
To:	Amy Driessen	From:	Leslie Cho and Lawrence Onwude
	Transportation and Economic Corridors		Stantec Consulting Ltd.
File:	123315222	Date:	October 31, 2025

Reference: North Central Region, Edson, Site NC083 - Highway 40:30 West of Wildhay River, Fall 2025 Instrumentation Monitoring Report

OBSERVATIONS

FIELD PROGRAM AND INSTRUMENTATION STATUS

The Fall 2025 reading cycle consisted of instrument readings of three slope inclinometers (SI17-01, SI17-02, and SI17-03) and three vibrating wire piezometers (VW17-01, VW17-02, and VW17-03). **Figure 1** attached provides a schematic of the site. The instruments were read by Akintola Fakinlede, GIT and Adham Zahr, Geotechnical EIT and on October 2, 2025.

The slope inclinometers (SI) were measured using an RST MEMS digital inclinometer probe with 0.5 m increments and RST handheld PC. The vibrating wire piezometers (VW) were read with a Slope Indicator VW Data Recorder PN 52613500 readout box.

GPS coordinates of all instruments were obtained using a Garmin eTrex 10 handheld unit.

INTERPRETATION

GENERAL

The SI plots are provided in the attachments and summarized in the following sections. Plots in both directions along with movement rates, total cumulative movement, maximum movement rates, and incremental movements are provided in **Table NC083-1** and the attachments.

The vibrating wire piezometer results are summarized in **Table NC083-2** and in the following sections with resulting plots attached.

ZONES OF MOVEMENT

No new zones of movement were observed in any of the operational slope inclinometers. Directions of movement are referenced to the azimuth of the A+ groove in each SI casing in **Table NC083-1**.

INSTRUMENTATION READINGS

Slope Inclinometers

SI17-01 shows three zones of movement at depths of 1.5 m to 3.0 m, 4.4 m to 6.4 m and 7.9 m to 9.9 m below ground surface (bgs). Since initialization in December 2017, SI17-01 has accumulated 37 mm, 79 mm and 48 mm of movement in the upper, middle and lower shear zones, respectively. Their current respective rates of movement for the three zones are 6 mm/yr, 12 mm/yr and 6 mm/yr.

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SI17-02 shows one zone of movement at a depth of 12.8 m to 14.2 m below ground surface and has a current rate of movement of approximately 4 mm/yr with 44 mm of cumulative movement.

SI17-03 has three zones of movement at depths of 2.2 m to 3.8 m, 5.2 m to 7.2 m and 9.8 m to 11.2 m bgs. The upper movement zone is located within the fill and shows a rate of movement of about 3 mm/yr. The middle movement zone shows a current movement rate of 12 mm/yr and the lower movement zone shows a current rate of movement of 6 mm/yr.

Piezometers

The piezometers showed a change in water level ranging from an increase of less than 0.1 m to increase of 0.2 m for the current reading cycle. The piezometric levels measured were between 0.3 m and 0.5 m below ground surface (bgs). In general, the piezometric levels have been in the same range since Spring 2018. Seasonal fluctuations of higher groundwater table in the Fall are observed in the piezometers.

RECOMMENDATIONS

FUTURE WORK

It is recommended that the next reading cycle take place in Spring 2026.

INSTRUMENTATION REPAIRS

No instruments require repair currently.

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Table NC083-1: Fall 2025 Slope Inclinometer Reading Summary

Instrument Name	Date Initialized	Coordinates ⁽¹⁾ (UTM 11U, NAD1983) (m)		Total Cumulative Resultant Movement and Depth of Movement to Date (mm)	Maximum Rate of Movement (mm/yr)	Current Status	Date of Previous Reading	Incremental Movement Since Previous Reading (mm)	Current Rate of Movement (mm/yr)	Change in Rate of Movement Since Previous Reading (mm/yr) ⁽²⁾
		Northing	Easting							
SI17-01	Dec 05, 2017	5935075	437711	37 over 1.5 m to 3.0 m depth in 339° direction	33 mm/yr; Sept. 2019	Operational	May 6, 2025	2	6	3
				79 over 4.4 m to 6.4 m depth in 339° direction	33 mm/yr; Sept. 2019			5	12	4
				48 over 7.9 m to 9.9 m depth in 339° direction	25 mm/yr; Sept. 2019			3	6	2
SI17-02	Dec 05, 2017	5935097	437704	44 over 12.8 m to 14.2 m depth in 346° direction	23 mm/yr; Sept. 2019	Operational	May 6, 2025	2	4	0
SI17-03	Dec 05, 2017	5935072	437735	25 over 2.2 m to 3.8 m depth in 353° direction	16 mm/yr; Sept. 2019	Operational	May 6, 2025	1	3	1
				114 over 5.2 m to 7.2 m depth in 353° direction	44 mm/yr; Sept. 2019			5	12	1
				46 over 9.8 m to 11.2 m depth in 353° direction	27 mm/yr; Sept. 2019			3	6	3
(1) Operational instruments were updated October 2, 2025 with approximate accuracy of ± 3 m (2) Negative (-) indicates decrease in rate of movement and/or change in direction of movement.										

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Table NC083-2: Fall 2025 Piezometer Reading Summary

Instrument Name	Date Initialized	Coordinates ⁽¹⁾ (UTM 11U, NAD1983) (m)		Bottom/Tip Elevation (m aMSL) ⁽²⁾	Current Status	Maximum Piezometric Level (m aMSL)	Measured Water Level (m aMSL) (m bgs)	Previous Water Level Spring 2025 (m aMSL) (m bgs)	Change in Water Level (m) ⁽³⁾
		Northing	Easting						
VW17-01 (100D1700261)	Dec. 5, 2017	5935075	437711	1258	Operational	1267.5 Dec. 5, 2017	1267.4 (0.3)	1267.3 (0.4)	<0.1
VW17-02 (100D1701260)	Dec. 5, 2017	5935097	437704	1265	Operational	1265.2 Sep. 26, 2019	1265.1 (0.5)	1264.8 (0.8)	0.2
VW17-03 (100D1700262)	Dec. 5, 2017	5935072	437735	1261	Operational	1263.9 Dec. 5, 2017	1263.8 (0.5)	1263.7 (0.6)	<0.1
Notes: (1) Operational instruments were updated October 2, 2025 with approximate accuracy of ± 3 m. (2) aMSL = Above Mean Sea Level (3) Negative (-) indicates decrease in water level									

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4.0 CLOSING

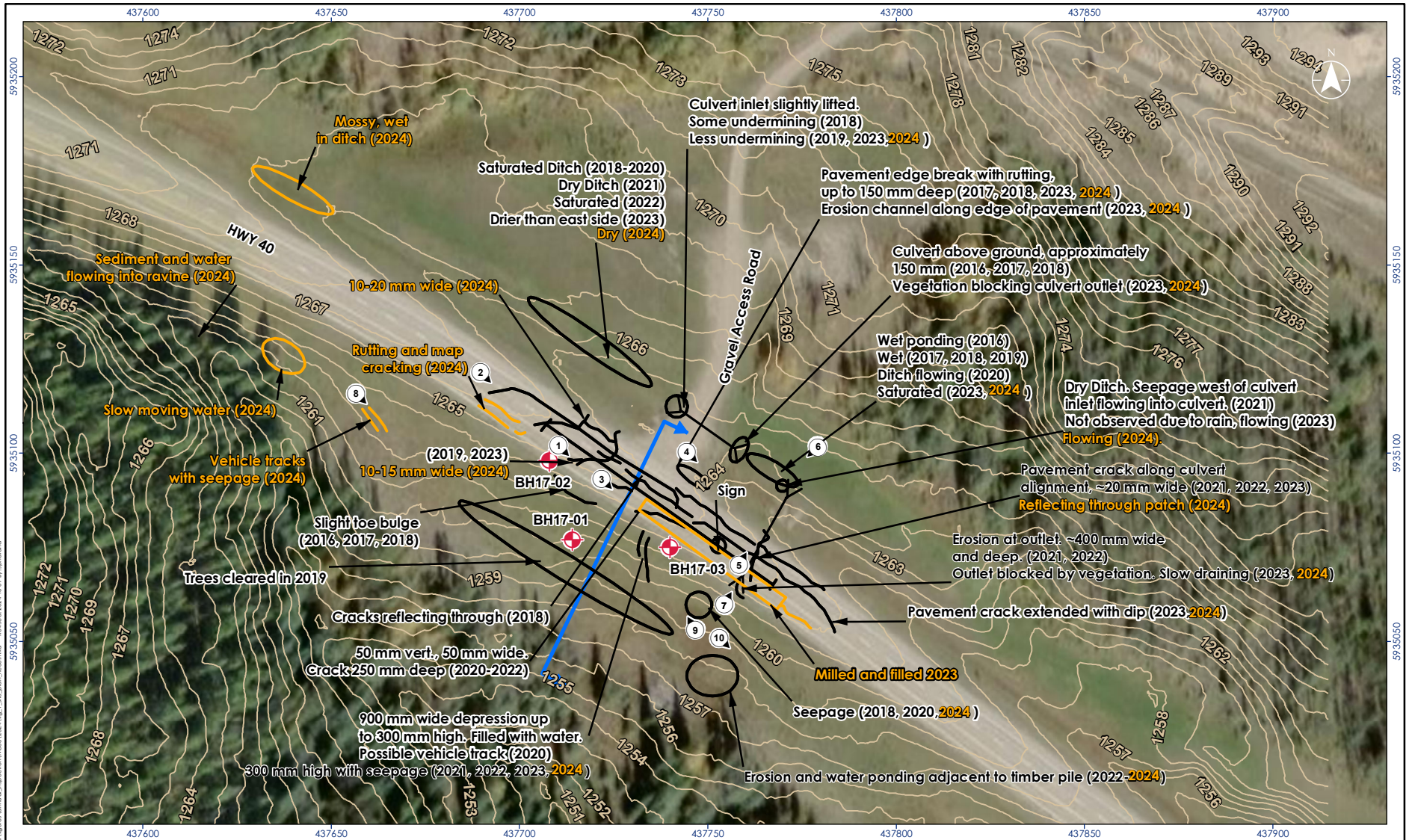
We trust this instrumentation report meets your requirements. If you have any questions, please do not hesitate to contact the undersigned.

Stantec Consulting Ltd.

