SOUTHERN REGION GRMP
SITE INSPECTION FORM

SITE NUMBER AND NAME: **S070-II and -III Eyrie Gap and Fir Creek Geohazard Sites**	HIGHWAY & KM: 541:02, km 4.488 to km 4.794	PREVIOUS INSPECTION DATE: May 9, 2023	INSPECTION DATE: **May 28, 2024**

LEGAL DESCRIPTION:	NAD 83 COORDINATES:			RISK ASSESMENT:
	UTM	Northing	Easting	
S070-II: NW-35-16-05 M5	11	5585241	671123	S070-II: PF: 11 CF: 1 TOTAL: 11
S070-III: NW-35-16-05 M5	11	5585007	671335	S070-III: PF: 11 CF: 1 TOTAL: 11

AVERAGE ANNUAL DAILY TRAFFIC: 171 (west) & 175 (east) (Reference No. 55410220)	CONTRACTOR MAINTENANCE AREA (CMA): 27

SUMMARY OF SITE INSTRUMENTATION: There is no instrumentation at the S070-II and -III sites. LAST READING DATE: N/A	INSPECTED BY: Chris Grapel (KCB) Peter Roy (KCB) Renato Macciotta (U of A) Kristen Tappenden (TEC) Alex Frotten (TEC)

PRIMARY SITE ISSUE: S070-II: Bedrock backslope north of the highway approximately 20 m high. Potential rockfall source upslope. S070-III: Bedrock and soil mantled backslope north of the highway approximately 6 m high. Potential rockfall source upslope.

APPROXIMATE DIMENSIONS: S070-II: Approximately 50 m long and up to 20 m high. S070-III: Approximately 100 m long and up to 6 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 at brow of slope		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. Some rockfall debris noted on opposite side of highway to the slope	X	

COMMENTS

S070-II:

- The height of the bedrock backslope north of the highway is approximately 20 m. 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 bedrock bedding plane is approximately 30^o from horizontal and has a strike perpendicular to the road.
- Erosion at the brow of the rock slope is leading to an overhanging topsoil root mat.
- The ditch is clearly defined and provides good catchment. The ditch is approximately 6 m wide and 1 m deep. Rockfalls are active and fresh rockfall debris up to 1 m in width was noted in the ditch during 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.

- Rock fall debris noted on the south side of the highway which could have travelled across the highway. Approximately 0.3 m in diameter.

S070-III:

- Bedrock and soil mantled back slope north of the highway is approximately 6 m high, including a 1.5 m near vertical section at the brow. The bedrock bedding planes are 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. Erosion at the crest of the slope has created overhanging vegetation mats.
- Rockfalls are active and fresh rockfall debris up to 1.45 m x 0.65 m x 0.70 m was observed in the ditch during the 2024 inspection. The large debris noted was at the same location as what was observed during the 2022 inspection, indicating that the debris has not been cleared out of the ditch. Rockfall debris is primarily subrounded to angular. Material that has accumulated in the ditch and should be cleared out.
- The ditch is approximately 0.7 m deep and provides good catchment for rockfall debris.

The site is located on the right-hand side of a pullout where a creek was realigned due to a previous washout.

Maintenance/Repair/Monitoring Recommendations:

- 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.

This site was included in the K-Country Rockfall Hazard Assessment completed by KCB in 2023. A draft report was submitted on September 18, 2023. One of the recommendations in the report included that the risk rating should be re-assessed during the next Section B inspection based on the results of the rockfall hazard assessment. The risk rating was re-assessed as part of the 2024 Section B inspection based on the results of the rockfall hazard assessment.

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.

KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.

Use of or reliance upon this instrument of service by the Client is subject to the following conditions:

(i) The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report.

(ii) The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.

(iii) The report is based on information provided to KCB by the Client or by other parties on behalf of the client (Client-supplied information). KCB has not verified the correctness or accuracy of such information and makes no representations regarding its correctness or accuracy. KCB shall not be responsible to the Client for the consequences of any error or omission contained in Client-supplied information.

(iv) KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.

(v) This report is electronically signed and sealed and its electronic form is considered the original. A printed version of the original can be relied upon as a true copy when supplied by the author or when printed from its original electronic file.

