

<b>SITE NUMBER AND NAME:</b> C077 H570 Slide and Rockfall		<b>HIGHWAY &amp; KM:</b> 570:01, 8.8	<b>PREVIOUS INSPECTION DATE:</b> June 26, 2023	<b>INSPECTION DATE:</b> <b>June 18, 2024</b>
<b>LEGAL DESCRIPTION:</b> 04-17-027-17 W4M 03-07-027-17 W4M 13-08-027-17 W4M 14-08-027-17 W4M		<b>NAD 83 COORDINATES:</b> UTM    Northing    Easting 12      5684270    404558	<b>RISK ASSESSMENT:</b> Slide:    PF: 9      CF: 4      TOTAL: 36 Rockfall: PF: 11    CF: 4      TOTAL: 44	
<b>AVERAGE ANNUAL DAILY TRAFFIC (AADT):</b> 500 (west) & 400 (east) (Ref No. 116220 & 997198)			<b>CONTRACT MAINTENANCE AREA (CMA):</b> 519	

<b>SUMMARY OF SITE INSTRUMENTATION:</b>  There are no instruments at the C077 site.  LAST READING DATE: N/A	<b>INSPECTED BY:</b> Chris Gräpel (KCB) James Lyons (KCB) Tony Penney (TEC) Rocky Wang (TEC)
<b>PRIMARY SITE ISSUE:</b> There is slope instability and rockfall hazards along the north slope of Hwy 570:01.	
<b>APPROXIMATE DIMENSIONS:</b> The slide is along approximately 250 m to 300 m of the highway, 290 m wide from the toe of the slope to the crest, and approximately 100 m in height. The overall grade of the slope is approximately 3H:1V (compound slope varying from approximately 6H:1V to 1.75H:1V)	
<b>DATE OF ANY REMEDIAL ACTION:</b> June 2022 – removal of material that had accumulated in the north (westbound) ditch was completed by the HMC. Rock scaling and rock block removal was completed by BAT Construction Ltd. (BAT) and Spidex All Terrain Excavating Inc. (Spidex).	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress		X	N/A – not observed during the 2024 inspection.		X
Slope Movement	X		Ongoing slope movement and rockfall as indicated by particles in the north (westbound) ditch	X	
Erosion		X	N/A – not observed during the 2024 inspection.		X
Seepage		X	N/A – not observed during the 2024 inspection.		X
Culvert Distress		X	N/A – There are no culverts at the C077 site.		X

<b>COMMENTS</b>
<p><u>C077 Slide:</u></p> <ul style="list-style-type: none"> <li>• There are many large relict translational slides along the slope north of Hwy 770 near the C077 site.</li> <li>• Some evidence of sliding within the talus slope was observed with a possible mid-slope bulge and ground cracking in upper slope well above the highway (below and west of where rock scaling was completed in 2022).</li> <li>• A weathered and fractured bedrock outcrop was observed near the west extent of the site, approximately midslope and above an area of sliding within the talus slope (Photo 1 and 2).</li> <li>• Ground cracking was observed near the west portion of the site at a near-vertical rock scarp (Photos 1 through 5).</li> </ul>

- A weathered bedrock outcrop was observed near the east side of the site, east of the where cracking was observed (Photos 1 through 3). The bedrock outcrop is located approximately halfway to two-thirds up the slope.

C077 Rockfill:

- During the 2024 inspection, no new rockfall particles were observed on the highway surface or on the south side of the highway.
- Rock particles were observed in the north (westbound) highway ditch (up to approximately 1 m x 0.6 m x 0.6 m) (Photo 6). KCB suspected the particles were from the 2022 scaling work that was completed at the site, since the particles edges did not appear fresh and blue spray paint was observed on several of the particles.

Ponded water was observed in the north (westbound) ditch near the east extent of the site (Photo 7), indicating the ditch drainage is poor. The east extent of the site is relatively close to the C058 site, where there are sinkholes/voids impacting the highway surface, due to the dispersive soils present. Sinkholes/voids could form at the C077 site due to the dispersive nature of the soil.

Maintenance/Repair/Monitoring Recommendations:

- The site should continue to be regularly inspected by TEC's Maintenance Contract Inspector (MCI) and TEC and KCB should be notified if they observe any changes to the site.
- The site should be inspected annually as part of the Central Region GRMP Section B Inspections.
- KCB has budget for one more Unmanned Aerial Vehicle (UAV) survey of the site to monitor the rate of displacement of the site. The final survey should be completed after significant precipitation event(s) or if additional movement is observed.