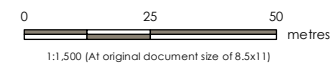
Leslie Cho M.Eng., P.Eng.
Senior Associate, Geotechnical Engineer
Phone: 780-917-7403
leslie.cho@stantec.com

Lawrence Onwude M.Eng., P.Eng.
Senior Associate, Geotechnical Engineer
Phone: 780-969-2257
lawrence.onwude@stantec.com

Attachment: Figure 1 – Site Plan
SI17-01 Slope Inclinator Plots
SI17-02 Slope Inclinator Plots
SI17-03 Slope Inclinator Plots
Vibrating Wire Piezometer Elevation vs Time Plot
Vibrating Wire Piezometer Depth vs Time Plot



- Borehole Location
- Approximate Culvert Location
- Previous Observation
- 2024 Observation
- Ground Elevation Contours (m AMSL, LiDAR 2006)
- Cross Section Location



Notes

1. Coordinate System: NAD 1983 UTM Zone 11N
2. Base features: Geogratis, ©Department of Natural Resources Canada. All rights reserved.
3. Imagery: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Project Location: 123315222
SE 8-53-27 WSM
Yellowhead County, Alberta
Prepared by SP on 2024-09-28
Quality Review by LC on 2023-09-28
Independent Review by XL on 2023-09-28

Client/Project: Transportation and Economic Corridors
Geohazard Monitoring Program
NC83 – West of Wildhay River

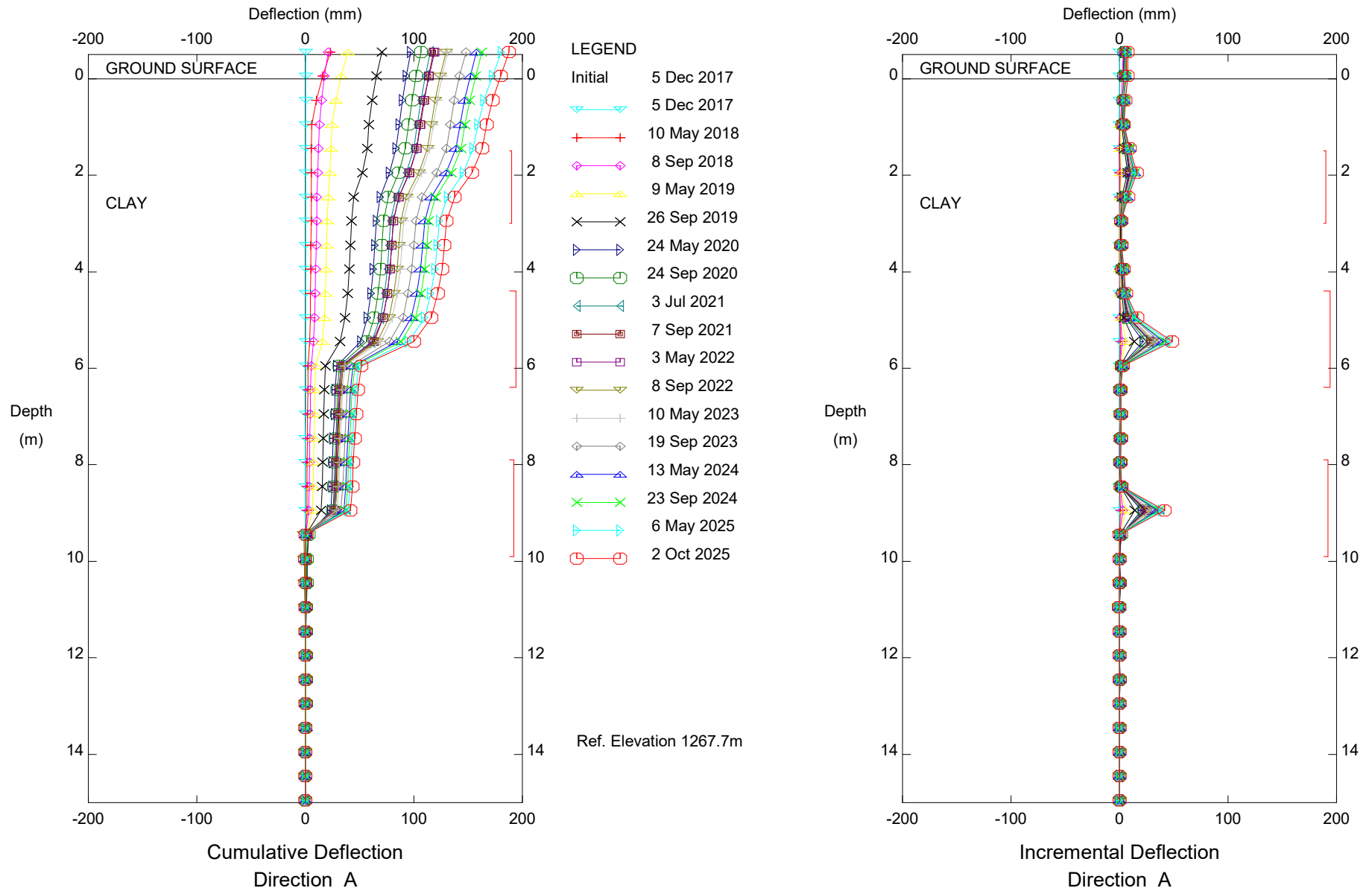
Figure No.

1

Title

Site Plan

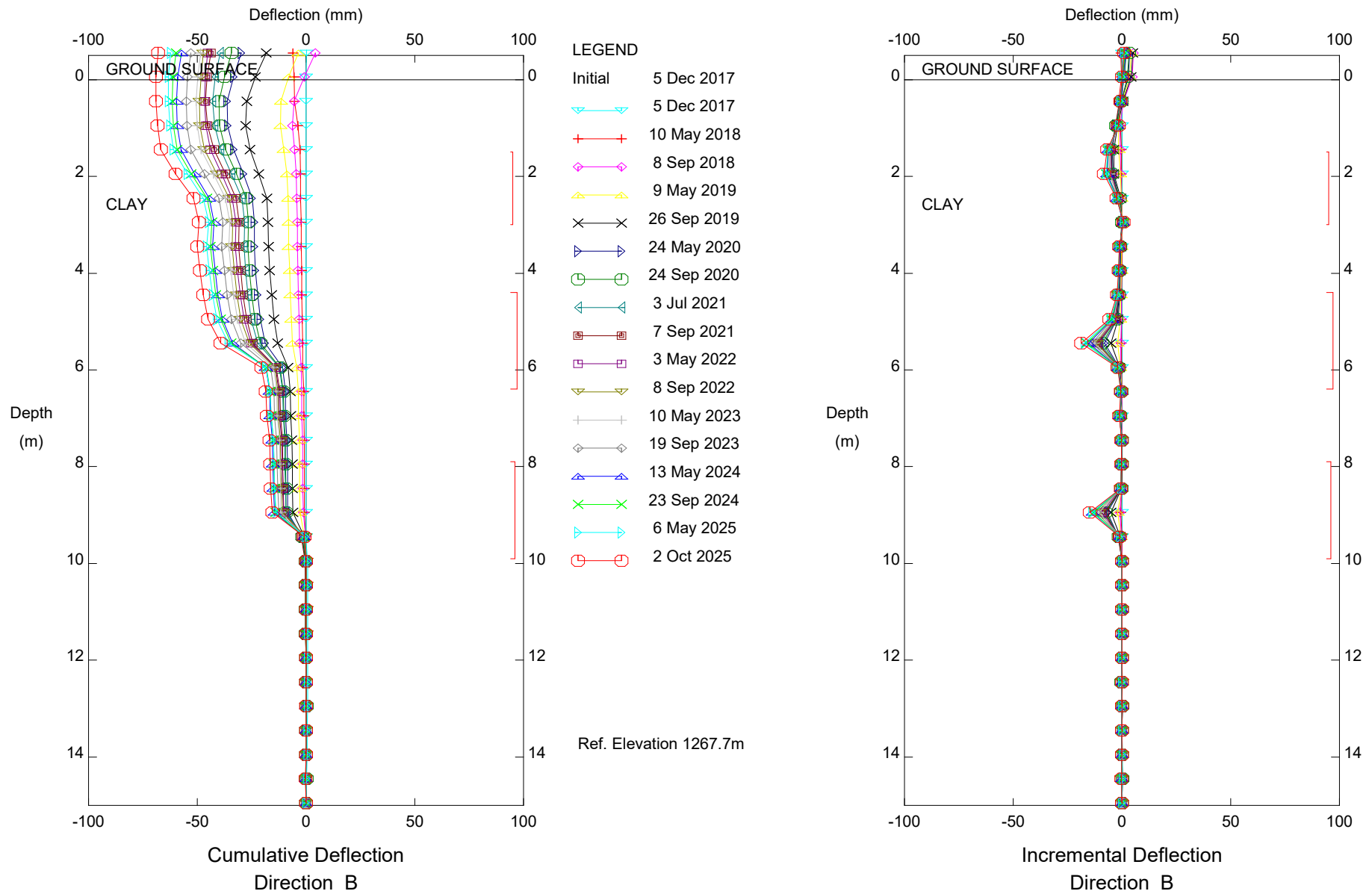
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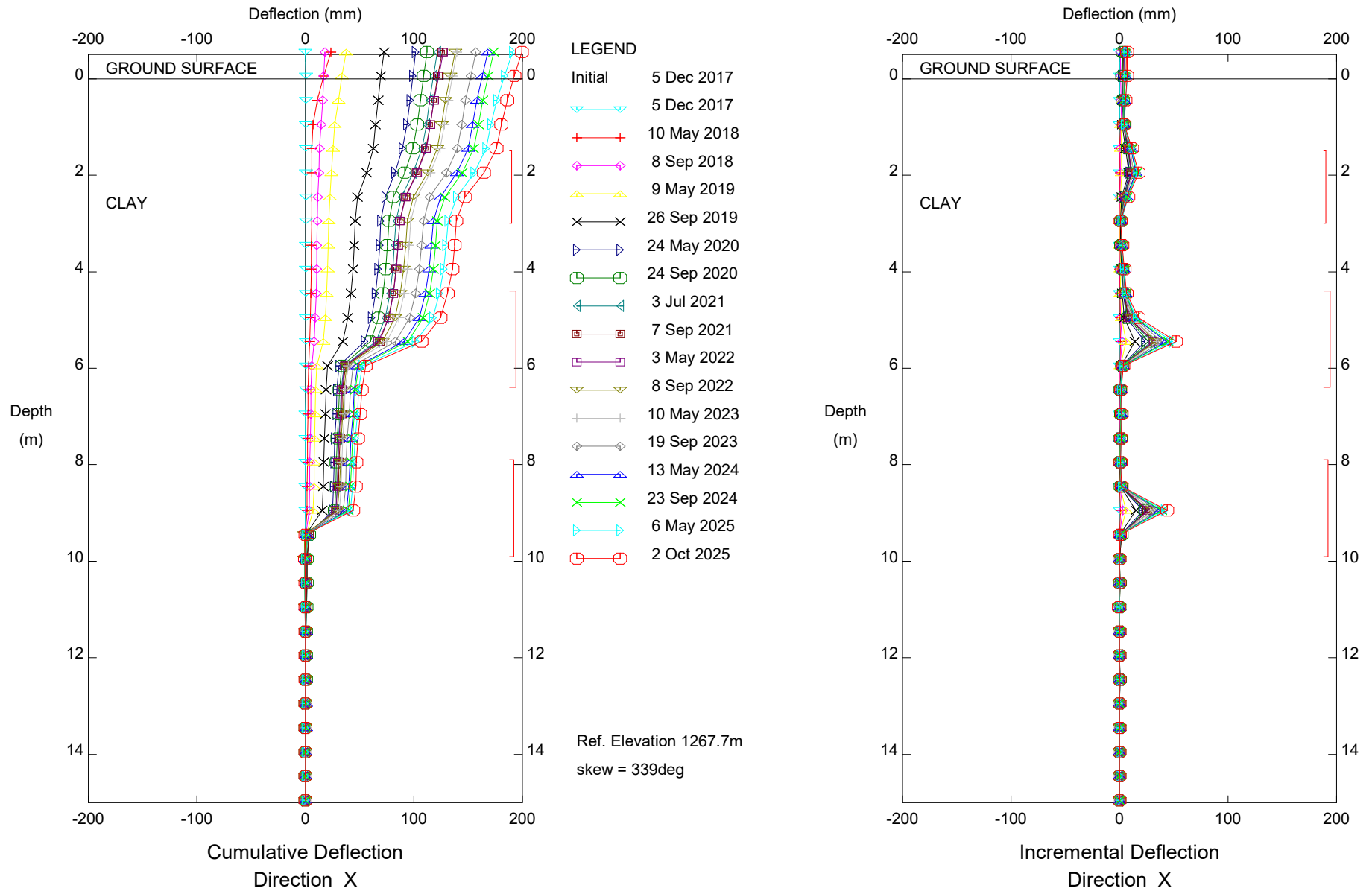
HWY 40:30 West of Wildhay River (NC83), Inclinometer SI17-01

