GEOHAZARD ASSESSMENT PROGRAM

NORTH CENTRAL REGION – ATHABASCA

2015 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:	May 20, 2014	8	4	32
Current Inspection:	May 11, 2015	8	4	32
Road AADT:	1090		**Year:**	2014
Inspected By:	Tarek Abdelaziz (Thurber) Roger Skirrow, Arthur Kavulok, Brandon Sandford, Brent Churla (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:	Manholes 1 and 2 inspected in fall 2014; silt was hydrovacced from the interior of the CSP pipes; highway cracks were spray patched in the fall 2014	
Observations:	**Description**	**Worse?**
☑ Pavement Distress	35 mm depression in the SBL of Mid-Hill section. Spray patch failed and cracks opened again	☐
☑ 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. Water levels remained unchanged in the manhole since last year ▪ **MH#2:** Heavily oxidized interior walls. Only one of the sub-horizontal drains was dripping clear water	☐
☐ Bridge/Culvert Distress		☐
☐ Other		☐

Instrumentation: (2SIs and 11 SPs)

No discernable movement in SI06-6 and 06-11; water levels fluctuated in the majority of the standpipes by +/-0.1 m except for SP06-3 where water levels increased by 2 m and SP06-10 where water levels decreased by 1 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 ground water levels. In general, the highway condition did not change significantly since last year.

Based on the inspection completed in fall 2014, it appears that MH#1 was only intended to collect surface water flow from the existing gully though the screened portion of the CSP pipe. The manhole appears to be connected to other manholes in the highway ditch though rock filled trenches. The water level in MH#1 remained unchanged, possibility indicating that the rock filled trenches have become partially plugged with silt.

One of the sub-horizontal drains inside MH#2 was dripping clear water, consistent with the fall 2014 inspection observations. The remaining sub-horizontal drains connected to MH#2 may have become completely plugged. MH#2 has no outflow pipe and the collected flow from the flowing sub-horizontal sub-drain is likely percolating into the ground.

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 future to provide a smooth ride to travellers on the highway.

The existing manholes should be inspected regularly by the local MCI and silt should be removed from the inside of the manholes, as needed to promote surface and sub-surface drainage.

In the future, it may be required to replace the rock filled trench connected to MH#1 to promote faster drainage into the downslope manholes. In addition, consideration should be given for excavating and replacing MH#2 with a bigger diameter manhole for future access. The existing sub-horizontal drains in MH#2 should also be flushed to promote sub-surface drainage. The new manhole should consist of 1.2 m diameter CSP pipe, complete with a ladder, perforation, an outflow pipe, and surrounded by washed rock enveloped in a non-woven geotextile fabric. The outflow pipe should be connected to the existing storm water drainage system. Upgrading MH#2 will require approvals from the Town of Fort Assiniboine since the manhole is located outside AT right-of-way.