

GEOHAZARD RISK MANAGEMENT PROGRAM

North Central Region – Edson / Stony Plain Area

2020 Inspection Report

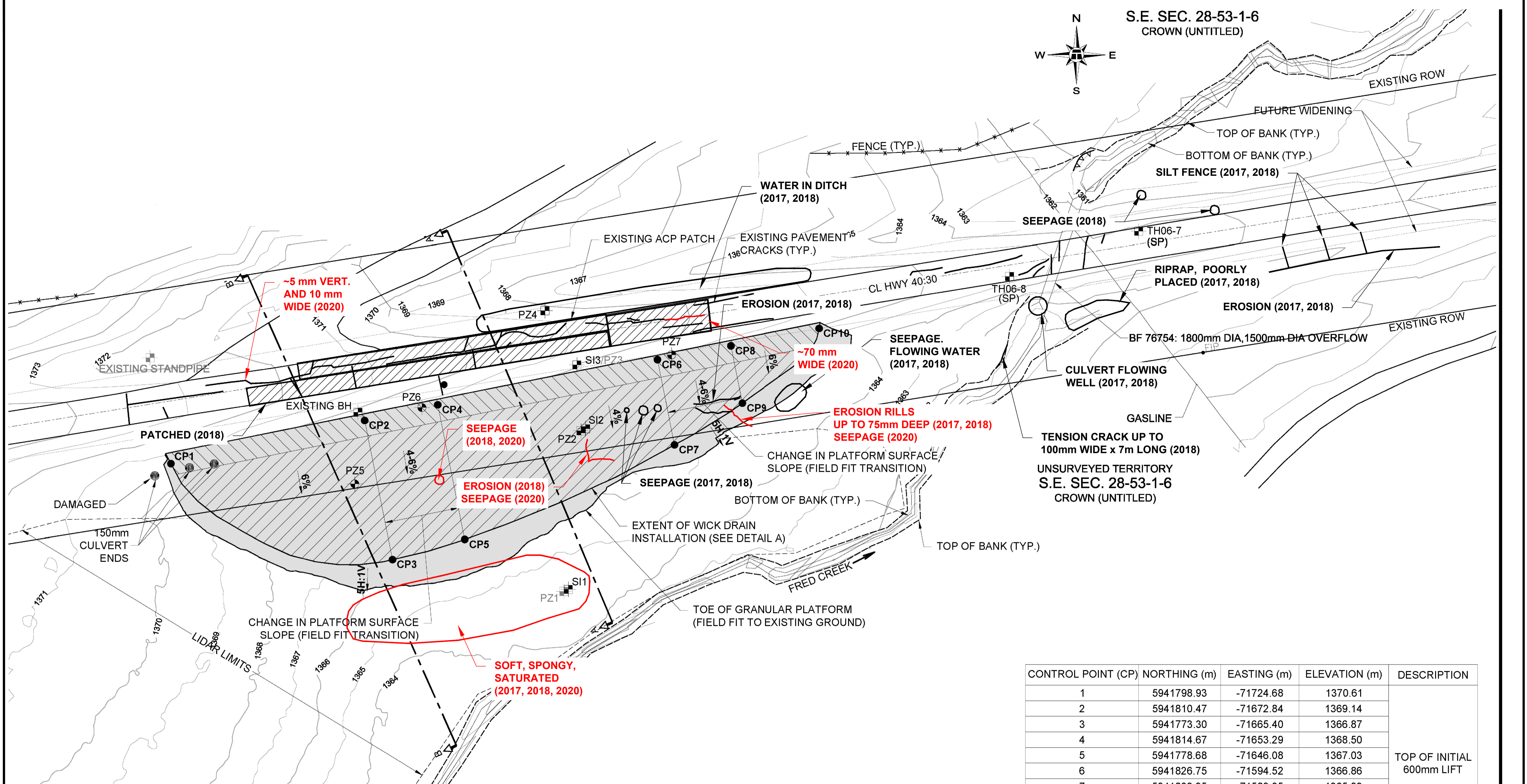
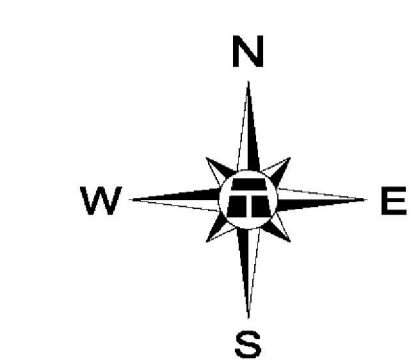
Site Number	Site Name		Hwy	km
NC48	Fred Creek Slide		40:30	48.8
Legal Land Description	SE 28-53-1-W6M			
UTM Coordinates (NAD 83)	Zone 11U	N5940053	E428399	
Operational Site Instrumentation	Slope Inclinometers		1	
	Pneumatic Piezometers		7	
	Vibrating Wire Piezometers		0	
	Standpipe Piezometers		0	
Date of Last Instrumentation Readings	May 26, 2020			