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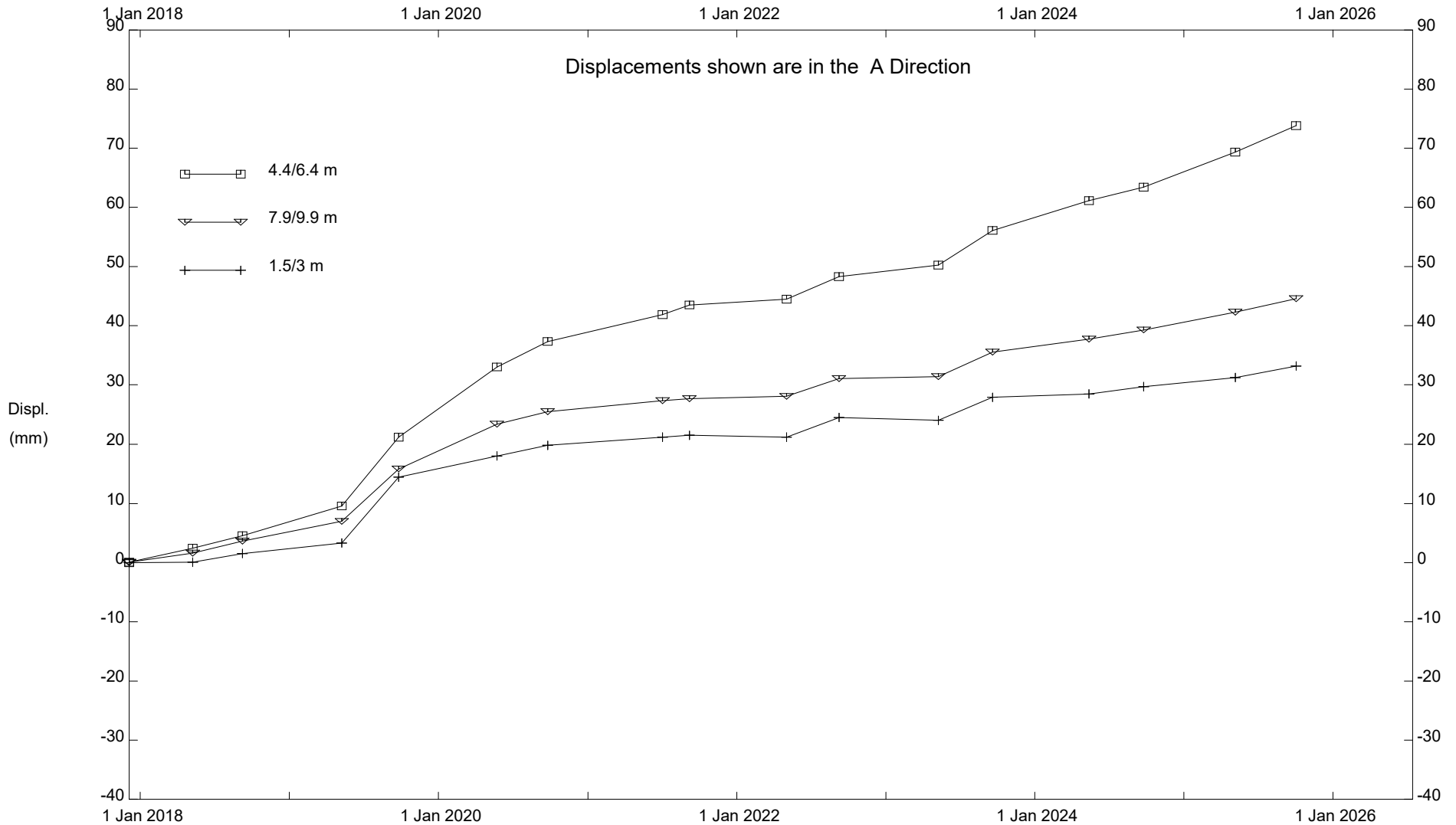


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HWY 40:30 West of Wildhay River (NC83), Inclinator SI17-01

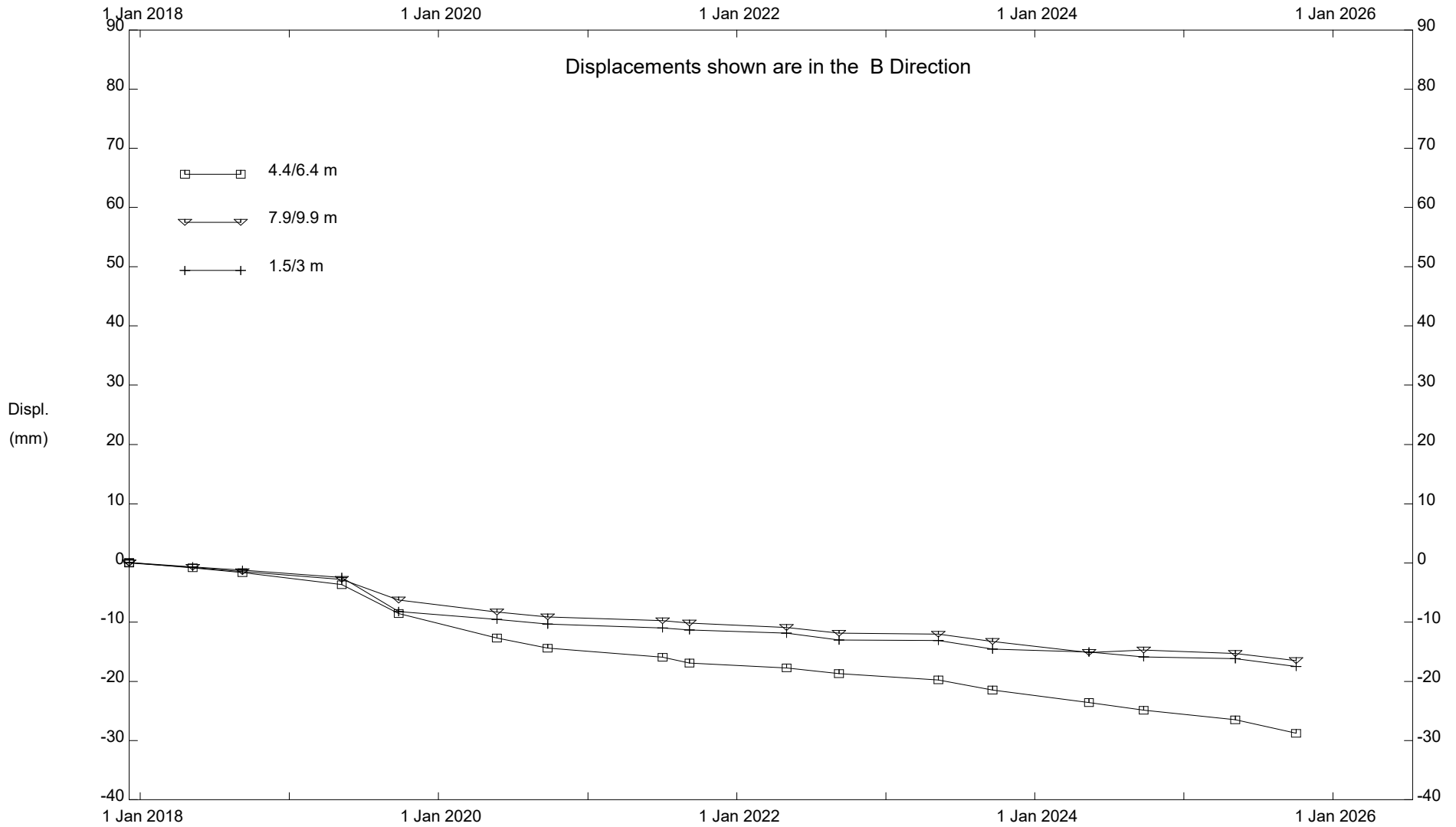
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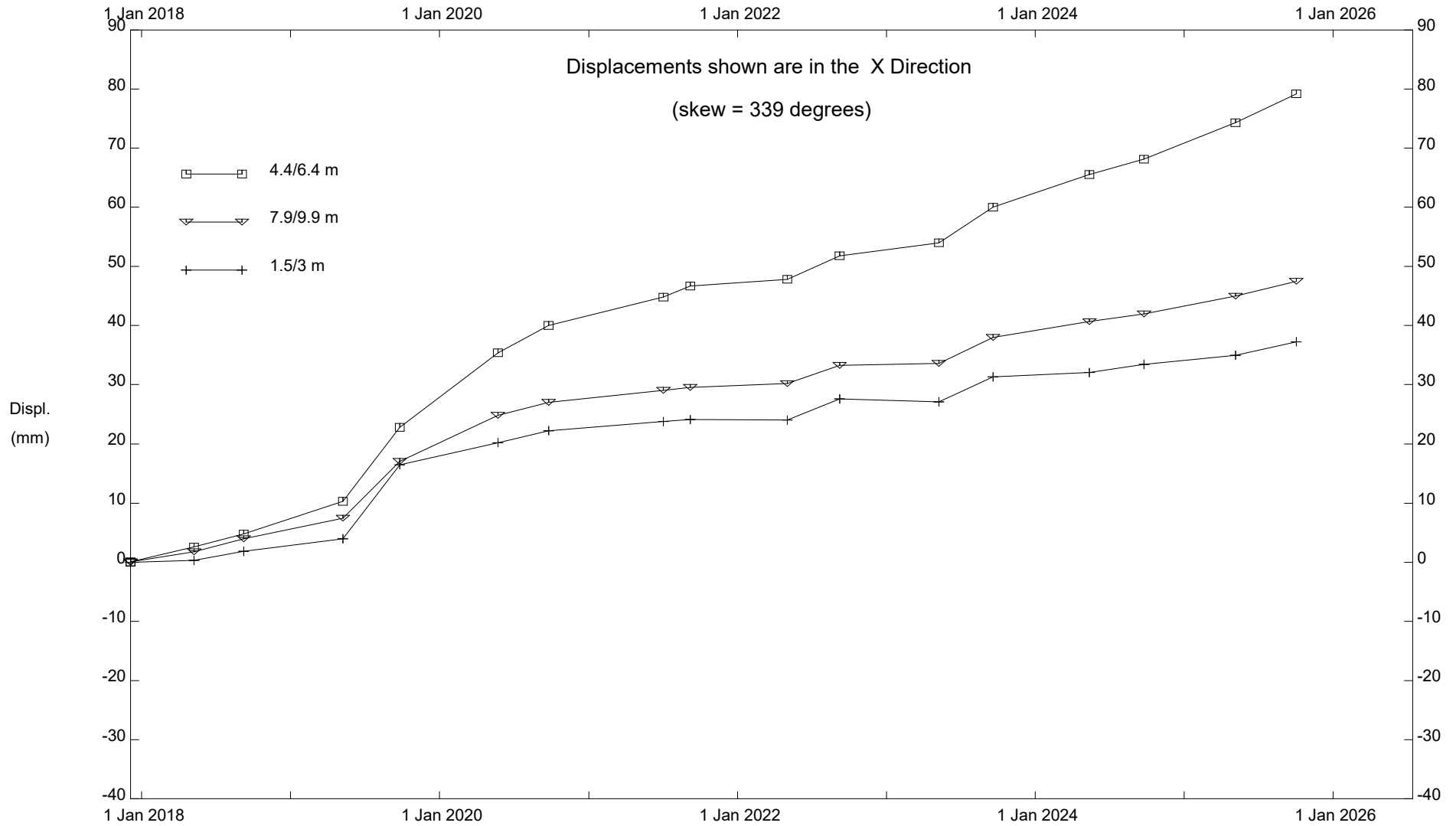
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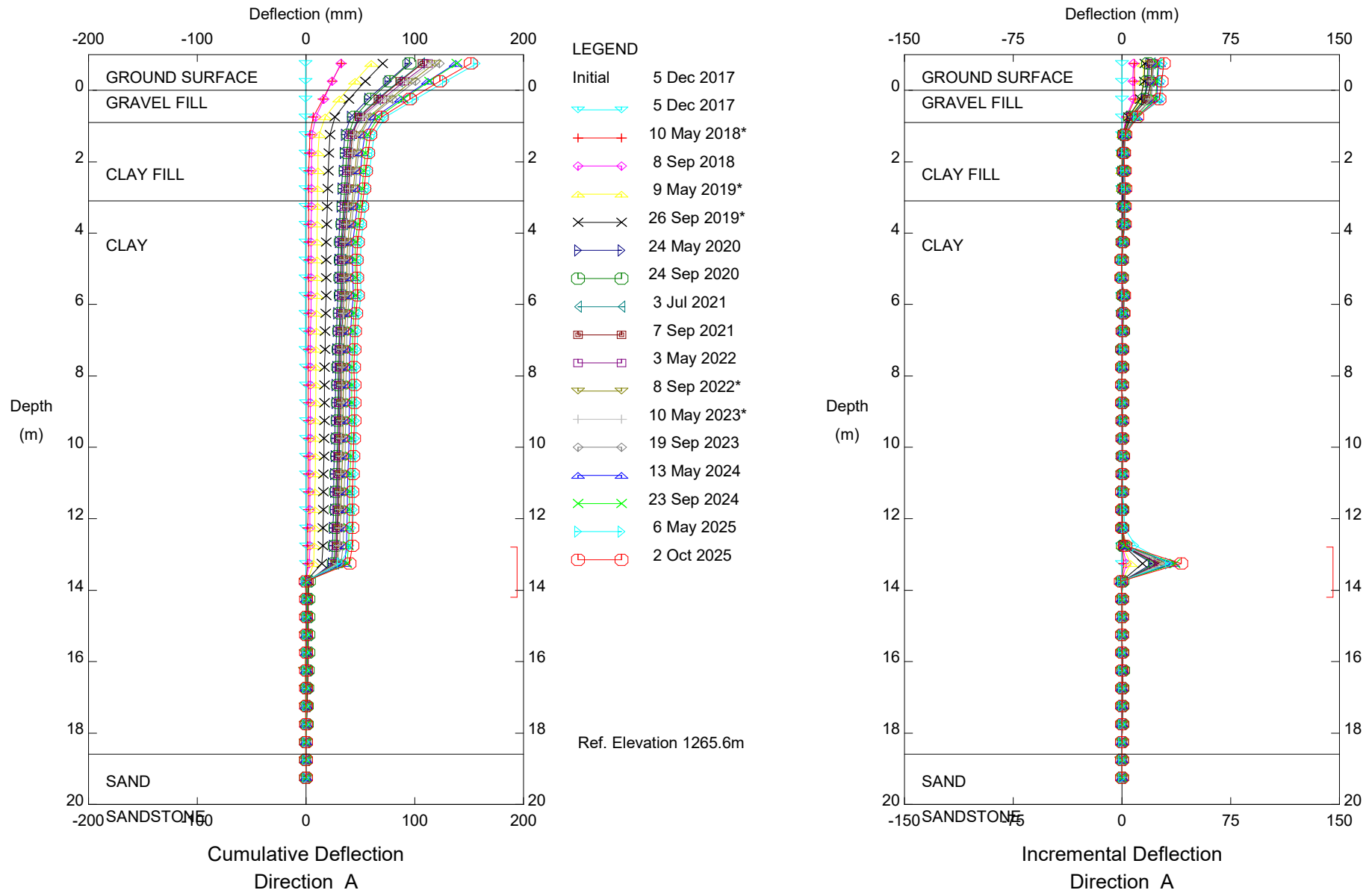
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HWY 40:30 West of Wildhay River (NC83), Inclinator SI17-01

