

SITE NUMBER AND NAME: NC048 – Fred Creek Slide	HIGHWAY AND KM: 40:30, km 48.808	PREVIOUS INSPECTION: May 26, 2020	CURRENT INSPECTION: June 11, 2024
LEGAL DESCRIPTION: SE-28-53-1-W6M	NAD83 COORDINATES: UTM11U 594003N, 4283399E		RISK ASSESSMENT: PF: 5 CF: 3 Total: 15
AVERAGE ANNUAL DAILY TRAFFIC (AADT): 1,690 (2023)		CONTRACTOR MAINTENANCE AREA (CMA): 508	

SUMMARY OF INSTRUMENTATION: One slope inclinometer and six pneumatic piezometers are operational at this site. LAST READING DATE: May 13, 2024	INSPECTED BY: Stantec: Leslie Cho, Sonja Pharand TEC: Kristen Tappenden, Kathleen Davis
PRIMARY SITE ISSUE: Shallow slide with high pore pressures.	
APPROXIMATE DIMENSIONS: 150 m along the highway by 40 m wide.	
DATE OF ANY REMEDIAL ACTION: Asphalt patched and upstream end piece of upper culvert replaced in 2012. The asphalt was patched again in 2015. In 2016, the slide was repaired and a berm with granular blanket and wick drains was installed. The asphalt appeared to have been recently patched in 2017/2018, however no records from TEC were available to support this.	

ITEM	CONDITIONS EXIST		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Cracks reflecting through patches.	X	
Slope Movement		X			
Erosion		X			
Seepage	X		Seepage south of PZ7 near toe, south of PZ6 near mid-slope and south of PZ2 observed in 2020. Areas dry during 2024 inspection.	X	
Culvert Distress		X			
Other		X			


COMMENTS
<ul style="list-style-type: none"> The crack patterns appeared similar to the 2020 inspection, as shown in Photos 1 to 3, and are reflecting through the pavement patch. Several seepage locations previously observed on the south embankment were found to be dry during the 2024 inspection (Photos 4 & 5). Generally, piezometric levels have remained stable since completion of the berm and wick drain construction. However, high pore pressures continue to be observed in the piezometers at the site with 3 of 6 piezometers showing artesian conditions of up to 2.1 m above ground surface. The non-artesian piezometric levels range from 0.4 m to 0.8 m below ground surface. SI1 showed 20 mm of movement since the reading in 2023, however the cumulative displacement is similar to what was observed in 2021. Overall, SI1 has shown 7 mm of movement between 0.2 m and 2.8 m deep, and 5 mm of movement between 4.2 m and 6.2 m deep since the date of installation. A ground crack 7 m long and 0.15 m deep was observed in the north ditch, near PZ4. It is possible that the ground crack may be caused by mowing equipment; however, the toe of the highway embankment appears to

be sharply sloped which may not allow for mowing equipment within the ditch. PZ4 is also leaning into the ditch (Photo 6).

- A possible sinkhole was observed west of the ground crack, in the north ditch east from the entrance to the gravel access road. The area was approximately 3 m long, 1 m wide and 0.15 m deep (Photo 7).

RECOMMENDATIONS

- Short term recommendations include sealing of any cracks to reduce surface water infiltration into the slope and pavement structure. Stantec was informed by TEC that a maintenance overlay of 30 mm may be applied in summer 2024.
- The silt fence remaining from construction should be removed from the site.
- Site inspection frequency should remain at once per contract cycle with instrumentation monitoring completed annually in the spring.

PREPARED BY: Sonja Pharand, P.Eng.	REVIEWED BY: Xiteng Liu, M.Sc., P.Eng., PMP	PERMIT TO PRACTICE
		

2024 Site Inspection Photos at NC048



Photo 1: Pavement cracks in front of access road. Looking east.



Photo 2: Pavement cracking east of PZ4. Looking west.

2024 Site Inspection Photos at NC048



Photo 3: Pavement cracks at east end of patch. Looking east.

