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

Site Number	Location	Name	Hwy	km
PH090	HWY 744:04 C1 59.0	Judah Hill Trunk Slide	744:04	Km 59.0
Legal Description:		**UTM Co-ordinates**		
2-29-83-21 W5		11U E 482825.09	N 6230757.65	

Current Monitoring:	28-Sep-2025	**Previous Monitoring**	22-Sep-2024
Instruments Read By:	Mr. Niraj Regmi, G.I.T and Mr. Angelo Castillo, of Thurber		

Instruments Read During This Site Visit			
Slope Inclinometers (SIs): SI98-6i, SI98-7i, SI10-10 and SI10-11	**Pneumatic Piezometers (PN):** PN98-6, PN98-7a, PN10-10, and PN10-11	**Vibrating Wire Piezometers (VW):**	**Standpipe Piezometers (SP):**
Load Cell (LC):	**Strain Gauges:**	**SAAs:**	**Others:**

Readout Equipment Used			
Slope Inclinometers: Two RST Digital Inclinometer probes with 2 ft. wheelbases and RST Pocket PC readouts	**Pneumatic Piezometers:** RST C108 pneumatic piezometer readout	**Vibrating Wire Piezometers:**	**Standpipe Piezometers:**
Load Cell:	**Strain Gauges:**	**SAAs:**	**Others:**
Note:			

Zones of New Movement:	
Interpretation of Monitoring Results:	SI98-6i showed no discernible movement over 0.4 m to 3.4 m depth, 6.5 m to 8.9 m depth, and 0.4 m to 9.5 m depth since the spring of 2025 readings. In general, the movements recorded for SI98-6i have fluctuated and been minimal since 2015. SI98-7i showed a rate of movement of 2.0 mm/yr over 3.3 m to 4.5 m depth since the spring of 2025 readings. The movement pattern is like SI98-6i in that it fluctuates and has not increased since 2015. SI10-10 showed a rate of movement of 7.6 mm/yr over 1.0 m to 8.3 m depth and 0.3 mm/yr over 5.2 m to 8.3 m depth since the spring of 2025 readings. SI10-11 showed a rate of movement of 5.4 mm/yr over 2.0 m to 5.0 m depth since the spring of 2025 readings. Most of the movement at both slope indicator locations is within a clay fill layer. Minor movements may be occurring at 14 m and 28 m depth and should be reviewed again during future readings. Pneumatic piezometers PN98-6, PN10-10, and PN10-11 showed increases in groundwater level of 0.17, 0.01, and 0.02 m, respectively, since the spring of 2025 readings. Pneumatic piezometer PN98-7a showed a decrease in groundwater level of 0.37 m since the spring of 2025 readings. The groundwater level at PN96-6 is approaching the highest recorded levels while the groundwater level at PN98-7a is at the lowest recorded level.
Future Work:	The instruments should be read again in the spring of 2026.

Instrumentation Repairs:	No instrument repairs are required at this time.
Additional Comments:	

Attachments:	▪ Table PH090-1: Fall 2025 – HWY 744:04 Judah Hill Trunk Slide Slope Inclinometer Instrumentation Reading Summar ▪ Table PH090-2: Fall 2025 – HWY 744:04 Judah Hill Trunk Slide Pneumatic Piezometer Instrumentation Reading Summary ▪ Statement for Use and Interpretation of Report ▪ APPENDIX A - PH090 FALL 2025 □ Field Inspector's report □ Site Plan Showing Approximate Instrument Locations (Drawing No. 32121- PH090 □ SI Reading Plots □ Figure PH090-1 (Judah Hill Trunk Slide Pneumatic Piezometer Readings)

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

November 28, 2025

PROFESSIONAL ENGINEER ALBERTA
ROGER KEVIN SKIRROW
ID 36792
2025-11-30

PERMIT TO PRACTICE
THURBER ENGINEERING LTD.
RM SIGNATURE: _____
RM APEGA ID #: 91085
DATE: December 1, 2025
PERMIT NUMBER: P005186
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

Yasir Khan, E.I.T.
Geotechnical Engineer-In-Training

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Table PH090-1: Fall 2025 – HWY 744:04 Judah Hill Trunk Slide Slope Inclinometer Instrumentation Reading Summary

Date Monitored: September 28, 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)	RATE OF MOVEMENT (mm/yr)	CHANGE IN RATE OF MOVEMENT SINCE PREVIOUS READING (mm/yr)
SI98-1i	*Oct. 26, 2000*	*Not Known*	*Not Known*	*Destroyed*	*May 18, 2004*	*N/A*	*N/A*	*N/A*
SI98-6i	Oct. 26, 2000	22.0 mm over 0.4 m to 3.4 m depth in 316° direction	17.0 mm/yr in May 2007	Operational	June 10, 2025	No discernible movement	N/A	-1.3
		16.7 mm over 6.5 m to 8.9 m depth in 316° direction	9.3 mm/yr in September 2013			No discernible movement	N/A	-0.3
		54.9 mm over 0.4 m to 9.5 m depth in 316° direction	22.6 mm/yr In May 2013			No discernible movement	N/A	-5.1
SI98-7i	May 10, 2001	7.2 mm over 3.3 m to 4.5 m depth in 241° direction	8.1 mm/yr in September 2013	Operational	June 10, 2025	0.6	2.0	3.2
SI10-10	March 27, 2010	59.4 mm over 1.0 m to 8.3 m depth in 326° direction	7.6 mm/yr in June 2023	Operational	June 10, 2025	2.3	7.6	3.6
		8.8 mm over 5.2 m to 8.3 m depth in 326° direction	5.3 mm/yr in June 2011			0.1	0.3	0.3
SI10-11	March 2010	76.8 mm over 2.0 m to 5.0 m depth in 241° direction	11.9 mm/yr in October 2020	Operational	June 10, 2025	1.6	5.4	4.9

Drawing 32121-PH090 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

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Table PH090-2: Fall 2025 – HWY 744:04 Judah Hill Trunk Slide Pneumatic Piezometer Instrumentation Reading Summary

Date Monitored: September 28, 2025

INSTRUMENT #	DATE INITIALIZED	TIP DEPTH (m)	GROUND ELEV. (m)	CURRENT STATUS	HIGHEST MEASURED WATER LEVEL BGS (m)	MEASURED PORE PRESSURE (kPa)	CURRENT WATER LEVEL BGS (m)	PREVIOUS WATER LEVEL BGS (m)	CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)
PN98-6 (22830)	Oct. 26, 2000	9.8	N/A	Active	8.54 on October 11, 2023	12.1	8.57	8.74	0.17
PN98-6a (22833)	*Oct. 26, 2000*	*16.2*	*N/A*	*Not Operational*	*14.86 on October 4, 2016*	*N/A*	*N/A*	*N/A*	*N/A*
PN98-7 (22838)	*May 10, 2001*	*7.8*	*N/A*	*Not Operational*	*6.74 on October 4, 2002*	*N/A*	*N/A*	*N/A*	*N/A*
PN98-7a (22831)	May 10, 2001	16.2	N/A	Active	9.77 on May 22, 2015	40.1	12.11	11.74	-0.37
PN10-10 (33088)	March 13, 2010	18.0	N/A	Active	17.67 on September 23, 2010	1.7	17.81	17.82	0.01
PN10-11 (33077)	March 26, 2010	18.3	N/A	Active	17.04 on October 11, 2023	1.4	18.15	18.17	0.02

Drawing 32121-PH090 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

Notes:
PN - pneumatic piezometer
BGS - below ground surface

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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 TOTHE 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.

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

FALL 2025

APPENDIX A
DATA PRESENTATION

SITE PH090-1: HWY 744:04, JUDAH HILL (TRUNK SLIDE)

ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS
PEACE REGION (PEACE RIVER DISTRICT)
INSTRUMENTATION MONITORING FIELD SUMMARY (PH090)
FALL 2025

Location:	Trunk - Judah Hill (HWY 744:04 C1 59.451)	**Readout:**	RST PN C108 U
File Number:	32121	**Casing:**	2.75
Probe:	RST SET 8R	**Temp:**	1
Cable:	RST SET 8R	**Read by:**	AFC/NKR

SLOPE INCLINOMETER (SI) READINGS

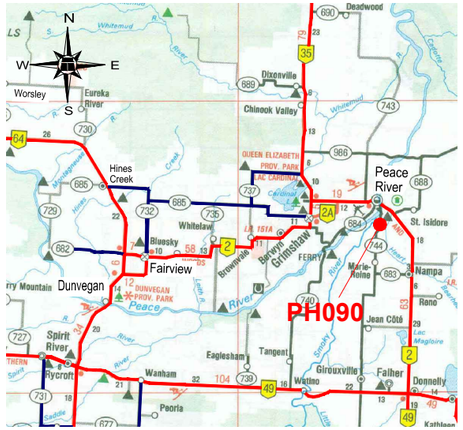
SI#	GPS Location (UTM 11)		Date	Stickup (m)	Depth from top of casing (ft)	Magn. North A+ Groove	Current Bottom Depth Readings				Probe/ Reel #	Size (")	Remarks
	Easting (m)	Northing (m)					A+	A-	B+	B-			
SI98-6i	482825.09	6230757.65	28-Sep-25	0.85	84 to 2	245	300	-290	-32	44	8R/8R	2.75	*See notes
SI98-7i	482795.09	6230746.64	28-Sep-25	0.4	66 to 2	225	-486	500	-78	80	8R/8R	2.75	*See notes
SI10-10	482874.96	6230715.49	28-Sep-25	1.17	106 to 4	300	306	-285	817	-810	5R/5R	2.75	
SI10-11	482851.63	6230772.35	28-Sep-25	0.75	102 to 4	255	-330	354	1110	-1104	5R/5R	2.75	

PNEUMATIC PIEZOMETER READINGS

PN#	GPS Location (UTM 11)		Date	Reading (kPa)	Identification Number
	Easting (m)	Northing (m)			
PN98-6	482825.09	6230757.65	28-Sep-25	11.6-12.1 (Fluctuating)	22830
PN98-7a	482795.09	6230746.64	28-Sep-25	40.1	22831
PN10-10	482874.96	6230715.49	28-Sep-25	1.7	33088
PN10-11	482851.63	6230772.35	28-Sep-25	1.4	33077

