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

THURBER

Site Number	Location	Name	Hwy	km
NC110	HWY 754:06 C1 32.94	Wabasca Lake Slip 'n Slide	754:06	km 32.94
Legal Description: NW-27-80-25 W4		**UTM Co-ordinates**		
		12U E 321468	N 6207205	

Current Monitoring:	21-Sep-2025	**Previous Monitoring**	30-May-2025
Instruments Read By:	Mr. Niraj Regmi, G.I.T and Mr. Angelo Castillo, of Thurber		

Instruments Read During This Site Visit			
Slope Inclinometers (SIs): SI24-3	**Pneumatic Piezometers (PN):** N/A	**Vibration Wire Piezometers (VW):** VW24-2B, VW24-3A and VW24-3B	**Standpipe Piezometers (SP):** SP24-1 and SP24-4
Load Cell (LC): N/A	**Strain Gauges:** N/A	**SAAs:** N/A	**Others:**

Readout Equipment Used			
Slope Inclinometers: RST Digital Inclinometer probe with a 2 ft. wheelbase and a RST Pocket PC readout.	**Pneumatic Piezometers:**	**Vibration Wire Piezometers:** Geokon GK404 digital readout	**Standpipe Piezometers:** DGSI dipmeter
Load Cell:	**Strain Gauges:**	**SAAs:**	**Others:**
Notes:			

Discussion	
Zones of New Movement:	None
Interpretation of Monitoring Results:	SI24-3 showed a rate of movement of 61.0 mm/yr over 0.6 m to 3.7 m depth since the spring of 2025 readings. This corresponds to an increase in the rate of movement by 38.5 mm/yr. Standpipe piezometers SP24-1 and SP24-4 showed decreases in groundwater level of 0.09 m and 0.05 m, respectively, since the spring of 2025 readings. Vibrating wire piezometers VW24-2B, VW24-3A and VW24-3B showed increases in groundwater level of 0.28 m, 0.10 m and 0.39 m, respectively, since the spring of 2025 readings.
Future Work:	The instruments should be read again in the spring of 2026.
Instrumentation Repairs:	
Additional Comments:	

Attachments:	▪ Table NC110-1 Fall 2025 – HWY 754:06 Wabasca Lake Slip 'n Slide, Slope Inclinometer Instrumentation Reading Summary ▪ Table NC110-2 Fall 2025 – HWY 754:06 Wabasca Lake Slip 'n Slide, Standpipe Piezometer Instrumentation Reading Summary ▪ Table NC110-3 Fall 2025 – HWY 754:06 Wabasca Lake Slip 'n Slide, Vibrating Wire Piezometer Instrumentation Reading Summary ▪ Statement for Use and Interpretation of Report ▪ APPENDIX A – NC110-1 FALL 2025 □ Field Inspector's report □ Site Plan Showing Approximate Instrument Locations (Drawing No. 32122-NC110) □ SI Reading Plots □ Figure NC110-1 (Piezometric Depths) □ Figure NC110-2 (Piezometric Elevations)

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

November 12, 2025

PROFESSIONAL ENGINEER ALBERTA
TAREK ABDELAZIZ
ID 91085
November 12 2025

PERMIT TO PRACTICE
THURBER ENGINEERING LTD.
RM SIGNATURE: _____
RM APEGA ID #: 91085
DATE: November 12, 2025
PERMIT NUMBER: P005186
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)

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

Table NC110-1: Fall 2025 – Hwy 754:06 Wabasca Lake Slip n' Slide Inclinometer Instrumentation Reading Summary

Date Monitored: September 21, 2025

INSTRUMENT #	DATE INITIALIZED	TOTAL CUMULATIVE RESULTANT MOVEMENT AND DEPTH OF MOVEMENT TO DATE (mm)	MAXIMUM RATE OF MOVEMENT (mm/yr)	CURRENT STATUS OF SI	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)
SI24-2	*February 1, 2024*	*8.6 over 1.8 m to 3.6 m depth in 236° direction*	*56.6 in June 2024*	*Sheared off at 2.0 m*	*June 13, 2024*	*N/A*	*N/A*	*N/A*
SI24-3	February 1, 2024	96.9 over 0.6 m to 3.7 m depth in 240° direction	216.5 in September 2024	Operational	May 30, 2025	19.0	61.0	38.5

