

ALBERTA TRANSPORTATION AND
ECONOMIC CORRIDORS GRMP
PEACE REGION – (PEACE RIVER DISTRICT)
INSTRUMENTATION MONITORING - SPRING 2025



Site Number	Location	Name	Hwy	km
PH041	Hwy 986:01 C1 31.92	Daishowa East Hill	986:01	31.9
Legal Description:		UTM Co-ordinates		
16-12-85-21 W5		11U E 489840	N	6246240

Current Monitoring:	8-Jun-2025	Previous Monitoring	19-May-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): SI-1 SI-2	Pneumatic Piezometers (PN): N/A	Vibrating Wire Piezometers (VW): N/A	Standpipe Piezometers (SP): N/A
Load Cell (LC): N/A	Strain Gauges: N/A	SAA's: N/A	Others:

Readout Equipment Used			
Slope Inclinometers: RST Digital Inclinometer probe with 2 ft wheelbases and RST pocket readout.	Pneumatic Piezometers: N/A	Vibrating Wire Piezometers: N/A	Standpipe Piezometers: N/A
Load Cell: N/A	Strain Gauges: N/A	SAA's: N/A	Others: N/A
Note:			

Discussion	
Zones of New Movement:	None
Interpretation of Monitoring Results:	<p>Slope inclinometer SI-1 has several subtle zones of movement. No discernible movement was recorded over 0.1 m to 1.9 m depth nor over 1.9 m depth to 4.9 m depth, corresponding to decreases in rate of movement of 8.0 mm/yr and 2.0 mm/yr, respectively, since the spring of 2024 readings. SI-1 showed a rate of movement of 0.4 mm/yr over 4.9 m to 7.4 m depth, and a rate of movement of less than 0.1 mm/yr over 7.4 m depth to 8.6 m depth. Since 2007 the long-term movement rate at these the upper three zones is about 0.6 mm/year; the long term rate in the lowest movement zone is about 0.3 mm/year.</p> <p>Slope inclinometer SI-2 showed rates of movement of 0.5 mm/yr and 0.5 mm/yr over 5.6 m to 8.6 m depth and 13.5 m to 14.7 m depth, respectively, since the spring of 2024 readings. The long-term movement rates are 0.9 mm/year and 0.5 mm/year respectively. Both slope indicators show more rapid movements in the upper movement zones relative to the lower movement zones.</p>
Future Work:	The instruments should be read again during the spring of 2026 reading program.
Instrumentation Repairs:	No instrument repairs are required at this time.
Additional Comments:	

Attachments:	<ul style="list-style-type: none"> • Table PH041-1 Spring 2025 – Daishowa East Hill (12+000) Inclinator Reading Summary • Statement for Use and Interpretation of Report • APPENDIX A - PH041-1 SPRING 2025 <ul style="list-style-type: none"> ○ Field Inspector's Report ○ Site Plan Showing Approximate Instrument Locations (Drawing No. 32121-PH041) ○ SI Reading Plots
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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.
Roger Skirrow, M.Sc., P. Eng.
Senior Geotechnical Engineer

Lucas Green, P.Eng.
Geotechnical Engineer

Table Ph041-1 Spring 2025 – Daishowa East Hill (12+000) Slope Inclinometer Instrumentation Reading Summary

Date Monitored: June 8, 2025

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AT NOTED DEPTH SINCE INITIAL READING (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)
SI-1	Dec. 1, 1995	52.8 mm over 0.1 m to 1.9 m depth in 11° direction	16.5 mm/yr between May 1997 and May 1998	Operational	June 15, 2023	No Discernible Movement	N/A	-8.0
		34.6 mm over 1.9 m to 4.9 m depth in 11° direction	4.6 mm/yr between May 1997 and May 1998			No Discernible Movement	N/A	-2.0
		17.3 mm over 4.9 m to 7.4 m depth in 47° direction	3.3 mm/yr between May and September 2014			0.4	0.4	0.2
		8.4 mm over 7.4 m to 8.6 m depth in 47° direction	5.1 mm/yr Between October and December 1997			0.1	<0.1	-0.1
SI-2	Apr. 9, 1996	16.5 mm over 5.6 m to 8.6 m depth in 52° direction	2.9 mm/yr in December 1996	Operational	June 12, 2022	0.6	0.5	-0.8
		15.1 mm over 13.5 m to 14.7 m depth in 9° direction	1.8 mm/yr in October 2005			0.5	0.5	0.3

Drawing 32121-PH041 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

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.



