November 28, 2025

Alberta Transportation and Economic Corridors
Main Floor, Provincial Building
9621 – 96th Avenue
Peace River, Alberta
T8S 1T4

Robert Senior
Construction Technologist

Dear Mr. Senior:

CON0022166 Peace Region (Grande Prairie District – South) GRMP Instrumentation Monitoring Site GP042; H40:36, km 37.524 Wanyandie Creek Embankment Slide
Section C – 2025 Fall Readings

1 GENERAL

Six slope inclinometers (SIs) (SI22-W2 through W7), nine vibrating wire piezometers (VWPs) (VW20-S1/S3, VW20-D3/D4, and VW20-DS1A/1B/2A/2B/6A), one shape accelerometer array (SAA) (SAA22-P15), and seven vibrating wire load cells (Anchor 3U, 5L, 15U/L, 27U/L, and 37U) were read at the GP042 site (includes the GP050 site as well) in the Peace Region (Grande Prairie District – South) (GP South Region) on September 4, 2025, by Evan Hergott, E.I.T. and Katrina Cereno, E.I.T. of Klohn Crippen Berger Ltd. (KCB). These instruments were read as part of the GP South Region Geohazard Risk Management Program (GRMP). The site is located on Hwy 40:36, km 37.524. The approximate site coordinates are 5997170 N, 380027 E (UTM Zone 11, NAD 83). A site plan is presented on Figure 1.

The geohazard at the GP042 site consists of a series of landslides and slope failures on both sides of Hwy 40:36 along the west valley slope of the Smoky River. Seepage and high groundwater levels appear to have exacerbated slide movements.

Remedial work completed at the GP042 site between September 2021 and July 2023 included:

- excavating and reconstructing the slope on the east side of the highway impacted by the slide near the south end of the site with granular fill, a shear key, and a buried perforated pipe subdrains;
- installing three drilled cast-in-place concrete pile walls on the east side of the highway, with concrete walers and buried perforated pipe subdrains that discharge into riprap-lined swales, as follows:
  - pile wall 1 (73 piles, 1.2 m diameter, 13.5 m to 17.5 m deep) installed south of the existing binwall with tie-back anchors along the south half of the wall,

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  - pile wall 2 (83 piles, 1.5 m diameter, 12.4 m deep) installed downslope of the existing binwall, and
  - pile wall 3 (37 piles, 1.2 m diameter, 13.9 m deep) installed north of the existing binwall;
- flattening the backslope on the west side of the highway and constructing finger drains, French drains, and swales on the backslope;
- installing a subdrain with two 1.2-m-diameter corrugated steel pipe (CSP) manholes in the west highway ditch; and
- installing a 1-m-diameter CSP culvert below the highway with a riprap-lined swale on either end.

This remedial work is shown on Figure 2 prepared by Thurber Engineering Ltd. (Thurber) but is not shown in the available imagery shown on Figure 1.

A geotechnical site investigation was conducted at the GP042 site in 2020 by the previous consultant. The stratigraphy encountered during the 2022 investigation varied but generally consisted of highway fill (clay or gravel), clay, till, or some combination thereof, overlying bedrock (clay shale, sandstone, and siltstone).

1.1 Instrumentation

KCB read instruments at this site in the spring and fall of 2021, before resuming readings in the fall of 2024. Between the fall of 2021 and fall of 2024, the instruments were read by another consultant during construction. Instrumentation installation details are tabulated in Table 1.1. Instrument locations are shown on Figure 1. Any instruments not included in Table 1.1 or shown on Figure 1 are assumed to be inoperable and are not presented or discussed herein.

Before 2021-2023 construction, 2 SIs, 24 VWPs, and 6 standpipe piezometers were installed by the previous consultant to monitor movement of the slide mass and groundwater conditions, respectively. During construction, 6 SIs and 1 SAA were installed to monitor deflection of the three pile walls and 7 load cells were installed to monitor anchor loads at pile wall 1. Some of these instruments are now inoperable (e.g., sheared or damaged) as detailed in Table 1.1 (see table notes).

The operable instruments are protected by above-ground casing protectors. The datalogger for the SAA and the load cells is protected by a locked stainless-steel enclosure.

The operable SIs were read using the same metric RST Digital MEMS Inclinometer System that was previously used to read the SIs by KCB in 2021. The SAA and load cells were read using Campbell Scientific Device Configuration software. The operable VWPs were read using a GEOKON GK-404 vibrating wire readout.

Table 1.1 Instrumentation Installation Details[1]

Instrument Type	Instrument ID (Pile No.)		Date Installed	UTM Coordinates (m)		Ground Surface Elevation (m)	Stick Up (m)	Depth (mbgs[2])	Condition
				Northing	**Easting**				
SI	~~TH20-DS2~~		~~Jul. 06, 2020~~	~~5997067~~	~~380002~~	~~1134.4~~	~~0.8~~	~~23.4~~	~~Inoperable[3]~~
	~~TH20-DS5~~		~~Jul. 09, 2020~~	~~5997209~~	~~380061~~	~~1141.4~~	~~1.0~~	~~17.3~~	~~Inoperable[4]~~
	Pile Wall 1	SI22-W2 (P37)	Sep. 14, 2022	5997081	379996	1139.5	1.0	16.3	Operable
		SI22-W3 (P57)	Oct. 26, 2022	5997102	380006	1141.2	1.1	14.2	Operable
	Pile Wall 2	SI22-W4 (P100)	Jul. 20, 2022	5997147	380038	1139.6	1.0	12.7	Operable
		SI22-W5 (P117)	Jul. 20, 2022	5997170	380049	1140.6	1.1	13.2	Operable
		SI22-W6 (P132)	Jul. 20, 2022	5997190	380058	1141.5	1.0	12.3	Operable
	Pile Wall 3	SI22-W7 (P174)	Jul. 20, 2022	5997272	380082	1151.7	1.2	14.1	Operable
SAA[5]	Pile Wall 1	SAA22-P15 (P15)	Nov. 24, 2022	Pile P15		1137.5	N/A	21.1	Operable
VWP	~~VW20-P1A~~		~~Jun. 23, 2020~~	~~5996932~~	~~379925~~	~~1128.1~~	~~N/A~~	~~6.4~~	~~Inoperable[4]~~
	~~VW20-P1B~~						~~N/A~~	~~17.7~~	~~Inoperable[4]~~
	~~VW20-P2~~		~~Jun. 25, 2020~~	~~5997067~~	~~379983~~	~~1138.0~~	~~N/A~~	~~9.8~~	~~Inoperable[4]~~
	~~VW20-P3~~		~~Jun. 26, 2020~~	~~5997093~~	~~379994~~	~~1141.0~~	~~N/A~~	~~14.9~~	~~Inoperable[4]~~
	~~VW20-P4~~		~~Jun. 29, 2020~~	~~5997156~~	~~380022~~	~~1142.0~~	~~N/A~~	~~7.9~~	~~Inoperable[4]~~
	~~VW20-P5~~		~~Jul. 03, 2020~~	~~5997194~~	~~380040~~	~~1148.2~~	~~N/A~~	~~13.1~~	~~Inoperable[4]~~
	~~VW20-P6~~		~~Jul. 04, 2020~~	~~5997221~~	~~380051~~	~~1149.8~~	~~N/A~~	~~8.8~~	~~Inoperable[4]~~
	VW20-S1		Jun. 28, 2020	5996995	379955	1133.0	N/A	16.8	Operable
	~~VW20-S2~~		~~Jul. 10, 2020~~	~~5997282~~	~~380085~~	~~1152.3~~	~~N/A~~	~~12.5~~	~~Inoperable[4]~~
	VW20-S3		Jul. 11, 2020	5997343	380125	1152.9	N/A	12.7	Operable
	~~VW20-D1~~		~~Jun. 23, 2020~~	~~5996938~~	~~379991~~	~~1127.8~~	~~N/A~~	~~6.4~~	~~Inoperable[4]~~
	~~VW20-D2~~		~~Jun. 27, 2020~~	~~5997078~~	~~379971~~	~~1145.0~~	~~N/A~~	~~5.2~~	~~Inoperable[4]~~
	VW20-D3		Jun. 27, 2020	5997154	380008	1144.0	N/A	10.7	Operable
	VW20-D4		Jun. 30, 2020	5997200	388028	1148.1	N/A	11.6	Operable
	VW20-DS1A		Jun. 24, 2020	5996898	379928	1121.8	N/A	4.6	Operable
	VW20-DS1B						N/A	11.4	Operable
	VW20-DS2A		Jul. 12, 2020	5997067	380002	1134.2	N/A	8.2	Operable
	VW20-DS2B						N/A	22.2	Operable
	~~VW20-DS3A~~		~~Jul. 06, 2020~~	~~5997151~~	~~380041~~	~~1139.4~~	~~N/A~~	~~10.7~~	~~Inoperable[4]~~
	~~VW20-DS4A~~		~~Jul. 07, 2020~~	~~5997188~~	~~380057~~	~~1140.4~~	~~N/A~~	~~4.9~~	~~Inoperable[4]~~
	~~VW20-DS4B~~						~~N/A~~	~~20.7~~	~~Inoperable[4]~~
	~~VW20-DS5~~		~~Jul. 09, 2020~~	~~5997209~~	~~380061~~	~~1141.4~~	~~N/A~~	~~5.0~~	~~Inoperable[4]~~
	VW20-DS6A		Jul. 05, 2020	5997159	380098	1121.0	N/A	6.1	Operable
	~~VW20-DS6B~~						~~N/A~~	~~21.3~~	~~Inoperable[4]~~
SP	~~TH20-D5~~		~~Jun. 30, 2020~~	~~5997232~~	~~380040~~	~~1150.3~~	~~0.8~~	~~3.1~~	~~Inoperable[4]~~
	~~TH20-D6~~		~~Jul. 01, 2020~~	~~5997360~~	~~380102~~	~~1156.6~~	~~0.9~~	~~8.6~~	~~Inoperable[4]~~
	~~TH20-B1~~		~~Jul. 09, 2020~~	~~5996956~~	~~379865~~	~~1148.2~~	~~0.9~~	~~12.2~~	~~Inoperable[4]~~
	~~TH20-B2~~		~~Jul. 09, 2020~~	~~5997032~~	~~379925~~	~~1150.2~~	~~0.9~~	~~13.6~~	~~Inoperable[4]~~
	~~TH20-B3~~		~~Jul. 10, 2020~~	~~5997176~~	~~379968~~	~~1165.3~~	~~1.1~~	~~3.7~~	~~Inoperable[4]~~
	~~TH20-B4~~		~~Jul. 10, 2020~~	~~5997244~~	~~380009~~	~~1168.7~~	~~1.0~~	~~4.5~~	~~Inoperable[4]~~
Load Cell[5]	Pile Wall 1	VC2421 (3U)	2022	Pile Wall 1 Anchors		N/A			Operable
		VC2422 (5L)	2022						Operable
		VC2419 (15U)	2022						Operable
		VC2420 (15L)	2022						Operable
		VC2417 (27U)	2022						Operable
		VC2418 (27L)	2022						Operable
		VC2416 (37U)	2022						Operable

Notes:
[1] Instrument installation details were taken from reports and data files prepared or provided by the previous consultant(s) or TEC. It is noted that the ground surface elevations reported by the previous consultant in their data files and borehole logs are inconsistent. KCB has taken the ground surface elevations from the data files as they have been more recently updated and averaged the values reported for VW20-DS1A/B, which are nested in the same borehole. Instrument coordinates and stick ups (where applicable) were confirmed by KCB using a handheld GPS (accuracy of ± 5 m) and a tape measure, respectively.
[2] Meters below ground surface (mbgs). Bottom reading depth for operable SIs, and tip or screen depth for piezometers.
[3] TH20-DS2 has sheared at an approximate depth of 8.5 m below ground surface. Instrument last read in September 2021.
[4] Instrument reported as inoperable during construction.
[5] SAA and load cells are connected to a multi-channel data logger (Model CR6 from Campbell Scientific), which is programmed to record a reading of the SAA and load cells hourly.

2 INTERPRETATION

2.1 General

For the operable SIs and SAA, the cumulative displacement, incremental displacement, and displacement-time data was plotted in the A-direction (i.e., the direction of the A0-grooves).

For the operable VWPs, the recorded porewater pressures were converted to an equivalent water/piezometric elevation and plotted relative to ground surface elevation and the tip elevation for each instrument.

For the operable load cells, the recorded loads were plotted relative to daily air temperature.

The instrument data plots are included in Appendix I, and a summary of the instrument data is provided in Table 2.1 through Table 2.4. The SIs were re-initialized to the October 2024 reading when the SI reading equipment was changed from an imperial to a metric probe and reel The data logger records a reading of the SAA hourly, but only one reading every two months is shown on the cumulative and incremental displacement plots and only one reading per week is shown on the displacement-time plot to reduce noise reading to reading.

2.2 Zones of Movement

Discrete movement (i.e., movement occurring on a defined failure plane) was being recorded in

- TH20-DS2 between an approximate depth of 7.4 m and 8.4 m (elevation 1126.8 m to 1125.8 m) below ground surface before it sheared; and
- TH20-DS5 between an approximate depth of 3.3 m and 4.3 m (elevation 1138.2 m to 1137.2 m) below ground surface before the instrument became inoperable.

Some distributed movement has been recorded in the pile wall SIs, but otherwise no discernible discrete movement has been recorded in the pile wall SIs or the SAA.

Table 2.1 Slope Inclinometer Reading Summary

Pile Wall	Instrument ID (Pile No.)	Date				Ground Surface Elevation (m)	Depth of Movement[2] (mbgs[1])	Direction of Movement, Skew Angle[2]	Movement (mm)				Rate of Movement (mm/year)		
									Maximum Cumulative			Incremental Since Previous Maximum Cumulative			
		Initialized (Re-initialized)	Previous Maximum Cumulative Movement Recorded	Previous Reading	Most Recent Reading				Before Re-Initialization	After Re-Initialization	Total		Previous Maximum	Most Recent Reading	Change from Previous Reading
1	SI22-W2 (P37)	Sep. 14, 2022 (Oct. 17, 2024)[3]	N/A – Not provided by previous consultant.	Jun. 04, 2025	Sep. 04, 2025	1139.5	0.0 – 16.4	X-Direction, 181°	-5.1	N/A – No discernible discrete movement. Only read three times since re-initialization. Need more data to assess.					
	SI22-W3 (P57)	Oct. 26, 2022 (Oct. 17, 2024)[3]				1141.2	1.7 – 13.3	X-Direction, 146°	-1.6						
2	SI22-W4 (P100)	Jul. 20, 2022 (Oct. 17, 2024)[3]				1139.6	0.0 – 13.3	X-Direction, 182°	0.3						
	SI22-W5 (P117)	Jul. 20, 2022 (Oct. 17, 2024)[3]				1140.6	1.1 – 13.3	X-Direction, 177°	4.3						
	SI22-W6 (P132)	Jul. 20, 2022 (Oct. 17, 2024)[3]				1141.5	0.0 – 12.7	A-Direction	7.1						
3	SI22-W7 (P174)	Jul. 20, 2022 (Oct. 17, 2024)[3]				1151.7	0.9 – 14.3	X-Direction, 161°	1.9						

Notes:
[1] Meters below ground surface (mbgs).
[2] Skew angle of the X-direction measured clockwise from the A-direction. Depth and skew angle taken from reports and data files prepared by the previous consultant.
[3] Instruments re-initialized to the October 2024 reading when the SI reading equipment was changed from an imperial to a metric probe and reel.

Table 2.2 Shape Accelerometer Array Reading Summary

Pile Wall	Instrument ID (Pile No.)	Date				Ground Surface Elevation (m)	Depth of Movement (mbgs[1])	Direction of Movement	Movement		Rate of Movement (mm/year)		
		Initialized	Previous Maximum Cumulative Movement Recorded	Previous Reading	Most Recent Reading				Maximum Cumulative	Incremental Since Previous Maximum Cumulative	Previous Maximum	Current	Change from Previous Reading
1	SAA22-P15 (P15)	Nov. 24, 2022 (Jan. 18, 2023)[3]	N/A – No discernible movement recorded.	Jun. 04, 2025	Sep. 04, 2025	1137.5	N/A – No discernible movement recorded.						