Drawing 32122-NC110 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

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Table NC110-2: Fall 2025 – Hwy 754:06 Wabasca Lake Slip n' Slide Standpipe Piezometer Instrumentation Reading Summary

Date Monitored: September 21, 2025

INSTRUMENT #	DATE INITIALIZED	TIP DEPTH (m)	GROUND ELEV. (m)	CURRENT STATUS	HIGHEST MEASURED GROUNDWATER LEVEL BGS (m)	CURRENT GROUNDWATER DEPTH BGS (m)	PREVIOUS GROUNDWATER DEPTH BGS (m)	CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)
SP24-1	Jan. 29, 2024	19.40	-	Operational	1.67 on September 17, 2024	1.84	1.75	-0.09
SP24-4	Feb. 1, 2024	17.34	-	Operational	3.61 on June 13, 2024	4.08	4.03	-0.05

Drawing 32122-NC110 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

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Table NC110-3: Fall 2025 – Hwy 754:06 Wabasca Lake Slip n' Slide Vibrating Wire Piezometer Instrumentation Reading Summary

Date Monitored: September 21, 2025

INSTRUMENT #	DATE INITIALIZED	TIP DEPTH (m)	GROUND ELEV. (m)	CURRENT STATUS	HIGHEST MEASURED GROUNDWATER LEVEL BGS (m)	CURRENT GROUNDWATER DEPTH BGS (m)	PREVIOUS GROUNDWATER DEPTH BGS (September 17, 2024) (m)	CHANGE IN WATER LEVEL SINCE PREVIOUS READING (m)
VW24-2A (171163)	*February 2, 2024*	*3.6*	-	*Not Functioning*	*2.64 on May 1, 2024*	*N/A*	*N/A*	*N/A*
VW24-2B (163823)	February 2, 2024	15.0	-	Operational	8.96 on June 13, 2024	9.23	9.51	0.28
VW24-3A (171177)	February 2, 2024	3.7	-	Operational	1.58 on June 13, 2024	1.90	2.00	0.10
VW24-3B (163840)	February 2, 2024	12.1	-	Operational	2.97 on September 17, 2024	2.87	3.26	0.39

Drawing 32122-NC110 in Appendix A provides a sketch of the approximate location of the monitoring instrumentation for this site.

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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 (CON0022163)
NORTH CENTRAL (ATHABASCA AND FORT McMURRAY DISTRICTS)
INSTRUMENTATION MONITORING RESULTS

FALL 2025

APPENDIX A
DATA PRESENTATION

SITE NC110: HWY 754:06 WABASCA LAKE SLIP N' SLIDE

ALBERTA TRANSPORTATION AND ECONOMIC CORRIDORS
NORTH CENTRAL REGION - ATHABASCA AND FORT McMURRAY DISTRICTS
INSTRUMENTATION MONITORING FIELD SUMMARY (NC110)
FALL 2025

Location:	Hwy 754:06 WABASCA LAKE	**Readout:**	DGSI Dipmeter/ GK404/SN364
File Number:	45363	**Casing Diameter:**	2.75"
Probe:	RST SET 8R	**Temp:**	16
Cable:	RST SET 8R	**Read by:**	AFC/NKR

SLOPE INCLINOMETER (SI) READINGS

SI#	GPS Location (UTM 12)		Date	Stickup (m)	Readings Depth from top of **casing** (ft)	Azimuth of A+ Groove degree	Current Bottom Depth Readings					Remarks
	Northing	Easting					A+	A-	B+	B-	Size (")	
SI24-3	6206017	323092	21-Sep-25	-0.23	-58 to -2	225	713	-699	216	-206	2.75	8 mm Allen Key Needed

