B

EVALUATION SUMMARY

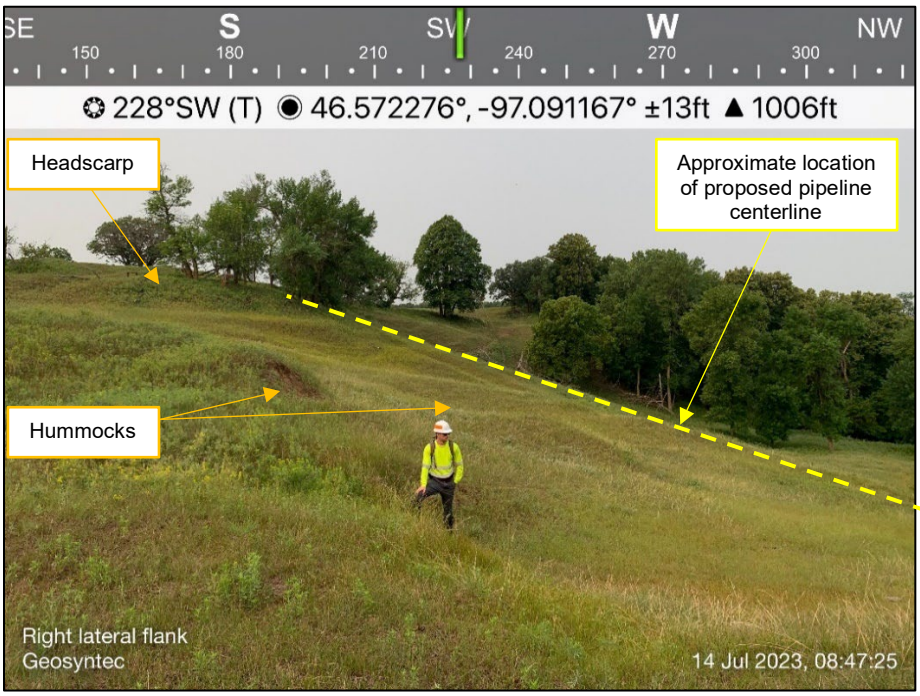
The morphology observed at Site # 12 appears consistent with a dormant landslide on a northwest-facing slope. The landslide boundary mapped by the NDGS was approximately 460 feet long and 1100 feet wide. The direction of landslide movement was northwest and axial relative to the proposed pipeline centerline. The proposed pipeline centerline crosses the center of the mapped landslide boundary. The observed landslide features were generally distinct but rounded with no discernible evidence of recent movement. The slope corresponding with the mapped headscarp was 10 to12 feet high in the vicinity of the proposed pipeline centerline. Observed hummocks downslope of the mapped headscarp were rounded and approximately 4 feet high. The mapped landslide toe was up to 6 feet high and appeared to be modified or truncated by fluvial processes related to the Sheyenne River. West of the proposed pipeline centerline, a rounded headscarp up to 15 feet high and a rounded internal toe up to 10 feet high were observed with backward leaning trees up to 24 inches in diameter situated on the internal landslide body. The vegetation along the proposed pipeline centerline mostly consisted of grass up to 2 feet high with occasional deciduous trees. The inferred landslide depth was estimated to be 20 to 30 feet deep in the vicinity of the proposed pipeline centerline based on the size and condition of observed landslide features. A proposed HDD crossing for the Sheyenne River is planned for this location. Based on Geosyntec's review of the proposed HDD site plan and profile, including the proposed entry and exit points, the landslide morphology observed at this location would be avoided by the proposed pipeline as a result of HDD construction beneath the landslide. The evaluation was conducted by Geosyntec on 7/14/2023.

MAPS

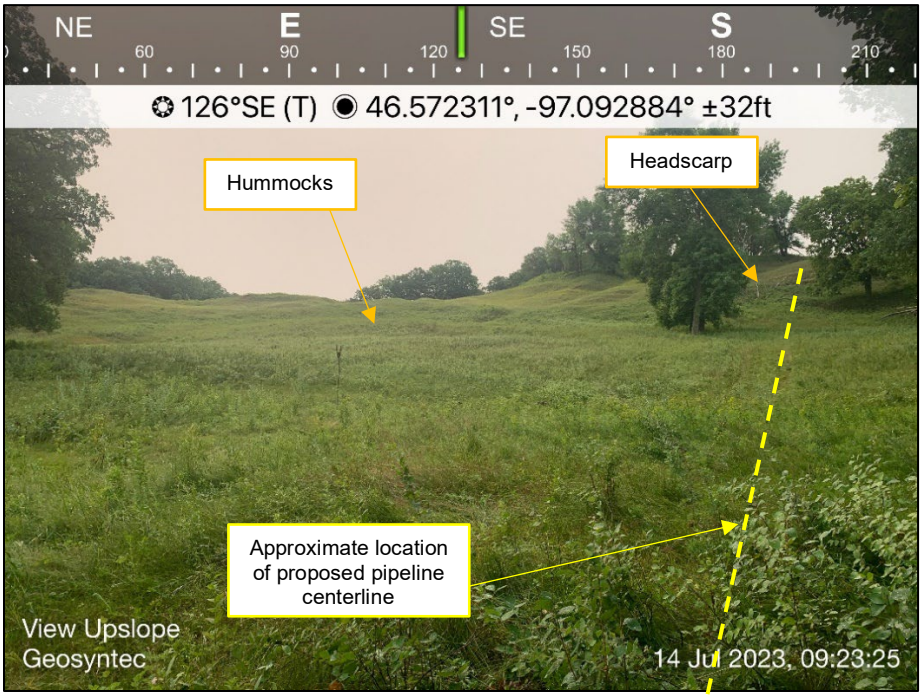


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2022a).
- Inferred direction of ground movement depicted by orange arrows.
- Approximate location of observed internal scarp and internal toe depicted by purple lines.
- Proposed HDD segment depicted by green centerline; proposed HDD entry tie-in location depicted by black circular "X" icons.

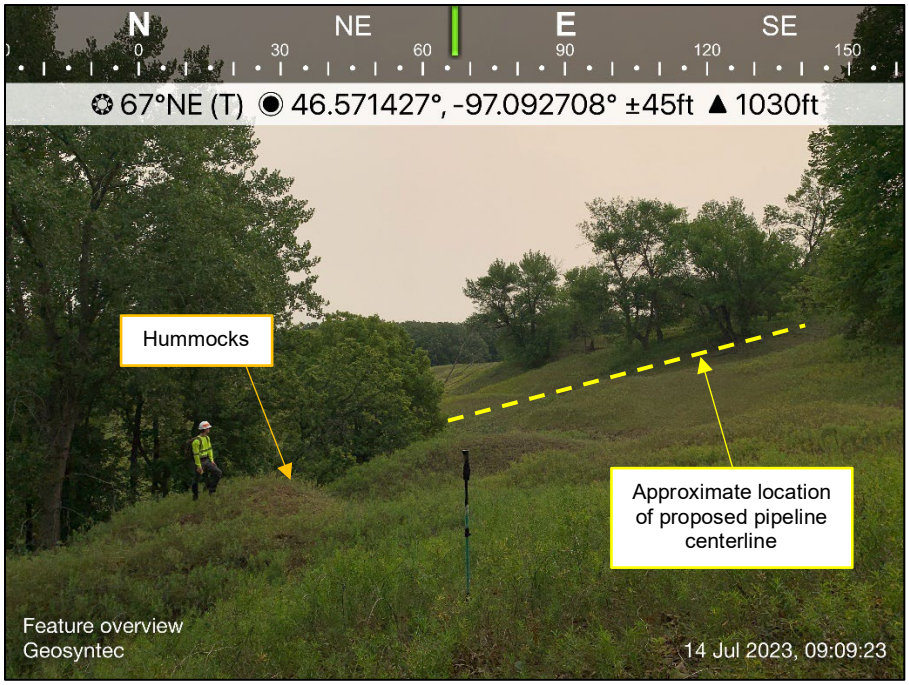
PHOTOGRAPHS



View facing southwest overlooking the landslide with the 4- to 10-foot-high headscarp slope and 4-foot-high hummocks visible in the background. The proposed pipeline centerline is approximated by the dashed yellow line.



