

ALBERTA TRANSPORTATION AND
ECONOMIC CORRIDORS GRMP
NORTH CENTRAL (ATHABASCA AND FORT
McMURRAY DISTRICTS)
INSTRUMENTATION MONITORING - SPRING 2025



Site Number	Location	Name	Hwy	km
NC106	HWY 63:08 km 27.9	Pavement Distress	63:08	27.9
Legal Description:		UTM Co-ordinates		
7-16-83-24 W5		11V E 455134	N	6227955

Current Monitoring:	30-May-2025	Previous Monitoring	17-Sep-2024
Instruments Read By:	Mr. Niraj Regmi, G.I.T and Mr. Godfred Etiendem, of Thurber		

Instruments Read During This Site Visit			
Slope Inclinometers (SIs): N/A	Pneumatic Piezometers (PN): N/A	Vibration Wire Piezometers (VW): N/A	Standpipe Piezometers (SP): N/A
Load Cell (LC): N/A	Strain Gauges: N/A	SAA's: N/A	Others: Extensometer strings: EXT21-1 and EXT21-2 Thermistor arrays: THERM21-2 and THERM21-3 (Cematrix test section) THERM21-1 (Pavement Control) THERM 21-4 (Grassed Control) Weather Station

Readout Equipment Used			
Slope Inclinometers:	Pneumatic Piezometers:	Vibration Wire Piezometers:	Standpipe Piezometers:
Load Cell:	Strain Gauges:	SAA's:	Others: All readings were downloaded from a Campbell Scientific CR6 datalogger

Notes:

- The thermistor junctions and connections to the datalogger were checked by Mr. Niraj Regmi this spring to confirm if they were the source of the noise and missing readings noted in the fall of 2024 . The hardware and connections were confirmed to be installed correctly and undamaged.
- In an attempt to reduce the noise, a new program (that increases the reading time at each instrument) was uploaded to the datalogger.

Discussion	
Zones of New Movement:	N/A
Interpretation of Monitoring Results:	The extensometer data is summarized in Table NC106-1 below and is plotted in Figures NC106-1 and NC106-2 in Appendix A. Extensometer EXT21-1, installed towards the southern end of the Cematrix repair section, shows a current total settlement of 3.1 mm. This corresponds to an overall increase in settlement of 0.2 mm since it was previously read on September 17, 2024. EXT21-2, installed towards the northern end of the Cematrix repair section, shows a current total settlement of 14.5 mm. This corresponds to an overall increase in settlement of 1 mm since it was previously read on September 17, 2024. At both locations, the majority of the settlement is occurring within the peat layer. The south extensometer (EXT21-1) has shown a pattern of about 4 mm of frost heave in the past four winter seasons despite no significant change in the amount of settlement during the spring and summer seasons. It will be interesting to see if this trend continues as the north extensometer (EXT21-2) has shown a different trend as the heave amount has been steadily decreasing while the amount of summer settlement has been increasing slightly. At both extensometer locations, the settlement seems to have stabilized, despite the cyclical variability, and most of this settlement occurred about 13 months after construction. The thermistor results from the monitoring period are summarized in Table NC106-2 and the plots are presented in Figures NC106-3 to NC106-6. The near-surface temperature nodes from each of the thermistor arrays have been compared to the ambient temperature readings, and the results are plotted in Figure NC106-7. To compare the influence of the Cematrix on temperatures at depth, the 1.1 m to 1.3 m thermistor readings from all four locations are plotted in Figure NC106-8. The results indicate the following: (a) THERM21-1, installed south of the Cematrix repair zone, shows highly variable temperature readings within its shallowest thermistor nodes (above 1.1 m) reflecting changes in ambient air temperatures (Figure NC106-3). The thermistor nodes below 1.1 m have generally shown less fluctuations in temperatures. The nodes at 2.1 m and 3.1 m depth have recently shown significant scatter in the readings, possibly indicating issues with the sensors. A new program was uploaded during the readings in an attempt to address this scatter. A similar trend of fluctuating temperatures in response to changes in ambient temperature has been noted in the nodes above 1.3 m in THERM21-2 and THERM21-3, installed within the Cematrix repair section and in THERM21-4 installed within the grass covered area (Figures NC106-4 to NC106-6). The thermistor nodes below 1.3 m at all four locations has generally shown less fluctuations in temperatures. At THERM21-3, installed within the Cematrix repair section, the thermistors at 0.3 m, 1.3 m, 2.3 m, and 3.3 m depth, stopped functioning after March 24, 2025. (b) As expected, the ground temperature reduces with depth at all thermistor array locations (Figures NC106-3 to NC106-6). (c) The near-surface temperature nodes closely follow the trend of the ambient air temperatures. In addition, the shallow temperatures measured in the paved areas are significantly

	higher in the summer and colder in the winter compared to the grassed area (Figure NC106-7) as the grass and accumulated snow in the winter provide more insulation. (d) Figure NC106-8 shows that the thermistor nodes within the upper 1.3 m in the Cematrix section are less impacted by the changes in temperature when compared to the thermistor node within the upper 1.1 m of the pavement control section due to the insulating properties of the Cematrix. The results from THERM21-2 and THERM21-3 have also demonstrated that the insulating properties of the Cematrix reduced the temperatures below 1.3 m depth, and fluctuation in temperatures between the seasons in the treated section of the highway.
Future Work:	The instruments at this site should be read again in the fall of 2025. The readings should be checked to confirm if the new program helped reduce the noise or missing readings observed in the previous readings.
Instrumentation Repairs:	The wires at the datalogger junction were confirmed to be installed correctly; therefore, the issue with noise and missing readings likely lies within the wires of the thermistors themselves. It is not economical to replace the thermistors as that would involve drilling and trenching through the highway surface. The functioning thermistors should continue to be monitored as long as they are functional or until the site is removed from the program.
Additional Comments:	

Attachments:	• Table NC106-1 Spring 2025 – HWY 63:08 km 27.9 Pavement Distress, Extensometer Instrumentation Reading Summary • Table NC106-2 Spring 2025 – HWY 63:08 km 27.9 Pavement Distress, Thermistor Array Instrumentation Reading Summary • Table NC106-3 Spring 2025 – HWY 63:08 km 27.9 Pavement Distress, Weather Station Instrumentation Reading Summary • Statement of Limitations and Conditions • APPENDIX A – NC106-1 SPRING 2025 - o Field Inspector's report - o Site Plan and Cross Sections Showing Approximate Instrument Locations (Drawings No. 32122-NC106-1 to 32122-NC106-3) - o Figures NC106-1 and NC106-2 (Extensometer Data Plots) - o Figures NC106-3 through NC106-6 (Individual Thermistor Array Plots) - o Figure NC106-7 (Composite Plot of Shallow Thermistor Array Nodes and Ambient Air Temperature) - o Figure NC106-8 (Composite Plot of 1.1 m – 1.3 m depth Thermistor Array Nodes and Ambient Air Temperature)
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We trust this report meets your requirements at present. If you have any questions, please contact the undersigned at your convenience.