VIBRATING WIRE PIEZOMETER (VW) READINGS

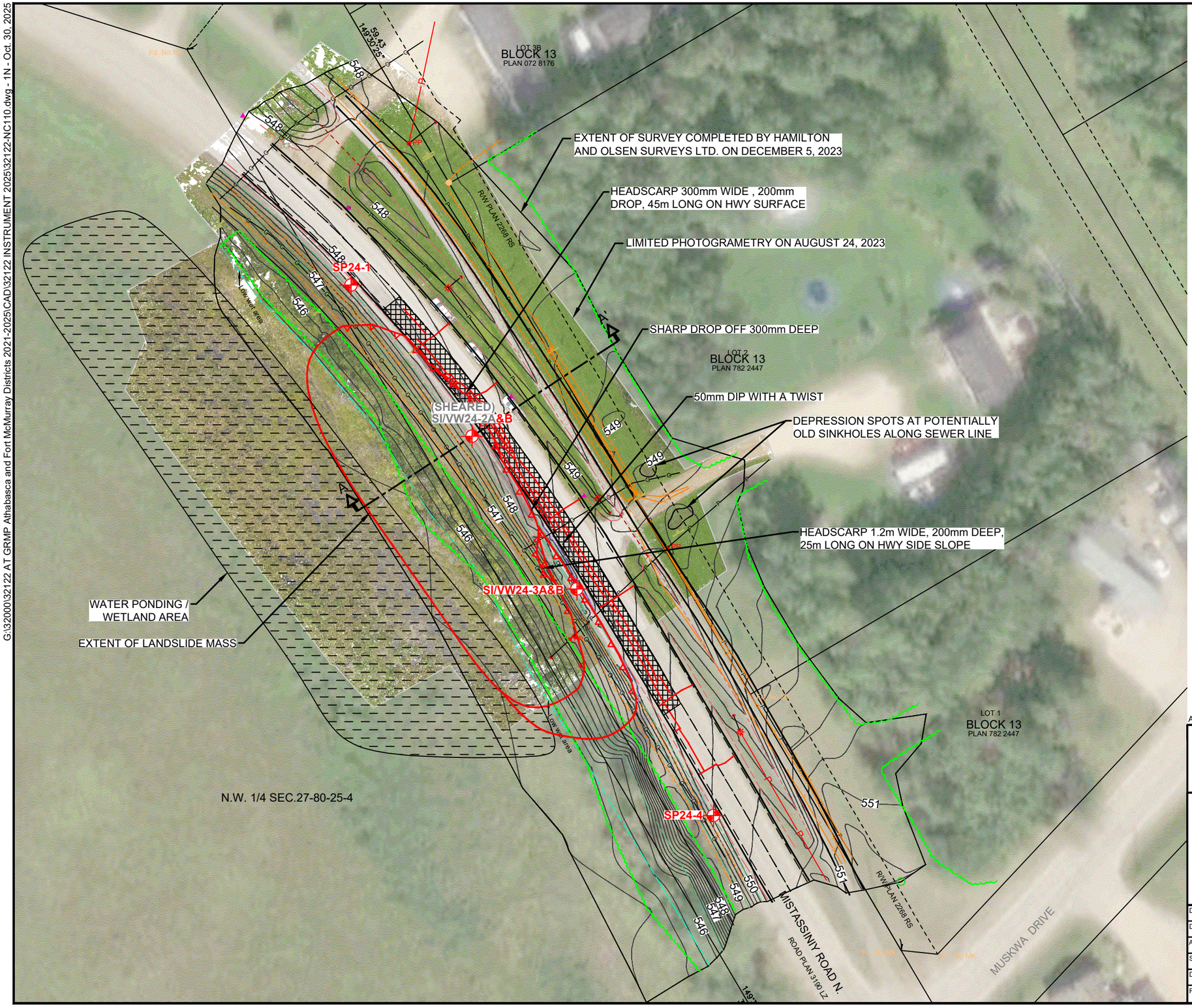
PN #	Serial	GPS Location (UTM 12)		Location	Date	Reading		Comments
		Northing	Easting			B Unit	°C	
VW24-2B	163823	6206046	323071	Attached to TH24-2	21-Sep-25	8644.4	8.3	8 mm Allen Key Needed
VW24-3A	171177	6206017	323092	Attached to TH24-3	21-Sep-25	8818.1	7.1	8 mm Allen Key Needed
VW24-3B	163840	6206017	323092	Attached to TH24-3	21-Sep-25	8584.1	4.5	8 mm Allen Key Needed

SP#	GPS Location (UTM 12)		Date	Stick-up (m)	Water level below top of pipe (m)	Comments
	Northing	Easting				
SP24-1	6206076	323048	21-Sep-25	-0.13	1.71	1/2" Socket Needed to Open
SP24-4	6205973	323118	21-Sep-25	-0.13	3.95	Allen key

