

**ALBERTA TRANSPORTATION
AND ECONOMIC CORRIDORS
GEOHAZARD ASSESSMENT PROGRAM
PEACE REGION–GRANDE PRAIRIE DISTRICT - NORTH
2025 INSPECTION REPORT**



Site Number	Location	Name	Hwy	km
GP004a	Burnt River Bridge (BF73877)	Burnt River Bridge (West Approach Slide)	49:06	10.586
GP004d (Not Visited)		Burnt River Bridge (East Approach Slide)		11.000
Legal Description		UTM Co-ordinates		
NW¼10-078-04-W6M		11U E 403300		

	Date	PF	CF	Total
Previous Inspection:	6-May-2024	12	7	84
Current Inspection:	5-May-2025	9	7	63
Road AADT:	1,220	Year:		2024
Inspected by:	Robert Senior, TEC Chris Newman, TEC Tom Patey, TEC		Don Proudfoot, Thurber Nicole Wilder, Thurber	
Report Attachments:	<input checked="" type="checkbox"/> Photographs	<input checked="" type="checkbox"/> Plans	<input type="checkbox"/> Maintenance Items	

Primary Site Issue:	<p>See previous annual inspection and call out reports from the Geohazard binder for a complete historical perspective of this site.</p> <p><u>West Approach Slides:</u> The west approach to the Burnt (Saddle) River Bridge (BF73877) was constructed as a side hill embankment through a deep-seated landslide that is activated by downward erosion of the meandering of the Burnt River, which is situated about 200 m downslope of the roadway. The slides along the river bank caused distress to the previous road alignment and bridge which led to the abandonment of the old alignment and bridge.</p> <p>Between 2010 and 2012, two smaller landslides developed near the backscarp of the deep-seated landslide and likely accounted for the distress and cracking of the existing roadway embankment and pavement. These two smaller scarps have now coalesced into one larger slide.</p>
Dimensions:	<p><u>West Approach Slides:</u> The landslide is about 480 m in width along the backscarp and extends about 250 m downslope into the Burnt (Saddle) River. The backscarp was traced into the backslope of the highway and further southeast of the previously observed cracks. The elevation difference between the slide cracks in the road surface and the Burnt (Saddle) River generally varies between 38 m at the northwest and 28 m towards the southeast.</p>
Maintenance:	An ACP patch was placed on the pavement affected by the West Approach Sides in 2021, and the pavement was milled in 2022 and again in 2023. An ACP overlay was placed through the site in 2024.

Remediation:	<p>In 1991, the highway alignment through the Burnt (Saddle) River crossing at this site was shifted further upslope with the intention of locating the highway outside of the landslide area.</p> <p>During construction of the new alignment cracking of the new west highway approach fill was observed. This movement was stabilized with the use of lightweight fill (wood chips) and a tangent pile wall at the west headslope.</p> <p>In 2012 it is understood that there was an approximately 36 m wide section of roadway that was excavated out and a section replaced with mechanically stabilized granular fill and the remaining compacted granular fill, a shear key and a subdrain beneath it. Some as-built cross-sections describing this work are attached to previous reports.</p>	
Observations:	Description	Worsened?
<input checked="" type="checkbox"/> Pavement Distress	Hairline cracks were observed in two locations on the pavement affected by the West Approach Slides along profiles observed in previous years, which are showing through the overlay. There was a steep (~1.3 m) drop off on the south side of the highway from numerous patches over the years.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	The roadway was affected by landslides at the west approach to the Burnt River Bridge (BF73877) crossing (the east side was not looked at this year). The west approach slide appeared to continue to show creep movement with hairline cracks showing through the new overlay in two locations. The scarp crack was also tracked about 180 m further east south of the highway during the 2023 inspection.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Erosion	River erosion is ongoing at the toe of the larger deep-seated landslide on the west as the Burnt River continuously erodes the toe of the north valley slope. The scour holes in the erosion gully along the south ditch appeared slightly larger in 2025 and were mostly dry.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Seepage	The previously ponded water area on the north side of the highway was wet during the 2025 inspection and a larger area was wet from what appeared to be a spring. The two scour holes within the erosion gully formed to the northwest of the site were mostly dry. There was also some seepage observed above an existing 200 mm diameter CSP subdrain downslope of the scarp crack during the last inspection. There was also ice at the 800 mm diameter outlet and the inlet could not be found. It is possible this culvert could be under the old highway alignment.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Bridge/Culvert Distress		<input type="checkbox"/>
<input checked="" type="checkbox"/> Other	A 1.5 m diameter sinkhole was observed over an existing 800 mm diameter CSP culvert.	<input type="checkbox"/>

LONG TERM:

Realign the highway further north/uphill outside the current landslide limits or realign the river (the smaller realignment mention by EBA) to allow a toe berm buttress and river channel armouring works to be installed. The extent and associated cost for each of these options would need to be further assessed. Due to the size of the landslide a pile wall option would likely not be cost effective for this site.

