

**ALBERTA TRANSPORTATION AND
ECONOMIC CORRIDORS GRMP
NORTH CENTRAL (ATHABASCA AND FORT
McMURRAY DISTRICTS)
2025 SITE INSPECTION**



Site Number	Location	Name	Hwy	km
NC087	Hwy 63, 20.75 km north of Hwy 55	Fischer Trail Slide	63:02	20.75
Legal Description		UTM Co-ordinates (NAD 83)		
SE-22-69-17-W4M		12U N 6094105	E 404167	

	Date	PF	CF	Total
Previous Inspection:	May 17, 2023	14	4	56 (Highway 63)
Current Inspection	May 14, 2025	15	4	60 (Highway 63)
Road WAADT:	4270		Year:	2024
Inspected By:	José Pineda, Bruce Nestor (Thurber) Arthur Kavulok, Rishi Adhikari (TEC)			
Report Attachments:	☒ Photographs ☒ Plans ☐ Maintenance Items			

Primary Site Issue	Upper landslide block: Active slide movement causing severe distress for about 140 m along the Fischer trail surface and affecting Hwy 63 southbound lanes west side slope. Lower landslide block: Active slide movement causing severe distress for about 85 m along Fischer trail surface.
Dimensions:	Upper landslide block: About 140 m wide along the trail alignment and 120 m long perpendicular to the trail alignment. Lower landslide block: About 90 m wide along the trail alignment and 95 m long perpendicular to the trail alignment.
Site History / Available Information:	Fischer trail is a gravel surfaced road located on the west side of the HWY 63:02 southbound lane embankment. Based on discussions with TEC and WSP, it is understood that Fischer Trail is a private road that was upgraded in 2014 during the construction of the highway twinning project at this location as part of land negotiations. Prior to construction, the subject area was low-lying and covered with shrubs and trees. During construction, about 1 m to 1.5 m of peat was removed from below the trail alignment to expose the firm clay foundation. As per the information provided by WSP, it is understood that up to 3 m of clay fill was placed on the exposed native clay to establish the design profile of the trail. However, shortly after the fill was placed, tension cracks were noticed along the trail surface and near the toe of the highway embankment side slope. The movement has also resulted in the tilting of one of the power poles. Survey monitoring was conducted after the cracking was observed and a vertical drop of 50 to 70 cm was noted shortly after monitoring began. During construction, an attempt to stabilize the slope was made by flattening the side slope of Fischer trail and re-grading the road. Thurber was called out to the site during construction in September 2014 and May 2015 and preliminary assessment letters were submitted to WSP. In 2015, the survey monitoring program conducted

	by WSP indicated a reduction in the movement rates and hence a decision was made to seal up open cracks on the highway side slope and to get the Fortis Alberta to straighten the affected power pole.	
Maintenance/ Repairs:	TEC resurfaced the trail with gravel in late 2016. Since 2022 it is understood that TEC has no obligation to maintain Fischer Trail. The Hwy 63:02 southbound lanes were overlaid with ACP in the fall of 2024 as part of a larger overlay project.	
Observations:	Description (Fisher Trail last inspection was completed in 2023)	Worse?
☒ Pavement Distress	Longitudinal and transverse cracks on the HWY (SBL) 5 to 40 mm wide no drop; no noticeable dips on HWY 63:02 paved surface	☐
☒ Slope Movement	Tension crack within 6.5 m from the edge of the highway; open head scarp cracks within the upper and lower landslide blocks (100 to 700 mm wide, and 100 mm to 2.0 m drop); leaning/tilting trees between the west edge of the trail and the pronounced toe roll area. Overall drop within Fischer trail area up to 2.7 m.	☒
☒ Erosion	Fisher Trail: Observations during and prior to 2023 indicated that the erosion gully within the trail east ditch (10 m long x 2 to 3 m wide x 0.8 m deep) and at the 800 mm diameter culvert inlet (4.5 m long x 3.5 m wide x 1.5 m deep).	☐
☒ Seepage	Fisher Trail: Observations during and prior to 2023 indicated that Fisher trail surface was wet and standing water was noted in the trail surface and the east ditch; previously noted water ponding in the highway east ditch between culverts C2 and C3 located to the south of the landslide area was dry. Water is partially flowing under culvert C3 inlet.	☐
☒ Bridge/Culvert Distress	Fisher Trail: Observations during and prior to 2023 indicated severe sinkholes and subsidence along Fischer trail; The existing 800 mm CSP culvert, installed during construction below the trail had been separated resulting in the formation of multiple sinkholes that have converged into a large sinkhole (6 m in diameter and 1.5 m deep).	☐
☒ Other	La Biche River outside bend of the meander is located 90 m and 125 m to the west of the western edge of the trail and highway, respectively. Fence posts have moved approximately 1.5-2.0 m toward the river. Power poles are tilting within the slide area. Ice partially blocked the inlet of culvert C3.	☐
Instrumentation: (1 PN and 2 SP piezometers; Spring 2025):		
Between the spring and the fall of 2018: SI17-1, SI17-2 and SI17-3, installed near the edge of the trail, were sheared off at depths varying between 5.6 m and 8.1 m below the trail surface; SI17-5, installed		