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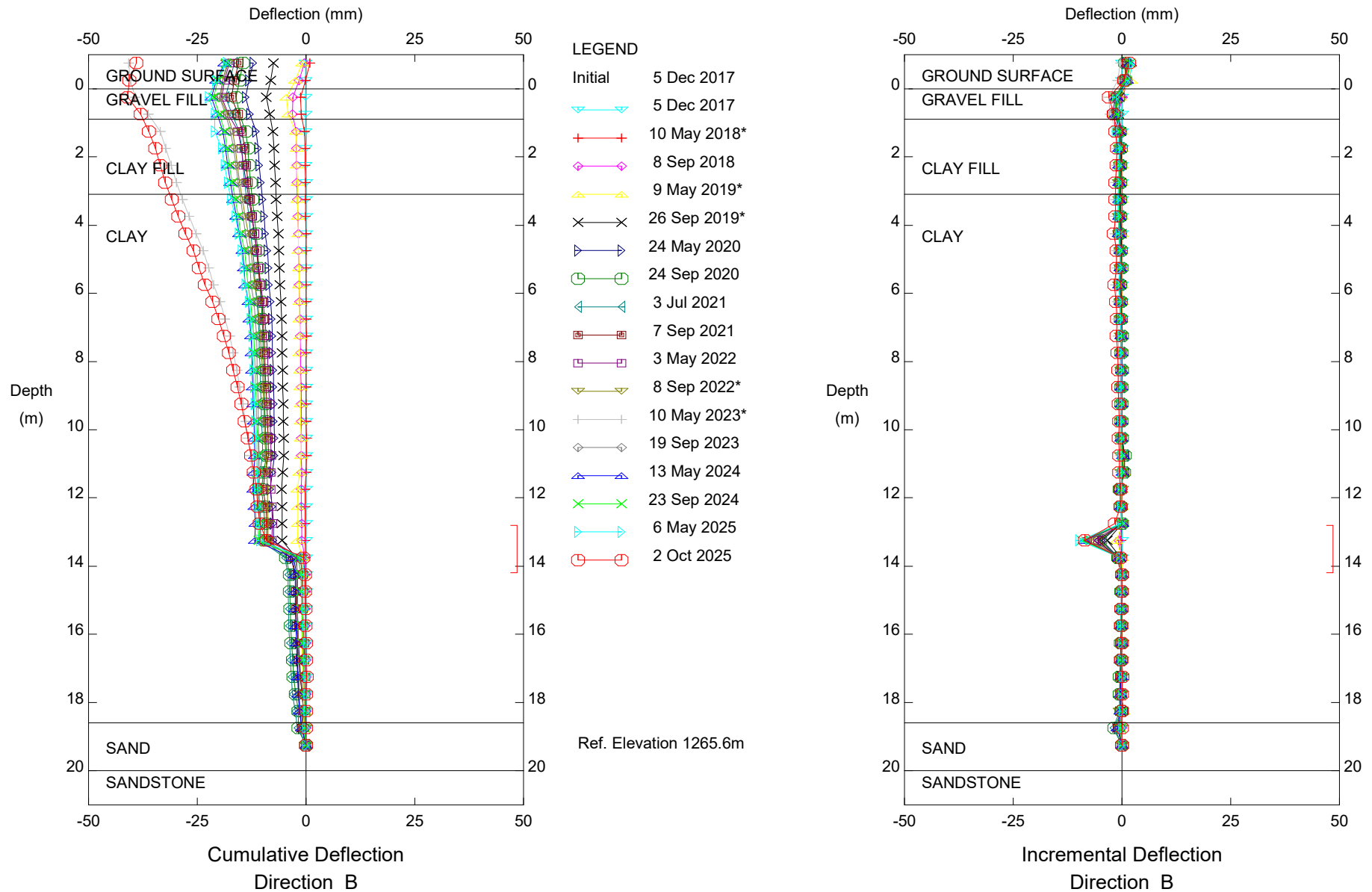


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Sets marked * include zero shift and/or rotation corrections.