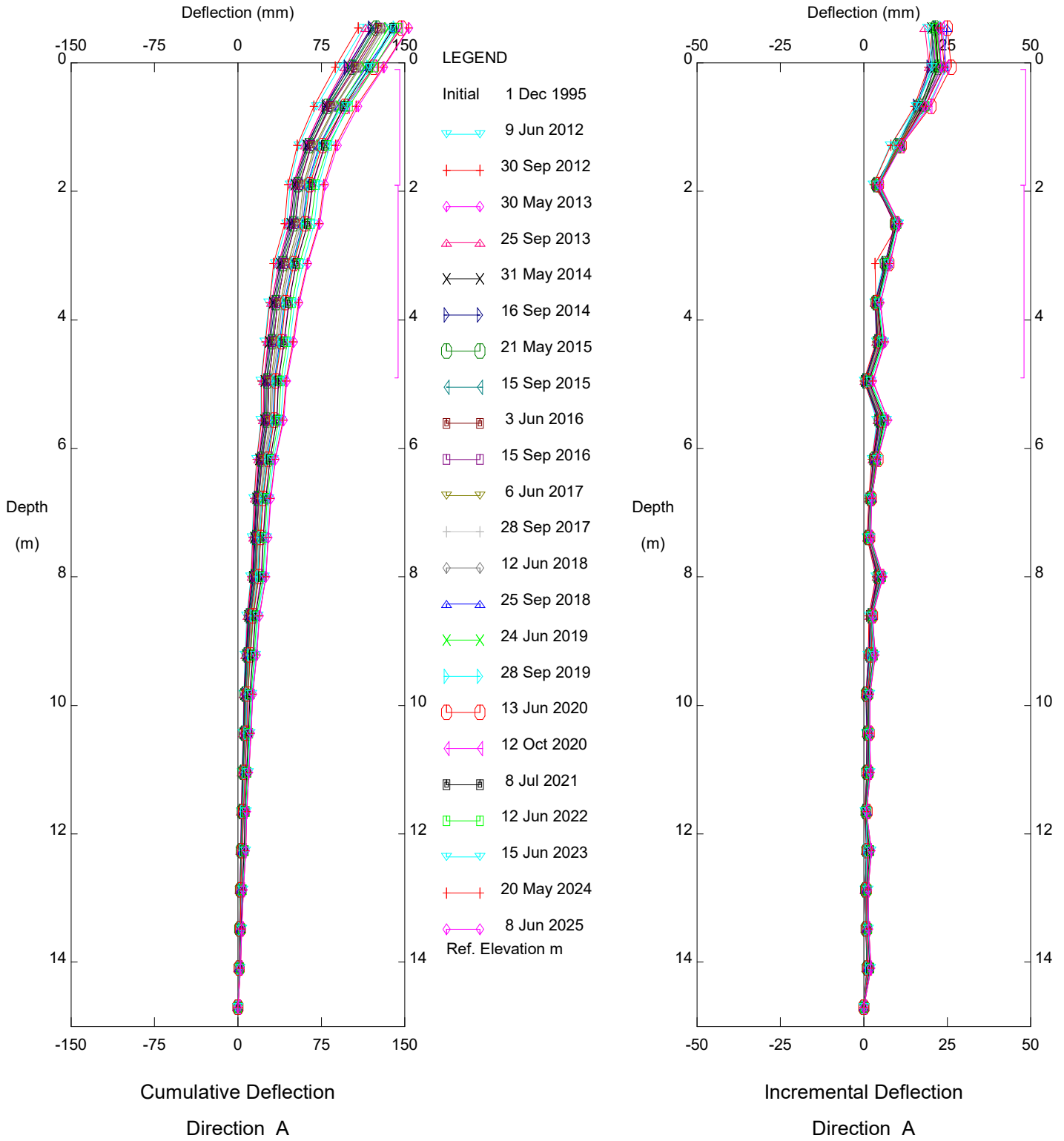
**ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS GRMP (CON0022164)
PEACE REGION (PEACE RIVER DISTRICT)
INSTRUMENTATION MONITORING RESULTS**

SPRING 2025

**APPENDIX A
DATA PRESENTATION**

**SITE PH041: HWY 986:01, DAISHOWA EAST HILL
(STATION 12+000 SITE 5 GULLY AND DITCH)**

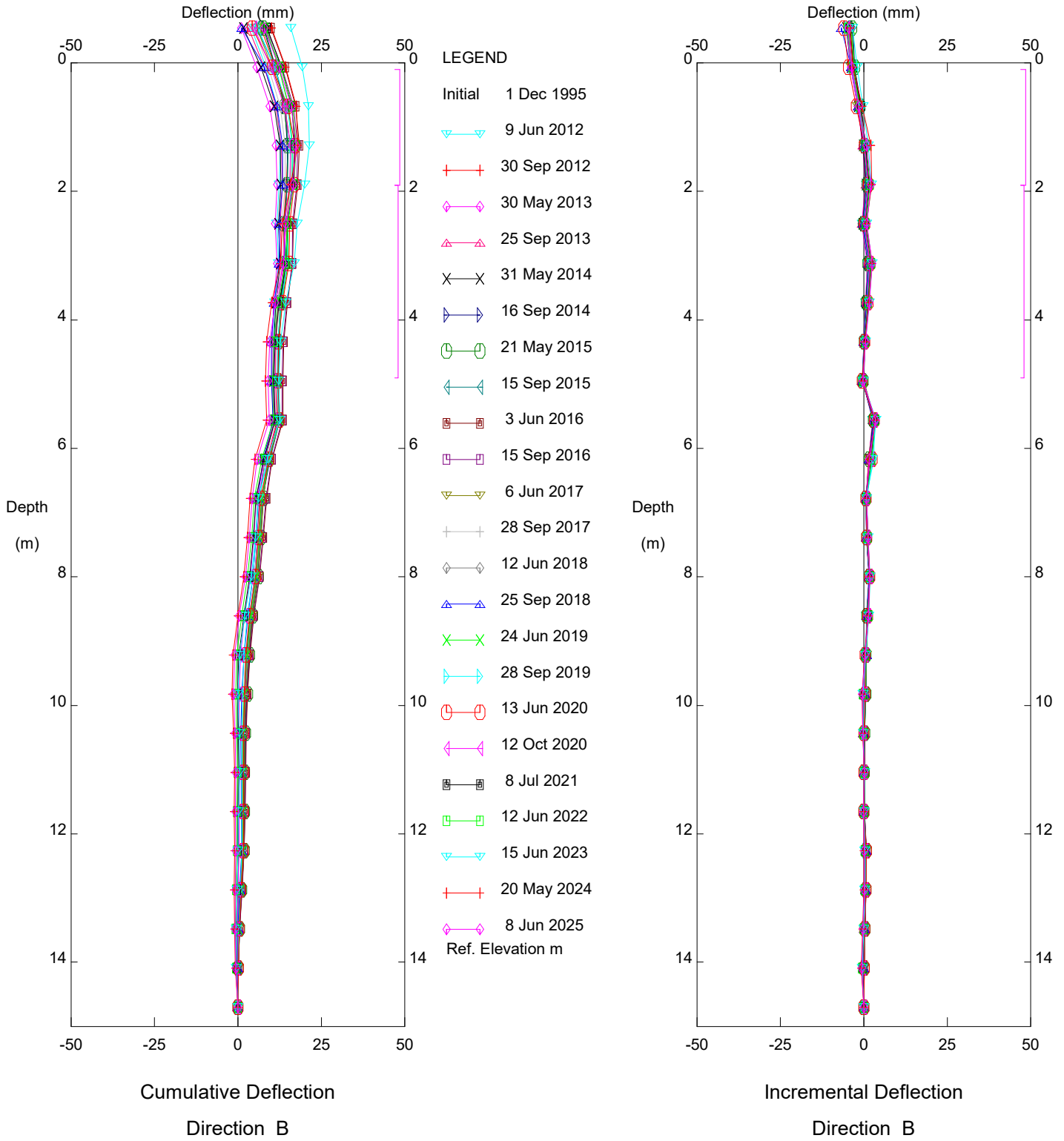
Thurber Engineering Ltd.