View facing southeast looking upslope along the proposed pipeline centerline with the 4- to 10-foot-high headscarp slope and 4-foot-high hummocks visible in the background. The proposed pipeline centerline is approximated by the dashed yellow line.



View facing northeast across the slope towards the proposed pipeline centerline. Hummocks visible in the foreground have been modified and exaggerated by cattle traffic and erosion. The proposed pipeline centerline is approximated by the dashed yellow line.

View facing southwest at an internal landslide toe that was approximately 10 feet high and located approximately 150 feet west of the proposed pipeline centerline.

PHASE II ASSESSMENT SUMMARY SHEET

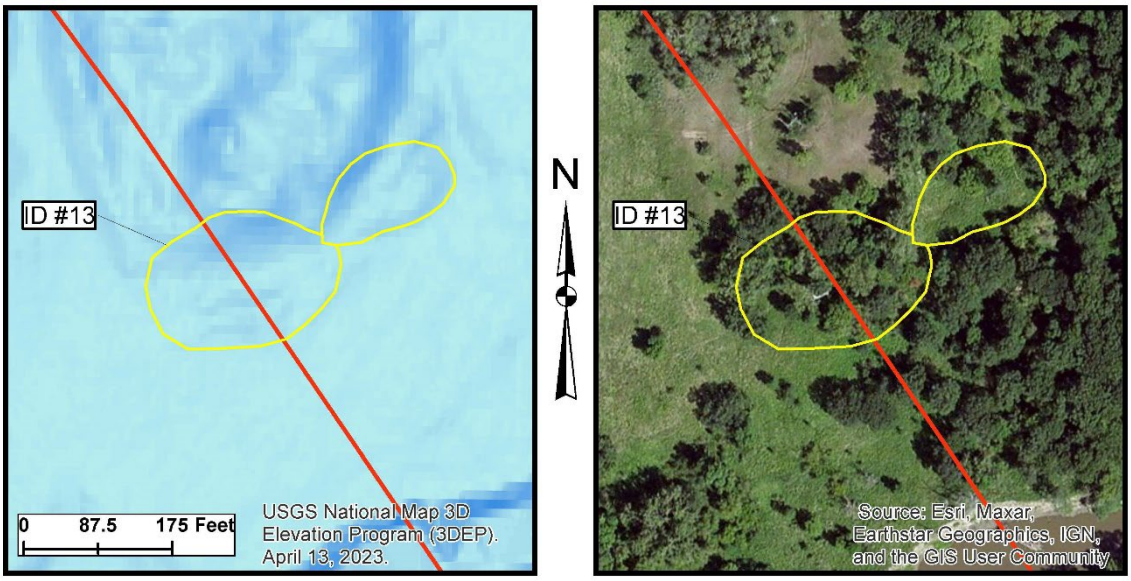
Site ID	Site #13
Source	NDGS
Pipeline Name	NDL-324
Latitude, Longitude	46.574364°, -97.094886°
County	Richland
Field Evaluation Date	July 14, 2023

Feature Type	Not a Landslide
Activity Level	N/A
Confidence	N/A
Distance from Proposed Centerline	N/A
Estimated Landslide Depth	N/A
Classification	N/A

EVALUATION SUMMARY

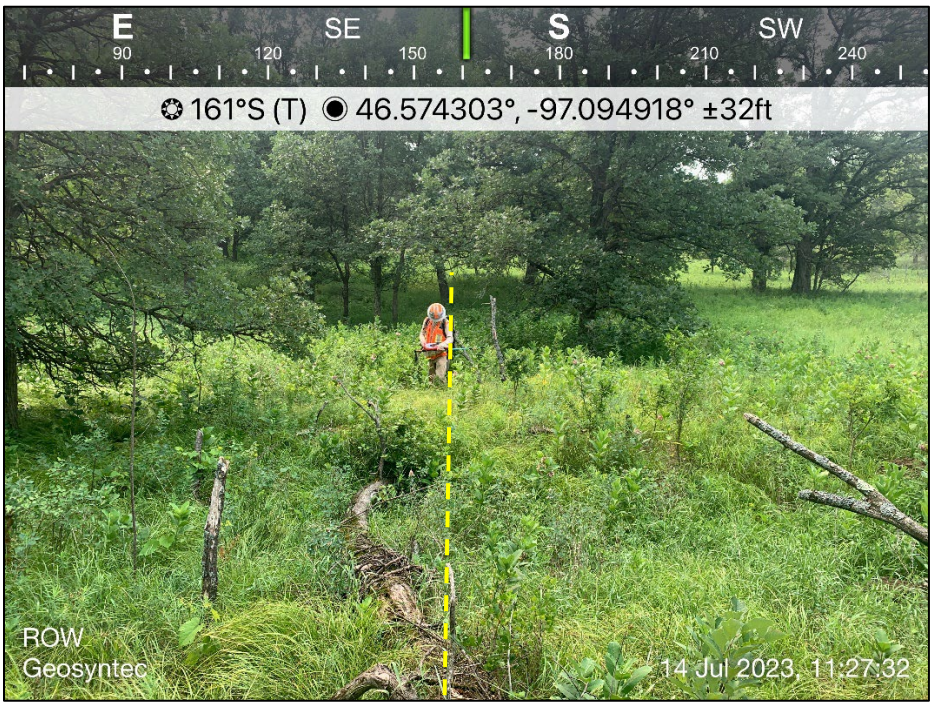
Based on the Phase II evaluation, the landform observed at Site #13 did not appear to be consistent with landslide morphology. No discernible landslide features were identified at the time of evaluation. The landform at Site #13 appeared as a generally smooth and gradual slope with some bare soil exposed by erosion along a natural slope break that corresponds with the headscarp boundary mapped by the NDGS. A mound of material observed at the mapped toe boundary appeared to be unrelated to landslide activity. It is possible that the combination of the natural slope break and mound may be reasons for this landform to be mapped as a landslide by the NDGS. However, these features do not appear to be landslide related and may be related to differential weathering relative to surrounding areas. At the time of the visit, the vegetation along the proposed pipeline centerline was a mix of forest with mature trees and open areas containing grass up to 2 feet high. The evaluation was conducted by Geosyntec on 7/14/2023.

MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2022a).

PHOTOGRAPHS



View facing south along the proposed pipeline centerline. The site consisted of a gradual and smooth slope with no evidence of landslide disturbance. The proposed pipeline centerline is approximated by the dashed yellow line.

View facing east at the mapped toe which corresponded with a mound of material that did not appear consistent with a landslide toe and may be related to differential weathering of the underlying geologic material.

