

<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 15, 2022	<b>CURRENT INSPECTION:</b> June 2, 2023
<b>LEGAL DESCRIPTION:</b> SW 11-49-06-W5	<b>NAD83 COORDINATES:</b> UTM11U 5897673N, 648158E		<b>RISK ASSESSMENT:</b> PF: 9 CF: 3 Total: 27
<b>AVERAGE ANNUAL DAILY TRAFFIC (AADT):</b> 3,520 (2022)		<b>CONTRACTOR MAINTENANCE AREA (CMA):</b> 509	

<b>SUMMARY OF INSTRUMENTATION:</b> One slope inclinometer functional.  <b>LAST READING DATE:</b> May 19, 2023	<b>INSPECTED BY:</b> Stantec: Leslie Cho and Sonja Pharand TEC: Rocky Wang, Amy Driessen, Pramaya Kannel and Jennifer Mazurek
<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 scarp retrogressing 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 3.6 m, 0.1 m greater than the previous inspection.</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 9.5 m south of the guardrail, meaning that the slide has retrogressed 0.9 m since the 2022 inspection.</li> <li>Tension cracks were observed in the ground near the current landslide scarp (Photo 3).</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> </ul>

- The light standard south of Highway 39 and about 20 m from the intersection had a 3° lean towards the slide mass. The MCI previously informed Stantec that many light standards in this area have a similar lean. The metal at the base of the light standard appears to be peeling and rotting away.
- The guardrail was dented between the light standard and the utility box on the south side of the highway.
- Settlement of the ground was noted around the base of the utility box to the east of the light standard on the south side of the highway.
- The culvert and ditch across TWP RD 491A were dry. The riprap at both ends of the culvert was cracked.
- The separation between the new and old pavement could not be observed as the area was covered in dirt and gravel.
- Transverse pavement cracks up to 50 mm wide were observed east of the intersection (Photo 4). Longitudinal cracking of Highway 39 was observed and did not appear to have changed (Photo 5). The observed cracking does not appear to be related to landslide activity.
- The north ditch of Highway 39 was wet. Both check dams were observed to the east of the light standard, with the check dam furthest west having been obscured by vegetation (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, P.Eng.	<b>PREPARED BY:</b> Leslie Cho, M.Eng., P.Eng.
	
<b>REVIEWED BY:</b> Xiteng Liu, M.Sc., P.Eng., PMP	<b>PERMIT TO PRACTICE</b>

2023 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.

