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# ALBERTA TRANSPORTATION GEOHAZARD ASSESSMENT PROGRAM
# PEACE REGION – PEACE-HIGH LEVEL
# 2011 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:** | 10-Jun-2010 | 11 | 2 | 22 |
| **Current Inspection:** | 25-May-2011 | 12 | 2 | 24 |
| **Road AADT:** | 570 | | **Year:** | 2010 |
| **Inspected By:** | John Bruce<br>Neil Kjelland | | Don Proudfoot<br>Ed Szmata | |
| **Report Attachments:** | ☑ Photographs<br>☑ Plans | | ☑ Maintenance Items | |

| | | |
|---|---|---|
| **Primary Site Issue:** | Four slides on the east side of Hwy 744, adjacent to a layby (brake check). Slide 1 was repaired in March 1998. Slides 2, 3 and 4 are active. The backscarp for Slide 2 has encroached into highway pavement by about 0.7 m. The backscarps of Slides 3 and 4 are within 4.8 m and 0.95 m from the guardrail respectively – in 2010 the scarps for Slides 2, 3 and 4 were 0.5 m, 5.7 m and 1.4 m respectively from the guardrail. | |
| **Dimensions:** | Slide 1: 45 m wide<br>Slide 2: 25 m wide, backscarp is 0.5 m from guardrail<br>Slide 3: 25 m wide, backscarp is 5.7 m from guardrail<br>Slide 4: 25 m wide, backscarp is 1.4 m from guardrail | |
| **Maintenance:** | No maintenance activity since 2009. | |
| **Observations:** | **Description** | **Worsened?** |
| ☐ Pavement Distress | Slide 2 has now encroached 0.7 m into the layby pavement structure, with a 10 m long section lost along the guardrail with undermining and surface cracking along an additional 8 m long section immediately to the south. | ☐ |
| ☑ 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 Slide 2 has retrogressed | ☑ |


Suite 200, 8636 - 51 Avenue, EDMONTON, AB, Canada T6E 6A5 T.780-438-1460 F.780-437-7125 www.thurber.ca
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| | | |
|---|---|---|
| | nearly 1.5 m since 2010 and three guardrail posts are now hanging with two exposed Telus utility cables and the roadway sign is now within the slide and is about ready to fall (Photos 3 and 4). Backscarp of Slide 3 has retrogressed buy about 1 m, and as noted in 2009, there is significant movement in the south flank of Slide 3 (Photos 5 and 6).<br>The backscarp of Slide 4 has retrogressed significantly and the slide bowl has expanded (Photo 7 and 8). | |
| ☐ Erosion | | ☐ |
| ☑ Seepage | White salt stains in backscarps indicates seepages zones | ☑ |
| ☐ Bridge/Culvert Distress | | ☐ |
| ☐ Other | | ☐ |

**Instrumentation:**

No instrumentation installed at this site.

**Assessment:**

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 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, 3 and 4 are active, with 2 and 4 being more active over the last few years. Slide 3 is still sufficiently far away from the active road lanes that there are no immediate concerns. Slide 2 has now encroached into the layby roadway and Slide 4 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 if the slides continue to retrogress.

| **Recommendations:** | **Cost** |
|---|---|
| Inspect the slides regularly (particularly after heavy and/or prolonged rain, rapid snowmelt) and shift the guardrail when 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 a similar method as slide 1 (drain to the toe of the slope, gravel fill to buttress backscarp). Alternate stabilization methods could include a pile wall, micro-pile supported retaining wall and smaller gravel buttress. | $ 350,000 (all 3 slides) or higher for alternates |