PROFESSIONAL ENGINEER ALBERTA
PETER J. ROY

16 Oct. 2024
ID 141695

Peter Roy, P.Eng.
Civil Engineer

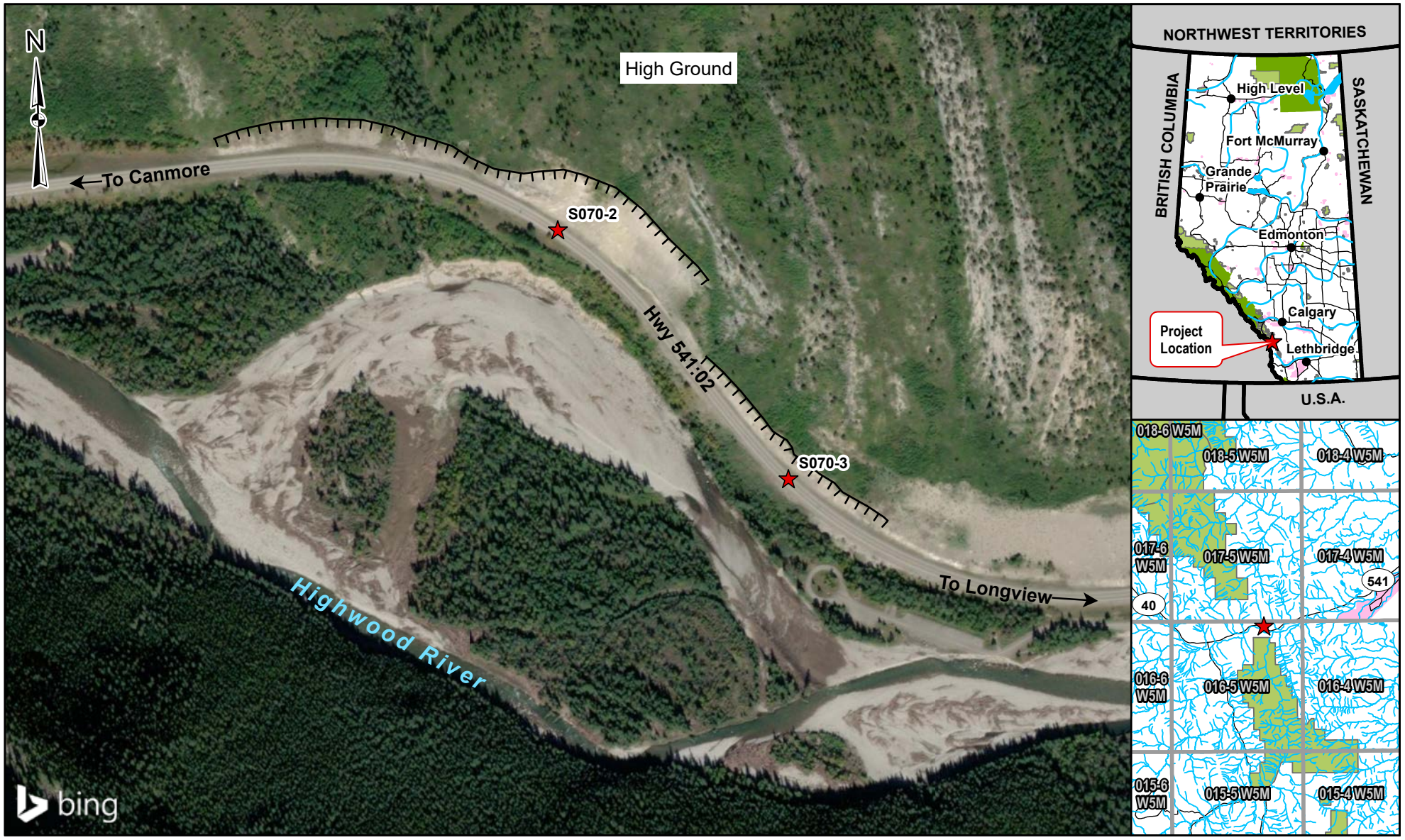
PERMIT TO PRACTICE
KLOHN CRIPPEN BERGER LTD.

RM SIGNATURE: Pamela Jones

RM APEGA ID #: 187607

DATE: 16 Oct. 2024

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 2024.