Yours very truly,
Thurber Engineering Ltd.
Tarek Abdelaziz, Ph.D., P. Eng.
Partner | Senior Geotechnical Engineer

Lucas Green, P.Eng.
Geotechnical Engineer

Table NC106-1: Spring 2025 – Hwy 63:08 Km 27.9 Pavement Distress Extensometer Instrumentation Reading Summary

Date Monitored: May 30, 2025 (Monitoring period from September 17, 2024 to May 30, 2025)

SETTLEMENT ZONE ⁽¹⁾	DATE INITIALIZED	CURRENT STATUS	CURRENT SETTLEMENT (mm)	PREVIOUS SETTLEMENT (mm) (Sept 17, 2024)	CHANGE IN SETTLEMENT (mm) ⁽²⁾
EXT21-1					
Total Settlement (0 m to 5.83 m depth)	May 18, 2021	Operational	3.1	2.9	0.2
Settlement in Clay Till (4.83 m to 5.83 m depth)			0.2	0.2	0
Settlement in Peat (1.33 m to 4.83 m depth)			2.1	1.7	0.4
Settlement in Cematrix, Clay Cap and GBC (0 m to 1.33 m depth)			0.8	1.0	-0.2
EXT21-2					
Total Settlement (0 m to 5.76 m depth)	May 18, 2021	Operational	14.5	13.5	1.0
Settlement in Clay Till (4.76 m to 5.76 m depth)			0.9	0.8	0.1
Settlement in Peat (1.26 m to 4.76 m depth)			9.6	9.3	0.3
Settlement in Cematrix, Clay Cap and GBC (0 to 1.26 m depth)			4.0	3.4	0.6

Drawings 32122-NC106-1 through 32122-NC106-3 in Appendix A provide sketches of the approximate locations of the monitoring instrumentation for this site.

Notes: (1) Depth measured from top of granular base coarse (GBC)
(2) Negative (-) change in relative settlement indicates upward movement (heave) and positive (+) change in settlement indicates downward movement (settlement)

Table NC106-2: Spring 2025 – Hwy 63:08 Km 27.9 Pavement Distress Thermistor Array Instrumentation Reading Summary

Date Monitored: May 30, 2025 (Monitoring period from September 17, 2024 to May 30, 2025)

NODE DEPTH ⁽¹⁾ (m)	DATE INITIALIZED	CURRENT STATUS	MAX TEMPERATURE OVER MONITORING PERIOD (°C)	MIN TEMPERATURE OVER MONITORING PERIOD (°C)	MEAN TEMPERATURE DURING MONITORING PERIOD (°C)
THERM21-1 (Pavement Control)					
0.1	June 6, 2021	Operational	22.0 (May 30, 2025)	-20.1 (Feb. 18, 2025)	-1.0
1.1			14.5 (Sep. 17, 2024)	-13.3 (Feb. 20, 2025)	0.2
2.1			15.7 (Sep. 17, 2024)	0.1 (Feb. 24, 2025)	4.7
3.1			13.8 (Sep. 18, 2024)	1.1 (Apr. 14, 2025)	5.2
4.1			9.6 (Oct. 7, 2024)	15 (May. 11, 2025)	5.2
5.1			8.0 (Oct. 31, 2024)	1.9 (May. 13, 2025)	5.2
THERM21-2 (Cematrix section)					
0.1	June 6, 2021	Operational	22.4 (May 30, 2025)	-21.0 (Feb. 18, 2025)	-1.0
0.4			22.0 (May 30, 2025)	-20.3 (Feb. 18, 2025)	0.2
0.8			16.7 (May 30, 2025)	-15.8 (Feb. 19, 2025)	0.2
1.3			11.1 (Sep. 17, 2024)	-0.7 (Feb. 22, 2025)	3.8
2.3			10.3 (Sep. 17, 2024)	1.6 (Apr. 4, 2025)	5.1
3.3			8.5 (Oct. 7, 2024)	1.9 (Apr. 20, 2025)	4.9

Drawings 32122-NC106-1 through 32122-NC106-3 in Appendix A provide sketches of the approximate locations of the monitoring instrumentation for this site.

Notes: (1) Depth measured from top of granular base coarse (GBC)

Table NC106-2 – Continued: Spring 2025 – Hwy 63:08 Km 27.9 Pavement Distress Thermistor Array Instrumentation Reading Summary

Date Monitored: May 30, 2025 (Monitoring period from September 17, 2024 to May 30, 2025)

Node Depth ⁽¹⁾ (m)	Date Initialized	Current Status	Max Temperature Over Monitoring Period (°C)	Min Temperature Over Monitoring Period (°C)	Mean Temperature During Monitoring Period (°C)
THERM21-3 (Cematrix Section)					
0.3	June 6, 2021	Damaged	16.2 (Sep. 19, 2024)	-21.5 (Feb. 18, 2025)	-5.6
1.3		Damaged	11.9 (Sep. 17, 2024)	-1.8 (Feb. 19, 2025)	3.9
2.3		Damaged	11.2 (Sep. 19, 2024)	-0.5 (Mar. 7, 2025)	4.9
3.3		Damaged	7.8 (Oct. 15, 2024)	2.3 (Mar. 24, 2025)	5.4
4.3		Operational	6.2 (Nov. 29, 2024)	4.0 (May. 27, 2025)	5.4
5.3		Operational	5.6 (Dec. 30, 2024)	4.4 (May 30, 2025)	5.2
THERM21-4 (Grassed Control)					
0.3	June 6, 2021	Operational	12.0 (Sep. 17, 2024)	-5.6 (Sep. 22, 2024)	2.8
1.3		Damaged	(N/A)	(N/A)	(N/A)
2.3		Operational	6.5 (Nov. 13, 2024)	-8.9 (Sep. 22, 2024)	5.3
3.3		Operational	5.4 (Jan. 3, 2025)	-9.4 (Sep. 22, 2024)	4.9
4.3		Operational	5.2 (Feb. 9, 2025)	4.7 (Sep. 21, 2024)	5.0
5.3		Operational	4.9 (Mar. 20, 2025)	4.6 (Nov. 1, 2024)	4.8

Drawings 32122-NC106-1 through 32122-NC106-3 in Appendix A provide sketches of the approximate locations of the monitoring instrumentation for this site.

Notes: (1) Depth measured from top of GBC (THERM21-3), from ground surface (THERM21-4)

Table NC106-3: Spring 2025 – Hwy 63:08 Km 27.9 Pavement Distress Weather Station Instrumentation Reading Summary

Date Monitored: May 30, 2025 (Monitoring period from September 17, 2024 to May 30, 2025)

MONITORING PERIOD	MAX TEMPERATURE (°C)	MIN TEMPERATURE (°C)	MEAN TEMPERATURE (°C)	TOTAL PRECIPITATION (mm)	MAX HOURLY WIND SPEED (m/s)	MEAN HOURLY WIND SPEED (m/s)	MEAN BAROMETRIC PRESSURE (mbar)	MEAN RELATIVE HUMIDITY (%)
Sep. 17, 2024 to May 30, 2025	29.8 on May 29, 2025	-32.5 on Feb. 2, 2025	-3.1	85	18.7 on Apr. 7, 2025	6.1	933.6	81.5

Drawings 32122-NC106-1 through 32122-NC106-2 in Appendix A provide sketches of the approximate locations of the monitoring instrumentation for this site.