Notes:
[1] Meters below ground surface (mbgs).
[3] Instrument re-initialized to the January 2023 reading when KCB began downloading the data for the instrument.

Table 2.3 Vibrating Wire Piezometer Reading Summary

Instrument ID	Serial No.	Date			Ground Surface Elevation (m)	Tip Depth (mbgs[1])	Water Level		
		Installed	Previous Reading	Most Recent Reading			Previous Reading (mbgs[1])	Most Recent Reading (mbgs[1])	Change from Previous Reading (m)
VW20-S1	67106	Jun. 28, 2020	Jun. 04, 2025	Sep. 04, 2025	1133.0	16.8	12.0	12.5	-0.5
VW20-S3	67102	Jul. 11, 2020			1152.9	12.7	8.4	8.3	0.1
VW20-D3	67073	Jun. 27, 2020			1144.0	10.7	8.7	8.8	-0.1
VW20-D4	67076	Jun. 30, 2020			1148.1	11.6	11.5	11.5	0.0
VW20-DS1A	67086	Jun. 24, 2020			1121.8	4.6	4.6	4.6	0.0
VW20-DS1B	67089					11.4	11.0	11.5	-0.5
VW20-DS2A	67092	Jul. 12, 2020			1134.2	8.2	2.8	2.9	-0.1
VW20-DS2B	67097					22.2	18.9	19.2	-0.3
VW20-DS6A	67077	Jul. 05, 2020			1121.0	6.1	4.2	4.2	0.0

Notes:
[1] Meters below ground surface (mbgs).

Table 2.4 Vibrating Wire Load Cell Reading Summary

Pile Wall	Instrument ID / Anchor No.	Load Cell Serial No.	Date				Serviceability Limit State (SLS) Design Load / Lock-Off Load (kN)	Load (kN)			
			Installed	Previous Maximum Recorded Load	Previous Reading	Most Recent Reading		Maximum Load	Previous Reading	Most Recent Reading	Change from Previous Reading
1	3U	VC2421	2022	Jul. 10. 2024	Jun. 04, 2025	Sep. 04, 2025	255/125	127.6	122.4	122.8	0.4
	5L	VC2422	2022	Jul. 18, 2024			265/75	96.3	89.7	91.9	2.2
	15U	VC2419	2022	Jul. 31, 2025			255/125	123.9	118.8	120.6	1.8
	15L	VC2420	2022	Jul. 18, 2024			265/75	91.3	84.9	86.2	1.3
	27U	VC2417	2022	Jul. 31, 2025			255/125	115.5	111.1	112.3	1.2
	27L	VC2418	2022	Jul. 17, 2024			265/75	93.8	88.2	88.9	0.7
	37U	VC2416	2022	Jul. 09, 2024			255/110	99.3	94.6	95.4	0.8

2.3 Interpretation of Monitoring Results

Slope Inclinometer Data

The distributed movement recorded in the pile wall SIs before and after they were re-initialized in October 2024 indicates the piles have intercepted the failure plane and are transferring load to depths below the failure plane as the piles stabilize the slide mass. Based on the data obtained by the previous consultant up to May 2024, the tops of pile wall 1, 2, and 3 have deflected up to approximately 3.6 mm, 7.1 mm, and 1.9 mm, respectively, since installation. The walls will likely continue to deflect as they stabilize the slide mass, with increased deflection may occur in response to seasonal variations in freshet and precipitation infiltration. Monitoring zones and skew angles will be added to the re-initialized data plots when defined movement trends are recorded.

Shape Accelerometer Array Data

The SAA installed in Pile Wall 1 has shown no discernible movement, except for some fluctuations in the top 4.5 m likely due to seasonal thermal variations (e.g., positive movement during colder months and negative movement during warmer months).

Piezometer Data

The operable piezometers have only been read five times since January 2022, and more data is needed to assess trends. However, based on the available data, the water levels recorded in the piezometers appear to be either relatively steady (± 1 m) or dry (i.e., water level at or below instruments tip elevation) since June 2023.

A large decrease in water level (between approximately 1.8 m and 25.5 m) was recorded in several of the piezometers (e.g., VW20-D3, D4, DS1B, DS2A/B, DS6A) within the first month after the instruments were installed in June/July 2020. The recorded decreases were likely due to post-installation stabilization of these instruments.

Load Cell Data

Since KCB started reading the instruments at this site in 2024, the loads measured in the load cells installed in pile wall 1 (range from approximately 62 kN to 128 kN) have been below the Serviceability Limit State (SLS) design loads provided in the Spring 2024 instrumentation report prepared by Thurber (range from 255 kN to 265 kN). Loads measured in the loads cell appear to fluctuate (± 20 kN) with temperature, with higher loads measured during warmer weather and lower loads measured during cooler weather, but overall have reached similar maximum and minimum values the past two years.

3 RECOMMENDATIONS

3.1 Future Work

All operable instruments should continue to be read twice per year (spring and fall). Spring readings should be completed after late-May or early-June, due to the risk of water inside the instrument casings being frozen earlier in the year.

The site should continue to be inspected by the Maintenance Contract Inspector (MCI) and as part of the GP South Region GRMP Section B inspections. The designers, Thurber Engineering Ltd., should review the monitoring data and reports for the site to verify the repairs, including the pile walls, are performing as expected.

3.2 Instrument Installs, Repairs, and Maintenance

No instrument installs, repairs, or maintenance is required.

4 CLOSING

This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Alberta Transportation and Economic Corridors (Client) for the specific application to the Peace Region (Grande Prairie District – South) Geohazard Risk Management Program (Contract No. CON0022166), and it may not be relied upon by any other party without KCB's written consent.

KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.

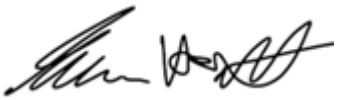
Use of or reliance upon this instrument of service by the Client is subject to the following conditions:

1. The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report.
2. The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.
3. The report is based on information provided to KCB by the Client or by other parties on behalf of the client (Client-supplied information). KCB has not verified the correctness or accuracy of such information and makes no representations regarding its correctness or accuracy. KCB shall not be responsible to the Client for the consequences of any error or omission contained in Client-supplied information.
4. KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.

5. This report is electronically signed and sealed and its electronic form is considered the original. A printed version of the original can be relied upon as a true copy when supplied by the author or when printed from its original electronic file.

Yours truly,

KLOHN CRIPPEN BERGER LTD.

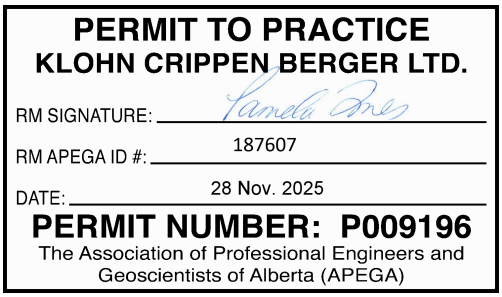


Courtney Mulhall, M.Sc., P.Eng.
Geotechnical Engineer

Evan Hergott, E.I.T.
Civil Engineer-in-Training

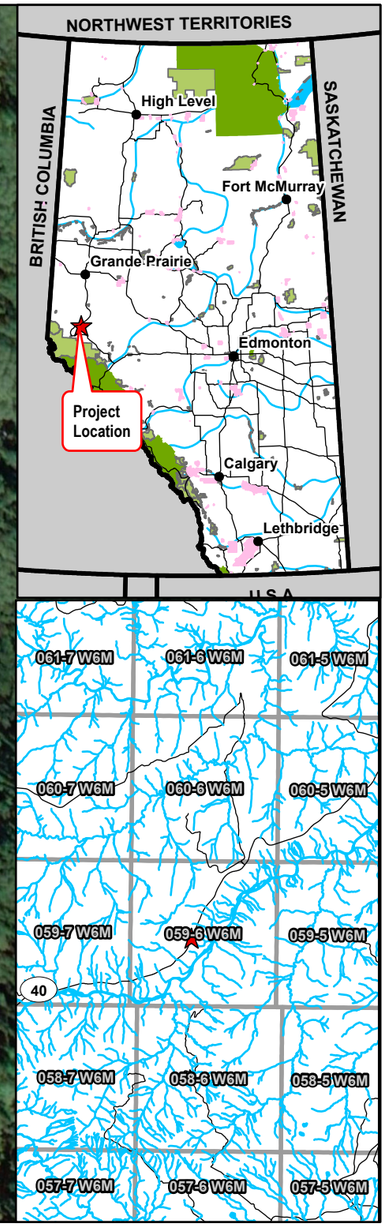
CM/EH:bb

Cc: Chris Gräpel, M.Eng., P.Eng.



ATTACHMENTS
Figure
Appendix I Instrumentation Plots

FIGURE



Legend

- Slope Inclinometer (TH-DS#, SI22-W#, SAA22-P#)
- Standpipe Piezometer (TH20-B#, TH20-D#)
- Vibrating Wire Piezometer (VW)

0 250 Metres

NOTES:

1. HORIZONTAL DATUM: NAD83
2. GRID ZONE: UTM Zone 11N
3. IMAGE SOURCE: 2025 MICROSOFT CORPORATION, 2025 MAXAR, CNES
4. STRIKETHROUGH INDICATES INSTRUMENT IS INOPERABLE. INSTRUMENT LOCATIONS APPROXIMATE. INSTRUMENTS INOPERABLE PRIOR TO 2021 MAY NOT BE SHOWN.

CLIENT: Alberta

Klohn Crippen Berger

PROJECT: PEACE REGION (GRANDE PRAIRIE DISTRICT-SOUTH) GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE: Site Plan
GP042 - Wanyandie Creek Embankment Slide
Hwy 40:36, km 37.524

SCALE	PROJECT No.	FIG No.
1:3,000	A05116A01	1

Last updated on *Thursday, November 27, 2025* by *HMarandiyan*
File: *"Z:\AIED\MA\05116\A01 ABT Grande Prairie South GRMP\400 Drawings\GIS\MXD\2024\Section C\ABT_GPSouth_SectionC_241202\ABT_GPSouth_SectionC_241202.aprx"*

DRAWING 22001-202102-RD-C011
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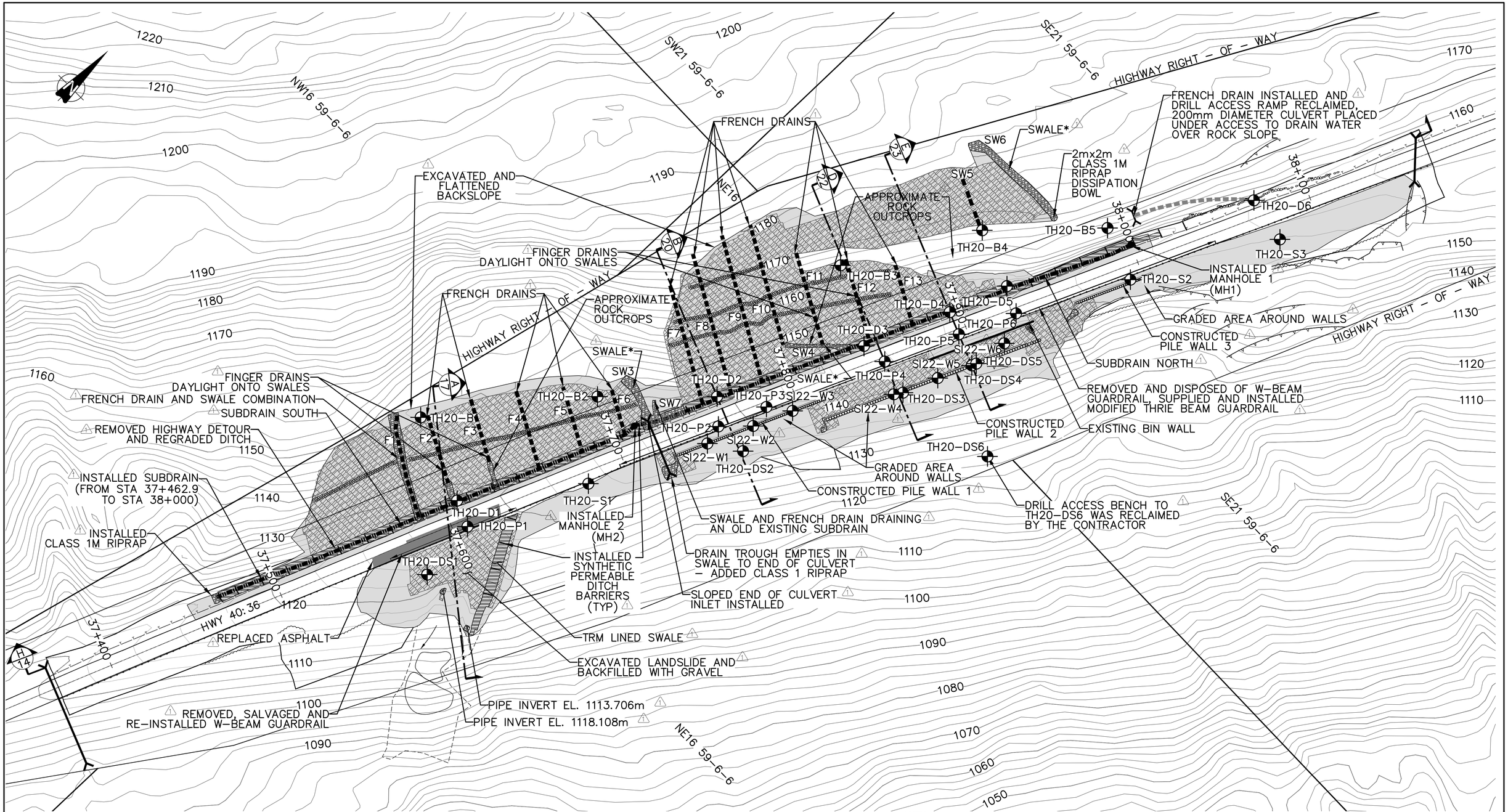
PHOTO
DATE
BY
SURVEYED
DEPARTMENT BAR CODE



LEGEND

- APPROXIMATE TEST HOLE LOCATION
- HIGHWAY 40:36
- LANDSLIDE SCARP CRACK
- GUARD RAIL
- BURIED COMMUNICATION CABLE
- GROUND SURFACE CONTOUR IN METRES (CONTOUR INTERVAL = 2m)
- TREE LINE
- CENTERLINE OF SUBDRAIN
- STRAW ROLL
- EROSION CONTROL BLANKET
- TRM AREA
- ROCK ARMOUR (CLASS 1M RIPRAP)
- * REFER TO SECTION Z ON DWG. 22001-202102-RD-C018 FOR SWALE DETAIL.

NOTES:

1. BASE PLAN PROVIDED BY WSP, SITE SURVEYED ON JUNE 26, 2020.
2. NAD83 UTM 11 COORDINATE SYSTEM.
3. GROUND SURFACE CONTOURS OUTSIDE SURVEY LIMITS FROM 2005 LIDAR.
4. GREY GRADED AREAS SHOW AS-BUILT GROUND SURFACE CONTOURS AS SURVEYED BY WSP IN 2022/2023.

0 10 20 30 40 50m
SCALE: 1:1000

THIS RECORD DRAWING INDICATES THAT THE CONSTRUCTED PROJECT SUBSTANTIALLY COMPLIES WITH THE DESIGN DRAWINGS AND ALL APPROPRIATE CONTRACT PLANS AND SPECIFICATIONS

CONSULTANT
THURBER ENGINEERING LTD.
29190

DESIGNER
ORIGINAL DESIGN COMPLETED BY:
NICOLE WILDER
2021-03-18
THURBER ENGINEERING LTD.