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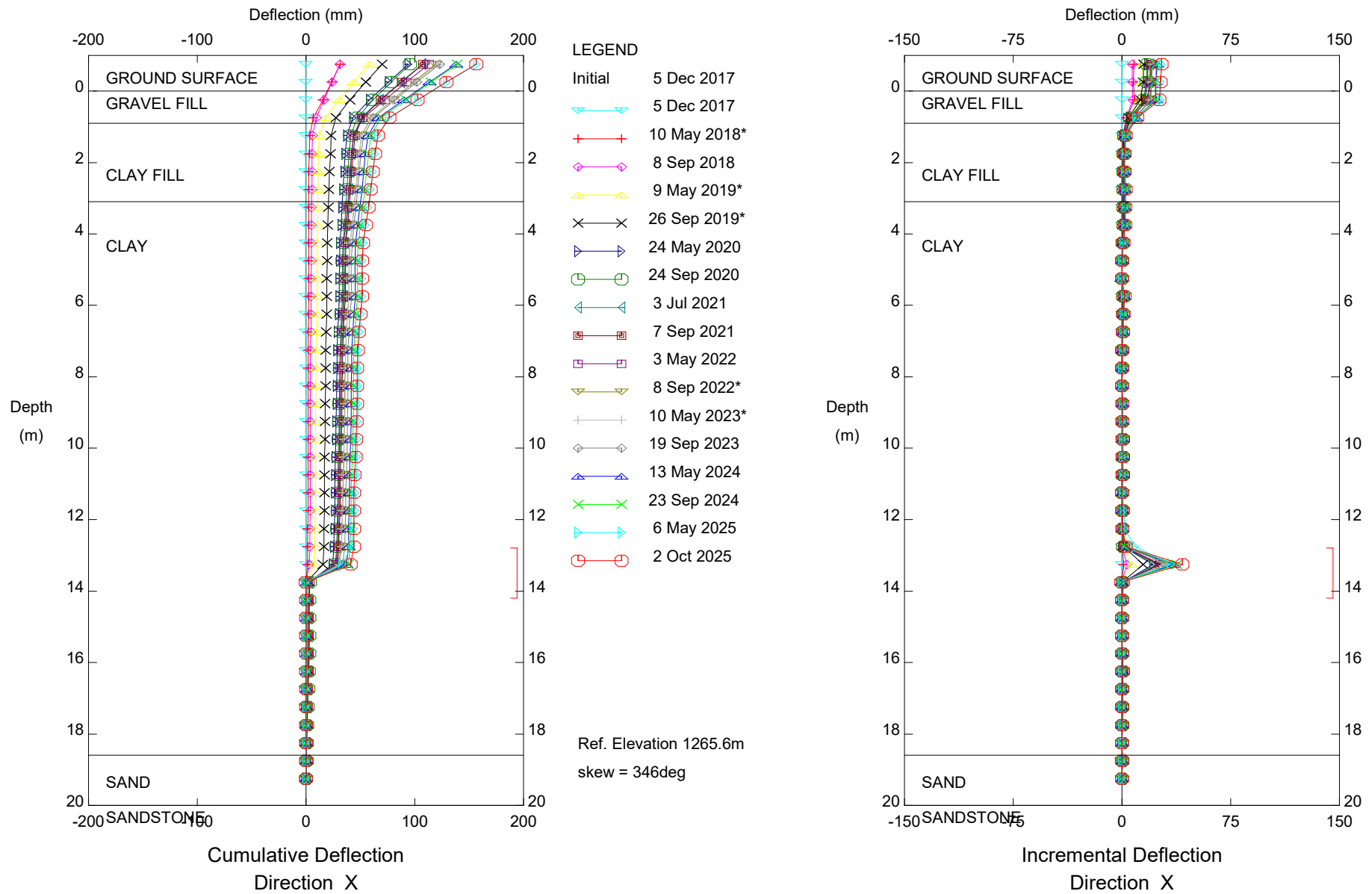


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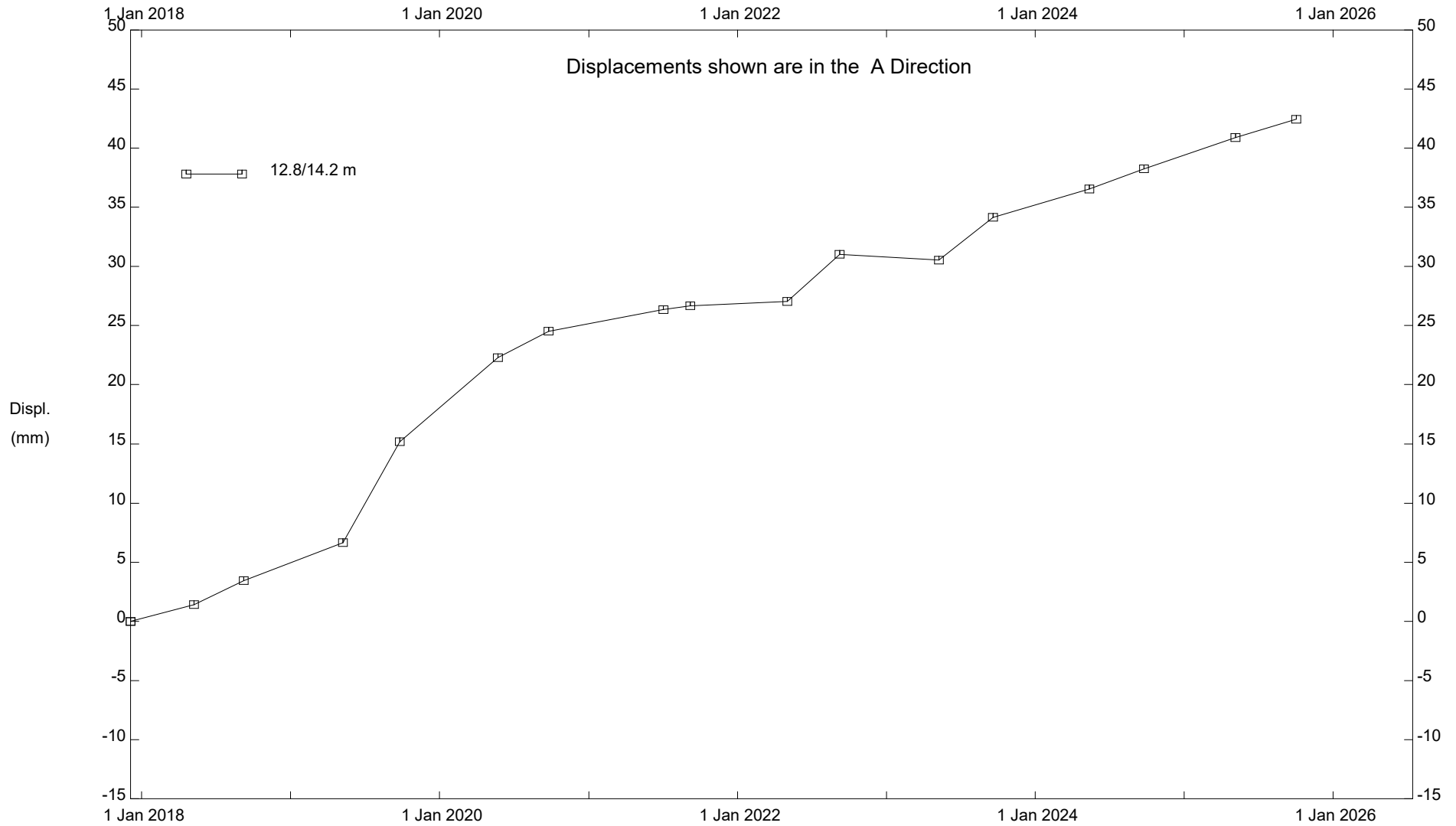


