

**ALBERTA TRANSPORTATION AND
ECONOMIC CORRIDORS
GEOHAZARD ASSESSMENT PROGRAM
PEACE REGION (PEACE RIVER DISTRICT)
2025 INSPECTION**



Site Number	Location	Name	Hwy	km
PH030	Judah Hill	Lookout Slides	744:04	57.43
Legal Description		UTM Co-ordinates (NAD 83)		
SE¼ 20-083-21 W5M		11V E 483194	N 6229425	

	Date	PF	CF	Total
Previous Inspection:	May 28, 2024	11	5	55 (Slide Risk Rating)
Current Inspection:	May 15, 2025	11	5	55 (Slide Risk Rating)
Road WAADT:	630	Year:		2024
Inspected By:	Don Proudfoot, Tyler Clay (Thurber). Rocky Wang (TEC)			
Report Attachments:	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input type="checkbox"/> Maintenance			

Primary Site Issue:	<p>Several old slides on the steep slope west of the Sagitawa Lookout and north on Hwy 744:04.</p> <p>Highway was closed from May 2013 to January 2014, due to the occurrence of the Sunshine Landslide further north. Highway section through the area was realigned as part of Contract CON0015153 in 2015/2016 due to a landslide located near SI10-3 that retrogressed into the SBL in June 2015. A temporary detour had to be built in the NBL ditch and the traffic was re-instated on the current alignment in mid-November 2015. Failures in the sideslope are retrogressing toward the re-aligned road north of the Lookout slide.</p>		
Dimensions:	Three slide areas each 15 m to 40 m wide. Refer to attached Figure.		
Date of any remediation:	<p>Realignment 2015. As part of the Fall 2022 PH012 Heart River site road realignment work; the highway within the southern end of site was shifted to the west and was converted to gravel. Previous parking area for the lookout was closed and a new parking area was created to the south of the lookout area.</p>		
Maintenance:	<p>Highway realignment paved in 2016. The PH030 site was repaved, and strong post W-beam guardrail replaced in summer 2025 (after the current inspection) as part a larger paving project (CON0023098) of Hwy 744:04 between Peace River and the intersection with Hwy 683.</p>		
Observations:	Description:	Worsened?	
		Yes	No
<input checked="" type="checkbox"/> Pavement	<p>Longitudinal arc-shaped cracking that extends just past the centreline into the NBL occurring upslope from the extents of Slide 1A (km 57.65). The cracks are open up to 50 mm at the north end and there is a more pronounced dip relative to the 2024 condition. Hairline shoulder cracks are occurring within the slide area. Increased cracking was extending into the NBL. (Photos 30-4 and 30-7).</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	<p>No changes have been observed at Slide 4 over the last several years. (Photo 30-1)</p>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

	<p>Increased retrogression and flank expansion within the southern end of Slide 2A. Slide 2A main scarp offset 0.30 m from the guardrail and upper slide area was well vegetated. Tension cracks behind the main scarp now extend below the guardrail. (Photos 30-2 and 30-3)</p> <p>The main scarp of Slide 1A (km 57.65) appears to be actively moving with increased dropdown, and erosion along the exposed scarp faces but no significant retrogression since 2024. Main scarp is offset a minimum of 2.0 m from the guardrail, unchanged from the 2024 condition. (Photos 30-5 and 30-6)</p>		
<input checked="" type="checkbox"/> Erosion	<p>Erosion gully approximately 50 m south of Slide 4 showed no change compared to 2024 inspection (Photo 30-8).</p> <p>Traffic is entering the new lookout parking area (km 57.45) by driving through the ditch on the west side of the new alignment which could limit grass growth and exacerbate any development of future ditch erosion.</p>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
<input type="checkbox"/> Seepage		<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Bridge/Culvert		<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Other	Potential ponding area due to high ditch profile from realignment construction downstream of new culvert outlet (km 57.52. No ponding was observed in 2025.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Instrumentation:

The operational instruments were read on June 10, 2025.

Slope inclinometers (SI10-1, SI10-2, and SI10-3)

SI10-1 showed no discernible movement over 1.4 m to 6.3 m depth and a rate of movement of 0.2 mm/yr over 14.2 m to 15.4 m depth since the fall of 2024 readings. SI10-2 showed no discernible movement over 0.4 m to 4.1 m depth and a rate of movement of 5.1 mm/yr over 4.1 m to 8.3 m depth since the fall of 2024 readings. A trend of increased and accelerating movement rates has been observed at approximately 6 m depth since the fall of 2021 readings. Total cumulative movement in both SI's is at or below 42 mm.

Pneumatic Piezometers (PN10-1 and PN10-2)

Since the fall of 2024 readings, pneumatic piezometer PN10-1 showed a decrease in groundwater level of 0.03 m, while PN10-2 showed an increase in groundwater level of 0.05 m. The current groundwater level in PN10-1 is the lowest measured in the instrument since initialization in 2010. A trend of lower groundwater readings has been observed in PN10-1 since approximately spring 2021.

