

GEOHAZARD ASSESSMENT PROGRAM
PEACE REGION – PEACE-HIGH LEVEL
2013 INSPECTION



Site Number	Location	Name	Hwy	km
PH12	Judah Hill	Heart River Slides	744:04	57.30
Legal Description		UTM Co-ordinates		
SE¼ 20-083-21 W5M		11V E 483284	N 6229209	

	Date	PF	CF	
Previous Inspection:	22-Jun-2012	13	4	52
Current Inspection:	4-Jun-2013	14	4	56
Road AADT:	570		Year:	2012
Inspected By:	Roger Skirrow Ed Szmata		Don Proudfoot Shawn Russell	
Report Attachments:	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input type="checkbox"/> Maintenance Items			

Primary Site Issue:	Four slides on the east side of Hwy 744, adjacent to a layby (brake check lane). Slide 1 was repaired in March 1998. Slides 2, 3 and 4 are active and have retrogressed into the northbound layby lane. During the summer of 2011, the northbound layby lane was closed and the guardrail was moved to the edge of the northbound lane. The backscarp for Slide 2 has since retrogressed to about 1.0 m from the new guardrail. The backscarps of Slides 3 and 4 are presently within 0.7 m and 3.8 m from the new guardrail. For comparison, in 2011 the scarps for Slides 3 and 4 were 4.8 m and 0.95 m respectively from the old guardrail, with the scarp for slide 2 extending into the old highway layby lane pavement by 0.7m.		
Dimensions:	Slide 1: 45 m wide. Slide 2: 44 m wide, backscarp 1.0 m to new guardrail Slide 3: 35 m wide, backscarp 0.7 m to new guardrail Slide 4: 32 m wide, backscarp 3.8 m to new guardrail		
Maintenance:	None since 2012.		
Observations:	Description	Worsened?	
<input checked="" type="checkbox"/> Pavement Distress	Slide 3 has now encroached to within 1 m of the new guardrail undermining the asphalt pavement. Cracks in the asphalt pavement surface of the roadway are growing in length beyond the backscarps of Slides 2, 3 and 4.	<input checked="" type="checkbox"/>	
<input checked="" type="checkbox"/> Slope Movement	Repairs at slide 1 are still performing well. Continuing movement, retrogression and expansion of the slide bowls at Slides 2, 3 and 4. Backscarp of Slides 2 and 3 have retrogressed about 0.3 m since August 2012. Backscarp of Slide 4 has slightly retrogressed since 2012.	<input checked="" type="checkbox"/>	
<input type="checkbox"/> Erosion		<input type="checkbox"/>	
<input checked="" type="checkbox"/> Seepage	White salt stains and wet/dark areas in backscarps indicate seepages zones	<input checked="" type="checkbox"/>	

<input type="checkbox"/> Bridge/Culvert Distress		<input type="checkbox"/>
<input type="checkbox"/> Other		<input type="checkbox"/>
<p>Instrumentation:</p> <p>No instrumentation installed at this site.</p> <p>Thurber installed five (5) standpipe piezometers in June 2013 at locations shown on Figure 1.</p> <p>Seepage was encountered in all of the test holes at about 5 m to 6 m below the existing ground surface.</p> <p>Water readings subsequently taken in the standpipes piezometers varied between 1.1 m to 4.9 m in standpipes installed to 10 m depths (SP13-1A, SP13-2A and SP13-3) and from 23.3 m to 25.2 m in standpipes installed to depths of 26 m).</p>		
<p>Assessment:</p> <p>A combination of weathering, heavy precipitation, seepage and surface water drainage in the ditch appears to be driving retrogression of the slides that have not been repaired. The repairs at slide 1 continue to perform well. Slides 2, 3 and 4 are expected to continue to expand laterally and retrogress back into the road. The incipient failure between slides 2, 3 and 4 (Photo 1) is expected to cause these slides to coalesce in the future. Slides 2, 3 and 4 are active and encroach into the northbound lane.</p>		
Recommendations:		Cost
<p>Later, during the Summer and Fall of 2013, landslides 2, 3 and notably 4 had substantially grown and as a result, Alberta Transportation will repair these landsides as part of Tender 15153 in 2013 and 2014. The repair measures will consist of excavating the slide material, installing a subdrain and rebuilding the slope with geogrid reinforced gravel, similar to the previous repairs at Slide 1. The brake check lane will be relocated 200 m further south.</p>		\$2,000,000