2023 Site Inspection Photos at NC086



**Photo 3:** Tension crack upslope of the current scarp. Looking northeast.



**Photo 4:** Crack on east side of intersection. Looking north.

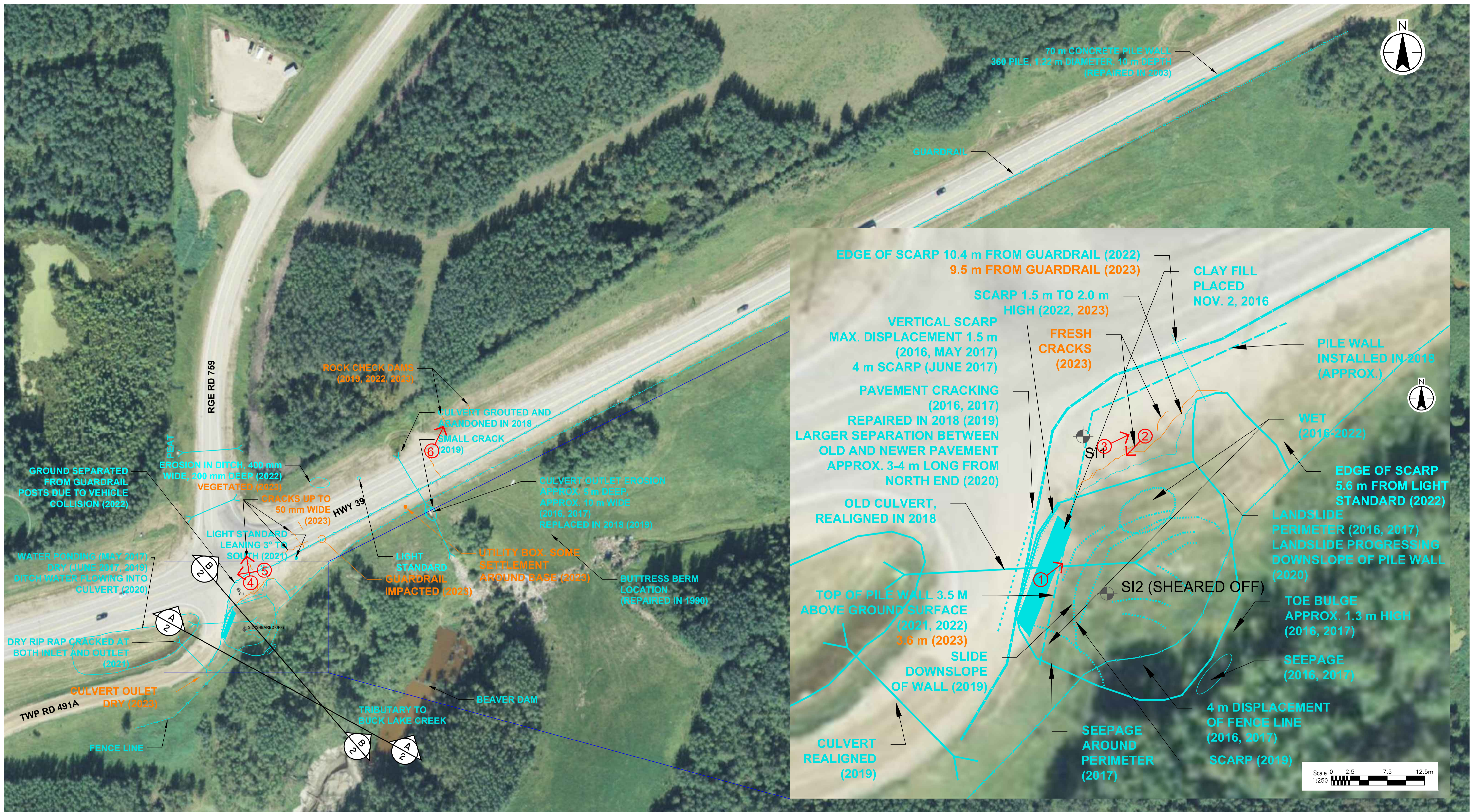
2023 Site Inspection Photos at NC086



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



**Photo 6:** West most rock check dam in north ditch partially obscured by vegetation. Looking northeast.

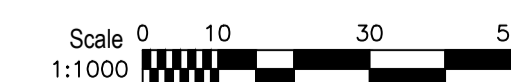