Closure

It is a condition of this letter report that Thurber's performance of its professional services will be subject to the attached Statement for Use and Interpretation of Report.

Yours very truly,
Thurber Engineering Ltd.
Don Proudfoot, P.Eng.
Partner | Senior Geotechnical Engineer

Nicole Wilder, M.Eng., P.Eng.
Associate | Geotechnical Engineer

STATEMENT FOR USE AND INTERPRETATION OF REPORT

1. STANDARD OF CARE

This Report has been prepared in a manner consistent with that degree of care and skill ordinarily exercised by members of the same profession currently practicing under similar circumstances at the same time and in the same or similar locality and in compliance with all applicable laws.

2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment, including this Statement For Use and Interpretation of Report, are a part of the Report, which is of a summary nature and is not intended to stand alone without reference to the instructions given to Thurber by the Client, communications between Thurber and the Client, and any other reports, proposals or documents prepared by Thurber for the Client relative to the specific site described herein, all of which together constitute the Report.

IN ORDER TO PROPERLY UNDERSTAND THE SUGGESTIONS, RECOMMENDATIONS AND OPINIONS EXPRESSED HEREIN, REFERENCE MUST BE MADE TO THE WHOLE OF THE REPORT, AS DESCRIBED ABOVE. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE OF THE REPORT.

3. BASIS OF REPORT

The Report has been prepared for the specific site, development, design objectives, and purposes that were described to Thurber by the Client. The applicability and reliability of any of the findings, recommendations, suggestions, or opinions expressed in the Report, subject to the limitations provided herein, are only valid to the extent that the Report expressly addresses proposed development, design objectives and purposes, and then only to the extent that there has been no material alteration to or variation from any of the said descriptions provided to Thurber, unless Thurber is specifically requested by the Client to review and revise the Report in light of such alteration or variation.

4. USE OF THE REPORT

The information and opinions expressed in the Report, or any document forming part of the Report, are for the sole benefit of the Client for the development, design objectives, and/or purposes described to Thurber by the Client. **NO OTHER PARTY MAY USE OR RELY ON THE REPORT OR ANY PORTION THEREOF FOR OTHER THAN THE CLIENT'S BENEFIT IN CONNECTION WITH THE PURPOSES DESCRIBED IN THE REPORT.** Any use which a third party makes of the Report is the sole responsibility of such third party and is always subject to this Statement for Use and Interpretation of Report. Thurber accepts no liability or responsibility for damages suffered by any third party resulting from use of the Report for purposes outside the reasonable contemplation of Thurber at the time it was prepared or in any manner unintended by Thurber.