between the fence and the highway was damaged at 1.3 m below ground surface. SI17-1, SI17-2, SI17-3 and SI17-4 moved at maximum rates ranging between 55 and 160 mm per year.

The groundwater level in pneumatic piezometer PN17-5 was 0.07 m above ground surface (artesian). The groundwater level in the standpipe piezometers was 1.2 m below ground surface and 1.1 m below ground surface in SP17-4 and SP17-6, respectively.

Assessment (Refer to attached Figures and Photos):

The primary changes to the site included an increase in the overall dip in Fischer trail to 2.7 m and the new longitudinal and diagonal cracking noted in the southbound lane outer lane and shoulder.

Based on the above site observations, and LiDAR information, the distress observed along Fischer trail and the side slope of the highway SBLs reflects an actively moving deep-seated landslide. The depth of movement ranges from 5.6 to 8.1 m below the trail surface.

It is suspected that the low-lying area of the original trail alignment was located within the crest of an ancient landslide, toeing into the outside bend of the La Biche River. Placement of grading fill to construct the trail could have resulted in (a) re-activation of the ancient landslide, and (b) obstruction of natural drainage pattern, resulting in elevated ground water levels in the slope area.

The surface water in the trail ditch flows below the separated 800 mm diameter culvert, resulting in the saturation and washout of trail fill and subgrade and recharging of the landslide mass. It is likely that the uncontrolled discharge of surface water below the trail will result in the formation of additional sinkholes and potentially complete failure of the trail.

The new longitudinal and diagonal cracks on the highway surface above the southern half of the landslide and north of the north flank of the landslide, respectively, may or may not reflect the retrogression of the landslide into the highway lanes. This should be confirmed during future inspections.

The landslide will eventually result in further failure of the trail surface, the retrogression of the landslide into the highway lanes due to continued loss of support at the toe of the slope, and potential damages to the fence line, Telus cable and the overhead power lines.

Recommendations:

Due to the appearance of a new longitudinal and diagonal cracks on the highway surface above and north of the landslide, it is recommended to visit this site again in the spring of 2026.

In the short term, we recommended the following:

- TEC should contact the County, the trail owner, and utility companies to let them know about existing hazard(s).
- The local MCI should periodically monitor the head scarp crack for further opening or drop and measure the distance between the head scarp crack and the edge of the highway. Open cracks on the highway surface should also be sealed to prevent surface water infiltration into the landslide mass.
- Clear sedimentation and regrade the ground surface near culvert C1 outlet; inspect and maintain culverts C2 and C3 as needed to prevent further ponding of water in the highway west ditch and water flow under C3.

It is understood that TEC has no obligation to maintain the trail. Hence, the long-term measure may include the construction of a pile wall between the head scarp crack and the west edge of the highway to shelter the highway from potential retrogression of the head scarp crack into the highway surface. The ballpark cost of this option, excluding engineering, would be in the range of \$850,000 for a steel pile wall and \$2.0 Million for a tangent cast-in-place cantilever pile wall. It should be noted that this option will not address the impact of future movements downslope of the wall on existing trail and utility lines within the landslide mass.

Closure:

It is a condition of this letter report that Thurber's performance of its professional services will be subject to the attached Statement for Use and Interpretation of the Report.

Yours very truly,
Thurber Engineering Ltd.
José Pineda, M.Eng., P.Eng.
Associate | Senior Geotechnical Engineer

Bruce Nestor, M.Eng., P.Eng.
Geotechnical Engineer

STATEMENT FOR USE AND INTERPRETATION OF REPORT

1. STANDARD OF CARE

This Report has been prepared in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances at the same time and in the same or similar locality and in compliance with all applicable laws.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment, including this Statement For Use and Interpretation of Report, are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT, AS DESCRIBED ABOVE. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE OF THE REPORT.

