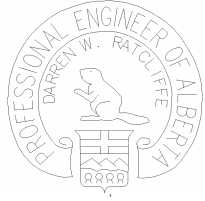


SITE NUMBER AND NAME C39 H576:02 Slide		HIGHWAY & KM 2.5	PREVIOUS INSPECTION DATE August 11, 2005	INSPECTION DATE May 15, 2006
LEGAL DESCRIPTION 13-29-20-W4	NAD 83 COORDINATES N 57004150 E 382250		RISK ASSESMENT PF: 9 CF: 4 TOTAL: 36	

SUMMARY OF SITE INSTRUMENTATION: None	INSPECTED BY: 
LAST READING DATE:	
PRIMARY SITE ISSUE: Slope instability	
APPROXIMATE DIMENSIONS:	
DATE OF ANY REMEDIAL ACTION:	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress					
Slope Movement	X				X
Erosion					
Seepage					
Culvert Distress					

COMMENTS
Refer to previous callout report and attached photos

June 5, 2006

Alberta Infrastructure & Transportation
Central Region
#401, 4902 – 51 Street
Red Deer, Alberta
T4N 6K8

Mr. Alain Momedi, P.Eng.
Project Engineer

Dear Mr. Momedi:

**Central Region GeoHazard Assessment
Site C39 H576:02 km 2.5
May 2006 Site Assessment Report**

Alberta Infrastructure & Transportation has initiated a process of risk management at specific geohazard sites that includes a document control system. This annual site assessment report forms Section B of the document control system for the above site.

The site was inspected on May 15, 2006 by Mr. Darren Ratcliffe, P.Eng. of Klohn Crippen Berger Ltd. (KCBL). Photographs from the inspection are attached. This report was prepared by Klohn Crippen Berger Ltd. for Alberta Infrastructure & Transportation Central Region under Contract No. CE045/2004.

1. PROJECT BACKGROUND

This site is located on Highway 576:02 immediately north of Drumheller at km 2.5 and was initially reported to KCBL on July 12, 2005. The movement comprised a slump on the north side of the highway slope above a small pond. Prior to an inspection performed by KCBL on August 11, 2005, the slide depression at the edge of the highway had been filled with sand and then re-graded.

The site location is illustrated on Figure 1 in the attached photographs. Figures 2 and 3 show a site plan and section for the slide.

May 06 Inspection Report.doc

2. SITE OBSERVATIONS

The following observations were noted:

- On the north side of the highway, a pond measuring about 50 m by 10 m is located about 18 m from the road edge. The water level is about 3 m below the road surface. The pond appears to be formed by some excavation and fill placement at the west end. Based on the vegetation growth, the pond has been in place for some period of time.
- The slide area appeared to be about 20 m wide. Based on pre-repair photographs, the scarp was about 1 m high. No distinct bulging of the toe area of the slide could be observed, however, the toe area was covered with long grass. A small deflection in the alignment of the fence at the toe of the slope was noted.
- The slope between the highway and the pond is estimated to be about 3H:1V.
- Loose sand has been placed at the top of the slope in the slide depression to reinstate the shoulder of the highway. Some minor cracking and settlement of the sand was observed.
- The ditch on the south side of the highway was dry. All ditches slope to the west and are well vegetated
- No distress in the pavement was observed.

Very little change in the status of the slide was observed between August 2005 and this inspection.

3. SITE ASSESSMENT

The slide was likely triggered by ground saturation from the heavy rainfall experienced in June 2005. Based on the extensive vegetation growth and the presence of the pond at the toe of the slope, the groundwater level in the area is relatively high.

As no distress in the pavement was observed, it is considered that the slide is fairly shallow and is limited to the shoulder and the slope down to the pond and does not represent a significant hazard to traffic.

The repair work done to date has reinstated the shoulder, however the surface is soft and not trafficable. The pervious nature of the sand could also allow water to infiltrate the top of the slide and may lead to further movements.

Based on the risk level criteria provided by Alberta Infrastructure & Transportation relating to safety, a risk rating of 36 was assigned to this site. This is based on a probability factor of 9 for an instability feature, and a consequence factor of 4 due to the impact on the highway.

4. RECOMMENDATIONS

In our August 2005 report, the following recommendations were provided:

- The pond should be drained to reduce the groundwater level in this area and the fill at the west end of the pond removed.
- The majority of the fill from the west end should be placed at the toe of the slide area to form a stabilization berm
- A small portion of the fill should be used at the road shoulder to cap the sand and provide a trafficable surface.
- All disturbed areas should be re-graded and seeded.

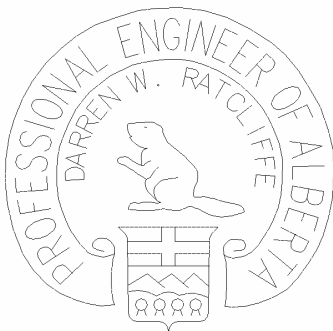
However, it is understood that the Landowner wants the pond to remain and so the remediation method must account for this. One option is to use launched soil nails into the slope to fix the unstable slide mass to the intact material beneath. The technology is relatively new and experience of the method in Alberta is limited.

A traditional repair approach is to excavate the unstable slope material and replace with reinforced gravel in a similar manner to the slope repair undertaken in 2005 on H841:02. The cost for this approach is about \$120,000 as described in the attached Terms of Reference.

Please contact the undersigned if you have any questions regarding this report.

Yours truly,

KLOHN CRIPPEN BERGER LTD.



Darren W. Ratcliffe, P.Eng.
Project Manager

APEGGA Permit to Practice No. 9196





