GEOHAZARD ASSESSMENT PROGRAM

NORTH CENTRAL REGION – ATHABASCA

2013 INSPECTION

Site Number	Location	Name	Hwy	km
NC 14	Northeast boundary of the Town of Fort Assiniboine	**Fort Assiniboine**	661:02	1.8
Legal Description		**UTM Co-ordinates (NAD 83)**		
NW-1-62-6-W5M		11 N 6023391 E 644779		

	Date	PF	CF	Total
Previous Inspection:	June 11, 2012	8	4	32
Current Inspection:	June 10, 2013	8	4	32
Road AADT:	1090		**Year:**	2012
Inspected By:	Tarek Abdelaziz (Thurber) Roger Skirrow, Arthur Kavulok, Brandon Sandford (TRANS)			
Report Attachments:	☑ Photographs ☑ Plans ☐ Maintenance Items			

Primary Site Issue:	Slope creep movements causing pavement distress to a sidehill alignment due to seasonal high ground water levels	
Dimensions:	About 250 m long	
Date of any remediation:	None recently	
Maintenance:	None	
Observations:	**Description**	**Worse?**
☑ Pavement Distress	35 mm depression in the SBL of Mid-Hill section.	☑
☑ Slope Movement	Cracks up to 50 mm wide with up to 35 mm differential height across cracks in the Mid-Hill slope section	☐
☐ Erosion		☐
☑ Seepage	▪ **MH#1:** Water ponding around the manhole. Approximately 1 m thick silt layer existed at the bottom of the manhole and the drain outlets are submerged under water. Water levels remained unchanged in the manhole since last year ▪ **MH#2:** MH's cover was locked by someone else and could not be inspected	☐
☐ Bridge/Culvert Distress		☐
☐ Other		☐

Instrumentation: (2SIs and 12 SPs)

No discernable movement in SI06-6 and 06-11; water levels fluctuated in the majority of the standpipes by +/-0.3 m; SP06-19 was dry.

Assessment (Refer to attached Figures1 and 2)**:**

The site observations and the instrument readings indicated that the site continued to show slow creep movements due to seasonal fluctuations in water levels. In general, the highway conditions did not change significantly since last year, expect for at the Mid-Hill slope section, where the dip and cracks were slightly more pronounced.

Slope movements are due to seasonal rise in groundwater table.

It is likely that the drain pipes connected to existing manholes are partially plugged. If these pipes become completely plugged in the future, there is a risk of accelerated landslide movement in response to a rise in ground water levels.

Recommendations:

In the short term, it is recommended to seal all open cracks in the pavement to prevent surface water infiltration into the landslide cracks. Consideration should be given for patching the Mid-Hill slope section in the near future to provide a smooth ride to travellers on the highway.

Due to the absence of any specific site details of the implemented drainage scheme in the past, it is recommended in the interim to hydrovac the accumulated silt inside manholes 1 and 2, and to remove the cobbles inside the manhole located immediately downslope of MH#1 to provide a better understanding of the drainage scheme at this site, visually inspect and quantify existing drain outlets and outflow pipes (if possible). Accessible drain and outflow pipes in MH#1 or in the manhole filled with cobbles should be flushed using a water jetting unit to enhance drainage characteristics of the site. Due to the small size of MH#2, it will not be possible to flush the drain pipes unless it is excavated and replaced with a new manhole. MH#2's lock, installed by others, should be removed to complete this work and inspect the manhole in spring 2014.

In the long term, manholes #1 and #2 should be excavated out and replaced with bigger diameter manholes for future access and flushing of existing sub-horizontal drains.