3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives, and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

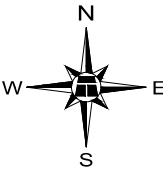
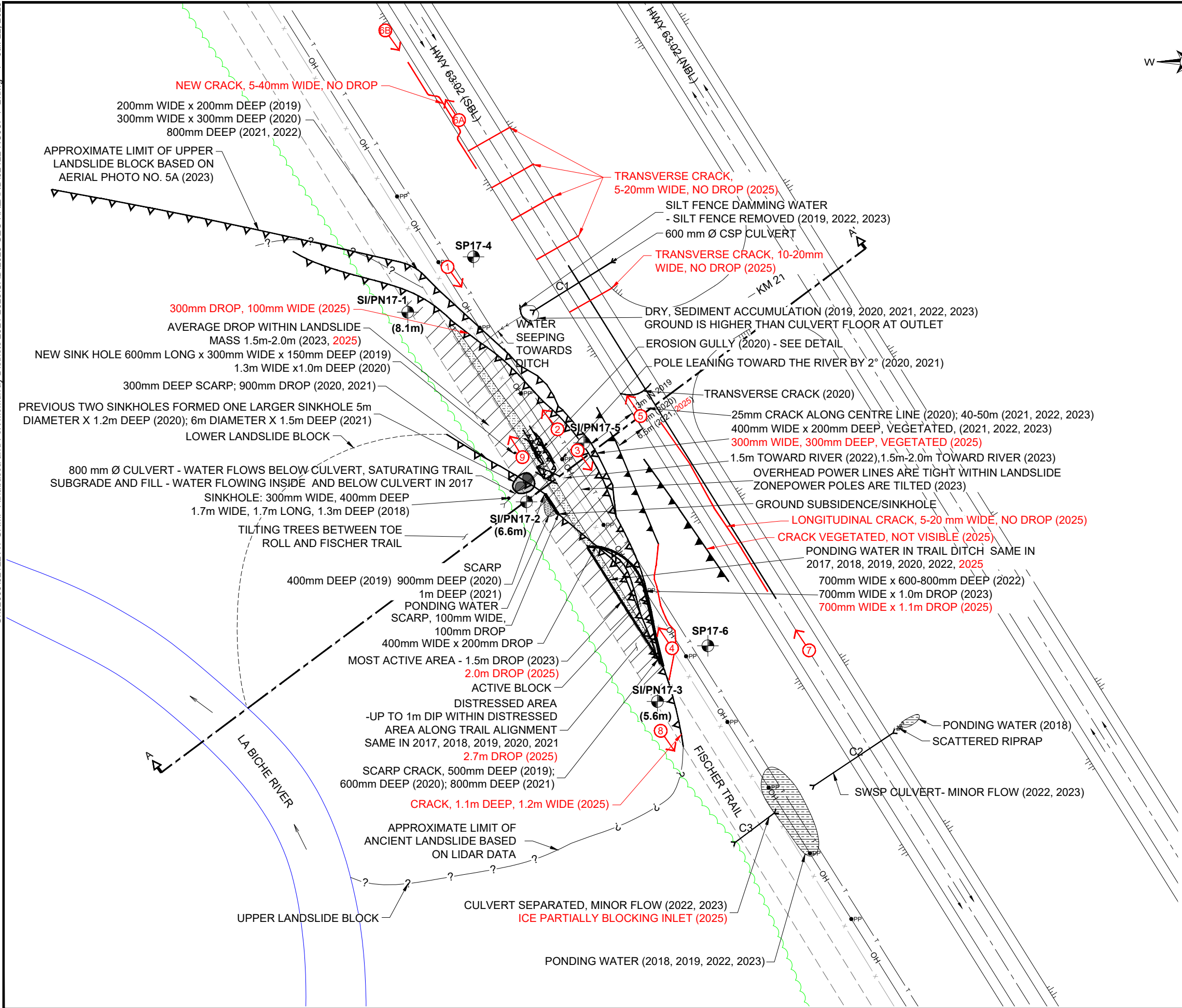
The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client for the development, design objectives, and/or purposes described to Thurber by the Client. **NO OTHER PARTY MAY USE OR RELY ON THE REPORT OR ANY PORTION THEREOF FOR OTHER THAN THE CLIENT'S BENEFIT IN CONNECTION WITH THE PURPOSES DESCRIBED IN THE REPORT.** Any use which a third party makes of the Report is the sole responsibility of such third party and is always subject to this Statement for Use and Interpretation of Report. Thurber accepts no liability or responsibility for damages suffered by any third party resulting from use of the Report for purposes outside the reasonable contemplation of Thurber at the time it was prepared or in any manner unintended by Thurber.