INSPECTOR REPORT

8 mm Allen Key and 1/2" Socket needed to open flushmounts

G:\32000\32122 AT GRMP Athabasca and Fort McMurray Districts 2021-2025\CAD\32122 INSTRUMENT 2025\32122-NC110.dwg - 1N - Oct. 30, 2025



AIR PHOTO FROM ESRI WORLD IMAGERY EXPORTED ON FEBRUARY 21, 2024

Alberta

NORTH CENTRAL
(ATHABASCA AND FORT MCMURRAY DISTRICTS)

NC110 - WABASCA LAKE SLIP N' SLIDE
HWY 754:06 WABASCA, ALBERTA
SITE PLAN

DWG No. 32122-NC110

DRAWN BY	ML
DESIGNED BY	JGP
APPROVED BY	TSA
SCALE	1:750
DATE	OCTOBER 2025
FILE No.	32122

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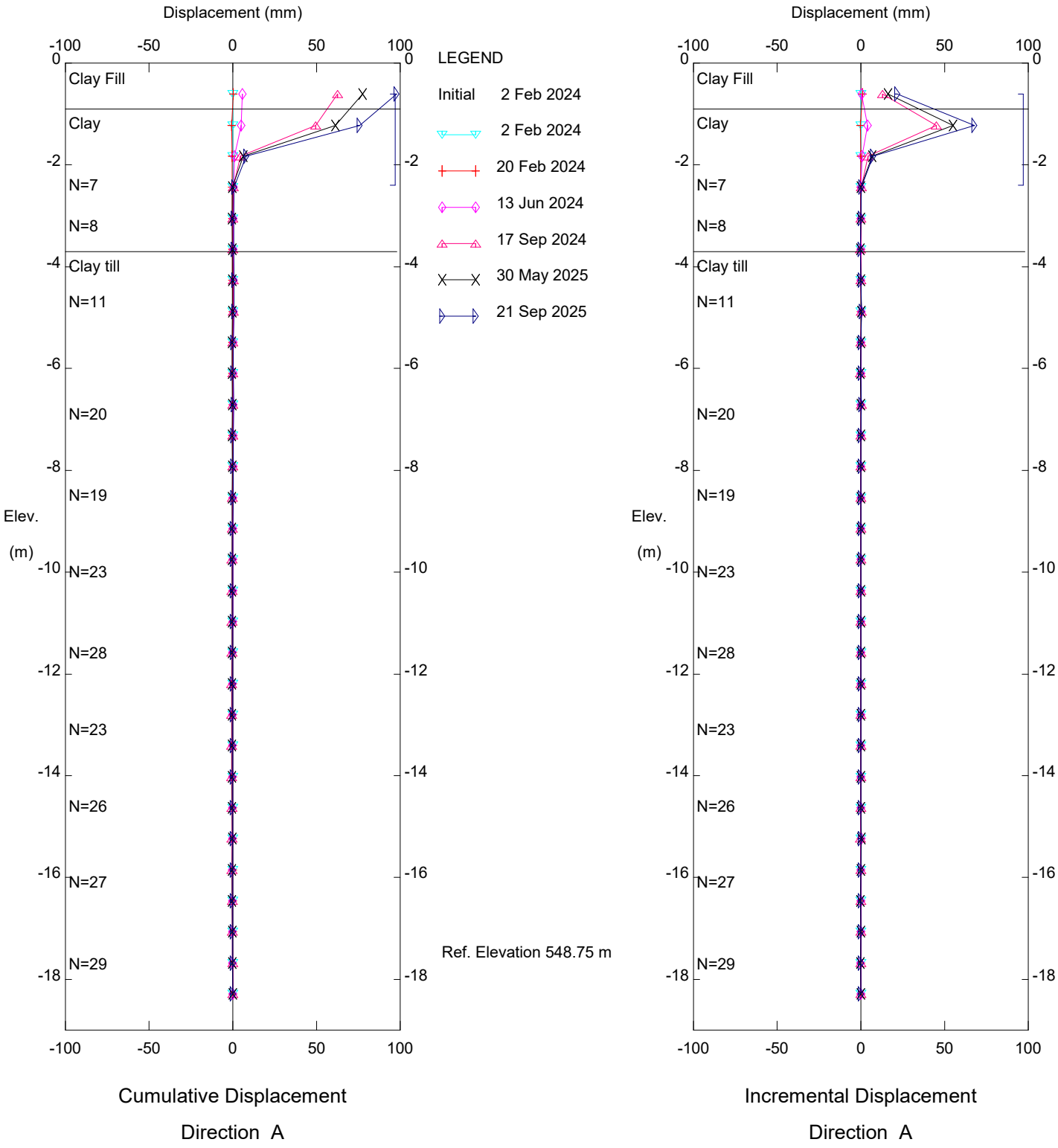