FIELD REVIEW ENGINEER
DATE

REV	DATE	REVISION	BY
5			
4			
3			
2			
1	2023-09-20	RECORD DRAWINGS	NPW

Alberta Transportation

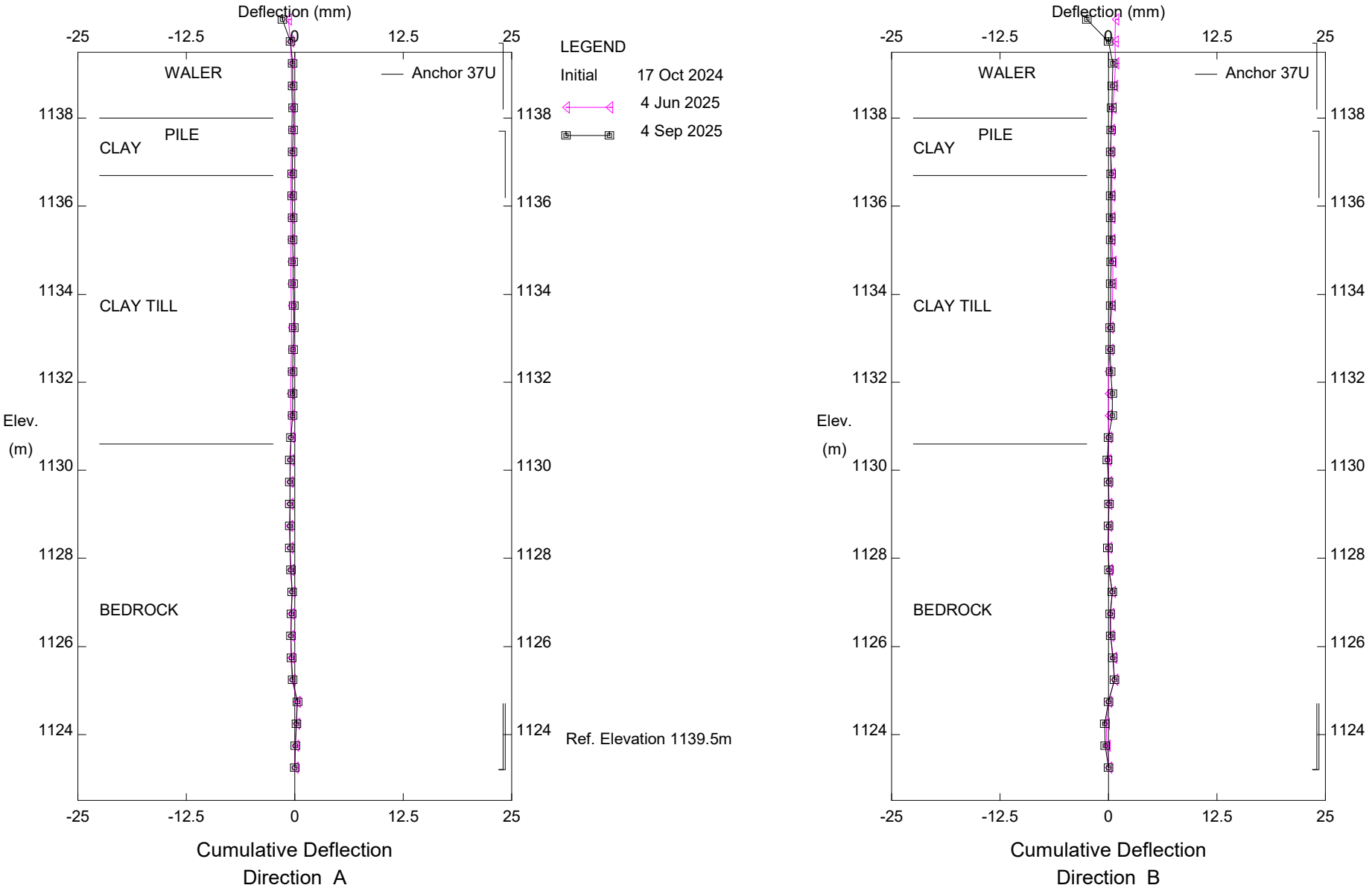
HWY 40:36 KM 37.4 TO 38.2
LANDSLIDE REPAIRS (GP042)
SITE PLAN SHOWING OVERALL AS-BUILTS

DATE	LOCATION	SITE	CONTRACT	HIGHWAY	SHEET	DRAWING
2023-09-20	NE16/SE21-59-6-W6M	GP042	22001	40:36	11 OF 34	22001-202102-RD-C011 1

APPENDIX I

Instrumentation Plots

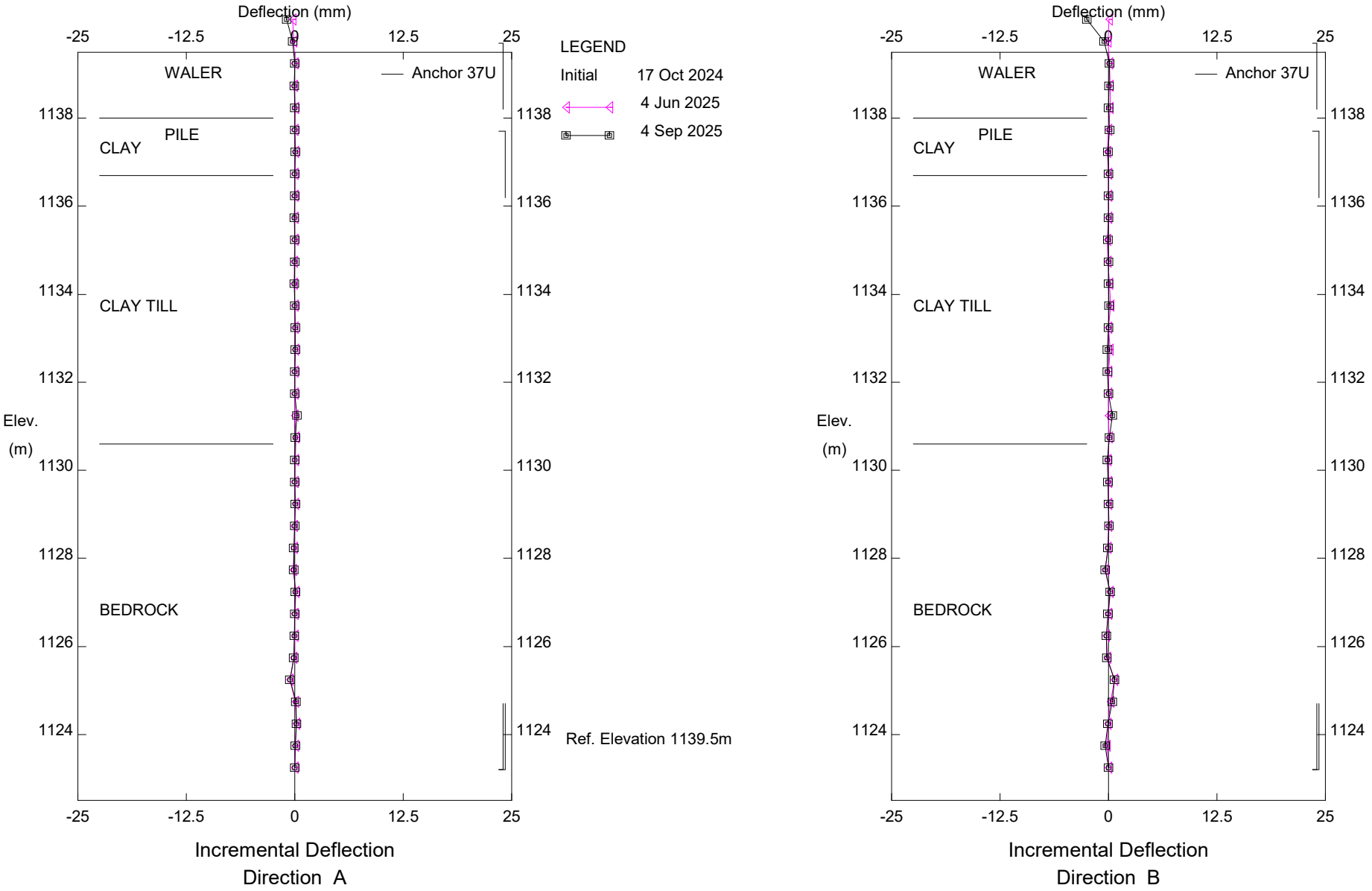
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W2

Alberta Transportation

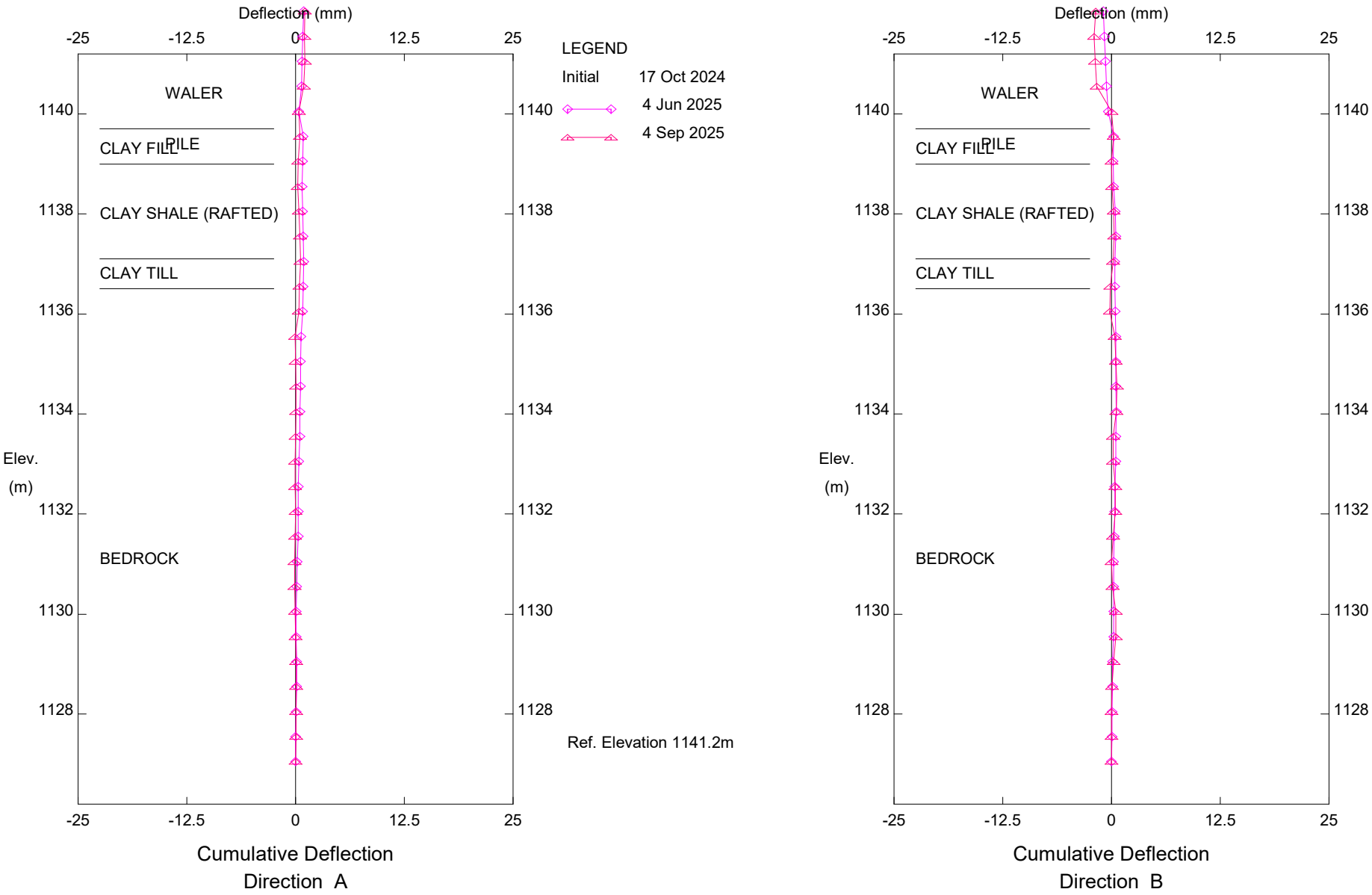
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W2

Alberta Transportation

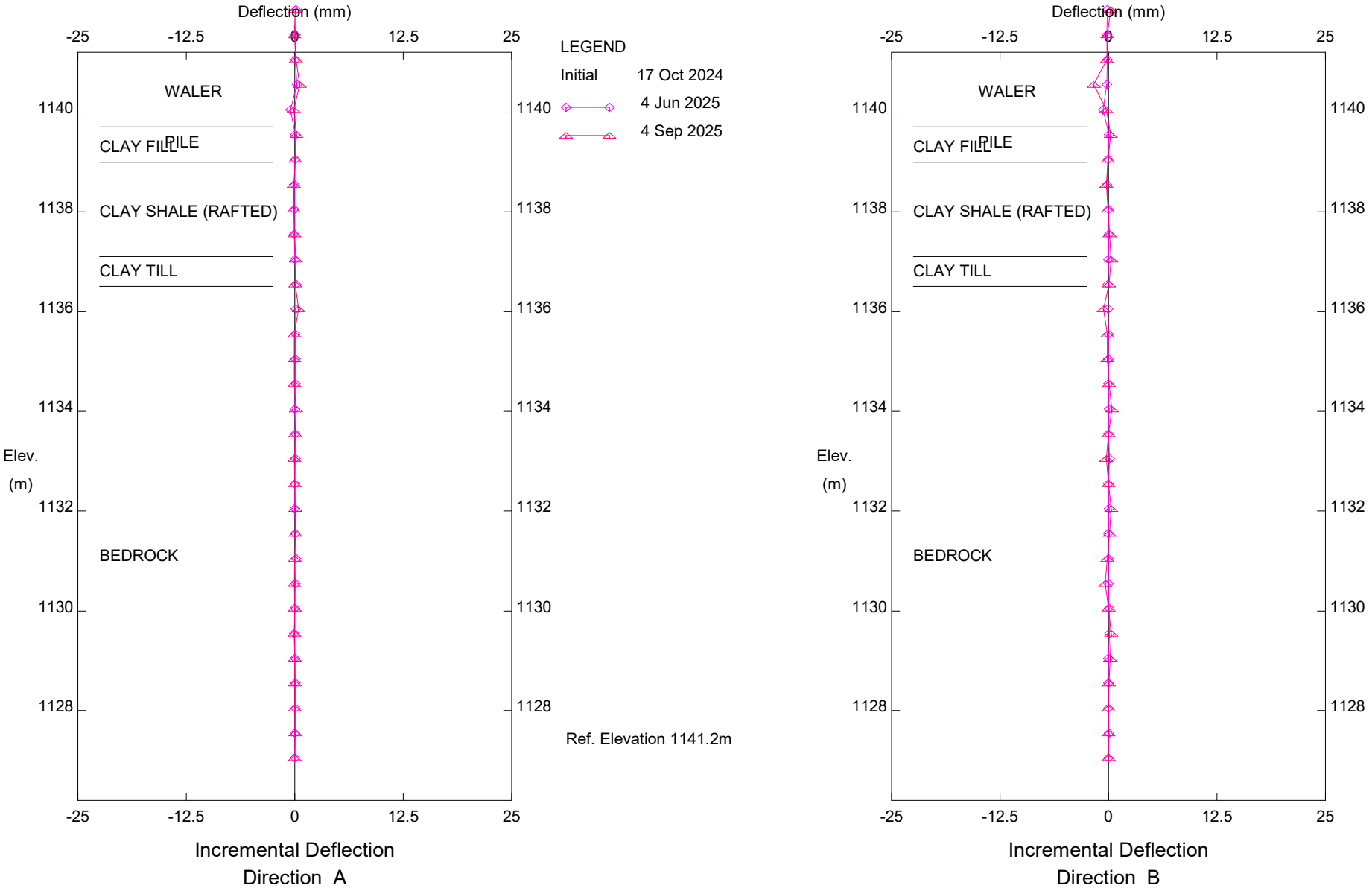
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W3