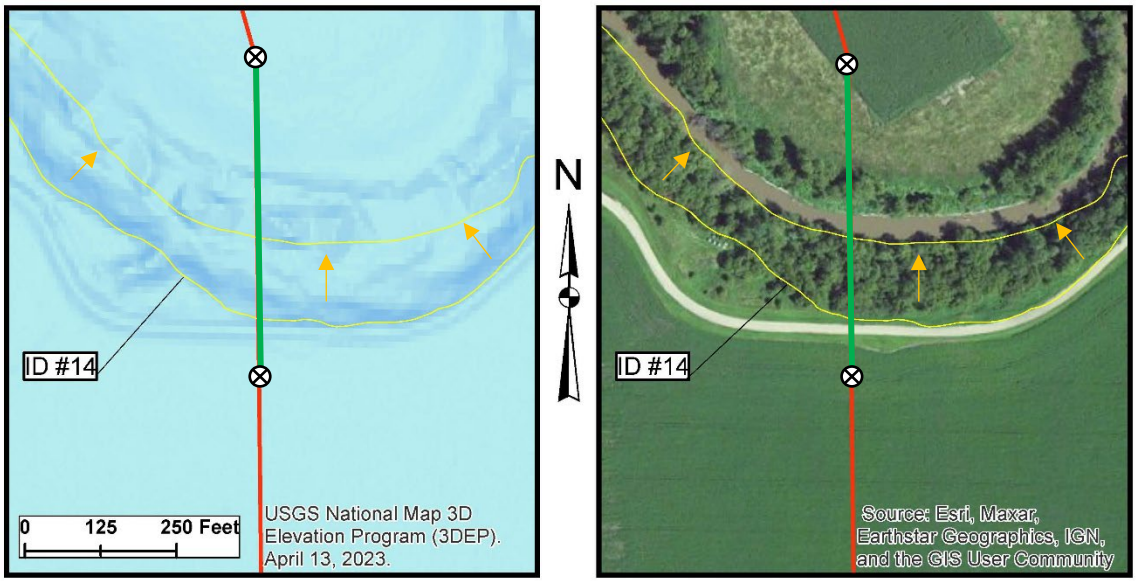
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	Site #14		**Feature Type**	Landslide
Source	NDGS		**Activity Level**	Inactive
Pipeline Name	NDL-324		**Confidence**	>50%
Latitude, Longitude	46.745093°, -97.206570°		**Distance from Proposed Centerline**	0
County	Cass		**Estimated Landslide Depth**	<4 feet
Field Evaluation Date	July 13, 2023		**Classification**	Class B

EVALUATION SUMMARY

The morphology observed at Site #14 appears consistent with a series of inactive, localized bank slumps located along an outer meander bend of the Maple River. The curved landslide boundary mapped by the NDGS was approximately 130 feet long by 1,350 feet wide, and encompasses multiple localized banks slumps. The proposed pipeline centerline crosses the mapped landslide boundary near the apex of the meander bend. The direction of landslide movement was north and axial relative to the proposed pipeline centerline. A possible headscarp of a localized bank slump crossed by the proposed pipeline centerline measured approximately 3 feet high and may have been exaggerated by a berm along a dirt road to the south. The lateral flanks corresponding with the possible headscarp were indistinct, but a questionable toe feature downslope of the possible headscarp measured approximately 2 feet high. The landslide morphology observed appeared to be rounded and subdued. The inferred depth of the landslide was estimated to be less than 4 feet deep based on the observed size and condition of landslide features and the topography of the riverbank. At the time of the site visit, the landslide was vegetated with mixed grass up to 4 feet tall and deciduous trees and shrubs. The slope gradient along the proposed pipeline centerline was generally moderate near the headscarp region and low in the vicinity of the toe region. The dirt road upslope of the headscarp appeared undisturbed at the time of the assessment. A flood plain associated with the Maple River was observed downslope of the toe. A proposed HDD crossing for the Maple River is planned for this location. Based on Geosyntec's review of the proposed HDD site plan and profile, including the proposed entry and exit points, the landslide observed at this location would be avoided by the proposed pipeline as a result of HDD construction beneath the landslide. The evaluation was conducted by Geosyntec on 7/13/2023.

MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2022c).
- Inferred direction of ground movement depicted by orange arrows.
- Proposed HDD segment depicted by green centerline; proposed HDD entry and exit tie-in locations depicted by black circular “X” icons.

PHOTOGRAPHS

Looking east along the slope in the vicinity Site #14. The approximate proposed pipeline centerline is located near the center of the image (dashed yellow line). The proposed pipeline centerline crosses a possible recently active bank slump in the left portion of the image. Note the road was undisturbed.

Looking southwest at a possible 3-foot high headscarp crossed by the proposed pipeline centerline. The approximate location of the proposed pipeline centerline is represented by the dashed yellow line.

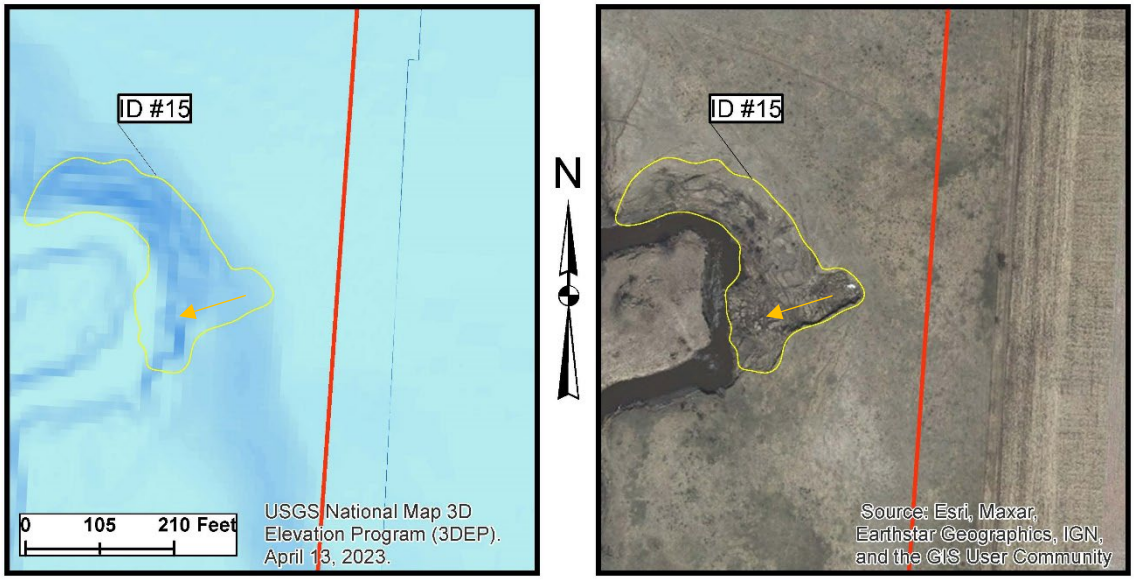
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	Site #15	**Feature Type**	Landslide
Source	NDGS	**Activity Level**	Inactive
Pipeline Name	NDM-106	**Confidence**	>90%
Latitude, Longitude	46.854676°, -100.583705°	**Distance from Proposed Centerline**	98 feet
County	Menoken	**Estimated Landslide Depth**	6-10 feet
Field Evaluation Date	July 13, 2023	**Classification**	Class B