HWY 986:01 - STA. 11+960, Inclinometer SI1

Alberta Transportation

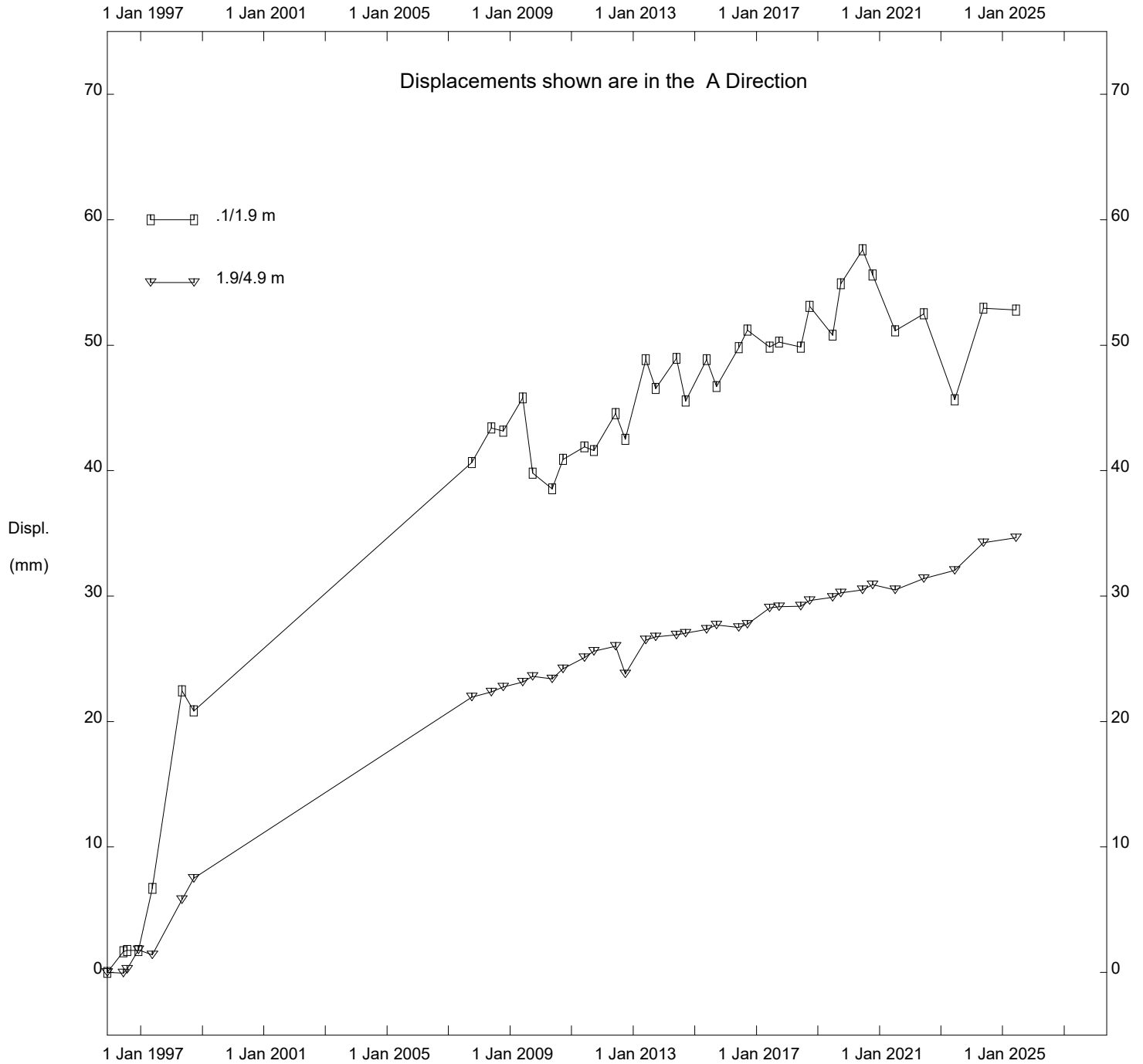
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HWY 986:01 - STA. 11+960, Inclinometer SI1