Assessment (Refer to Drawing PH030-1-1):

The existing slides occurred on steep slopes (36° to 38°) and are similar in appearance to the Heart River slides. The previous repairs at Slide 1 (shredded tire fill wedge) appear to be effective, although there may be some ongoing movement in the backscarp causing minor pavement distress.

The October 2015 landslide at SI10-3 was addressed as part of Contract CON0015153 with a realignment of the affected highway section into the backslope further to the east. The extent of the realignment was limited by the presence of the ATCO natural gas pipeline right-of-way which flanked the highway alignment along the NBL. The ATCO pipeline has since been abandoned within this section which could provide some additional space for future realignments, if required.

There is continuing slide activity in Slide 2A (formerly Slides 2 and 3) and in Slide 1A located in the newly regraded highway sideslope below the SBL at km 57.65. This movement could be in response to natural groundwater drainage and seepage locations. Retrogression of the main scarps at these slides has generally been slow with larger increments that could be linked to seasonal affects.

At Slide 1A (km 57.65), the visible main scarp continues to retrogress towards the SBL and is only offset 2 m from the guardrail. Based on the arc-shaped cracking pattern within the pavement upslope from this slide area, a slide plane appears to have developed beneath the highway, and it encompasses the SBL and an increasing part of the NBL. Although the movements within the road have been relatively small to date, a large increment of movement within this slide block could negatively impact both lanes of the driving surface. The operating SI near this area (SI10-2) appears to be outside of the main movement zone; however, a trend of accelerating movement rates has been observed at approximately 6 m depth. The largest movement rate (~12 mm/yr) was recorded at SI10-2 since initialization during the Fall 2024 readings This could reflect progressive loss of toe support below the highway at km 57.65, resulting in the observed pavement damage.

Recommendations:**Monitoring:**

Annual inspections should continue with the next inspection occurring in the Spring of 2026.

Maintenance:

- Install barriers or fencing on the east side of the new lookout parking area to prevent traffic driving across ditch.

Short-term Measures:

- Movement at Slide 1A (57.65) is expected to continue and retrogress toward the new highway alignment. In the short-term, if the southbound lane was lost an emergency repair would likely involve a realignment into the hillside and conversion to gravel. (\$350k – \$500k)
- Sub-excavation of the Slide 1A mass and replacement with light weight fill could be considered as a shorter-term, cost-effective solution. (\$500k - \$750k)

Long-term Measures:

- Long-term option for Slide 1A would likely involve a tied-back pile wall. The wall will need to be in the order of 35 m to 40 m wide with two rows of tie-back anchors. (\$1.5M - \$3M)

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 Report.

Don Proudfoot, P.Eng.
Principal | Senior Geotechnical Engineer

Tyler Clay, P.Eng.
Geological Engineer
Site Inspection

Bruce Nestor, P.Eng.
Geotechnical Engineer
Report Preparation



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

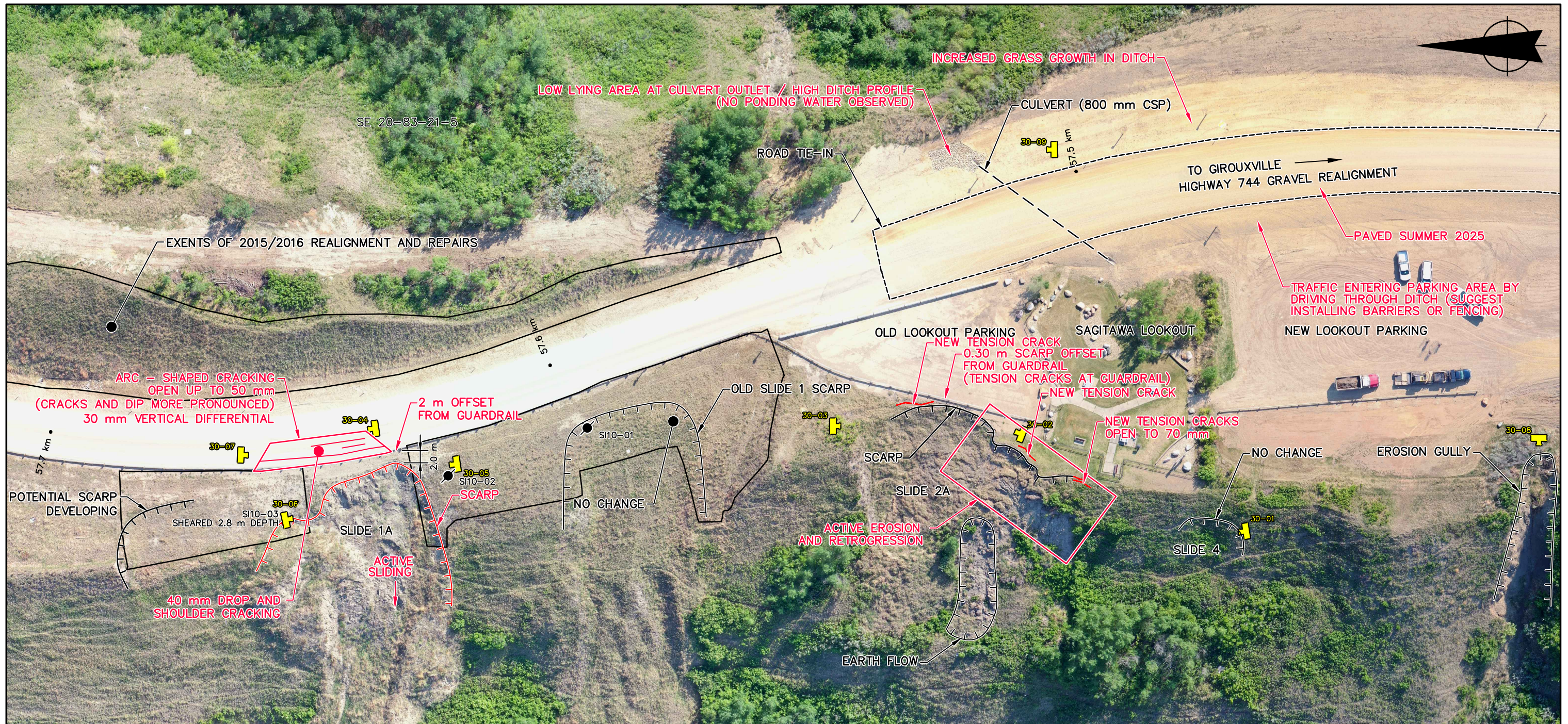
The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client for the development, design objectives, and/or purposes described to Thurber by the Client. **NO OTHER PARTY MAY USE OR RELY ON THE REPORT OR ANY PORTION THEREOF FOR 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:
 SLOPE INDICATOR 
 SLOPE INDICATOR (DESTROYED) 
 DIRECTION AND NUMBER OF PHOTO 