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.

**ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS GRMP (CON0022163)
NORTH CENTRAL (ATHABASCA AND FORT McMURRAY DISTRICTS)
INSTRUMENTATION MONITORING RESULTS**

SPRING 2025

**APPENDIX A
DATA PRESENTATION AND DRAWINGS**

SITE NC106: HWY 63:08 km 27.9 PAVEMENT DISTRESS

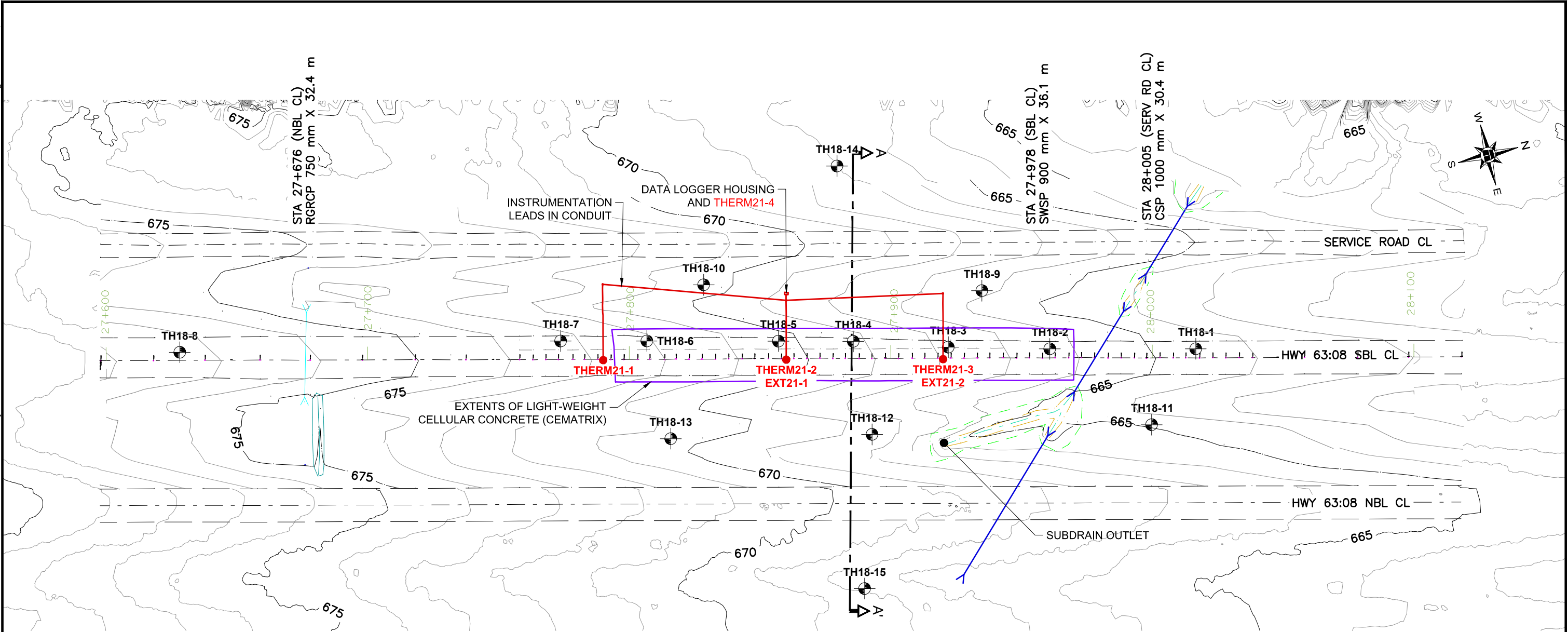
**ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS
NORTH CENTRAL REGION - ATHABASCA AND FORT McMURRAY DISTRICTS
INSTRUMENTATION MONITORING FIELD SUMMARY (NC106)
SPRING 2025**

Location: Hwy 63:08 km 27.9 Pavement Distress	Temp (deg C): 24
File Number: 32122	Read by: NKG/GE

DATALOGGER STATION READINGS

Instruments	GPS Location (UTM 12)		Datalogger Serial #	Date	Remarks
	Easting (m)	Northing (m)			
Extensimeters, thermistors and weather station	455134.00	6227955.00	CR6 15875	30-May-25	Data downloaded

Confirm that recent dates have been downloaded for all DAT files prior to leaving site. Use "collect now" option in loggernet.
Download data from CR6 logger - need unique key to unlock logger enclosure
Site is between km marker 174 and 176 on southbound lane of Hwy 63
New Program uploaded during readings