Alberta Transportation

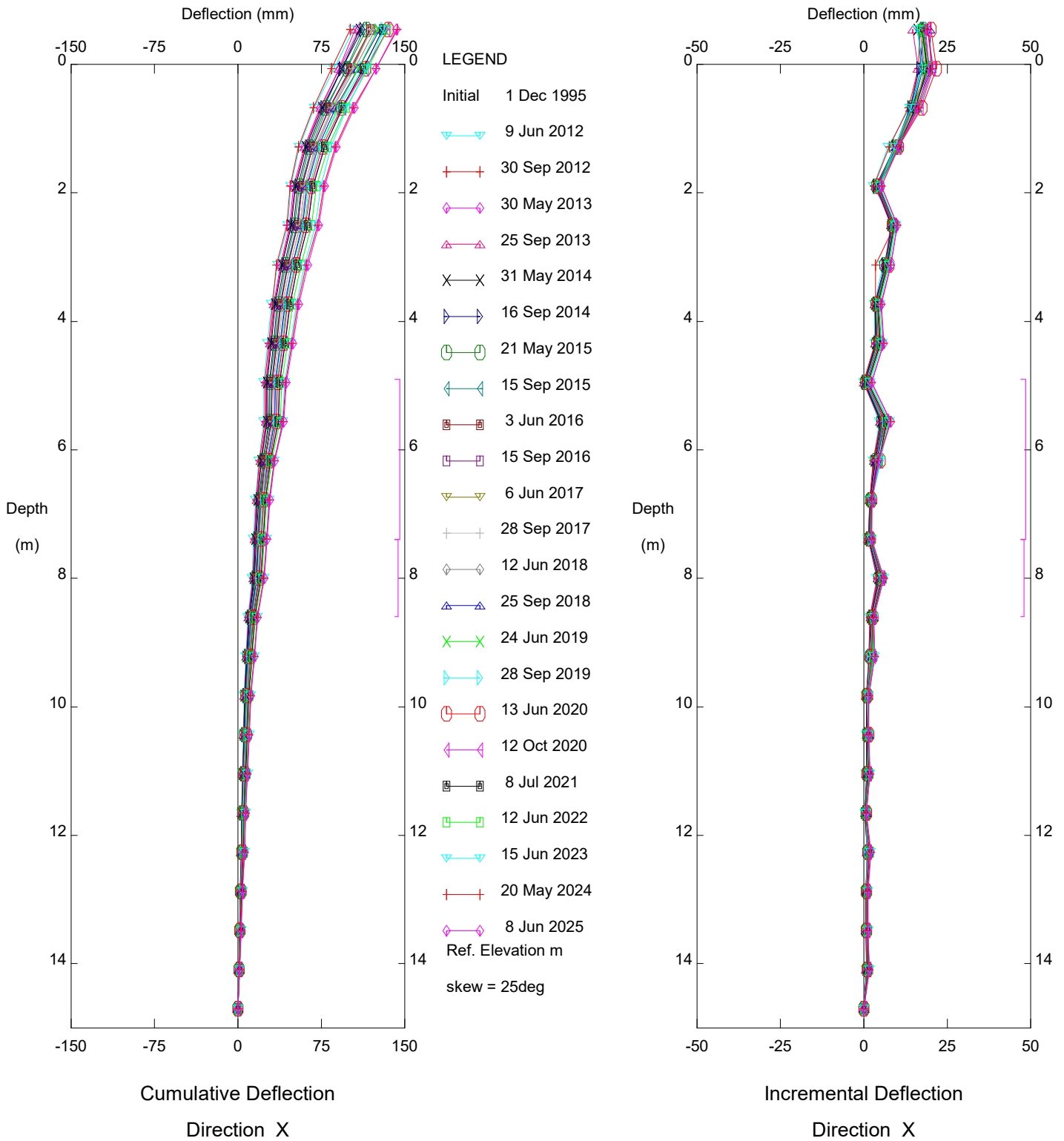
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HWY 986:01 - STA. 11+960, Inclinator SI1

Alberta Transportation

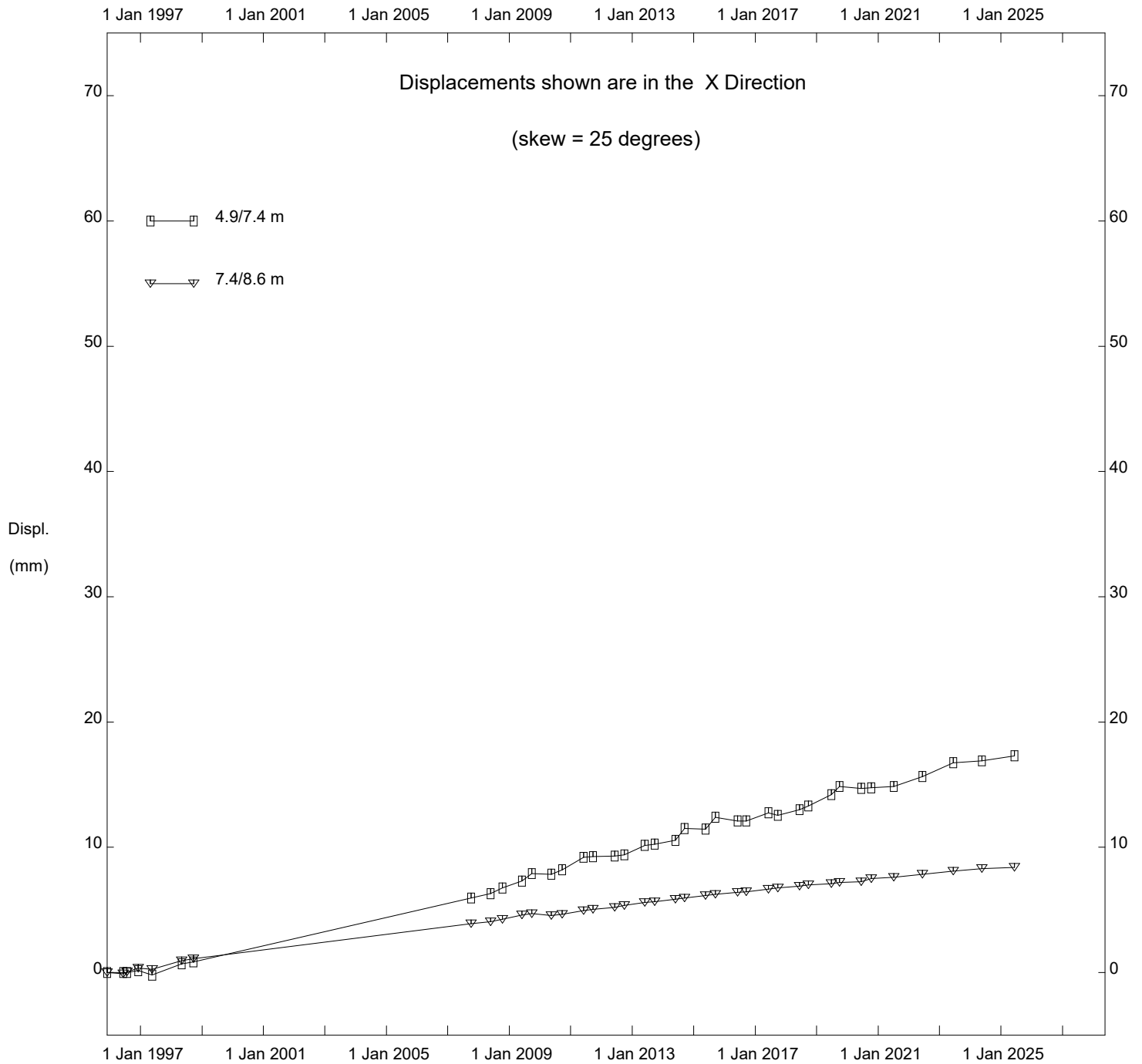
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HWY 986:01 - STA. 11+960, Inclinometer SI1

