

<b>SITE NUMBER AND NAME:</b> NC086 – Poplar Creek Slide	<b>HIGHWAY AND KM:</b> 39:06, km 4.915	<b>PREVIOUS INSPECTION:</b> June 29, 2021	<b>CURRENT INSPECTION:</b> June 15, 2022
<b>LEGAL DESCRIPTION:</b> SW 11-49-06-W5	<b>NAD83 COORDINATES:</b> UTM11U 5897673N, 648158E		<b>RISK ASSESSMENT:</b> PF: 3 CF: 3 Total: 9
<b>AVERAGE ANNUAL DAILY TRAFFIC (AADT):</b> 3,510 (2021)		<b>CONTRACTOR MAINTENANCE AREA (CMA):</b> 509	

<b>SUMMARY OF INSTRUMENTATION:</b> One slope inclinometer functional	<b>INSPECTED BY:</b> Stantec: Leslie Cho, Sonja Pharand AT: Rocky Wang, Amy Driessen, Kathleen Davis, and Wilf Cousineau
<b>LAST READING DATE:</b> May 6, 2022	
<b>PRIMARY SITE ISSUE:</b> Slope failure southeast of the intersection of Highway 39 and Township Road (TWP RD) 491A.	
<b>APPROXIMATE DIMENSIONS:</b> 35 m wide by 60 m long	
<b>DATE OF ANY REMEDIAL ACTION:</b> 2018 – Pile wall installed. Culvert under TWP RD 491A realigned. Centerline culvert at Highway 39 grouted and abandoned. Rock check dams installed in north ditch of Highway 39.	


ITEM	CONDITIONS EXIST		DESCRIPTION AND LOCATION	NOTICEABLE CHANGE FROM LAST INSPECTION	
	YES	NO		YES	NO
Pavement Distress	X		Separation along joint of new and old pavement west of pile wall.		X
Slope Movement	X		Slope movement downslope of pile wall. Slide mass extending north towards highway. Leaning light post on south side of highway east of intersection.	X	
Erosion		X			
Seepage	X		Landslide mass is wet.		X
Bridge/Culvert Distress		X			

<b>COMMENTS</b>
<ul style="list-style-type: none"> <li>The landslide is progressing downslope of the wall (Photos 1 and 2). A measurement from the top of pile wall to the top of ground was taken between the 9<sup>th</sup> and 10<sup>th</sup> guardrail post south of the stop sign. The height was measured to be 3.5 m.</li> <li>The landslide mass appears to be extending further east beyond the limits of the pile wall. The current east limit is approximately 5.6 m east from the light standard. This is approximately in line with the east limit of the pile wall. The scarp is approximately 10.4 m south of the guardrail, meaning that the slide has retrogressed 1.6 m since the 2021 inspection.</li> <li>S11 showed a negligible cumulative movement of less than 1 mm at a depth of about 14 m in the clay shale since initialization in 2018.</li> <li>The light standard south of Highway 39 and about 20 m from the intersection had a 3° lean towards the slide mass (Photo 3). The MCI informed Stantec that many light standards in this area have a similar lean.</li> <li>The culvert and ditch across TWP RD 491A were flowing. The riprap at both ends of the culvert were cracked.</li> <li>The separation between the new and old pavement appeared unchanged (Photo 4).</li> <li>Longitudinal cracking of Highway 39 was observed and did not appear to have changed (Photo 5).</li> </ul>

- The north ditch of Highway 39 was wet. It was noted that there is only one check dam, located on the east side of the light standard. It is possible that the rock check dam may have been grown over with vegetation.
- An erosion gully approximately 400 mm wide and 200 mm deep has formed on the west side of the light standard in the north ditch, and water is ponding in a low spot near the light standard (Photo 6).

**RECOMMENDATIONS**

- The site should be regularly monitored by the MCI. In particular, the landslide should be monitored for additional progression towards the light standard which would indicate the slide is beyond the extent of the pile wall. In addition, the depth of the landslide from the top of the pile wall should be checked to ensure that it does not exceed the design cantilever height of 6 m.
- Should the landslide progress beyond the east extent of the pile wall, the pile wall can be extended to protect the highway. The high-level cost of extending the pile wall by 20 m is \$300,000, excluding engineering. Conflicts with streetlight power and communications cable are expected if the pile wall is extended east.
- Pavement cracks should be sealed to reduce surface water infiltration into the slope.
- The ditch on the north side of Highway 39 should be regraded for water flow. Additional check dams or other structures should be installed to reduce surface water flow velocity.
- Site inspections should continue annually.
- Instrumentation readings should continue to be read annually in the spring.