EVALUATION SUMMARY

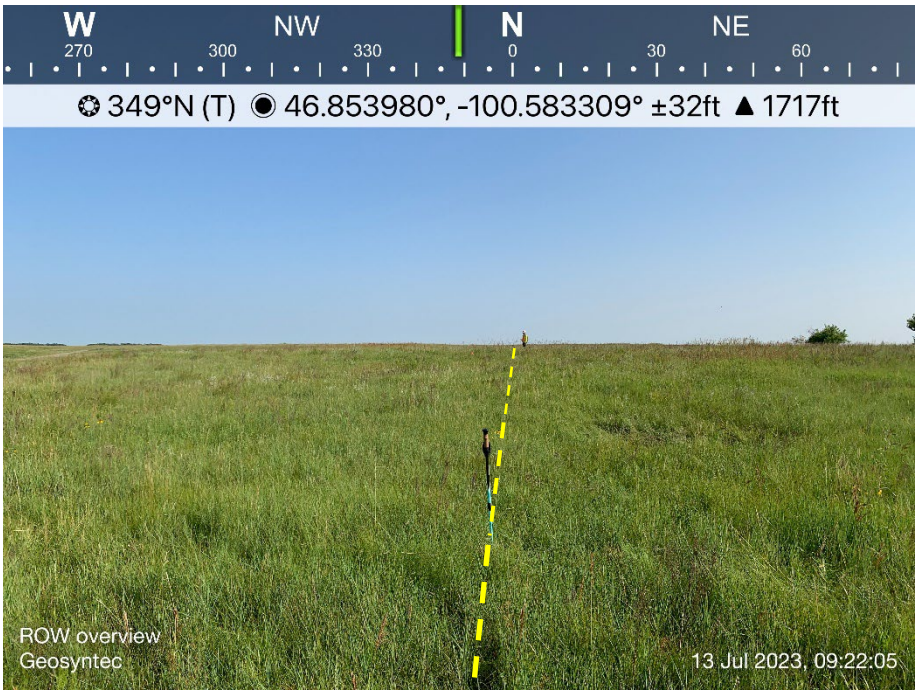
Site # 15 appears to be an inactive landslide located on a west-facing slope at the outer meander bend of a stream. The curved landslide boundary mapped by the NDGS measured approximately 200 feet long by 430 feet wide. The landslide was located approximately 98 feet west of the proposed pipeline centerline at its nearest approach. The direction of landslide movement was west-southwest and oblique relative to the proposed pipeline centerline. The landslide headscarp was approximately 5 to 6 feet high and the right and left lateral flanks were 4 to 5 feet high. The landslide toe was not visited due to the distance from the proposed pipeline centerline, but appeared to encroach into the stream bed. The landslide morphology appeared to be distinct and sharp along the southern portion of the mapped feature and rounded and subdued along the northern portion of the mapped feature, suggesting the southern features are relatively younger than the northern features. Based on aerial imagery and the observed morphology, the landslide appears to be 10-15 years old. The inferred landslide depth was estimated to be 6 to 10 feet deep based on the observed size and condition of the landslide features and topography of the streambank. At the time of the site visit, the landslide and the area in the vicinity of the proposed pipeline was uniformly vegetated with mixed grasses up to 2 feet high. The slope gradient along the proposed pipeline centerline was generally low to flat. Based on the topography observed, the landslide appears unlikely to retrogress across the path of the proposed pipeline centerline. The evaluation was conducted by Geosyntec on 7/13/2023.

MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2021).
- Inferred direction of ground movement depicted by orange arrows.

PHOTOGRAPHS



Looking north along the proposed pipeline centerline. The approximate proposed pipeline location is represented by the dashed yellow line.

Looking southeast towards Site #15 mapped by the NDGS where recently active landslide morphology was observed approximately 98 ft from the proposed pipeline centerline. The approximate proposed pipeline is located at the far left of the image (dashed yellow line).

PHASE II ASSESSMENT SUMMARY SHEET

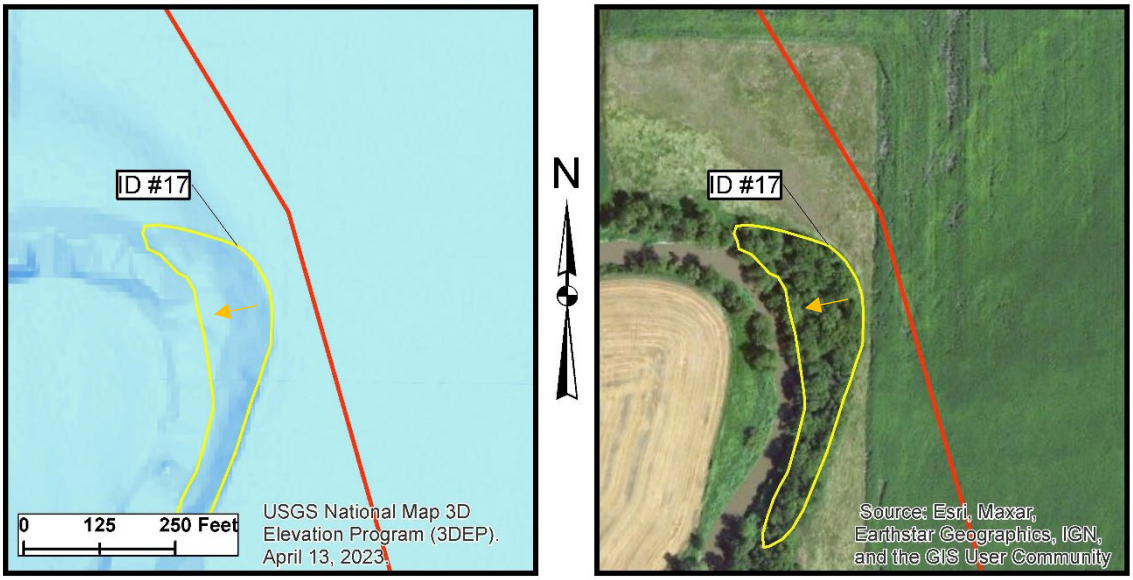
Site ID	Site #17
Source	NDGS
Pipeline Name	NDL-324
Latitude, Longitude	46.574364°, -97.094886°
County	Cass
Field Evaluation Date	July 14, 2023

Feature Type	Landslide
Activity Level	Inactive
Confidence	<50%
Distance from Proposed Centerline	70 feet
Estimated Landslide Depth	<4 feet
Classification	Class B

EVALUATION SUMMARY

The morphology at Site #17 appears consistent with multiple, inactive bank slumps located along the outer meander bend of the Maple River. The curved landslide boundary mapped by the NDGS was approximately 130 feet long by 630 feet wide. The mapped headscarp was located approximately 70 feet from the proposed pipeline centerline. The direction of landslide movement was west-southwest and perpendicular relative to the proposed pipeline centerline. The observed headscarp and toe features nearest to the proposed pipeline centerline appeared rounded and subdued and measured approximately 3 feet high. The inferred depths of the bank slumps were estimated to be less than 4 feet based on the size and condition of the observed landslide features and topography of the riverbank. A flood plain for the Maple River was observed downslope of Site #17. At the time of the site visit, the area in the vicinity of the proposed pipeline was a cultivated soybean farm field and Site #17 was vegetated mixed grasses up to 4 feet high and undisturbed deciduous trees up to 12 inches in diameter. Dense vegetation may have obscured some landslide geomorphology at the time of the site assessment. The slope gradient along the proposed pipeline centerline was generally low. Based on the topography observed, Site #17 appears unlikely to expand across the path of the proposed pipeline centerline. The evaluation was conducted by Geosyntec on 7/14/2023.

MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Landslide boundaries shown were mapped by the NDGS (2022b).
- Inferred direction of ground movement depicted by orange arrows.

PHOTOGRAPHS

Looking southwest across the slope. The approximate proposed pipeline is located in the center of the image (dashed yellow line). Site #17 was located beyond the tree line in background of photo.

Looking northeast at the possible 3-foot high headscarp of the inactive bank slump at Site #17. The approximate proposed pipeline is located beyond the crest of the slope in a cultivated farm field.