Alberta Transportation

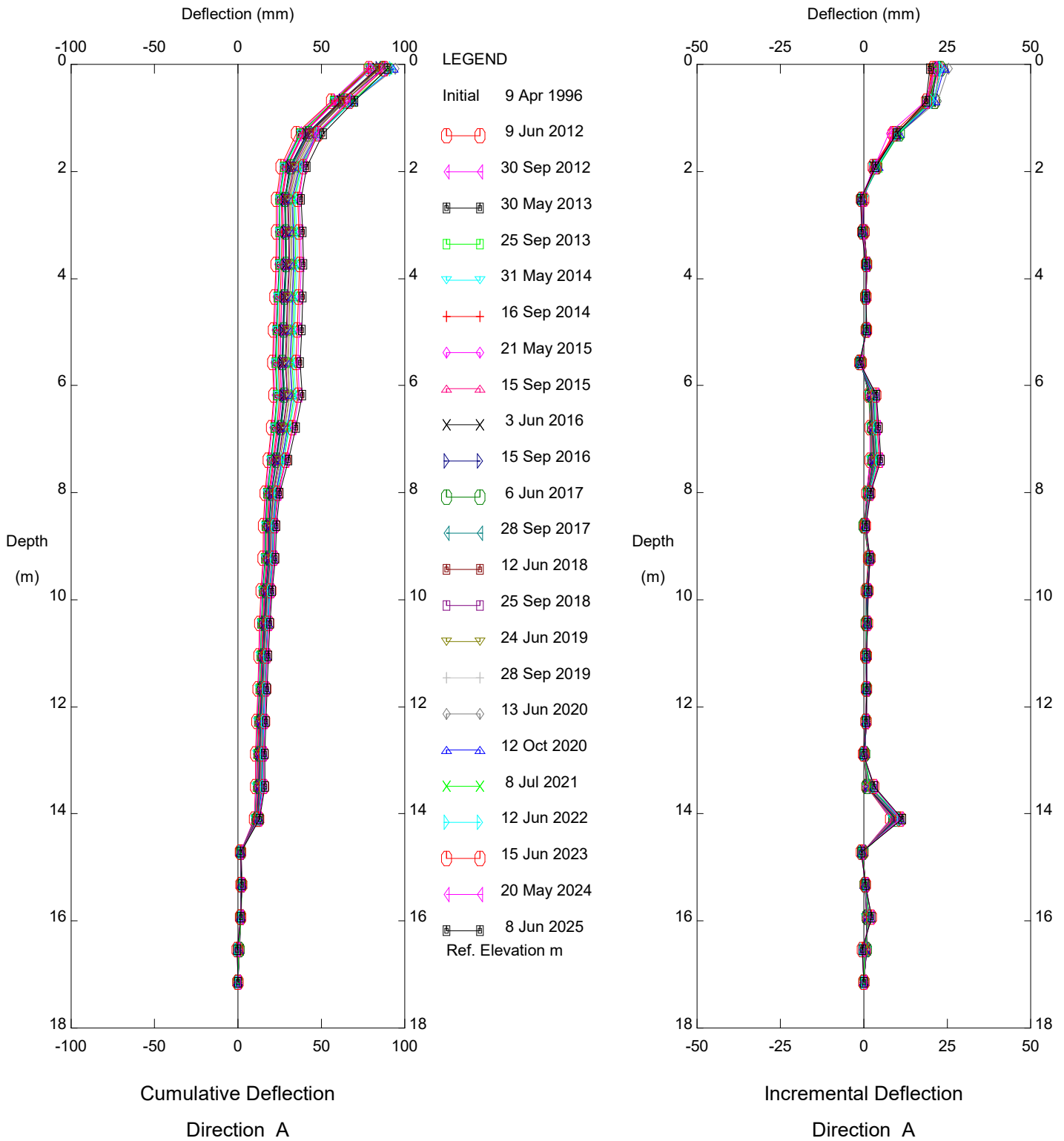
Thurber Engineering Ltd.