<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 NC086



**Photo 1:** Slope movement downslope of pile wall. Looking northeast.



**Photo 2:** Slope movement downslope of pile wall. Looking southwest.

2022 Site Inspection Photos at NC086



**Photo 3:** Leaning light standard. Looking northeast.



**Photo 4:** Separation of new and old pavement west of pile wall. Looking south.

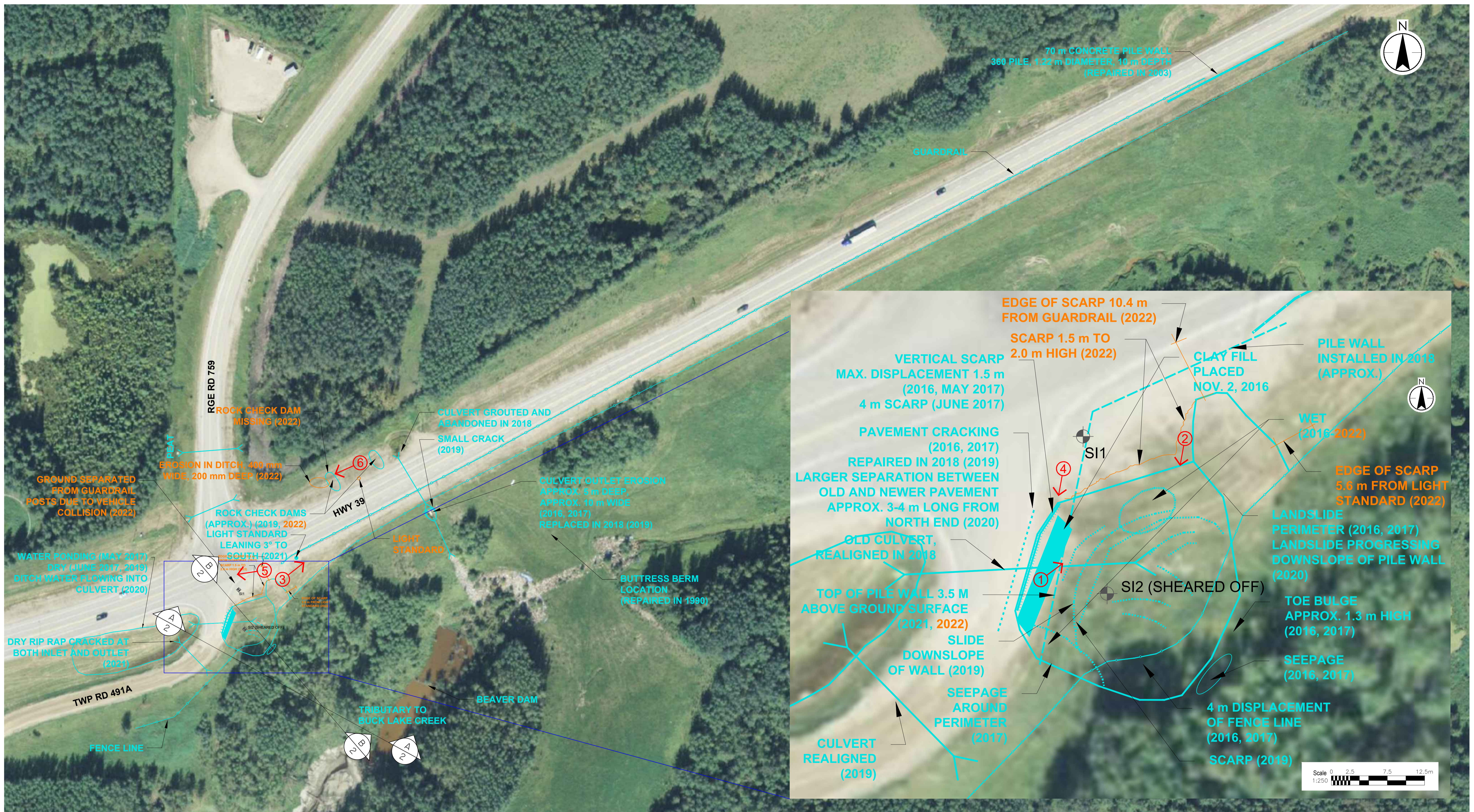
2022 Site Inspection Photos at NC086



**Photo 5:** Pavement condition at intersection. Looking southwest.



**Photo 6:** Ditch on north side of Hwy 39. Looking southwest.



**NOTE**  
FEATURE LOCATIONS ARE APPROXIMATE

**REFERENCE**  
2012 IMAGERY © 2016 VALTUS IMAGERY SERVICES

**LEGEND**

- CULVERT
- PREVIOUS OBSERVATION
- 2021 OBSERVATIONS
- INSTRUMENT LOCATION
- PHOTO NUMBER AND DIRECTION



STANTEC CONSULTING  
400-10220 103 AVENUE NW  
EDMONTON, ALBERTA, CANADA  
T5J 05A

ALBERTA TRANSPORTATION  
GEOHAZARD MONITORING PROGRAM  
NC86 HWY 39 AND TWP RD 491A - NEAR DRAYTON VALLEY  
SITE PLAN

DRAWN	KE	CHECK	XL	APPROVE	LC
DATE	05 OCT 2022	SCALE	AS SHOWN	PROJECT #	123315222

FIGURE -1