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

File: C:\Users\equine\Desktop\TWINS\ABT_Southern_Section\B\ABT_Southern_Section\B\ABT_Southern_SectionB.aprx Date:2024-10-10 4:10 PM Creator: EQuine

Photo 1 **S070-II: Northern portion of back slope adjacent to the highway. Photo taken facing northwest on May 28, 2024.**

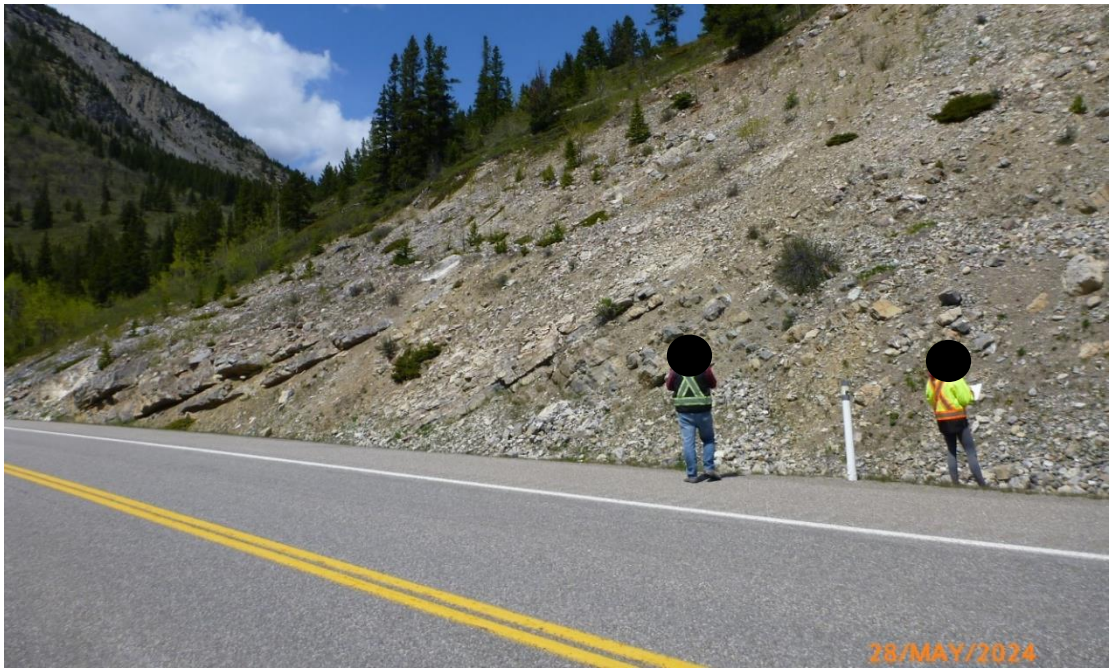


Photo 2 **S070-II: Central portion of back slope adjacent to the highway. Photo was taken facing north on May 28, 2024.**