Risk Assessment	Date	PF	CF	Risk Ranking
Current Inspection	May 26, 2020	5	3	15
Previous Inspection	May 31, 2018	5	3	15
Report Attachments	<input checked="" type="checkbox"/> Photographs (10 photos)		<input checked="" type="checkbox"/> Site Plans (1 page)	

	Stantec	Alberta Transportation
Inspected By	Leslie Cho	Kristen Tappenden and Kathleen Davis
Date of Remediation	2016 – Berm with granular blanket and wick drains installed	
Recent Maintenance	2012: Asphalt patched. Upstream end piece of upper culvert repaired. 2015: Asphalt patch.	

	2017/2018: Asphalt appears recently patched but no record from AT	
Primary Site Issue	Shallow slide with high pore pressures	
Observations	Description and Location	Change from Previous Inspection
<input checked="" type="checkbox"/> Pavement Distress	Pavement cracks reflecting through patch.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> Culvert Distress		<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Bridge Distress		<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Slope Movement		<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Erosion		<input type="checkbox"/> Yes <input type="checkbox"/> No
<input checked="" type="checkbox"/> Seepage	Seepage south of PZ7 near toe. Seepage south of PZ6 near mid-slope. Seepage south of PZ2.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<input type="checkbox"/> Other		<input type="checkbox"/> Yes <input type="checkbox"/> No

Discussion	<p>In 2016, the south slope was remediated with a berm containing a granular blanket and wick drains to promote drainage.</p> <p>The highway appeared to have been patched since the 2017 inspection; however, AT did not have any records of its maintenance. The crack patterns appeared similar to the 2014 inspection as shown in Photos 1 to 5 and reflected through the recent patch.</p> <p>Several seepage locations continued to be observed at the site. Photo 6 shows seepage at about mid-slope south of PZ6. Photo 7 shows seepage south of PZ2 / SI2. Seepage also continued to be observed near the toe south of PZ7 as shown in Photo 8.</p> <p>The ground outside of the constructed granular platform near SI1 was observed to be wet and spongy. No signs of instability were observed within the rehabilitated slope. Photo 9 shows an overall view of the remediated slope from PZ7.</p>
Assessment	<p>In general, piezometric levels have decreased since the berm and wick drain construction. However, high pore pressures continued to be observed in the piezometers at the site with 3 of 7 piezometers showing artesian conditions. The non-artesian piezometric levels range from 0.2 m to 0.9 m below ground surface.</p> <p>SI2 was found to be blocked during the Spring 2018 instrumentation reading suggesting that slope movements may be on-going.</p>
Recommendations	<p>Short term recommendations should consist of sealing any pavement cracks to reduce surface water infiltration into the slope and pavement structure.</p> <p>During this inspection, it was discussed between AT and Stantec that the monitoring frequency of this site can be further reduced. It was suggested that the instruments continue to be monitored annually whereas inspections can occur once per contract duration (i.e. once every 4 or 5 years).</p>



LEGEND

- APPROXIMATE EXISTING INSTRUMENT LOCATION
- DAMAGED INSTRUMENT
- TH TEST HOLE
- SP STANDPIPE PIEZOMETER
- PZ PIEZOMETER (PNEUMATIC)
- SI SLOPE INCLINOMETER
- NEW PNEUMATIC PIEZOMETER LOCATION
- CP1 CONTROL POINT
- WICK DRAINS INSTALLED AT 1.5m TRIANGULAR SPACING
- WICK DRAINS INSTALLED AT 1.0m TRIANGULAR SPACING

NOTES

1. FEATURE LOCATIONS ARE APPROXIMATE.
2. 1m CONTOURS FROM ARA SURVEY AND LIDAR PROVIDED BY ALBERTA TRANSPORTATION.
3. GRADE WIDENING NOT SHOWN FOR CLARITY.
4. PREVIOUS OBSERVATIONS SHOWN IN BLACK
5. 2020 OBSERVATIONS SHOWN IN RED

