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

| SITE NUMBER AND NAME: **S070-2 and -3 Eyrie Gap and Fir Creek Geohazard Sites** | HIGHWAY & KM: 541:02, km 4.488 to km 4.794 | PREVIOUS INSPECTION DATE: May 28, 2024 | INSPECTION DATE: **May 27, 2025** |
|---|---|---|---|
| LEGAL DESCRIPTION:<br>S070-2: NW-35-16-05 M5<br>S070-3: NW-35-16-05 M5 | NAD 83 COORDINATES:<br>UTM Northing Easting<br>11 5585241 671123<br>11 5585007 671335 | RISK ASSESSMENT:<br>Rockfall:<br>S070-2: PF: 11 CF: 1 TOTAL: 11<br>S070-3: PF: 11 CF: 1 TOTAL: 11 | |
| AVERAGE ANNUAL DAILY TRAFFIC:<br>171 (west) & 175 (east) (Reference No. 55410220) | | CONTRACTOR MAINTENANCE AREA (CMA):<br>520 | |

| SUMMARY OF SITE INSTRUMENTATION: | INSPECTED BY: |
|---|---|
| There is no instrumentation at the S070-2 and -3 sites.<br><br>LAST READING DATE: N/A | Chris Grapel (KCB)<br>Jorge Rodriguez (KCB)<br>Renato Macciotta (U of A)<br>Alex Frotten (ATEC)<br>Rishi Adhikari (ATEC) |

PRIMARY SITE ISSUE:

S070-2: rockfalls from colluvium and undeveloped rock outcrop on the backslope north of the highway.

S070-3: rockfalls from the rock outcrop on the backslope north of the highway. Large rock outcrop further upslope of the highway backslope.

APPROXIMATE DIMENSIONS:

S070-2: Approximately 460 m long, 11 m to 38 m in height, with a slope angle 0.8H:1V to 1.0H:1V.

S070-3: Approximately 395 m long and up to 11 m high.

DATE OF ANY REMEDIAL ACTION: None.

| ITEM | CONDITION EXISTS | | DESCRIPTION AND LOCATION | NOTICABLE CHANGE FROM LAST INSPECTION | |
|---|---|---|---|---|---|
| | YES | NO | | YES | NO |
| Pavement Distress | | X | N/A – none observed | | X |
| Slope Movement | | X | Bedrock slopes with ongoing rockfall into the existing catchment ditches | | X |
| Erosion | X | | Erosion from a colluvium deposit. | | X |
| Seepage | | X | N/A – none observed | | X |
| Culvert Distress | | X | N/A – none observed | | X |
| Rockfall | X | | Recent rockfalls up to 0.25 $m^3$ contained within the ditch. A 0.4 m diameter rockfall was noted on the opposite side of the highway across the guardrail. | | X |

**COMMENTS**

The two sites were included in the K-Country Rockfall Hazard Assessment completed by KCB in 2024. A draft report was submitted on September 18, 2023.

S070-2:

- The upper portion of the backslope consists of granular soil and the lower portion of intact bedrock. The natural ground upslope of the backslope is well vegetated with grass and trees.
- The kinematic analysis included in the 2024 KCB report shows that the bedrock structure at the site has a favourable orientation with a low likelihood of generating planar, wedge or toppling failures.
- Erosion at the brow of the rock slope is leading to an overhanging topsoil root mat.
- Rockfalls are active, and fresh rockfall debris up to 1 m in width was noted in the ditch during the 2025 inspection, similar to the 2024 inspection. The majority of the debris was approximately 0.3 m in diameter. Rockfall debris observed was primarily blocky with some rounded particles. No ditch cleaning was noticed or reported to KCB.
- The ditch is 3.0 m to 8.0 m wide and 0.5 m deep and provides good catchment for rockfall debris. However, rockfall debris was noted on the south side of the highway, which could have travelled across the highway. Approximately 0.3 m in diameter.
- The site is located on the right-hand side of a pullout where a creek was realigned due to a previous washout.

