GEOHAZARD ASSESSMENT PROGRAM

PEACE REGION – PEACE-HIGH LEVEL

2013 INSPECTION

Site Number	Location	Name	Hwy	km
PH46	Fairview	South Rings Creek	64:06	25.96
Legal Description		**UTM Co-ordinates**		
SW¼ 24-081-04 W6M		11V E 406752	N 6210542	

	Date	PF	CF	Total
Previous Inspection:	21-Jun-2012	13	4	52
Current Inspection:	4-Jun-2013	13	4	52
Road AADT:	520		**Year:**	2013
Inspected By:	Ed Szmata Ken Szmata Roger Skirrow		Don Proudfoot Shawn Russell	
Report Attachments:	☑ Photographs ☑ Plans		☐ Maintenance Items	

Primary Site Issue:	A slide occurred along the east sideslope of the highway embankment above a multiplate culvert.	
Dimensions:	Slide mass was about 25 m wide by about 50 m in length and about 2 m to 3 m in depth.	
Maintenance:	None since last inspection on May 26, 2011	
Observations:	**Description**	**Worsened?**
☑ Pavement Distress	Slide backscarp extended 0.7 m into the edge of the paved roadway over a length of 7.5 m. Pavement lost in slide below cracked area. Three guardrail posts are hanging and guardrail is slightly bowed. Longitudinal cracks are also present.	☑
☑ Slope Movement	A slide is retrogressing in the east shoulder and sideslope north of the culvert.	☑
☑ Erosion	Ongoing erosion along NW, NE and SE crotches of fill per June 2012 observations.	☑
☑ Seepage	Seepage on the west sideslope at 26+890	☑
☑ Bridge/Culvert Distress	Slide material is beginning to accumulate above culvert at inlet and could eventually obstruct water flow.	☑
☐ Other		☐

Instrumentation:

No instruments installed at this site.

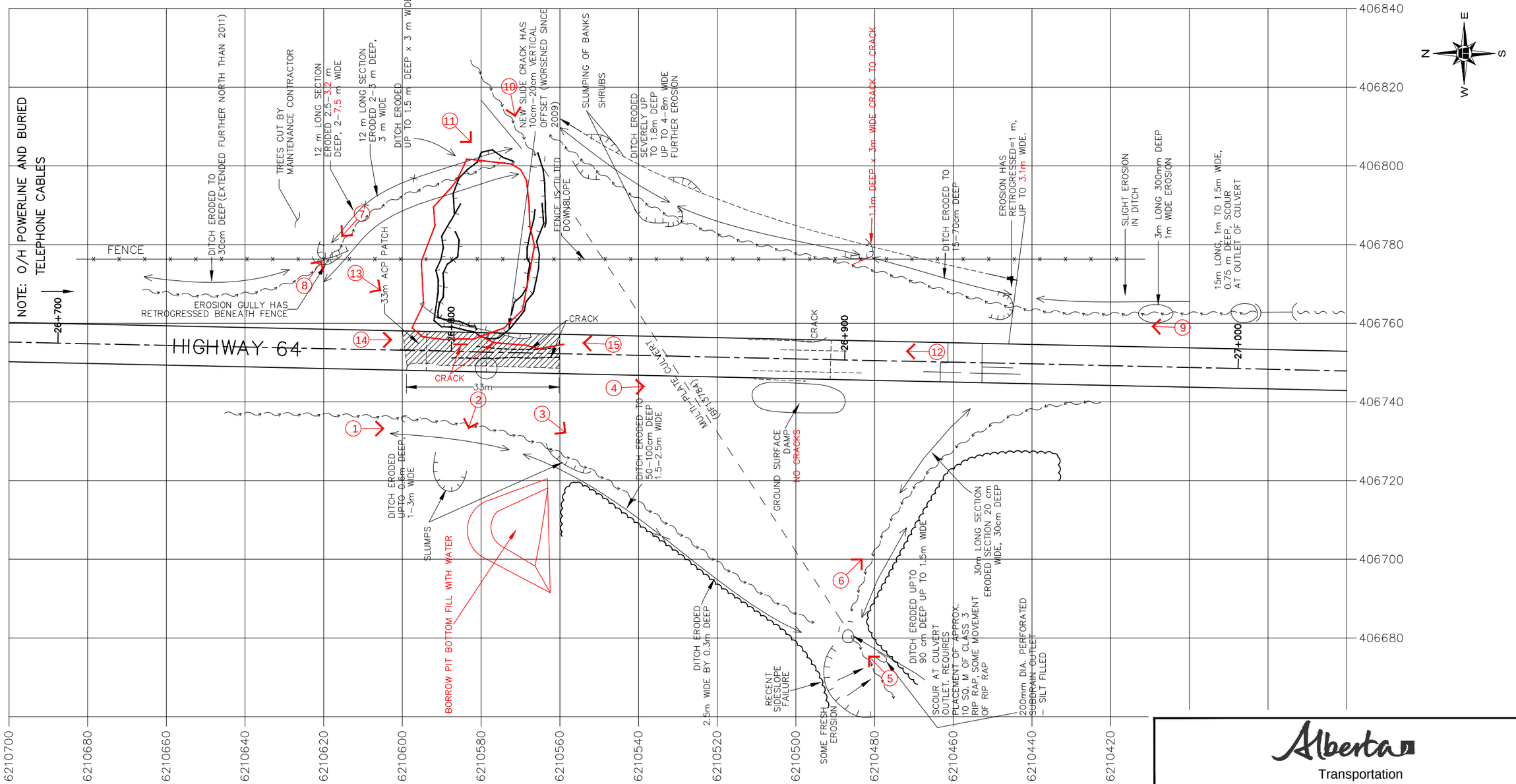
Assessment:

Soils at this site appear to be particularly susceptible to erosion by concentrated flowing water. It is likely that high precipitation events combined with a progressive loss of cohesion in the clay embankment fill due to weathering are the triggering mechanism for this slide.

Local experience suggests that for embankments constructed using high plastic clay fill, failures begin to occur sometime between 10 years and 20 years after construction (this structure was re-built in 1990). Long-term stable slopes in similar materials are typically 5H: 1V, while current slopes are 2.75H: 1V to 3H: 1V.

Recommendations:	**Cost**
Thurber was retained by TRANS in September 2012 to conduct a Preliminary Geotechnical Investigation in September 2012 and to prepare a design and tender package for the current slide repair in May of 2013. Landslide repair work, under TRANS Contract 14929, was awarded to In-Line Contracting Partnership in September 2013. Landslide repair work is due to be complete by the contractor by mid November 2013.	$50,000
The repairs for this slide consist of: ▪ Digging out the slide and northbound lanes of the highway and rebuilding the east sideslope with gravel fill. ▪ NW, NE and SW ditch erosion repairs with gabion mats and RECP. ▪ Enhancements to rip rap to accommodate gabion matting at culvert inlet and outlet.	$1,300,000

Z:\15\15-16-283\SGR\15-16-283_PH46-1.dwg - PH46 FIG1 - Dec. 08, 2013



LEGEND

① → PHOTO AND DIRECTION

NOTES:

1 LOCATION DATA RECORDED USING HAND HELD GPS RECEIVER. ALL LOCATIONS ARE APPROXIMATE AND ARE FOR ILLUSTRATIVE PURPOSES ONLY.

2 JUNE 4, 2013 OBSERVATIONS SHOWN IN RED

0 10 20 30 40 50 60m

SCALE 1:1000

Alberta Transportation

PEACE REGION (PEACE RIVER/HIGH LEVEL)
PH46 HIGHWAY 64:06

2013 PH46 INSPECTION PLAN

FIGURE 1

DRAWN BY	KLW
DESIGNED BY	SGR
APPROVED BY	DWP
SCALE	1:1000
DATE	JULY 2013
FILE No.	15-16-283

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	**Photo 1.** Looking southwest at NW corner of the site with ditch along the cut/fill contact.
	**Photo 2.** Slump in the NW corner of the site. No significant change since 2012.

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	**Photo 3.** Looking southwards along the west side of the road.
	**Photo 4.** Looking south along the west side of the road. Winter highway salt is likely impeding vegetation growth below the shoulder.

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	**Photo 5.** Outlet (west end) of the multi-plate culvert under the highway. No significant change since 2009.
	**Photo 6.** Small erosion rill along the downstream end of the ditch in the SW corner of the site. No significant change since 2012.

Photo 7.
Middle portion of the ditch in the NE corner of the site has worsened since 2012 with the gully sidewalls failing and falling into the bottom.

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	**Photo 8.** Ditch gullying at upper portion of the ditch at the NE corner of the site has extended further north and west than observed in 2012.
	**Photo 9.** Looking northwards along the ditch in the SE corner of the site. Erosion gullies have slightly widened with sod falling into their base.

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	**Photo 10.** Looking southwest at culvert inlet. Slide material and barbed wire from fence originally situated about 23 m upslope of the culvert is now draped over the pipe.
	**Photo 11.** Looking southwest at toe of slide area. Slide debris continues to move gradually downslope towards the culvert inlet.

	**Photo 12.** Looking northwards along the east side of the highway near 26+890. Backscarp has encroached into the northbound lane with traffic having to cross centerline to avoid.
	**Photo 13.** Looking along the east side of the road near 26+800. Three guardrail posts are now hanging

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	**Photo 14.** Looking southwards along the road near 26+800 at backscarp of east side slide which is encroaching about 0.7 m beyond the guardrail. Pavement cracks have grown in the middle of the northbound lane since 2012. Thurber test hole TH12-1 from September 2012 investigation can be seen in lower left corner.
	**Photo 15.** Asphalt cracking extends south of patched area.