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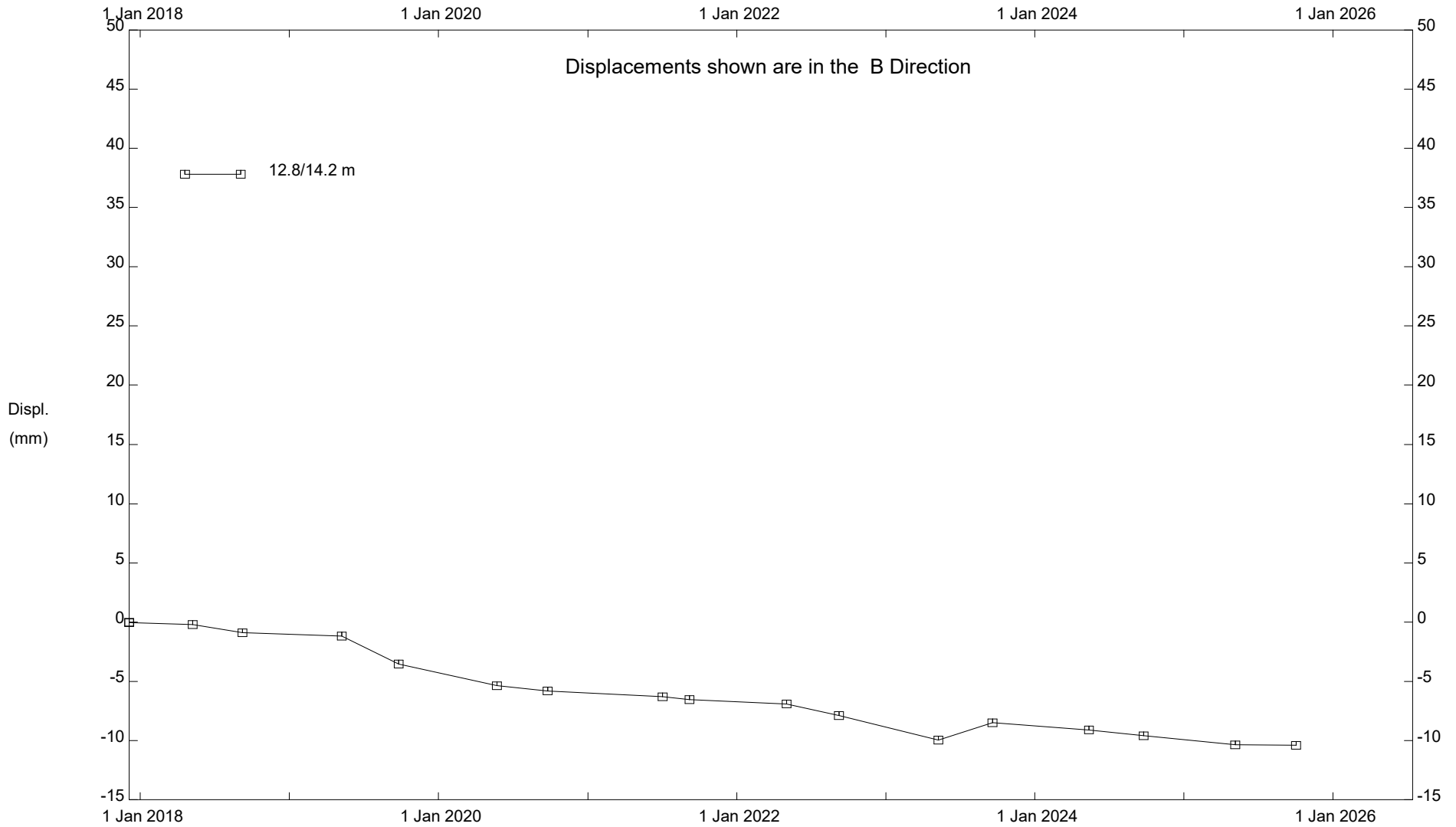
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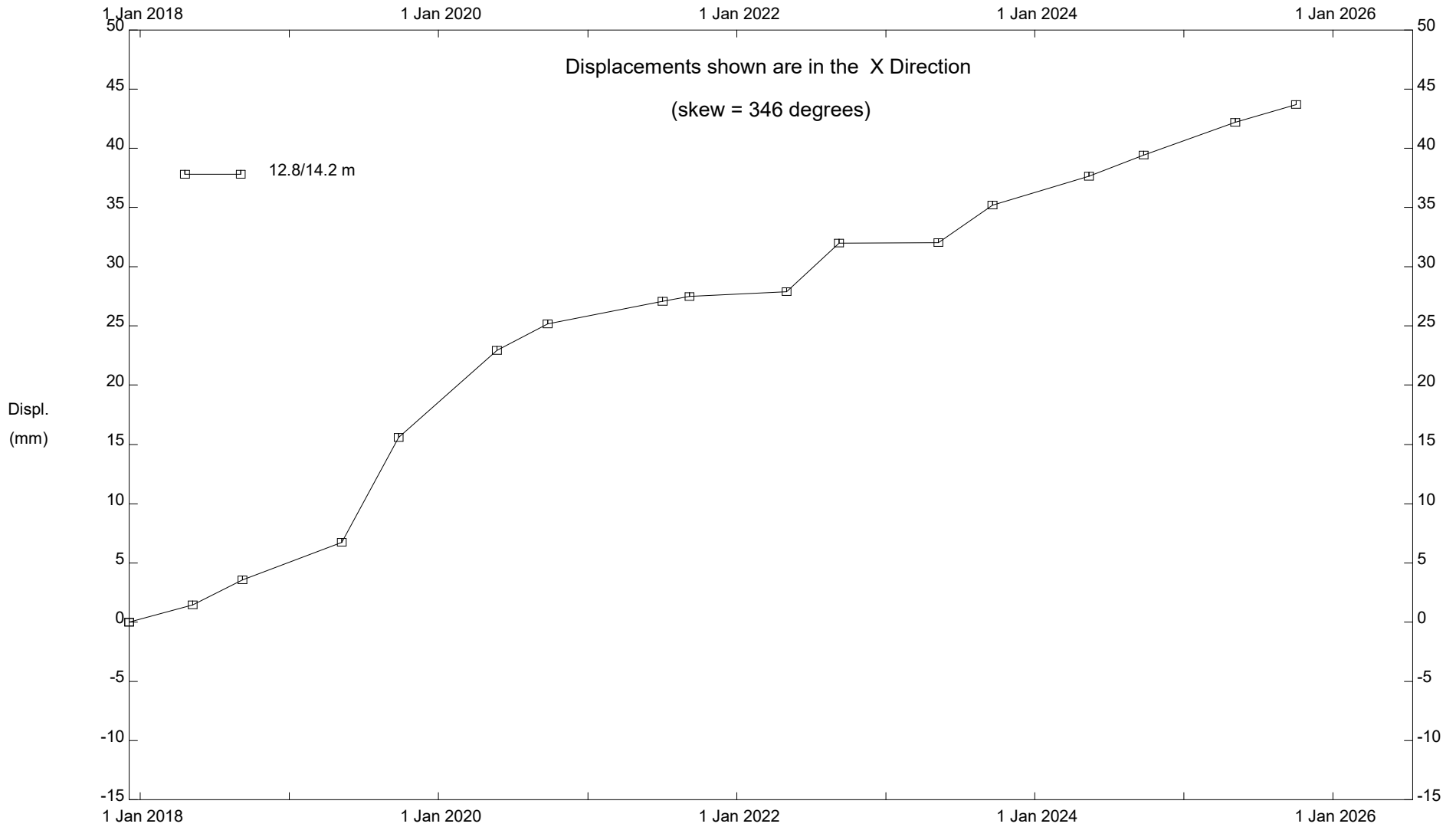
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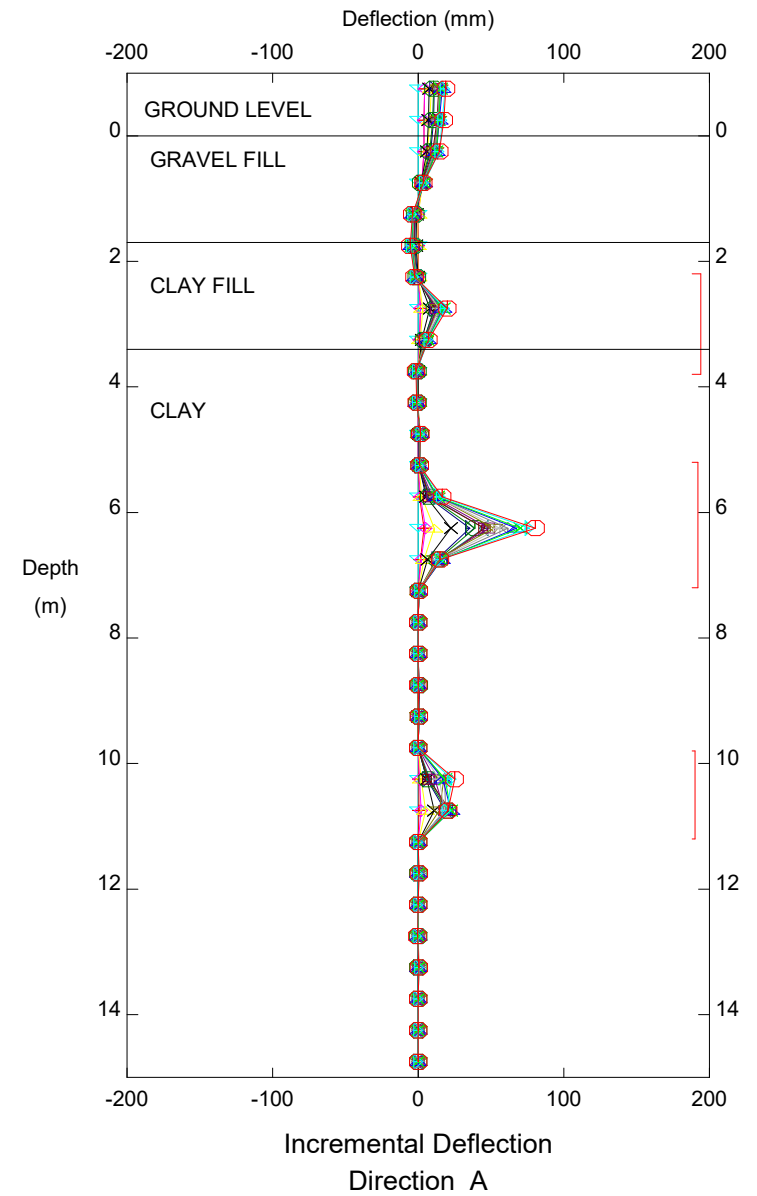
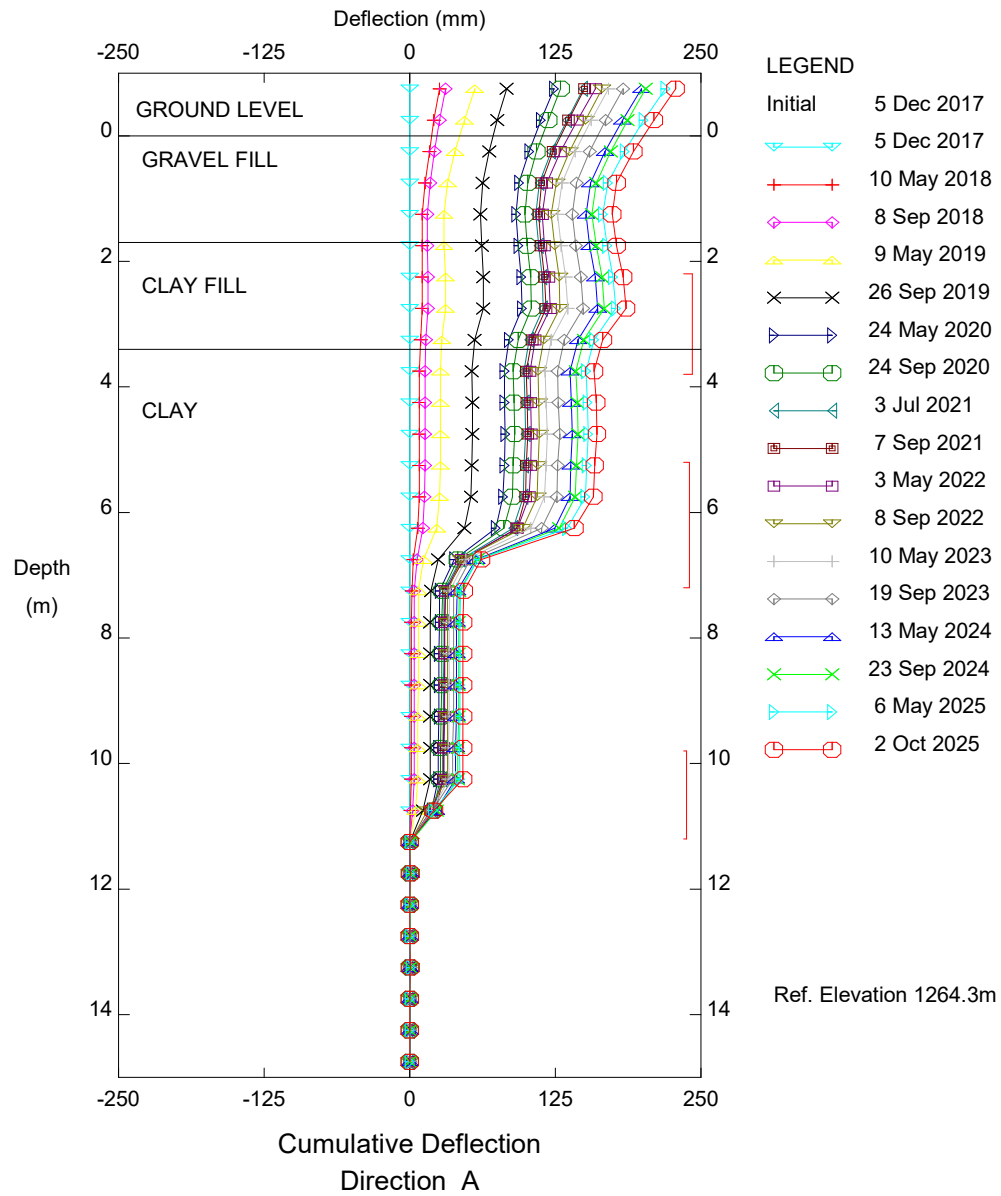
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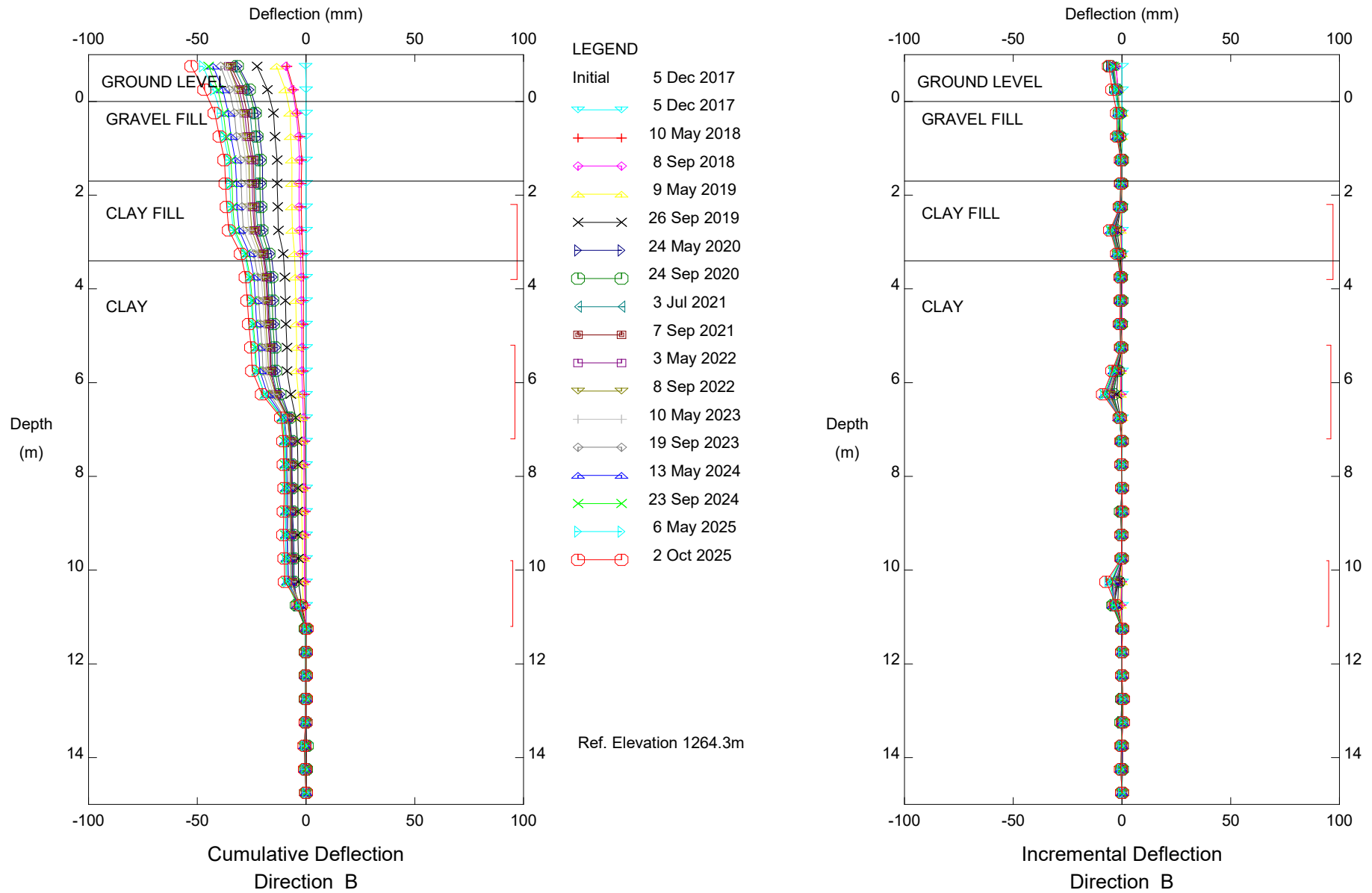
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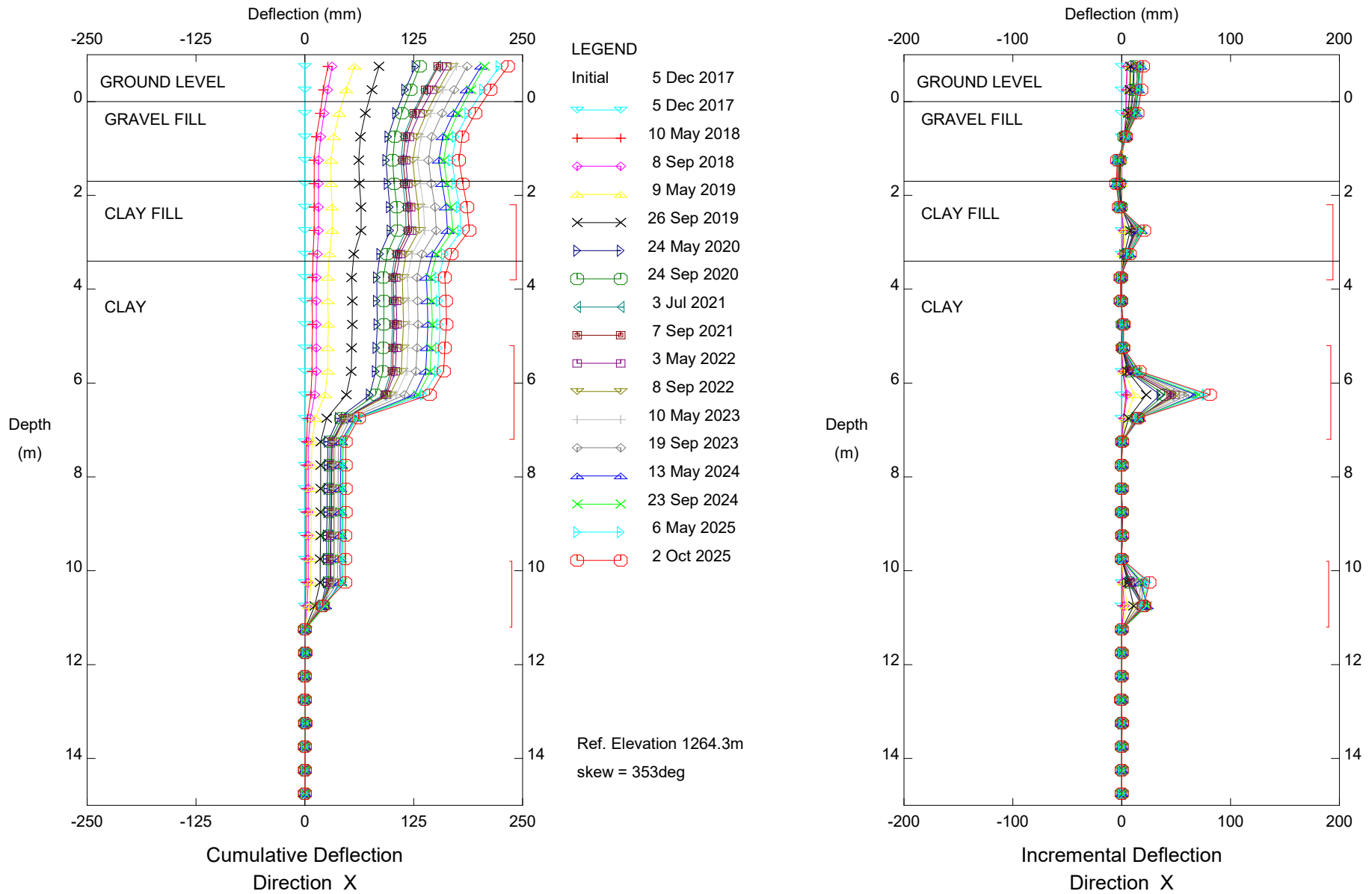