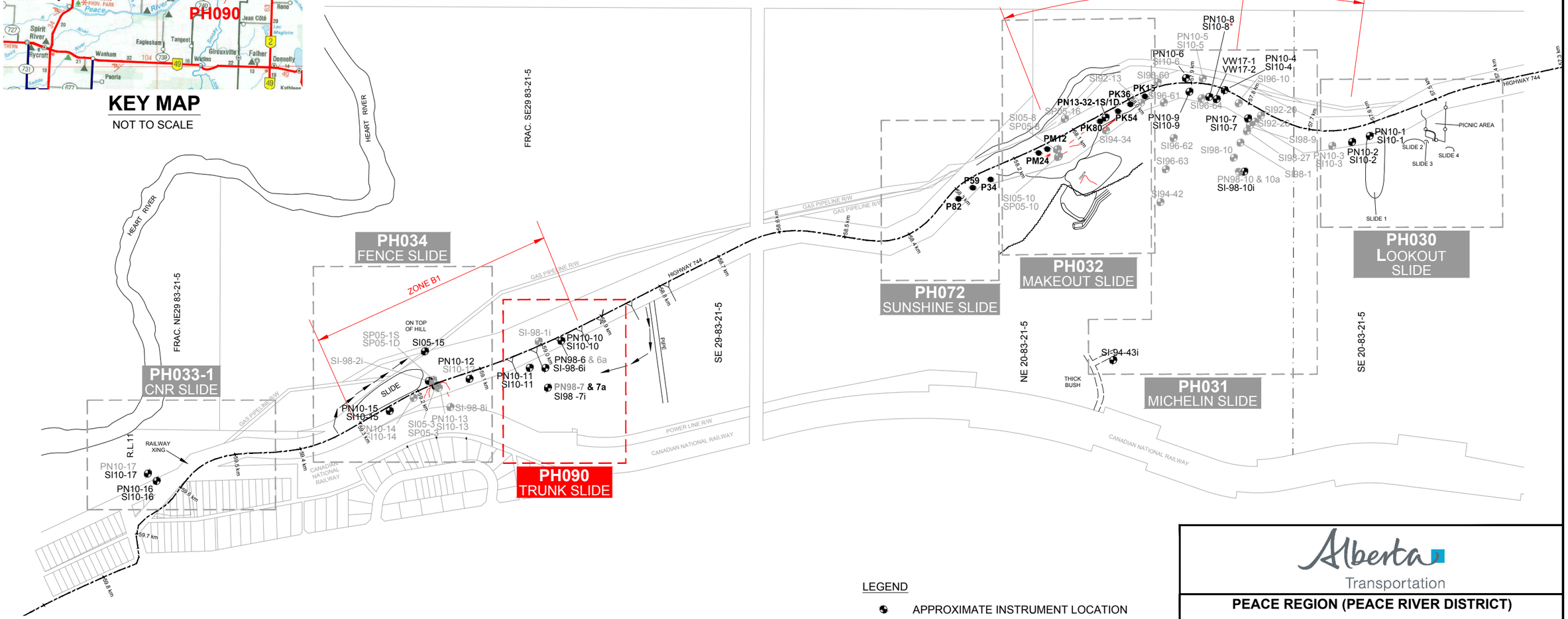
INSPECTOR REPORT

* For SI98-6i & SI98-7i multiply readings by 2 to get the plot in Gtilt.
PN 98-6 Reading fluctuates, doesnot stabilize



KEY MAP

NOT TO SCALE



LEGEND

- APPROXIMATE INSTRUMENT LOCATION
- INSTRUMENT NOT IN USE
- PN PNEUMATIC PIEZOMETER
- SP STANDPIPE PIEZOMETER
- SI SLOPE INCLINOMETER
- VW VIBRATING WIRE PIEZOMETER
- APPROXIMATE PILE LOCATION

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PEACE REGION (PEACE RIVER DISTRICT)

PH033-2: HWY 744:02 - JUDAH HILL (TRUNK SLIDE) INSTRUMENT LOCATIONS

DWG No. 32121-PH033-2

DRAWN BY	ML
DESIGNED BY	BWN
APPROVED BY	DWP
SCALE	APPROX. 1:6000
DATE	JULY 2025
FILE No.	32121

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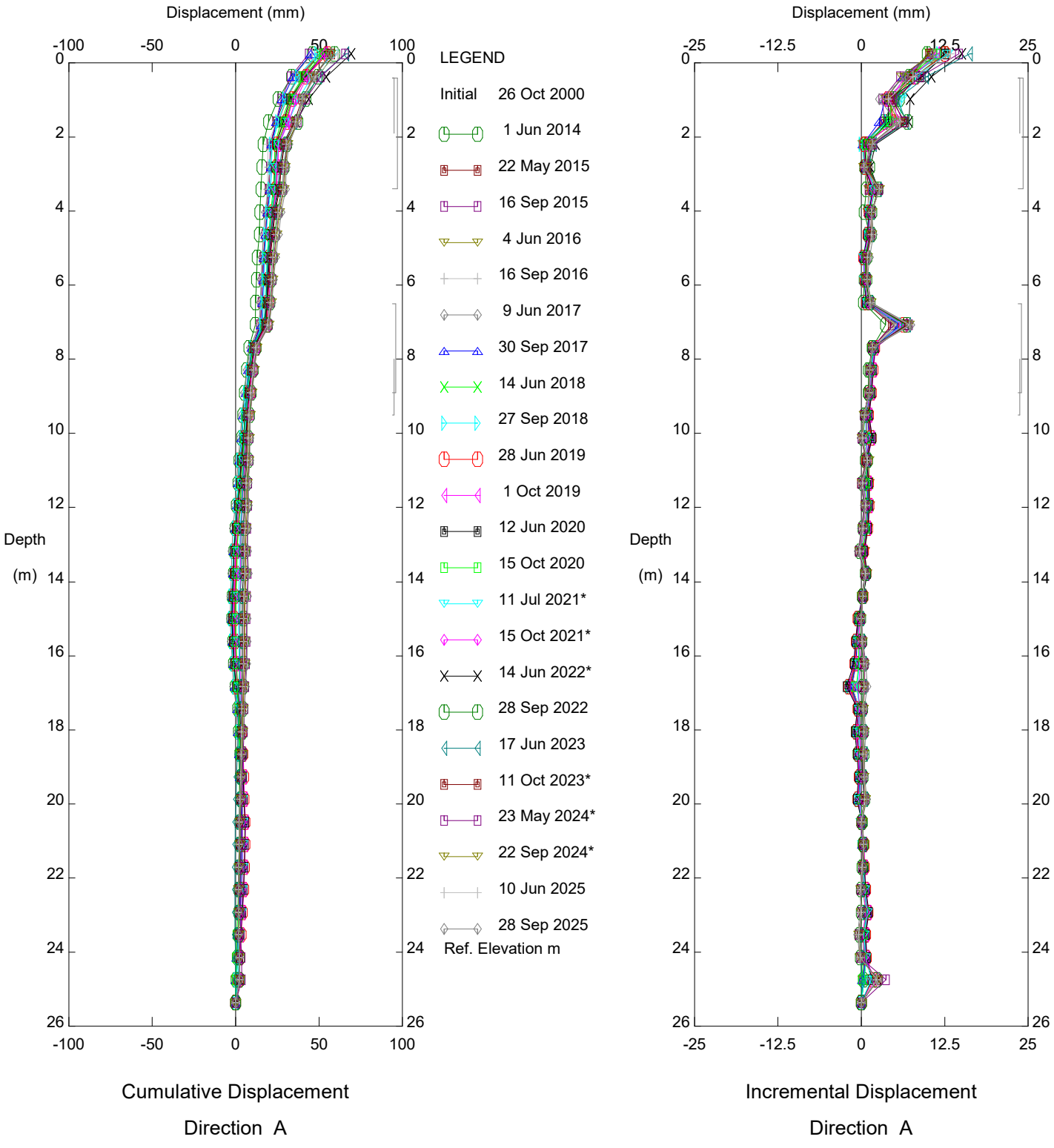

