**SOUTHERN REGION GRMP**
**SITE INSPECTION FORM**

| SITE NUMBER AND NAME: **S028 Slide East of Lundbreck Falls** | HIGHWAY & KM: 3A:06, 2.367 | PREVIOUS INSPECTION DATE: May 10, 2019 | INSPECTION DATE: **May 20, 2022** |
|---|---|---|---|
| LEGAL DESCRIPTION: 06/07-27-007-02 W5M | NAD 83 COORDINATES: UTM 11 Northing 5496507 Easting 702877 | RISK ASSESMENT: PF: 9 CF: 4 TOTAL: 36 | |
| AVERAGE ANNUAL DAILY TRAFFIC (AADT): 190 (east) & 230 (west), (Reference No. 75050 & 75060) | | CONTRACTOR MAINTENANCE AREA (CMA): 26 | |

| SUMMARY OF SITE INSTRUMENTATION: | INSPECTED BY: |
|---|---|
| Piezometers: Two operable pneumatic piezometers<br>Slope inclinometers: None operable<br><br>LAST READING DATE: May 2019 – instruments are not being read under the current contract | Chris Morgan (KCB)<br>Laura Assaad (KCB)<br>Alex Frotten (AT)<br>Roger Skirrow (AT) |

PRIMARY SITE ISSUE: Landslide approximately 6 m to 12 m deep, seated in bedrock above Crowsnest River

APPROXIMATE DIMENSIONS: Slide impacts approximately 100 m of highway, slope is approximately 15° to 20° and approximately 30 m high above river.

DATE OF ANY REMEDIAL ACTION: Unknown – on the landslide, a 450-mm diameter CSP with holes punched in it appears to function as a subsurface drain that discharges into a 750-mm diameter oversized CSP slope drain. 2020 – the site was resurfaced due to pavement cracking and settlement

| ITEM | CONDITION EXISTS | | DESCRIPTION AND LOCATION | NOTICABLE CHANGE FROM LAST INSPECTION | |
|---|---|---|---|---|---|
| | YES | NO | | YES | NO |
| Pavement Distress | X | | Cracks and settlement of pavement surface due to back scarp of slide extending to centreline. Longitudinal and transverse cracks have formed on the recently resurfaced highway. | X | |
| Slope Movement | X | | Ongoing movement and deformation below guardrail. | | X |
| Erosion | | X | N/A – none observed | | X |
| Seepage | | X | N/A – none observed | | X |
| Culvert Distress | | X | Culverts were not inspected during the 2022 inspection | | X |

**COMMENTS**

The slide appears active due to the ongoing pavement cracking observed in the highway surface.

Highway 3A:06 is a minor road with a low traffic volume. The highway has viable detour options if the road condition deteriorates to the point where the highway would need to be closed.

The highway was resurfaced in summer 2020. It appears as though sections of the guardrail were replaced during the highway resurfacing project.

During the 2022 site visit, new transverse and longitudinal pavement cracks were observed through the new pavement surface due to continued landslide movements. The pavement cracking pattern was similar to the pavement cracking observed prior to summer 2020 (Photos 1 and 2).

The culvert underlying the Canadian Pacific Rail (CPR) line drains into a riprap lined "pit" upslope of the highway. The riprap lined pit is upslope of the slide zone and does not have an outlet. Water discharged from the culvert appears to infiltrate into the underlying soils, which could potentially increase the groundwater table and destabilize the slope.

The inlet to the 450-mm diameter CSP slope drain was not located in the upslope ditch of the highway. However, the culvert outlet has several holes punched in it near ground surface, which could indicate that the culvert was installed as a subsurface drain, not a conduit to convey ditch flow through the slide area.

Maintenance/Repair/Monitoring Recommendations:

- Inspections should be completed by the MCI and every two-years as part of the Southern Region GRMP Section B inspections. Hwy 3A is a low traffic road and, as long as slide movements are slow, continued patching and maintenance could address pavement roughness concerns.
- The guardrail is low in several locations and could be raised to a more suitable height.
- The slide could be repaired with:
  - Slope reconstruction with geosynthetic reinforced gravel, including either a shear key or pile wall extending to below historic zones of movement; and
  - Improved subsurface drainage (drainage trenches or buried subsurface drains). Surface water drainage should be improved along the highway to minimize infiltration into the slide zone.