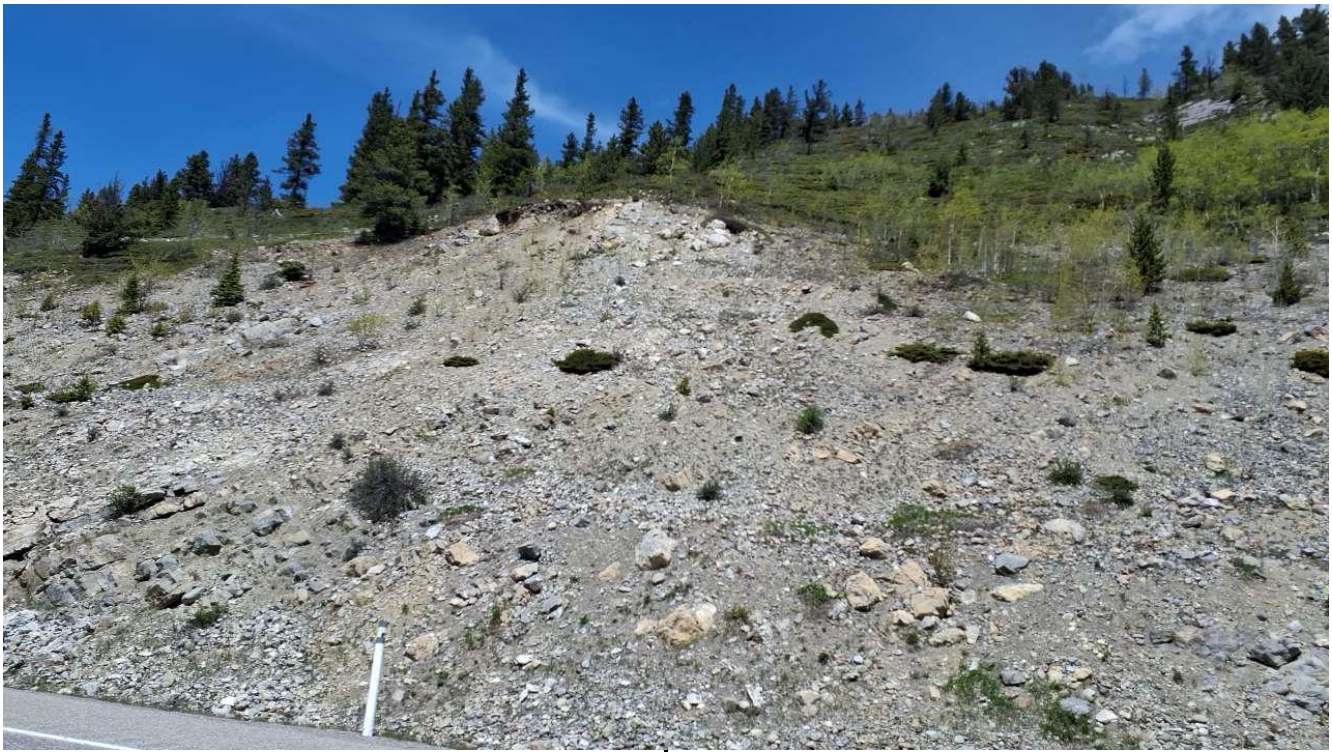


Photo 3 **S070-II: Southern portion of back slope adjacent to the highway. Photo was taken facing northwest on May 28, 2024.**

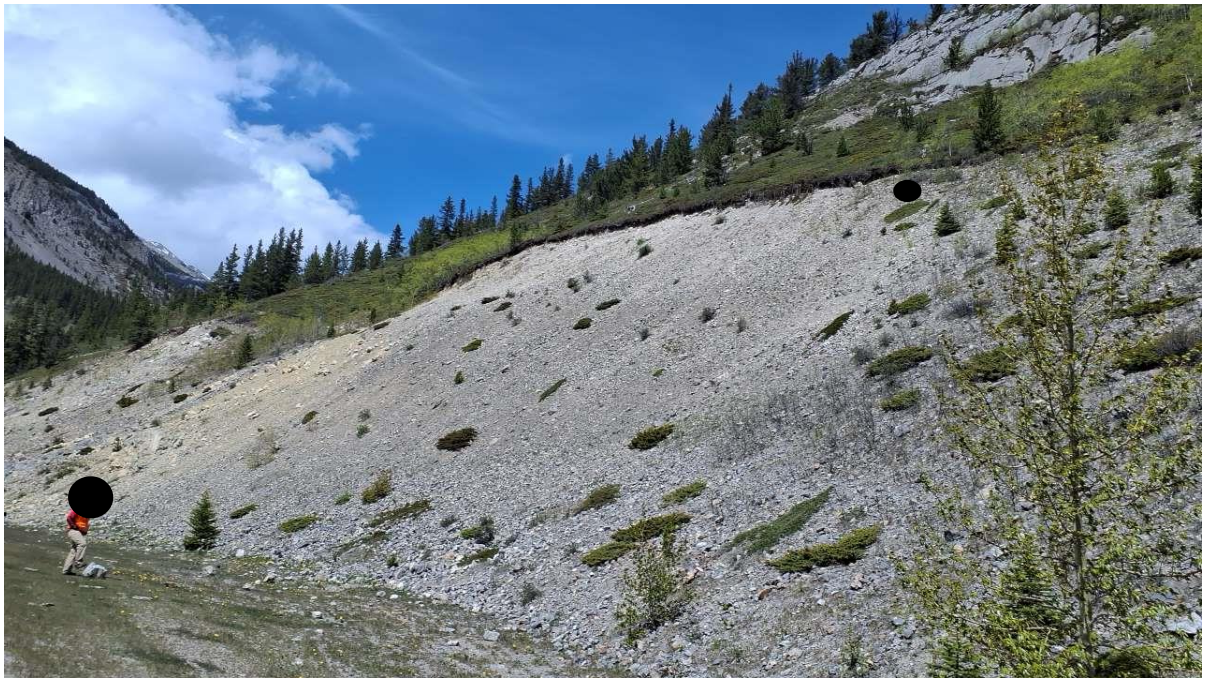


Photo 4 **S070-II: Rockfall debris close to the road. Photo taken facing southeast on May 28, 2024.**