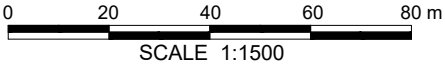
LEGEND

APPROXIMATE TEST HOLE LOCATION

PATCH

THERM THERMISTOR STRING

EXT EXTENSOMETER



BASE PLAN PROVIDED BY ARA ENGINEERING, SURVEYED JUNE 2021;
LIDAR PROVIDED BY ALBERTA TRANSPORTATION



NC106: HIGHWAY 63:08 km 27.9 PAVEMENT DISTRESS
NEAR WANDERING RIVER, ALBERTA

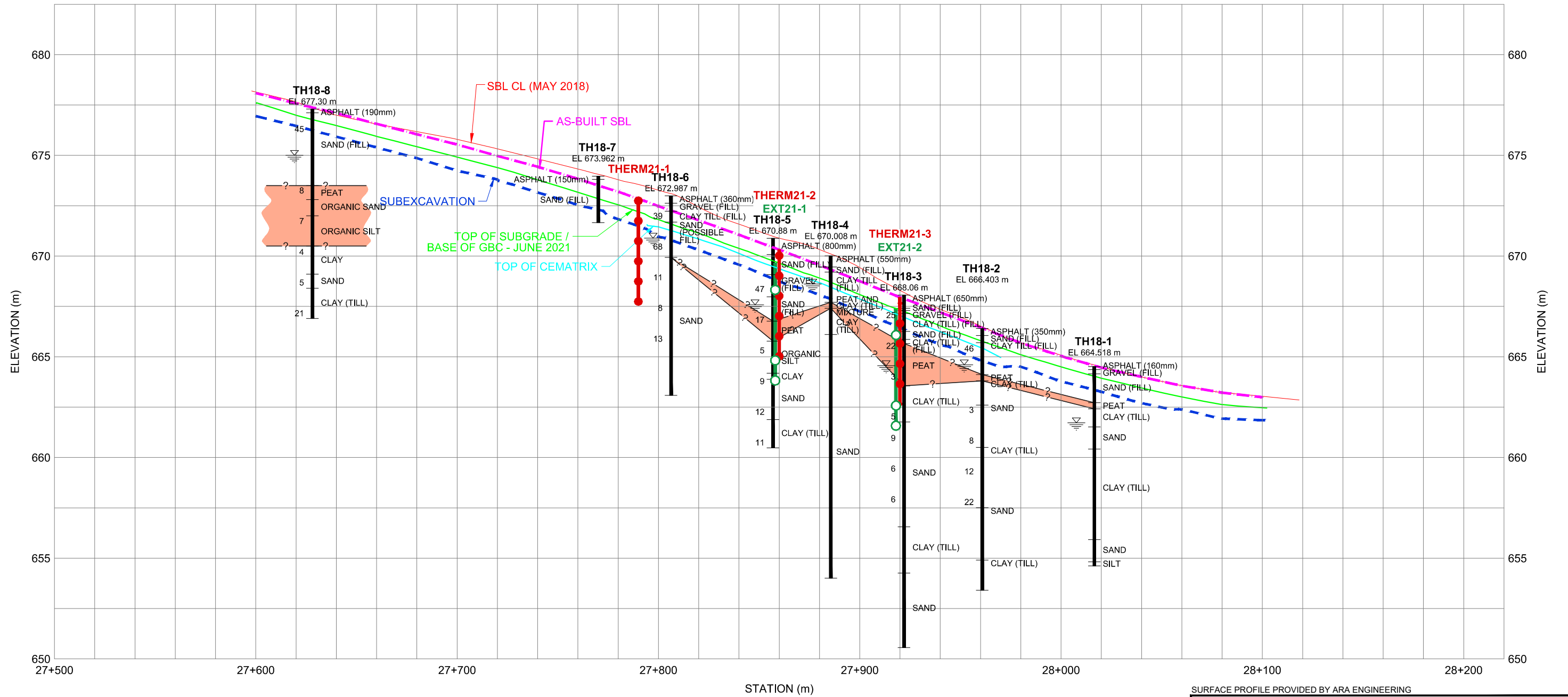
AS-BUILT SITE PLAN SHOWING LOCATIONS
OF INSTRUMENTATION AND REPAIR

DWG No. 32122-NC106-1

DRAWN BY	KLW
DESIGNED BY	KEF
APPROVED BY	RVC
SCALE	1:1500
DATE	NOVEMBER 2021
FILE No.	32122



THURBER ENGINEERING LTD.



LEGEND

15		SPT N VALUE
		WATER LEVEL IN HOLE AT END OF DRILLING
		THERMISTOR (THERM) NODE
		EXTENSOMETER (EXT) ANCHORS

NOTE

DATA CONCERNING THE VARIOUS STRATA HAVE BEEN OBTAINED AT THE TEST HOLE LOCATIONS ONLY. THE SOIL STRATIGRAPHY BETWEEN TEST HOLES HAS BEEN INFERRED FROM GEOLOGICAL EVIDENCE AND SO MAY VARY FROM THAT SHOWN.

SURFACE PROFILE PROVIDED BY ARA ENGINEERING

Alberta

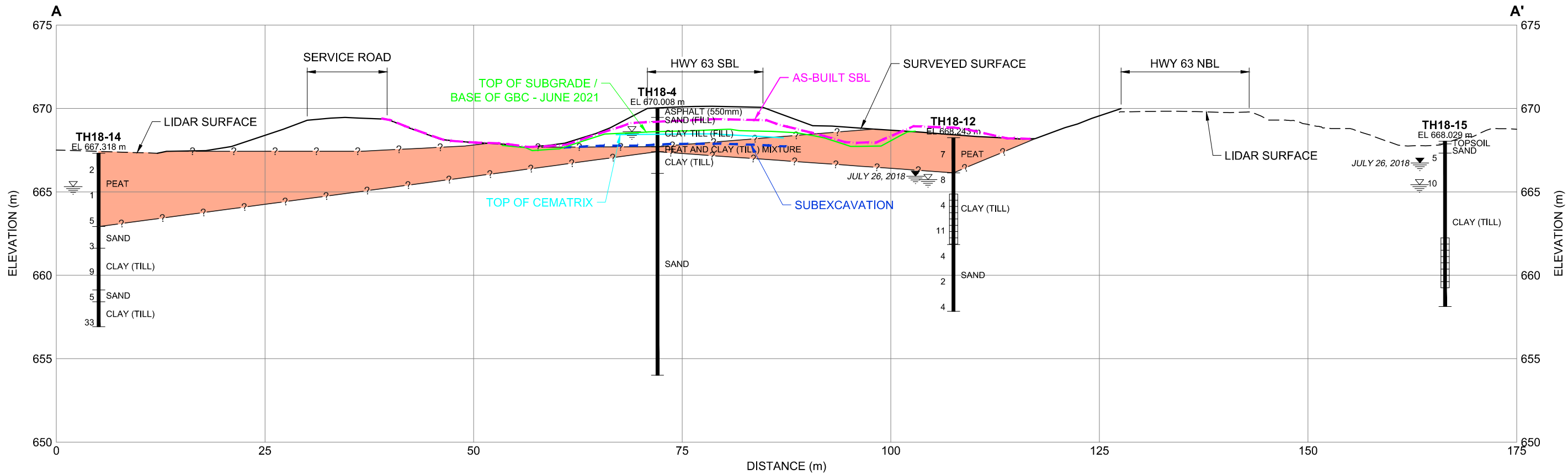
**NC106: HIGHWAY 63:08 km 27.9 PAVEMENT DISTRESS
NEAR WANDERING RIVER, ALBERTA**

AS-BUILT PROFILE ALONG ROAD

DWG No. 32122-NC106-2

DRAWN BY	KLW
DESIGNED BY	KEF
APPROVED BY	RVC
SCALE	H 1:2000 V 1:200
DATE	NOVEMBER 2021
FILE No.	32122





LEGEND

- 15 I SPT N VALUE
- WATER LEVEL IN HOLE AT END OF DRILLING
- WATER LEVEL IN PIEZOMETER
- STANDPIPE PIEZOMETER SCREENED INTERVAL

NOTES

1. INSTRUMENTATION NOT SHOWN FOR CLARITY
2. DATA CONCERNING THE VARIOUS STRATA HAVE BEEN OBTAINED AT THE TEST HOLE LOCATIONS ONLY. THE SOIL STRATIGRAPHY BETWEEN TEST HOLES HAS BEEN INFERRED FROM GEOLOGICAL EVIDENCE AND SO MAY VARY FROM THAT SHOWN.

BASE PLAN PROVIDED BY ARA ENGINEERING



NC106: HIGHWAY 63:08 km 27.9 PAVEMENT DISTRESS
NEAR WANDERING RIVER, ALBERTA

AS-BUILT CROSS-SECTION A-A'

DWG No. 32122-NC106-3

DRAWN BY	KLW
DESIGNED BY	KEF
APPROVED BY	RVC
SCALE	H 1:500 V 1:250
DATE	NOVEMBER 2021
FILE No.	32122



THURBER ENGINEERING LTD.