September 27 2022
I.D. # 58463

Chris Gräpel, M.Eng., P.Eng.
Senior Civil Engineer, Associate

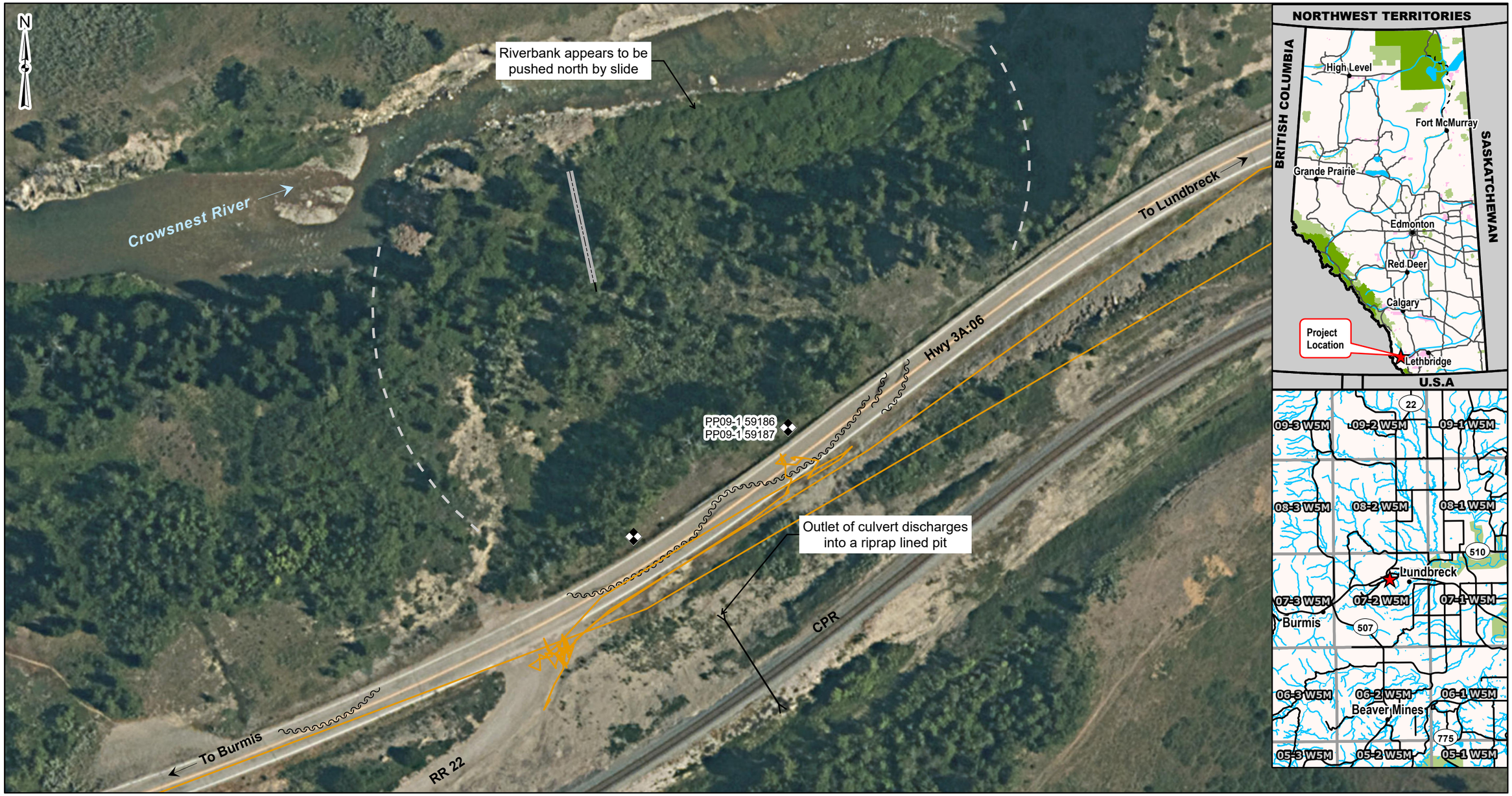
**PERMIT TO PRACTICE**
**KLOHN CRIPPEN BERGER LTD.**