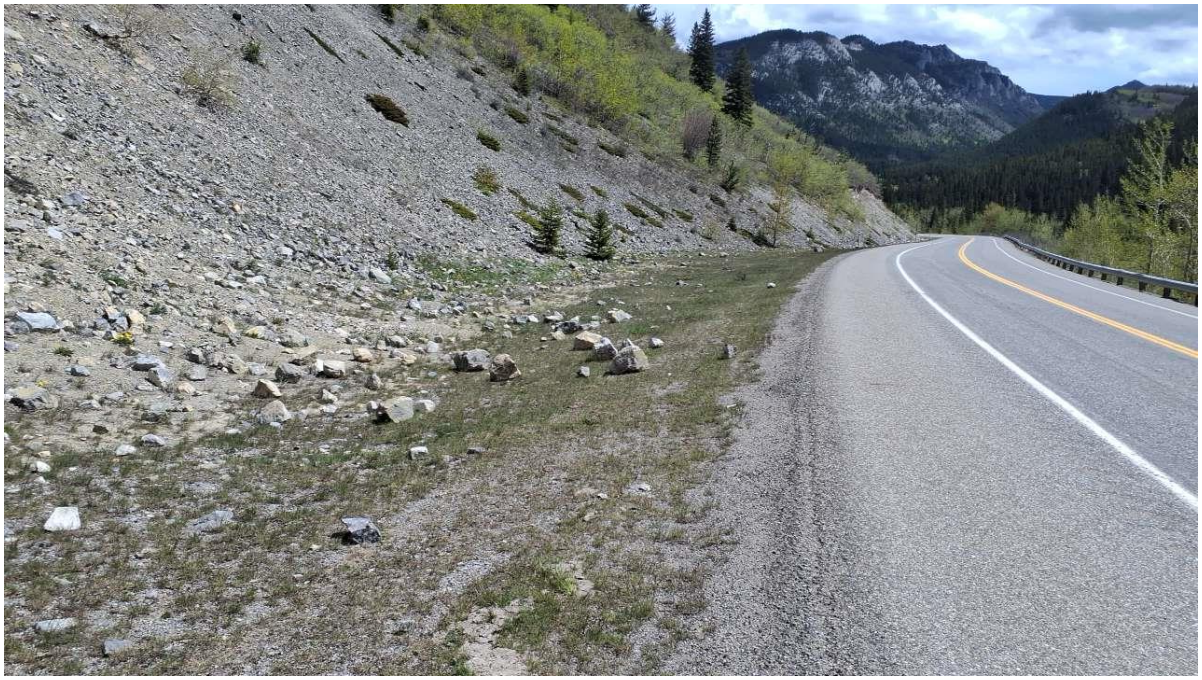


Photo 5 **S070-II: Rockfall debris on south side of highway which may have travelled across the highway. Photo taken facing south on May 28, 2024.**