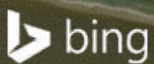
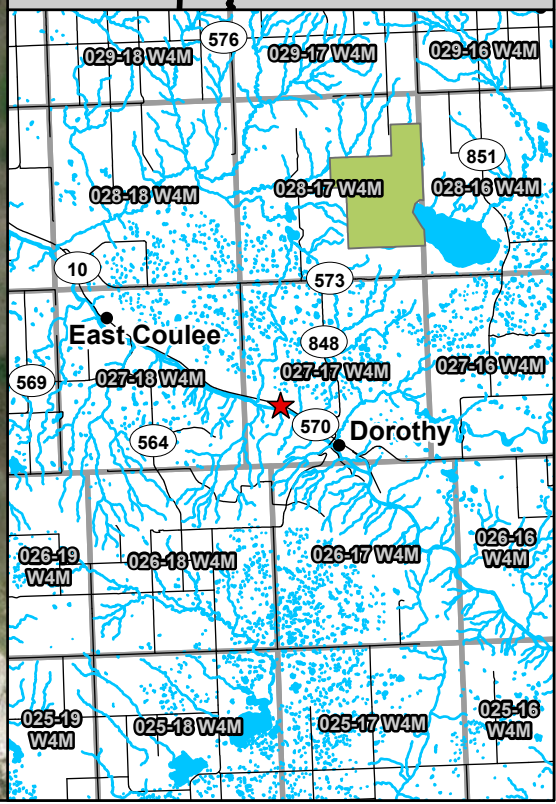
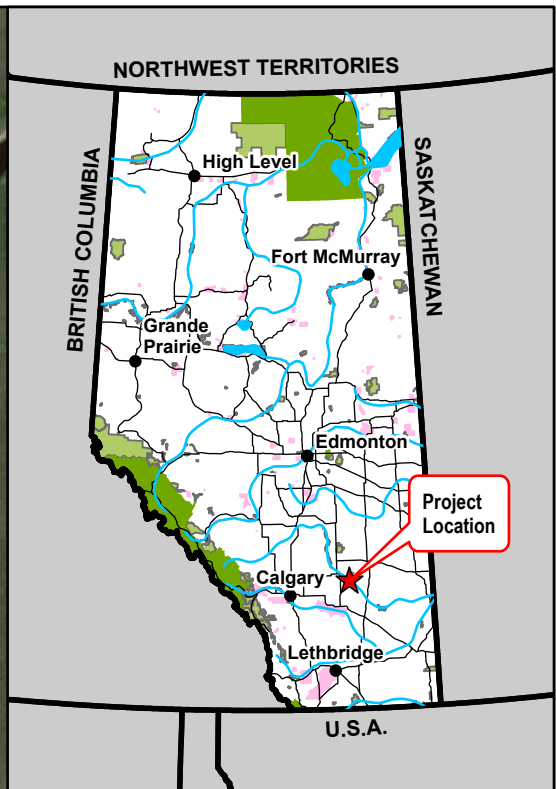
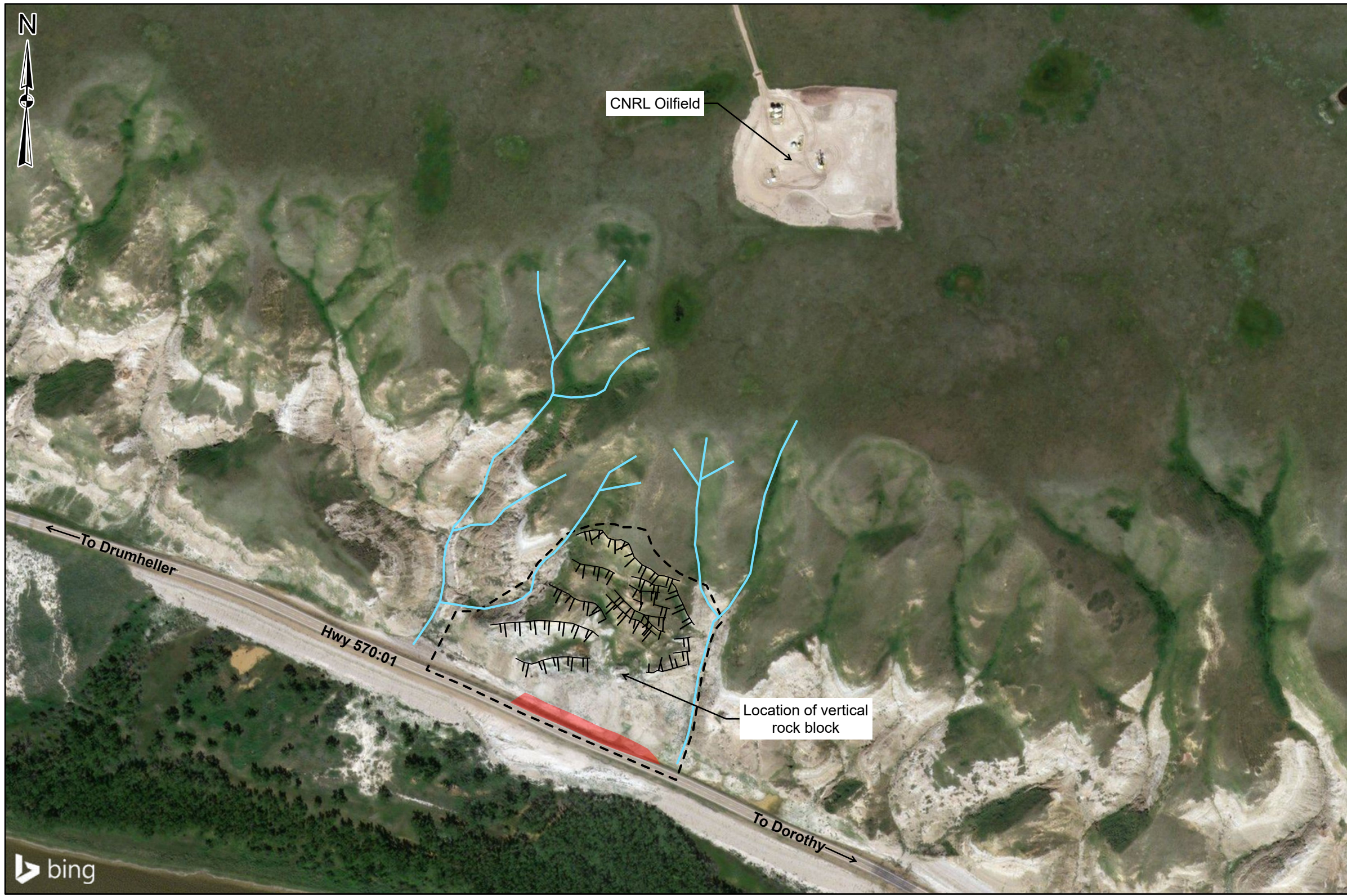
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<p>James Lyons, P.Eng. Civil Engineer</p>	
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**Legend**