Cumulative Displacement

Direction A

Incremental Displacement

Direction A

PH090 Judah Hill Trunk Slide, Inclinometer SI98-6i

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

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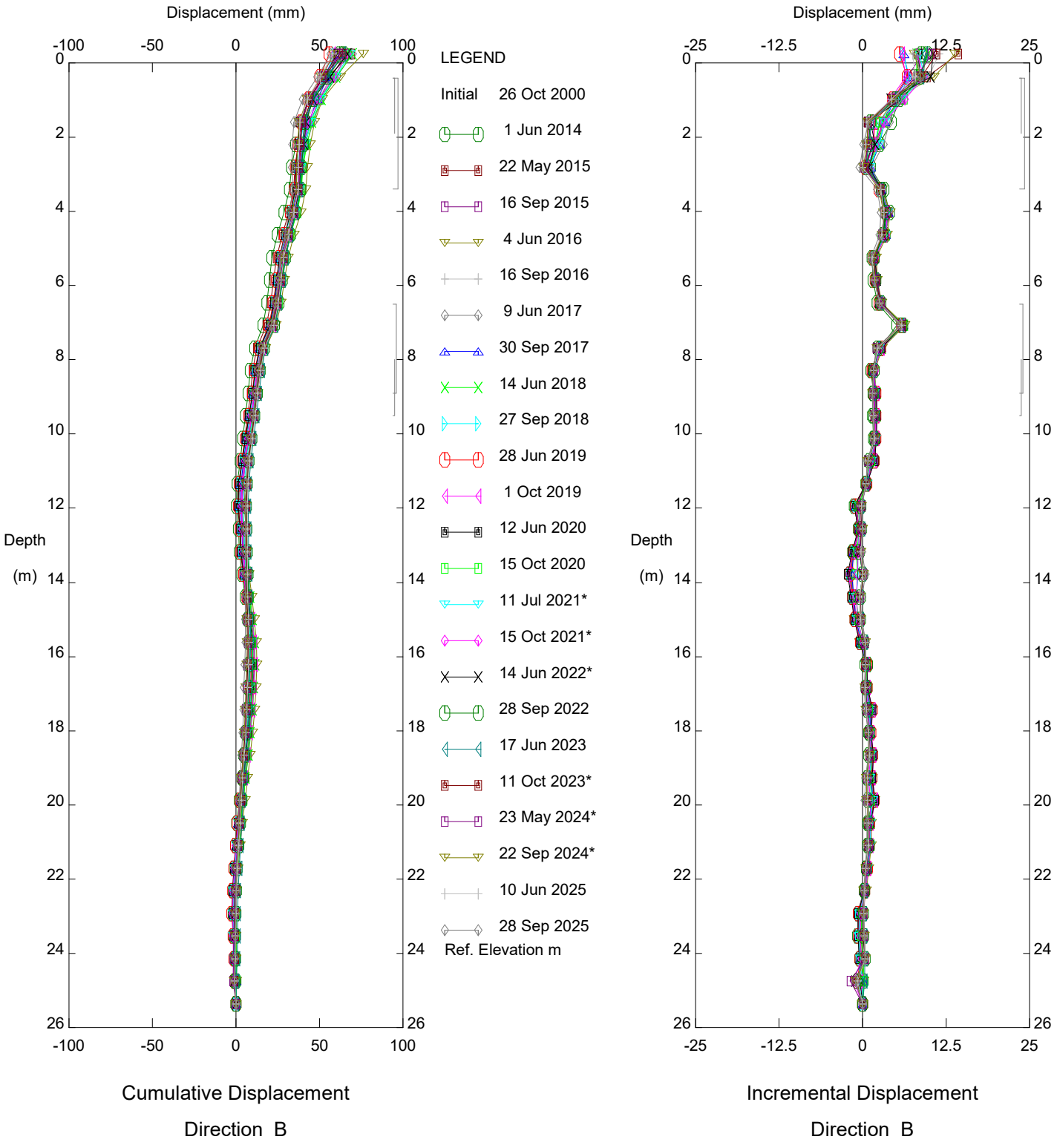

Cumulative Displacement

Direction B

Incremental Displacement

Direction B

PH090 Judah Hill Trunk Slide, Inclinometer SI98-6i

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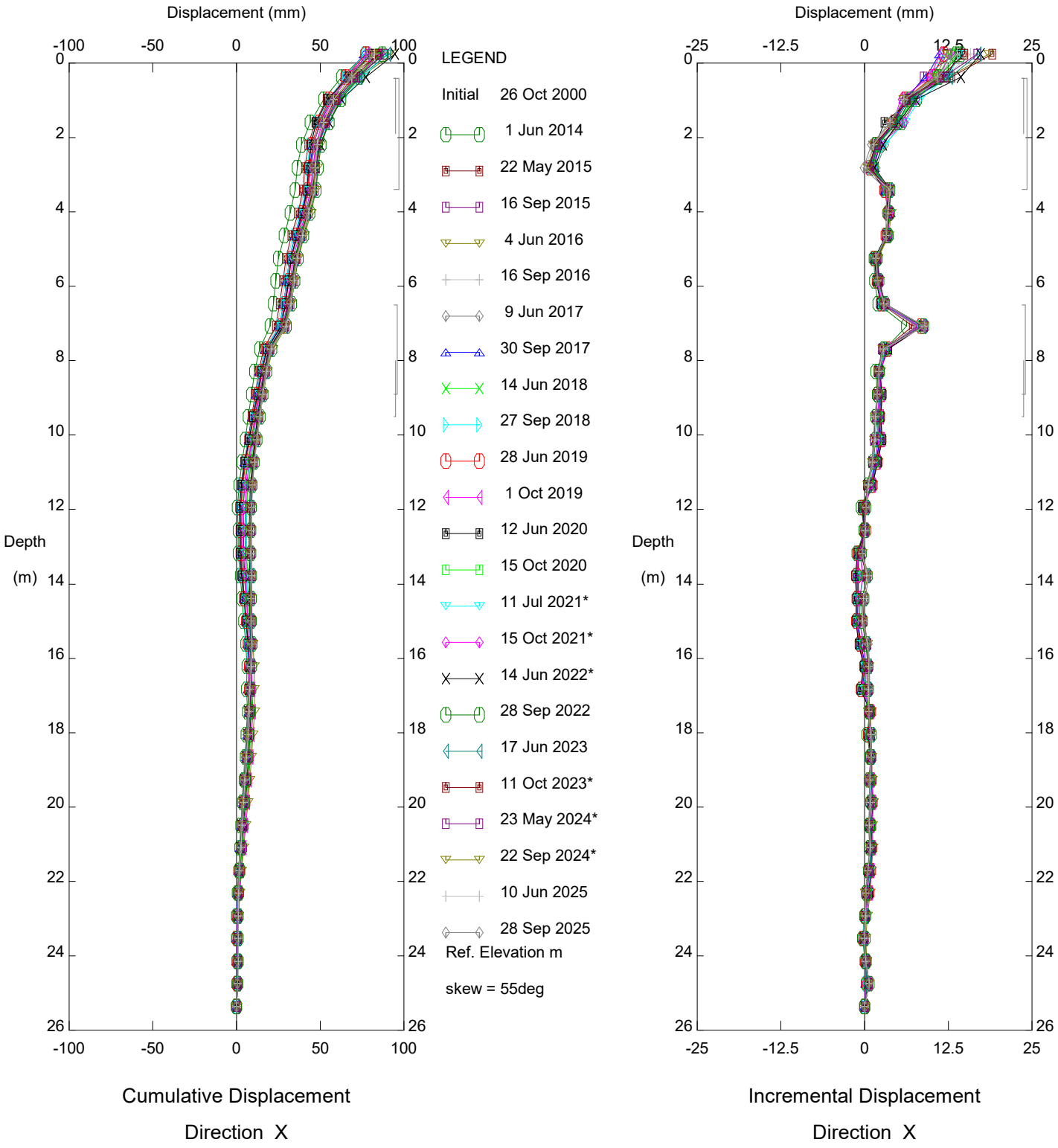

Cumulative Displacement

Direction X

Incremental Displacement

Direction X

PH090 Judah Hill Trunk Slide, Inclinometer SI98-6i

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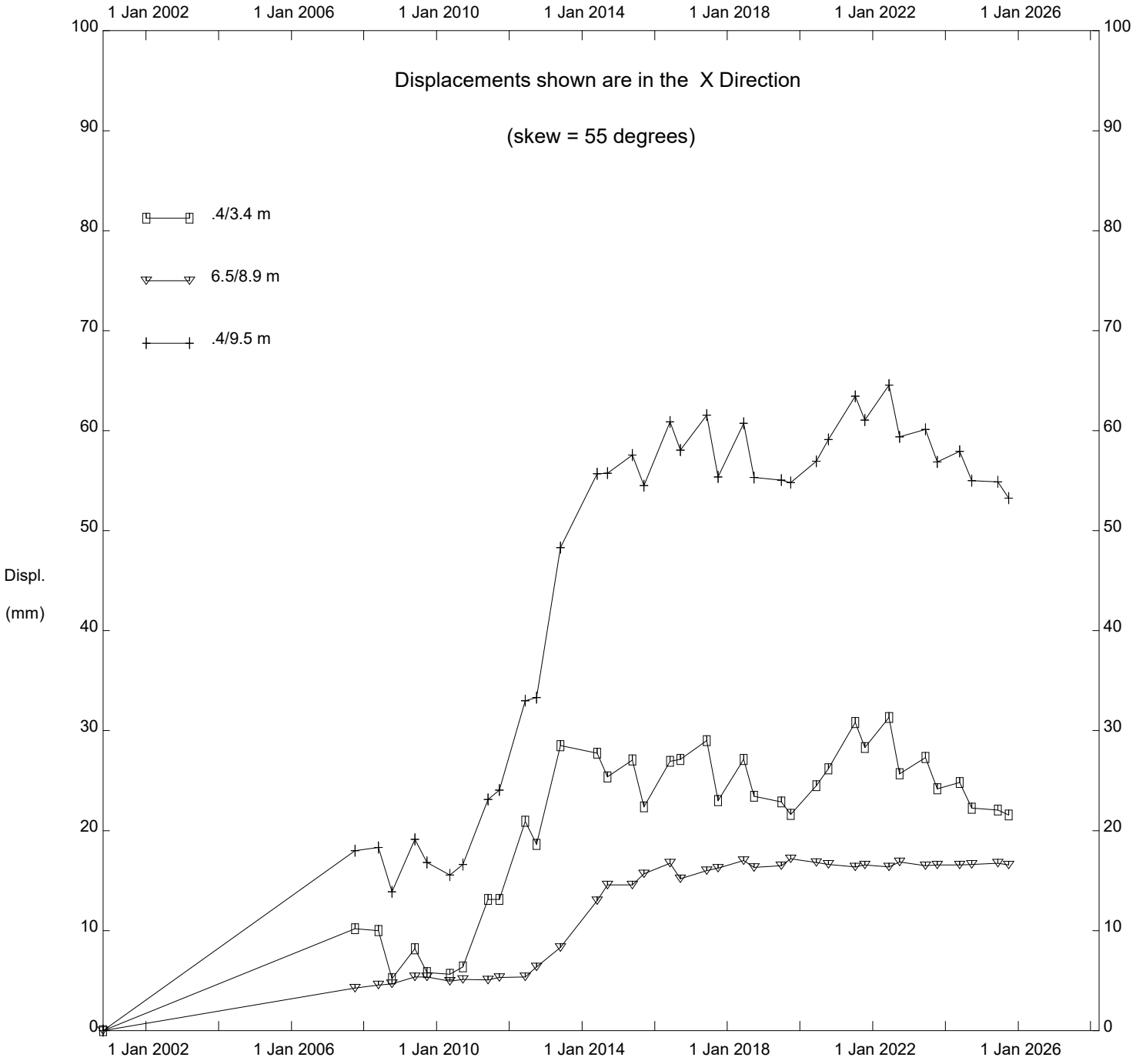