S070-3:

- Bedrock has bedding planes dipping obliquely towards the highway. Upslope of the rock slope, approximately 30 m of high ground is present, well vegetated with grass and trees. Bedrock outcrops are present near the brow of the slope.
- The kinematic analysis included in the 2024 KCB report for the site shows that the bedrock structure at the site has a favourable orientation with a low likelihood of generating planar, wedge or toppling failures. Nevertheless, the likelihood for wedge failures is higher than S070-2.
- Erosion from the brow is leading to an overhanging of topsoil root mats.
- Rockfalls are active, and rockfall debris of up to 1.45 m x 0.65 m x 0.70 m was noted in the ditch during the 2025 inspection, similar to the 2024 inspection. The large debris noted was at the same location as observed during the 2022 inspection, indicating that the debris has not been cleared out of the ditch. Rockfall debris is primarily subrounded to angular.
- Above the brow of the cut slope for both sites is an undeveloped mountain terrain with an exposed blocky to massive rock outcrop situated approximately 27 m to 40 m from the brow.
- The ditch is approximately 6.0 m wide and 0.9 m deep and provides good catchment for rockfall debris.

Recommended Mitigation Measures:

- The sites should be regularly inspected by TEC's MCI and inspected as part of the Southern Region GRMP Section B inspections.
- The ditches at S070-II and -III should be regularly cleaned out to maintain rockfall capacity.

One of the recommendations in the 2024 KCB report, titled 'K-Country Rockfall Hazard Assessment,' included reassessing the risk rating during the next Section B inspection based on the results of the rockfall hazard assessment. The risk rating was reassessed as part of the 2024 Section B inspection, based on the results of the rockfall hazard assessment. No changes were considered in the 2025 inspection.

This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation and Economic Corridors (Client) for the specific application to the Southern Region Geohazard Risk Management Program (Contract No. CON0022161) and it may not be relied upon by any other party without KCB's written consent.

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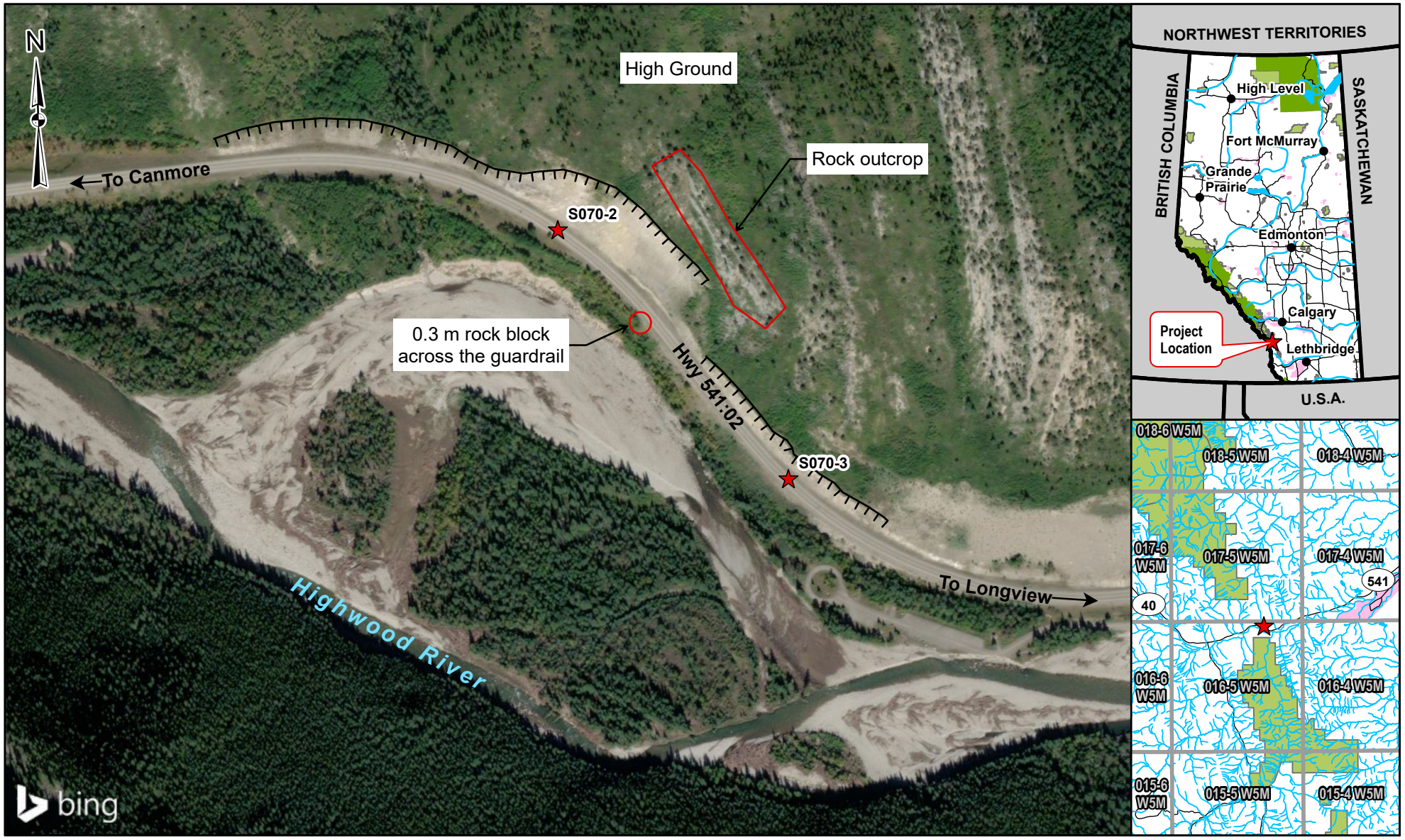
PROFESSIONAL ENGINEER ALBERTA
JORGE RODRIGUEZ NAVARRO
ID 222669
2025 Oct. 10
LICENSED TO PRACTICE