- Scarp
- Drainage Route
- Active Zone Extent
- Area of Rock Fall and Debris Deposition



NOTES:  
 1. HORIZONTAL DATUM: NAD83  
 2. GRID ZONE: UTM ZONE 12N  
 3. IMAGE SOURCE: 2022 MICROSOFT CORPORATION, 2022 MAXAR, CNES, DISTRIBUTION AIRBUS DS

CLIENT

PROJECT CENTRAL REGION GEOHAZARD RISK MANAGEMENT PROGRAM		
TITLE Site Plan C077 - H570 Slide and Rockfall Hwy 570:01, km 8.8		
SCALE 1:4,000	PROJECT No. A05116A02	FIG No. 1

**Photo 1** Aerial photo of the C077 site. Locations of recent movement are indicated by red arrows, location of new (late-2023 or early-2024) ground cracking observed on the slope is indicated by red rectangle, and previous scaling completed in 2022 is indicated by red circles (note the area of ground cracking was also scaled in 2022). Photo taken June 18, 2024, facing north.



**Photo 2**      **Oblique aerial view of the site. Photo taken June 18, 2024, facing east-northeast.**



**Photo 3**      **Oblique aerial view of the site. Photo taken June 18, 2024, facing northwest.**



**Photo 4** Aerial photo of the upper portion of the slope. Area where new ground cracks were observed indicated by red rectangle and areas previously scaled in 2022 are indicated by red circles. Photo taken June 18, 2024, facing west.





**Photo 5**      **Aerial view of the top portion of the slide. Area of new ground cracks indicated by red polygon. Photo taken June 18, 2024, facing east.**



**Photo 6** Particles observed in the north (westbound) ditch are up to 1 m x 0.6 m x 0.6 m in size. Blue spray paint was observed on the particles, and they do not appear fresh, indicating they could have been removed during the 2022 scaling activities. Photo taken June 18, 2024, facing east.



**Photo 7** Ponded water along the north (westbound) ditch near the east extent of the site. Photo taken June 18, 2024, facing east.