PH090 Judah Hill Trunk Slide, Inclinometer SI98-6i

Alberta Transportation

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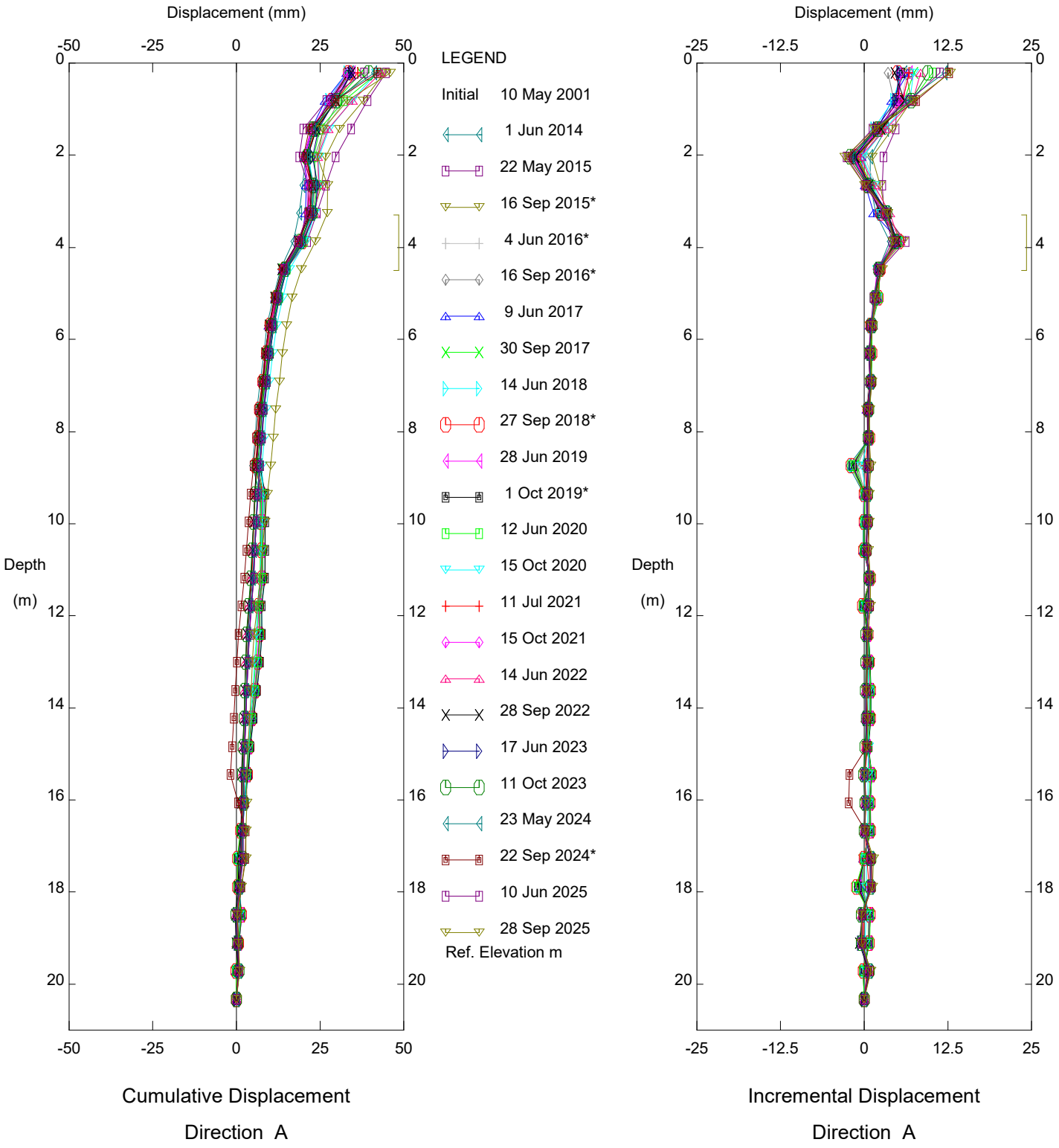

Cumulative Displacement

Direction A

Incremental Displacement

Direction A

PH090 Judah Hill Trunk Slide, Inclinometer SI98-7i

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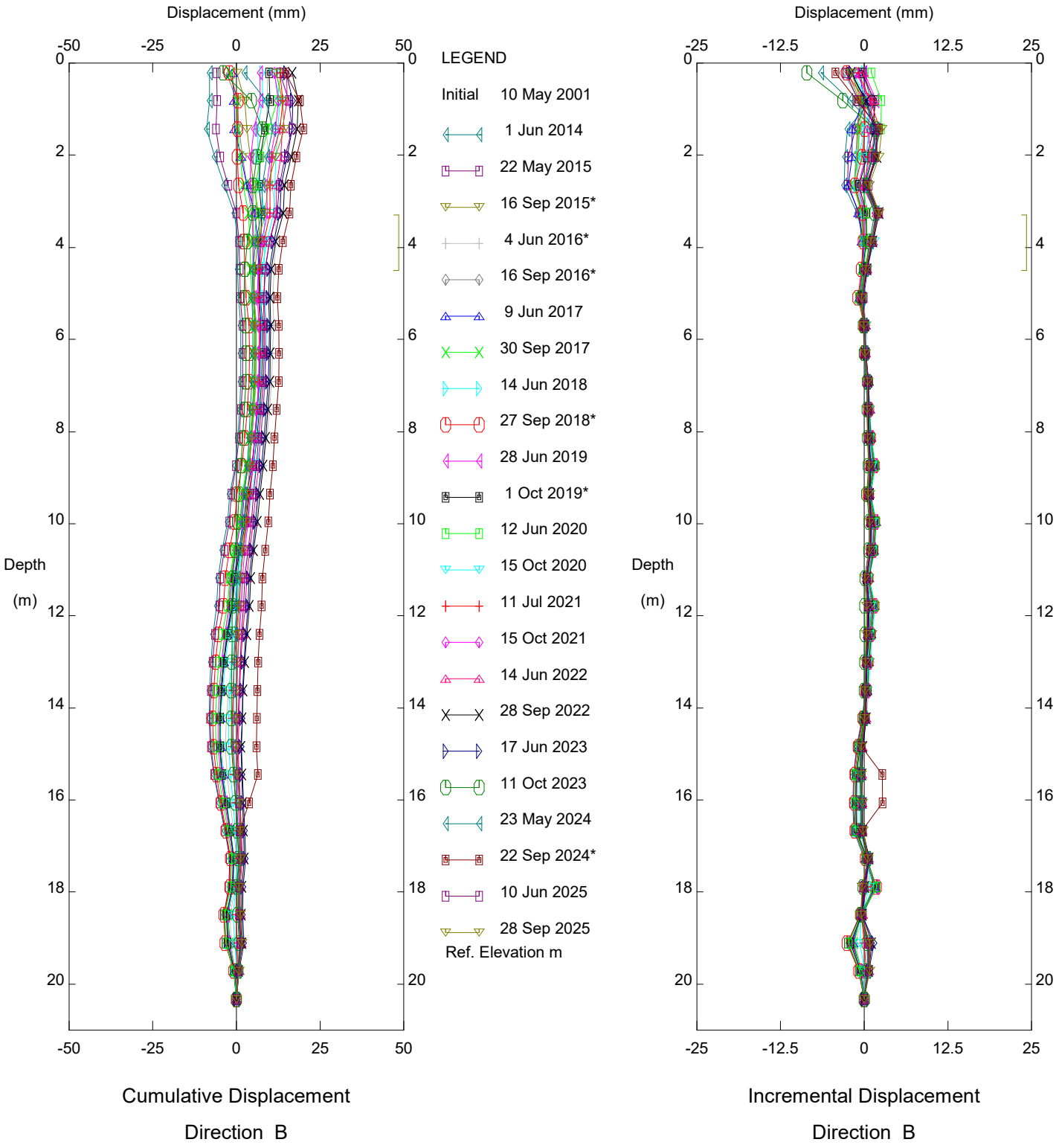

Cumulative Displacement

Direction B

Incremental Displacement

Direction B

PH090 Judah Hill Trunk Slide, Inclinometer SI98-7i

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

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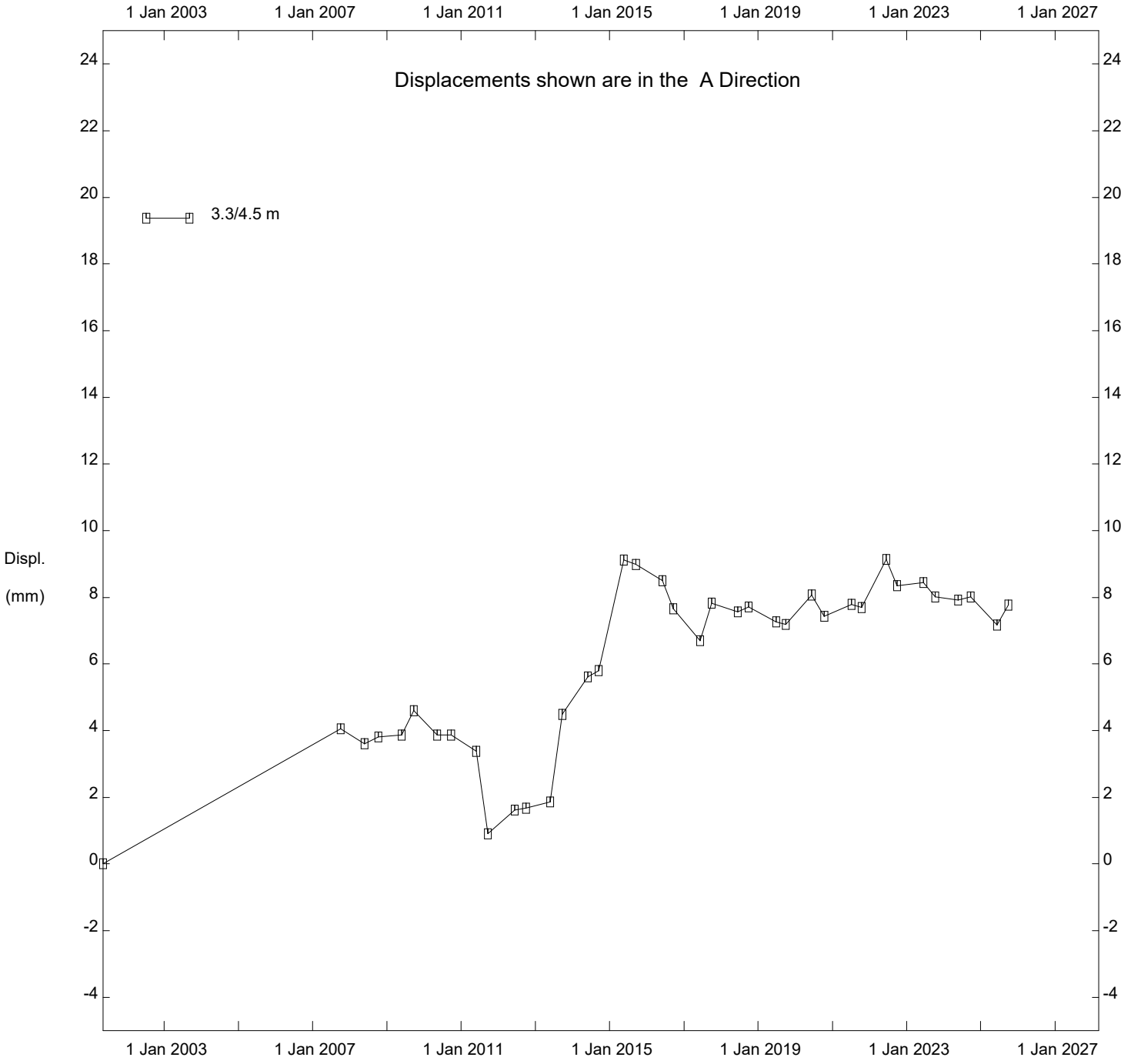

