

**ALBERTA TRANSPORTATION  
GEOHAZARD ASSESSMENT PROGRAM  
PEACE REGION – HIGH LEVEL  
2023 INSPECTION REPORT**



Site Number	Location	Name	Hwy	km
PH086	Manning, Alberta	Pinewood Estates	691:02	0.06
Legal Description		UTM Co-ordinates		
NE21-091-23-W5M		11U E 461,782	N	6,308,097

	Date	PF	CF	Total
<b>Previous Inspection:</b>	4-Jun-2020	11	4	44
<b>Current Inspection:</b>	16-May-2023	3	3	9
<b>Road AADT:</b>	691:02: 612 35:06: 2610		<b>Year:</b>	2023
<b>Inspected By:</b>	Max Shannon, TEC Rocky Wang, TEC Pramaya Kannel, TEC		Don Proudfoot, Thurber Ken Froese, Thurber	
<b>Report Attachments:</b>	<input checked="" type="checkbox"/> Photographs	<input checked="" type="checkbox"/> Plans	<input type="checkbox"/> Maintenance Items	

<b>Primary Site Issue:</b>	Landslide affecting the side slope of Hwy 691	
<b>Dimensions:</b>	50 m length of highway, 30 m wide, ~11 m high slope Tension cracks extend about 4 m further west The active slide is about 36 m wide parallel to the highway and 20 long in the downslope direction. Tension cracks extend an additional 15 m to the east. The slope is about 11 m high at the slide location. The bare backslope of the slide is inclined at 32 degrees and the side slopes outside the slide are inclined at 28 degrees to the horizontal.	
<b>Date of Remediation:</b>	2021 (CON0022057): Landslide repairs consisted of excavating the slumped material, installing a shear key at the toe, and rebuilding the slopes at a flatter inclination using compacted 2-25 gravel. A new SWSP culvert was installed under Hwy 691:02.	
<b>Maintenance:</b>	2021: Guardrail extended further east along Hwy 691:02	
<b>Observations:</b>	<b>Description</b>	<b>Worsened?</b>
<input checked="" type="checkbox"/> Pavement Distress	2019 tension cracks became scarp in 2020; New tension crack formed at west end. Removed and repaved during 2021 repair.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Slope Movement	2019 slide mass continues to move and break up. It extended both east and west in 2020. Removed and replaced with compacted gravel during 2021 repair.	<input type="checkbox"/>
<input checked="" type="checkbox"/> Erosion	Exposed soil of slide mass eroding. Finished slopes topsoiled, seeded, and covered with erosion control blanket. New ditch constructed by Town at toe of slope is eroding slightly.	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Seepage		<input type="checkbox"/>
<input checked="" type="checkbox"/> Bridge/Culvert Distress	600 mm CSP culvert outlet hanging 1.3m in 2020 and riprap apron destroyed by slide movement. Piece of 600 mm concrete culvert on west flank of slope but origin and inlet unknown. Old culverts removed or grouted and new SWSP installed during 2021 repair.	<input type="checkbox"/>





## STATEMENT OF LIMITATIONS AND CONDITIONS

### 1. STANDARD OF CARE

This Report has been prepared in accordance with generally accepted engineering or environmental consulting practices in the applicable jurisdiction. No other warranty, expressed or implied, is intended or made.

### 2. COMPLETE REPORT

All documents, records, data and files, whether electronic or otherwise, generated as part of this assignment 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. THURBER IS NOT RESPONSIBLE FOR USE BY ANY PARTY OF PORTIONS OF THE REPORT WITHOUT REFERENCE TO THE WHOLE 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. NO OTHER PARTY MAY USE OR RELY UPON THE REPORT OR ANY PORTION THEREOF WITHOUT THURBER'S WRITTEN CONSENT AND SUCH USE SHALL BE ON SUCH TERMS AND CONDITIONS AS THURBER MAY EXPRESSLY APPROVE. Ownership in and copyright for the contents of the Report belong to Thurber. Any use which a third party makes of the Report, is the sole responsibility of such third party. Thurber accepts no responsibility whatsoever for damages suffered by any third party resulting from use of the Report without Thurber's express written permission.

### 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 are judgmental in nature. 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 persons making use of such documents or records with our express written consent should 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 persons. Some conditions are subject to change over time and those making use of the Report should be aware of this possibility and understand that the Report only presents the conditions at the sampled points at the time of sampling. If special concerns exist, or the Client has special considerations or requirements, the Client should 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 on the basis of conditions in evidence at the time of site inspections and on the basis of 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 as a result of misstatements, omissions, misrepresentations, or fraudulent acts of the Client or other persons 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 should 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 detailed in the contract documents should 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 in order to confirm and document that the site conditions do not materially differ from those interpreted 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. RELEASE OF POLLUTANTS OR HAZARDOUS SUBSTANCES


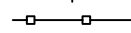

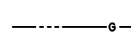
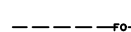

Geotechnical engineering and environmental consulting projects often have the potential to encounter pollutants or hazardous substances and the potential to cause the escape, release or dispersal of those substances. Thurber shall have no liability to the Client under any circumstances, for the escape, release or dispersal of pollutants or hazardous substances, unless such pollutants or hazardous substances have been specifically and accurately identified to Thurber by the Client prior to the commencement of Thurber's professional services.

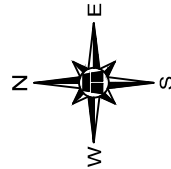
### 7. INDEPENDENT JUDGEMENTS OF CLIENT

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 others 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.