RM SIGNATURE: _____

RM APEGA ID #: 187607

DATE: 28 Sep. 2022

**PERMIT NUMBER: P009196**
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)




Metres
0 50

**Legend**

- Pneumatic Piezometer
- GPS Track (May 20, 2022)
- Cracks (Approximate Location)
- Culvert
- 750 mm CSP Slope Drain (Approximate Location)
- Possible Extent of Slide Area

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM ZONE 11N
3. IMAGE SOURCE: MD OF WILLOW CREEK NO. 26, TOWN OF PINCHER CREEK, WILLOW CREEK, MAXAR

CLIENT: Alberta

Klohn Crippen Berger

PROJECT: SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
S028 - Slide East of Lundbreck Falls
Hwy 3A:06, km 2.367

| SCALE | PROJECT No. | FIG No. |
|---|---|---|
| 1:1,000 | A05116A03 | 1 |

## Inspection Photographs

**Photo 1** **Longitudinal and transverse cracks visible through the 2020 pavement patch in the right flank of landslide zone. Section of the guardrail (indicated by red arrow) were replaced between the 2019 and 2022 inspections. Photo taken May 20, 2022, facing northeast.**

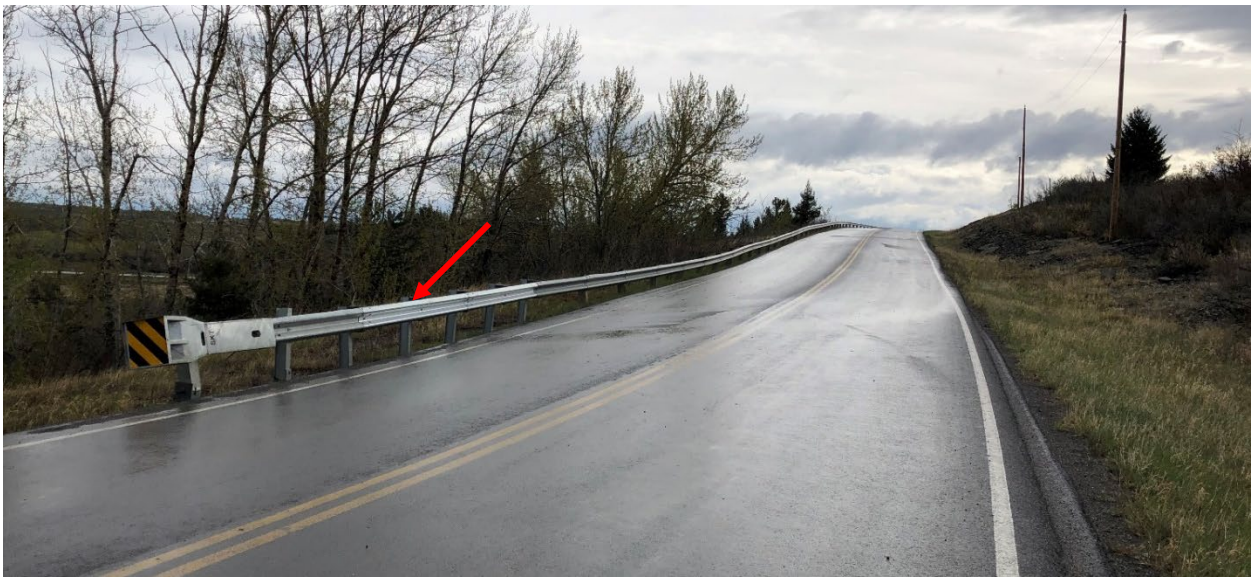


**Photo 2** **Longitudinal and transverse cracks visible through the 2020 pavement patch in the left flank of landslide zone. Photo taken May 20, 2022, facing southwest.**