PH090 Judah Hill Trunk Slide, Inclinometer SI98-7i

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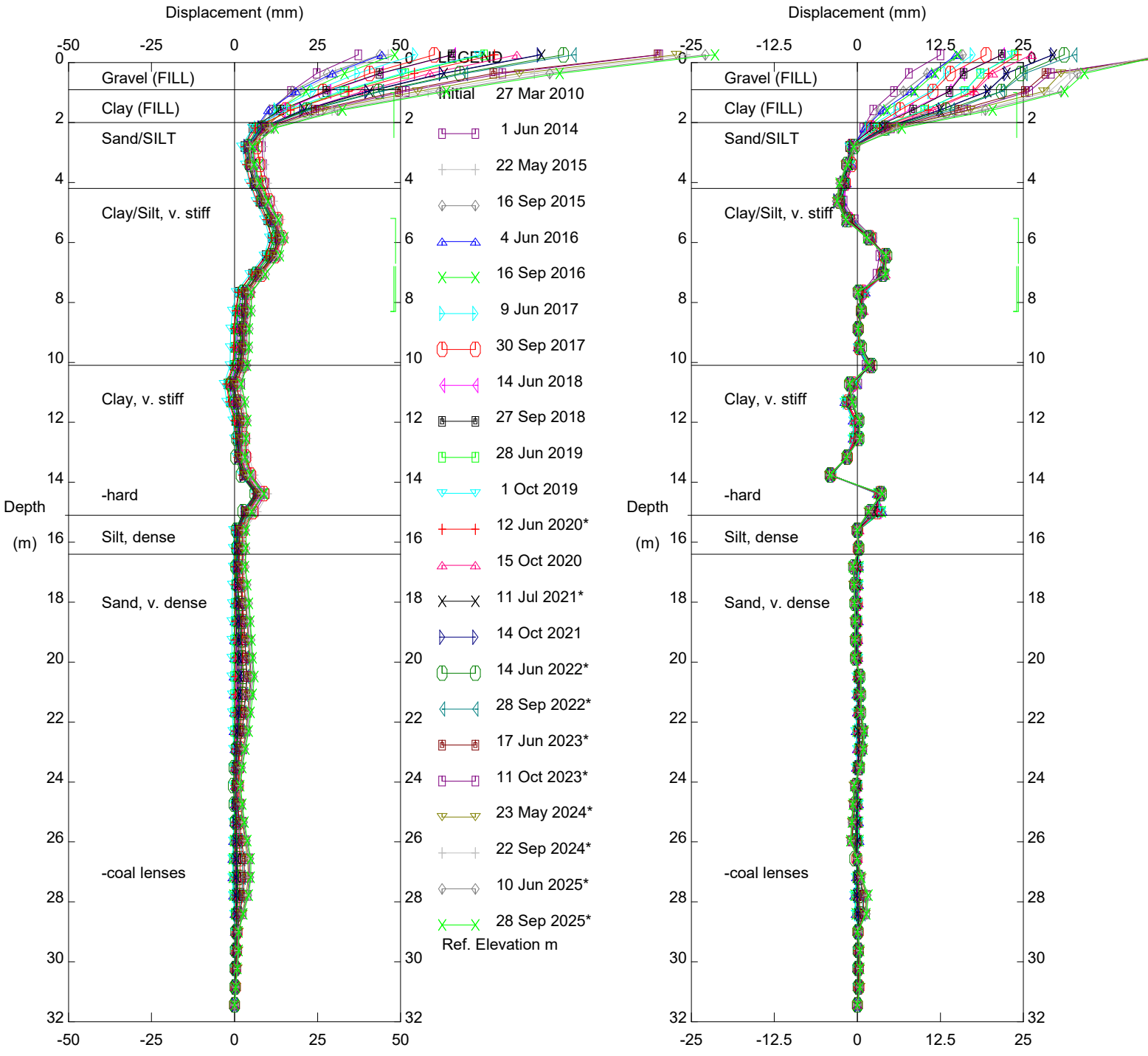

Cumulative Displacement

Direction A

Incremental Displacement

Direction A

PH090 Judah Hill Trunk Slide, Inclinometer SI10-10

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

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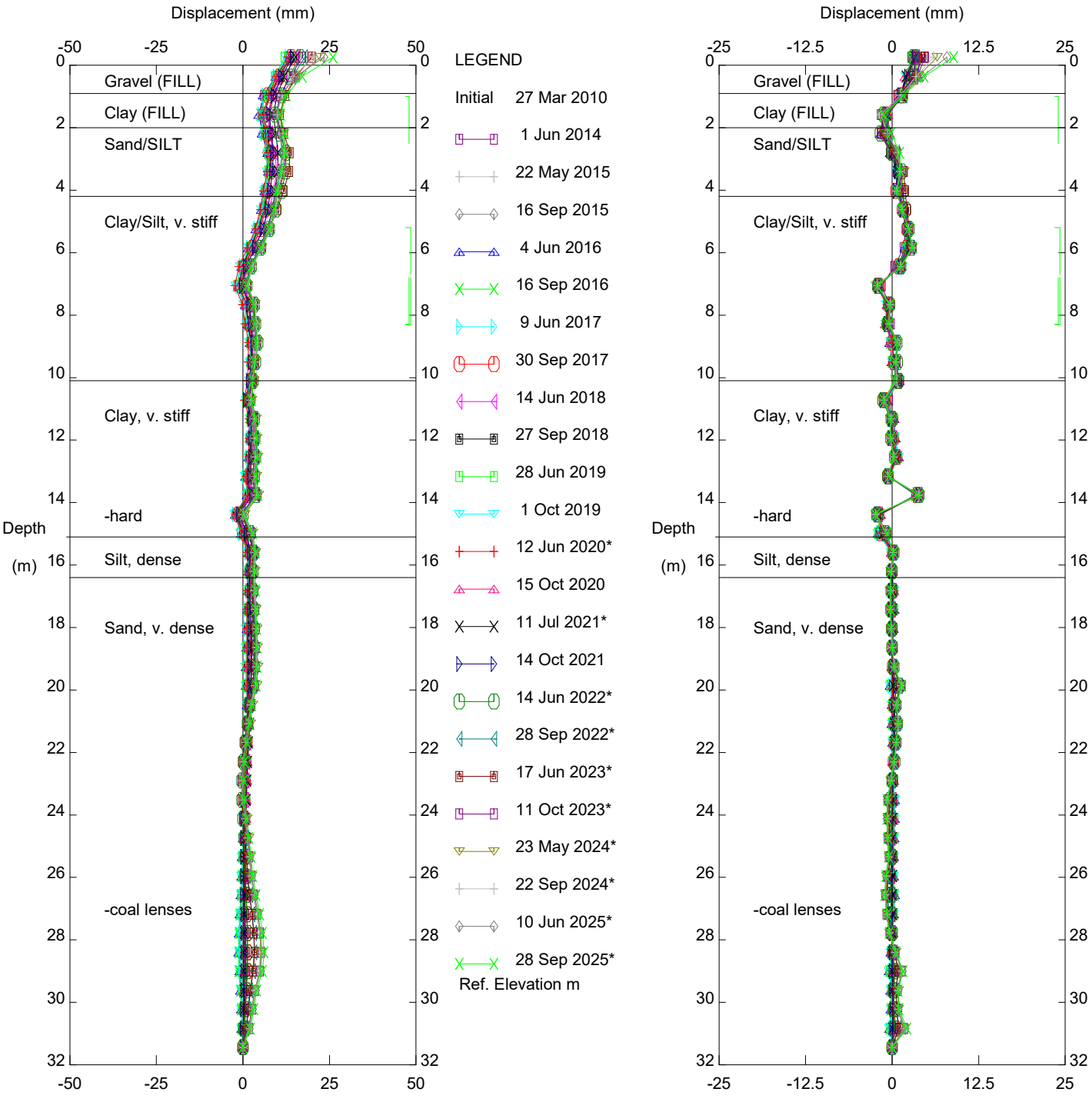