Jorge Rodriguez, Ph.D., M.Sc., P.Eng.
Geotechnical Engineer

**PERMIT TO PRACTICE**
**KLOHN CRIPPEN BERGER LTD.**
RM SIGNATURE: _____
RM APEGA ID #: 187607
DATE: 10 Oct. 2025
**PERMIT NUMBER: P009196**
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)




## Legend

- Site Location
- Crest of Rock Slope

0 200 Metres

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM ZONE 11N
3. IMAGE SOURCE: MAXAR 2025

CLIENT: Alberta

Klohn Crippen Berger

PROJECT: SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
S070-2, -3 - Eyrie Gap and Fir Creek Geohazard Sites
Hwy 541:02, km 4.794-4.488

| SCALE | PROJECT No. | FIG No. |
|---|---|---|
| 1:5,000 | A05116A03 | 1 |

**Photo 1** **S070-2: Northern portion of back slope adjacent to the highway. Photo taken facing northwest on May 27, 2025.**

**Photo 2** **S070-2: Rockfall debris (red circle) on south side of highway which may have travelled across the highway. Photo taken facing northeast on May 27, 2025.**

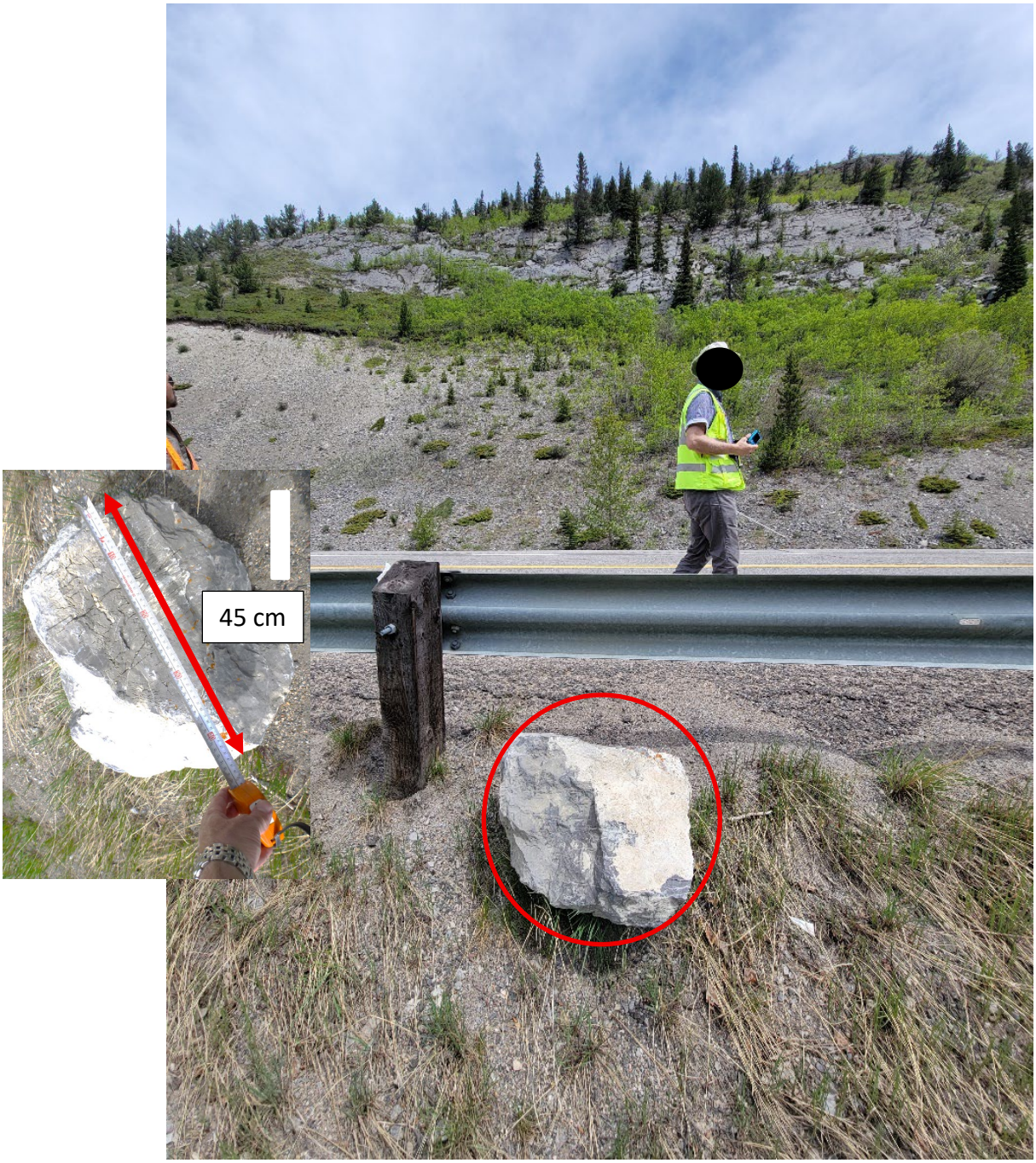


**Photo 3** **S070-3: Rockfall debris at the toe of the slope in northbound ditch. Photo taken facing northwest on May 27, 2025.**

**Photo 4** **S070-3: Northbound ditch and bedrock fracturing. Photo taken facing north on May 27, 2025.**

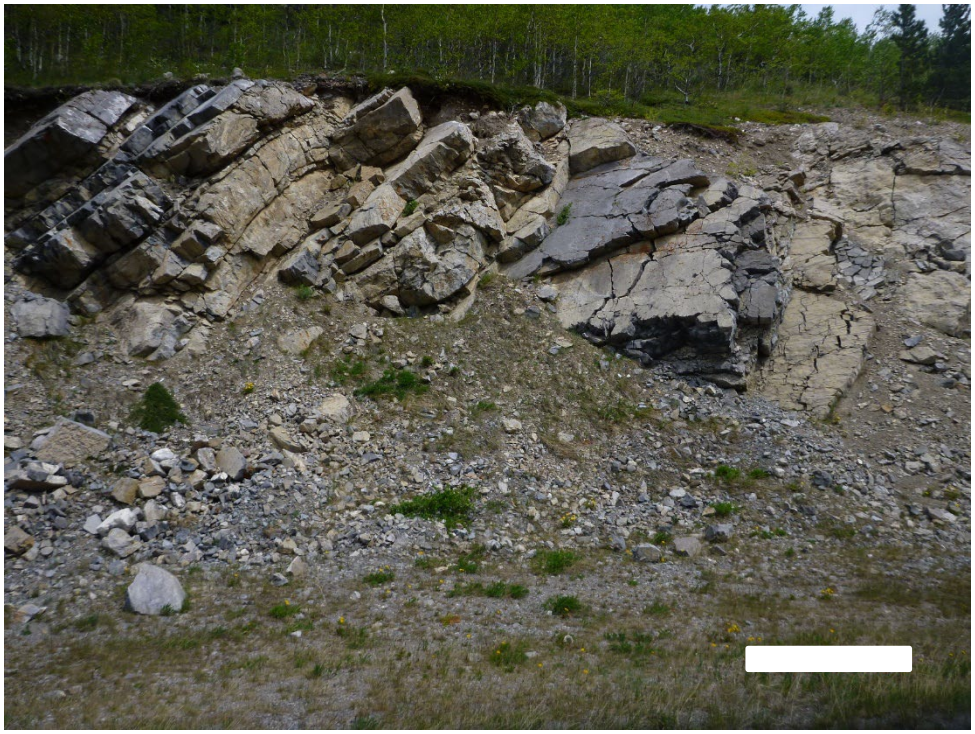


**Photo 5** **S070-3: Bedrock fracturing leading to future rockfall blocks. Large rock noted in ditch was since the 2022 inspection (red circle). Photo taken facing southeast on May 27, 2025.**