Alberta Transportation

Klohn Crippen Berger - Edmonton



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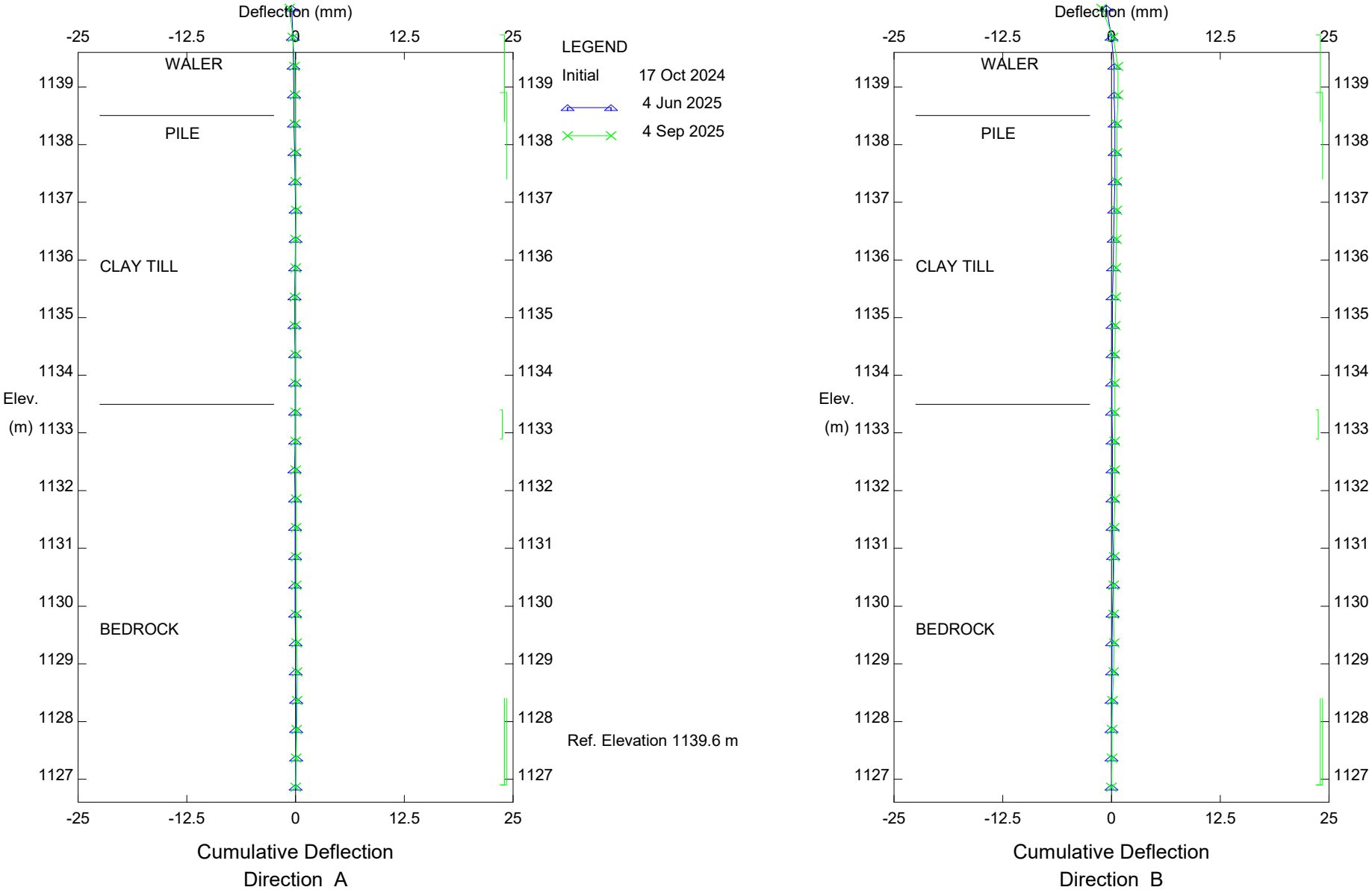
Alberta Transportation