Figure NC106-1
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
EXT21-1 - Displacement

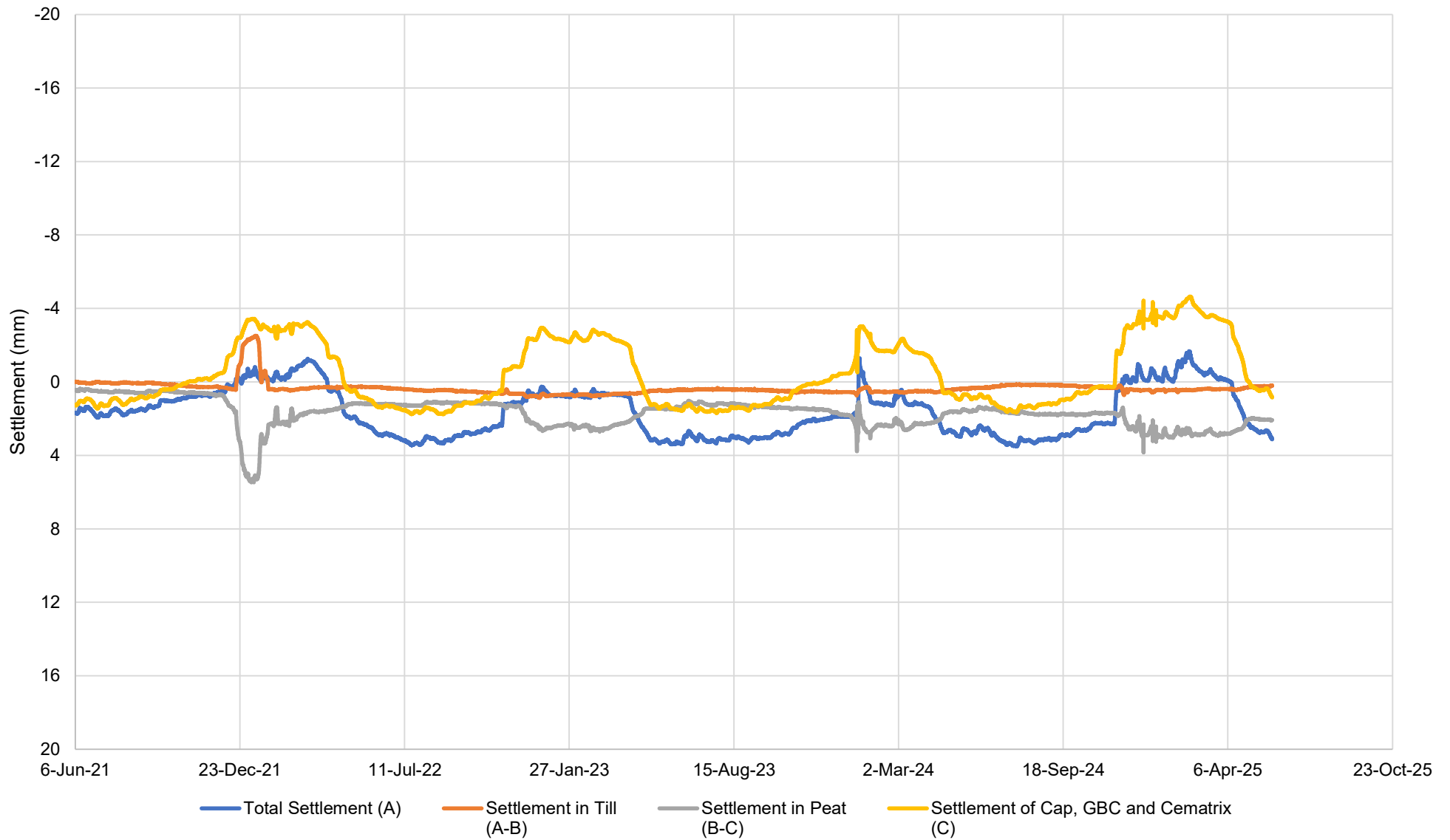


Figure NC106-2
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
EXT21-2 - Displacement