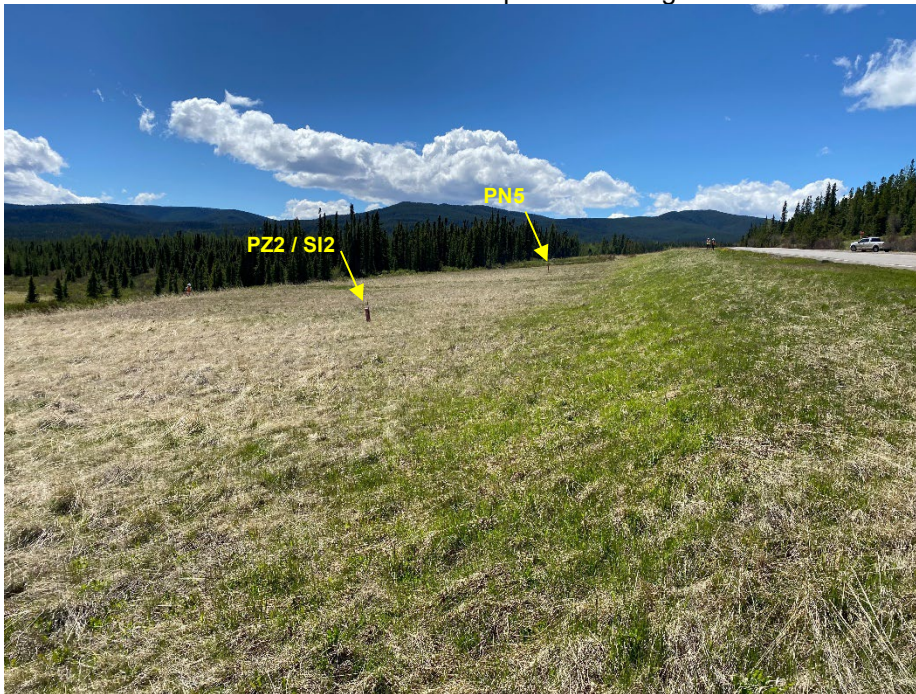


Photo 4: Overall embankment slope. Looking west.

2024 Site Inspection Photos at NC048



Photo 5: Previous areas of seepage were dry. Silt fence remains on site. Looking east.



Photo 6: Ground crack in north ditch, near PZ4. Looking west.

2024 Site Inspection Photos at NC048



Photo 7: Possible sinkhole in the north ditch. Looking southeast.



Photo 9: Overview of site. Photo taken by drone, looking east.

2024 Site Inspection Photos at NC048

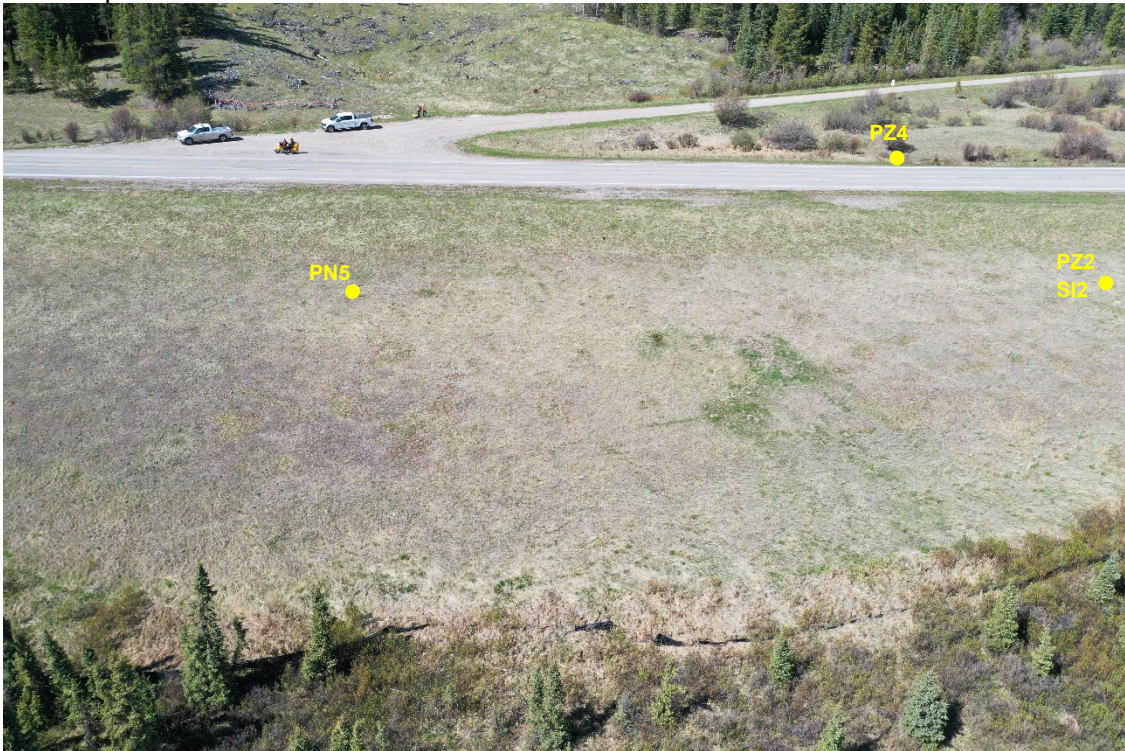


Photo 10: Overview of embankment slope. Photo taken by drone, looking north.