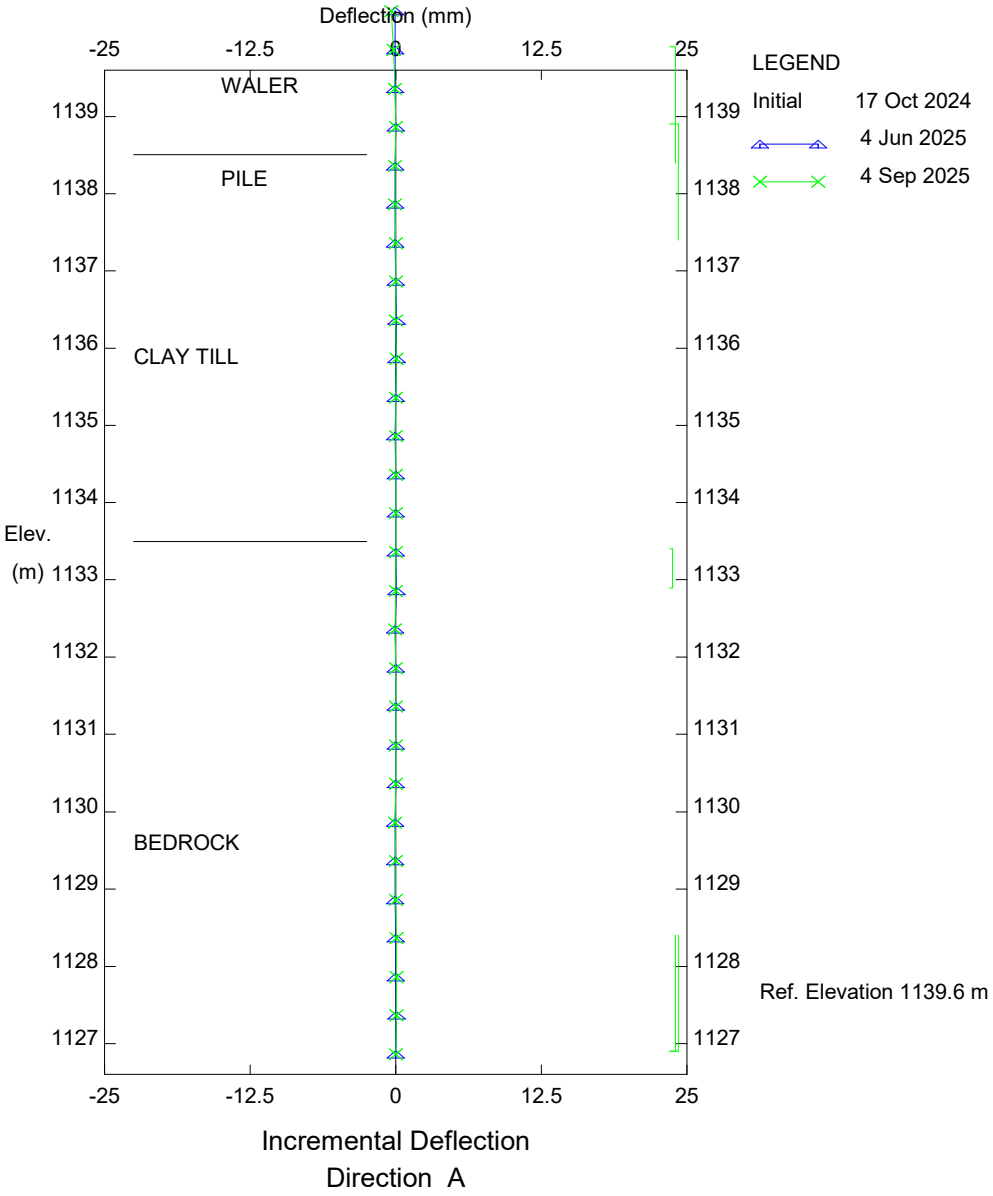
Klohn Crippen Berger - Edmonton

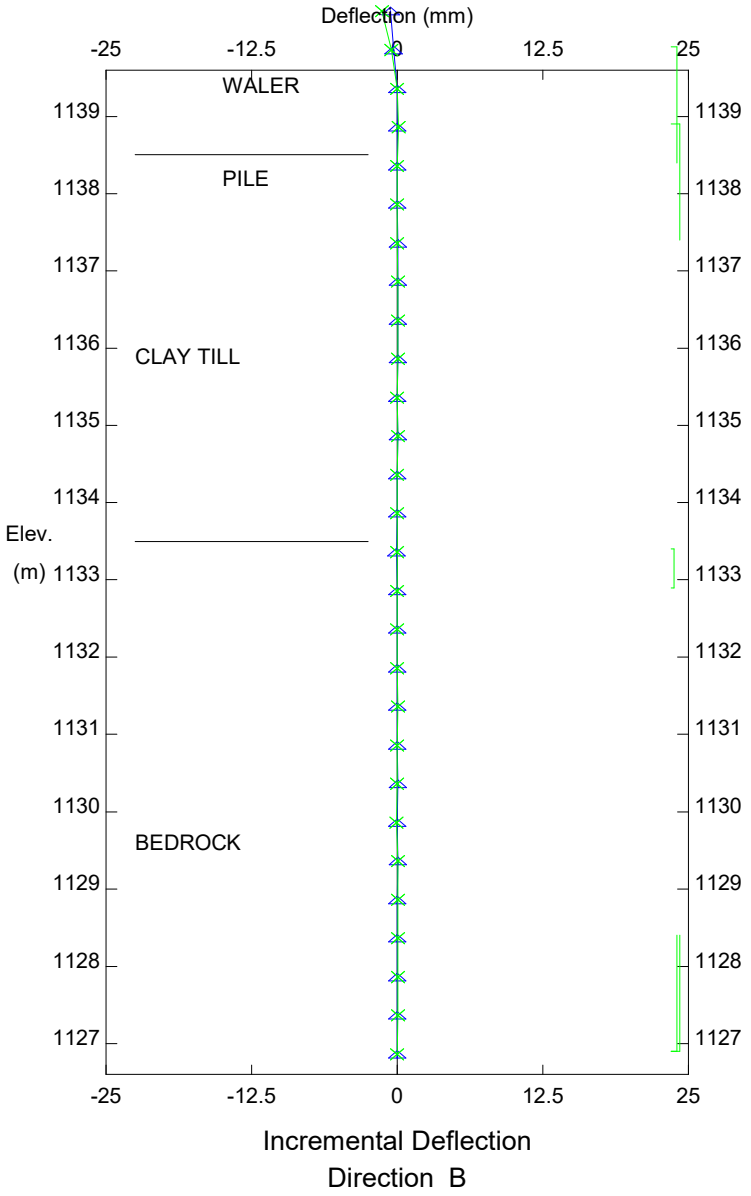


GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W4

Alberta Transportation

Klohn Crippen Berger - Edmonton

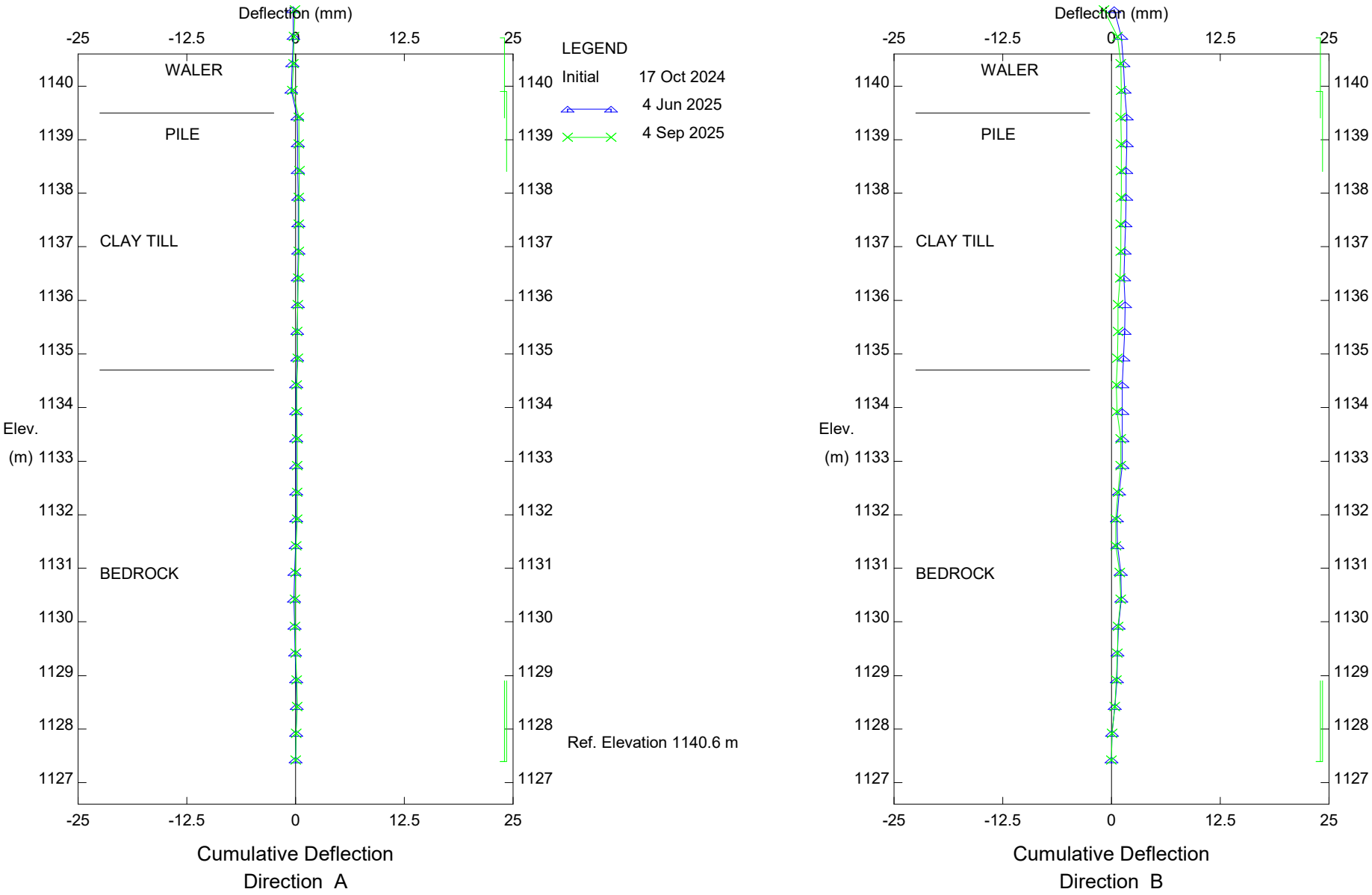




GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W4

Alberta Transportation

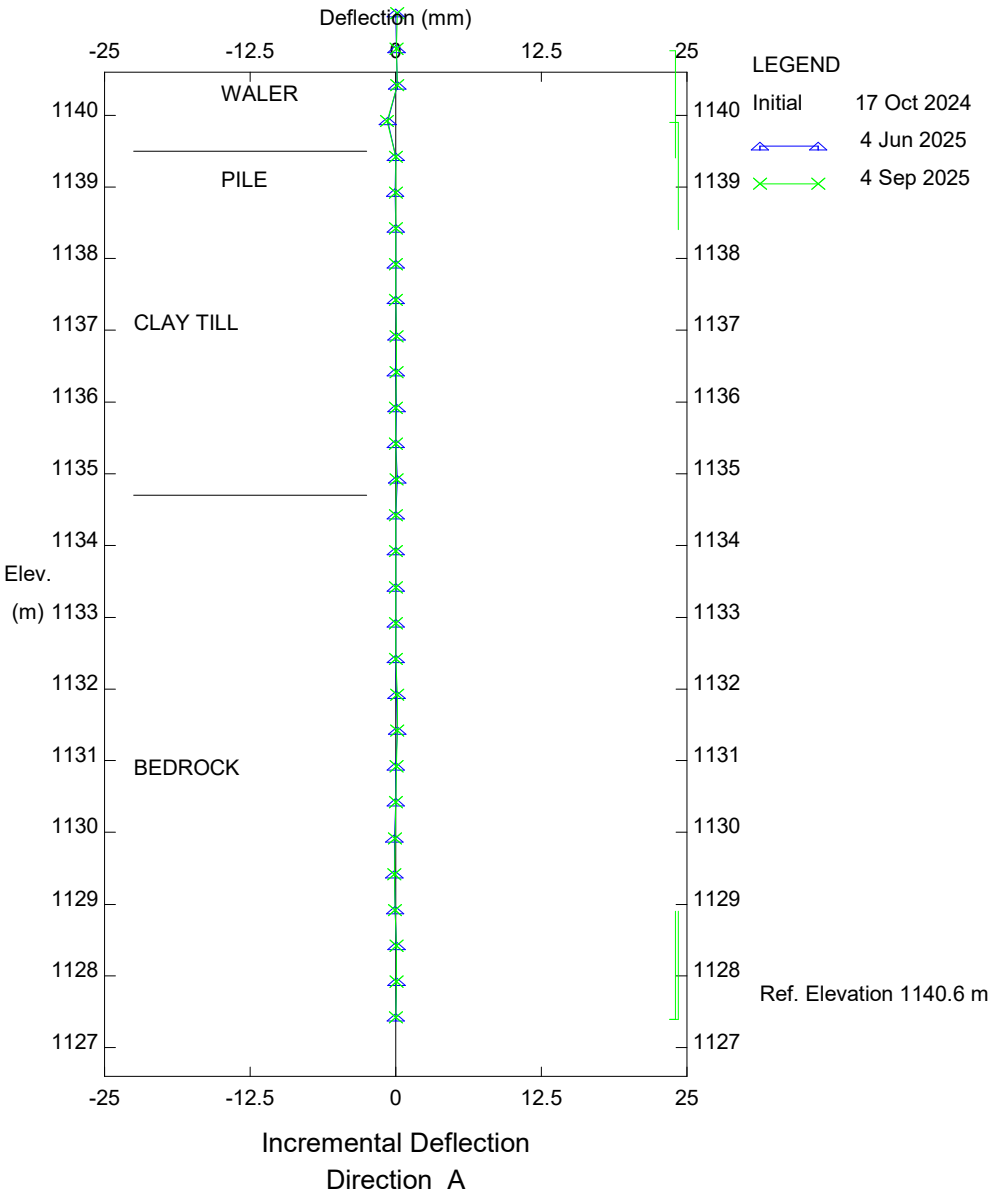
Klohn Crippen Berger - Edmonton

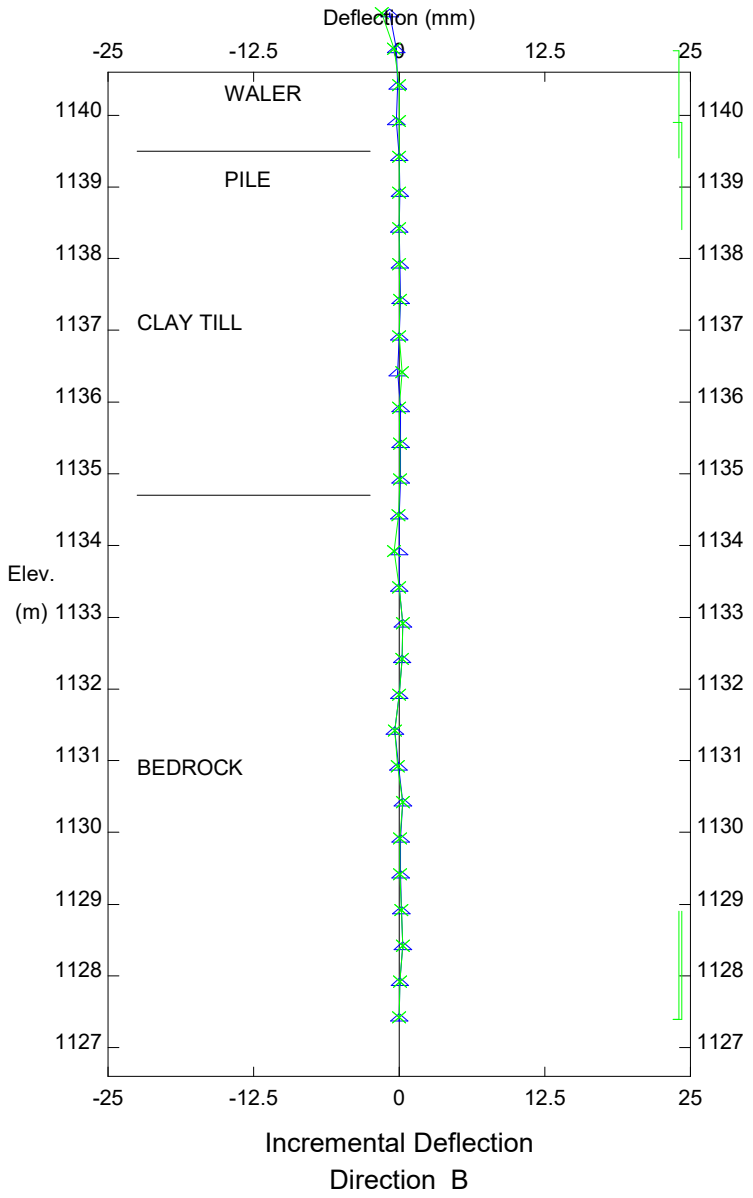


GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W5

Alberta Transportation

Klohn Crippen Berger - Edmonton

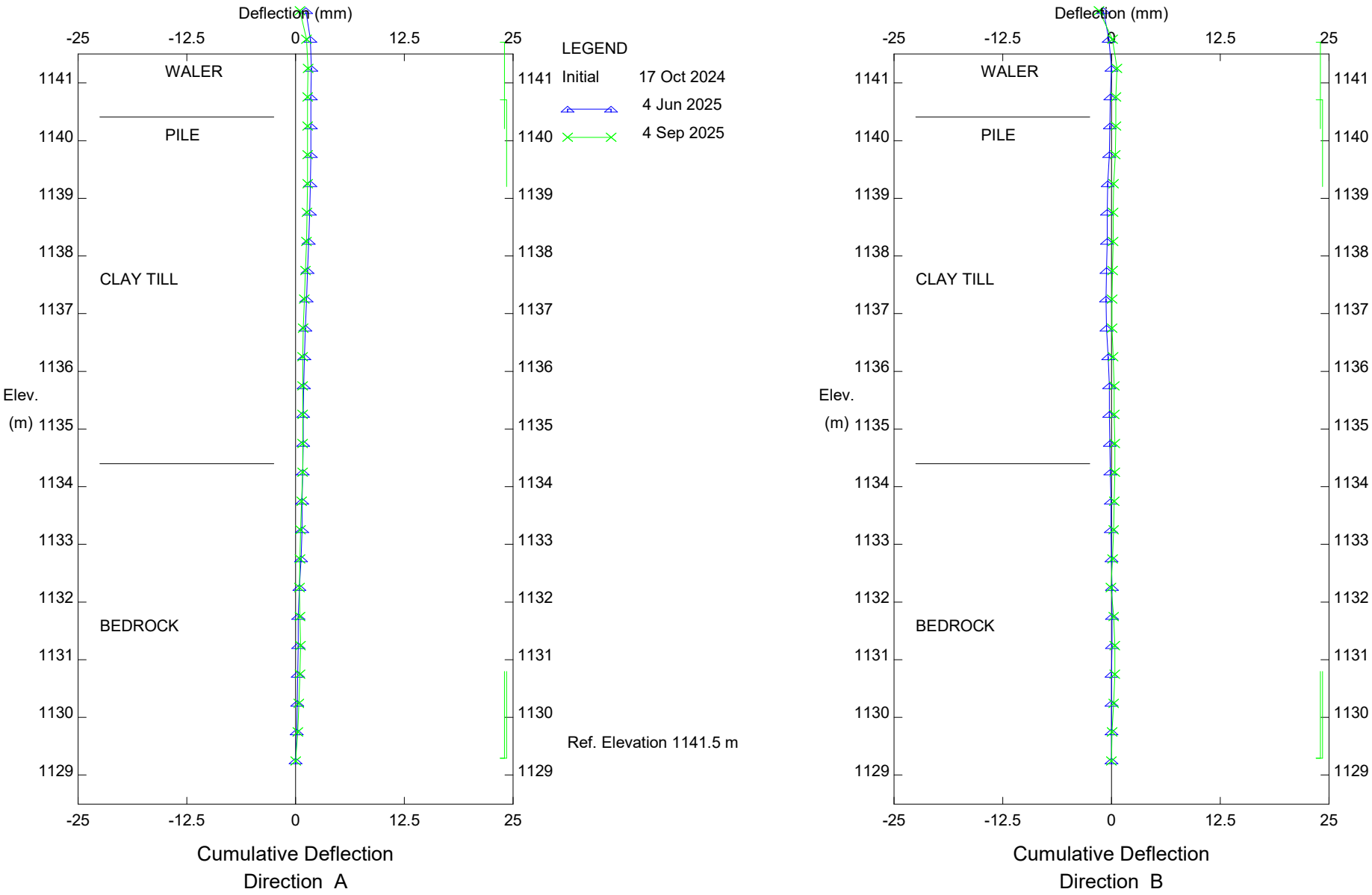




GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W5

Alberta Transportation

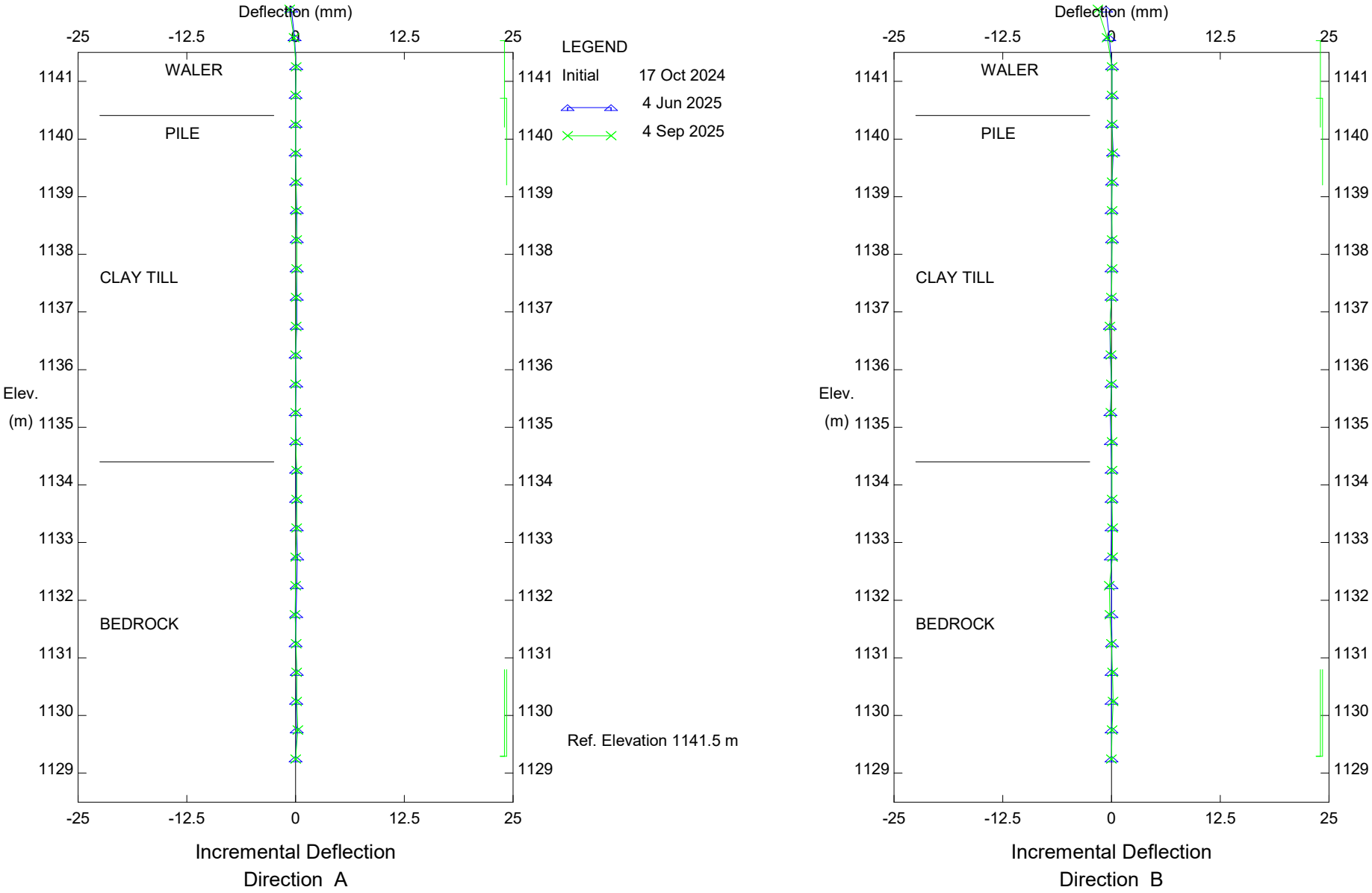
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W6

Alberta Transportation

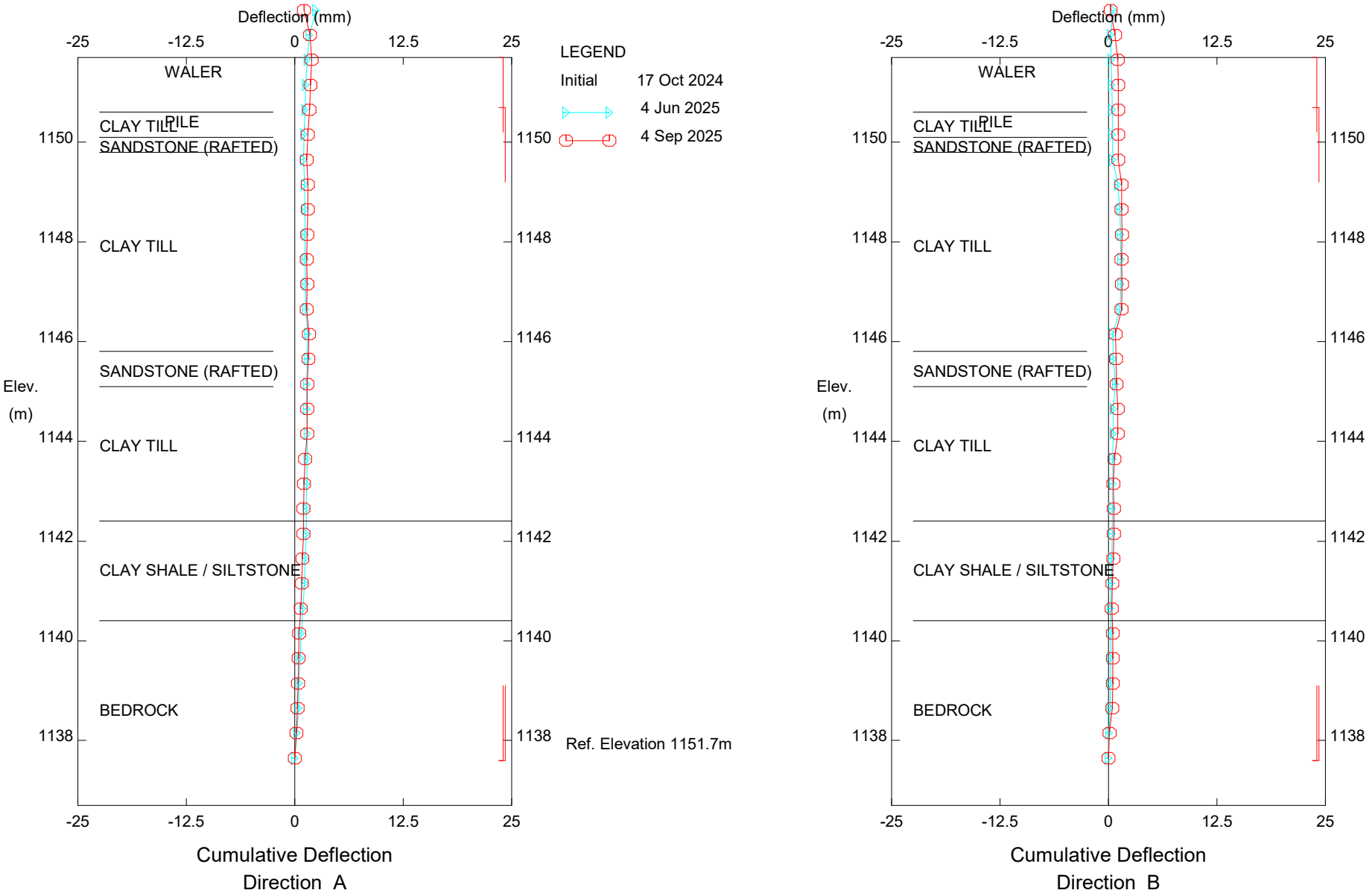
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W6