SI24-3, NC110 Wabasca Lake, Inclinometer 24-3

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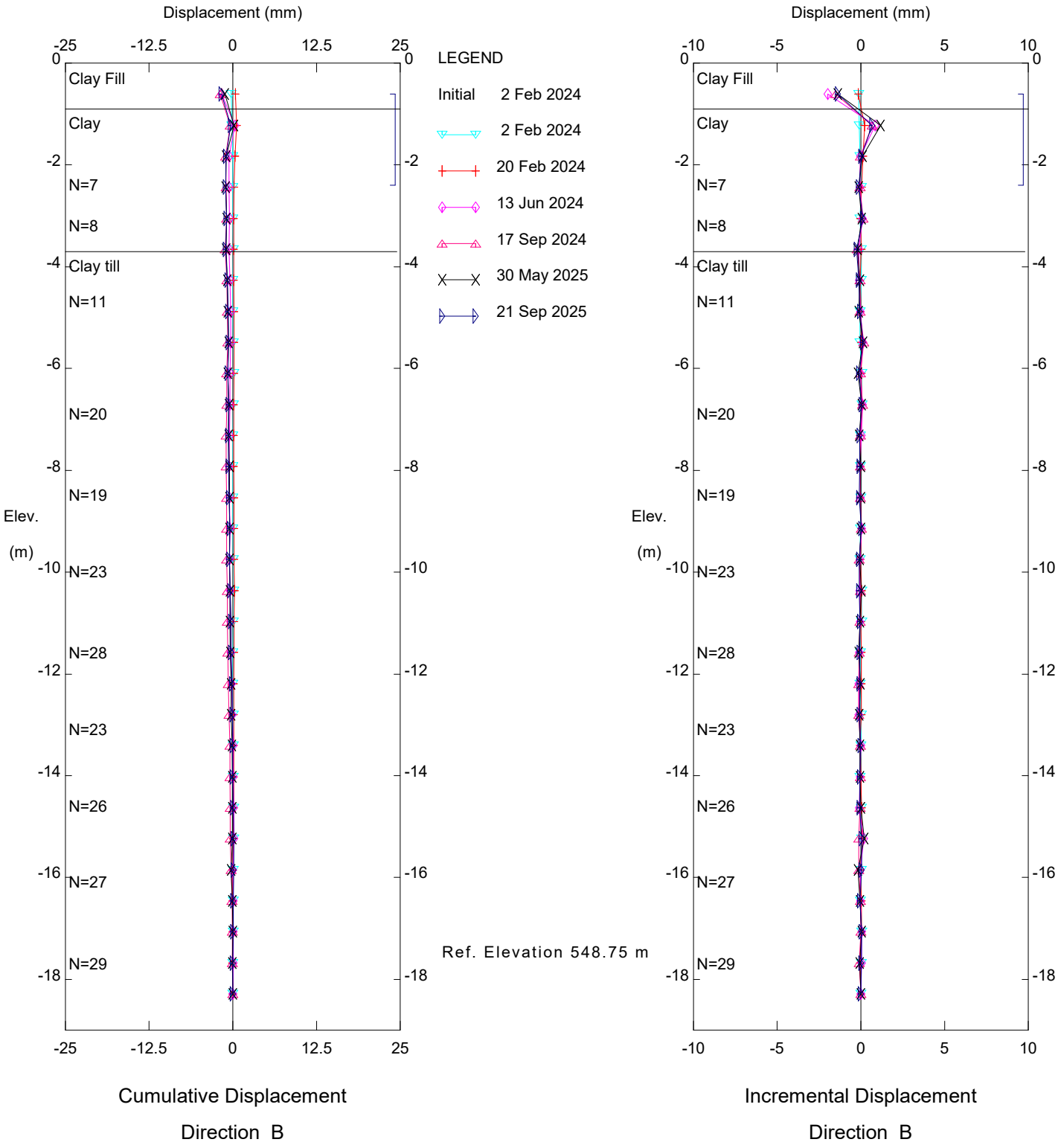

