GEOHAZARD ASSESSMENT PROGRAM

PEACE RIVER / HIGH LEVEL AREA

2014 INSPECTION

Site Number	Location	Name	Hwy	km
PH11	North of Town of Peace River	Whitemud River (km 42.6 and km 43.2)	743:02	42.6 and 43.2
Legal Description		**UTM Co-ordinates**		
NE 36-87-21-5 & SW1-88-21-5		11V N 6272372	E 487302	

	Date	PF	CF	Total
Previous Inspection:	May 30, 2013	5 9	4 2	20 (km 42.6) 18 (km 43.2)
Current Inspection:	June 12, 2014	5 9	4 2	20 (km 42.6) 18 (km 43.2)
Road AADT:	120		**Year:**	2014
Inspected By:	Don Proudfoot and Ken Froese, Thurber Engineering Rocky Wang, Ed Szmata, and Erwin Kurz, Alberta Transportation			
Report Attachments:	☑ Photographs ☑ Plans ☐ Maintenance Items			

Primary Site Issue:	**Site repaired in 2010** – Original site issue was Backslope and sideslope slumping.		
Dimensions:	110 m long backslope slump south of culvert		
Date of any remediation:	**Earthworks for new culvert installation at km 42.6 were completed in 2010.**		
Maintenance:	Installation of new culvert and sideslope construction.	**Worsened?**	
Observations:	**Description**	**Yes**	**No**
☐ Pavement Distress	Gravel road (not affected by movement)	☐	☑
☑ Slope Movement	KM 42.6: ▪ Continued west backslope slumping on the south end of the site, leading to debris build up at the ditch. ▪ Sideslopes re-constructed in 2010. Some tension cracks observed. KM 43.2: ▪ Additional shallow sloughing of shale slope. Some additional vegetation growth noticed.	☑	☐
☑ Erosion	KM 42.6: ▪ Erosion of southwest ditch up to 0.6 m deep. Erosion in southeast ditch slightly worse. ▪ Gully on east sideslope, erosion at end of riprap swales near inlet and outlet of culvert.	☑	☐
☐ Seepage		☐	☐
☐ Culvert Distress	No distress of 2010 culvert observed.	☐	☑
☐ Other		☐	☐

Instrumentation:

None

Assessment (Refer to Figure PH11-1)**:**

KM 42.6:

- A sinkhole, which had developed in the east sideslope during the construction of the new culvert in 2010, was not visible at the time of the 2013 or 2014 inspections. A tension crack was noted in the east sideslope toward the south end of the site. The sideslopes appeared to be well groomed, and the grass was well grown and greener.

- The runoff from the road has caused a small gully on the east sideslope above culvert and accumulation of gravel washed away from the road.

- The shallow slide located in the west backslope, south of the culvert is not presently affecting the highway but is active and partially blocking the drainage of the ditch with downcutting occurring beyond the toe roll. Erosion on the east ditch has continued to worsen.

- Flow of water was observed in the creek. Seepage was also noticed from a few bolts from a corrugated steel pipe at the culvert outlet.

- A swale was evident at the west side directing flow from the road to the culvert outlet.

- The scour hole on the west sideslope was similar to 2013 at 0.7 m deep by 1.5 m wide.

KM 43.2:

- The shale slope appears to have sufficient global stability and the spalling is considered a maintenance issue. There are no signs of movement in the roadway. The subdued scarp with a good vegetative cover indicates that the sideslope is currently stable. More soil buildup was noticed at the toe of the slope.

Recommendations:

KM 42.6:

(a) The site should be monitored for another year as part of the geohazard assessment to check for any signs of potential instability.

(b) West backslope failure at south end of site:

Clean ditch when required in the short term and consideration should be given to reconstructing the ditch bottom and protecting from erosion (riprap or erosion control product). Dispose of dirt outside the valley. In the long term, the back slope will require a flatter angle with 3 m wide benches at 6 m height intervals. This could be done in conjunction with future grading work for highway alignment improvements.

(c) East ditch erosion:
Repair by backfilling with compacted material and cover with coconut mat and synthetic ditch checks. This could also be undertaken with future highway alignment improvements.

(d) The scour hole on the west sideslope appears stable but should be monitored.

(e) Erosion beneath the riprap at the culvert inlet and outlet swales should be repaired with the addition of more rock, placed over non-woven geotextile.

KM 43.2:

- Continue to clean sloughed material from ditch when required.