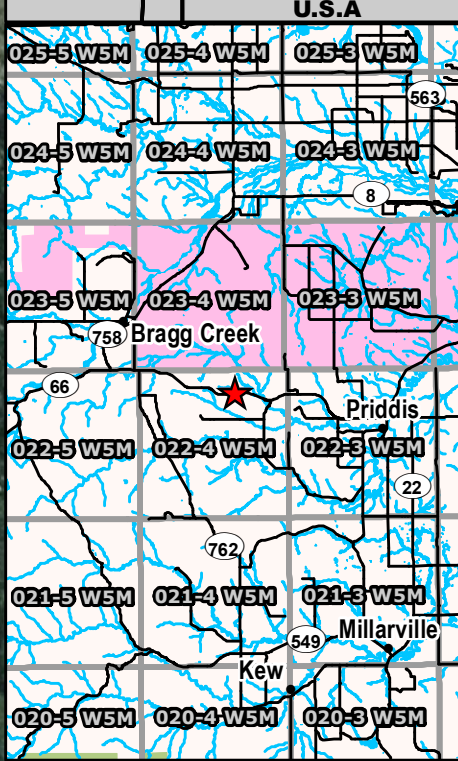
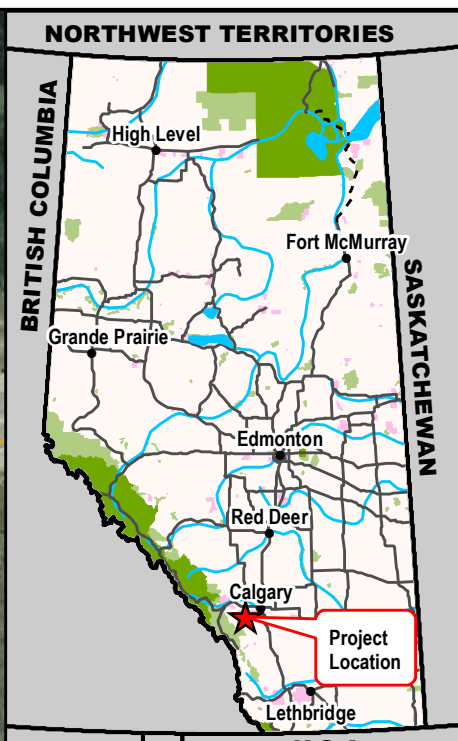


SITE NUMBER AND NAME: S002 Priddis		HIGHWAY & KM: 22:14, 12.595	PREVIOUS INSPECTION DATE: May 6, 2019	INSPECTION DATE: June 8, 2020
LEGAL DESCRIPTION: 01-34-022-04 W5M	NAD 83 COORDINATES: UTM Northing Easting 11 5642606 678005		RISK ASSESMENT: PF: 7 CF: 4 TOTAL: 28	
AVERAGE ANNUAL DAILY TRAFFIC: 4260 (east) & 4260 (west) (Ref. No. 62187)			CONTRACTOR MAINTENANCE AREA (CMA): 27	

SUMMARY OF SITE INSTRUMENTATION: 2 functioning slope inclinometers (SI) SI #9 and SI #11 and 3 active vibrating wire piezometers (VWPs). LAST READING DATE: May 2020		INSPECTED BY: Chris Morgan (KCB) Margot Lederman (KCB) Roger Skirrow (AT) Alex Frotten (AT)
PRIMARY SITE ISSUE: Pavement cracking at the northwest edge of the highway caused by continued slope movement downslope of a concrete pile wall (unknown date of construction and unknown design details).		
APPROXIMATE DIMENSIONS: Landslide zone affecting highway is approximately 90 m long. Slope varies from 3H:1V on the upper half of the slope and 5H:1V on the lower half of the slope. Embankment slope approximately 15 m high.		
DATE OF ANY REMEDIAL ACTION: A concrete pile wall was installed along the northwest shoulder of highway in 1992, to stabilize the highway against the ongoing landslide movement. Additionally, a row of gravel columns was installed on the upslope, southeast, side of the highway and two pumps placed in the gravel columns with a water-level-activated switch to turn the pumps on. The pumps are permanently installed but are turned off during winter months. As-built information for repairs is not available. Last pavement overlay was 7 years ago.		