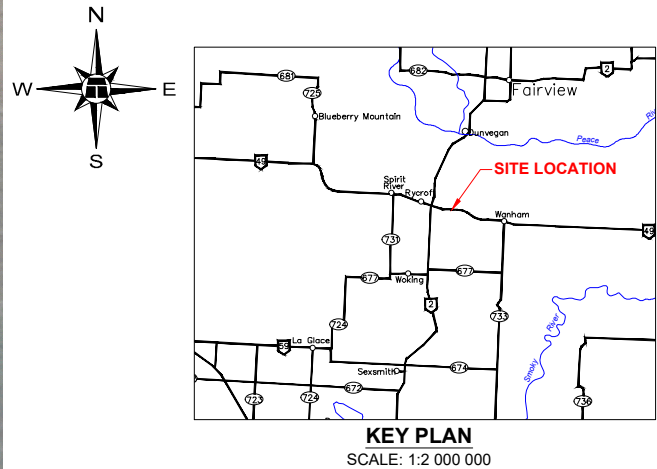
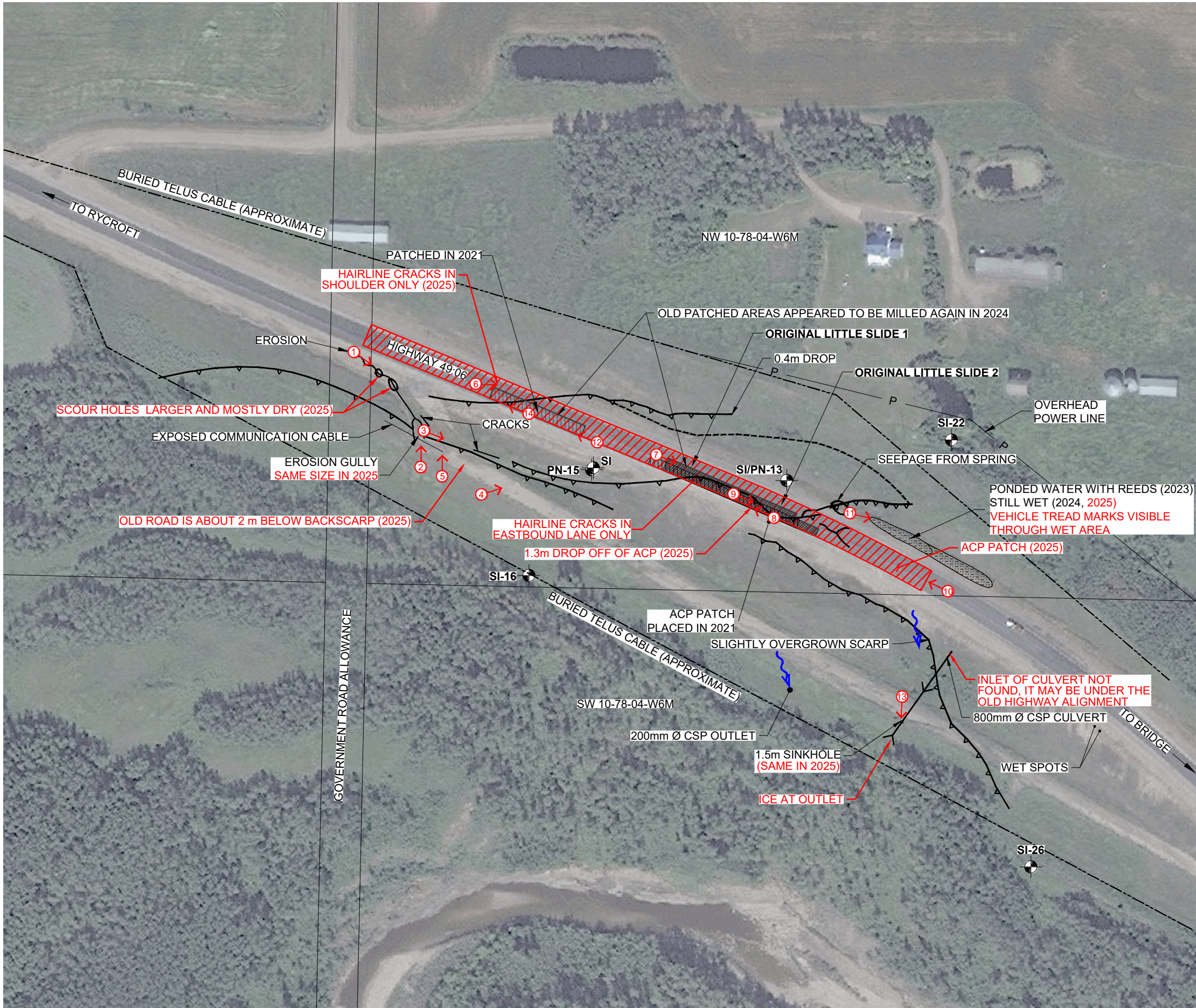
5. INTERPRETATION OF THE REPORT