HWY 986:01 - STA. 11+960, Inclinator SI1

Alberta Transportation

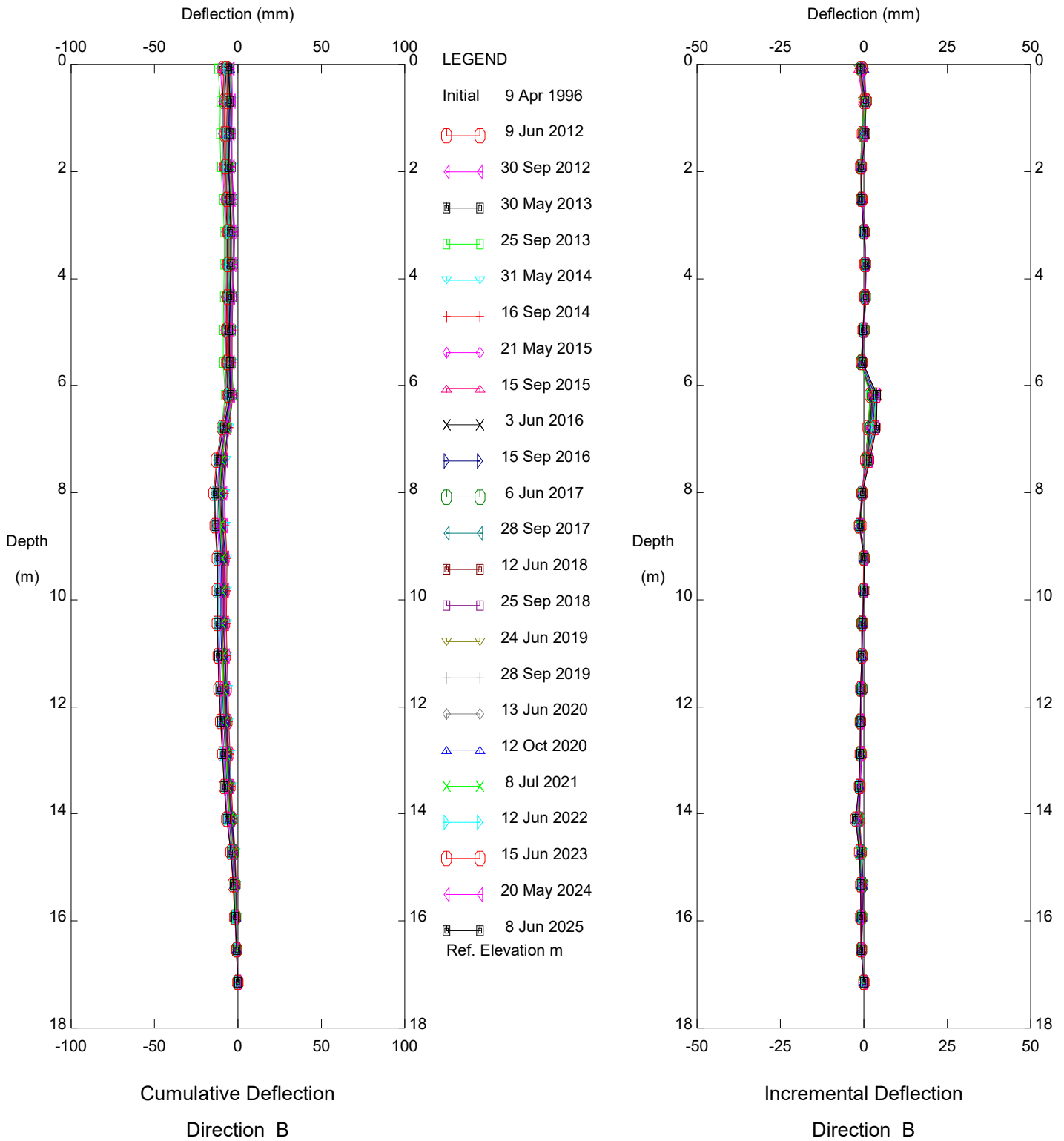
Thurber Engineering Ltd.



HWY 986:01 - STA. 11+960, Inclinator SI-2

Alberta Transportation

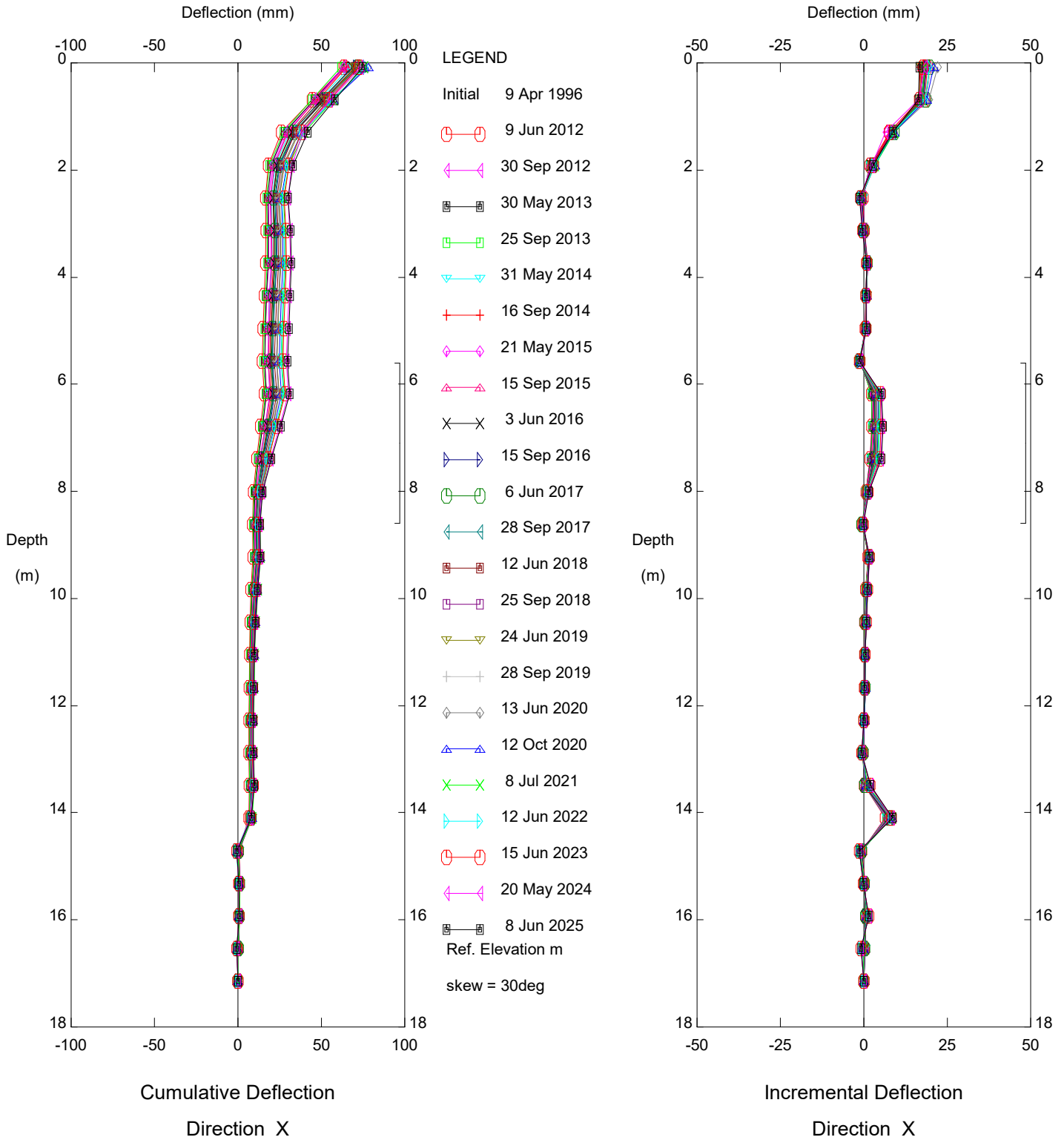
Thurber Engineering Ltd.