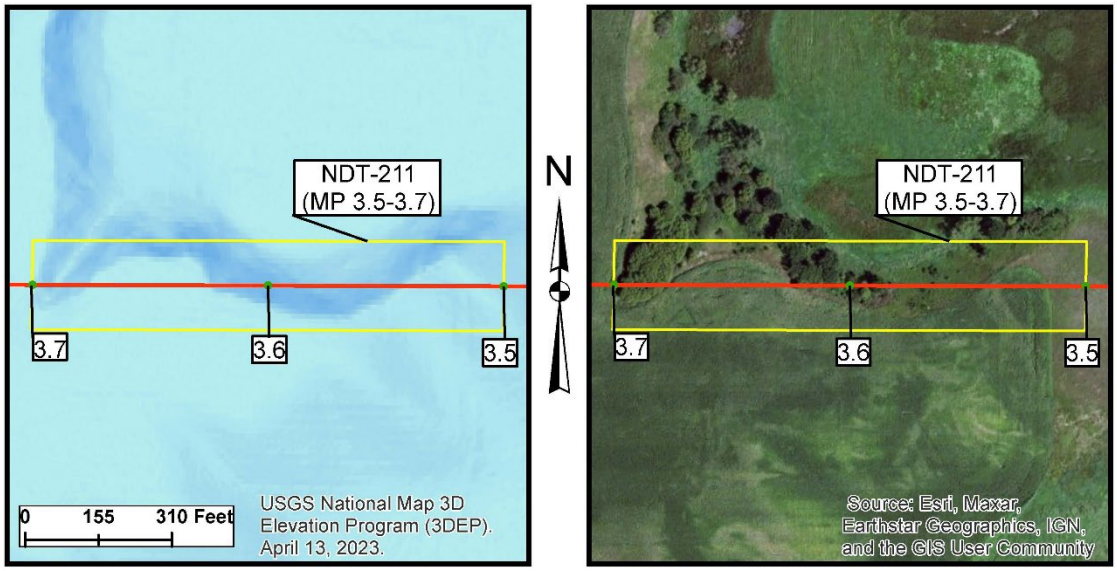
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	NDT-211 (MP 3.5-3.7)	**Feature Type**	Not a Landslide
Source	Terracon	**Activity Level**	N/A
Pipeline Name	NDT-211	**Confidence**	N/A
Latitude, Longitude	46.192310°, -97.080608°	**Distance from Proposed Centerline**	N/A
County	Richland	**Estimated Landslide Depth**	N/A
Field Evaluation Date	July 13, 2023	**Classification**	N/A

EVALUATION SUMMARY

Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDT-211 pipeline between MP 3.5 and 3.7. The features identified between MP 3.5-3.7 appeared to be flat terrain surrounding a natural slope break and rounded drainage gully, which were densely vegetated at the time of the assessment. The gradients of the sloped areas were generally low to moderate, and were generally smooth except where traversed by deer trails. At the time of the site visit, the sloped areas crossed by the proposed pipeline centerline were densely vegetated with mixed grasses up to 4 ft high and dispersed trees and shrubs. Downslope of the proposed pipeline centerline, cattails and ponded water were observed in a wetland area. The evaluation was conducted by Geosyntec on 7/13/2023.

MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Green points mark the location of the proposed mile posts used to designate the area of interest, which is represented by the yellow box that extends 100 ft around the proposed pipeline centerline.

PHOTOGRAPHS

Looking south across the slope in the vicinity NDT-211 (MP 3.5-3.7). The approximate proposed pipeline is located in the center of the image (dashed yellow line). No landslide morphology was observed in the vicinity of the proposed pipeline.

Looking south across the slope in the vicinity NDT-211 (MP 3.5-3.7). The approximate proposed pipeline is located in the center of the image (dashed yellow line). No landslide morphology was observed in the vicinity of the proposed pipeline.

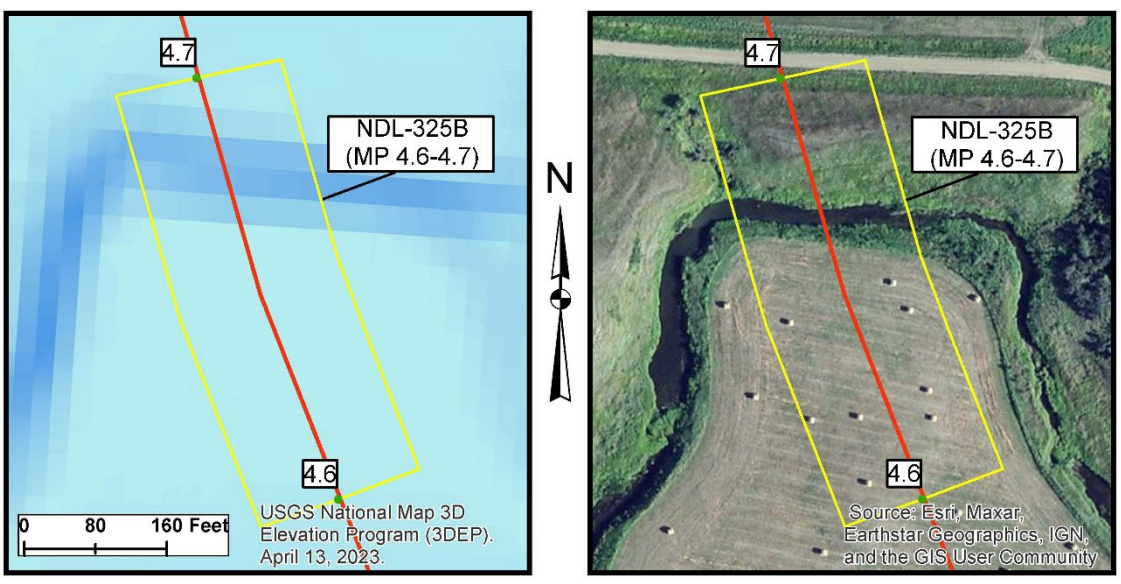
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	NDL-325B (MP 4.6-4.7)	**Feature Type**	Not a Landslide
Source	Terracon	**Activity Level**	N/A
Pipeline Name	NDL-325B	**Confidence**	N/A
Latitude, Longitude	47.096996°, -101.801359°	**Distance from Proposed Centerline**	N/A
County	Mercer	**Estimated Landslide Depth**	N/A
Field Evaluation Date	July 11, 2023	**Classification**	N/A

EVALUATION SUMMARY

Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDL-325B pipeline centerline between MP 4.6 and 4.7. The features observed between MP 4.6 and 4.7 included a steep slope adjacent to a small stream, an area of exposed soil likely related to minor erosion that was located to the west of the proposed pipeline alignment, and a drainage gully located to the west of the proposed pipeline. At the time of the site visit, the area crossed by the proposed pipeline centerline was uniformly vegetated with mixed grasses up to 2 ft high. The slope gradient along the proposed pipeline centerline was generally moderate to the north and low to the south. It is possible that the observed erosion features may have been misidentified as possible indicators of landslide activity as they resemble scarps or tension cracks when viewed in aerial imagery. The evaluation was conducted by Geosyntec on 7/11/2023.

