

SITE NUMBER AND NAME: S050 Quirk Creek Slide		HIGHWAY & KM: 549:02, 4.869	PREVIOUS INSPECTION DATE: April 30, 2018	INSPECTION DATE: July 5, 2021
LEGAL DESCRIPTION: 05-03-021-04 W5M	NAD 83 COORDINATES: UTM Northing Easting 11 5625113 677537		RISK ASSESMENT: PF: 8 CF: 2 TOTAL: 16	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 200 (west), 770 (east), (Ref. No 65170)			CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION: None	INSPECTED BY: Chris Morgan (KCB) Chris Gräpel (KCB) Alex Frotten (AT) Roger Skirrow (AT)
LAST READING DATE: N/A	

PRIMARY SITE ISSUE: Slide below the highway, extending 0.5 m into the north highway shoulder. A corroded culvert beneath highway was likely allowing water to drain into the embankment. A second smaller slide was located near the east toe, 3 m inside the fence line and not impacting the highway.

APPROXIMATE DIMENSIONS: Approximately 10 m of the highway shoulder impacted by the main slide, extending approximately 30 m wide at the middle. Smaller slide is approximately 10 m wide with head scarp up to 1.5 m high.

DATE OF ANY REMEDIAL ACTION: Slide area was repaired by regrading the slope in 2017. Drainage was improved at the toe of the embankment. The corroded culvert inlet was blocked in 2017 and the ditch plug removed to allow water to flow past the former culvert inlet.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Some undermining of the north shoulder and loss of asphalt, not into driving lane. Dip in highway starting to form.	X	
Slope Movement	X		Some movement appears to have occurred at the right (east) flank of the slide area since 2018.	X	
Erosion		X	None visible		X
Seepage	X		Embankment toe was wet below the fence line during 2018 and 2021 inspections.		X
Culvert Distress	X		Corroded culvert inlet blocked, ditch block removed to allow water to flow down south ditch.		X

COMMENTS

The right (east) head scarp appeared to drop about 0.5 m between the 2017 and 2018 inspections. No significant changes were observed in 2021. Observations partly obscured due to grass coverage.

Slope movement in the centre of the slide is indicated by a toe bulge approximately 20 m beyond the toe of the embankment. The slide toe being this far from the toe of the embankment suggests the failure is either deep-seated rotational or translational, sliding along a shallow sub horizontal surface.

Several springs are apparent beyond the toe of the embankment, which suggests high water table and possibly artesian groundwater. Toe area was wet below the fence line.

The former corroded culvert inlet on the south side of the highway was armored with riprap.

A drilling program consisting of 2 to 3 boreholes should be undertaken to assess the ground conditions in the slide area.

Possible remediation options could include:

- Slope flattening and construction of a toe berm;
- Excavate and replace embankment slope with geogrid reinforced granular fill and shear key;
- Soil nailing; or
- Pile wall.

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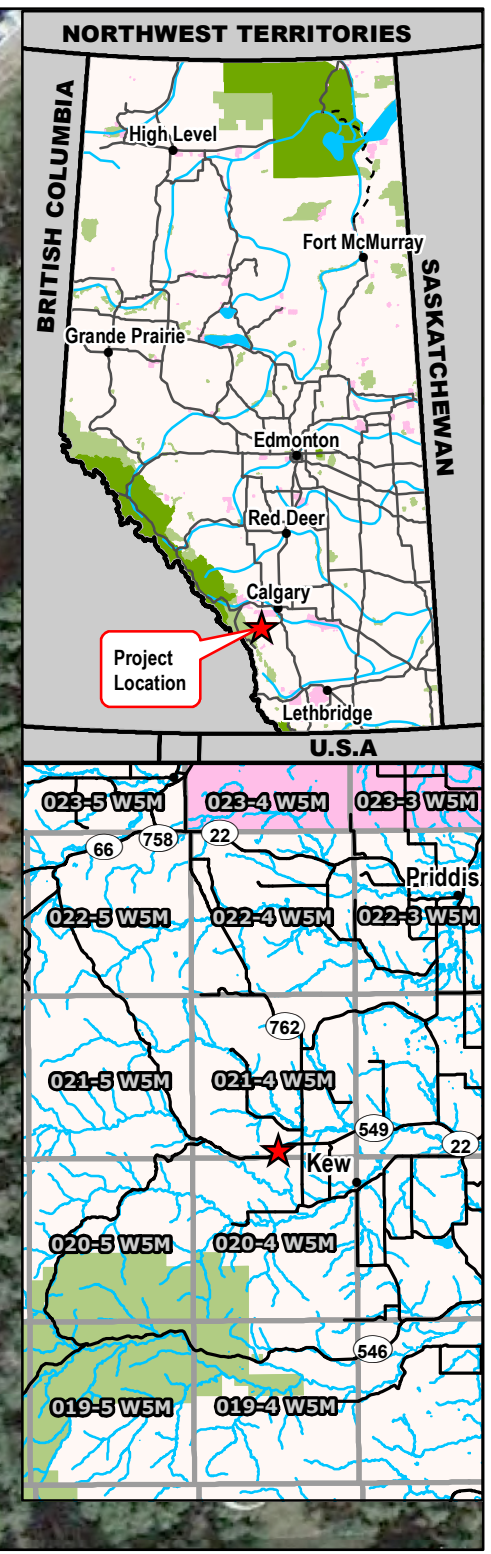
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- KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.



2021-11-24

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Senior Geotechnical Engineer



- Legend**
- Culvert
 - Scarp
 - Toe Roll
 - Flow Direction
 - Seepage



NOTES: 1. HORIZONTAL DATUM: NAD83 2. GRID ZONE: UTM Zone 11N 3. IMAGE SOURCE: Google Earth. Image dated August 22, 2015	CLIENT 	PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM
		TITLE Site Plan S050 - Quirk Creek Slide Hwy 549:02-1
SCALE 1:800	PROJECT No. A05116A03	FIG No. 1

Time: 15:19:33 PM
 Date: October 07, 2021
 File: Z:\ACCY\Alberta\A05116A03\ABT_Southern Region GRMP\400 Drawings\2021\Section B figures\MXD\S050_211007.mxd

Photo 1 North side of highway. Photo taken facing north on July 5, 2021.



Photo 2 Slide area viewed from highway. Photo taken facing northwest on July 5, 2021.



Photo 3 Slide area viewed from toe. Photo taken facing east on July 5, 2021.



Photo 4 No pavement cracking observed on the highway. Photo taken facing southwest on July 5, 2021.