REFERENCE

THURBER ENGINEERING LTD. PROJECT No.15-16-324, PLAN No. RD-19126-p
DATE: JAN 2015 (BASE PLAN PROVIDED BY ARA ENGINEERING LTD., 2007)

CONTROL POINT (CP)	NORTHING (m)	EASTING (m)	ELEVATION (m)	DESCRIPTION
1	5941798.93	-71724.68	1370.61	TOP OF INITIAL 600mm LIFT
2	5941810.47	-71672.84	1369.14	
3	5941773.30	-71665.40	1368.87	
4	5941814.67	-71653.29	1368.50	
5	5941778.68	-71646.08	1367.03	
6	5941826.75	-71594.52	1366.86	
7	5941803.95	-71589.95	1365.93	
8	5941830.43	-71574.87	1366.42	
9	5941815.14	-71571.79	1365.48	
10	5941835.11	-71551.11	1365.51	

STANTEC CONSULTING
10160-112 STREET
EDMONTON ALBERTA CANADA

Stantec

ALBERTA TRANSPORTATION
GEOHAZARD MONITORING PROGRAM
NC48 HWY 40:30, km 48.8 - FRED CREEK
SITE PLAN

DRAWN MK	CHECK XL	APPROVE LC	
DATE 19 JUN. 2020	SCALE AS SHOWN	PROJECT # 123312435	

FIGURE -1

Reference: 2020 Annual Inspection Photographs at NC48 – Fred Creek Slide
File Number: 123312435



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



Photo 2: Pavement cracks reflecting through patch in front of access road. Looking east.

Reference: 2020 Annual Inspection Photographs at NC48 – Fred Creek Slide
File Number: 123312435



Photo 3: Pavement cracking east of PZ4. Looking west.



Photo 4: Pavement cracks at east end of patch. Looking west.

Reference: 2020 Annual Inspection Photographs at NC48 – Fred Creek Slide
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Photo 5: Pavement crack along shoulder at east end of patch. Looking west.

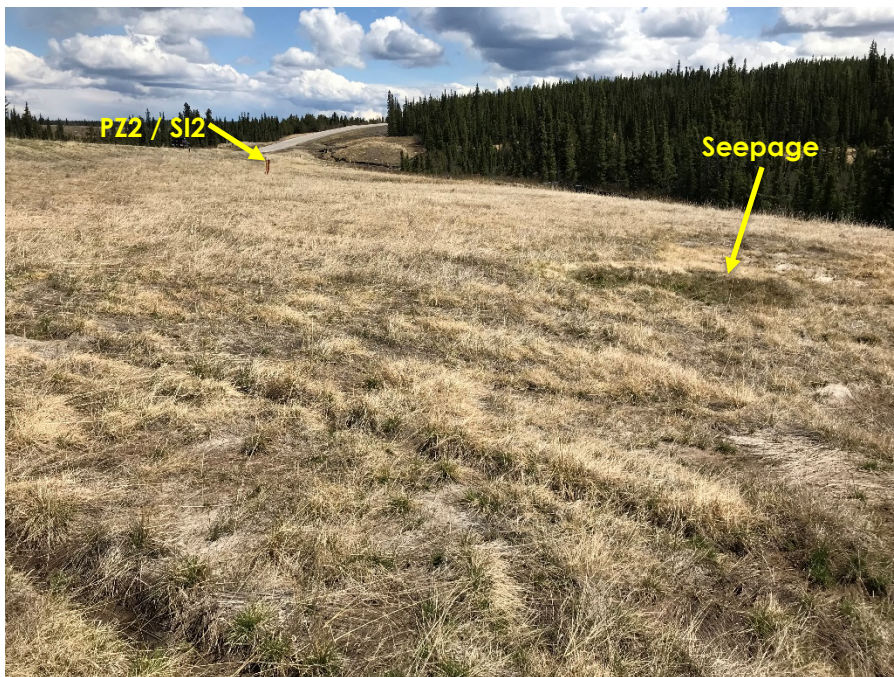


Photo 6: Seepage south of PZ6 at about mid-slope. Looking east.