Cumulative Displacement

Direction B

Incremental Displacement

Direction B

PH090 Judah Hill Trunk Slide, Inclinometer SI10-10

Alberta Transportation

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

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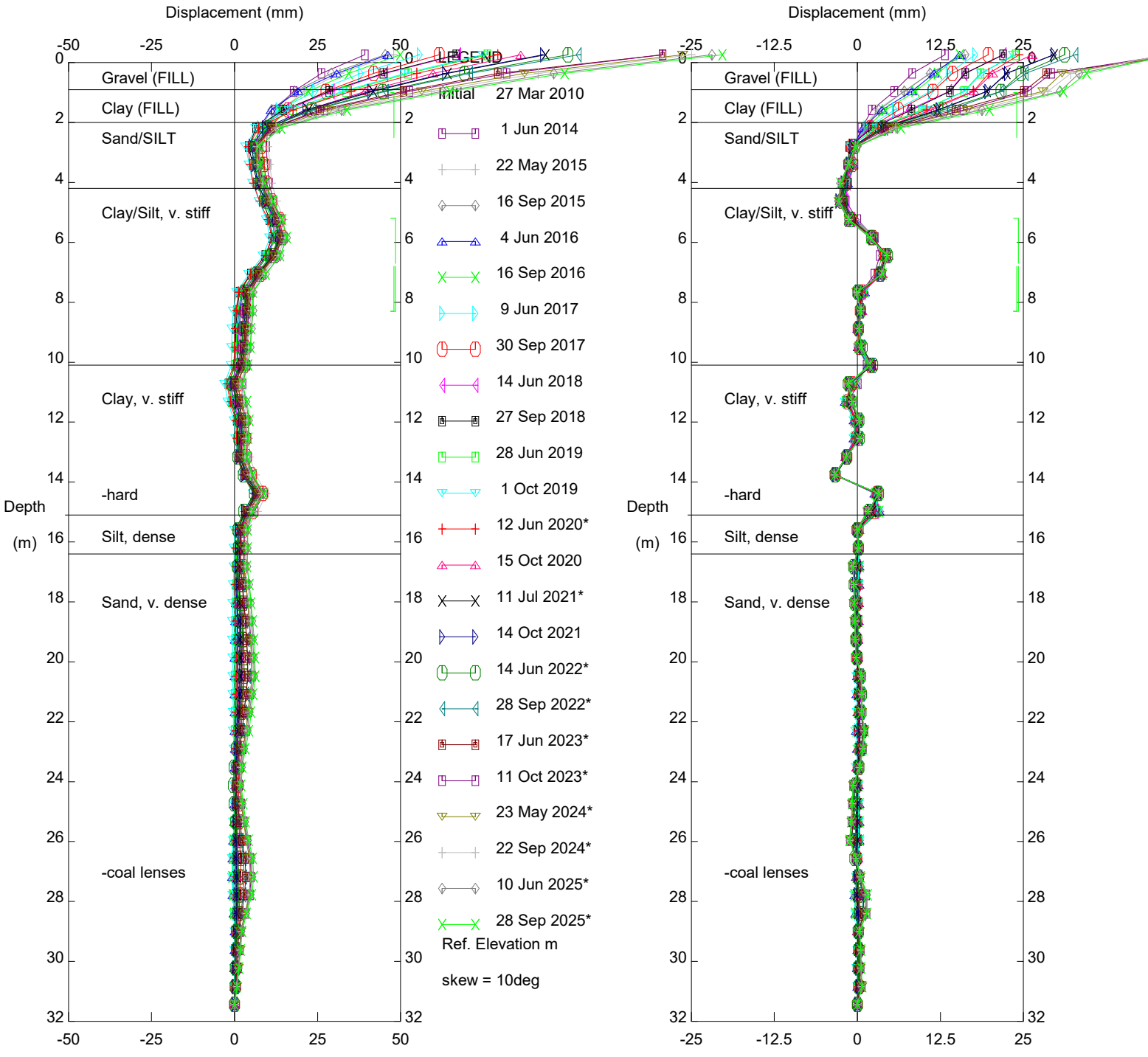

Cumulative Displacement

Direction X

Incremental Displacement

Direction X

PH090 Judah Hill Trunk Slide, Inclinometer SI10-10

Alberta Transportation

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

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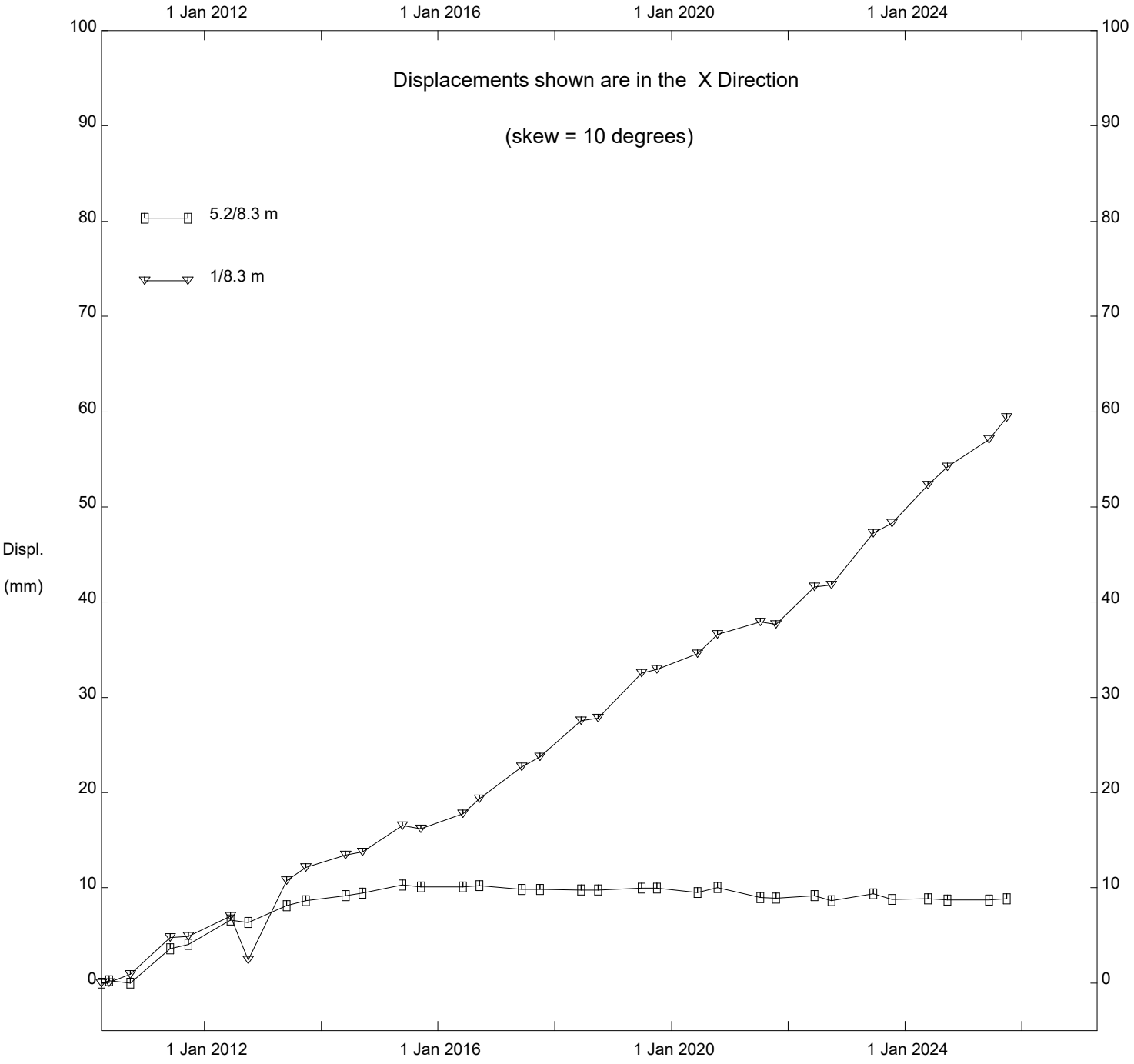