Alberta Transportation

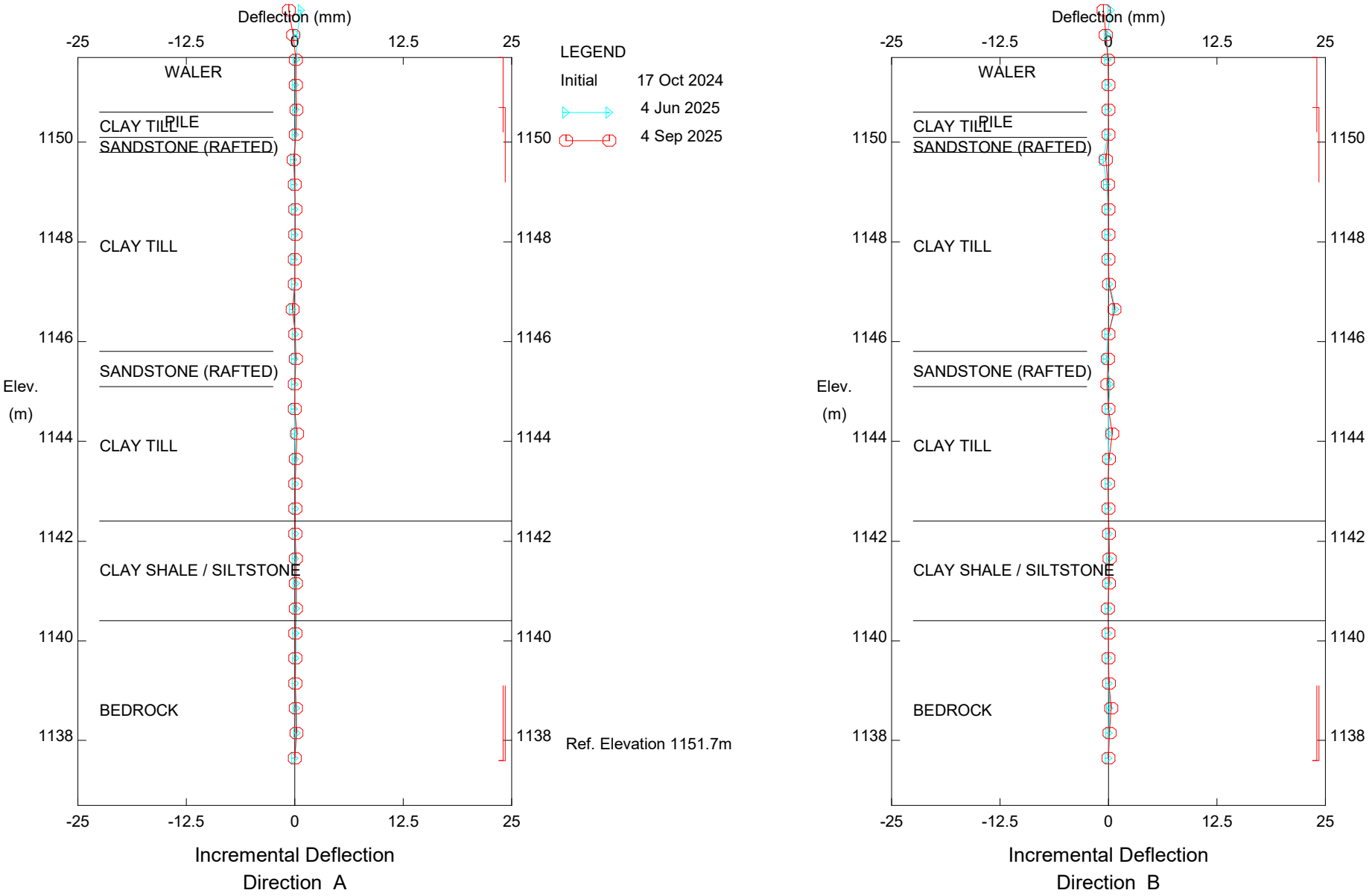
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W7

Alberta Transportation

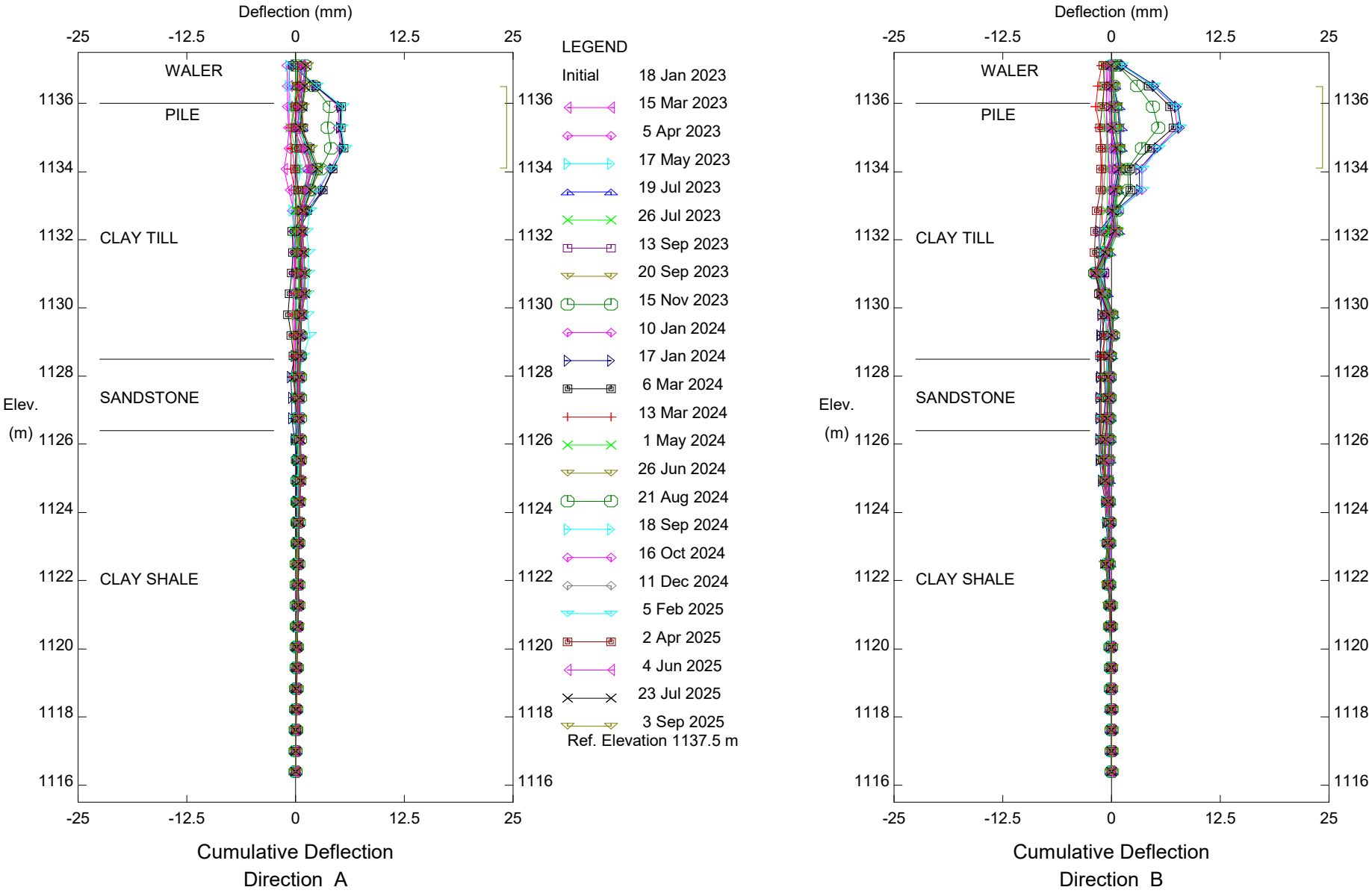
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SI22-W7

Alberta Transportation

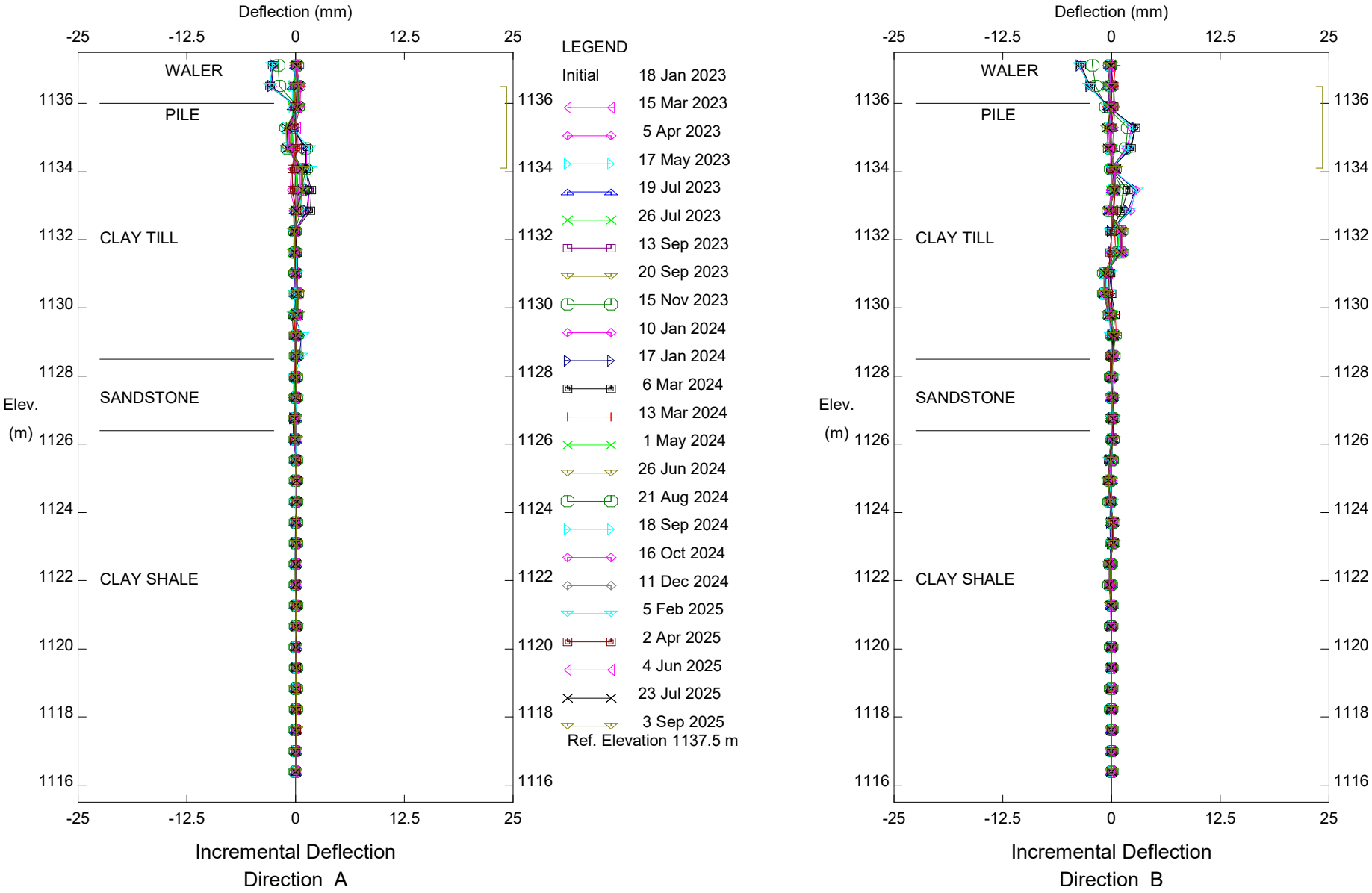
Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SAA22-P15

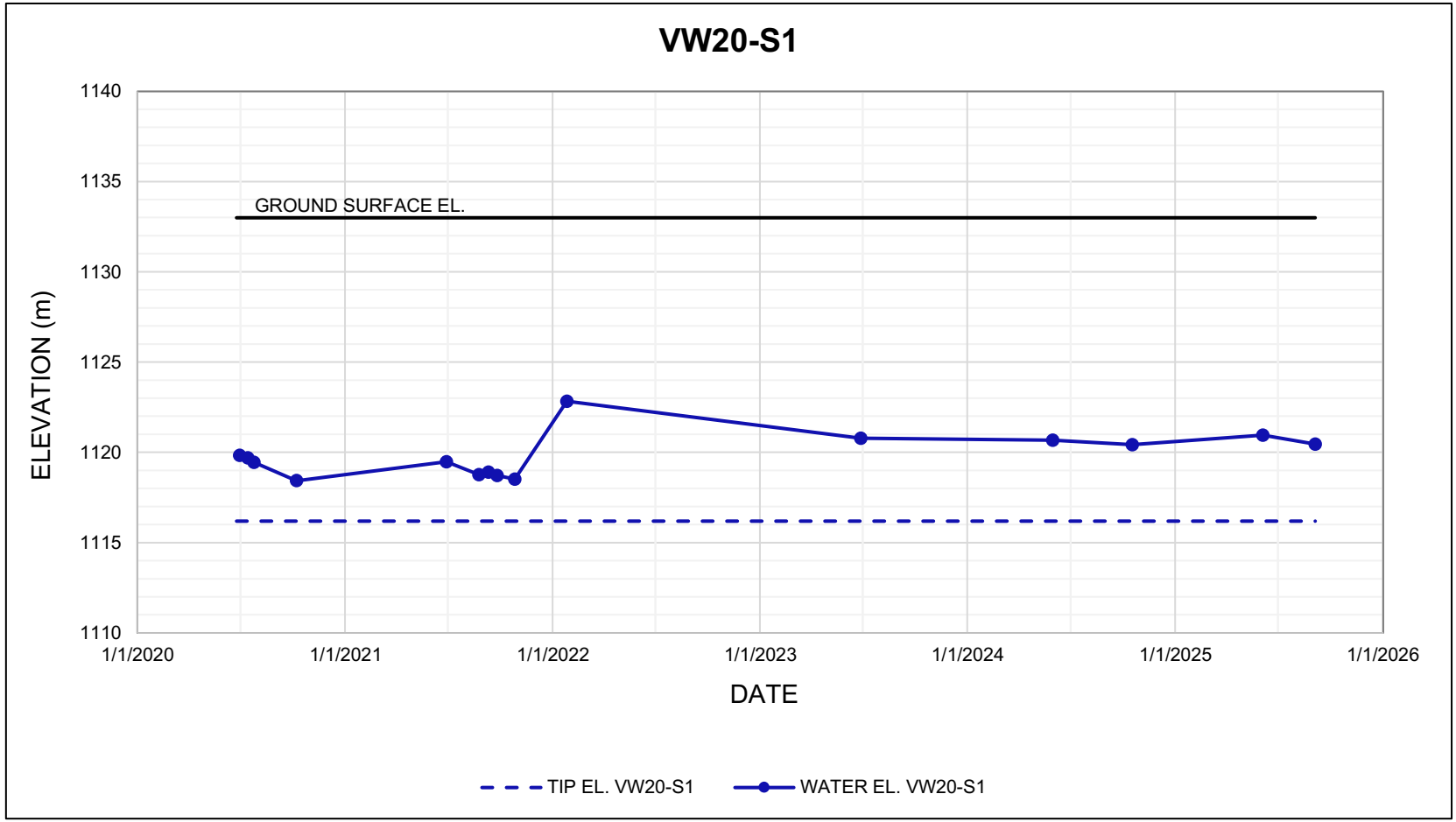
Alberta Transportation

Klohn Crippen Berger - Edmonton



GP042; H40:36, Wanyandie Creek Slide, Inclinometer SAA22-P15

Alberta Transportation



NOTES:
1. PIEZOMETER DATA OBTAINED BEFORE JUNE 28, 2021, PROVIDED TO KLOHN CRIPPEN BERGER LTD. (KCB) BY ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS (TEC) ON JUNE 25, 2021.
2. PIEZOMETER DATA OBTAINED BETWEEN OCTOBER 2021 AND JUNE 2024 PROVIDED TO KCB BY THURBER ENGINEERING LTD.
3. GROUND SURFACE ELEVATION MEASURED PRIOR TO CONSTRUCTION AND MAY NEED TO BE UPDATED.

