Alberta Transportation

CENTRAL REGION GRMP
SITE INSPECTION FORM

Klohn Crippen Berger

SITE NUMBER AND NAME: **C043 Soil-Nail Site**	HIGHWAY & KM: 619:06, 12.206	PREVIOUS INSPECTION DATE: July 12, 2019	INSPECTION DATE: **June 24, 2020**
LEGAL DESCRIPTION: 03-29-048-05 W4M 14-20-048-05 W4M	NAD 83 COORDINATES: UTM 12 Northing 5890276 Easting 520018	RISK ASSESSMENT: PF: 8 CF: 4 TOTAL: 32	
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 680 (west) & 660 (east) (Ref No. 134430 & 131430)		CONTRACT MAINTENANCE AREA (CMA): 512	

SUMMARY OF SITE INSTRUMENTATION:	INSPECTED BY:
Operational: 2 vibrating wire piezometers installed in 2017. Inoperable: 1 slope inclinometer and 1 standpipe piezometer installed in June 2013. LAST READING DATE: May 7, 2020	Chris Gräpel (KCB) James Lyons (KCB) Rishi Adhikari (AT) Tom Sommerville (AT)

PRIMARY SITE ISSUE: Embankment fill and foundation slide affecting eastbound lane and some of westbound lane.

APPROXIMATE DIMENSIONS: Approximately 40 m long semi-circular crack, slope approximately 10 m high at approximately 3H:1V.

DATE OF ANY REMEDIAL ACTION: Summer 2006 – soil nails launched into embankment; 2010 to present – regular asphalt patching. No asphalt patching in the last year.

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Tension cracks observed on westbound lane and shoulder. Width of cracks at edge of westbound lane slightly wider.	X	
Slope Movement	X		Shallow depression has formed on north slope below highway.	X	
Erosion		X			X
Seepage		X			X
Culvert Distress		X			X

COMMENTS

Soil nails (installed in two construction phases) have slowed slide movements but slide continues to move as indicated by widening pavement cracks and pavement settling that requires patches to be placed to level the highway. The asphalt cracks extent to the east and west of the most recent asphalt patch (Photo 1).

Prior to soil nail installation, the site was patched 2 to 3 times annually (AT). Now the site is usually patched annually. During the inspection, the MCI marked the pavement in preparation for pavement patching (7.6 m wide by 38 m long by 0.1 m deep). The MCI estimated that up to 1.5 m to 2.0 m of asphalt has been placed at the C043 site.

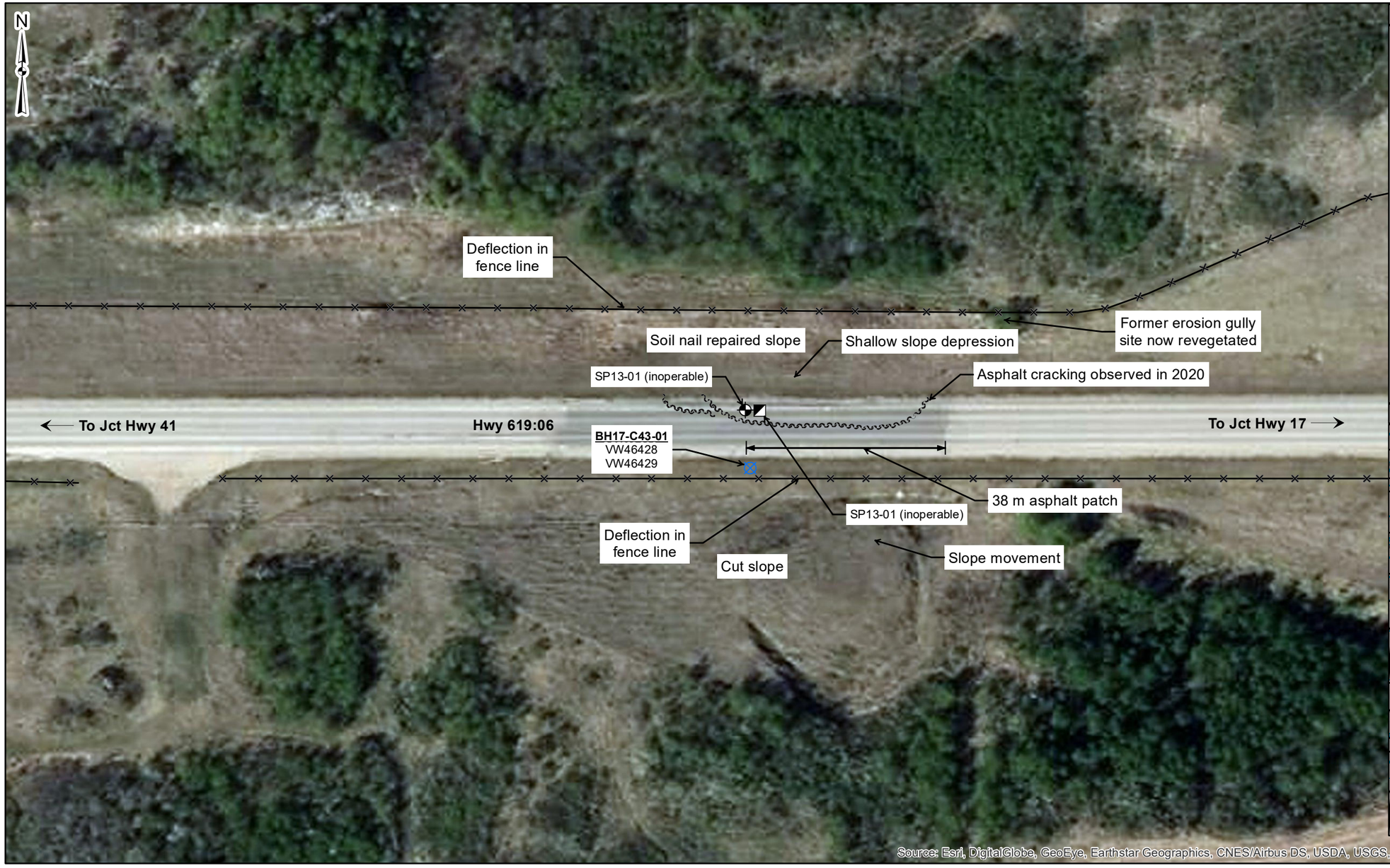
The backslope to the south of the slide area has failed and deflected the fence line.