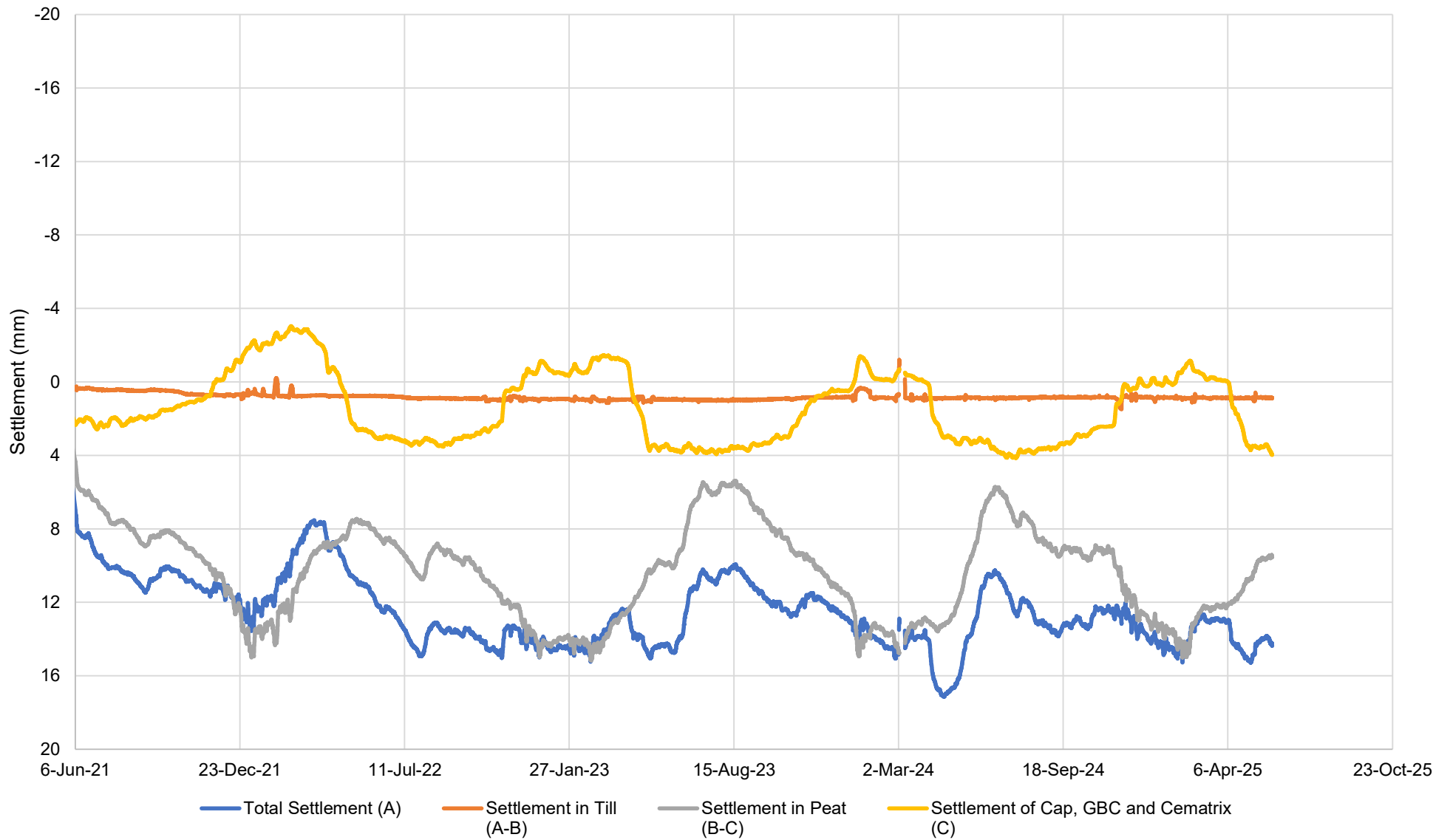


Figure NC106-3
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
THERM21-1 (Pavement Control)

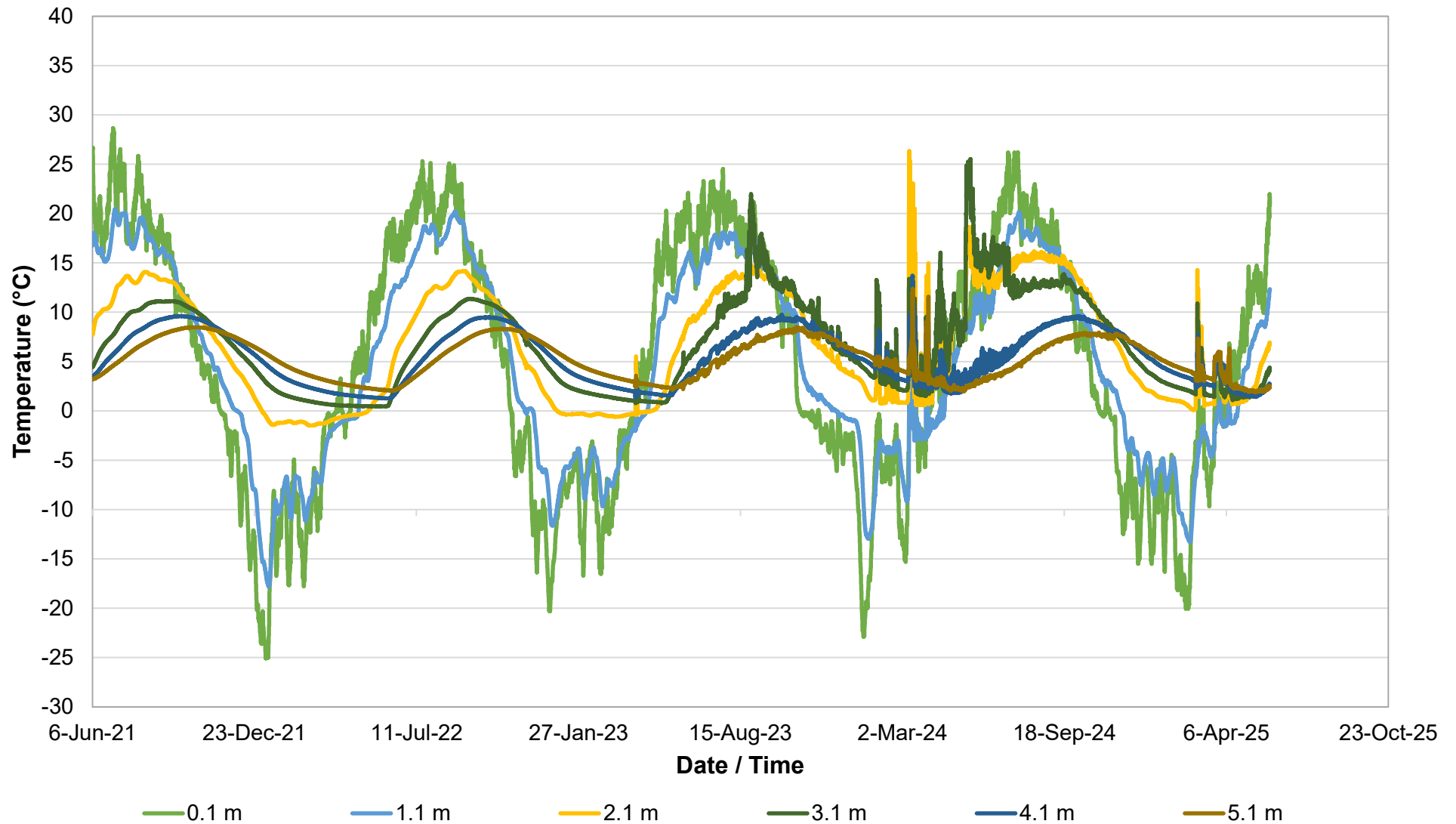


Figure NC106-4
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
THERM21-2 (Pavement Test)