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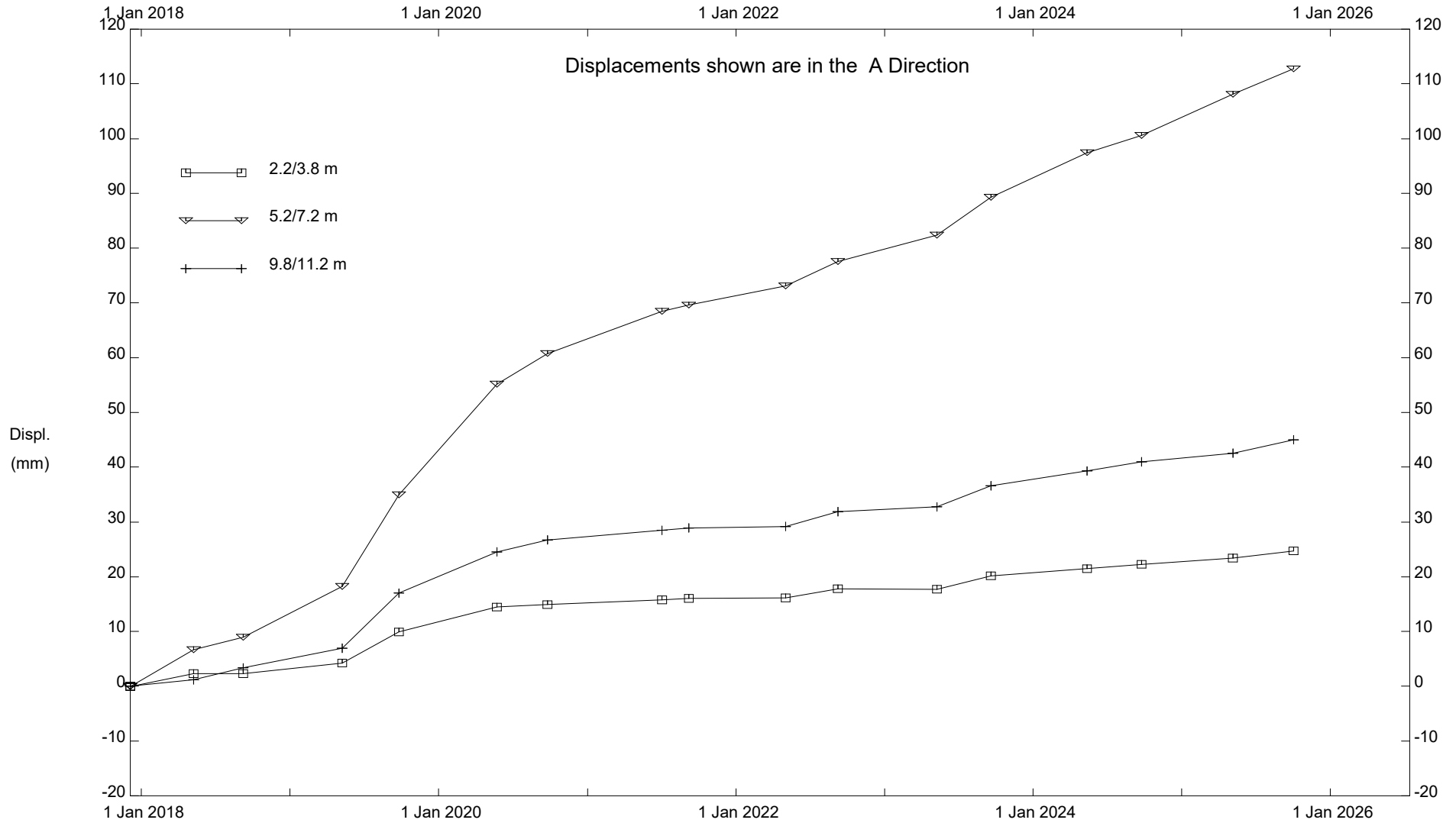
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Transportation & Economic Corridors