NOTES:
 1 FIGURE MUST BE USED IN CONJUNCTION WITH THE ATTACHED REPORT REFERENCE 32121 DATED MAY 2024 AND IS SUBJECT TO ANY LIMITATIONS DESCRIBED THEREIN.
 2 LOCATION DATA RECORDED USING HAND HELD GPS RECEIVER. ALL LOCATIONS ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.
 3 MAY 15, 2025 OBSERVATIONS SHOWN IN RED.
 4 BASE PHOTO FROM MAY 17, 2023 THURBER DRONE IMAGERY.




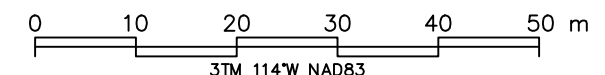
PEACE REGION (PEACE RIVER DISTRICT)

**PH030 LOOKOUT SLIDES
2025 SITE INSPECTION PLAN**

FIGURE PH030-1

DRAWN BY	DLA
DESIGNED BY	BWN / TTC
APPROVED BY	DWP
SCALE	1:750
DATE	SEPTEMBER 2025
FILE No.	32121-PH030-1





**Photo 30-01.**

Looking north towards the Slide 4 area from the south end of the site. No change to the slide in this area has been observed over the last several years and it is well vegetated.

**Photo 30-02.**

Looking north along backscarp of Slide 2A (previously Slides 2 and 3) which has a minimum offset of 0.30 m from the old parking lot guardrail. Some localized main scarp retrogression at south end, flank erosion and additional pavement cracking since 2024. Tension cracks are now at the guardrail.


Photo 30-03.

Looking south towards the upper part of Slide 2A. South flank had most activity since 2024 with increased erosion and minor retrogression. Ongoing movements occurring further downslope, primarily involving shallow earth flows.


Photo 30-04.

Looking north along the SBL of Hwy 744:04 near km 57.65 at south end of 2015 realignment. Transverse cracks have formed joining the previous longitudinal crack in the NBL to form arch-shaped crack within the downslope extents of Slide 1A. Cracks have extended into the NBL.

**Photo 30-05.**

Looking north from downslope of the SBL of Hwy 744:04 near km 57.63. Increased down drop within the disturbed slide mass of Slide 1A. Main scarp is offset a minimum of 2.0 m from the guardrail (unchanged from 2024).

**Photo 30-06.**

Looking south at Slide1A (near KM 57.65). Ongoing downslope movement and erosion at the main scarp and south flank; however, no major change from the 2024 condition.

**Photo 30-07.**

Looking south along SBL of Hwy 744:04 at km 57.67. Arc-shaped cracking more prominent in SBL within the downslope extents of Slide 1A. Dip was more pronounced relative to the 2024 condition (up to 30 mm) and cracks have started to extend into NBL.

**Photo 30-08.**

Looking at the top of an erosion gully located at the southern edge of the site, approximately 50 m south of the Slide 4 area. Gully is offset approximately 50 m west of the new highway realignment. No headwall retrogression since 2024.