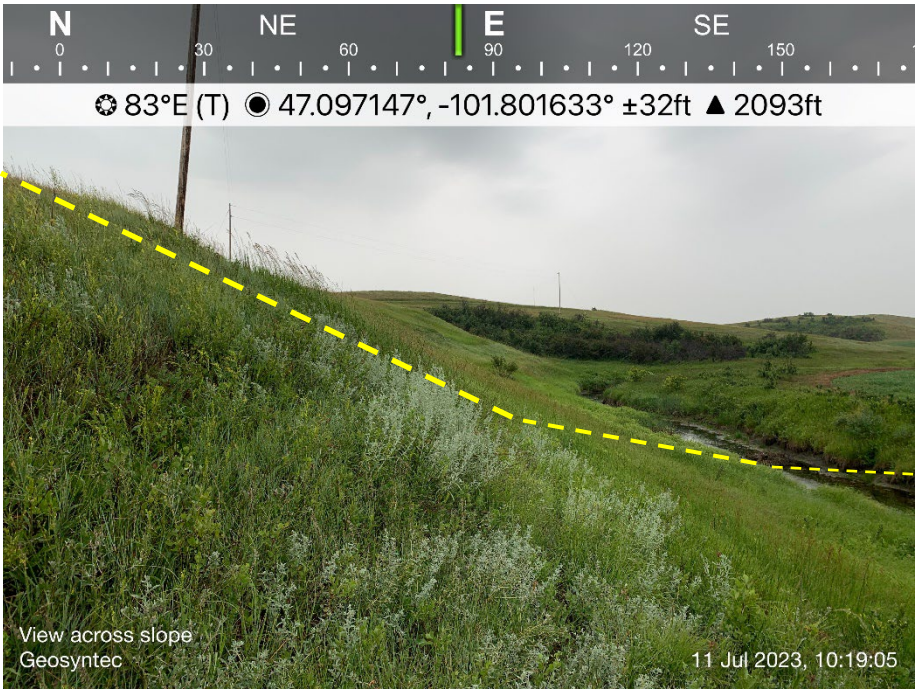
MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Green points mark the location of the proposed mile posts used to designate the area of interest, which is represented by the yellow box that extends 100 ft around the proposed pipeline centerline.

PHOTOGRAPHS

Looking southwest across the slope in the vicinity NDL-325B (MP 4.6-4.7). The approximate proposed pipeline is located in the center of the image (dashed yellow line). No landslide morphology was observed in the vicinity of the proposed pipeline.



Looking east across the slope in the vicinity NDL-325B (MP 4.6-4.7). The approximate proposed pipeline is located in the center of the image (dashed yellow line). No landslide morphology was observed in the vicinity of the proposed pipeline.

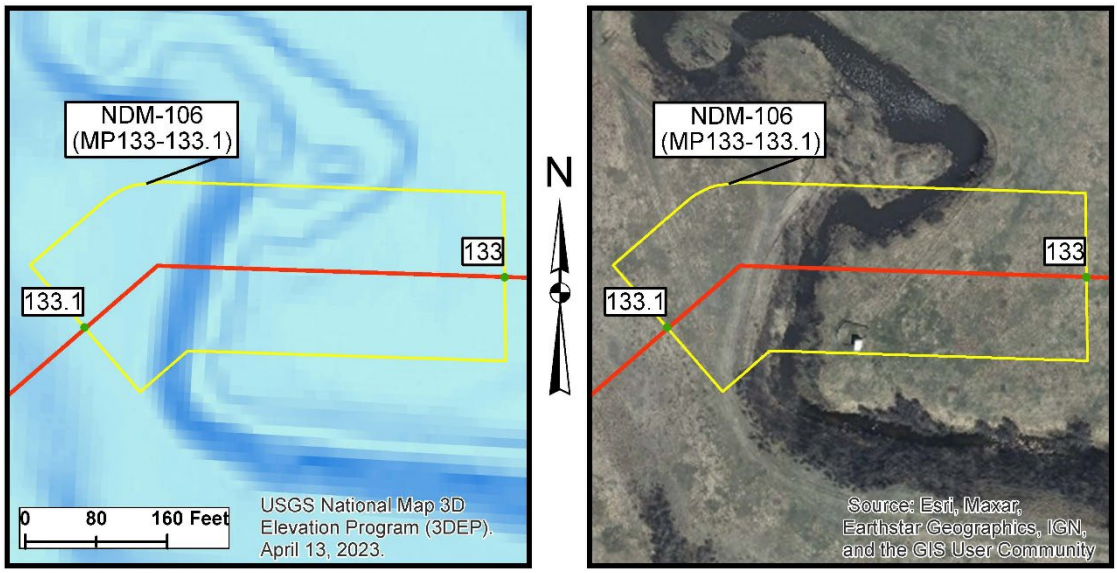
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	NDM-106 (MP133-133.1)	**Feature Type**	Not a Landslide
Source	Terracon	**Activity Level**	N/A
Pipeline Name	NDM-106	**Confidence**	N/A
Latitude, Longitude	46.945551°, -100.773971°	**Distance from Proposed Centerline**	N/A
County	Burleigh	**Estimated Landslide Depth**	N/A
Field Evaluation Date	July 12, 2023	**Classification**	N/A

EVALUATION SUMMARY

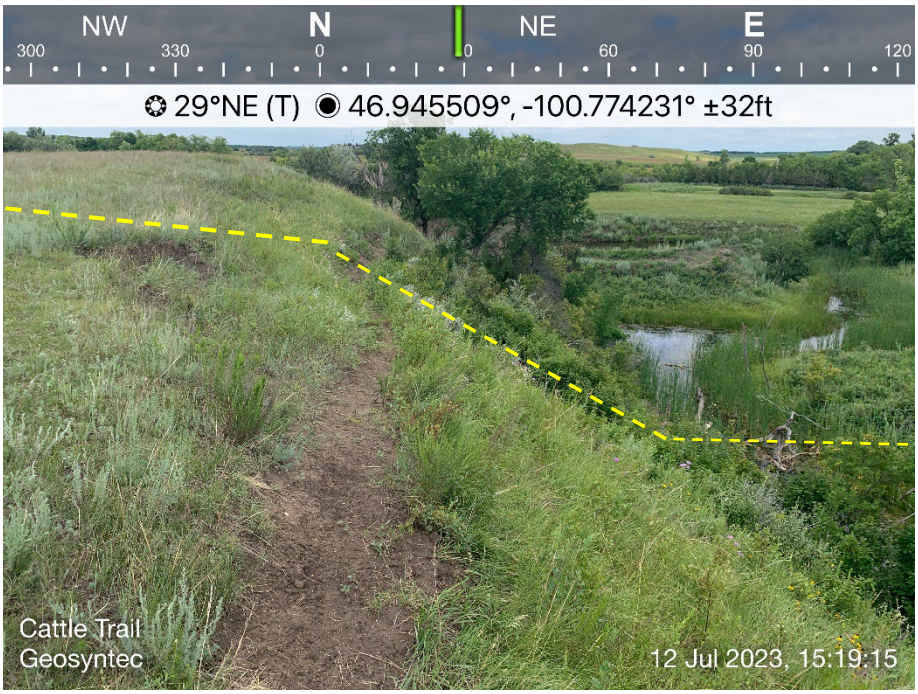
Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDM-106 pipeline between MP 133 and 133.1. The features observed between MP 133 and 133.1 included flat terrain surrounding a steep embankment along a meander bend of a shallow oxbow lake. At the time of the site visit, the area crossed by the proposed pipeline centerline was uniformly vegetated with mixed grasses and shrubs up to 4 ft high, and trees dispersed along the edge of the oxbow lake. The slope gradient along the proposed pipeline centerline was generally steep along the western embankment of the oxbow lake, and low to flat on the eastern side of the oxbow lake. Cattle tracks were observed throughout the section of the steep slope and along the flat fields to the west and east of the oxbow lake. It is possible that the cattle tracks may have been misidentified as possible indicators of landslide activity as they resemble scarps or tension cracks when viewed in aerial imagery. The evaluation was conducted by Geosyntec on 7/12/2023.