CLIENT

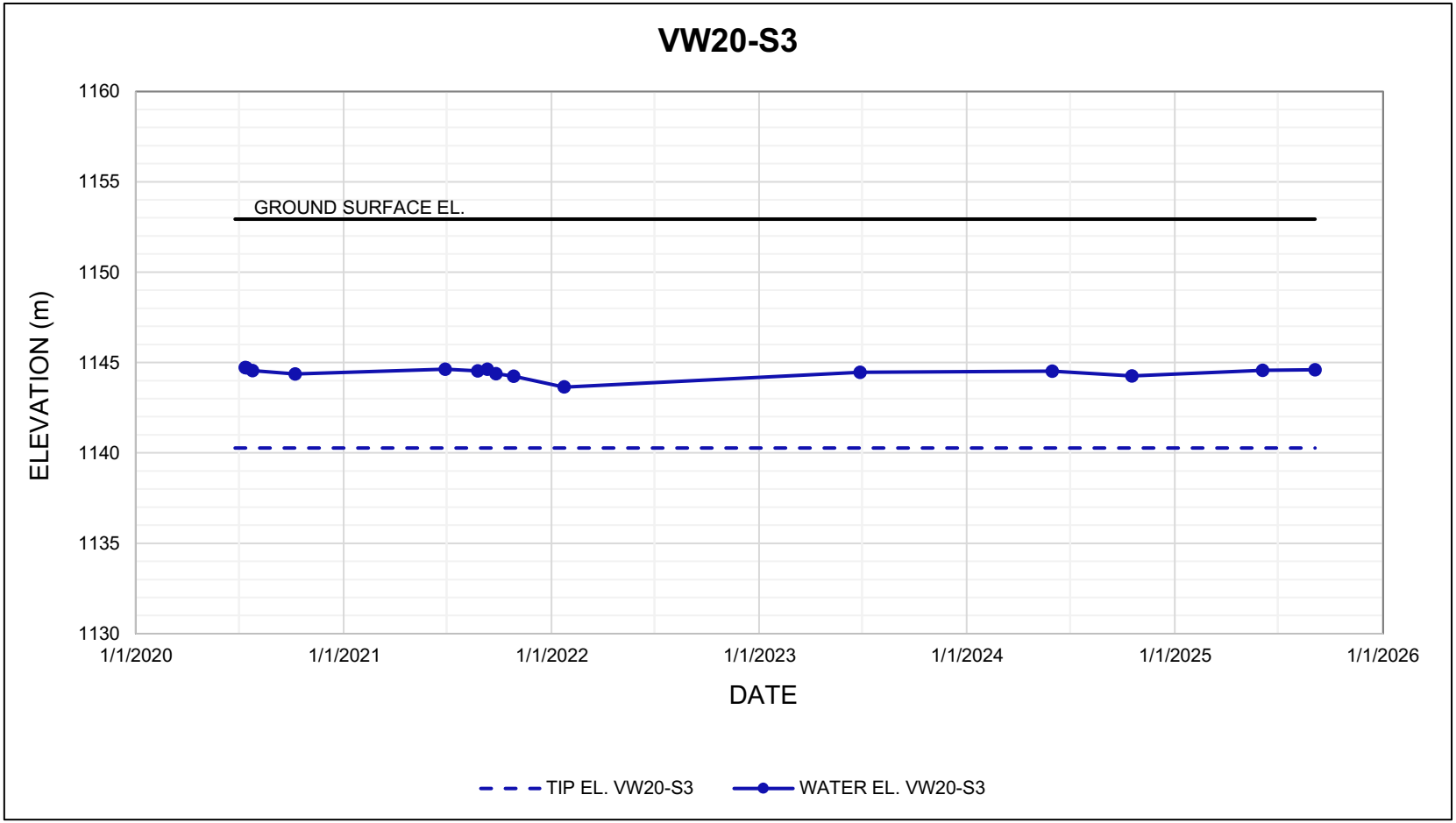
Alberta

Klohn Crippen Berger

PROJECT
PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PIEZOMETER DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
	A05116A01	



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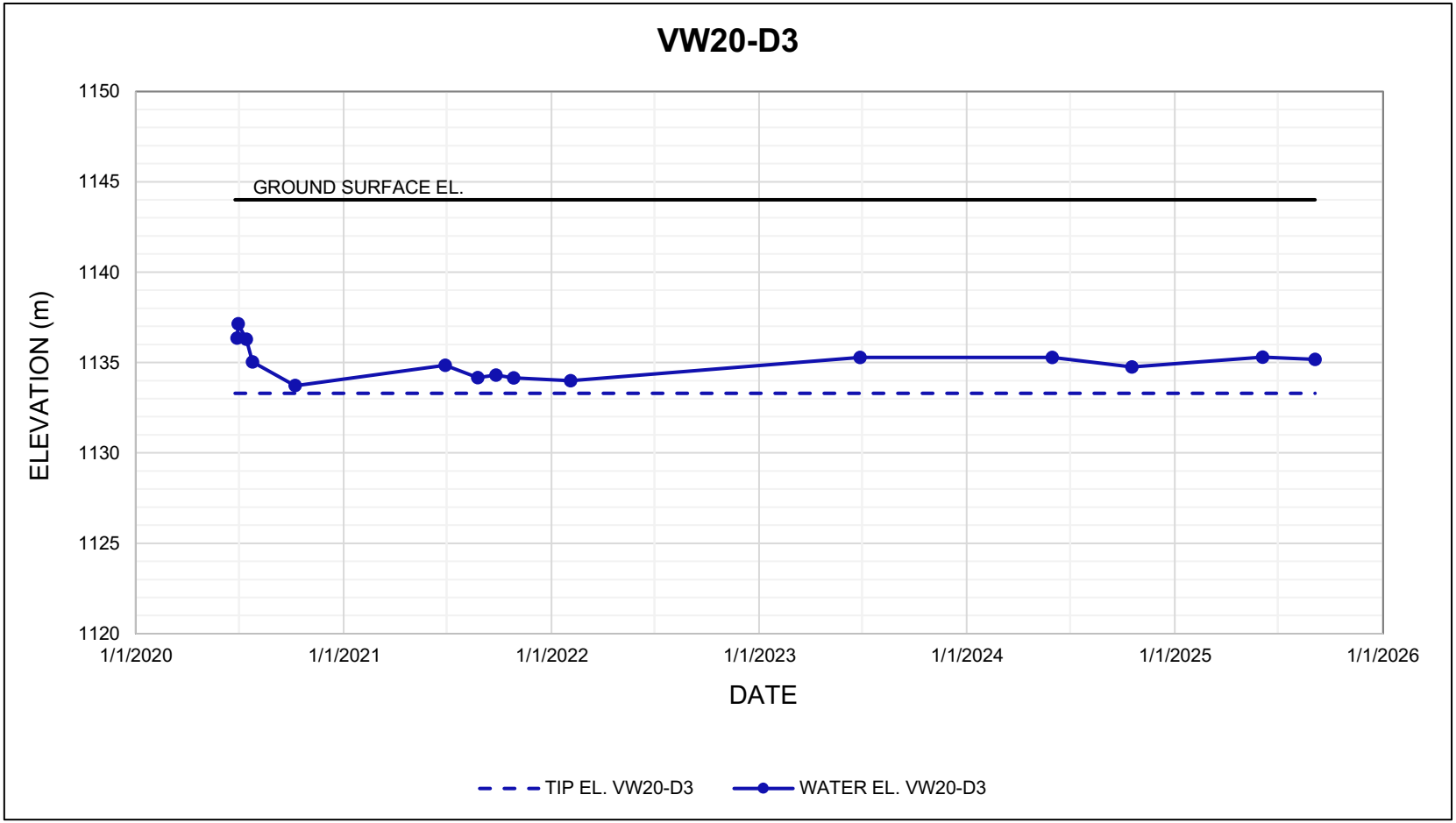
Alberta
Klohn Crippen Berger

PROJECT
PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PIEZOMETER DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
	A05116A01	



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PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PIEZOMETER DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
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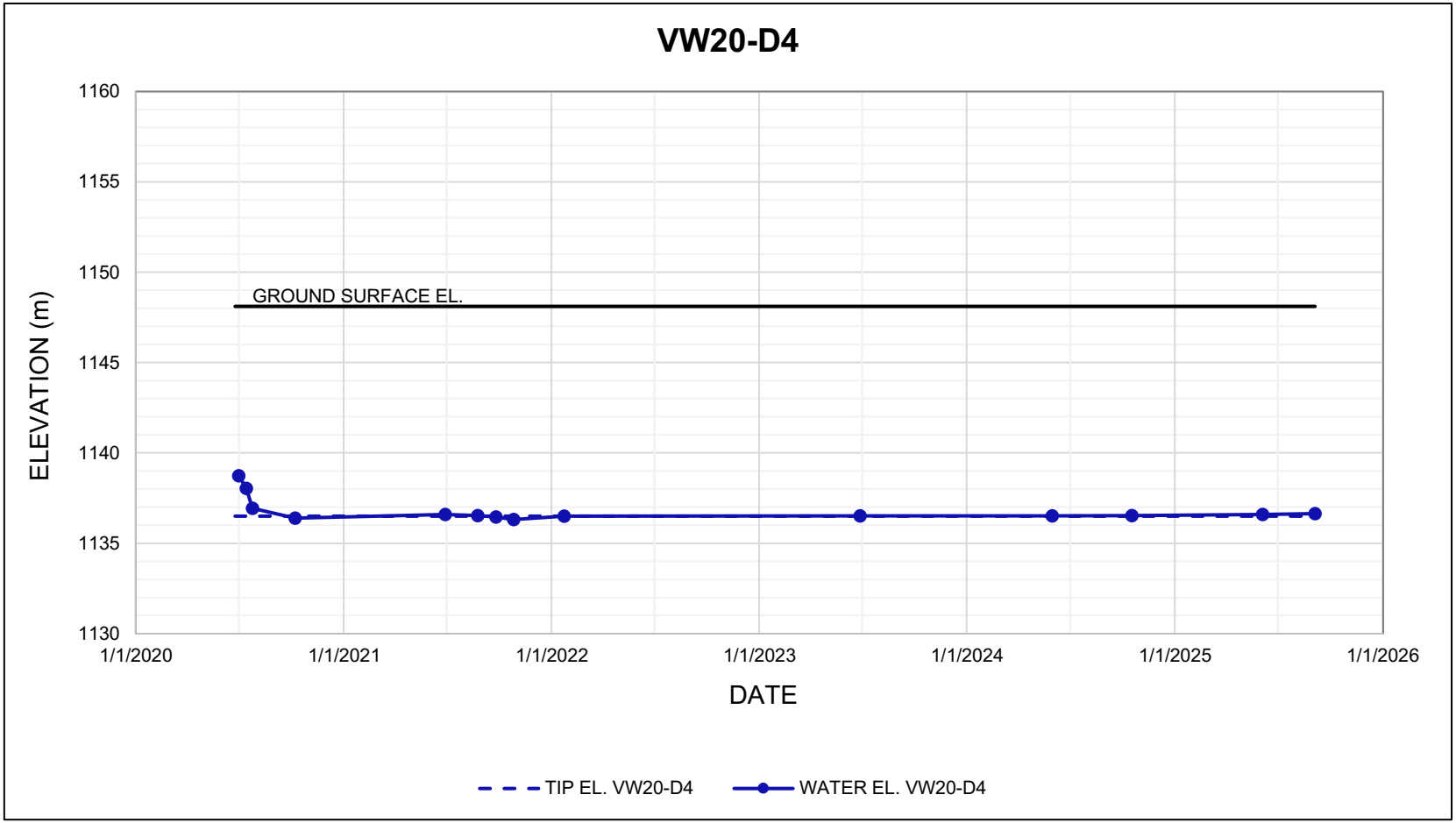

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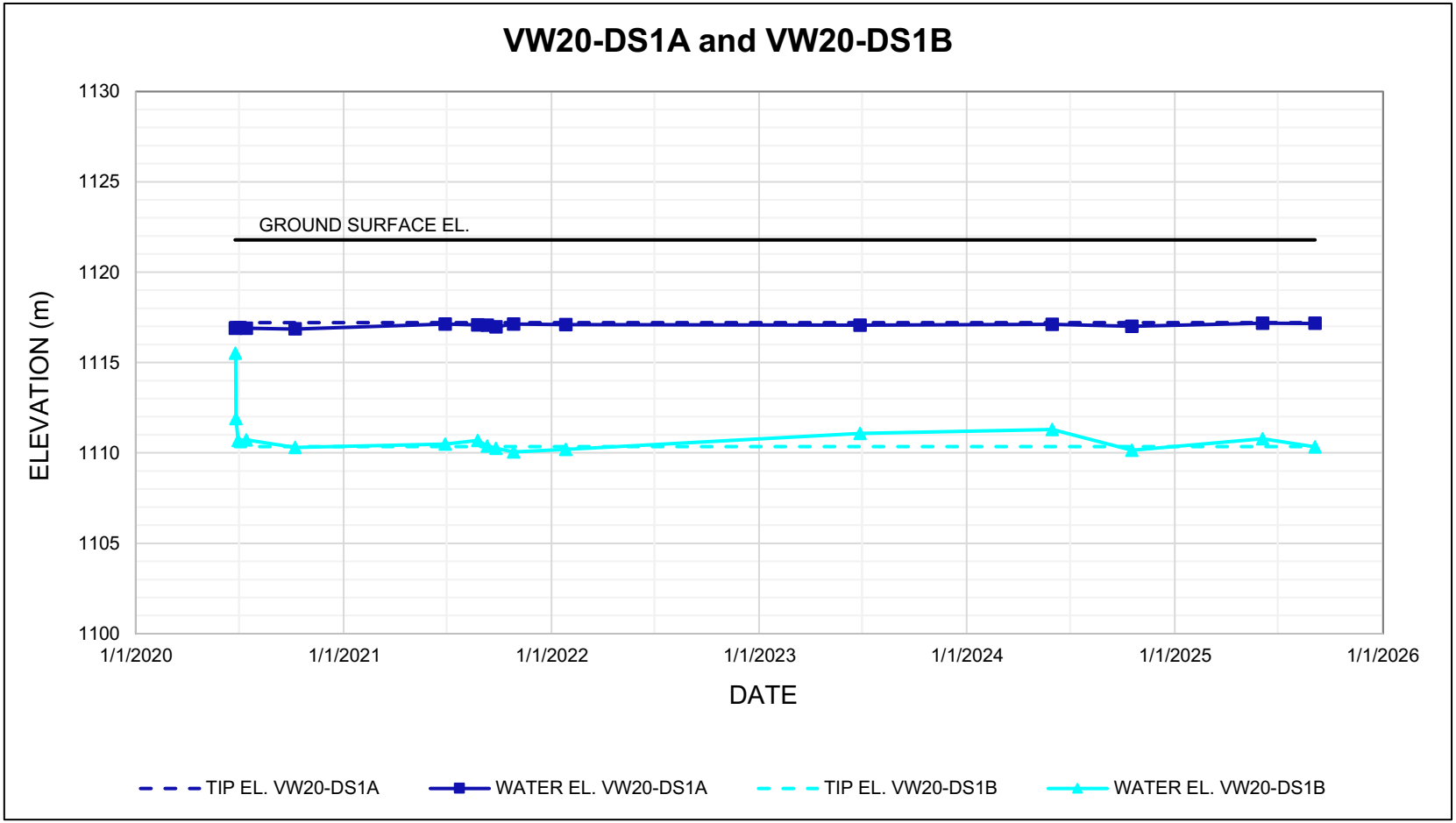
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PIEZOMETER DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
	A05116A01	



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Alberta
Klohn Crippen Berger