Cumulative Displacement

Direction B

Incremental Displacement

Direction B

SI24-3, NC110 Wabasca Lake, Inclinometer 24-3

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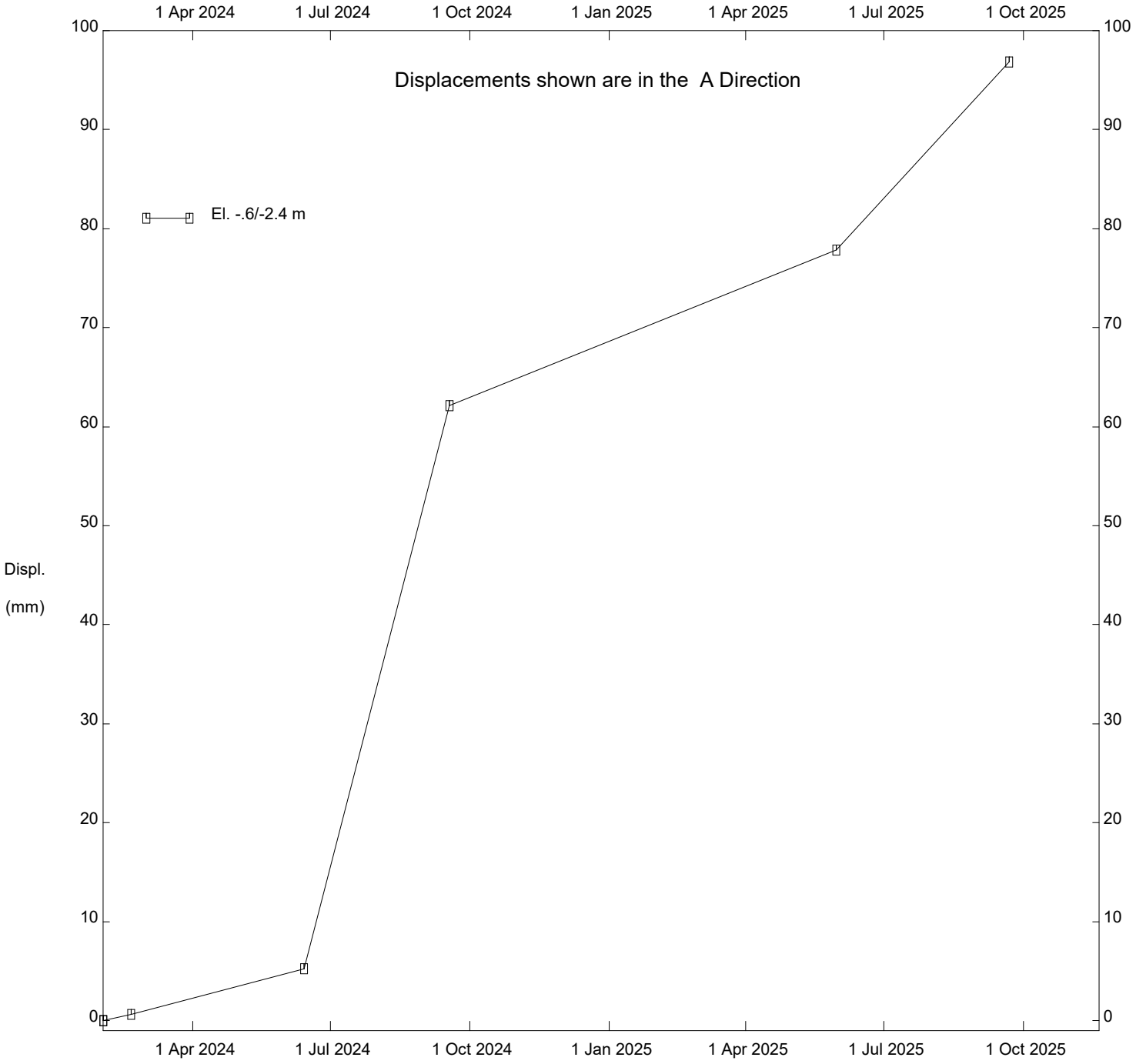