MAPS

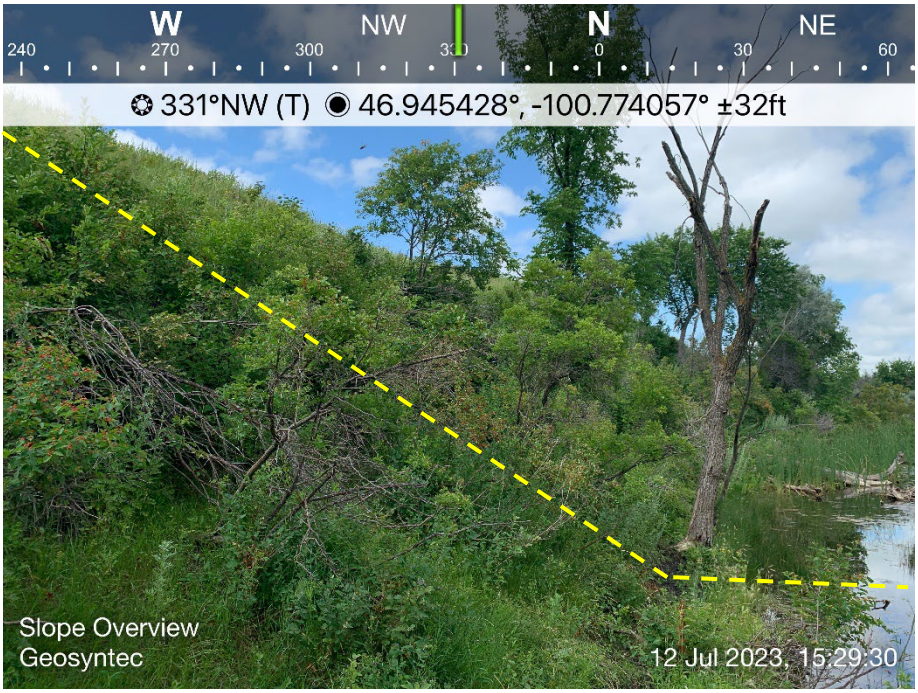


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Green points mark the location of the proposed mile posts used to designate the area of interest, which is represented by the yellow box that extends 100 ft around the proposed pipeline centerline.

PHOTOGRAPHS



View across slope looking towards the north. The approximate proposed pipeline crosses the center of the image (dashed yellow line). A cattle trail is shown in the center of the photo.



View across slope looking towards the north-northwest. The approximate proposed pipeline crosses the center of the image (dashed yellow line). The observed oxbow lake is located along the right side of the image.

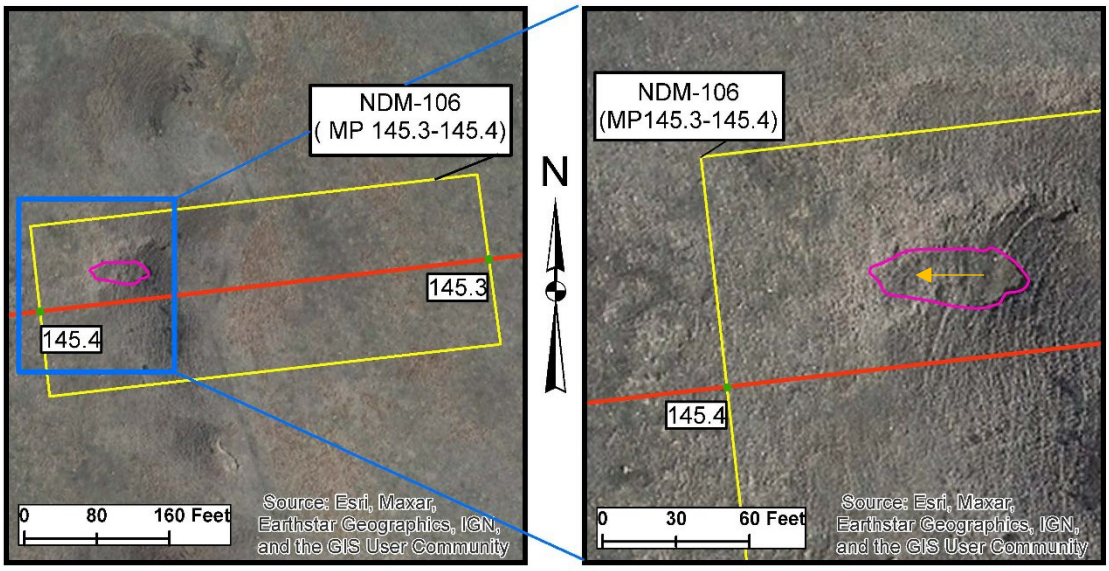
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	NDM-106 (MP 145.3-145.4)	**Feature Type**	Landslide
Source	Terracon	**Activity Level**	Inactive
Pipeline Name	NDM-106	**Confidence**	>90%
Latitude, Longitude	46.963154°, -101.015780°	**Distance from Proposed Centerline**	20 feet
County	Morton	**Estimated Landslide Depth**	<2 feet
Field Evaluation Date	July 11, 2023	**Classification**	Class A

EVALUATION SUMMARY

Based on the Phase II evaluation along the proposed NDM-106 pipeline between MP 145.3 and 145.4, a shallow landslide was observed on a west facing slope approximately 20 feet north of the proposed pipeline centerline. The landslide was relatively small and measured approximately 70 feet long by 25 feet wide. The direction of ground movement was west and axial relative to the orientation of the proposed pipeline centerline. The headscarp measured approximately 2 feet high, the left and right lateral flanks measured approximately 2 ft high, and the toe measured approximately 1-foot high. The landslide appeared to be inactive (>10 years old) based on the condition of the morphology observed. The landslide was estimated to be 1-2 feet deep based on the observed size of the landslide features and topography. At the time of the site visit, the landslide was uniformly vegetated with mixed grass up to 2 feet tall except where recent cattle activity had exposed bare soil within and around the landslide. The slope gradient along the proposed pipeline centerline was generally moderate and increased from west to east. The evaluation was conducted by Geosyntec on 7/11/2023.

MAPS



Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Green points mark the location of the proposed mile posts used to designate the area of interest, which is represented by the yellow box that extends 100 ft around the proposed pipeline centerline.
-Purple boundary represents a small, shallow landslide observed within the area of interest; orange arrow depicts the direction of ground movement.

PHOTOGRAPHS

Looking east-southeast along the slope in the vicinity NDM-106 (MP 145.3-145.4). The approximate proposed pipeline is located along center right of the image (dashed yellow line). Recently active shallow landslide morphology was observed approximately 20 ft from the proposed pipeline centerline.

Looking southwest at the left lateral flank of the recently active shallow landslide. The approximate proposed pipeline is located along top left of the image (dashed yellow line). Recent cattle activity had exposed bare soil within the landslide.