H:\32000\32121 AT GRMP Peace River District 2021-2025\CAD\2023\KEF\32121 PH086-1.dwg - 7m - Oct. 06, 2023

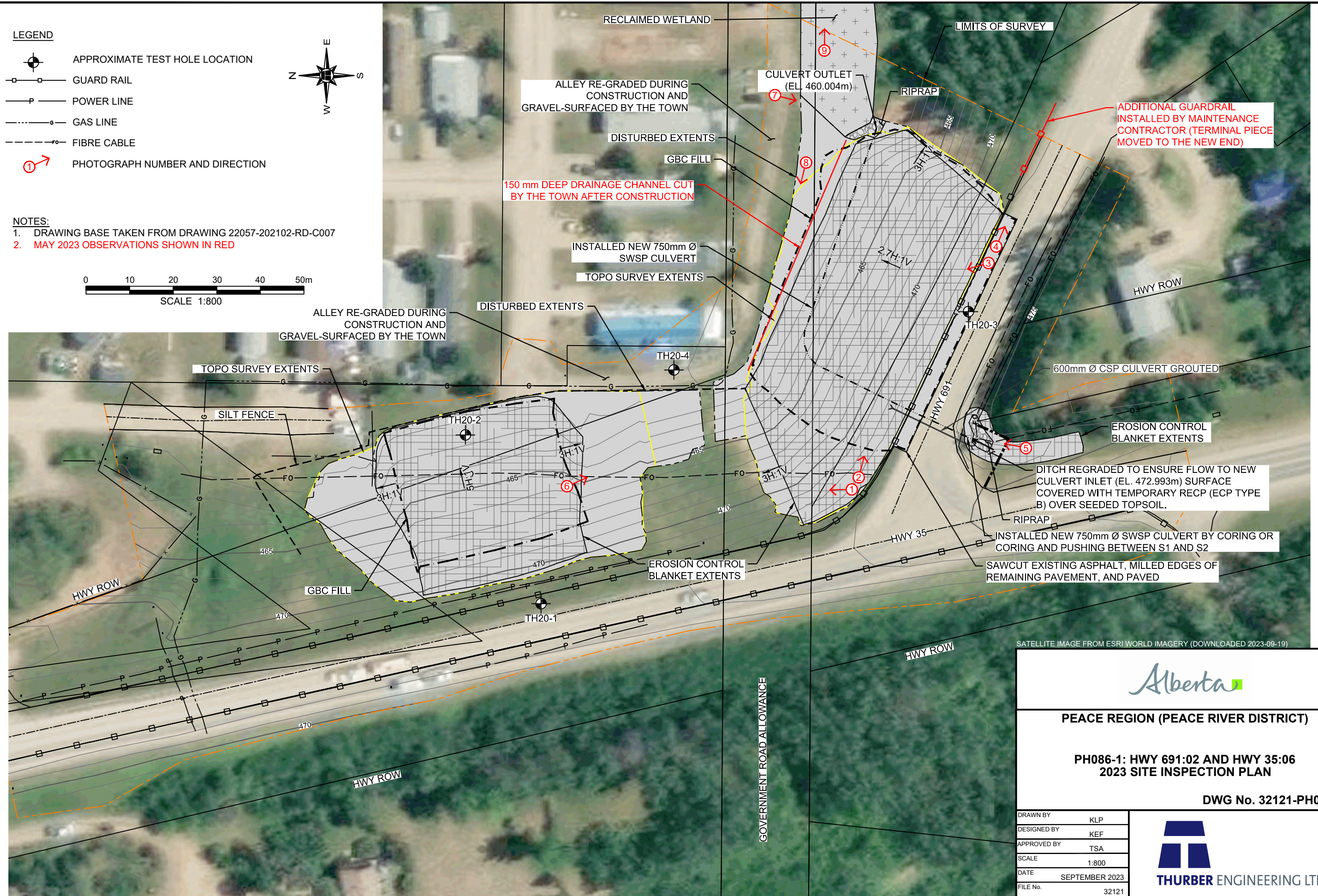
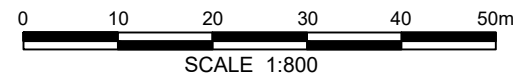
**LEGEND**

-  APPROXIMATE TEST HOLE LOCATION
-  GUARD RAIL
-  POWER LINE
-  GAS LINE
-  FIBRE CABLE
-  PHOTOGRAPH NUMBER AND DIRECTION



**NOTES:**

1. DRAWING BASE TAKEN FROM DRAWING 22057-202102-RD-C007
2. MAY 2023 OBSERVATIONS SHOWN IN RED



PEACE REGION (PEACE RIVER DISTRICT)

PH086-1: HWY 691:02 AND HWY 35:06  
2023 SITE INSPECTION PLAN

DWG No. 32121-PH086-1

DRAWN BY	KLP
DESIGNED BY	KEF
APPROVED BY	TSA
SCALE	1:800
DATE	SEPTEMBER 2023
FILE No.	32121





Photo 1 – Looking north toward the slide repaired on the east side of Hwy 35.



Photo 2 – Looking east along the top of the repaired Hwy 691 slide.



Photo 3 – Looking northwest toward Hwy 35 along the top of the repaired Hwy 691 slide.



Photo 4 – Looking east along Hwy 691 at the east end of the site where the guardrail was extended by the Maintenance Contractor.



Photo 5 – New SWSP inlet in the east ditch of Hwy 35 on the south side of Hwy 691.



Photo 6 – Looking southeast at the repaired Hwy 691 slide.



Photo 7 – Looking south at the outlet of the 750 mm SWSP with the wetland to the left.



Photo 8 – Looking west along the toe of the Hwy 691 embankment where the Town cut a drainage channel which ties into the culvert outlet.





Photo 9 – Looking east along the reclaimed wetland and improved alley behind the Pinewood Estates.