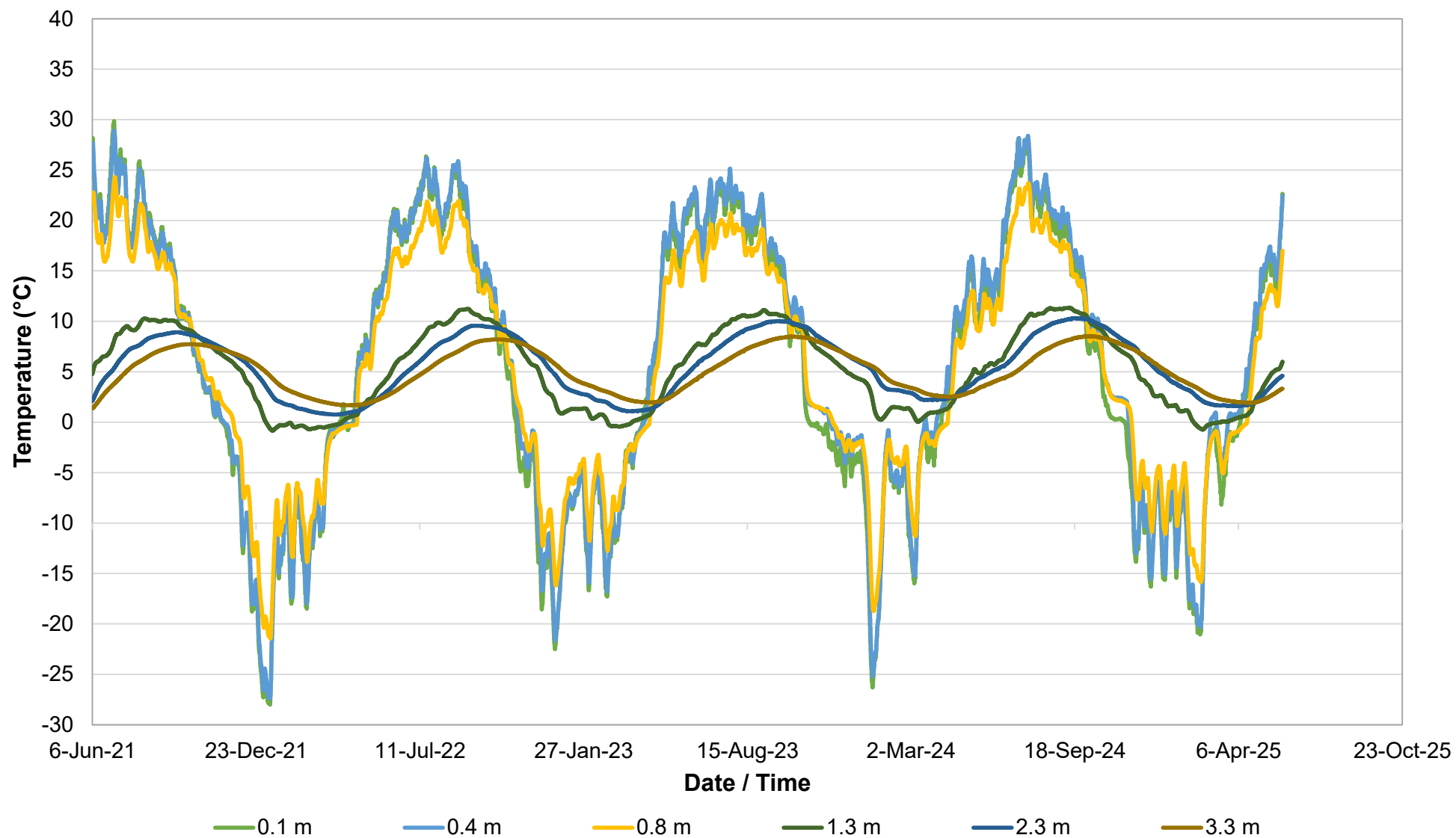


Figure NC106-5
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
THERM21-3 (Pavement Test)

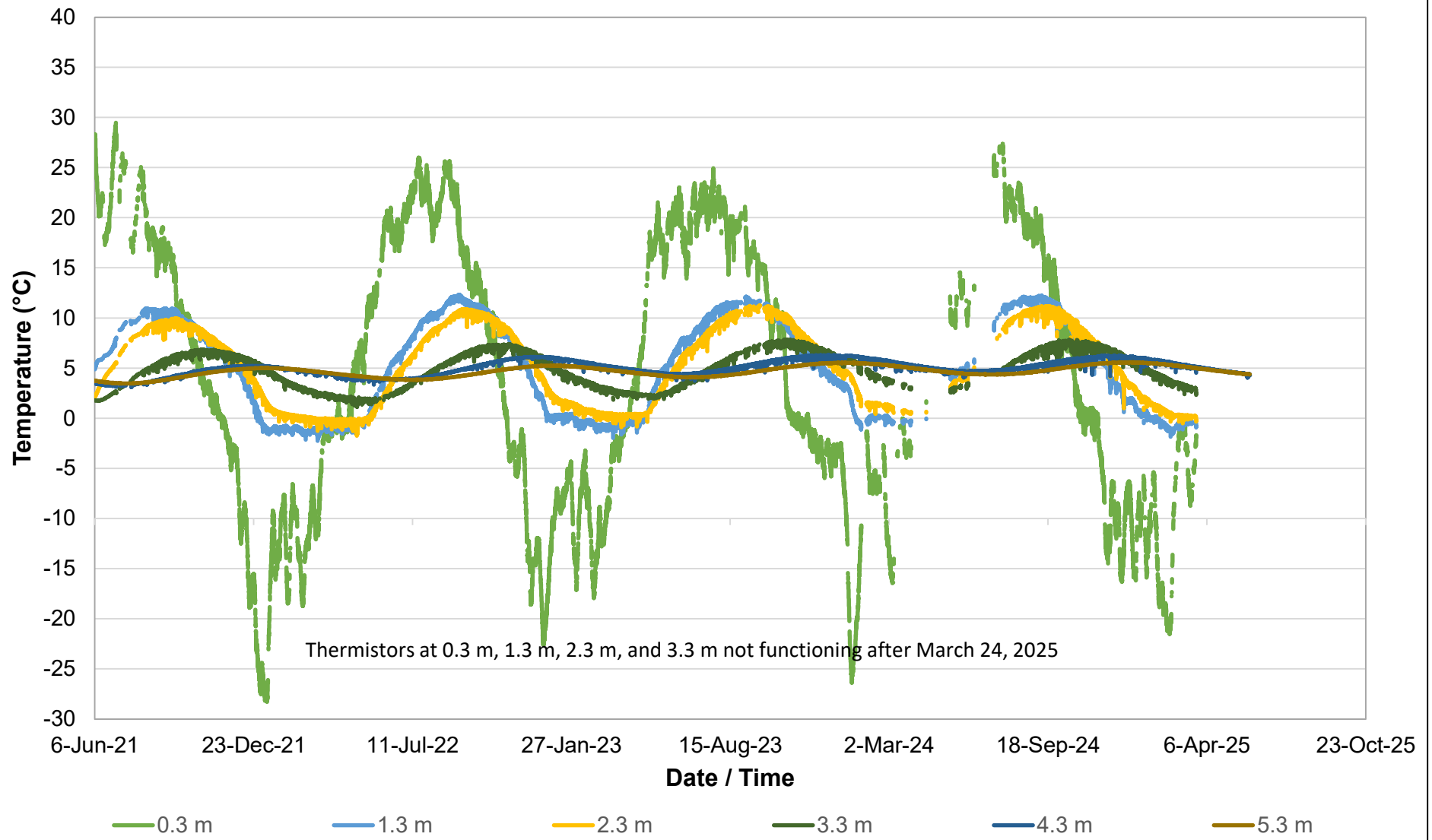


Figure NC106-6
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
THERM21-4 (Control Grassed)