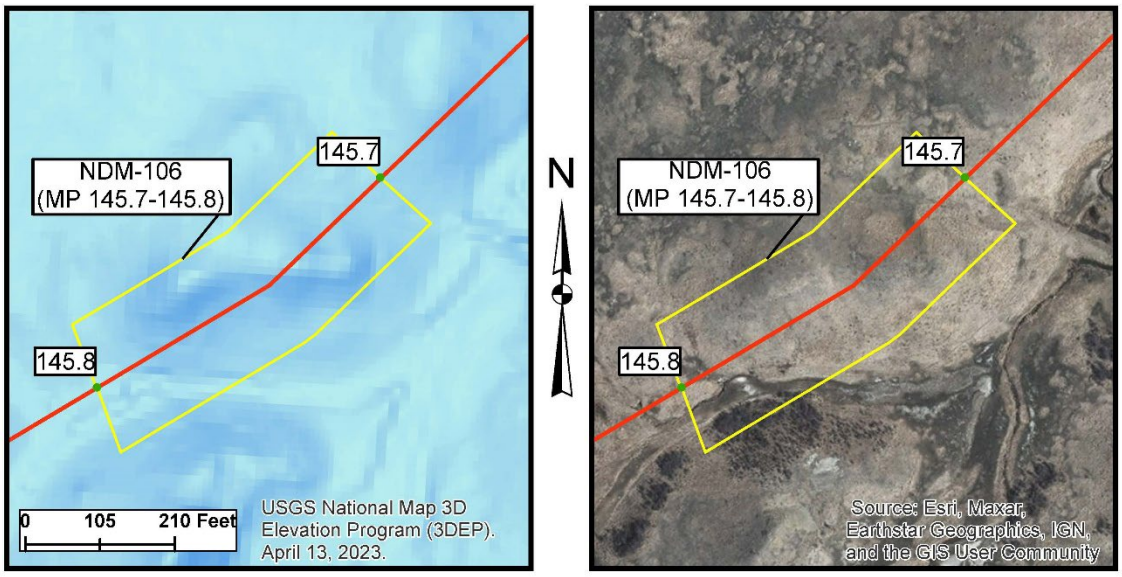
PHASE II ASSESSMENT SUMMARY SHEET

Site ID	NDM-106 (MP 145.7-145.8)	**Feature Type**	Not a Landslide
Source	Terracon	**Activity Level**	N/A
Pipeline Name	NDM-106	**Confidence**	N/A
Latitude, Longitude	46.961595°, -101.022466°	**Distance from Proposed Centerline**	N/A
County	Morton	**Estimated Landslide Depth**	N/A
Field Evaluation Date	July 11, 2023	**Classification**	N/A

EVALUATION SUMMARY

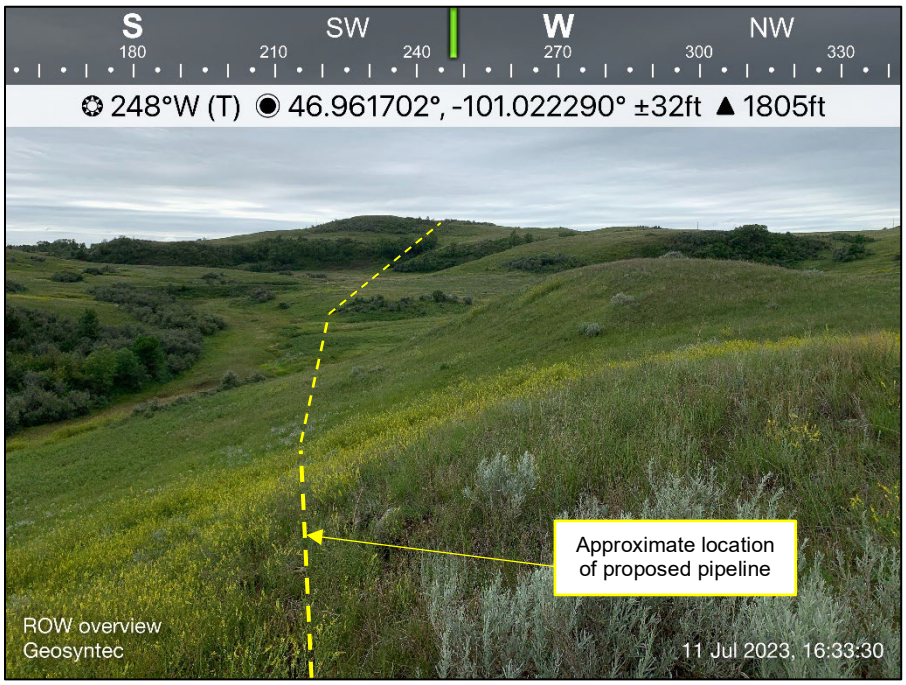
Based on the Phase II evaluation, no landslide morphology was identified along the proposed NDM-106 pipeline between MP 145.7 and 145.8. The topography between MP 145.7 and 145.8 consisted of a rounded knoll with gentle to moderately steep slope gradients that exhibited minor erosion along the upslope portions of the hilltop. At the time of the site visit, the area crossed by the proposed pipeline centerline was uniformly vegetated with mixed grasses up to 2 ft high. Overgrown cattle trails were common along the slopes in the vicinity of the proposed pipeline centerline. It is possible that the cattle trails may have been misidentified as indicators of landslide activity as they may resemble scarps or tension cracks when viewed in recent aerial imagery. The evaluation was conducted by Geosyntec on 7/11/2023.

MAPS

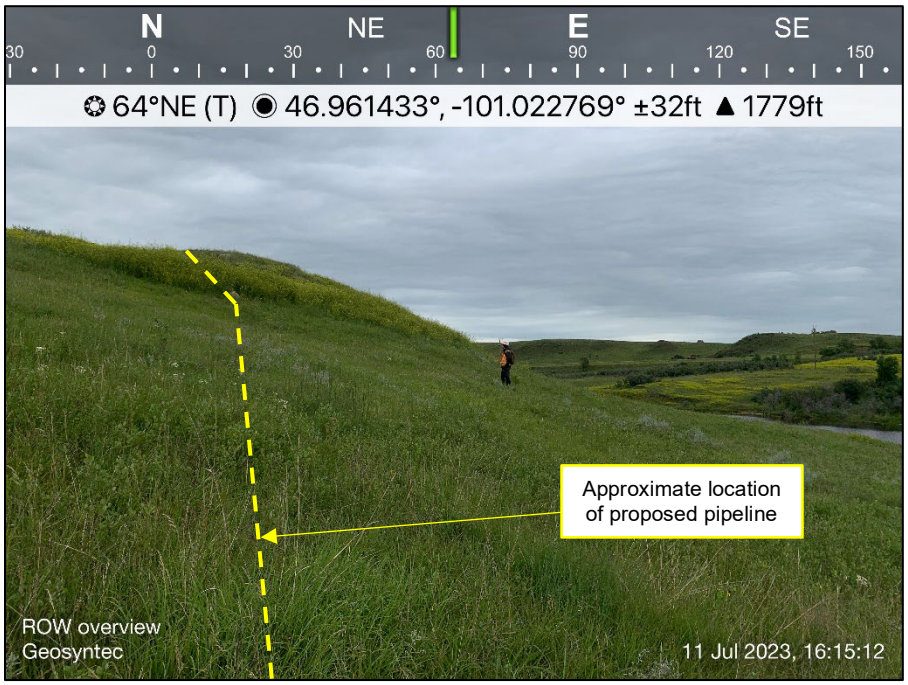


Notes:
- Proposed pipeline centerlines depicted on maps (red) were provided by Summit Carbon Solutions (Revision 6 dated 05/25/2023).
- Green points mark the location of the proposed mile posts used to designate the area of interest, which is represented by the yellow box that extends 100 ft around the proposed pipeline centerline.

PHOTOGRAPHS



Looking southwest along the slope in the vicinity NDM-106 (MP 145.7-145.8). The approximate proposed pipeline is located along center left of the image (dashed yellow line). No landslide morphology was observed in the vicinity of the proposed pipeline.



Looking northeast in the vicinity NDM-106 (MP 145.7-145.8) and along the proposed pipeline alignment, which climbs the ridgeline and appeared to be in good condition at the time of visit. The approximate proposed pipeline is located along center left of the image (dashed yellow line). No landslide morphology was observed in the vicinity of the proposed pipeline.