PH090 Judah Hill Trunk Slide, Inclinometer SI10-10

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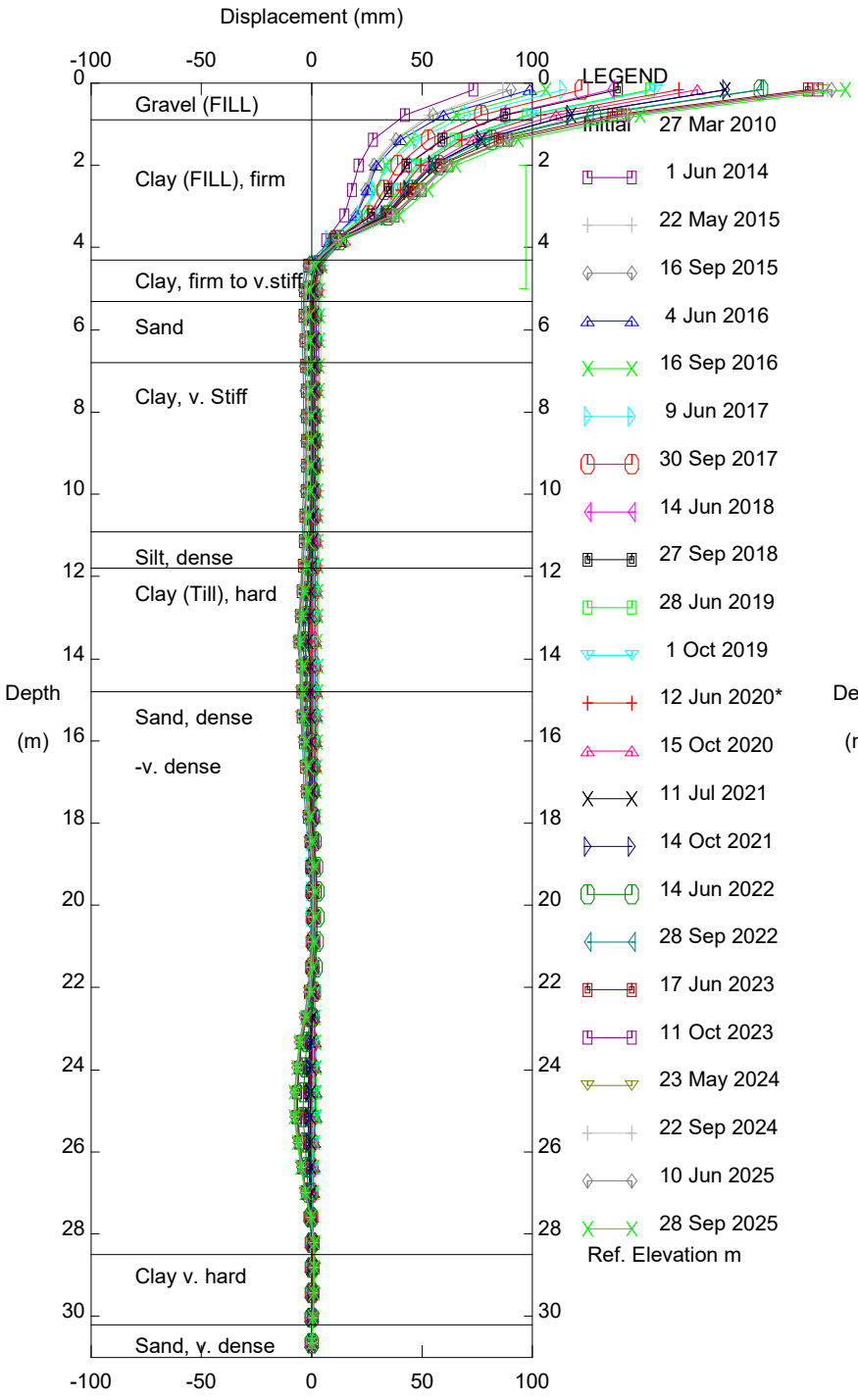
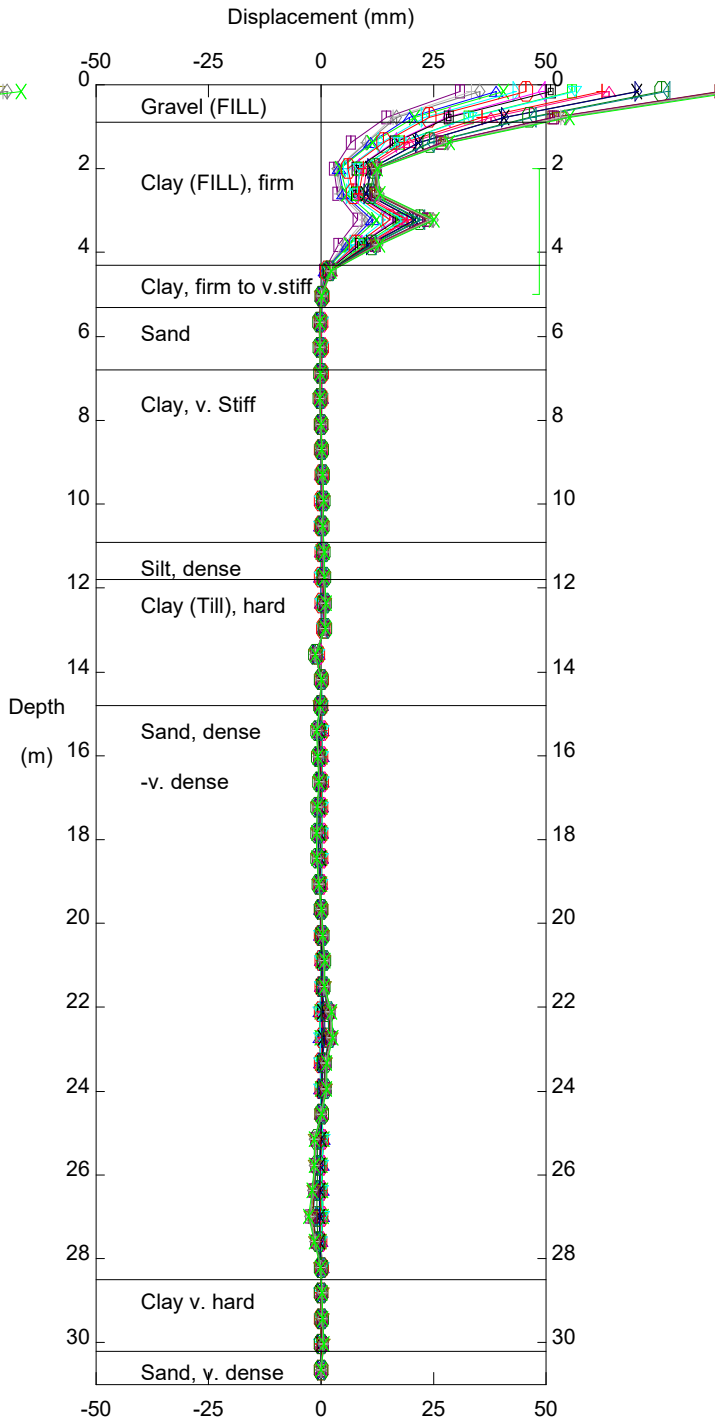


Cumulative Displacement

Direction A



Incremental Displacement

Direction A

PH090 Judah Hill Trunk Slide, Inclinometer SI10-11

Alberta Transportation

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

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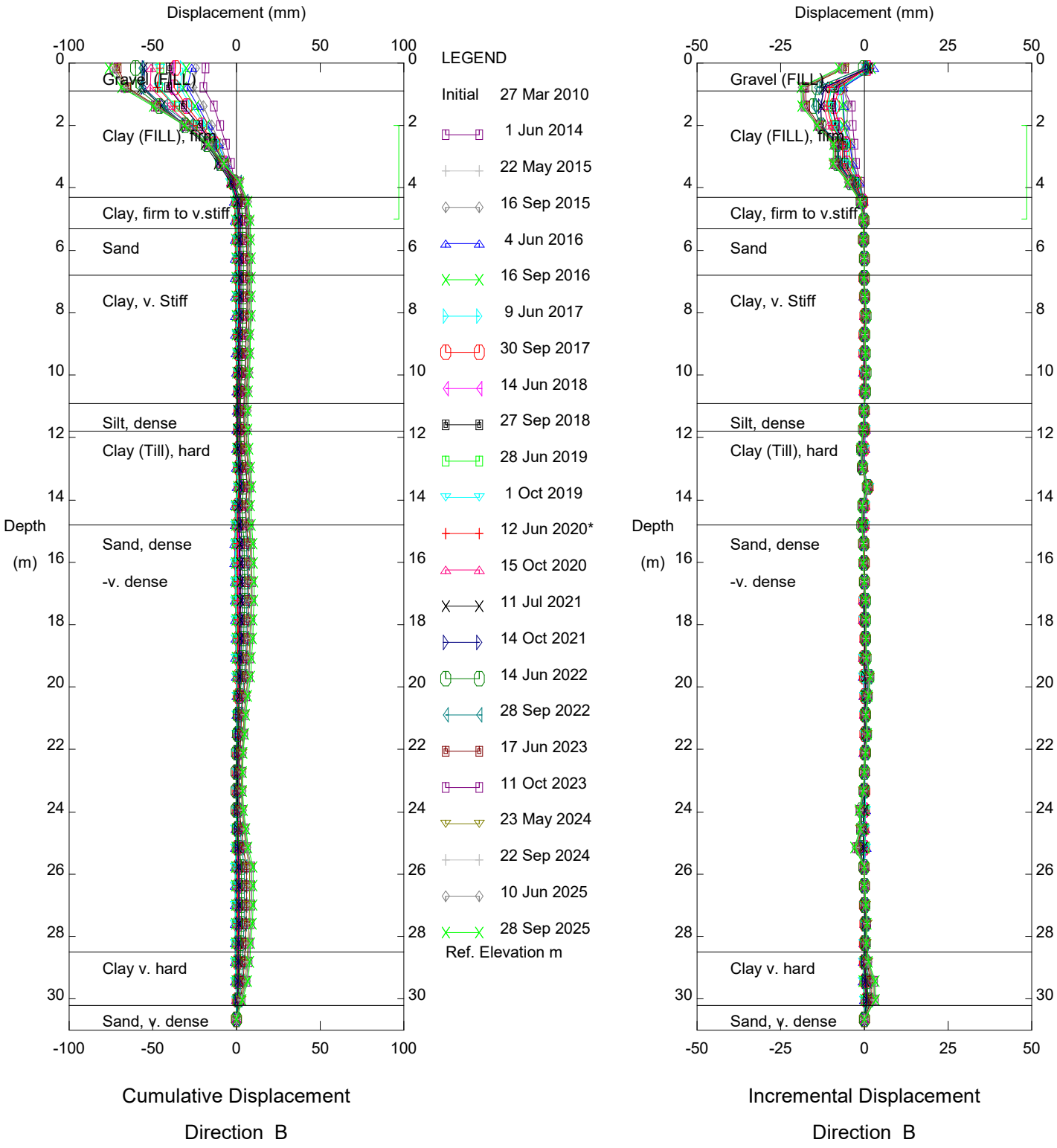