SI24-3, NC110 Wabasca Lake, Inclinometer 24-3

FIGURE NC110 -1
HWY 754:06 (NC110) - WABASCA LAKE PIEZOMETER DEPTHS

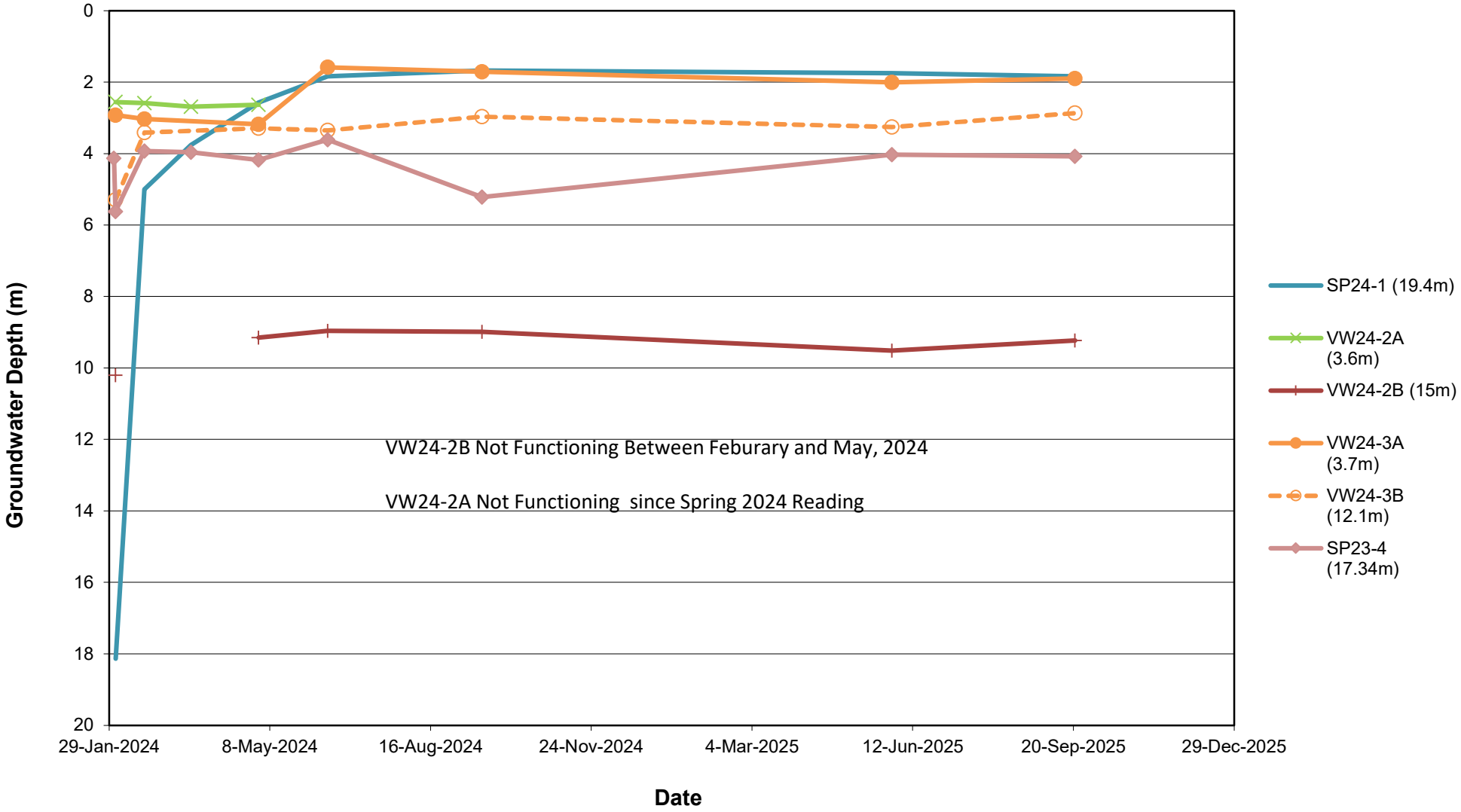

FIGURE NC110-2
HWY 754:06 (NC110) - WABASCA LAKE PIEZOMETER ELEVATIONS