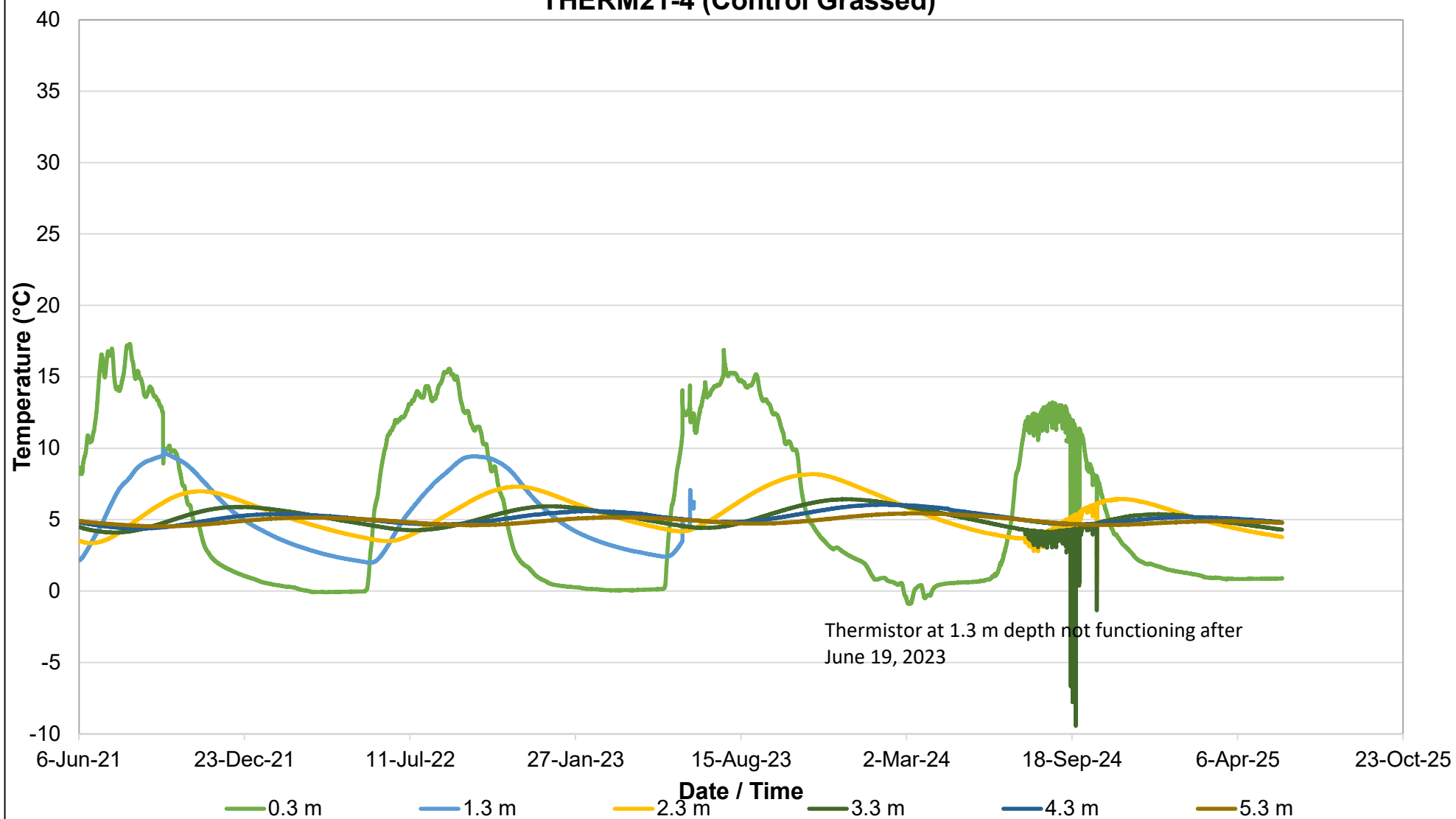


Figure NC106-7
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
Surface Thermistors and Weather Data

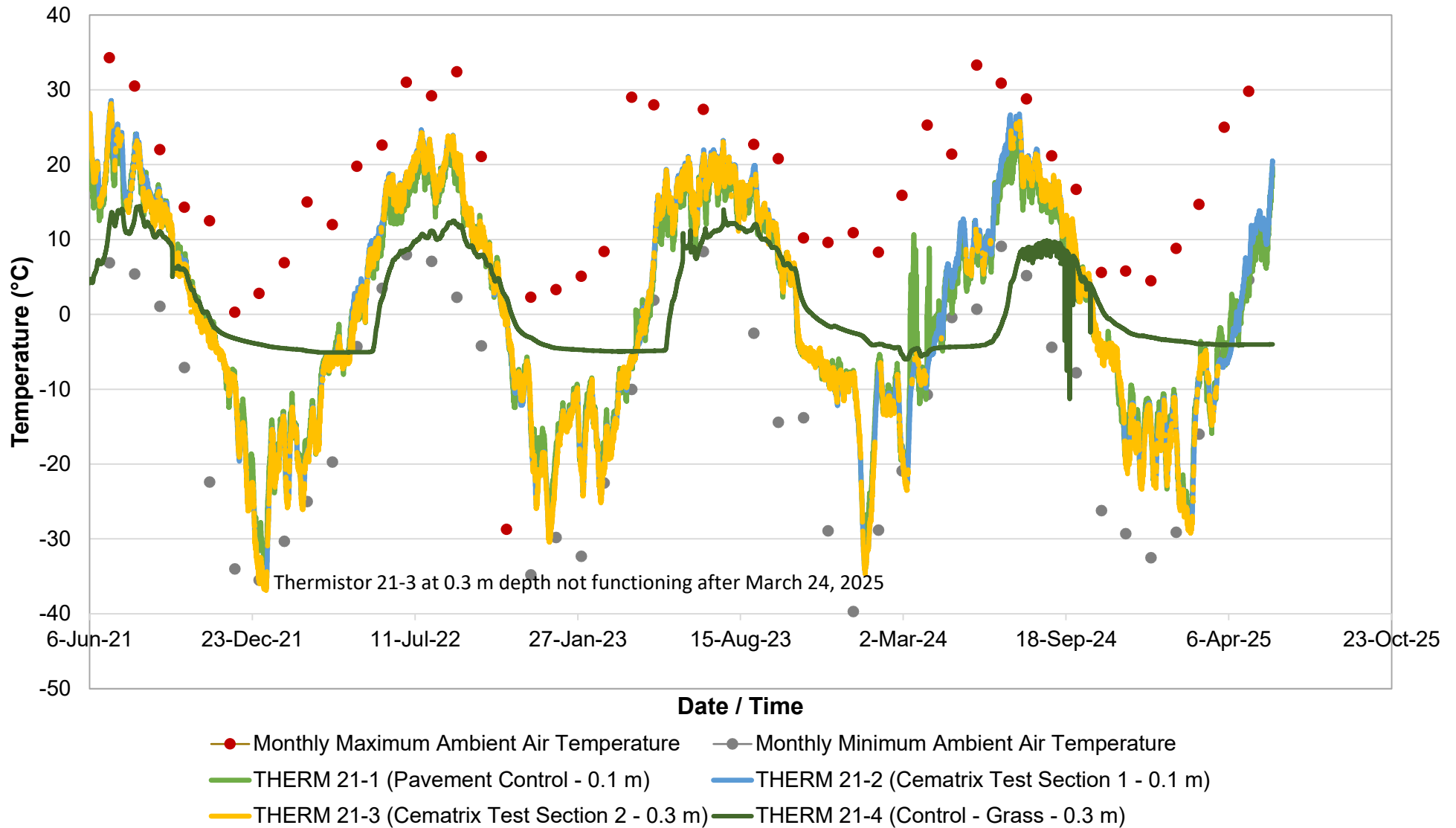


Figure NC106-8
Highway 63:08 km 27.9 Pavement Distress Near Wandering River, Alberta
1.1 m - 1.3 m Depth Thermistors and Weather Data