Cumulative Displacement

Direction B

Incremental Displacement

Direction B

PH090 Judah Hill Trunk Slide, Inclinometer SI10-11

Alberta Transportation

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

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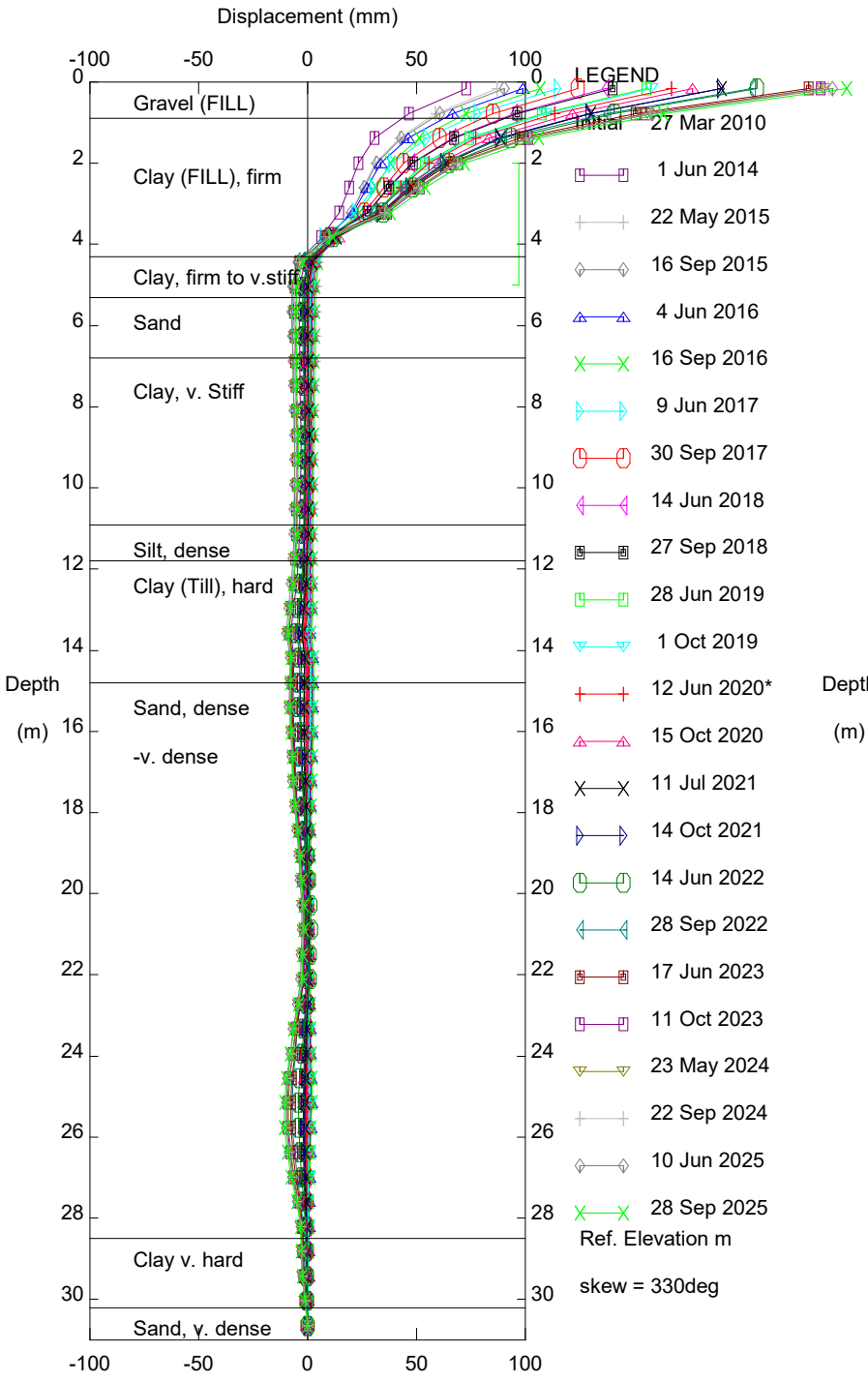
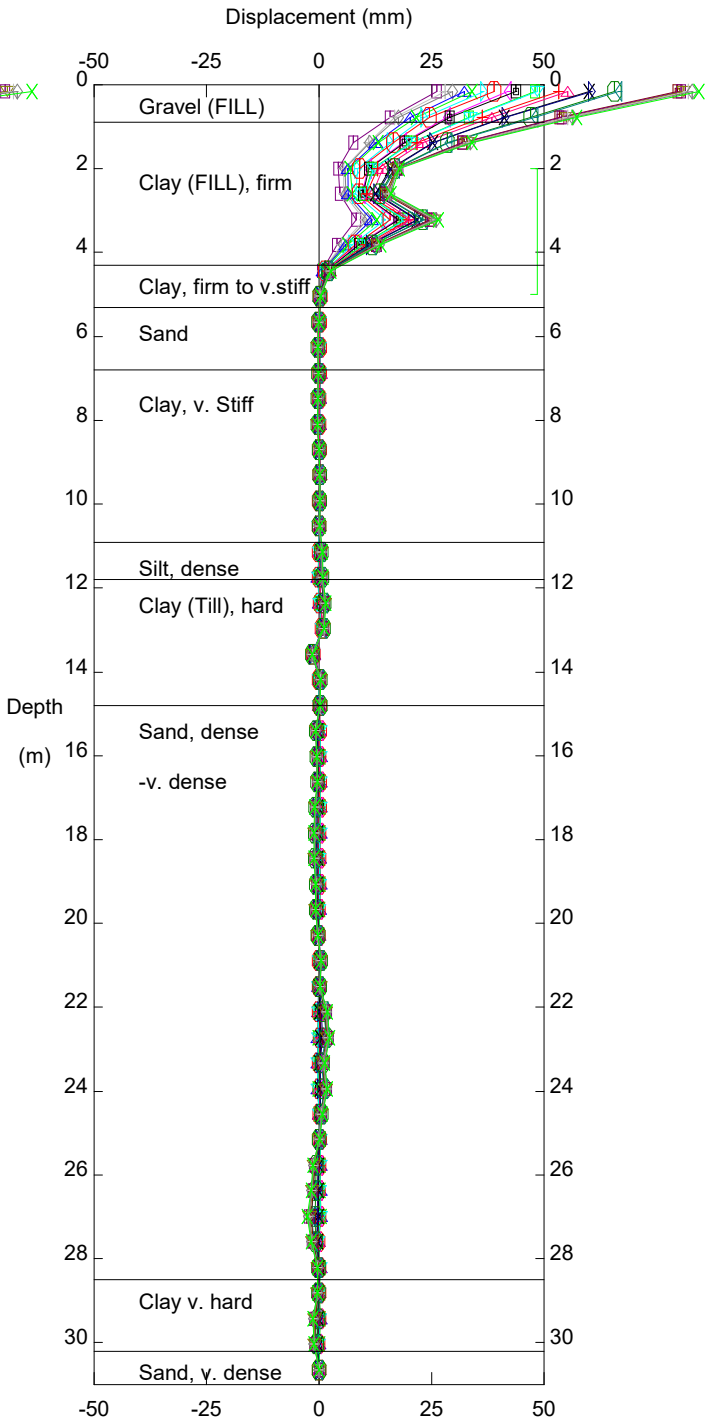


Cumulative Displacement

Direction X



Incremental Displacement

Direction X

PH090 Judah Hill Trunk Slide, Inclinometer SI10-11

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

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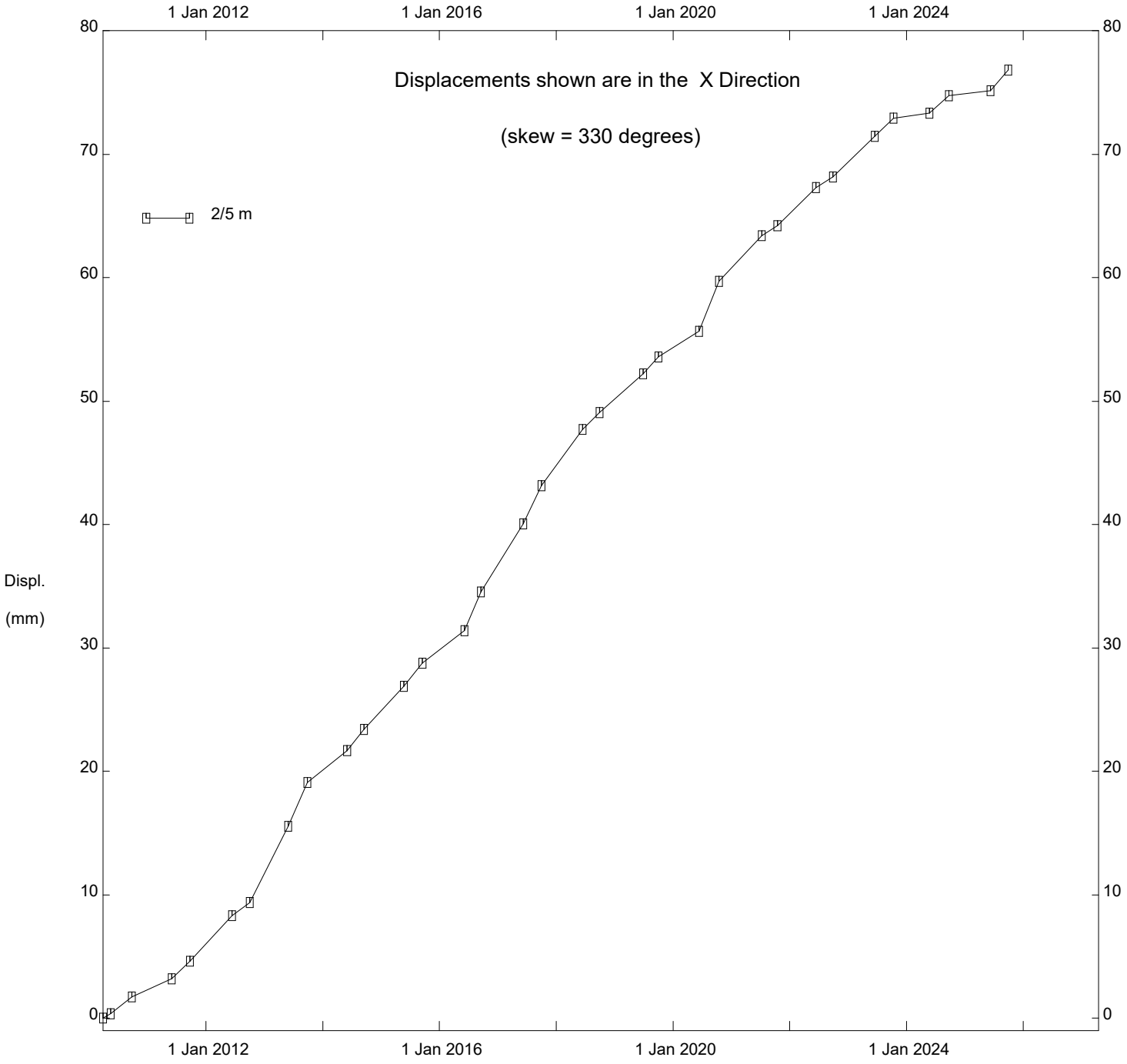

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FIGURE PH090-1
PIEZOMETER DATA FOR HWY 744:04: JUDAH HILL TRUNK SLIDE