PROJECT
PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PIEZOMETER DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
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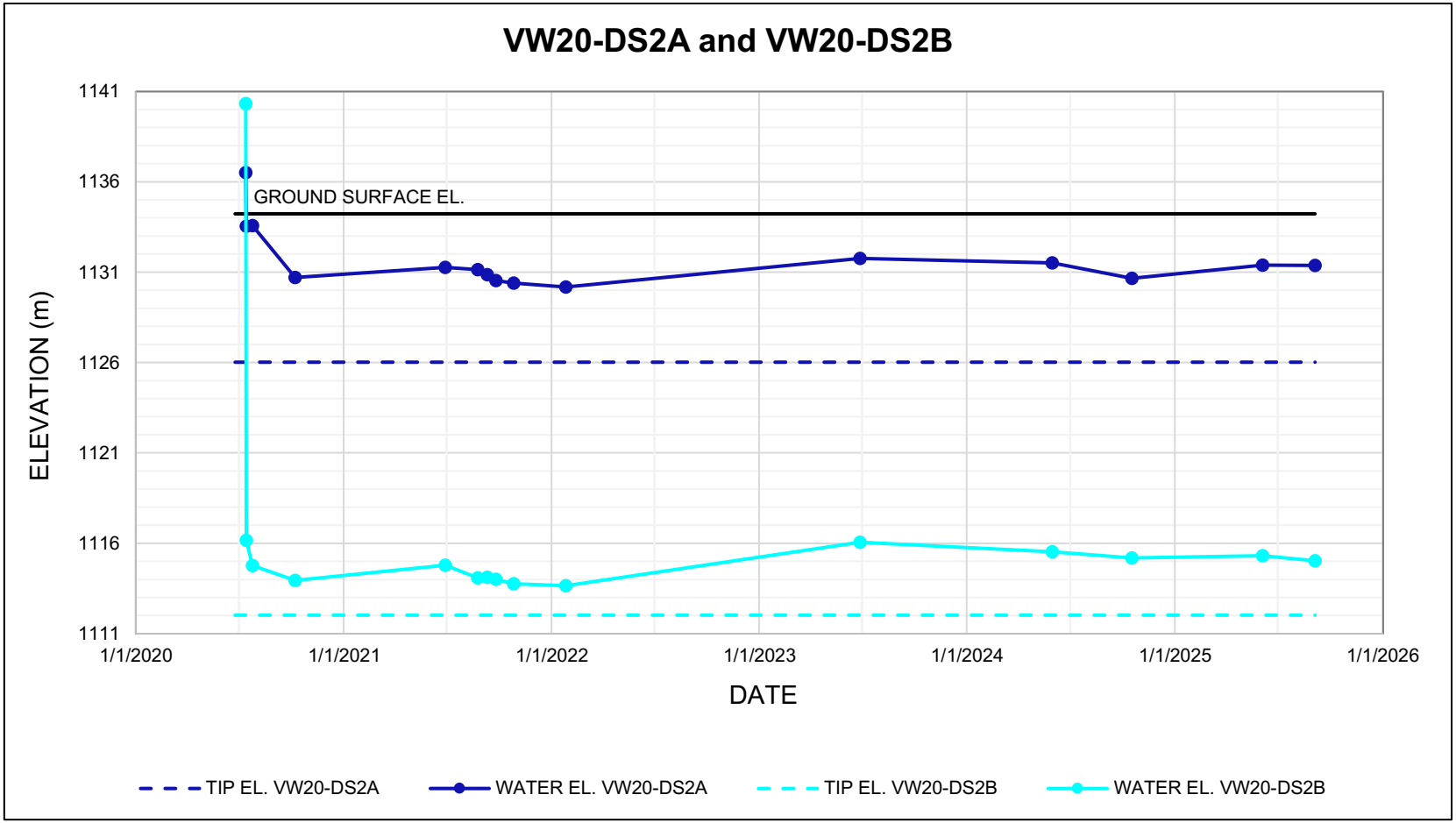

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CLIENT

Alberta

Klohn Crippen Berger

PROJECT
PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PIEZOMETER DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
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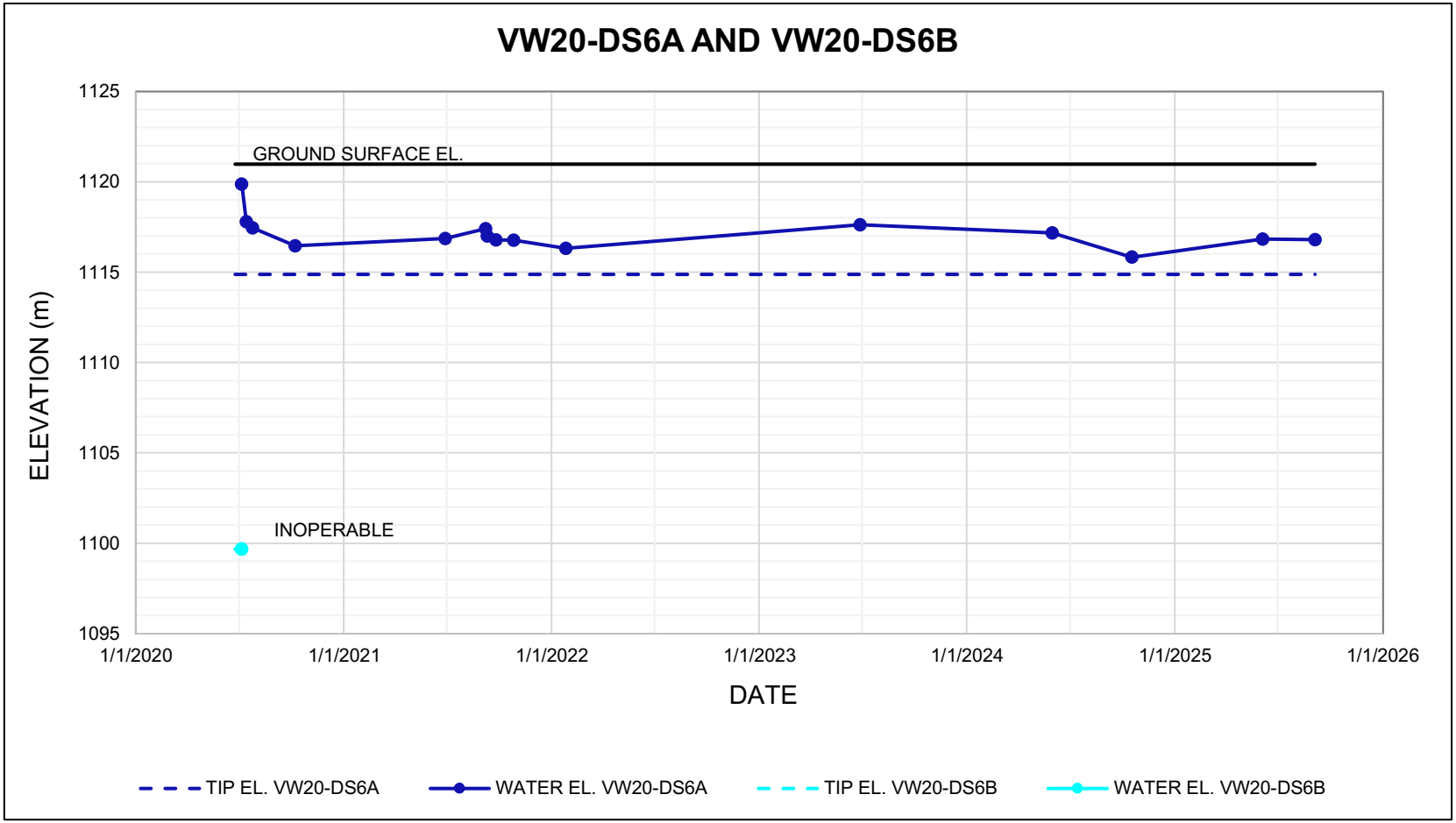

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Alberta
Klohn Crippen Berger

PROJECT
PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PIEZOMETER DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
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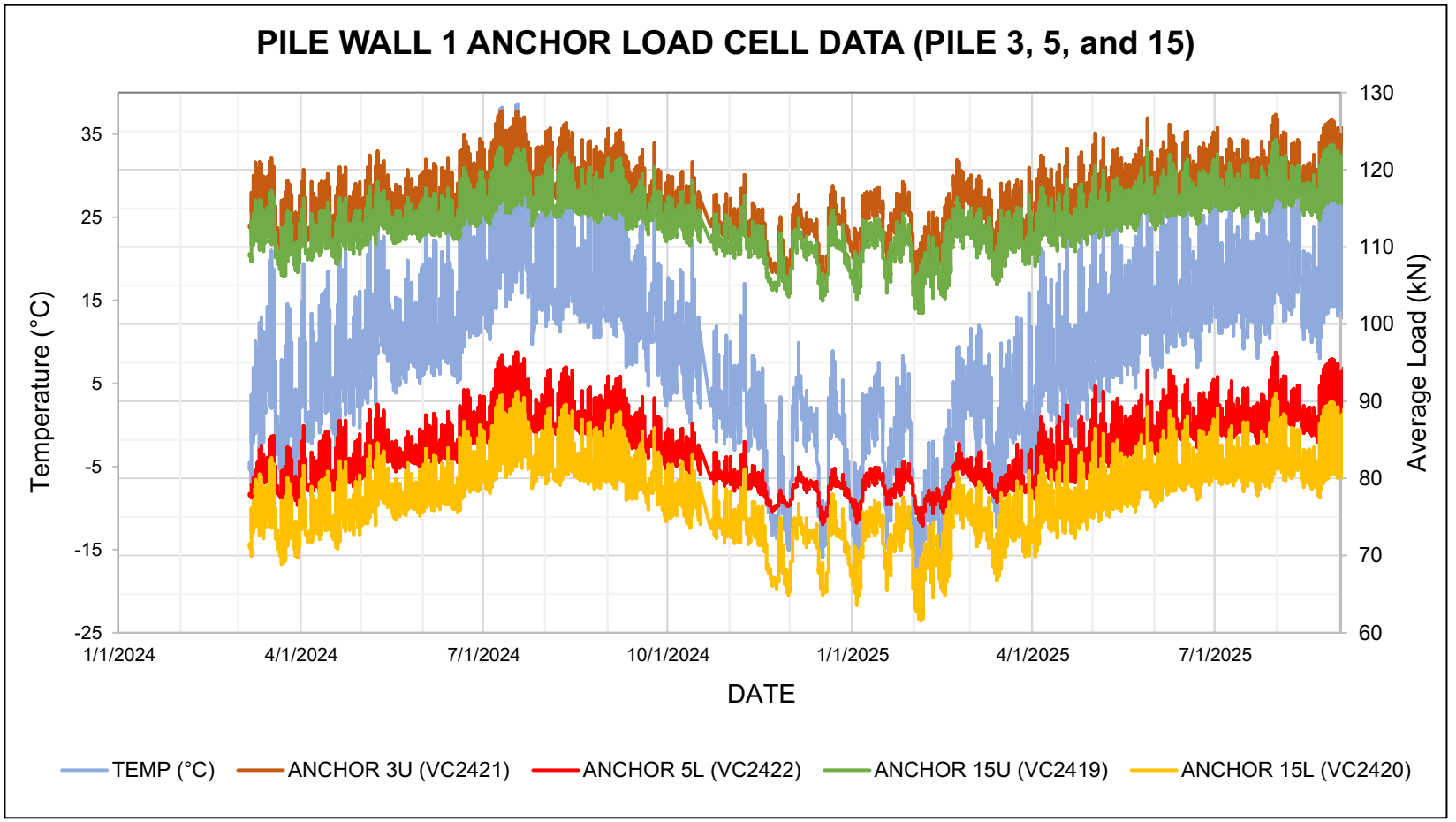

NOTES:
1. INSTRUMENTS CONNECTED TO MULTI-CHANNEL DATA LOGGER.

CLIENT

Alberta

Klohn Crippen Berger

PROJECT
PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PILE WALL 1 ANCHORS LOAD CELL DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
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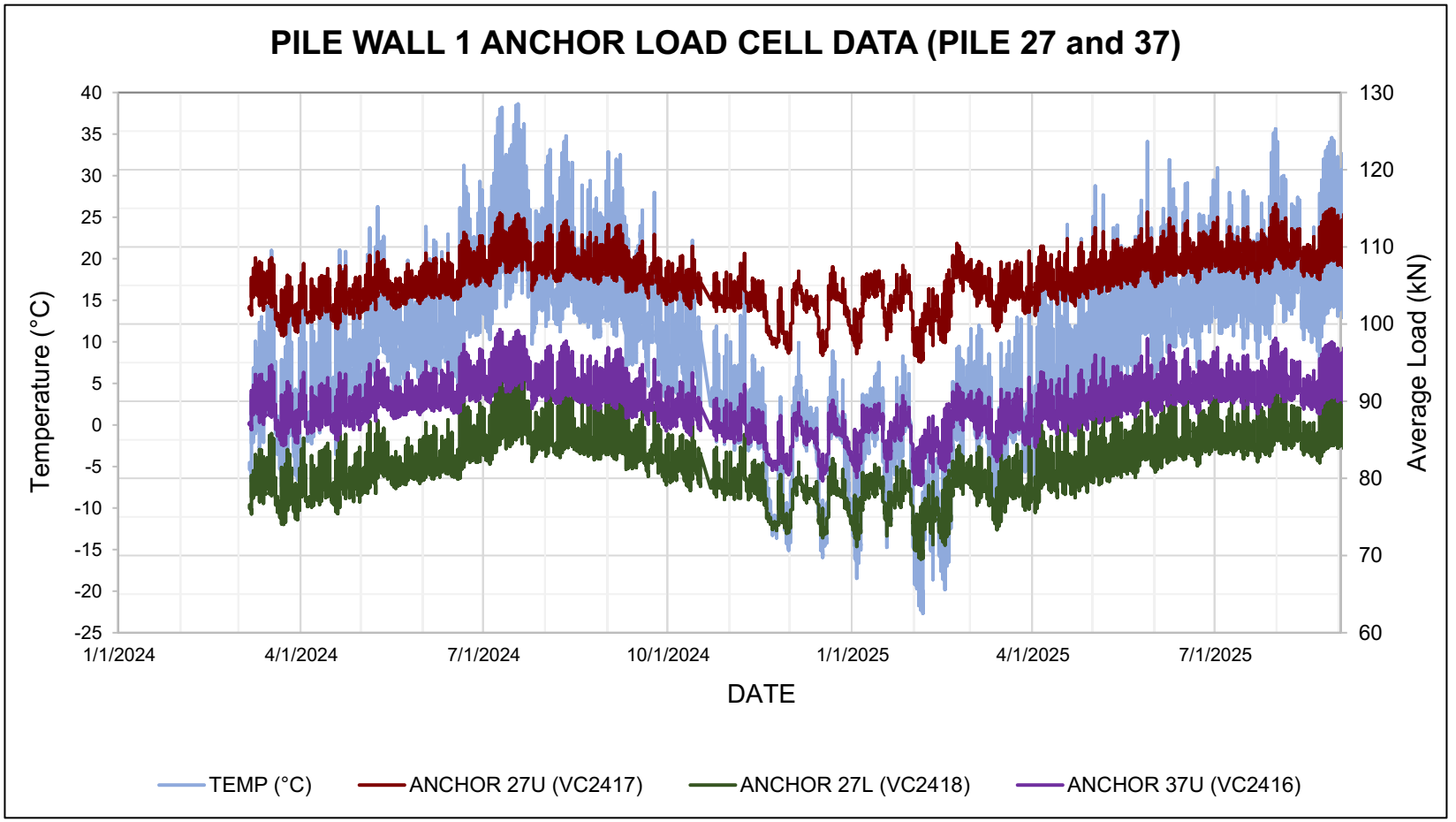

NOTES:
1. INSTRUMENTS CONNECTED TO MULTI-CHANNEL DATA LOGGER.

CLIENT

Alberta

Klohn Crippen Berger

PROJECT
PEACE REGION (GRANDE PRAIRIE DISTRICT - SOUTH)
GEOHAZARD RISK MANAGEMENT PROGRAM

TITLE
PILE WALL 1 ANCHORS LOAD CELL DATA
GP042 - WANYANDIE CREEK EMBANKMENT SLIDE
HWY 40:36, KM 37.524

SCALE	PROJECT No.	FIG No.
	A05116A01	