

GEOHAZARD RISK MANAGEMENT PROGRAM

North Central Region – Edson / Stony Plain Area

2020 Inspection Report

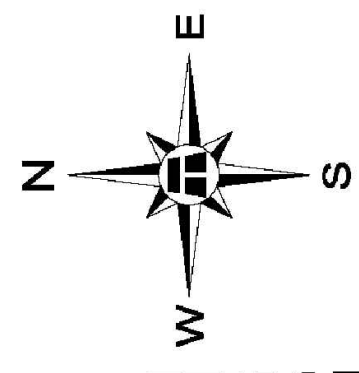
Site Number	Site Name		Hwy	km
NC31	Deer Lodge		22:32	28.9
Legal Land Description	NW 21-56-8-W5M			
UTM Coordinates (NAD 83)	Zone 11U	N5968640	E630978	
Operational Site Instrumentation	Slope Inclinometers		0	
	Pneumatic Piezometers		0	
	Vibrating Wire Piezometers		2	
	Standpipe Piezometers		0	
Date of Last Instrumentation Readings	May 21, 2020			

Risk Assessment	Date	PF	CF	Risk Ranking
Current Inspection	May 25, 2020	3	3	9
Previous Inspection	May 14, 2019	3	3	9
Report Attachments	<input checked="" type="checkbox"/> 6 Photographs		<input checked="" type="checkbox"/> Site Plan (1 Page)	

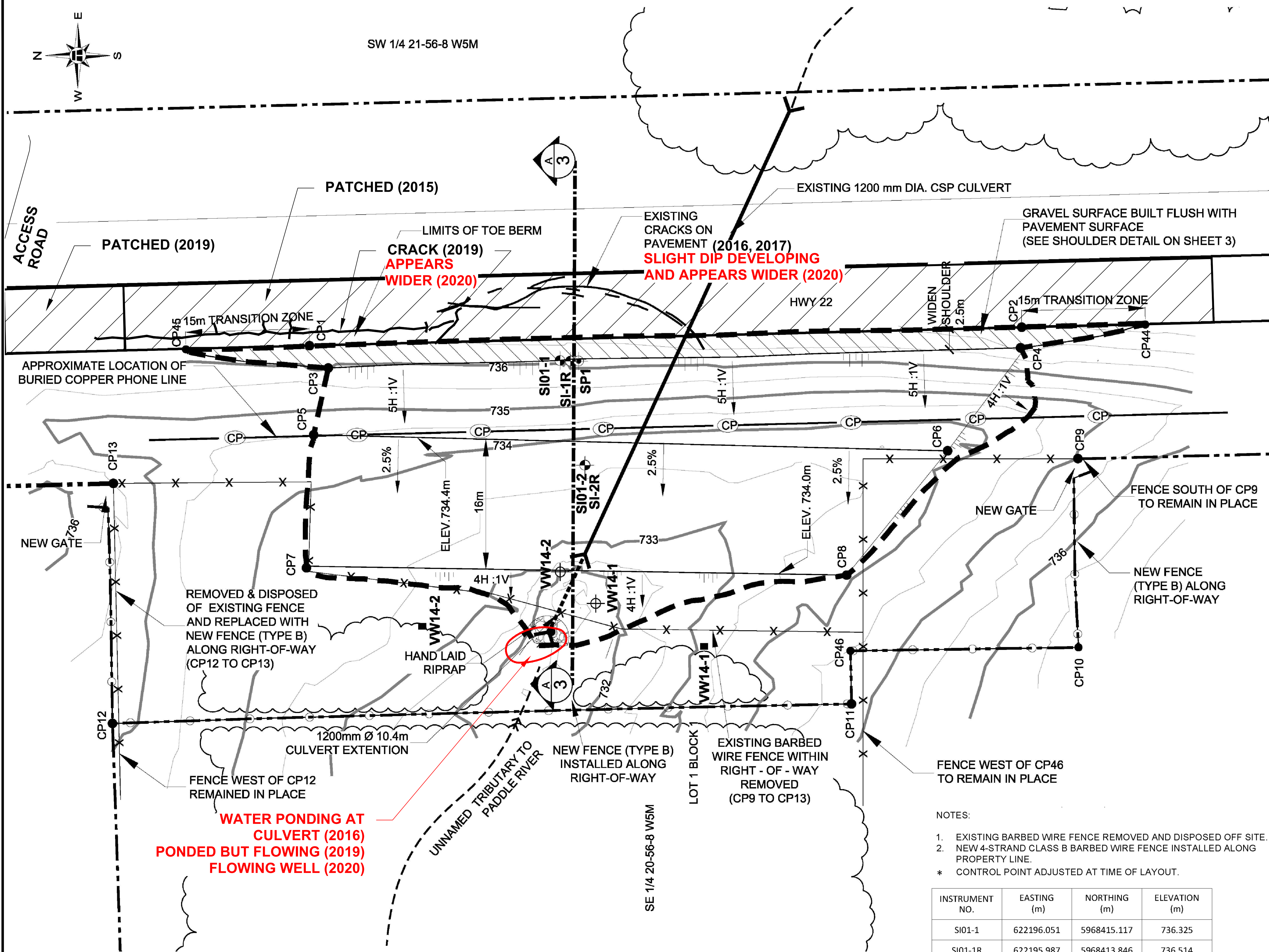
	Stantec	Alberta Transportation
Inspected By	Leslie Cho	Kristen Tappenden and Kathleen Davis
Date of Remediation	Toe berm and drainage constructed in 2016.	
Recent Maintenance	Highway patched in 2015 and 2010.	