**NOTE**  
FEATURE LOCATIONS ARE APPROXIMATE

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

**LEGEND**

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

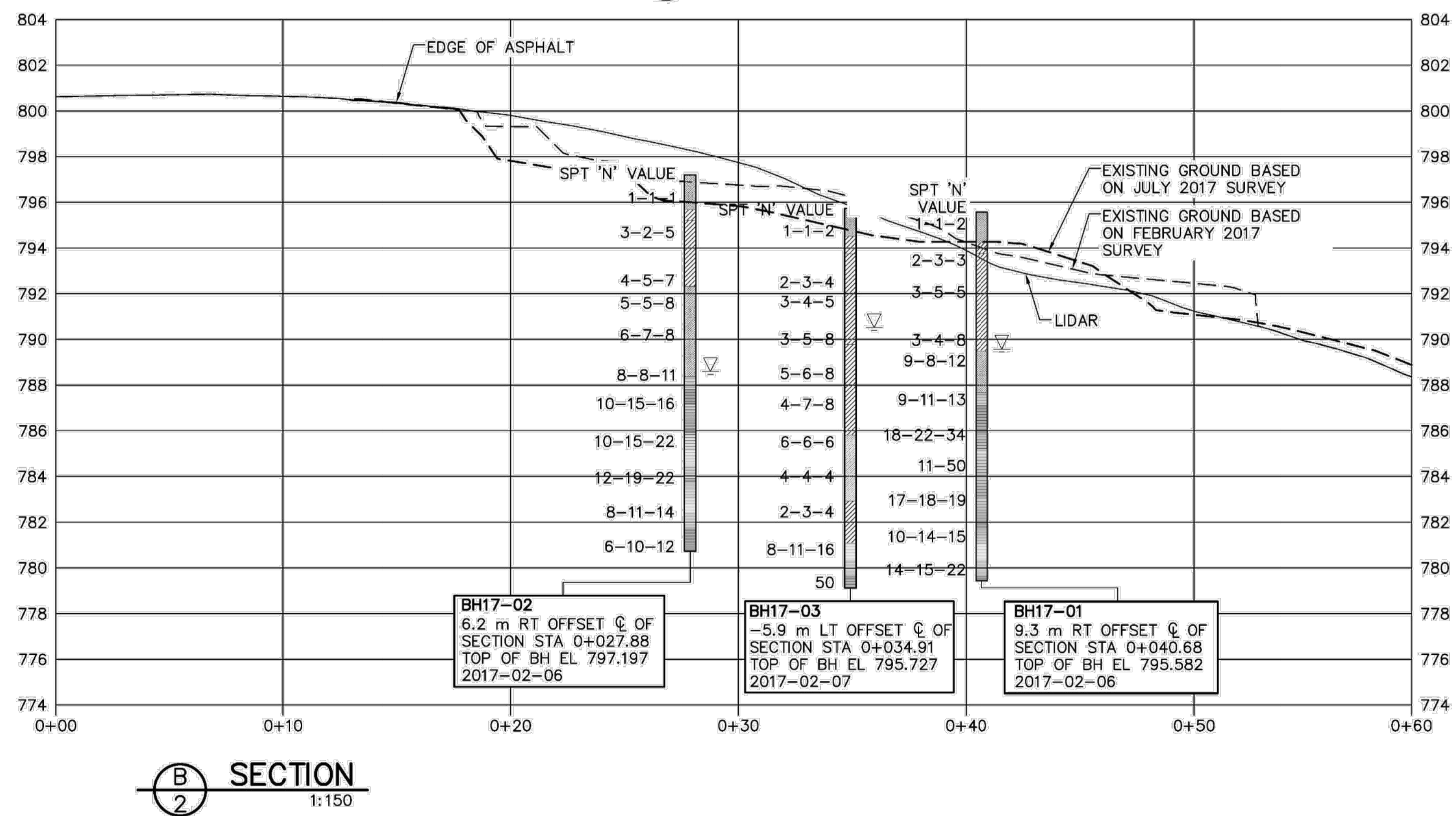
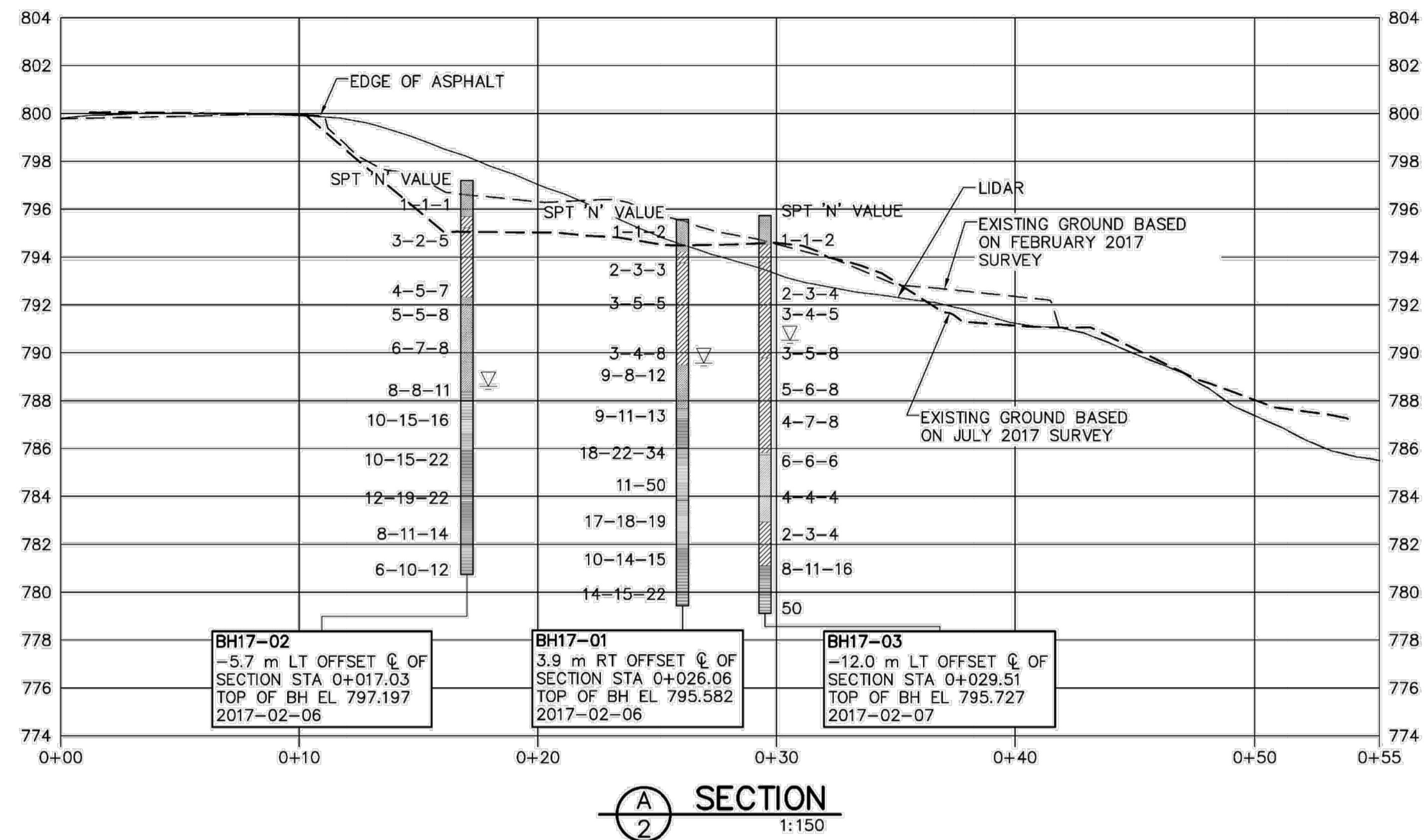


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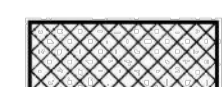





TRANSPORTATION AND ECONOMIC CORRIDORS  
GEOHAZARD MONITORING PROGRAM  
NC86 HWY 39 AND TWP RD 491A - NEAR DRAYTON VALLEY  
SITE PLAN

DRAWN KE	CHECK XL	APPROVE LC
DATE 25 JULY 2023	SCALE AS SHOWN	PROJECT # 123315222

FIGURE -1



**LEGEND:**

- |   |  |
|---|--|
|  FILL-SOFT, CLAY (CI-CH) |  EXTREMELY WEAK, CLAYSHALE (BR) |
|  CLAY (CH)               |  FIRM, GREY, SANDY CLAY (CL)    |
|  VERY STIFF, CLAY (CI)   |  WATER LEVEL                    |