HWY 986:01 - STA. 11+960, Inclinometer SI-2

Alberta Transportation

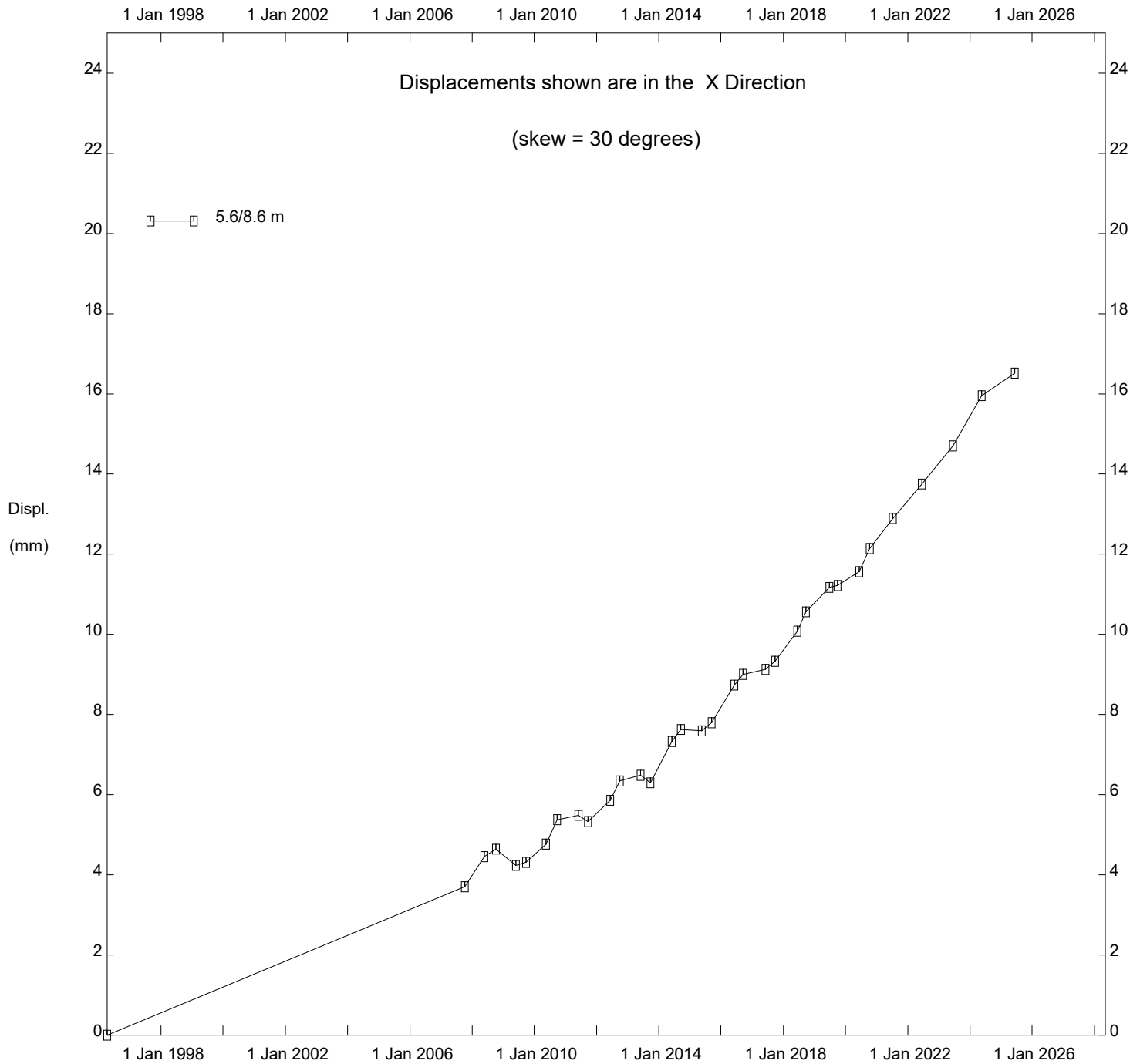
Thurber Engineering Ltd.