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Cracking and settlement of the north shoulder of the road surface was observed, between the guard rail and existing pile wall location. Depth of settlement around piles appears to be about the same as last year. The pavement cracking extends almost the full width of the highway (crack extends approximately 0.2 m north of the north shoulder white line).	X	
Slope Movement	X		There is an active slope failure to the north of the highway in front of the pile wall. Dip in guard rail.	X	
Erosion	X		None noted. Vegetation cover was continuous over the slide area.		X
Seepage	X		Seepage at the toe of the slope, from buried culvert.		X
Culvert Distress	X		Buried culvert appears to be discharging water into small pond at the toe of the slope.		X

COMMENTS
<p>Pavement cracks seem to have widened slightly when compared to 2019 observations. In 2019 the cracking extended to approximately 1.12 m inside of the north shoulder white line, whereas in 2020 the cracking had extended north and was between the white line and north side guard rail. Cracking should be repaired by the maintenance contractor through patching.</p>
<p>At the time of the site visit, the pumps in the gravel columns were operational with active discharge. The pumps are permanently installed in the wells and get turned on and off for winter. Ponded water was observed in the upslope ditch, adjacent to the discharge lines from the groundwater pumps.</p>
<p>No obvious increase in slope cracking was noted. Guard rail deflection appears unchanged from the 2019 site visit.</p>
<p>Seepage was noted at the tree line approximately in the centre of the slide upslope of a buried culvert. Seepage reports to a drainage channel, which contains standing water.</p>
<p>There is a culvert to the east of the slide zone which was active and flowing during the site visit. The culvert channel is overgrown and partly filed with sediment. A ditch plug diverts water into this culvert.</p>
<p>New instrumentation covers should be installed on the SIs adjacent to the roadway. The current covers have holes in them that allows sediment to migrate into the instruments, making reading difficult and impacting the ability to accurately read instruments.</p>
<p>The thickness of asphalt on the north shoulder is around 500 mm thick. AT pavement LIDAR could be used to monitor changes in the road surface over several years.</p>
<p>It is understood that Highway 22 at this location is to be twinned at some point in the future.</p>
<p>The nature of the reinforced pile wall should be investigated with the use of wet rotary diamond drilling techniques to identify how deep the piles are. Geophysical methods could be used to assess pile depths and check for the presence of rebar. At least three piles should be located and investigated. The assessment should include drilling boreholes downslope of the pile wall to install two slope inclinometers to allow assessment of the depth of movement downslope of the pile wall against the depth of the pile wall. The impact of turning off the groundwater pumps in the winter should be assessed by placing level loggers in the pump wells and reviewing the data in the spring when the pumps are turned back on.</p>



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

- Legend**
- ▣ Slope Inclinator
 - ⊗ Vibrating Wire Piezometer
 - GPS Track (June 8, 2020)



NOTES: 1. HORIZONTAL DATUM: NAD83 2. GRID ZONE: UTM Zone 11N 3. IMAGE SOURCE: World Imagery from ESRI ArcGIS Online. Source date January 15, 2015	CLIENT 	PROJECT SOUTHERN REGION GEOHAZARD RISK MANAGEMENT PROGRAM
		TITLE Site Plan S002 - Priddis Hwy 22:14, km 12.595
SCALE 1:1,000	PROJECT No. A05115A03	FIG No. 1

Time: 16:41:42 PM
 Date: June 23, 2020
 File: Z:\AEDM\A05115A03 ABT Southern Region GRMP\400 Drawings\2020\2. Section BIM\XDS\02_200623.mxd

Photo 1 Pavement distress at the location of the pile wall. Photo taken facing west on June 8, 2020.



Photo 2 Embankment slope facing toward right flank of slide. Photo taken facing east on June 8, 2020.



Photo 3 Embankment slope in slide area. Photo taken facing west on June 8, 2020.



Photo 4 Pavement cracking has extended northwards when compared to 2019 observations. Photo taken from south side of highway facing northeast on June 8, 2020.



Photo 5 **Ponded water at the toe of the slope facing southeast. June 8, 2020.**