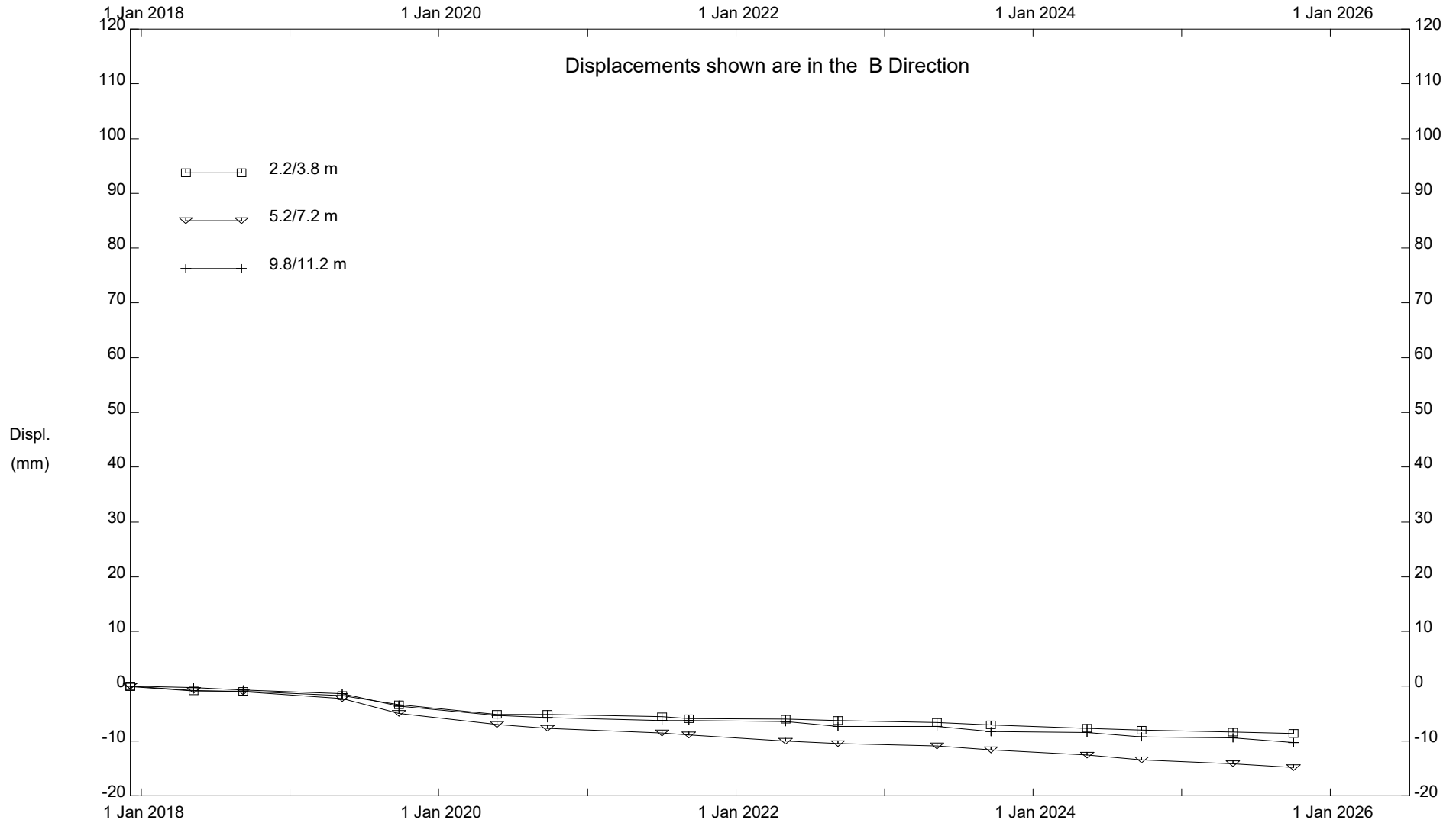


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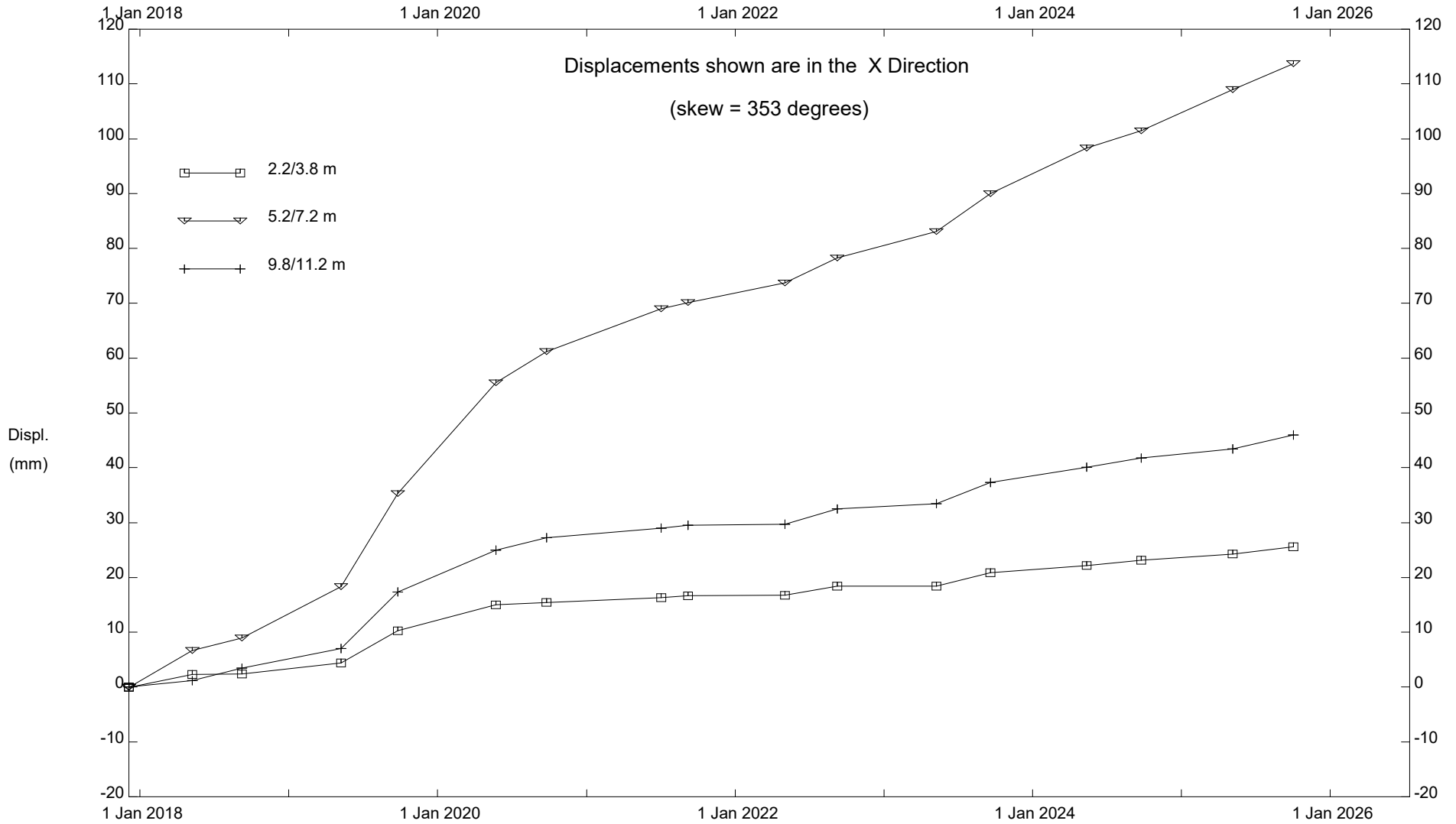
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HWY 40:30 West of Wildhay River (NC83), Inclinator SI17-03

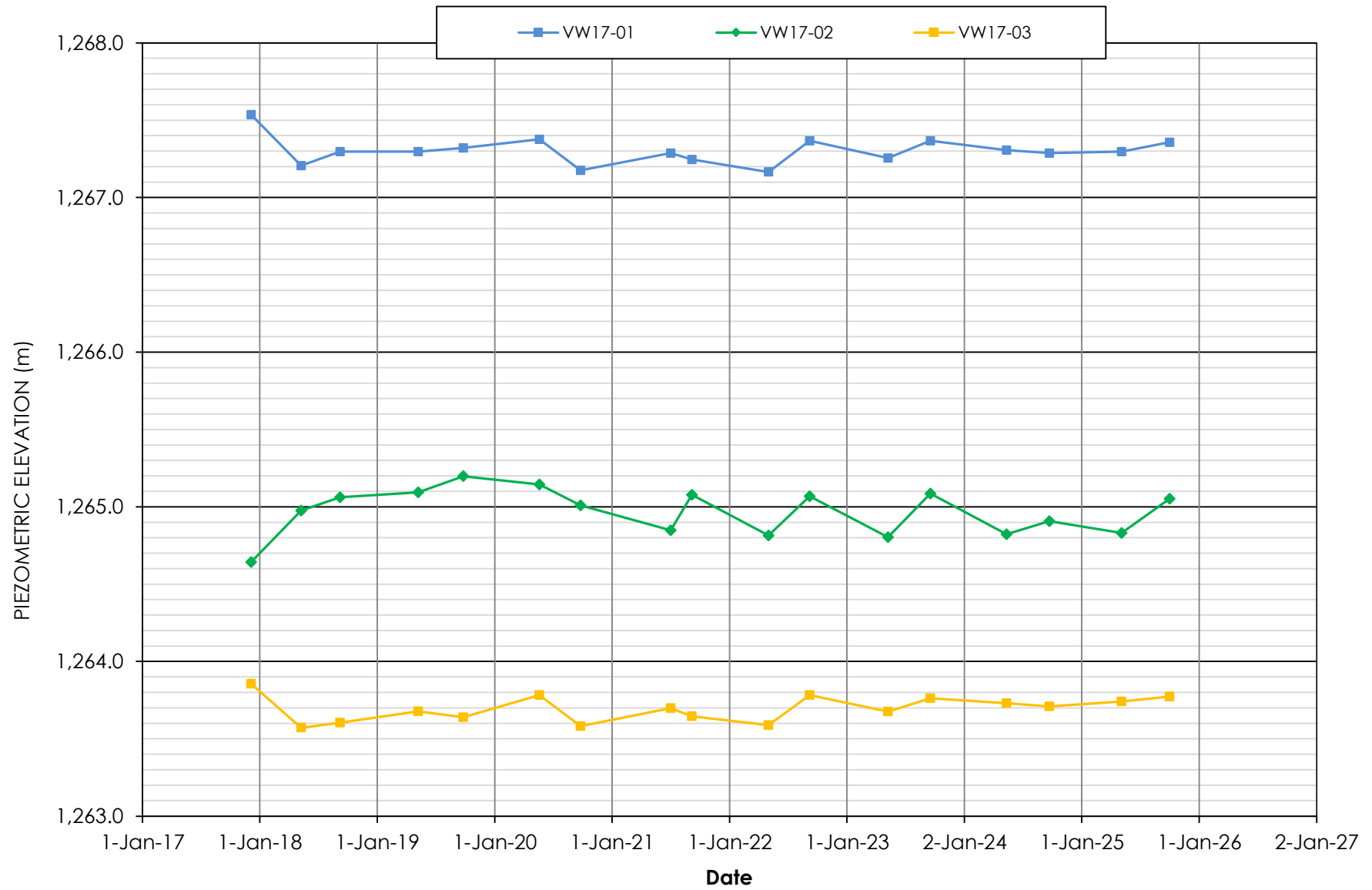
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HWY 40:30 West of Wildhay River (NC83), Inclinator SI17-03

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PIEZOMETER DATA



PIEZOMETER DATA