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Alberta Transportation

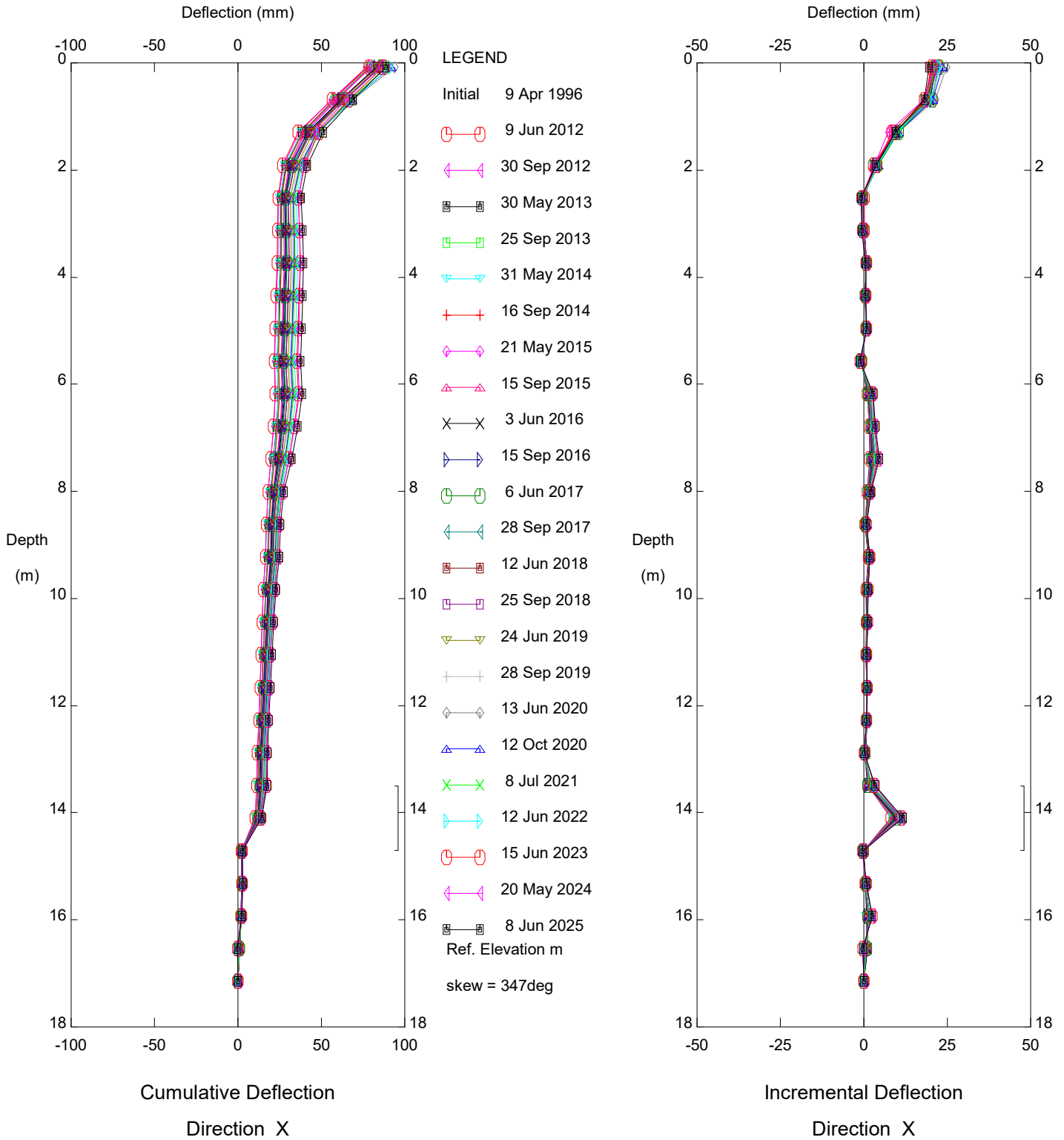
Thurber Engineering Ltd.



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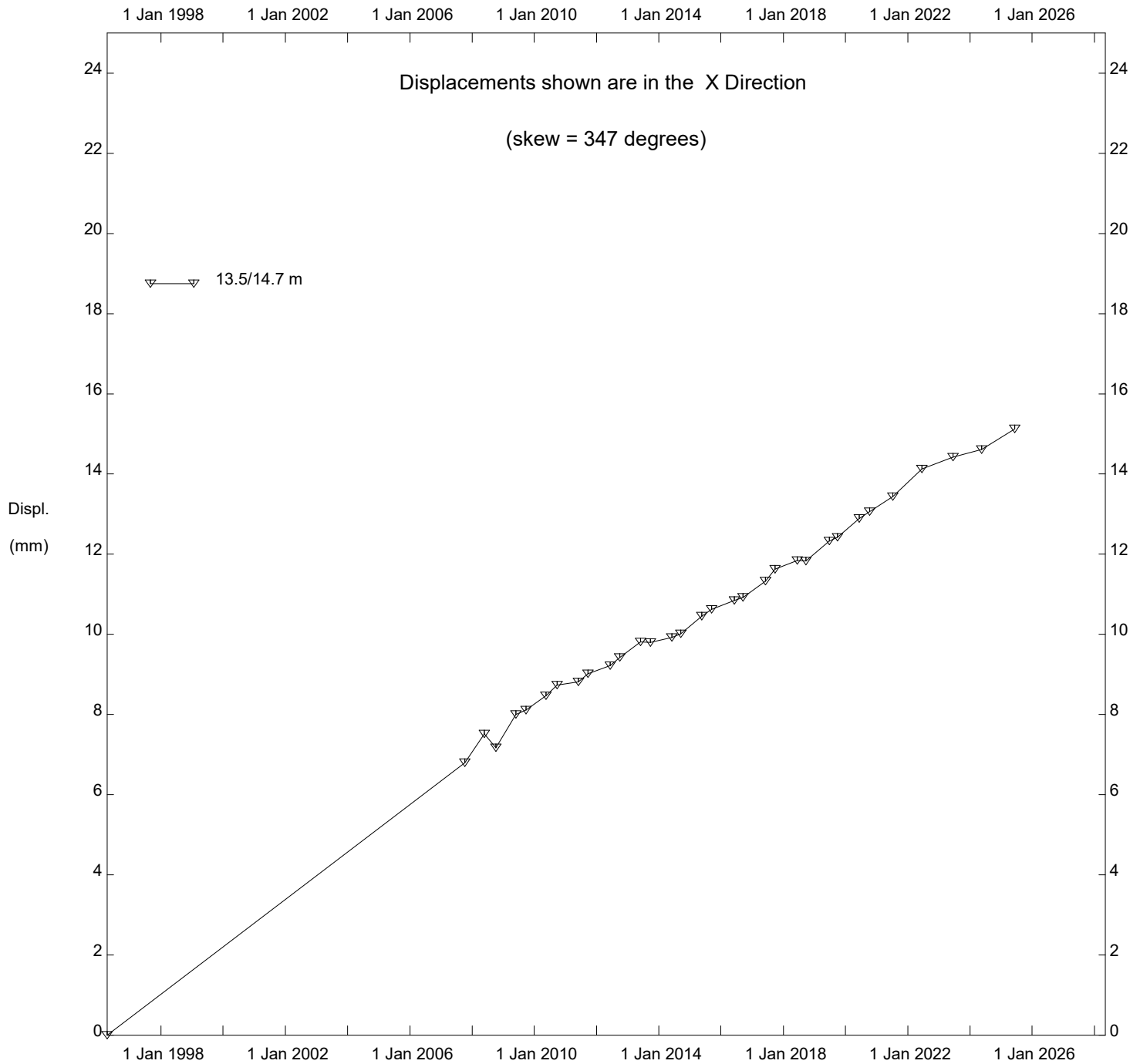
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