Primary Site Issue	High groundwater table, poor drainage, weak foundation soils.		
Observations	Description and Location	Change from Previous Inspection	
<input checked="" type="checkbox"/> Pavement Distress	Circular pavement cracking near SI10-1 appears to dip more on southbound lane. Longitudinal cracks at entrance to access road on southbound lane.	<input checked="" type="checkbox"/> Yes	<input 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 checked="" type="checkbox"/> Slope Movement	Circular pavement cracking near SI10-1 appears to dip more on southbound lane.	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Erosion		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Seepage		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Other		<input type="checkbox"/> Yes	<input type="checkbox"/> No

Discussion	<p>The pavement cracking on the southbound (SB) lane observed in front of the farm access road appeared wider than in 2019 as shown in Photo 1. The limits of the circular crack on the SB lane near SI10-appears similar to 2019 as shown in Photos 2 to 4. However, the crack appears wider and dip more towards the west.</p> <p>The west embankment slope was well vegetated following construction in 2016 with no obvious signs of slope instability as shown in Photo 5.</p> <p>The 1200 mm diameter culvert appears to be in good condition as shown in Photo 6. Slow flowing water was observed at the outlet.</p>
Assessment	<p>High groundwater levels continue to be observed at the site with current readings showing the water level approximately 1.5 m to 2.5 m below ground surface. High water table along with relatively poor foundation soils are likely contributors to the slope movements.</p> <p>Currently, there are no operational slope inclinometers remaining at the site. The wider appearance of the circular crack along with potential dipping towards the west suggests ongoing slope movements.</p>
Recommendations	<p>Short term recommendations include sealing cracks to reduce surface water infiltration into the slope and pavement structure.</p> <p>Since a toe berm was recently constructed, long term remediation is unnecessary at this time.</p> <p>Consideration may be given to installing replacement instrumentation to monitor the performance of the toe berm and highway.</p> <p>Site inspections are currently scheduled for every two years. Due to potential widening of the pavement cracks, consideration for annual inspections may be given.</p> <p>Instrumentation readings at the site should continue to be collected during both spring and fall reading cycles.</p>



SW 1/4 21-56-8 W5M



CONTROL POINT	EASTING (m)	NORTHING (m)	ELEVATION (m)
CP1*	622197.842	5968445.499	736.370
CP2*	622200.084	5968359.093	737.360
CP3*	622195.134	5968443.221	736.340
CP4*	622197.658	5968359.225	737.300
CP5	622187.030	5968444.997	734.400
CP6	622185.091	5968368.076	734.400
CP7	622170.902	5968445.871	733.812
CP8	622170.016	5968380.318	734.000
CP9	622184.152	5968352.271	735.666
CP10*	622161.251	5968352.202	736.760
CP11*	622154.395	5968379.736	734.780
CP12*	622152.026	5968469.401	735.150
CP13	622181.142	5968469.288	735.598
CP44*	622200.405	5968344.096	737.730
CP45*	622197.402	5968460.492	736.290
CP46*	622160.831	5968379.865	734.500