- a) **Nature and Exactness of Soil and Contaminant Description:** Classification and identification of soils, rocks, geological units, contaminant materials and quantities have been based on investigations performed in accordance with the standards set out in Paragraph 1. Classification and identification of these factors is inherently judgement-based. Comprehensive sampling and testing programs implemented with the appropriate equipment by experienced personnel may fail to locate some conditions. All investigations utilizing the standards of Paragraph 1 will involve an inherent risk that some conditions will not be detected and all documents or records summarizing such investigations will be based on assumptions of what exists between the actual points sampled. Actual conditions may vary significantly between the points investigated and the Client and all other parties making use of such documents or records with or without our express written consent need to be aware of this risk and the Report is delivered subject to the express condition that such risk is accepted by the Client and such other parties. Some conditions are subject to change over time and those making use of the Report need to be aware of this possibility and understand that the Report only presents the interpreted conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client must disclose them so that additional or special investigations may be undertaken which would not otherwise be within the scope of investigations made for the purposes of the Report.
- b) **Reliance on Provided Information:** The evaluation and conclusions contained in the Report have been prepared based on conditions in evidence at the time of site inspections and based on information provided to Thurber. Thurber has relied in good faith upon representations, information and instructions provided by the Client and others concerning the site. Accordingly, Thurber does not accept responsibility for any deficiency, misstatement or inaccuracy contained in the Report resulting from misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other parties providing information relied on by Thurber. Thurber is entitled to rely on such representations, information and instructions and is not required to carry out investigations to determine the truth or accuracy of such representations, information and instructions.
- c) **Design Services:** The Report may form part of design and construction documents for information purposes even though it may have been issued prior to final design being completed. Thurber is recommended to be retained to review final design, project plans and related documents prior to construction to confirm that they are consistent with the intent of the Report. Any differences that may exist between the Report's recommendations and the final design need to be reported to Thurber immediately so that Thurber can address potential conflicts.
- d) **Construction Services:** During construction Thurber should be retained to provide field reviews. Field reviews consist of performing sufficient and timely observations of encountered conditions to confirm and document that the site conditions do not materially differ from those conditions considered in the preparation of the report. Adequate field reviews are necessary for Thurber to provide letters of assurance, in accordance with the requirements of many regulatory authorities.

6. INDEPENDENT JUDGEMENTS OF CLIENT

The information, interpretations and conclusions in the Report are based on Thurber's interpretation of conditions revealed through limited investigation conducted within a defined scope of services. Thurber does not accept responsibility for independent conclusions, interpretations, interpolations and/or decisions of the Client, or other parties who may come into possession of the Report, or any part thereof, which may be based on information contained in the Report. This restriction of liability includes, but is not limited to, decisions made to develop, purchase, or sell land, unless such decisions expressly form part of the stated purpose of the Report as described in Paragraph 3.

G:\32000\32123 AT GRMP Grande Prairie District North 2021-2025\CAD\2025 GEO HAZARD\NPW\32123-GP004A-1.dwg - 1in - Oct. 02, 2025

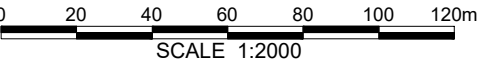


LEGEND

- APPROXIMATE INSTRUMENT LOCATION
- SI SLOPE INCLINOMETER
- PN PNEUMATIC PIEZOMETER
- SCARP CRACK
- POSSIBLE SCARP RETROGRESSION
- SEEPAGE
- 2024 ACP OVERLAY
- DIRECTION AND NUMBER OF PHOTO

NOTES :

- FEATURE LOCATIONS ARE APPROXIMATE
- PREVIOUS OBSERVATIONS SHOWN IN BLACK
- MAY 5, 2025 FEATURES SHOWN IN RED



PEACE REGION (GRANDE PRAIRIE DISTRICT - NORTH)
GP004A-1: HWY 49:06 BURNT RIVER BRIDGE

2025 INSPECTION FIGURE

DWG No. 32123-GP004A-1-1

DRAWN BY	ML
DESIGNED BY	NPW
APPROVED BY	RVC
SCALE	1:2000
DATE	OCTOBER 2025
FILE No.	32123





Photo 1. Looking southeast at erosion gully that had formed in the south ditch that had pooling water in it in 2022 but the scour holes were mainly dry with slight moisture in 2025.



Photo 2. Looking north from edge of erosion gully. Note the ditch along south side of highway tails off and has been the contributor to this erosion.



Photo 3. Looking southeast at where scarp crosses the old highway alignment.



Photo 4. Looking northeast at southern slide scarp which crosses the old highway alignment.



Photo 5. Looking north from old highway alignment at south slide scarp.



Photo 6. Looking east from the shoulder of the EBL of Hwy 49:06 at the hairline cracks in the shoulder.



Photo 7. Looking east from the shoulder of the EBL of Hwy 49:06.



Photo 8. Looking northwest at south highway shoulder and drop off.



Photo 9. Looking east from near the middle of the site where crack is showing in EBL.



Photo 10. Looking northwest from the WBL of Hwy 49:06 at the south end of the site.



Photo 11. Looking southeast at ponded water and reeds on north side of highway.



Photo 12. Looking northwest at the ACP overlay placed at the site.



Photo 13. Looking south at sinkhole found south of the highway.



Photo 14. Looking northwest at hairline cracks showing in the eastbound lane shoulder at the northwest extent of the site.