5. INTERPRETATION OF THE REPORT

- a) **Nature and Exactness of Soil and Contaminant Description:** Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors is inherently judgement-based. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other parties making use of such documents or records with or without our express written consent need to be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other parties. Some conditions are subject to change over time and those making use of the Report need to be aware of this possibility and understand that the Report only presents the interpreted conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client must disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) **Reliance on Provided Information:** The evaluation and conclusions contained in the Report have been prepared based on conditions in evidence at the time of site inspections and based on information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report resulting from misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other parties providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) **Design Services:** The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber is recommended to be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design need to be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) **Construction Services:** During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions to confirm and document that the site conditions do not materially differ from those conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

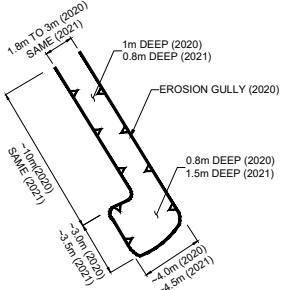
6. INDEPENDENT JUDGEMENTS OF CLIENT

The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or other parties who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes, but is not limited to, decisions made to develop, purchase, or sell land, unless such decisions expressly form part of the stated purpose of the Report as described in Paragraph 3.

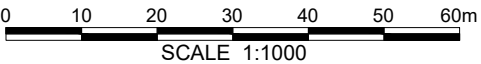


LEGEND

- TENSION CRACK
- HEADSCARP CRACK
- TREE LINE (APPROXIMATE)
- FENCE LINE (APPROXIMATE)
- PP POWERPOLE (APPROXIMATE)
- OH OVERHEAD POWER LINE (APPROXIMATE)
- T BURIED TELUS LINE (APPROXIMATE)
- 1 PHOTOGRAPH NUMBER, AND APPROXIMATE DIRECTION AND LOCATION
- APPROXIMATE INSTRUMENT LOCATION
- SI SLOPE INCLINOMETER
- PN PNEUMATIC PIEZOMETER
- SP STANDPIPE PIEZOMETER
- (5.6m) DEPTH OF MOVEMENT IN SLOPE INCLINOMETER



- NOTES:
- ALBERTA TRANSPORTATION FILLED SINKHOLES ON FISCHER TRAIL IN 2016.
 - ACP OVERLAY PLACED IN 2024 ALONG AND BEYOND THE HIGHWAY EXTENT SHOWN IN THIS DRAWING.
 - MAY 14, 2025 SITE OBSERVATIONS ARE SHOWN IN RED.