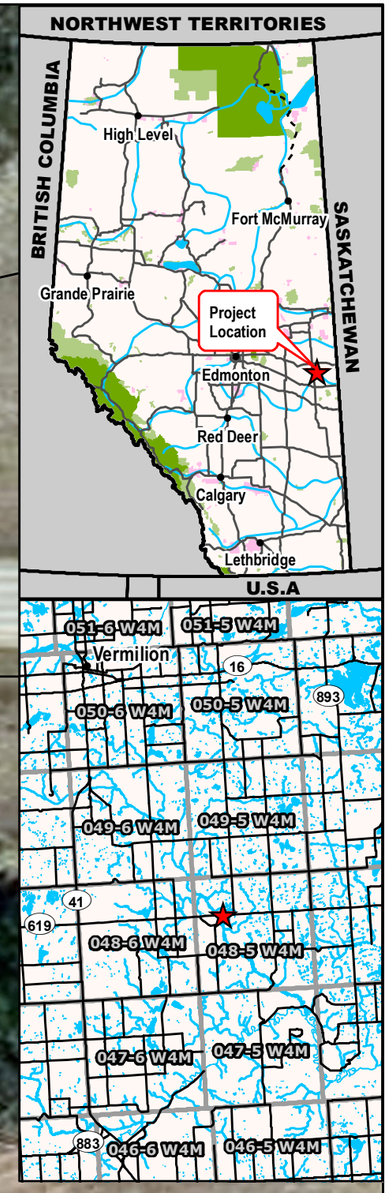
Seepage discussed as a possible contributing factor to slide movement, but no seepage was observed in the eastbound ditch. Eastbound ditch was densely vegetated with grass and appeared to be dry.

There was a drone flight conducted in 2016.

AT reports that a large truck went off the road at this site in the winter of 2017/2018.

Large westbound trucks are veering into the eastbound lane to avoid uneven pavement.
A spring and fall instrument monitoring report will no longer be completed for the C043 site.
Discussed remedial actions: • KCB recommends that an H-pile wall (HP360 X 132) be installed and a data logger installed for the two VWPs. The HP360 X 132 section is based on the steel used in the pile wall at the C048-I site where a driven steel pile wall was installed through previously installed soil nails. • The pile wall tender be limited to piling and the Highway Maintenance Contractor could do the mill and fill work to patch and restore the pavement behind the pile wall. • A tender for multiple pile walls on four sites will be released in the fall of 2020 that will include the C043 site.





Legend

- Standpipe Piezometer (SP)
- Slope Inclinometer (SI)
- Vibrating Wire Piezometer (VW)
- Fence
- Crack

0 — 50 Meters

NOTES:
1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM Zone 12N
3. IMAGE SOURCE: World Imagery, ESRI ArcGIS Online Source date May 21, 2015 (Vermilion River County 2015)
4. 2013 instrument locatinos are approximate.

CLIENT: Alberta

Klohn Crippen Berger

PROJECT: CENTRAL REGION GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
C043 - Soil Nail Site
Hwy 619:06, km 12.206

SCALE	PROJECT No.	FIG No.
1:800	A05115A02	1

Time: 13:57:43 PM
Date: July 30, 2020
File: Z:\AIED\M\A05115A02 ABT Central Region GRMP\400 Drawings\2020\2_Section B\MXD\C043_200730.mxd

Photo 1 **Cracking and pavement depression in the westbound lane. Tensions cracks extend beyond previously patched area. Photo taken June 24, 2020 looking east.**

Photo 2 **Asphalt settlement in the westbound lane. Photo taken June 24, 2020 facing west.**

Photo 3 **Slope movement in the slope south of Hwy 619:06. Photo taken June 24, 2020 facing south.**