



**NORTH CENTRAL REGION GRMP  
EDSON / STONY PLAIN  
SITE INSPECTION FORM**



<b>SITE NUMBER AND NAME:</b> NC013 – Cattlepass West	<b>HIGHWAY AND KM:</b> 633:02, km 0.780	<b>PREVIOUS INSPECTION:</b> May 25, 2020	<b>CURRENT INSPECTION:</b> June 15, 2022
<b>LEGAL DESCRIPTION:</b> NW 29-53-6-W5M	<b>NAD83 COORDINATES:</b> UTM11U 5942619N, 642207E		<b>RISK ASSESSMENT:</b> PF: 10 CF: 4 Total: 40
<b>AVERAGE ANNUAL DAILY TRAFFIC (AADT):</b> 490 (2021)		<b>CONTRACTOR MAINTENANCE AREA (CMA):</b> 509	


<b>SUMMARY OF INSTRUMENTATION:</b> Three slope inclinometers and three vibrating wire piezometers functional	<b>INSPECTED BY:</b> Stantec: Leslie Cho, Sonja Pharand AT: Rocky Wang, Amy Driessen, Kathleen Davis
<b>LAST READING DATE:</b> May 6, 2022	
<b>PRIMARY SITE ISSUE:</b> Relatively high embankment over soft clay with high groundwater level leading to slope instability.	
<b>APPROXIMATE DIMENSIONS:</b> 150 m long, 70 m wide	
<b>DATE OF ANY REMEDIAL ACTION:</b> Wick drains and toe berm constructed in 2011. Pavement overlays in 2011 and 2013. Gravel placed on shoulder of eastbound lane in 2015.	

ITEM	CONDITION EXISTS		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Pavement cracking along Highway 633	X	
Slope Movement	X		Increased pavement cracks, SI readings show signs of creep movement	X	
Erosion		X			X
Seepage		X			X
Bridge/Culvert Distress		X			X

<b>COMMENTS</b>
<ul style="list-style-type: none"> <li>Pavement crack patterns are reflecting through the overlay. The circular crack west of SI05-1 maintained its vertical difference at about 15 mm to 20 mm. Additional cracking noted since last inspection in 2020 (see Figure 1).</li> <li>The SI readings show signs of creep movement. SI05-1 is showing a current rate of movement of 1 to 2 mm/year while the other SIs show a rate of movement less than 1 mm/ year.</li> <li>The slope on the north side of Highway 633 appears to be bulging near the toe north of BH17-01. A small dip was noticed to the northeast of SI05-1.</li> <li>The overall porewater pressures at site remain high, however the last two readings (Fall 2021 &amp; Spring 2022) have shown a decrease. Artesian conditions were observed prior to remediation in 2011.</li> <li>An area of ponding water was observed to the west of SI05-1.</li> <li>The water level in the pond to the south of the toe berm appeared similar to the levels observed during the 2020 inspection.</li> </ul>
<b>RECOMMENDATIONS</b>
<ul style="list-style-type: none"> <li>Pavement cracks should be sealed to reduce surface water infiltration into the embankment. Additional pavement patches are not recommended since it is considered an additional driving force on the</li> </ul>

embankment. Mill and fill could be completed to address the vertical displacement until remediation is completed.

- The culverts and drains at the site should be inspected regularly to reduce the risk of pore pressures building up in the berm and slope, and to confirm functionality.
- Since the site is preloaded, a grade reduction to improve slope performance may be considered. The high-level cost for grade reduction is \$1.6 Million excluding engineering costs. Alternatively, lightweight fill may be considered to reduce the overall driving force on the embankment, with a high-level cost of \$6.0 Million excluding engineering costs.
- Site inspections should continue every 2 years.
- Instrumentation readings should continue to be read semi-annually.

<b>PREPARED BY:</b> Sonja Pharand, E.I.T.	<b>PREPARED BY:</b> Leslie Cho, M.Eng., P.Eng.	<b>REVIEWED BY:</b> Xiteng Liu, M.Sc., P.Eng., PMP
		

2022 Site Inspection Photos at NC013



**Photo 1:** Circular crack approximately 40 m west of SI05-1 and new crack forming in EBL. Looking northwest.



**Photo 2:** Semi-circular pavement cracks about 10 m east of Photo 1. Looking northeast.

2022 Site Inspection Photos at NC013



**Photo 3:** Pavement cracking approximately 15 m east from SI05-1. Looking north.



**Photo 4:** Crack on shoulder north of SI05-1. Looking northeast.

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**Photo 5:** Semi-circular crack along C/L and EBL lane north of BH17-01. New transverse cracking. Looking east.



**Photo 6:** South toe berm. Looking west.

2022 Site Inspection Photos at NC013



**Photo 7:** Ponding water at toe of slope. Looking southwest.



**Photo 8:** Slumping in north ditch, north from BH17-01. Looking southwest.