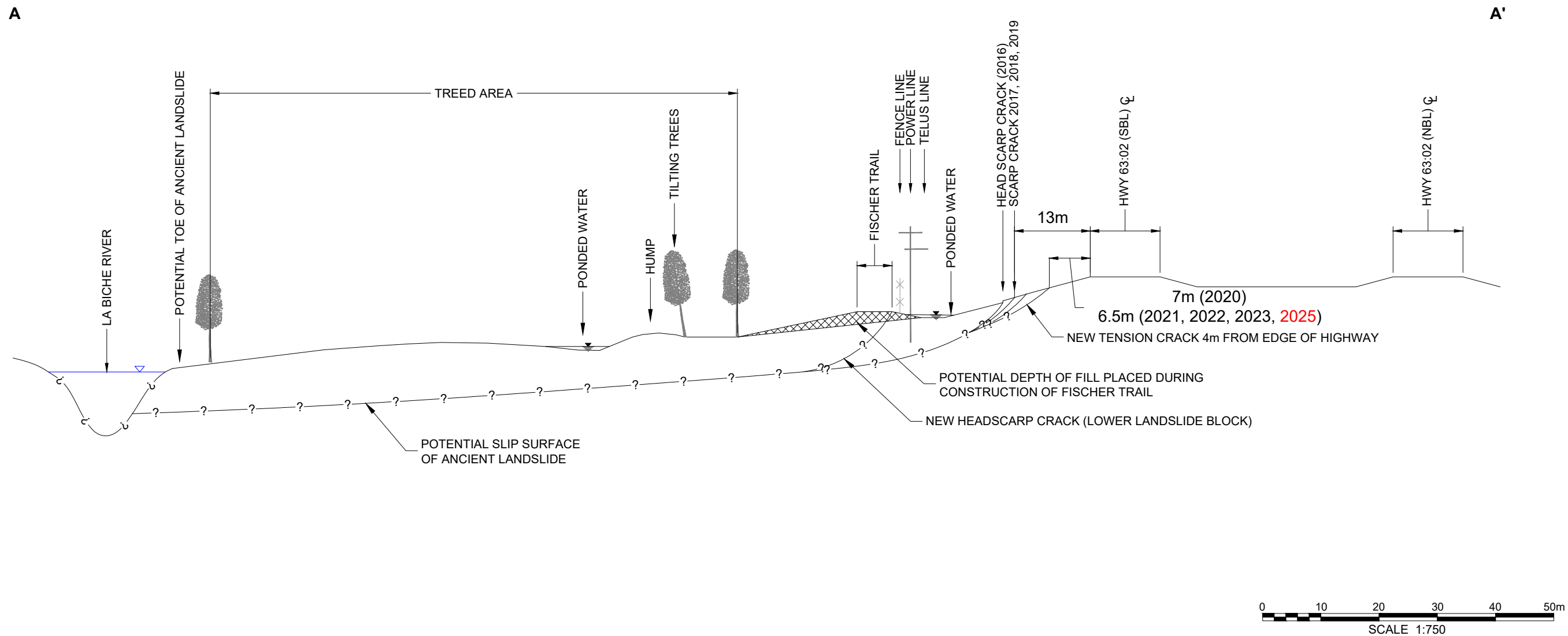


**NORTH CENTRAL REGION
(ATHABASCA AND FORT MCMURRAY DISTRICTS)
2025 GEOHAZARD ASSESSMENT**

**NC087- HWY 63:02 FISCHER TRAIL SLIDE (km 20.7)
SITE SKETCH SHOWING LANDSLIDE FEATURES**

FIGURE 1

DRAWN BY	ML
DESIGNED BY	JGP / BWN
APPROVED BY	TSA
SCALE	1:1000
DATE	JULY 2025
FILE No.	32122



NOTE
CROSS-SECTION A-A' IS BASED ON APPROXIMATE SIMPLE
FIELD MEASUREMENTS AND MAY NOT REPRESENT THE
ACTUAL PROFILE THROUGHOUT THE SLIDE AREA.

**NORTH CENTRAL REGION
(ATHABASCA AND FORT MCMURRAY DISTRICTS)
2023 GEOHAZARD ASSESSMENT**

**NC087- HWY 63:02 FISCHER TRAIL SLIDE (km 20.7)
CROSS-SECTION A-A'**

FIGURE 2

DRAWN BY	ML
DESIGNED BY	JGP
APPROVED BY	TSA
SCALE	APPROX. 1:750
DATE	JULY 2025
FILE No.	32122



Photo 1. Looking south at head scarp crack of upper landslide block



Photo 2. Looking north at slide backscarp crack (300 mm wide, up to 200 mm deep).



Photo 3. Looking south towards the southern flank of the landslide (700 mm wide cracks, up to 1.1 m drop). Water is ponding along the ditch between the trail and the fence (note the cat tails in this area).



Photo 4. Looking north at the southern flank of upper and lower landslide blocks; note standing water within the flank and lateral shifting of fence. Landslide is well vegetated.



Photo 5. Looking north at highway southbound lanes. Landslide is currently not impacting the highway surface; head scarp crack is about 6.5 m from the edge of pavement (same as 2023 inspection).



Photo 6A. Looking north at the diagonal crack appearing through the 2024 ACP overlay north of the landslide north flank. Crack is 10-20 mm wide with no drop.



Photo 6B. Looking south at diagonal crack appearing through the 2024 ACP overlay north of the landslide north flank. Crack is 10-20 mm wide with no drop).



Photo 7. Looking north at cracking in southbound lane near landslide southern flank. Cracks are 5-10 mm wide with no drop.



Photo 8. Looking south at the landslide south flank. Backscarp crack is 1.1 m deep and 1.2 m wide.



Photo 9. Looking north at the landslide's north flank. Average drop of 1.5 m to 2.0 m within landslide mass.