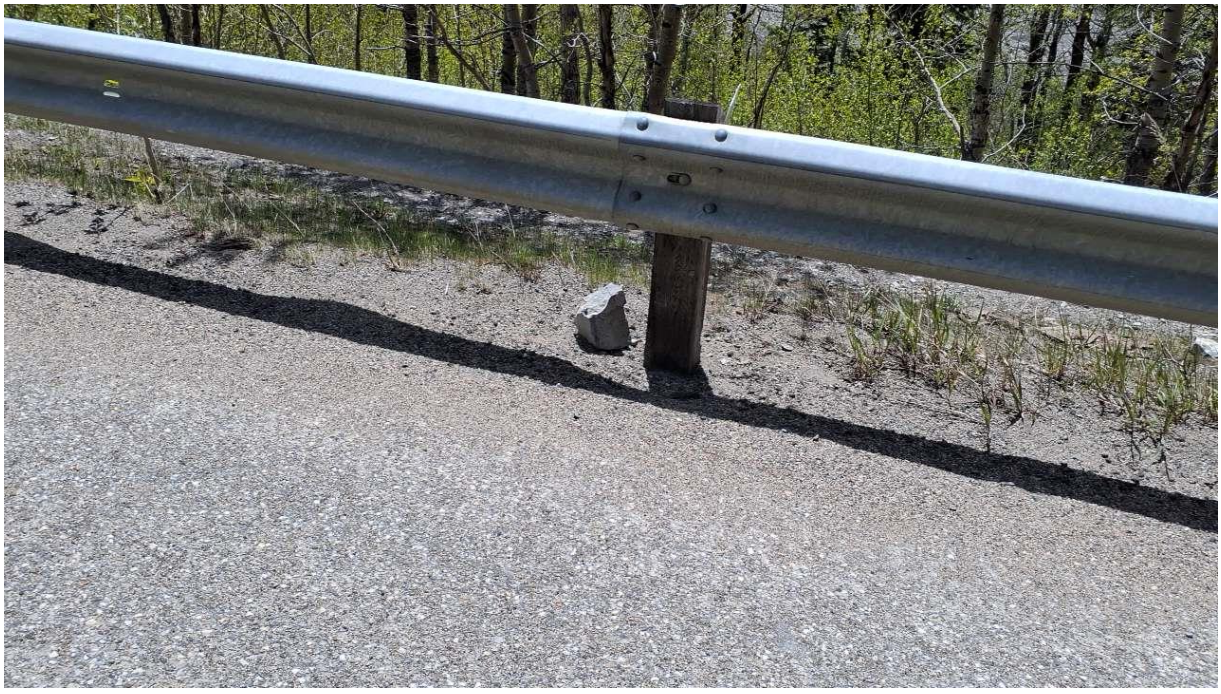


Photo 6 **S070-III: Rockfall debris at the toe of the slope in northbound ditch. Photo taken facing northwest on May 28, 2024.**

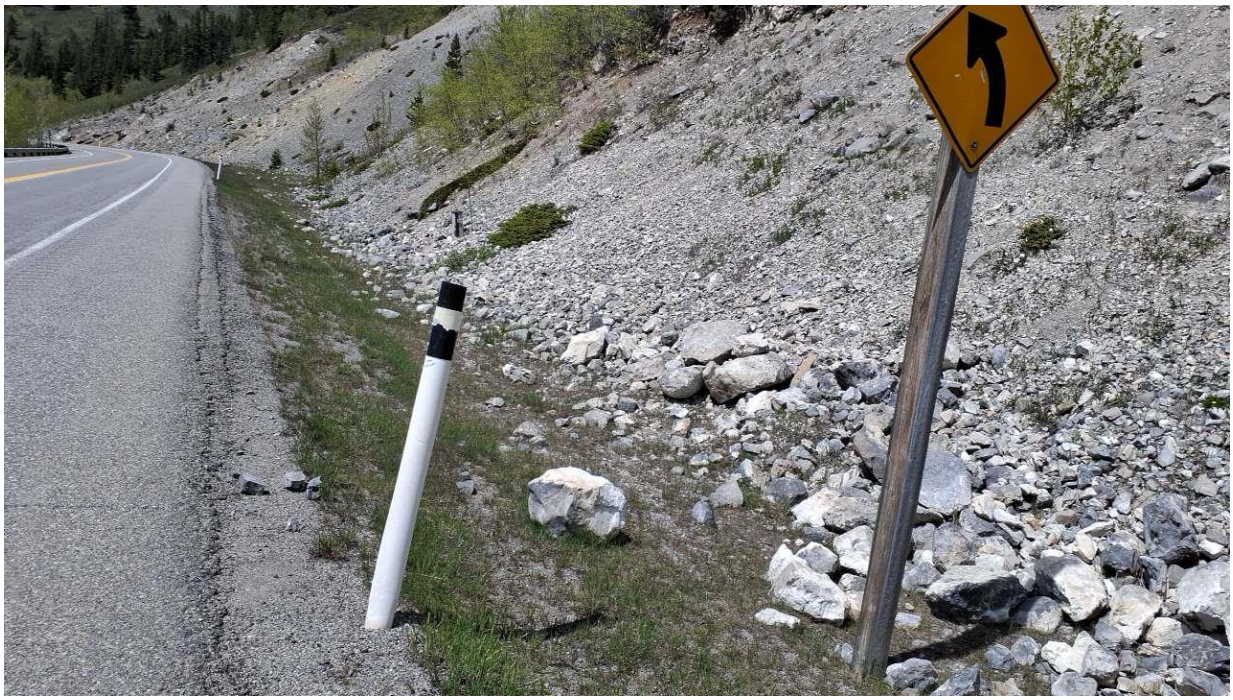


Photo 7 **S070-III: Northbound ditch and bedrock fracturing. Photo taken facing north on May 28, 2024.**

Photo 8 **S070-III: Bedrock fracturing leading to future rockfall blocks. Large rock noted in ditch was there during the 2022 inspection. Photo taken facing southeast on May 28, 2024.**