

**ALBERTA TRANSPORTATION GEOHAZARD ASSESSMENT PROGRAM
PEACE REGION – PEACE-HIGH LEVEL
2010 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	Total
Previous Inspection:	26-May-2009	10	2	20
Current Inspection:	10-Jun-2010	11	2	22
Road AADT:	570		Year:	2009
Inspected By:	Simon Cullum-Kenyon Roger Skirrow Neil Kjelland		Don Proudfoot Ed Szmata Ted Prue	
Report Attachments:	<input checked="" type="checkbox"/> Photographs <input checked="" type="checkbox"/> Plans <input checked="" type="checkbox"/> Maintenance Items			

Primary Site Issue:	Four slides on the east side of Hwy 744, adjacent to a layby. Slide 1 was repaired in March 1998. Slides 2 and 4 are most active, with backscarps now 0.5 m and 1.4 m from the guardrail, respectively – in 2009 the scarps were 2.4 m and 3.3 m from the guardrail.		
Dimensions:	Slide 1: 45 m wide Slide 2: 25 m wide, backscarp is 0.5 m from guardrail Slide 3: 25 m wide, backscarp is 5.7 m from guardrail Slide 4: 25 m wide, backscarp is 1.4 m from guardrail		
Maintenance:	No maintenance activity since 2009.		
Observations:	Description	Worsened?	
<input type="checkbox"/> Pavement Distress		<input type="checkbox"/>	
<input checked="" type="checkbox"/> Slope Movement	Repairs at slide 1 are still performing well. There has been significant movement, retrogression and expansion of the slide bowls at Slides 2, 3 and 4. The backscarp of slide 2 has retrogressed nearly 2 m since 2009 and there is significant additional debris in the slide bowl (Photos 3 and 4). There has been significant movement in the south flank of Slide 3, though not much additional movement in the north flank (Photos 5 and 6). The backscarp of slide 4 has retrogressed significantly and the slide bowl has expanded (Photos 7 and 8). There is significant fresh	<input checked="" type="checkbox"/>	

	debris at the toe of this portion of the slope. PF increased to 11 from 10 to reflect retrogression of slides and apparent increase in rates of movement.	
<input type="checkbox"/> Erosion		<input type="checkbox"/>
<input type="checkbox"/> Seepage		<input type="checkbox"/>
<input type="checkbox"/> Bridge/Culvert Distress		<input type="checkbox"/>
<input type="checkbox"/> Other		<input type="checkbox"/>
Instrumentation:		
No instrumentation installed at this site.		
Assessment:		
<p>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 towards the road. The incipient failure between slides 2 and 3 (Photo 3) is expected to cause these slides to coalesce in the future. Slides 2 and 4 appear to be most active over the last few years. All the slides are sufficiently far away from the active road lanes that there are no immediate concerns, though slide 2 is now sufficiently close to the layby guardrail that it may be necessary to shift the guardrail again in the next year. The layby may need to be closed in the next 2 – 5 years due to slide retrogression.</p>		
Recommendations:		Cost
Inspect the slides regularly (particularly after heavy and/or prolonged rain, rapid snowmelt) and shift the guardrail if the scarps retrogress into the layby, posing a greater hazard to the public. Post a warning sign “Steep Slopes” and/or “Landslide Hazard” for people using the layby.		Maintenance
Repair slides 2, 3 and 4 using similar method as slide 1 (drain to the toe of the slope, gravel fill to buttress backscarp). Alternate stabilisation methods could include a pile wall, micro-pile supported retaining wall and smaller gravel buttress.		\$ 330,000 (all 3 slides) or higher for alternates