Reference: 2020 Annual Inspection Photographs at NC48 – Fred Creek Slide
File Number: 123312435

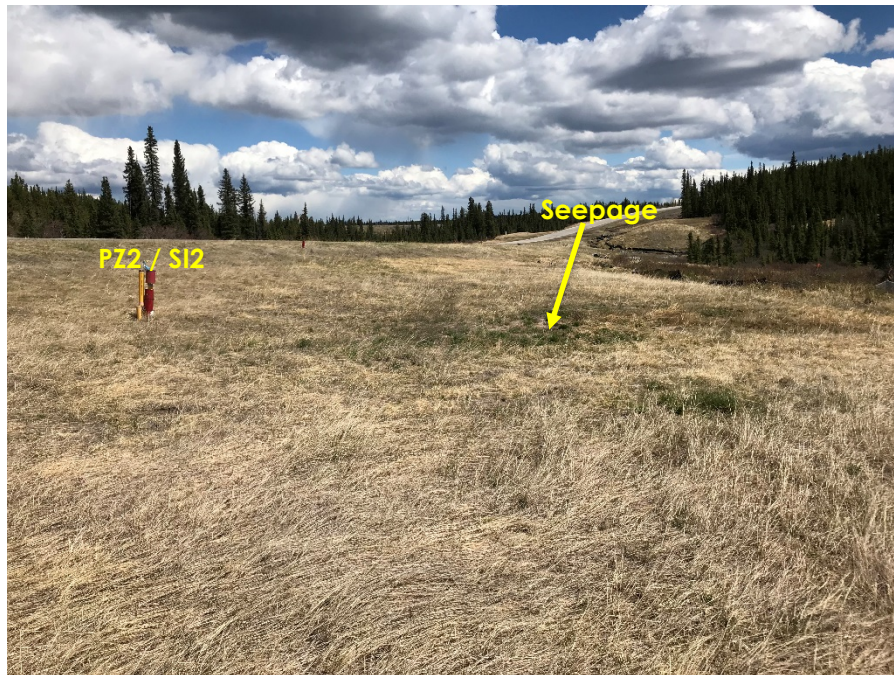


Photo 7: Seepage south of PZ2 / SI2. Looking east.



Photo 8: Seepage south of PZ7 near toe. Looking east.

Reference: 2020 Annual Inspection Photographs at NC48 – Fred Creek Slide
File Number: 123312435

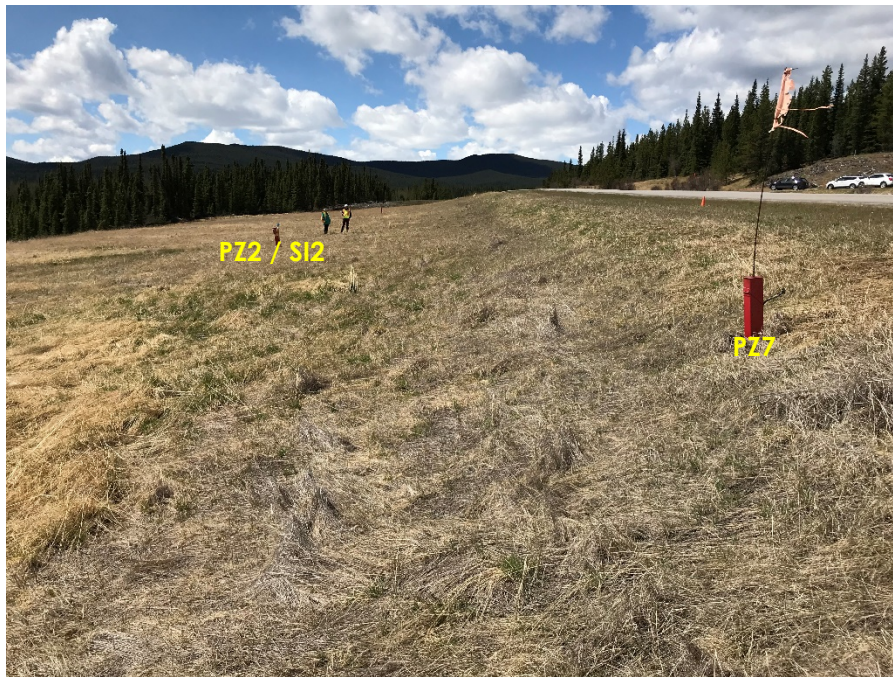


Photo 9: Overall embankment slope. Looking west.