- LEGEND**
- SLOPE INCLINOMETER LOCATION (SI)
 - APPROXIMATE STANDPIPE PIEZOMETER LOCATION (SP)
 - VIBRATING WIRE PIEZOMETER TIP LOCATION (VW)
 - TREE LINE (APPROX.)
 - EXISTING GROUND SURFACE CONTOUR - SURVEYED ON OCTOBER 13, 2015 (CONTOUR INTERVAL = 0.5m)
 - CRACK ON HIGHWAY
 - PROPERTY LINE
 - APPROXIMATE BURIED COPPER PHONE LINE
 - APPROXIMATE FENCE LINE (EXISTING)
 - FENCE LINE (TYPE B) (NEW)
 - CONTROL POINT
 - VIBRATING WIRE PIEZOMETER LEADS STEEL PROTECTOR (APPROX.)

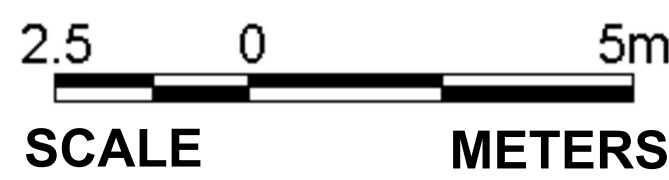
- NOTES:**
- EXISTING BARBED WIRE FENCE REMOVED AND DISPOSED OFF SITE.
 - NEW 4-STRAND CLASS B BARBED WIRE FENCE INSTALLED ALONG PROPERTY LINE.
- * CONTROL POINT ADJUSTED AT TIME OF LAYOUT.

INSTRUMENT NO.	EASTING (m)	NORTHING (m)	ELEVATION (m)
SI01-1	622196.051	5968415.117	736.325
SI01-1R	622195.987	5968413.846	736.514
SP1	622195.987	5968413.846	736.514
SI01-2	622183.351	5968412.101	734.319
SI-2R	622183.360	5968412.034	734.412
VW14-1 TIP	622166.586	5968410.779	-
VW14-1 CASING	622161.356 (APPROX.)	5968397.620 (APPROX.)	-
VW14-2 TIP	622170.402	5968415.079	-
VW14-2 CASING	622163.808 (APPROX.)	5968431.793 (APPROX.)	-

NOTES

- PREVIOUS OBSERVATIONS SHOWN IN BLACK
- 2020 OBSERVATIONS SHOWN IN RED

REFERENCE
 THURBER ENGINEERING LTD, JOB No.15-16-322, PLAN No. RD19252-C
 DATE NOVEMBER 25, 2015.



STANTEC CONSULTING
 400-10220 103 AVENUE NW
 EDMONTON, ALBERTA, CANADA
 T5J 0K4

ALBERTA TRANSPORTATION
 GEOHAZARD MONITORING PROGRAM
 NC31 HWY 22-32
 SITE PLAN

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

FIGURE - 1

Reference: 2019 Annual Inspection Photographs at NC31 – Deer Lodge
File Number: 123312435



Photo 1: New pavement cracking reflected through recent patch on southbound lane in front of access road. Looking north.



Photo 2: New extension of circular crack on southbound lane near S110-1. Looking southeast.

Reference: 2019 Annual Inspection Photographs at NC31 – Deer Lodge
File Number: 123312435



Photo 3: Circular crack near S110-1. Looking northeast.



Photo 4: Overall west embankment slope. Looking north.

Reference: 2019 Annual Inspection Photographs at NC31 – Deer Lodge
File Number: 123312435



Photo 5: The 1200 mm diameter culvert is in good condition. Slow draining at outlet. Looking south.